~~Power Plant — AC 27-61015~~ WITHDRAWN

Cement Kiln - AC 27-61016

10/27/0021/03

DER

SEP 30 1982

BAQM

9/29/82

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Cement Kiln/Power Plant [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Cement Kiln-Power Plant Baghouse (E-16)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.008 km North 3162.392 km

Latitude 28 ° 34 ' 57 "N Longitude 82 ° 25 ' 53 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President

Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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)

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC.

Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601

Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse is proposed to control particulate matter emissions from the cement kiln, the clinker cooler, the raw mill and a rotary materials dryer associated with the cement plant and to control emissions from the associated power plant. The emissions from the baghouse will meet applicable emissions standards.

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

Start of Construction March 1983 Completion of Construction December 1984

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.)

$7,000,000 installed cost of baghouse

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes XX No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;
if seasonal, describe: the cement plant will operate 7,620 hours per year and the power plant will operate 7,884 hours per year.

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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 For Cement Plant
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
SEE PAGE 3a				

B. Process Rate, if applicable: (See Section V, Item 1) SEE PAGE 3a

1. Total Process Input Rate (lbs/hr): ______

2. Product Weight (lbs/hr): ______

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SEE PAGE 3a							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse	Part.Matter	99+	>2 μm	Est.

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

Section III-A.

Raw Materials Used

Material	Contaminant	Utilization Rate	Flow Diagram
Rotary Dryer (C-12)			
Limestone Fines	Dust	205,400 lbs/hr	C03
Clay	Dust	19,800 lbs/hr	C04
Raw Mill (E-03)			
Limestone Fines	Dust	205,400 lbs/hr	E01
Clay	Dust	19,800 lbs/hr	E01
Lime Rock	Dust	5,000 lbs/hr	E01
Fly Ash	Dust	17,300 lbs/hr	E01
Kiln (K-02)			
Same as raw mill			
Coal (See fuel use)			K01
Cooler (K-07)			
Clinker	Dust	150,000 lbs/hr	K02 discharge
Power Plant			
Coal (See fuel use)			

Section III-B.

The material input rate and output rate are the same for all operations except for the kiln. For the kiln 247,500 lbs/hr of material are input (see III,A) and 150,000 lbs/hr of clinker is produced.

Section III-C.

Air Pollutants Emitted (Flow Diagram E20)

Contaminant	Emissions (lbs/hr)	Emissions (tpy)	Emission Standard	Uncontrolled Emissions[1] (lbs/hr)	Uncontrolled Emissions[1] (tpy)
Power Plant/Cement Plant					
Part. Matter	94.3	359	NSPS & BACT	9430	35,930
Sulfur Dioxide	638.0	2431	BACT	638	2,431
Nitrogen Oxides	736.0	2805	BACT	736	2,805
Power Plant					
Part. Matter	44.8	177	BACT	4480	17,700
Sulfur Dioxide	537.6	2119	BACT	538	2,119
Nitrogen Oxides	313.6	1236	BACT	314	1,236
Cement Plant					
Part. Matter	49.5	189	NSPS	4950	18,900
Sulfur Dioxide	100.0	381	BACT	400	1,524
Nitrogen Oxides	422.3	1609	BACT	422	1,609

(1) Uncontrolled emissions based on 99 percent control efficiency for particulate matter and 75 percent sulfur dioxide sorption in the cement kiln.

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Kiln - Coal	18,500	20,600	248.0
Power Plant - Coal	33,600	37,400	484.0
Dryer - #2 oil	6.2	6.8	39.11

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis: Oil/Coal

Percent Sulfur: 0.5/0.75 Percent Ash: Nil/10

Density: 7.0/-- lbs/gal Typical Percent Nitrogen: Trace/1.4

Heat Capacity: 19,515/12,000 BTU/lb 136,600/-- BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

F. If applicable, indicate the percent of fuel used for space heating. Annual Average N/A Maximum ______

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

Ash generated in the power plant will be used in the cement plant. All material collected in the bag collector will be recovered and reused.

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

Stack Height: 200 ft. Stack Diameter: 14 ft.

Gas Flow Rate: 397,400/173,400/371,650 ACFM Gas Exit Temperature: 245/330/220 °F.

Water Vapor Content: 16/8/16 % Velocity: 43.0/18.8/40.2 FPS

Power plant and cement plant/power plant only/cement plant only.

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. Section III,A
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. ATTACHMENT 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Section III,C
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, etc.). ATTACHMENT 1
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). 99% for particulate matter.
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 Florida Crushed Stone PSD Application for BACT Review)

A. 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

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [ ] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: 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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

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:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

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*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

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:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

*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 Florida Crushed Stone PSD Application for Air Quality Review)

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.

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

B. 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) ____________________

C. 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.

D. Applicants Maximum Allowable Emission Data

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

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

H. 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.

E - 360.008
N - 3162.392

FORM PI-2 (72-9)

[illegible]
[illegible]

Ht = 200'
dia = 14.0'
Vel = 43.0 fps - includes [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
E 16	

Name of Abatement Device	Type of Particulate Controlled
KILN MILL BAGHOUSE	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{0}F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
300,000	284000 (15%)	485	15	0.0125
	178300 (85%)	230	25	0.0125

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6	0.0408	1000	300000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	20 %	%
0.5-1.0	20 %	%
1.0-5.0	50 %	%
5-10	%	%
10-20	10 %	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
1.7	12	30	1872	18

Bag rows will be: Staggered **Straight**

Walkways will be provided between banks of bags: **Yes** No

Filtering Material: Fiber Glass

Describe Bag Cleaning Method and Cycle: Reverse Air - Variable cycle

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

Kiln, Cooler, Power Plant Emissions - Common Stack

PARTICULATE MATTER

Kiln: Clinker production rate = 75.0 ton/hr

Kiln feed rate = 75 tons/hr x 1.65 tons feed/ton Clinker

= 123.8 tons feed/hr

P.M. = 123.8 tons/hr x 0.3 lb P.M./ton feed

= 37.1 lb/hr

Cooler:

P.M. = 123.8 tons/hr x 0.1 lb P.M./ton feed

= 12.4 lb/hr.

Power Plant: 40 megawatt electric power output

Heat input from fuel (coal) @ 11,200 BTU/KW

= 11,200 BTU/KW x 40,000 KW

= 448.0×10^6 BTU/(hr)

P.M. @ 0.1 lb/10^6 BTU

= 0.1 x 448

= 44.8 lb/hr

Total Part. Matter

= 37.1 + 12.4 + 44.8

= 94.3 lb/hr

or

= 11.88 g/sec

SULFUR DIOXIDE

Kiln: Coal consumption is 10.3 tons/hour with 0.74% Sulfur

Potential SO_2 emissions

= 10.3 tph x 2000 lb/ton x (0.0074 x 2) lb SO_2/lb coal

= 304.9 lb/hr

Actual SO_2 emissions (estimated by Polysius)

= 80.0 lb/hr

or

= 10.08 g/sec

SO_2 sorption = (304.9 - 80.0) x 100 / 304.9

= 73.8%

Cooler: SO_2 emissions = 0.0

Dryer: Heat input from fuel (#2 oil with 0.5% sulfur) is 39.11×10^6 BTU/hr

Fuel Consumption = 39.11×10^6 BTU/hr / 19515 BTU/lb
= 2004 lb/hr
× 1/6.975 lb/gal
= 287 gal/hr

SO_2 = 2004 lb fuel/hr × (0.005×2) lb SO_2/lb fuel
= 20.0 lb/hr
or
= 2.53 g/sec

Power Plant: Heat input from fuel = 448.0×10^6 BTU/hr

SO_2 @ 1.2 lb / 10^6 BTU
= 448.0×10^6 BTU/hr × 1.2 lb SO_2 / 10^6 BTU
= 537.6 lb/hr
or
= 67.74 g/sec

Total SO_2
= 80.0 + 20.0 + 537.6
= 637.6 lb/hr
or
= 80.34 g/sec

NITROGEN OXIDES

Kiln: NO_x = 416.0 lb/hr as NO_2 (estimated by Polysius)

Dryer: NO_x @ 22 lb NO_2/1000 gal (AP-42, supplement 7)
= 22 lb/10^3 gal × 0.287×10^3 gal/hr
= 6.31 lb/hr

Power Plant:
NO_x @ 0.7 lb / 10^6 BTU
= 448×10^6 BTU/hr × 0.7 lb NO_2 / 10^6 BTU
= 313.6 lb/hr

Total NO_x as NO_2
= 416.0 + 6.31 + 313.6 = 735.9 lb/hr
= 92.7 g/sec

CARBON MONOXIDE

Kiln: Zero because of the presence of sufficient excess air

Dryer: CO @ 5 lb/1000gal (AP-42, sup 7)

= 5 x 0.287 x 10³ gal/hr

= 1.4 lb/hr

= 5.5 tpy

Power Plant: CO @ 1 lb / ton of Coal (AP-42)

= 1 x 18.7 tons/hr

= 18.7 lb/hr

= 73.7 tpy

HYDROCARBONS

Kiln: Zero because of excess air and residence time

Dryer: HC @ 1 lb/1000 gal

= 1 x 0.287 x 10³ gal/hr

= 0.3 lb/hr

= 1.1 tpy

Power Plant: HC @ 0.3 lb/ton of coal (AP-42)

= 0.3 x 18.7 tons/hr

= 5.6 lb/hr

= 22.1 tpy

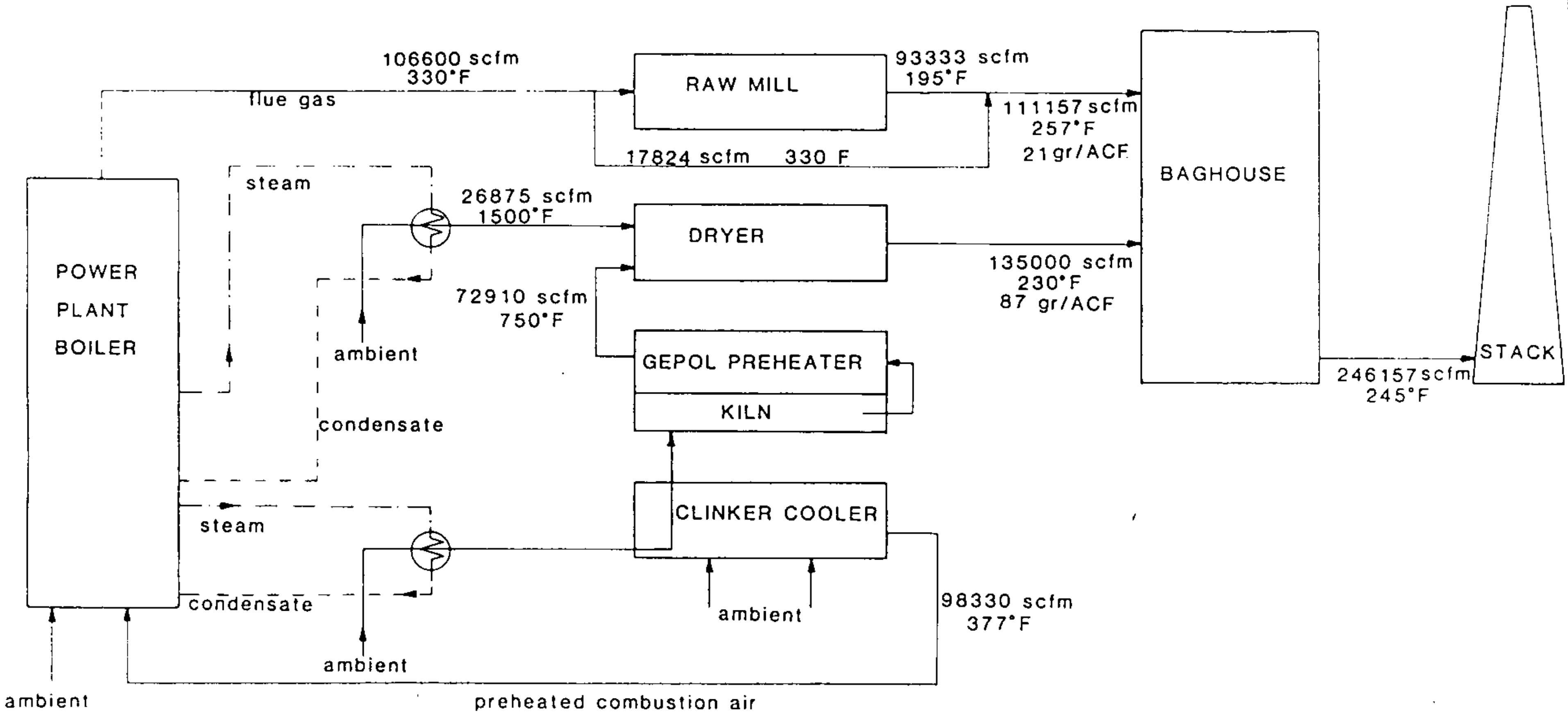

FIGURE 2-3

POWER PLANT OPERATING/CEMENT PLANT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

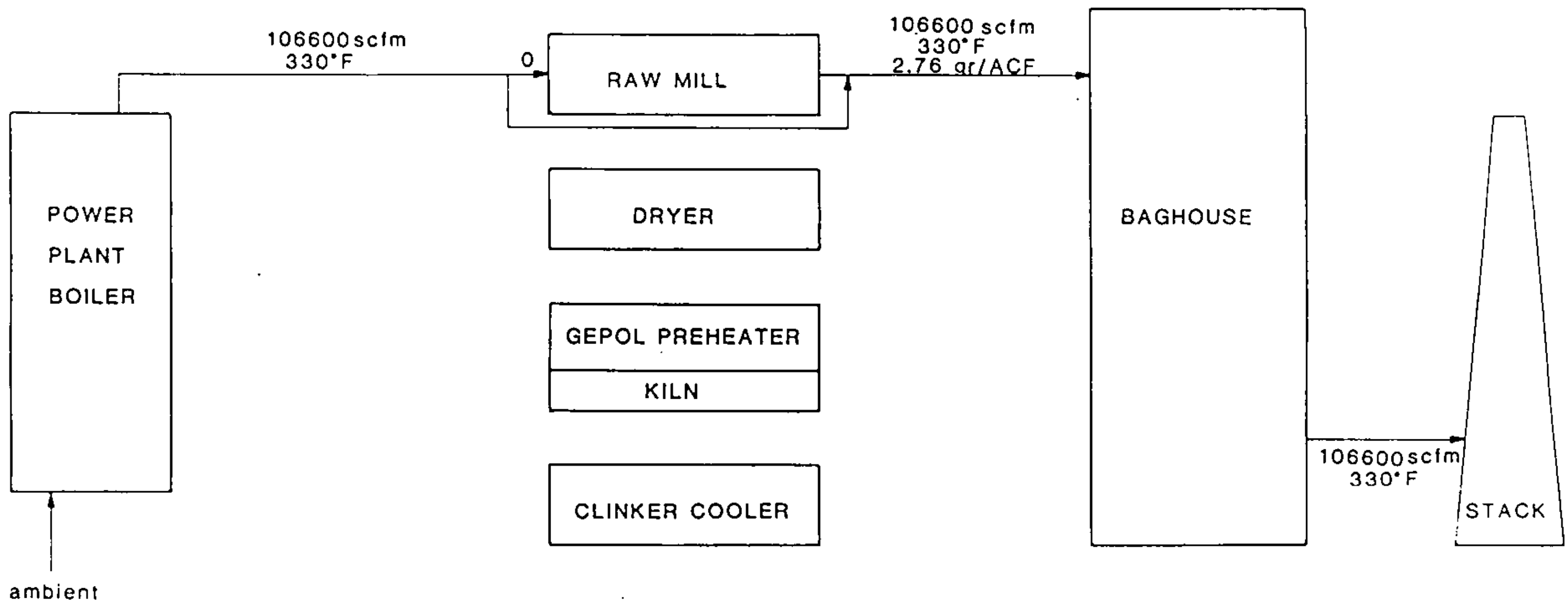

FIGURE 2-4

POWER PLANT OPERATING/CEMENT PLANT NOT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

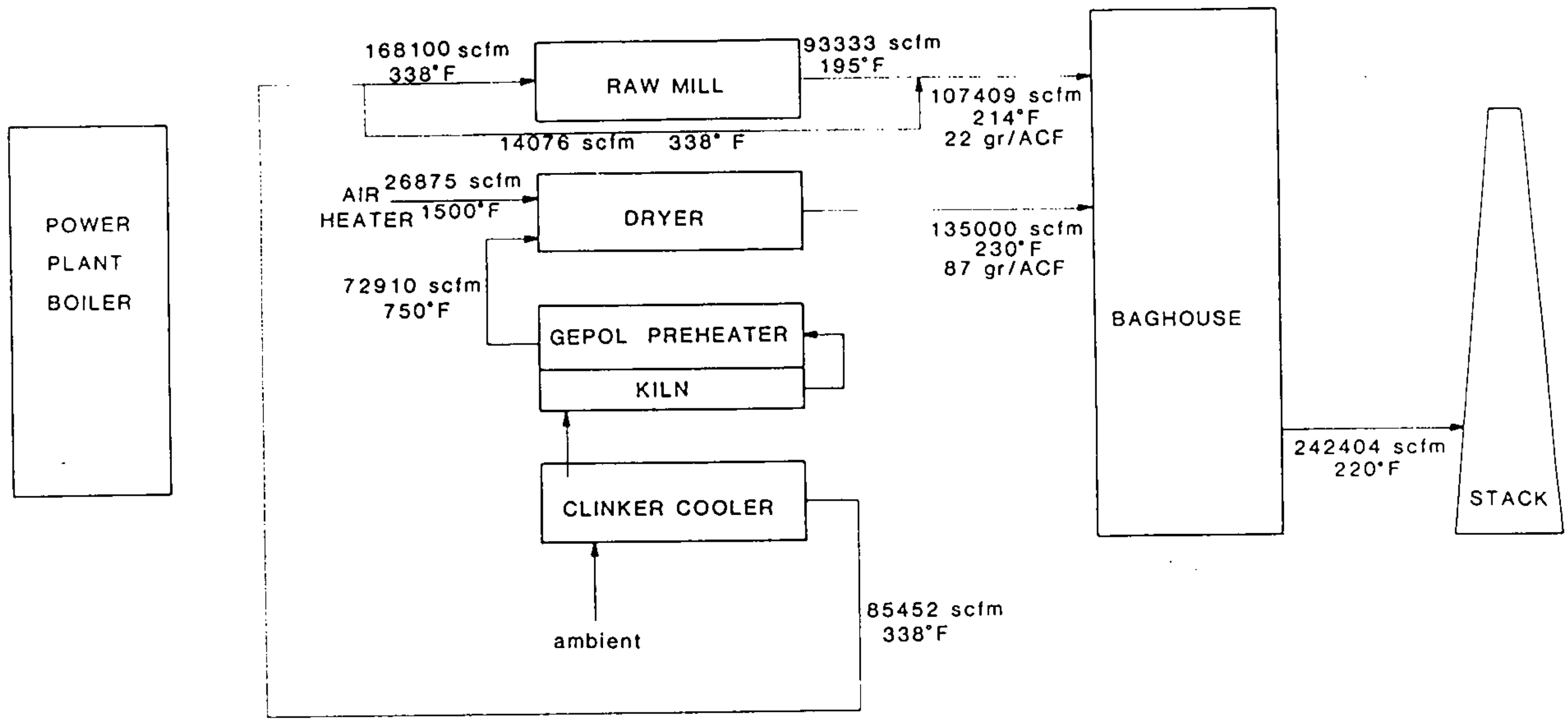

FIGURE 2-5

POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

AC 27-61017 40/27/0021/04

DER

SEP 30 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82

SOURCE TYPE: Raw Meal Transfer [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Raw Meal Transfer Baghouse (F-04)

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APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

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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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JBKoogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC.
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the raw meal area, associated with a new cement manufacturing facility. Emissions from the Fluidor (F-03) and Aeropol (F-09) will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $84,000.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. YES
3. Does the State "Prevention of Significant Deteriorization" (PSD) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Raw Meal	Particulate	2-3	250,000	F-03 and F-09
	Matter			

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

1. Total Process Input Rate (lbs/hr): 250,000
2. Product Weight (lbs/hr): 250,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.6	2.3	17-2.630 FAC	0.6	60	230	F-04
Matter							- -

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Dust collected in baghouse will be returned to the baghouse.

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

Stack Height: 25 ft. Stack Diameter: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 47.2 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.012 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites __2__ TSP __1__ ( ) SO^2* __0__ Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82 (month day year to month day year)

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? _X_ Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? _X_ Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _5_ Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74 (month day year to month day year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.
2. PTMTPW, Unmodified Modified? If yes, attach description.
3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360.030
N - 3162.335

FORM PI-2 (72-9)

P.M. = 5000 x 60 x 0.015 x 1/7000 x [illegible]
= 0.09 g/sec
Ht = 25'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
F 04	
Name of Abatement Device	**Type of Particulate Controlled**
Raw Meal Transfer	Raw meal

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be: Staggered **Straight** (circled)

Walkways will be provided between banks of bags: Yes **No** (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61019 40/27/0021/05

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: RAW MATERIALS BIN ~~Limestone Transfer~~ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Limestone Transfer Baghouse (D-16)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 359.950 km North 3162.477 km

Latitude 28 ° 35 ' 00 "N Longitude 82 ° 25 ' 56 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JBKoogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A dust collector associated with a new cement manufacturing facility to vent a raw material hopper (D-10) and feeder (D-11). Baghouse will have a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $134,500

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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	2-3	800,000	D-10 and D-11
	Matter			

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

1. Total Process Input Rate (lbs/hr): 800,000
2. Product Weight (lbs/hr): 800,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.8	3.0	17-2.630 FAC	0.8	80	300	D-16
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Dust collected in the baghouse will be returned to the process as fines.

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

Stack Height: 15 ft. Stack Diameter: 2.0 ft.

Gas Flow Rate: 8,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 42.3 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.012 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ____________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82

month	day	year		month	day	year
5	26	82	to	9	26	82

Other data recorded ____________________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74

month	day	year		month	day	year
1	1	70	to	12	31	74

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.
2. PTMTPW, Unmodified Modified? If yes, attach description.
3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	See PSD Application	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 359.950
N - 3162.477

FORM PI-2 (72-9)

P.M. = 8000 x 60 x 0.012/7000 x [illegible]
= 0.10 [illegible]

Ht = 15'
dia = 2.0'
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
D16	

Name of Abatement Device	Type of Particulate Controlled
LIMESTONE TRANSFER	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
8000		70	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		20	8000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	80	

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight (circled: Straight)	Yes No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61020

40/27/0021/04

DER

SEP 30 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO ~~OPERATE~~/CONSTRUCT 9/28/82
AIR POLLUTION SOURCES

SOURCE TYPE: Blending Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Blending Silo Baghouse (G-12)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.037 km North 3162.312 km

Latitude 28 ° 34 ' 54 "N Longitude 82 ° 25 ' 52 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed:

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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)

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the blending silos (G-01) associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $386,600.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Raw Meal	Particulate	2-3	250,000	G-01
	Matter			

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

1. Total Process Input Rate (lbs/hr): 250,000
2. Product Weight (lbs/hr): 250,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	3.0	11.3	17-2.630 FAC	3.0	296	1130	G-12
Matter							- -

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 205 ft. Stack Diameter: 3.5 ft.

Gas Flow Rate: 23,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 40.0 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

Manufacturer ______

Date Constructed ______ Model No. ______

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

Stack Height: ______________ ft. Stack Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360.037
N - 3162.312

= 0.37
Ht = 205'
dia = 3.5'
Vel = 40.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
G 12	
Name of Abatement Device	**Type of Particulate Controlled**
BLENDING SILO	Raw Meal

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature ($^{\circ}F$)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
23000		150	30	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
.6		70	23000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	230	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61021

40/27/0031/07

DER

SEP 30 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

9/28/82

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

SOURCE TYPE: Kiln Feed [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Kiln Feed Baghouse (H-15)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.044 km North 3162.306 km

Latitude 28 ° 34 ' 54 "N Longitude 82 ° 25 ' 52 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R C Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC.
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the kiln feed system associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse dust collector with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $168,000.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Raw Meal	Particulate	2-3	250,000	H-05
	Matter			

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

1. Total Process Input Rate (lbs/hr): 250,000
2. Product Weight (lbs/hr): 250,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	1.3	5.0	17-2.630 FAC	1.3	130	500	H-15
Matter							- -

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 50 ft. Stack Diameter: 2.5 ft.

Gas Flow Rate: 10,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 34.1 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82 (month day year to month day year)

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74 (month day year to month day year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.
2. PTMTPW, Unmodified Modified? If yes, attach description.
3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360.544
N - 3162.306

P.D. = 10,000 × 0.015 × 60 × [illegible]
× 0.[illegible]
= 0.15 g/sec
Ht = 50
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
H15	
Name of Abatement Device	**Type of Particulate Controlled**
KILN FEED	RAW MEAL

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
10,000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered / Straight (Straight circled)

Walkways will be provided between banks of bags: Yes / No (No circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61024

DER
SEP 30 1982
BAQM
9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Power Plant Coal Bin [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Power Plant Coal Bin Baghouse S-11

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.080 km North 3162.010 km

Latitude ___ ° ___ ' ___ "N Longitude ___ ° ___ ' ___ "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R C Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: J B Koogler

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

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

(Affix Seal)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the power plant coal storage bin associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $50,400.00

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Coal	Particulate	5	300,000 max.	--
	Matter			

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

1. Total Process Input Rate (lbs/hr): 300,000 max. transfer rate

2. Product Weight (lbs/hr): 300,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.4	1.5	17-2.630 FAC	0.4	40	147	--
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	≥ 2	Estimate
Air to Cloth Ratio	Matter			

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in the baghouse will be returned to the process.

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

Stack Height: 100 ft. Stack Diameter: 1.3 ft.

Gas Flow Rate: 3,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 40.7 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

____

____

____

____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ______ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ______

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.
2. PTMTPW, Unmodified Modified? If yes, attach description.
3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application ______ grams/sec
SO^2	______ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

P.M. = 3000 × 60 × 0.015 × 1/7000 × 0.126
= 0.03 g/sec
Ht = 100'
dia = 1.3'
Vel = 40.7 fps

340.080
3162.010

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)

Name of Abatement Device	Type of Particulate Controlled
Power plant coal bin.	COAL

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
3000		70	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		10	3000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	30	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered **Straight** (circled)	Yes **No** (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

JUL 16 1982

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61026 40/27/0021/08

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: COAL HANDLE ~~Raw Coal Bin~~ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Raw Coal Bin (S-04)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.102 km North 3162.210 km

Latitude 28 ° 34 ' 51 "N Longitude 82 ° 25 ' 50 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC.
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent a coal storage bin associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with an air to cloth ratio of 6.5-1.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $50,400.00

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ___ ;
if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Coal	Particulate	5	300,000 max.	--
	Matter			

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

1. Total Process Input Rate (lbs/hr): 300,000 max. transfer
2. Product Weight (lbs/hr): 300,000 max.

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.4	1.5	17-2.630 FAC	0.4	40	150	--
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	> 2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 100 ft. Stack Diameter: 1.3 ft.

Gas Flow Rate: 3,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 40.7 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

Manufacturer ______

Date Constructed ______ Model No. ______

	Volume (ft)^3	Heat Release (BTU/hr)	Fuel		Temperature (^{o}F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: ______________ ft. Stack Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. See Section 3A

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. See Attachment 1

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency

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, etc.). See Attachment 1

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). Estimated to be 99+ percent

6. An 8½" 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. See Attachment Package

7. An 8½" 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). See Attachment Package

8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ______ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ______

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.
2. PTMTPW, Unmodified Modified? If yes, attach description.
3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	See PSD Application	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

P.M. = 3000 × 60 × 0.015 × 1/7000 × 0.126
= 0.05 g/sec
Ht = 100'
dia = 1.3'
Vel = 40.7 fps

360.102
3162.210

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
S-04	
Name of Abatement Device	**Type of Particulate Controlled**
RAW COAL BIN	COAL

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
3000		70	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		10	3000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	30	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered / Straight (circled: Straight)	Yes / No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

JUL 16 1982

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61027

40/27/0021/09

DER

SEP 30 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO ~~OPERATE~~/CONSTRUCT 9/28/82
AIR POLLUTION SOURCES

SOURCE TYPE: Cooler Discharge [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Cooler Discharge ~~(L-14)~~ (L-16)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.086 km North 3162.200 km

Latitude 28 ° 34 ' 51 "N Longitude 82 ° 25 ' 50 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R C Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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)

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the transfer of clinker from the clinker cooler to the bucket conveyor associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with an air to cloth ratio of 6.5-1.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $84,000

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. YES
3. Does the State "Prevention of Significant Deteriorlation" (PSD) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Clinker	Particulate	2-3	150,000	K-07 and L-03
	Matter			

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

1. Total Process Input Rate (lbs/hr): 150,000
2. Product Weight (lbs/hr): 150,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.6	2.3	17-2.630 FAC	0.6	60	230	L-14
Matter							- -

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Dust collected in the baghouse will be returned to the process as fines.

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

Stack Height: 10 ft. Stack Diameter: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 47.2 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ________ 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.): ________

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ____________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ____________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	See PSD Application	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360.086

N - 3162.200

FORM PI-2 (72-9)

[illegible]
= 0.08 g/sec
Ht = 10'
dia = 1.5'
Vel = 47.2 [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
L14	
Name of Abatement Device	**Type of Particulate Controlled**
COOLER DISCHARGE	Clinker

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
5000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be: ___Staggered ___Straight (circled: Straight)

Walkways will be provided between banks of bags: ___Yes ___No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61029

ELIMINATED

DER

SEP 30 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO ~~OPERATE~~/CONSTRUCT 9/28/82
AIR POLLUTION SOURCES

SOURCE TYPE: Gypsum Storage Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

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

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.080 km North 3162.010 km

Latitude ___ ° ___ ' ___ "N Longitude ___ ° ___ ' ___ "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R C Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector venting the gypsum storage silo, associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $50,400.00

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ___ ;
if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Gypsum	Particulate	2-3	80,000	--
	Matter			

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

1. Total Process Input Rate (lbs/hr): 80,000

2. Product Weight (lbs/hr): 80,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.4	1.5	17-2.630 FAC	0.4	40	152	--
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 25 ft. Stack Diameter: 1.3 ft.

Gas Flow Rate: 3,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 40.7 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
(month day year) (month day year)

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
(month day year) (month day year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application ________ grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360. 080
N - 3162. 010

FORM PI-2 (72-9)

PM = 3000×60×0.015×1/7000×0.126
= 0.05 g/sec.

Ht = 25'
dia = 1.3'
Vel = 40.7 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
Name of Abatement Device	**Type of Particulate Controlled**
GYPSUM SILO	GYPSUM

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
3000		70	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		10	3000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	30	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61030 40/27/0021/10

DER

SEP 30 1982

BAQM

9/28/82

3 Storage Silos

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Clinker Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Clinker Silo Baghouse ~~(L-12)~~ (L-06)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.114 km North 3162.137 km

Latitude 28 ° 34 ' 49 "N Longitude 82 ° 25 ' 49 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R.C. Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: J.B. Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent clinker bin (L-06), limestone bin (L-10) and gypsum bin (L-11), associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with an air to cloth ratio of 6.5-1.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $168,000.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. YES
3. Does the State "Prevention of Significant Deteriorlation" (PSD) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Clinker	Particulate	2-3	150,000	L-06
	Matter			

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

1. Total Process Input Rate (lbs/hr): 150,000
2. Product Weight (lbs/hr): 150,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	1.3	5.0	17-2.630 FAC	1.3	130	500	L-12
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5] If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ________ Maximum ________

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

Material collected in baghouse will be returned to the process

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

Stack Height: 200 ft. Stack Diameter: 2.5 ft.

Gas Flow Rate: 10,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 34.1 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ____________

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

Approximate Number of Hours of Operation per day ____________ days/week ____________

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A

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. See Attachment 1

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency

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, etc.). See Attachment 1

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). Estimated to be 99+ percent

6. An 8½" 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. See Attachment Package

7. An 8½" 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). See Attachment Package

8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ____________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 (month / day / year) to 9 / 26 / 82 (month / day / year)

Other data recorded ____________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 (month / day / year) to 12 / 31 / 74 (month / day / year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	____________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360.114
N - 3162.137

FORM PI-2 (72-9)

PM = 10,000 ...
= 0.16 ...
Ht = 200'
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
L12	
Name of Abatement Device	**Type of Particulate Controlled**
CLINKER SILO	CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10,000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10,000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered **Straight**

Walkways will be provided between banks of bags: Yes **No**

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61032

40/27/0021/11

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Clinker Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Clinker Silo Baghouse (L-13)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.108 km North 3162.125 km

Latitude 28 ° 37 ' 48 "N Longitude 82 ° 26 ' 00 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R C Entorf

Richard C. Entorf, Senior Vice-President

Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

Name (Please Type)

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC

Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601

Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the clinker storage silo, associated with a new cement manufacturing facility. Particulate matter emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $168,000.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.

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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Clinker	Particulate	2-3	150,000	L-05
	Matter			

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

1. Total Process Input Rate (lbs/hr): 150,000
2. Product Weight (lbs/hr): 150,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	1.3	5.0	17-2.630 FAC	1.3	130	500	L-13
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	> 2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 200 ft. Stack Diameter: 2.5 ft.

Gas Flow Rate: 10,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 34.1 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	See PSD Application	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

E - 360.108

N - 3162.125

FORM PI-2 (72-9)

P.M. = [illegible]

= 0.[illegible]

Ht = 200'

dia = 2.5'

Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
L13	
Name of Abatement Device	**Type of Particulate Controlled**
CLINKER SILO	CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
10,000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10,000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered Straight (circled: Straight)

Walkways will be provided between banks of bags: Yes No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61033
40/27/0021/12

DER
SEP 30 1982
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Silo Discharges ~~Clinker Silo~~ ~~Discharge~~ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Clinker Silo Discharge Baghouse (M-18)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.105 km North 3162.125 km

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the clinker handling equipment under silo (L-05), associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $84,000.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52; if power plant, hrs/yr ____;
if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Clinker	Particulate	2-3	190,000	L-05
	Matter			

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

1. Total Process Input Rate (lbs/hr): 190,000
2. Product Weight (lbs/hr): 190,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.6	2.3	17-2.630 FAC	0.6	60	230	M-18
Matter							- -

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 25 ft. Stack Diameter: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 47.2 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ______ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ______

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	See PSD Application	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

360.105
3162.125

P.M. = 5000 x 30 x 0.015 x 1/7000 [illegible]
= 0.033 g/sec

Ht = 25'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
M 18	
Name of Abatement Device	**Type of Particulate Controlled**
CLINKER SILO DISCHARGE	CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered / Straight (circled: Straight)	Yes / No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

-AC-27-61034-

Now Part of AC 27-61033

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Lime Stone Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Lime Stone Silo Baghouse (M-19)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.105 km North 3162.143 km

Latitude ___ ° ___ ' ___ "N Longitude ___ ° ___ ' ___ 'W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector venting the discharge and weighing equipment under silos (L-06), (L-10) and (L-11) associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $50,400.00

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;
if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Lime Stone	Particulate	2-3	80,000	M-05
	Matter			

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

1. Total Process Input Rate (lbs/hr): 80,000
2. Product Weight (lbs/hr): 80,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	0.4	1.5	17-2.630 FAC	0.4	40	152	M-19
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>.2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 25 ft. Stack Diameter: 1.3 ft.

Gas Flow Rate: 3,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 40.7 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

Manufacturer ______

Date Constructed ______ Model No. ______

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

Stack Height: ______ ft. Stack Diameter ______ 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.): ______

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.
2. PTMTPW, Unmodified Modified? If yes, attach description.
3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

E - 360.105
N - 3162.142

PM = 3000 × 60 × 0.015 × /7000 × [illegible]
= 0.05 g/sec

Ht = 25'
dia = 1.3'
Vel = 40.7 fps

TABLE II
FABRIC FILTERS

<table>
<tr><td colspan="6">Point Number (from Flow Diagram)
M 19</td><td colspan="6">Manufacturer & Model No. (if available)</td></tr>
<tr><td colspan="6">Name of Abatement Device
LIMESTONE SILO</td><td colspan="6">Type of Particulate Controlled
LIMESTONE</td></tr>
<tr><td colspan="12">GAS STREAM CHARACTERISTICS</td></tr>
<tr><td colspan="4">Flow Rate (acfm)</td><td colspan="4">Gas Stream Temperature (^{o}F)</td><td colspan="4">Particulate Grain Loading (grain/scf)</td></tr>
<tr><td colspan="2">Design Maximum</td><td colspan="2">Average Expected</td><td colspan="4"></td><td colspan="2">Inlet</td><td colspan="2">Outlet</td></tr>
<tr><td colspan="2">3000</td><td colspan="2"></td><td colspan="4">70</td><td colspan="2">10</td><td colspan="2">0.015</td></tr>
<tr><td colspan="4">Pressure Drop (in. H_2O)
6</td><td colspan="4">Water Vapor Content of Effluent Stream (lb water/lb dry air)</td><td colspan="4">Fan Requirements
(hp) 10   (ft^3/min) 3000</td></tr>
<tr><td colspan="12">PARTICULATE DISTRIBUTION
(By Weight)</td></tr>
<tr><td colspan="4">Micron Range</td><td colspan="4">Inlet</td><td colspan="4">Outlet</td></tr>
<tr><td colspan="4">0.0-0.5</td><td colspan="4">%</td><td colspan="4">%</td></tr>
<tr><td colspan="4">0.5-1.0</td><td colspan="4">%</td><td colspan="4">%</td></tr>
<tr><td colspan="4">1.0-5.0</td><td colspan="4">%</td><td colspan="4">%</td></tr>
<tr><td colspan="4">5-10</td><td colspan="4">%</td><td colspan="4">%</td></tr>
<tr><td colspan="4">10-20</td><td colspan="4">%</td><td colspan="4">%</td></tr>
<tr><td colspan="4">over 20</td><td colspan="4">%</td><td colspan="4">%</td></tr>
<tr><td colspan="12">FILTER CHARACTERISTICS</td></tr>
<tr><td colspan="2">Filtering Velocity (acfm/ft^2 of Cloth)
6.5</td><td colspan="2">Bag Diameter (in.)
6</td><td colspan="2">Bag Length (ft)
10</td><td colspan="3">Number of Bags
30</td><td colspan="3">Number of Compartments in Baghouse
1</td></tr>
<tr><td colspan="5">Bag rows will be:
Staggered   Straight</td><td colspan="7">Walkways will be provided between banks of bags:
Yes   No</td></tr>
<tr><td colspan="12">Filtering Material: POLYESTER</td></tr>
<tr><td colspan="12">Describe Bag Cleaning Method and Cycle: PULSE JET</td></tr>
<tr><td colspan="12"></td></tr>
<tr><td colspan="12">ADDITIONAL INFORMATION</td></tr>
</table>

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what

~~AC 27-61036~~

Now Part of
AC 27-61033

DER
SEP 30 1982
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

9/28/82

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

SOURCE TYPE: Cement Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Cement Silo Baghouse (M-20)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.123 km North 3162.133 km

Latitude ___ ° ___ ' ___ "N Longitude ___ ° ___ ' ___ "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: [signature]

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: [signature]

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the clinker handling equipment and/or cement loading equipment under silo (Q-01), associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $134,500.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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

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

Description	Contaminants Type	Contaminants % Wt	Utilization Rate - lbs/hr	Relate to Flow Diagram
Cement	Particulate	2-3	200,000	M-17
	Matter			

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

1. Total Process Input Rate (lbs/hr): 200,000 max.

2. Product Weight (lbs/hr): 200,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1] Maximum lbs/hr	Emission[1] Actual T/yr	Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4] lbs/hr	Potential Emission[4] T/yr	Relate to Flow Diagram
Particulate	1.0	3.9	17-2.630 FAC	1.0	100	390	M-20
Matter							- -

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 25 ft. Stack Diameter: 2.0 ft.

Gas Flow Rate: 8,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 42.3 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
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8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ______ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ______

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application ______ grams/sec
SO^2	______ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

E - 36[illegible].123
N - 3762.133

PM = 8000 x 60 x 0.015 / 7000 [illegible]
= 0.10[illegible]

Ht = 25'
dia = 2.0'
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
M 20	
Name of Abatement Device	**Type of Particulate Controlled**
CEMENT SILO	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
8000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		20	8000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	80	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered **Straight** (circled)	Yes **No** (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61037

40/27/0021/13

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Finish Mill [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Finish Mill Baghouse (N-13)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.111 km North 3162.133 km

Latitude 28 ° 34 ' 49 "N Longitude 82 ° 25 ' 49 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JBK

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the finish mill, which grinds cement clinker and gypsum associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $773,000

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;
if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Cement	Particulate	2-3	200,000	N-12
	Matter			

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

1. Total Process Input Rate (lbs/hr): 200,000
2. Product Weight (lbs/hr): 200,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	5.9	22.5	17-2.630 FAC	5.9	590	2250	N-13
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in the baghouse will be returned to the process

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

Stack Height: 100 ft. Stack Diameter: 5 ft.

Gas Flow Rate: 46,000 ACFM Gas Exit Temperature: 200 °F.

Water Vapor Content: 2-3 % Velocity: 39.0 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
month day year month day year

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

E - 363.111
N - 3162.133

PM = 46,000 × 0.014 × 60 × 1/7000 × ...
= 0.70 g/sec
Ht = 100'
dia = 5.0'
Vel = 39.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
N 13	
Name of Abatement Device	**Type of Particulate Controlled**
FINISH MILL	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
46,000		200	200	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6	0.043	250	46,000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
5	6	10	600	ONE

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61038   40/27/0021/14

NOW TWO BAGHOUSES

DER
SEP 30 1982
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

9/28/82

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

SOURCE TYPE: Cement Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Cement Silo Discharge Baghouse D ~~(Q-08)~~ (Q-17)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.125 km North 3162.100 km

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ 'W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R C Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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)

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent the bulk loading equipment under silo (Q-01), associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $134,500

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ;

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Cement	Particulate Matter	2-3	400,000	Q-05

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

1. Total Process Input Rate (lbs/hr): 400,000
2. Product Weight (lbs/hr): 400,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate Matter	1.0	3.9	17-2.630 FAC	1.0	100	390	Q-08

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1 Air to Cloth Ratio	Particulate Matter	99+%	>2	Estimate

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 0.1 pounds per million BT heat input)

[3]Calculated from operating rate and applicable standard

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

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process as fines.

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

Stack Height: 25 ft. Stack Diameter: 1.5 ft.

Gas Flow Rate: 8,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 42.3 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Departmen of Environmental Regulation.

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

See Attached PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/ACF

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ____________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82 (month day year to month day year)

Other data recorded ____________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74 (month day year to month day year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application grams/sec
SO^2	____________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

Locate all at
360.125
3162.100

PM = 8000 x 60 x 0.015 x 1/7000 x 0.126
= 0.13 g/sec, each source
Ht = 25'
dia = 1.5'
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
Q 08 (4 Units)	
Name of Abatement Device	**Type of Particulate Controlled**
CEMENT SILO DISCHARGE	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
8000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		20	8000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	80	1

Bag rows will be: Staggered / **Straight** (circled)

Walkways will be provided between banks of bags: Yes / **No** (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. **Details regarding principle of operation**

B. **An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.**

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61040

40/27/0021/15

NOW ONLY 3 SILOS

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Cement Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Cement Silo Baghouse E ~~(Q-09)~~ Q-15

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.125 km North 3162.110 km

Latitude 28 ° 34 ' 48 "N Longitude 82 ° 25 ' 49 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R. C. Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent it's associated cement storage silo, associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with a 6.5-1 air to cloth ratio.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $202,000.

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ___ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ___

if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Cement	Particulate	2-3	200,000	P-06
	Matter			

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

1. Total Process Input Rate (lbs/hr): 200,000
2. Product Weight (lbs/hr): 200,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	1.5	5.9	17-2.630 FAC	1.5	150	590	Q-09
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+%	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ____________ Maximum ____________

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

Material collected in baghouse will be returned to silo

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

Stack Height: 200 ft. Stack Diameter: 2.5 ft.

Gas Flow Rate: 12,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 40.7 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ____________

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

Approximate Number of Hours of Operation per day ____________ days/week ____________

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 Diameter ______________ 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.):

____

____

____

____

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A

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. See Attachment 1

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency

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, etc.). See Attachment 1

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). Estimated to be 99+ percent

6. An 8½" 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. See Attachment Package

7. An 8½" 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). See Attachment Package

8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites ___2___ TSP ___1___ ( ) SO^2* ___0___ Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
(month / day / year to month / day / year)

Other data recorded ____________________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? _X_ Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? _X_ Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. ___5___ Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
(month / day / year to month / day / year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application ________ grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

Locate all at
360.125
3163.110

PM = 12000 x 60 x 0.015 x 1/7000 x [illegible]
= 0.19 g/sec, each source
Ht = 200'
dia = 2.5'
Vol = 40.7 ft3

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
Q 09 (5 Units)	
Name of Abatement Device	**Type of Particulate Controlled**
CEMENT SILO	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
12000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		30	12000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	120	1

Bag rows will be: Staggered **Straight**

Walkways will be provided between banks of bags: Yes **No**

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61041 40/27/0021/16

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Masonry Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Masonry Silo Baghouse A (R-16)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.147 km North 3162.047 km

Latitude 28 ° 34 ' 46 "N Longitude 82 ° 25 ' 48 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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: JB Koogler

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

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

(Affix Seal)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent a masonry cement silo associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with an air to cloth ratio of 6.5-1.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $168,000.00

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Cement	Particulate	2-3	100,000	P-06
	Matter			

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

1. Total Process Input Rate (lbs/hr): 100,000 max.
2. Product Weight (lbs/hr): 100,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	1.3	5.0	17-2.630 FAC	1.3	130	495	R-16
Matter							

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1	Particulate	99+ %	>2	Estimate
Air to Cloth Ratio	Matter			

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in the baghouse will be returned on the process

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

Stack Height: 80' ft. Stack Diameter: 2.5 ft.

Gas Flow Rate: 10,000 ACFM Gas Exit Temperature: 150 °F.

Water Vapor Content: 2-3 % Velocity: 34.1 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ____________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A

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. See Attachment 1

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency

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, etc.). See Attachment 1

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). Estimated to be 99+ percent

6. An 8½" 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. See Attachment Package

7. An 8½" 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). See Attachment Package

8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ________ no sites 2 TSP 1 ( ) SO^2* 0 Wind spd/dir

Period of monitoring 5 / 26 / 82 to 9 / 26 / 82
(month day year to month day year)

Other data recorded ________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? X Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? X Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
(month day year to month day year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application ________ grams/sec
SO^2	________ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

Locate all at
360.147
3162.047

FORM PI-2 (72-9)

P.M = 10,000 × 60 × 0.015 × 1/7000 × 0.1[illegible]
= 0.16 g/sec, each source
Ht = 80'
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
R16 (3 units)	
Name of Abatement Device	**Type of Particulate Controlled**
MASONRY SILO	

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10,000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10,000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

AC 27-61042

40/27/0021/17

DER

SEP 30 1982

BAQM

9/28/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

SOURCE TYPE: Packing Plant [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Crushed Stone Company COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Packing Plant (R-14)

SOURCE LOCATION: Street Cobb Road, 2 miles N.W. of City Brooksville

UTM: East 360.155 km North 3612.032 km

Latitude 28 ° 34 ' 45 "N Longitude 82 ° 25 ' 48 "W

APPLICANT NAME AND TITLE: Richard C. Entorf, Senior Vice-President

APPLICANT ADDRESS: Post Office Box 317, Leesburg, Florida 32748

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Crushed Stone Company

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. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RC Entorf

Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 9/29/82 Telephone No. (904) 787-0608

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 have 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 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)

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS INC
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 9/29/82 Telephone No. (904) 377-5822

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

A baghouse dust collector to vent a cement bag packing machine associated with a new cement manufacturing facility. Emissions will be controlled by a baghouse with an air to cloth ratio of 6.5-1.

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

Start of Construction March, 1983 Completion of Construction December, 1984

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.)

Installed Cost - $168,000.00

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

None

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52; if power plant, hrs/yr ____;
if seasonal, describe: Annual operating factor = 87% or 7620 hours/year

G. 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? --
   b. If yes, has "Lowest Achievable Emission Rate" been applied? --
   c. If yes, list non-attainment pollutants.
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) requirements 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? NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

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

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		
Cement	Particulate Matter	2-3	100,000	R-07

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

1. Total Process Input Rate (lbs/hr): 100,000
2. Product Weight (lbs/hr): 100,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate Matter	1.3	5.0	17-2.630 FAC	1.3	130	495	R-14

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Baghouse with 6.5-1 Air to Cloth Ratio	Particulate Matter	99+%	>2	Estimate

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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. Annual Average ______ Maximum ______

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

Material collected in baghouse will be returned to the process

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

Stack Height: 55 ft. Stack Diameter: 2.5 ft.

Gas Flow Rate: 10,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 34.1 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste ______

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

Approximate Number of Hours of Operation per day ______ days/week ______

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 Diameter ______________ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. See Section 3A
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. See Attachment 1
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). Based on 99 percent control efficiency
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, etc.). See Attachment 1
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). Estimated to be 99+ percent
6. An 8½" 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. See Attachment Package
7. An 8½" 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). See Attachment Package
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. See Attachment Package

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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 PSD Application for PSD Analysis

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 gr/acf

D. Describe the existing control and treatment technology (if any). None

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. ____________ no sites ___2___ TSP ___1___ ( ) SO^2* ___0___ Wind spd/dir

Period of monitoring 5 / 26 / 82 (month / day / year) to 9 / 26 / 82 (month / day / year)

Other data recorded ____________

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? _X_ Yes ___ No

b) Was instrumentation calibrated in accordance with Department procedures? _X_ Yes ___ No ___ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _5_ Year(s) of data from 1 / 1 / 70 (month / day / year) to 12 / 31 / 74 (month / day / year)

2. Surface data obtained from (location) Tampa

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

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

C. Computer Models Used

1. CRSTER, Modified (See PSD Application) Modified? If yes, attach description.

2. PTMTPW, Unmodified Modified? If yes, attach description.

3. ISC - LT, Unmodified 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.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	See PSD Application ____ grams/sec
SO^2	____ grams/sec

E. Emission Data Used in Modeling

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

F. Attach all other information supportive to the PSD review.

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

G. 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.

See PSD Application

H. 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.

FORM PI-2 (72-9)

E – 360.157
N – 3162.032

PM = 10,000 × 60 × 0.015 × [illegible]
= 0.15 g/sec
Ht = 55'
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
R 14	
Name of Abatement Device	**Type of Particulate Controlled**
PACKING PLANT	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
10,000		70	15	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered **Straight**

Walkways will be provided between banks of bags: Yes **No**

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

PSD-FL-[illegible] [illegible]
[illegible] Cement plant

APPLICATION FOR STATE & FEDERAL
PSD APPROVAL

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

SEPTEMBER, 1982

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.
1213 NW 6TH STREET
GAINESVILLE, FLORIDA 32601
(904) 377-5822

SHOLTES KOOGLER

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(Continued)

TABLE OF CONTENTS

1.0 INTRODUCTION

Florida Crushed Stone is a major producer of construction aggregates, silica sand, lime rock base material and chemical lime. The company is located principally in Florida with offices in Leesburg, Florida.

Florida Crushed Stone proposes to construct a 600,000 tons per year Portland Cement plant and a 40 megawatt cogeneration coal-fired power plant on property owned by the company northwest of Brooksville, Florida. Presently located at the site of the cement plant is a lime plant, a limerock plant and an aggregate plant, all owned by Florida Crushed Stone.

The power plant proposed by Florida Crushed Stone will produce the electric power requirements for the existing facilities on site (12 megawatts) and for the proposed cement plant (13 megawatts). A portion of the steam generated in the power plant (greater than five percent) will be used to preheat air that will be used in the cement plant. Excess steam will be used to generate additional electric power (12-13 megawatts) which will be sold through an electric power company connected with the Florida electric power grid. The sulfur content of the coal used to fire the power plant will have an equivalent sulfur content of approximately 0.75 percent.

The cement plant proposed by Florida Crushed Stone will utilize the latest in dry process cement technology. The cement kiln will be equipped with a Gepol counter-flow preheater which provides a significant fuel reduction in the overall kiln system. The kiln will be fired with coal with approximately 0.75 percent equivalent sulfur content.

The cement plant clinker cooler will be of the inclined-grate design. A portion of the cooler air will be used as combustion air in the rotary kiln and the remainder will be used as combustion air in the power boiler. This design completely utilizes the heat content of the cooler gas and eliminates an air pollution control system designed specifically for the clinker cooler.

During normal plant operations, approximately 85 percent of the combustion gases from the power boiler will be used to dry raw material being fed to the cement plant. The gases discharged from the raw mill will be recombined with the remaining power plant combustion gases and discharged into the power plant-cement kiln bag collector. All of the gases discharged from the cement kiln will also be used to dry raw materials for the cement plant in a rotary dryer. This dryer will also be vented through the power plant-kiln bag collector.

All of the dry raw materials handling facilities at the plant and the facilities for handling the intermediate products and the finished cement will be enclosed and vented. The vent gases will pass through fabric filters before being discharged to the atmosphere. Raw materials storage and other potential sources of particulate matter emissions at the proposed plant will be controlled by various measures described in other sections of this application.

The majority of the raw materials necessary for the production of finish cement will come from the site. The limestone will be provided from waste fines from the existing Florida Crushed Stone aggregate plant and the fly ash will come directly from the power plant. Together these two raw materials will make up over 95 percent of the kiln feed. Coal for the cement plant and power plant will be delivered by unit train and gypsum, for cement production, will be delivered by truck.

The proposed power plant will consist of a used 40 megawatt turbine generator and a used coal fired boiler. Both of these components were manufactured before August, 1971 and are, therefore, not subject to Federal New Source Performance Standards (NSPS). Air pollutant emissions from the power boiler will be subject to a Best Available Control Technology (BACT) review by the Florida Department of Environmental Regulation (FDER), however.

The proposed cement plant and power plant will employ approximately 90 people. The cement plant will employ the latest in dry cement technology for the production of Portland Cement and will employ Best Available Control Technology for reducing air pollutant emissions from the plant. The kiln and cooler in the cement plant will operate in compliance with Federal New Source Performance Standards (NSPS) which limit particulate matter emissions and the opacity of emissions from the sources. The power plant will employ Best Available Control Technology for reducing particulate matter, sulfur dioxide and nitrogen oxides emissions. The cement plant-power plant complex will use flue gas and exhaust gas recirculation to utilize waste heat. The overall design of this complex will result in a very fuel efficient cement plant-power plant complex.

The operation of the cement plant and power plant will not threaten ambient air quality standards or Class I or Class II PSD increments. Neither will the operation of the plant result in emissions that will significantly impact particulate matter or sulfur dioxide non-attainment areas or result in adverse impacts to the soil, vegetation or visibility in the area.

Florida Crushed Stone is submitting the information in this document as an application for state and federal PSD approval for the proposed facility. The facility is a major emitting source of particulate matter, sulfur dioxide and nitrogen oxides. Included in the following sections of this application, in accordance with the requirements of 40 CFR 52.21 and Chapter 17-2.500, Florida Administrative Code, are a description of the proposed facilities, a review of Best Available Control Technology, an air quality review and a review of the secondary impacts of the proposed facility.

All water related issues; including water consumption, storm water run-off and process water recirculation, will be addressed through the required state permitting procedures.

2.0 FACILITY DESCRIPTION

2.1 The Site

The site for the proposed cement plant and power plant is located in Hernando County, approximately 3.5 miles northwest of Brooksville, Florida. The plants will be located on 6,400 acres of property owned by Florida Crushed Stone. The actual plant site will occupy approximately 30 acres in the southeast section of the Florida Crushed Stone property. The site will be approximately one kilometer from the east and south Florida Crushed Stone property lines.

The 6,400 contiguous acres owned by Florida Crushed Stone is presently zoned for mining. Mining has been actively pursued on the property since 1938 to provide aggregate and road base material for the construction industry of central Florida. Associated with the limestone mining operation is a lime production plant. Both the mining activities and the production of lime are expected to continue well into the 21st century.

In addition to the active mine and the lime plant, the Florida Crushed Stone property also includes approximately 1,050 acres devoted to a closed water recirculation system and settling ponds. The entire property is fenced and road access is restricted by gates.

The site, except for the existing mining operation and lime plant, is industrially undeveloped. For Prevention of Significant Air Quality Deterioration (PSD) permitting purposes, the site is classified as Class II. The area is also classified as Attainment for all criteria pollutants.

The site is approximately 20 kilometers south-southeast of the Chassahowitzka National Wildlife Refuge; a Class I PSD area, 57 kilometers north of the particulate matter non-attainment area in Hillsborough County and 55 kilometers east-northeast of the sulfur dioxide non-attainment area in Pinellas County.

The site location is shown in Figures 2-1 and 2-2.

2.2 Facility Description

The cement plant-power plant complex proposed by Florida Crushed Stone is a totally new grassroots complex which will manufacture finished Portland Cement. The plant will be designed to produce 1,800 tons of cement clinker per day or 600,000 tons of finished cement per year. The proposed power plant will be a cogeneration coal-fired, 40 megawatt plant. The term "cogeneration" indicates that at least five percent of the steam produced by the power plant will be used for purposes other than generating electric power; for preheating air in this case. The power plant will utilize a boiler and turbine generator manufactured prior to August, 1971 and therefore will not be subject to federal New Source Performance Standards.

2.2.1 Cement Plant

The cement plant proposed for the site will utilize the latest in dry process cement technology for the production of finished Portland Cement. Best Available Control Technology will be used to control particulate matter, sulfur dioxide and nitrogen oxides emissions from all sources in the cement plant. This technology will assure that Federal New Source Performance Standards are met for the kiln and clinker cooler. Adequate measures will also be employed to contain and control fugitive particulate matter emissions from mobile sources and during the handling of dry bulk materials.

The attachment package with this application includes a plot plan of the plant, a detailed process flow diagram, and an equipment list identifying equipment in the flow diagram.

The limestone which will be utilized in the production of cement will be provided from waste fines from the existing aggregate operation. These fines initially have a moisture content of 50-70 percent. Through settling and mechanical dewatering the moisture content will be reduced to approximately 25 percent. The fines will then be transported to the cement plant site by conveyor. Here the fines will be stored in an open stockpile prior to being reclaimed for use in the manufacture of Portland Cement. It is estimated that 820,000 tons per year of limestone fines will be utilized.

Clay will be used at the rate of approximately 82,000 tons per year. This material will be mined on Florida Crushed Stone property and trucked to the cement plant site. There will be a very limited on-site storage capacity for clay since it is more feasible to excavate the clay and truck it to the cement plant as needed. The moisture content of the clay as received at the cement plant will be approximately 20 percent.

The limestone and clay will be reclaimed from the respective storage areas by front-end loader and transferred to conveyor belts. The clay will pass through a crusher and will then be blended with the limestone on a conveyor system. The moisture content of the blended material will be approximately 22 percent. From the blending conveyor the limestone fines and clay will be transported to a rotary dryer where the moisture content will be reduced to approximately two percent. The dryer will be heated with exhaust gases from the kiln preheater and by an oil fired burner utilizing No. 2 fuel oil. The heat provided by the fuel oil burner will be 39 million BTU per hour.

The dry limestone/clay mixture, referred to as premix, is then transported on covered conveyors directly to the raw mill storage silos.

In addition to the limestone fines and clay, it is estimated that approximately 21,000 tons per year of ash will be required for the production of cement. This ash will be derived from the power plant and cement plant. The ash from the power plant, both bottom ash and fly ash, will be transported to a storage silo at the raw mill through an enclosed conveyor system.

A small amount of high grade limestone, in the form of 1-1/2 inch stones with a 12 percent moisture content, will be stored in a separate storage silo adjacent to the ash bin and the premix bin. The high grade lime rock will be used for balancing the composition of the mixture fed to the raw mill.

The raw materials, consisting of the premix, high grade limestone and ash are discharged from the respective storage silos through metering systems and transferred by conveyor to the raw mill. The purpose of the raw mill is to dry and grind the material to a product size of 80 percent minus 200 mesh and a moisture content of less than one percent. The heat for drying is provided by flue gases from the coal fired power plant.

From the raw mill, the dried ground material is pneumatically transported to the blending silos. The material is blended in these silos and then is transported pneumatically to a counter-flow preheater section of the kiln. In the preheater, kiln gases are used to heat the materials before they pass into the kiln. In the rotary kiln, the clinker is formed. The clinker is discharged from the kiln and is cooled in a clinker cooler, crushed, and transported by deep bucket conveyor to the clinker silo.

The air which is used to cool the clinker is used for combustion air in the rotary kiln and the power plant, thus eliminating an air pollution control system specifically for the cooler.

The material from the clinker silo is blended with approximately five percent gypsum and is transported to the finish mill where the material is ground to finished size. The gypsum used in the production of Portland Cement will be received on site by truck and transferred by belt into a storage silo. The storage silo capacity for gypsum will be 2,000 tons. The maximum receiving rate for gypsum at the plant will be ten 25 ton trucks per day. It is estimated that 30,000 tons of gypsum will be used for a year.

From the finish mill, the cement is cooled and pneumatically transferred to the finished cement silos. From these silos, the cement is loaded into truck for transport from the site.

The plant is designed to produce 600,000 tons per year of finished cement and is expected to operate with an annual operating factor of 87 percent; or 7620 hours per year.

Coal will be used to provide heat in both the cement plant kiln and the proposed power plant. Coal will be required to provide 3.3 million BTU per ton of clinker produced, or approximately 248 million BTU per hour to the kiln. At a production rate of 75 tons of clinker per hour, the coal requirement in the cement plant will be 248 tons of coal per day or approximately 75,000 tons of coal per year. The coal requirements for the power plant will be approximately 121,000 tons of coal per year making a total coal requirement for the proposed complex of 196,000 tons per year.

The coal, containing approximately ten percent moisture, will be delivered in 60-70 car unit trains. The capacity of each car will be 100 tons. This will require approximately 30 unit trains per year.

The coal will be bottom-dumped from the train cars as they pass over a raised railroad tressel. The unloading time for a unit train is expected to be about one hour. The maximum unloading time will not exceed four hours.

From the train cars, the coal will fall approximately 30 feet to a receiving area beneath the tressel. A water spray system, utilizing contained rainfall run-off, will be used as necessary to control fugitive dust emissions during the unloading operation from the receiving area, the coal will be pushed by dozer to a paved storage area and compacted.

The coal will be reclaimed from the storage area by a front end loader and discharged onto a conveyor belt. The coal for the cement plant will then be transferred to a raw coal storage day-bin which has a capacity of 300 tons. The time required to fill the day-bin will be approximately two hours.

The handling and transport of all raw materials, intermediate products, and final products will be designed to contain and control particulate matter emissions. With the limestone fines, the clay and the high-grade limestone the moisture content will be such that fugitive particulate matter emissions will be practically non-existent. With the coal receiving and storage system, water sprays will be used as necessary to control fugitive particulate matter emissions. A coal handling system similar to the one proposed by Florida Crushed Stone has been operated by Lakeland Utilities in Lakeland, Florida for a limited time without the use of water sprays and with no noticeable fugitive particulate matter emission problem.

The gypsum and ash used in the production of cement will be transported to enclosed silos for storage.

The transfer of all dry raw materials, intermediate products and final products within the cement plant is either by enclosed conveyor, air slides, screw conveyors or enclosed elevators. The one exception to this is the deep bucket conveyor which transports the crushed clinker from the cooler to the clinker silos.

All of the enclosed transfer systems are operated under negative pressure with the gases being vented through fabric filters before being discharged to the atmosphere. All storage silos are also vented through fabric filters.

Gases from the rotary kiln pass through a materials preheater and then through a materials dryer before being discharged through the kiln-power plant baghouse. There is no dust collector for the clinker cooler since all clinker cooler air is used as combustion air in the kiln or power boiler.

All of the fabric filters used in the plant are designed to operate with particulate matter concentrations in the exhausted gas streams of 0.012 to 0.015 grains per actual cubic foot. The filters located in areas that are difficult to control will operate with the higher exit particulate matter concentrations. The filters located in areas more easily controlled will operate at an exit particulate matter concentration of 0.012 grains per actual cubic foot. The particulate matter emissions from the cement kiln and from the cooler will meet Federal New Source Performance Standards (40 CFR 60, Sub part F). These standards limit particulate matter emissions from the kiln to 0.3 pounds per ton of dry kiln feed and from the cooler to 0.1 pounds per ton of kiln feed.

Potential fugitive particulate matter emission sources within the plant area include the limestone and clay transport and storage areas, the ash and gypsum receiving and storage areas, the coal receiving and storage area, the deep bucket conveyor system and the cement distribution system. The control of fugitive particulate matter emissions from these sources will be discussed in detail in subsequent sections of this report.

In addition to these well defined sources of fugitive particulate matter emissions, Florida Crushed Stone will make efforts to reduce fugitive particulate matter emissions from the overall plant site. This will be accomplished by segregating passenger traffic from truck traffic, paving all major roads in the plant area as well as the plant entrance and exit roads and providing a sweeper to sweep plant roads.

2.2.2 Power Plant

The power plant proposed by Florida Crushed Stone will be rated at 40 megawatts. The plant will be defined as a cogeneration plant; that is, at least five percent of the energy produced by the plant will be in the form of steam that will be used to preheat air for use in the cement plant. The remaining power generated by the plant will be converted to electrical power which will provide the electric power requirements of the proposed cement plant, the existing aggregate production facility and the existing lime plant operated by Florida Crushed Stone. Excess electric power will be distributed through the Florida Power Corporation to the Florida electric power grid.

The power plant will consist of a turbine generator and a coal-fired power boiler; both manufactured prior to August, 1971. Since the components were constructed prior to August, 1971, the power plant will not be subject to Federal New Source Performance Standards. The emissions from the plant will be required to meet Best Available Control Technology (BACT) as determined by the Florida Department of Environmental Regulation, however.

The heat input to the power plant from fuel will be 11,200 BTU per kilowatt, or 448 million BTU per hour at the rated capacity of 40 megawatts. This heat will be provided by coal with an equivalent sulfur content of approximately 0.75 percent.

The power plant will be designed to operate with an annual operating factor of 90 percent; or 7,884 hours per year.

The coal receiving and storage system was discussed in the previous section. From the coal storage area, the coal will be reclaimed by front end loaded, transferred to a conveyor system and transported to a raw coal storage bin at the power plant. From the coal storage bin, the coal will pass through a totally enclosed coal grinder and be fired directly to the boiler.

The burners installed in the power boiler will be low-NO_x burners to control nitrogen oxides emissions to a level of 0.7 pounds of nitrogen oxides (as NO_2) per million BTU of heat input. The sulfur dioxide emissions from the power boiler will be controlled through the sulfur content of the coal to a sulfur dioxide emission rate not to exceed 1.2 pounds per million BTU heat input.

Approximately 85 percent of the flue gases exhausted from the power boiler will be used to provide heat to dry materials in the raw mill of the cement plant. The remaining 15 percent of the flue gases will be combined with the gases exhausted from the raw mill and discharged into the kiln-power plant baghouse. This baghouse will be designed to reduce the particulate matter emissions from the power plant to a rate equivalent to 0.1 pounds per million heat input to the power plant.

The fly ash and bottom ash from the power plant will be collected and transferred through an enclosed conveying system to an ash silo at the raw mill of the cement plant. The ash from this silo will be used in the cement plant for the production of cement.

2.3 Emission Estimates

The air pollutants that will be emitted in the proposed facility are particulate matter from 32 plant sources and sulfur dioxide and nitrogen oxides from the kiln-power plant bag collector stack. Secondary sources; auto, truck and rail traffic, will result in the emission of particulate matter sulfur dioxide, nitrogen oxides, carbon monoxide and hydrocarbons. Emissions from all of the sources have been calculated based on federal New Source Performance Standards, proposed Best Available Control Technology emission rates or fugitive and transportation emission factors developed by EPA. Based on these emission rate calculations, it was determined that the proposed facility is a major emitting facility for particulate matter, sulfur dioxide and nitrogen oxides. The emission rates of carbon monoxide and hydrocarbons are less than the de minimus rate for these materials established in 40 CFR 52.21 and Chapter 17-2.500 FAC.

Annual pollutant emission rates from the complex proposed by Florida Crushed Stone are summarized in Table 2-1. The calculation of these emissions is detailed in Appendix A2-1.

Pollutant emission rates and stack parameters for each of the Florida Crushed Stone sources are listed in Table 2-2. The location of these sources is shown on the plant plot plan in the attachment package to this application. The tentative specifications for the fabric filters that will be used to control pollutant emissions from each source are included in Appendix A2-1. The function of the source is shown in detail in the process flow diagram and described in the equipment list included in the Attachment Package.

In the following sections, the air pollutant sources will be described either individually or in groups in sufficient detail to permit the review agency to access the adequacy of air pollution control systems and to confirm the estimates of air pollutant emission rates.

2.3.1 Material Transport

The transfer and conveying of dry raw materials, intermediate product and finish cement will be accomplished in enclosed conveying system, with the exception of the deep bucket conveyor. The deep bucket conveyor will be used to transport clinker from the clinker cooler to the clinker silos.

2.3.1.1 Enclosed Conveying Systems

Several types of enclosed conveying systems will be used in conveying and transferring materials within the cement plant. Covered conveyors are proposed for the transport of dry raw materials including limestone fines and fly ash and for the conveying of clinker and gypsum from the clinker building and silo to the finish mill. Pneumatic conveyors and enclosed bucket conveyors are proposed to handle the dry powders from the raw mill. Finish cement will be delivered to the distribution and storage silos using air slides and enclosed conveyors. All transfer points on the conveying system are vented with the exhaust gases passing through the fabric filters.

The fabric filters located in areas that are difficult to control will operate with an exit particulate matter concentration less than or equal to 0.015 grains per actual cubic foot. Filters located in areas that are more easily controlled will operate within exit particulate matter concentration less than or equal to 0.012 grains per actual cubic foot. Potential emissions from air leaks will be minimized by operating the conveying and transfer system under a negative air pressure. The fabric filter material used in the bag collectors will be polyester or an equivalent material. High pressure reversed jets will be used to clean the filter material and all collected material will be returned to the conveyor systems.

Tentative specifications for these control systems are presented in Appendix A2-1. All of the conveying and transfer systems will be virtually dust free as a result of the above described control systems. No other system is known to be as effective for controlling dust from conveying and transfer systems.

The particulate matter emission rates from each of the bag collectors controlling emissions from the transfer and conveying systems are calculated on the equipment specification sheets contained in Appendix A2-1.

2.3.1.2 Deep Bucket Conveyor

The proposed clinker handling system is the deep bucket conveyor commonly used in the European cement industry. The term deep bucket is used because the clinker is transported in the bottom 12 inches of an 18-inch deep rotating steel bucket. This device has been selected because of the difficult material handling problems associated with the transport of clinker from the clinker cooler. Cement clinker is an abrasive material ranging in size from a fine powder to lumps in excess of two inches in diameter. The large lumps are difficult to cool and may be discharged from the cooler in a red hot state.

Clinker will be transferred from the clinker cooler to the deep bucket conveyor in an enclosed area below ground-level. This transfer point will be vented with particulate matter being controlled with a fabric filter collector. The particulate matter concentration in the gas stream exhausted from this collector will be equal to or less than 0.015 grains per actual cubic foot.

2.3.2. Materials Storage

The limestone fines and clay will be received at the cement plant with a moisture content in excess of 20 percent. These materials will be stored in open stockpiles prior to reclamation in the cement plant. Because of the moisture content of these materials fugitive particulate matter emissions are expected to be virtually non-existent.

The coal will be received on site with a moisture content of approximately 10 percent. Water sprays will be installed in the coal receiving area and in the coal storage area. These sprays will be used as necessary to control fugitive particulate matter emissions. Observations of a similar coal receiving handling system, operated by Lakeland Utilities in Lakeland, Florida, indicate that fugitive particulate matter emissions will not be a problem even without the use of the water sprays.

Gypsum and high-grade lime rock will be received at the cement plant by truck and transferred by conveyor into closed storage silos. These silos will be vented and particulate matter controlled by fabric filter collectors.

The ash, fly ash and bottom ash, from the power plant will be pneumatically conveyed to the cement plant and stored in a closed storage silo. The pneumatic conveying system and storage silo will be vented through a fabric filter collector for the control of particulate matter emissions.

After the limestone fines and clay have been reclaimed, dried, and blended to form premix, this material will be stored in a closed storage silo. The silo will be vented with particulate matter emissions being controlled by a fabric filter collector.

All of the intermediate products produced in the cement plant and the finished cement will be stored in completely enclosed silos. All of these silos will be vented with particulate matter emissions controlled by fabric filter collectors.

Tentative specifications for all of the filters used to control emissions from the storage silos are presented in Appendix A2-1. As with the filters used for controlling emissions from the transfer and conveying systems, the filters used to control emissions from storage silos will limit particulate matter emissions to 0.012-0.015 grains per actual cubic foot. The lower concentrations will be achieved in areas which are more easily controlled while the higher concentrations will occur in areas which are more difficult to control.

2.3.3 Cement Kiln/Clinker Cooler/Power Plant

The utilization of waste heat in the power plant and cement plant proposed by Florida Crushed Stone will result in a rather complex gas flow arrangement. The basic gas flow arrangement, with both the power plant and cement plant operating, is shown in Figure 2-3. Gas flow with only the power plant operating is shown in Figure 2-4 and the gas flow with only the cement plant operating is shown in Figure 2-5.

With both the cement plant and power plant operating, the air used in the cement plant clinker cooler will be entirely consumed as combustion air in the cement kiln and the power plant. The gases exhausted from the cement kiln will be used in the kiln preheater system to heat the raw materials fed to the kiln. From the preheater the gases will be used in a rotary dryer to reduce the moisture content of the clay and limestone fines that have been reclaimed from storage. The heat requirement for drying these materials will be supplemented with an oil fired burner. This burner will be fired with No. 2 fuel oil at the rate of 287 gallons of fuel per hour. The gas stream exhausted from the rotary dryer will be vented through the kiln-power plant baghouse.

The flue gas from the power plant will be split with approximately 85 percent used to provide the heat necessary to dry the materials in the raw mill. The gas stream exhausted from the raw mill will be recombined with the remaining 15 percent of the power plant flue gas and exhausted through the kiln-power plant baghouse.

The total air flow through the baghouse and the particulate matter loading to the baghouse will be greatest when both the power plant and the cement plant are operating. Conditions resulting with only the power plant operating or only the cement plant operating are detailed in Figures 2-4 and, 2-5 respectively.

2.3.3.1 Particulate Matter

The particulate matter emissions from the kiln-power plant bag collector must meet Federal New Source Performance Standards for the cement kiln and clinker cooler and Best Available Control Technology requirements for controlling particulate matter emissions from the power boiler. The New Source Performance Standards for the cement plant limit particulate matter emissions from the kiln to 0.3 pounds per ton of dry kiln feed. Clinker cooler emissions are limited to 0.1 pounds per ton of dry kiln feed. The Best Available Control Technology proposed for power plant emissions will limit particulate matter from the power plant to 0.1 pounds per million BTU heat input from fuel. Based on a kiln feed rate of 124 tons per hour (a clinker production capacity of 75 tons per hour) and a power plant output of 40 megawatts (448 million BTU per hour heat input) the total allowable particulate matter emission rate from the kiln-power plant baghouse, with both the cement plant and power plant operating, will be 94.3 pounds per hour. With the power plant only operating, the allowable particulate matter emission rate will be 44.8 pounds per hour and with the cement plant only operating the particulate matter emission rate will be 49.5 pounds per hour.

A single baghouse will be used to control the particulate matter emissions from both the cement plant and the power plant. The gas flow rate through the baghouse will be approximately 397,400 actual cubic feet per minute at a temperature of 245°F. These gases will be discharged to the atmosphere through a 200-feet high stack.

The emission rate calculations for these sources are detailed in Appendix A2-1.

2.3.3.2 Sulfur Dioxide

Sulfur dioxide will be generated during the combustion of coal in the cement kiln and in the power boiler and during the combustion of No. 2 fuel oil in the rotary raw materials dryer.

The sulfur dioxide emission rate proposed as Best Available Control Technology for the power plant is 1.2 pounds of sulfur dioxide per million BTU of heat input from fuel. To meet this requirement, coal with a 0.75 percent sulfur content must be used or sulfur dioxide absorption must occur as the power plant flue gases pass through the cement plant and the kiln-power plant baghouse. Since it is presently not known how much sulfur dioxide absorption might be expected, it has been assumed that coal with 0.75 percent sulfur content will be used in both the cement plant and the power plant. After operating experience has been gained and sulfur dioxide absorption evaluated, it may be found that Florida Crushed Stone can use coal with a higher sulfur content and still meet the emission standard proposed as Best Available Control Technology for sulfur dioxide from the power boiler.

The sulfur content of the No. 2 fuel oil used to supply auxiliary heat to the raw materials dryer was assumed to be 0.5 percent, maximum.

At the design rate for the cement plant, 10.3 tons of coal will be fired to the kiln per hour. It has been estimated, based on actual sulfur dioxide emission estimates from the cement plant by the cement plant designer and calculated uncontrolled sulfur dioxide emissions, that approximately 74 percent of the sulfur dioxide generated by coal combustion in the kiln will be retained in the clinker or will be absorbed in the dry process counter-flow preheater.

At a coal firing rate of 10.3 tons per hour, the potential sulfur dioxide generated in the cement kiln will be 305 pounds per hour. It has been estimated by Polysius, the cement plant designer, that the actual sulfur dioxide emission rate from the cement plant will be 80.0 pounds per hour.

At design rate the heat input fuel to the power plant will be 448 million BTU per hour. At an emission rate of 1.2 pounds of sulfur dioxide per million BTU input, the sulfur dioxide emission rate from the power plant will be 538 pounds per hour.

The sulfur dioxide generated by the combustion of No. 2 fuel oil in the rotary raw materials dryer will be 20.0 pounds per hour. This is based on a heat input from fuel oil to the dryer of 39 million BTU per hour and a heat content of No. 2 fuel oil of 19,500 BTU per pound.

The total sulfur dioxide emission rate from the cement plant-power plant complex will be 638 pounds per hour, at design rate.

2.3.3.3 Nitrogen Oxides

There is considerable uncertainty in determining the nitrogen oxides emission rate from cement kilns. Since there are no state or federal nitrogen oxides emission standards for these sources, emission data are limited. For the purposes of the air quality review, Polysius has estimated that the nitrogen oxides emission rate from the cement kiln will be 416 pounds per hour.

The nitrogen oxides emission rate from the power plant will be limited to 0.7 pounds per million BTU heat input. This emission rate is proposed as Best Available Control Technology for nitrogen oxides and will be accomplished by the use of low-NOx burners. At the designed heat input of 448 million BTU heat input per hour, the nitrogen oxides emission rate from the power plant will be 314 pounds per hour.

The nitrogen oxides emission rate from the rotary raw materials dryer, based on the use of EPA emission factors and a fuel firing rate of 287 gallons per hour, will be 6.0 pounds per hour.

The total nitrogen oxides emission rate from the cement plant-power plant complex, at design rate, will be 736 pounds per hour, expressed as nitrogen dioxide.

2.3.4 Finishing Mill

The cement finish mill will be served by one fabric filter collector. This is a process type fabric filter designed to handle a very high inlet particulate matter loading. The finish mill collector will incorporate an air to cloth ratio of 6.5:1 and will have approximately 576 bags. The particulate matter concentration in the gas stream discharged from this collector will be less than or equal to 0.015 grains per actual cubic foot. (See Appendix A2-1). This particulate matter control system represents the best system for controlling particulate matter emissions from the cement finishing operation and results in the total recovery of product collected in the air pollution control system.

2.3.5 Cement Distribution

Finished cement will be loaded from the finished cement storage silos into enclosed trucks for shipment. The loading systems serving the silos will include spouts which will fasten to the receiving vehicle. These spouts also include a vent to exhaust the air displaced from the vehicle. The vented gas stream from these systems will be exhausted through fabric filters which are described in Appendix A2-1.

In the loading operation, small spills are unavoidable. Florida Crushed Stone proposes to employ good housekeeping measures to keep the loading area free of spilled cement and thus eliminate fugitive emission problems.

2.3.6 Emissions From Secondary Sources

Particulate matter emissions from vehicular traffic will be controlled by minimizing vehicular traffic and paving and sweeping areas that will experience a relatively high level of traffic.

A traffic control program will be established to segregate passenger traffic and truck traffic and, further, to minimize traffic throughout the plant site. The volume of auto, truck and rail traffic has been estimated based upon expected shipments and receivables.

2.3.6.1 Automobile Traffic

Florida Crushed Stone will employ approximately 90 persons at the cement plant and power plant. It has been estimated that 1.25 persons will travel per automobile and that the full work force will be at the plant 350 days per year. It was further assumed that the vehicle will travel two miles on Florida Crushed Stone property. Based on these factors, it has been estimated that there will be 50,000 automobile miles traveled on Florida Crushed Stone property each year.

2.3.6.2 Truck Traffic

Trucks will deliver gypsum to the plant site and will transport 100 percent of the finished cement from the site. It has been estimated that gypsum delivery will require 1,200 round trip truck trips per year and that the shipment of finished cement from the site will require 19,600 trucks per year. The latter is based on an 85 percent production rate which is considered realistic for a long-term operating rate.

Based on these factors, it has been estimated that there will be 41,600 truck miles traveled on Florida Crushed Stone property each year.

2.3.6.3 Rail Traffic

Coal will be received on site by unit trains. For planning purposes, it was estimated that 30 trains per year, or 1,968 100-ton rail cars, will be involved in delivering coal each year.

2.3.6.4 Secondary Emission Estimates

Based upon the volume of traffic estimated and emission factors published in EPA document AP-42, annual secondary emissions of particulate matter, sulfur dioxide, nitrogen oxides, carbon dioxide and hydrocarbons were estimated. The calculations involved in arriving at these estimates are included in Appendix 2A-2. The calculated emission rates are summarized in Table 2-1.

2.4 Good Engineering Practice Stack Height

The only stack at the cement plant-power plant complex subject to good engineering practice stack height considerations is the stack exhausting gases from the kiln-power plant baghouse. The fabric filters used for venting the other particulate matter sources at the complex have only stub stacks which extend a short distance above the collector.

The proposed height of the kiln-power plant baghouse stack is 200 feet. The limestone storage bins, which are within 60 feet of the stack, are 123 feet high and have a dimension normal to the stack of 120 feet.

"Good engineering practice" stack height is defined to be a height not exceeding the height of a nearby structure plus 1.5 times the height or width of the structure, whichever is less. Applying this equation to the proposed cement plant-power plant stack results in a stack height of 303 feet [123 + 1.5 (120)]. This height exceeds the proposed height for the kiln-power plant stack, hence the height of the kiln-power plant stack is not considered to be excessive.

TABLE 2-1

ANNUAL AIR POLLUTANT EMISSION RATES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

Source	Pollutant Emission Rate (tpy) Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Carbon Monoxide	Hydrocarbons
Kiln	141	305	1585	0	0
Cooler	47	0	0	0	0
Power Plant	177	2119	1236	74	22
Rotary Dryer	(1)	76	24	5	1
Other					
Cement Plant	159	0	0	0	0
Secondary(2)	1	1	5	7	2
Total	525	2501	2850	86	25
De Minimus Emission Rate	25	40	40	100	40

(1) Included in kiln, cooler and power plant emissions.
(2) See Appendix A2-2

TABLE 2-2

STACK PARAMETERS AND EMISSION RATES FOR FLORIDA CRUSHED STONE SOURCES

FLORIDA CRUSHED STONE COMPANY HERNANDO COUNTY, FLORIDA

Source	Emission Rates PM (Lb/Hr)	SO2 (Lb/Hr)	Stack Height (Ft)	Stack Diam. (Ft)	Stack Velocity (FPS)	Gas Temp. (Deg F)	X Coord. (km)	Y Coord. (km)
FCS 1 Clay Crush	1.0322	0.0000	25.080	2.310	40.260	105.80	360.044	3162.648
FCS 1 Limestone Conv	0.4764	0.0000	55.440	1.650	47.520	105.80	360.123	3162.379
FCS 1 Limestone Transfer	0.7940	0.0000	15.180	1.980	42.570	105.80	359.950	3162.477
FCS 1 Premix Bin	1.0322	0.0000	125.730	2.310	42.240	105.80	360.005	3162.337
FCS 1 Fly Ash Bin	1.0322	0.0000	125.730	2.310	42.240	105.80	360.017	3162.337
FCS 1 Kiln	94.3272	638.0584*	201.300	14.190	43.230	244.40	360.008	3162.392
FCS 1 Raw Mat'ls Transfer	0.6352	0.0000	25.080	1.650	47.520	150.80	360.030	3162.335
FCS 1 Blend Silo	2.9378	0.0000	206.250	3.630	40.260	150.80	360.037	3162.312
FCS 1 Kiln Feed	1.2704	0.0000	50.160	2.640	34.320	150.80	360.044	3162.306
FCS 1 Cooler Discharge	0.6352	0.0000	9.900	1.650	47.520	150.80	360.086	3162.200
FCS 1 Clinker Silo L12	1.2704	0.0000	201.300	2.640	34.320	150.80	360.114	3162.137
FCS 1 Clinker Silo L13	1.2704	0.0000	201.300	2.640	34.320	150.80	360.108	3162.125
FCS 1 Clinker Silo Discharge	0.6352	0.0000	25.080	1.650	47.520	150.80	360.105	3162.125
FCS 1 Limestone Silo	0.3970	0.0000	25.080	1.320	40.920	105.80	360.105	3162.143
FCS 1 Cement Silo	1.0322	0.0000	25.080	1.980	42.570	150.80	360.123	3162.133
FCS 1 Finish Mill	5.5580	0.0000	100.650	4.950	39.270	199.40	360.111	3162.157
FCS 1 Cement Silo Discharge (4)	4.1288	0.0000	25.080	1.980	42.570	150.80	360.125	3162.100
FCS 1 Cement Silos (5)	7.7018	0.0000	201.300	2.640	40.920	150.80	360.125	3162.110
FCS 1 Packing Plant	1.2704	0.0000	55.440	2.640	34.320	105.80	360.155	3162.032
FCS 1 Masonry Silos (3)	3.8906	0.0000	80.520	2.640	34.320	150.80	360.147	3162.047
FCS 1 Raw Coal Bin	0.3970	0.0000	100.650	1.320	40.920	105.80	360.102	3162.210
FCS 1 Power Plant Coal Bin	0.3970	0.0000	100.650	1.320	40.920	105.80	360.080	3162.010
FCS 1 Gypsum Silo	3.9700	0.0000	25.080	1.320	40.920	105.80	360.080	3162.010

* NOx Emission rate from this source is 735.9 lbs/hr.

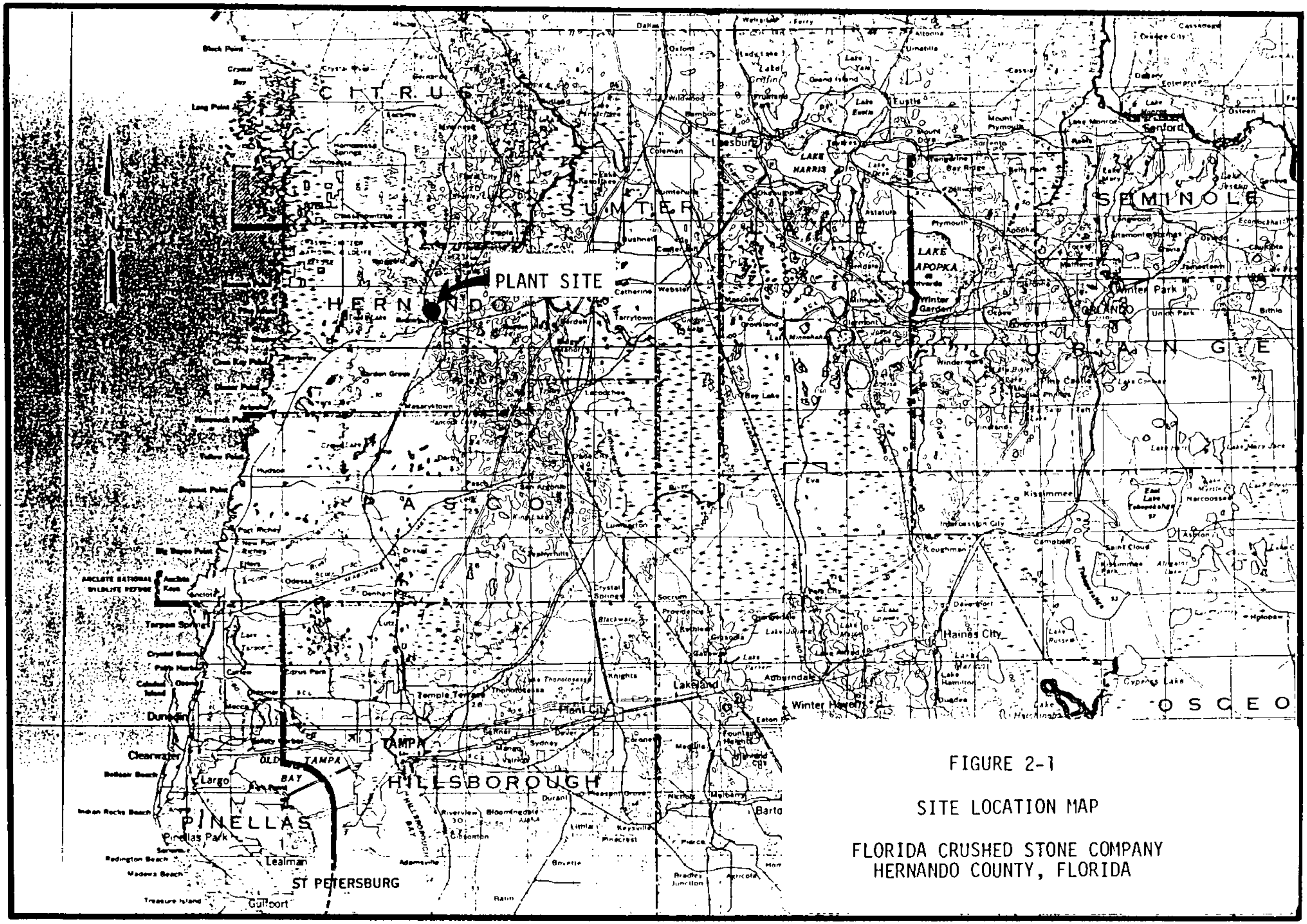


FIGURE 2-1

SITE LOCATION MAP

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

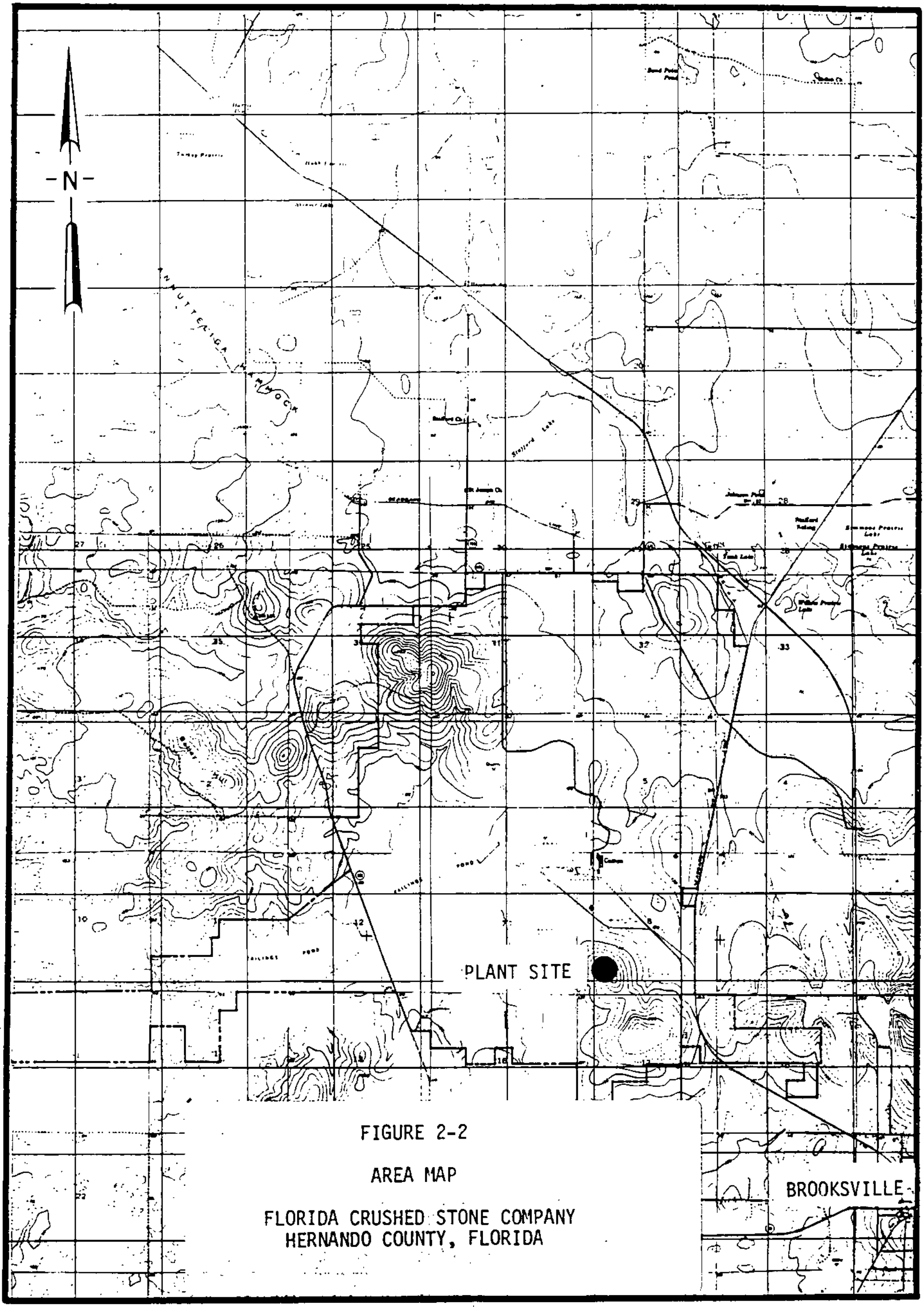


FIGURE 2-2

AREA MAP

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

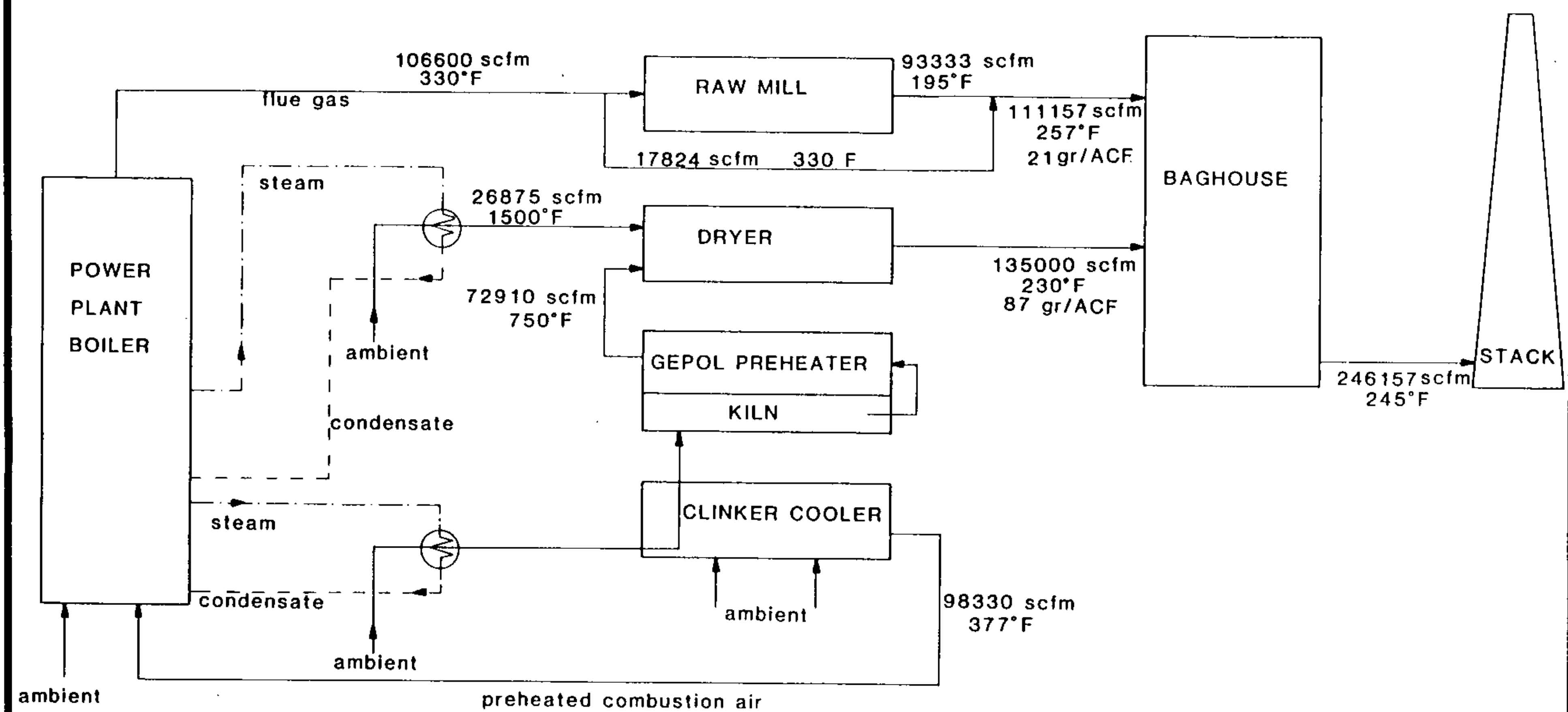


FIGURE 2-3

POWER PLANT OPERATING/CEMENT PLANT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

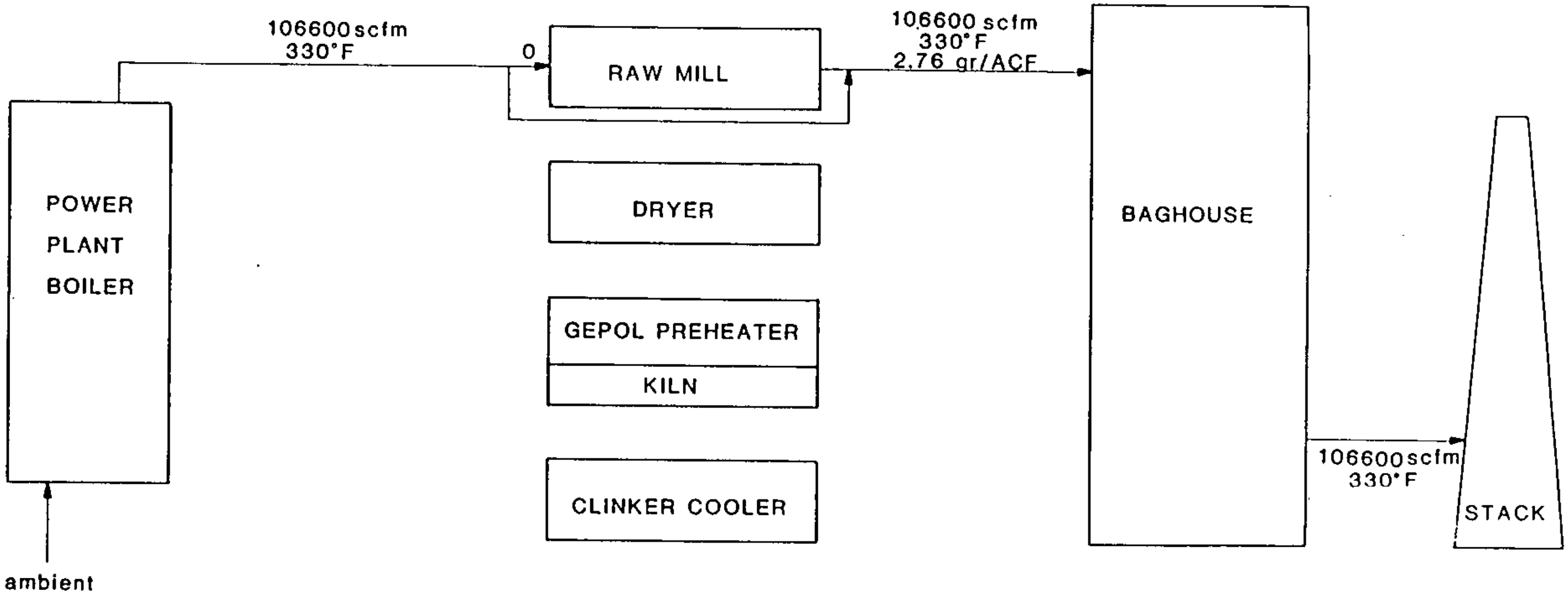


FIGURE 2-4

POWER PLANT OPERATING/CEMENT PLANT NOT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

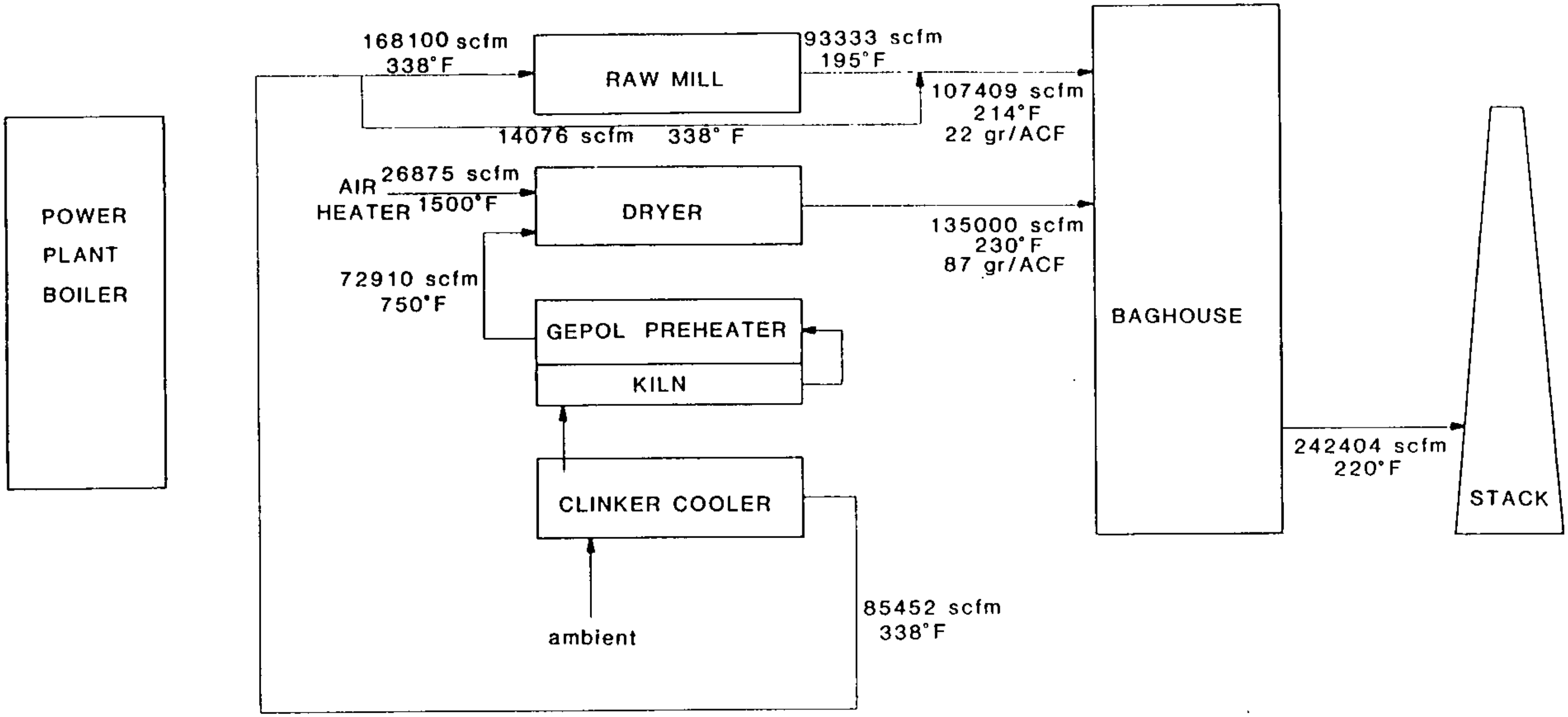


FIGURE 2-5

POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

APPENDIX A2-1

TENTATIVE CONTROL SYSTEM SPECIFICATIONS
AND
POINT SOURCE EMISSION CALCULATIONS

E - 360.044
N - 3162.648

FORM PI-2 (72-9)

P.M. = 10000 cfm x 60 min/hr x 0.012 gr/scf
x 1/7000 lb/grain x 0.126 g/sec/lb/hr
= 0.13 g/sec

Ht = 25 ft
dia = 2.3 ft
Vel = 40.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
B09	
Name of Abatement Device	**Type of Particulate Controlled**
CLAY CRUSHER	CLAY

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10000		70	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		7.5	10000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

FORM PI-2 (72-9)

E - 360.123
N - 3162.379

P.M = 5000 × 60 × 0.012 × 1/7000 × 0.12[illegible]
= 0.00[illegible] g/sec

Ht = 55'
dia = 1.5''
Vel = 47.2 [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
B10	
Name of Abatement Device	**Type of Particulate Controlled**
LIMESTONE CONVEYOR	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
5000		70	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 359.950
N - 3162.477

FORM PI-2 (72-9)

P.M. = 8000 x 60 x 0.012 / 7000 x 0.[illegible]
= 0.10 [illegible]

Ht = 15'
dia = 2.0'
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
D16	
Name of Abatement Device	**Type of Particulate Controlled**
LIMESTONE TRANSFER	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
8000		70	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		20	8000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	80	

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered / Straight (Straight circled)	Yes / No (No circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E- 360.005

N- 3162.477

FORM PI-2 (72-9)

P.M. = 10,000 × 60 × 0.012 [illegible]

= 0.13 [illegible]

TABLE II
FABRIC FILTERS

Ht = 125'

dia = 2.3' Vel = 42.0 [illegible]

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
D21	
Name of Abatement Device	**Type of Particulate Controlled**
PREMIX BIN	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
10,000		70	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.017
N - 3162.337

FORM PI-2 (72-9)

P.M. = 10,000 × 60 × 0.012 ÷ 7000 × 0.1[illegible]
= 0.13 g/sec

Ht = 13[illegible]'
dia = 3.3'
Vel = 42.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
D22	
Name of Abatement Device	**Type of Particulate Controlled**
FLY ASH BIN	FLY ASH

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) 10,000		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
6		70	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered Straight (circled: Straight)

Walkways will be provided between banks of bags: Yes No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.008
N - 3162.392

FORM PI-2 (72-9)

See Attached sheet for [illegible]
Calculations

Ht = 200'
dia = 14.0'
Vel = 43.0 fps - includes [illegible] plant [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
E16	
Name of Abatement Device	**Type of Particulate Controlled**
KILN MILL BAGHOUSE	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
300,000	284000 (15%)	485	15	0.0125
	178300 (85%)	230	25	0.0125

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6	0.0408	1000	300000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	20 %	%
0.5-1.0	20 %	%
1.0-5.0	50 %	%
5-10	%	%
10-20	10 %	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
1.7	12	30	1872	18

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: Fiber Glass

Describe Bag Cleaning Method and Cycle: Reverse Air - Variable cycle

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

Kiln, Cooler, Power Plant Emissions - Common Stack

Particulate Matter

Kiln: Clinker production rate = 75.0 ton/hr

Kiln feed rate = 75 tons/hr x 1.65 tons feed/ton Clinker

= 123.8 tons feed/hr

P.M. = 123.8 tons/hr x 0.3 lb P.M./ton feed

= 37.1 lb/hr

Cooler:

P.M. = 123.8 tons/hr x 0.1 lb P.M./ton feed

= 12.4 lb/hr.

Power Plant: 40 megawatt electric power output

Heat input from fuel (coal) @ 11,200 BTU/kw

= 11,200 BTU/kw x 40,000 kw

= 448.0 x 10^6 BTU/(hr) = (18.7 ton coal/hr)

P.M. @ 0.1 lb/10^6 BTU

= 0.1 x 448

= 44.8 lb/hr

Total Part. Matter

= 37.1 + 12.4 + 44.8

= 94.3 lb/hr

or

= 11.88 g/sec

Sulfur Dioxide

Kiln: Coal consumption is 10.3 tons/hour with 0.74% Sulfur

Potential SO_2 emissions

= 10.3 tph x 2000 lb/ton x (0.0074 x 2) lb SO_2/lb coal

= 304.9 lb/hr

Actual SO_2 emissions (estimated by Polysius)

= 80.0 lb/hr

or

= 10.08 g/sec

SO_2 sorption = (304.9 - 80.0) x 100 / 304.9

= 73.8%

Cooler: SO_2 emissions = 0.0

Dryer: Heat input from fuel (#2 oil with 0.5% sulfur) is 39.11×10^6 BTU/hr

Fuel Consumption = 39.11×10^6 BTU/hr / 19515 BTU/lb
= 2004 lb/hr
× 1/6.975 lb/gal
= 287 gal/hr

SO_2 = 2004 lb fuel/hr × (0.005×2) lb SO_2/lb fuel
= 20.0 lb/hr
or
= 2.53 g/sec

Power Plant: Heat input from fuel = 448.0×10^6 BTU/hr

SO_2 @ 1.2 lb / 10^6 BTU
= 448.0×10^6 BTU/hr × 1.2 lb SO_2 / 10^6 BTU
= 537.6 lb/hr
or
= 67.74 g/sec

Total SO_2
= 80.0 + 20.0 + 537.6
= 637.6 lb/hr
or
= 80.34 g/sec

Nitrogen Oxides

Kiln: NO_x = 416.0 lb/hr as NO_2 (estimated by Polysius)

Dryer: NO_x @ 22 lb NO_2/1000 gal (AP-42, supplement 7)
= 22 lb/10^3 gal × 0.287×10^3 gal/hr
= 6.31 lb/hr

Power Plant:
NO_x @ 0.7 lb / 10^6 BTU
= 448×10^6 BTU/hr × 0.7 lb NO_2 / 10^6 BTU
= 313.6 lb/hr

Total NO_x as NO_2
= 416.0 + 6.31 + 313.6 = 735.9 lb/hr
= 92.7 g/sec

CARBON MONOXIDE

Kiln: Zero because of the presence of sufficient excess air

Dryer: CO @ 5 lb/1000gal (AP-42, sup 7)

$= 5 \times 0.287 \times 10^3$ gal/hr

$= 1.4$ lb/hr

$= 5.5$ tpy

Power Plant: CO @ 1 lb/ton of Coal (AP-42)

$= 1 \times 18.7$ tons/hr

$= 18.7$ lb/hr

$= 73.7$ tpy

HYDROCARBONS

Kiln: Zero because of excess air and residence time

Dryer: HC @ 1 lb/1000 gal

$= 1 \times 0.287 \times 10^3$ gal/hr

$= 0.3$ lb/hr

$= 1.1$ tpy

Power Plant: HC @ 0.3 lb/ton of coal (AP-42)

$= 0.3 \times 18.7$ tons/hr

$= 5.6$ lb/hr

$= 22.1$ tpy

E - 360.030
N - 3162.335

FORM PI-2 (72-9)

P.M = 5000 × 60 × 0.015 × [illegible]
= 0.09 g/sec
Ht = 25'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
F 04	
Name of Abatement Device	**Type of Particulate Controlled**
Raw Meal Transfer	Raw meal

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be: Staggered / Straight (Straight circled)

Walkways will be provided between banks of bags: Yes / No (No circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.037

N - 3162.312

FORM PI-2 (72-9)

PM. = 23000 × 60 × 0.015 × 1/7000 × 0.1[illegible]
= 0.37 g/sec

Ht = 205'

dia = 2.5'

Vel = 40.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
G 12	

Name of Abatement Device	Type of Particulate Controlled
BLENDING SILO	Raw meal

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
23000		150	30	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
.6		70	23000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	230	1

Bag rows will be: Staggered / **Straight** (circled)

Walkways will be provided between banks of bags: Yes / **No** (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

FORM PI-2 (72-9)

E - 360.044
N - 3162.306

P.M. = 10,000 × 0.015 × [illegible]
× [illegible]
= 0.13 g/sec
Ht = 50
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
H15	
Name of Abatement Device	**Type of Particulate Controlled**
KILN FEED	RAW MEAL

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10,000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.086

N - 3162.200

FORM PI-2 (72-9)

P.M = 5000 × 60 × 0.015 × 1/7000 × [illegible]
= 0.08 g/sec
Ht = 10'
dia = 1.5'
Vel = 47.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
L14	
Name of Abatement Device	**Type of Particulate Controlled**
COOLER DISCHARGE	Clinker

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.114
N - 3162.137

FORM PI-2 (72-9)

P.M. = 10,000 × 60 × 0.015 × 1/7000 × 0.[illegible]
= 0.16 g/sec
Ht = 200'
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)				Manufacturer & Model No. (if available)	
L12					
Name of Abatement Device				**Type of Particulate Controlled**	
CLINKER SILO				CLINKER	
GAS STREAM CHARACTERISTICS					
Flow Rate (acfm)		**Gas Stream Temperature (°F)**		**Particulate Grain Loading (grain/scf)**	
Design Maximum	Average Expected			Inlet	Outlet
10,000		150		10	0.015
Pressure Drop (in. H_2O)		**Water Vapor Content of Effluent Stream (lb water/lb dry air)**		**Fan Requirements (hp)**	**(ft³/min)**
6				25	10,000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity ($acfm/ft^2$ of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered **Straight** (circled)

Walkways will be provided between banks of bags: Yes **No** (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.108

N - 3162.125

FORM PI-2 (72-9)

P.M. = 10000 × 60 × 0.015 × [illegible]
= 0.[illegible]

Ht = 200'
dia = 2.5'
Vel = 34.1 [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
L13	
Name of Abatement Device	**Type of Particulate Controlled**
CLINKER SILO	CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10,000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10,000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered / Straight (circled: Straight)

Walkways will be provided between banks of bags: Yes / No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

360.105
3162.125

FORM PI-2 (72-9)

P.M. = 5000 × 60 × 0.015 × 1/7000 × 0.126
= 0.08 g/sec

Ht = 25'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
M 18	
Name of Abatement Device	**Type of Particulate Controlled**
CLINKER SILO DISCHARGE	CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5000		150	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		15	5000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	50	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

E - 360.105
N - 3162.143

FORM PI-2 (72-9)

PM = 3000 x 60 x 0.015 x 1/7000 x [illegible]
= 0.05 g/sec

Ht = 25'
dia = 1.3'
Vel = 40.7 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
M19	
Name of Abatement Device	**Type of Particulate Controlled**
LIMESTONE SILO	LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
3000		70	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		10	3000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	30	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

FORM PI-2 (72-9)

E - 360.123
N - 3?2.133

P.R. = 8000 x 60 x 0.015 x 1/7000 x 0.1?
= 0.13 #/sec

Ht = 25'
dia = 2.0'
Vel = 42.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
M 20	

Name of Abatement Device	Type of Particulate Controlled
CEMENT SILO	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
8000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		20	8000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	80	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

FORM PI-2 (72-9)

E - 363.111
N - 3132.133

[illegible] = 46,000 × 0.014 × 60 × 1/7000 × 0.[illegible]
= 0.709 [illegible]
[illegible] - 100'
dia = 5.0'
Vel = 39.0 [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
N 13	

Name of Abatement Device	Type of Particulate Controlled
FINISH MILL	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
46,000		200	200	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6	0.043	250	46,000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
5	6	10	600	ONE

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered / Straight (circled: Straight)	Yes / No (circled: No)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

Locate all at
360.125
3160.100

FORM PI-2 (72-9)

PM = 8000 × 60 × 0.015 × 1/7000 × 0.126
= 0.13 g/sec, each source

Ht = [illegible]'

dia = 1.5'

Vel = [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
Q 08 (4 Units)	
Name of Abatement Device	**Type of Particulate Controlled**
CEMENT SILO DISCHARGE	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
8000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		20	8000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	80	1

Bag rows will be: Staggered **Straight**

Walkways will be provided between banks of bags: Yes **No**

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

Locate all at
360.125
3163.110

FORM PI-2 (72-9)

PM = 12000 x 60 x 0.015 x 1/7000 x 0.126
= 0.19 g/sec, each source
Ht = 200'
dia = 2.5'
Vel = 40.7 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
Q 09 (5 Units)	

Name of Abatement Device	Type of Particulate Controlled
CEMENT SILO	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
12000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		30	12000

PARTICULATE DISTRIBUTION
(By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	120	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered Straight	Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

FORM PI-2 (72-9)

E - 360.155
N - 3162.032

PM = 10,000 × 60 × 0.015 × 1/7000 × 0.13[illegible]
= 0.16 g/sec
Ht = 55
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
R/4	

Name of Abatement Device	Type of Particulate Controlled
PACKING PLANT	CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10,000		70	15	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

Locate all at
360.147
3162.047

FORM PI-2 (72-9)

P.M = 10,000 x 60 x 0.015 x 1/7000 x 0.126
= 0.16 g/sec, each source
Ht = 80'
dia = 2.5'
Vol = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
R16 (3 units)	
Name of Abatement Device	**Type of Particulate Controlled**
MASONRY SILO	

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
10,000		150	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		25	10,000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	100	1

Bag rows will be:	Walkways will be provided between banks of bags:
Staggered — Straight (circled)	Yes — No (circled)

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

360.102

3162.210

P.M. = 3000 × 60 × 0.015 × 1/7000 × 0.126
= 0.05 g/sec
Ht = 100'
dia = 1.3'
Vel = 40.7 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram)	Manufacturer & Model No. (if available)
S-04	
Name of Abatement Device	**Type of Particulate Controlled**
RAW COAL BIN	COAL

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) Design Maximum	Flow Rate (acfm) Average Expected	Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf) Inlet	Particulate Grain Loading (grain/scf) Outlet
3000		70	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft^3/min)
6		10	3000

PARTICULATE DISTRIBUTION (By Weight)

Micron Range	Inlet	Outlet
0.0-0.5	%	%
0.5-1.0	%	%
1.0-5.0	%	%
5-10	%	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft^2 of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	30	1

Bag rows will be: Staggered Straight

Walkways will be provided between banks of bags: Yes No

Filtering Material: POLYESTER

Describe Bag Cleaning Method and Cycle: PULSE JET

ADDITIONAL INFORMATION

On separate sheets attach the following:

JUL 16 1982

A. Details regarding principle of operation

B. An assembly drawing (Front and Top View) of the abatement device dimensioned and to scale clearly showing the design, size and shape.

If the device has bypasses, safety valves, etc., include in drawing and specify when such bypasses are to be used and under what conditions.

APPENDIX A2-2

SECONDARY EMISSION RATE CALCULATIONS

AUTO TRAFFIC

90 persons $\times (1/1.25)$ cars/employee $\times$ 350 trips/yr $\times$ 2 miles/trip.

= 50,000 miles/yr

Emissions

Part. Matter

Roads = 0.012 lb/mile × 50,000 miles × 1/2000 = 0.3 tpy

Auto = 0.6 g/mi × 1/453.6 × 50,000 × 1/2000 = <0.1

CO = 76.5 g/mi × ( ) = 4.2

HC = 10.8 g/mi × ( ) = 0.6

NO_x = 4.9 g/mi × ( ) = 0.3

SO_2 = 0.2 g/mi × ( ) = <0.1

TRUCK TRAFFIC

20,800 trucks/yr × 2 mi/trip = 41,600 miles/yr

Emissions

Part. Matter

Roads = 0.024 lb/mi × 41,600 × 1/2000 = 0.5 tpy

Auto = 1.3 g/mi × 1/453.6 × 41,600 × 1/2000 = 0.1

CO = 28.7 g/mi × ( ) = 1.3

HC = 4.6 g/mi × ( ) = 0.2

NO_x = 20.9 g/mi × ( ) = 1.0

SO_2 = 2.8 g/mi × ( ) = 0.1

RAIL TRAFFIC

Assume one locomotive will operate on-site 6 hours per day for 30 days/year at a fuel consumption rate of 100 gal/hour.

6 hr/day × 30 day/yr × 100 gal/hr = 18×10^3 gal #2 fuel/yr

Emissions

Part. Matter @ 25 lb/1000 gal	=	0.2 tpy
CO @ 130 lb/1000 gal	=	1.2
HC @ 94 lb/1000 gal	=	0.9
NO_x @ 370 lb/1000 gal	=	3.3
SO_2 @ 57 lb/1000 gal	=	0.5

TOTAL SECONDARY EMISSIONS

PART MATTER	-	1.2 tpy
CO	-	6.7 tpy
HC	-	1.7 tpy
NO_x	-	4.6 tpy
SO_2	-	0.7 tpy

3.0 BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology (BACT) is required to control emissions of all regulated pollutants emitted at greater than a de minimus rate from all major emitting facilities. In the case of Portland cement plants, a major emitting facility is defined as a facility which has an emission rate of one or more regulated pollutants of greater than 100 tons per year. In the case of the plant proposed by Florida Crushed Stone particulate matter, sulfur dioxide and nitrogen oxides are all emitted at a rate greater than 100 tons per year. The other pollutants emitted from the facility, carbon monoxide and hydrocarbons, are emitted at rates which are less than the de minimus rates defined in 40 CFR 52.21 and Chapter 17-2.500, FAC for these pollutants. BACT, therefore, must be employed at the proposed Florida Crushed Stone facility on all particulate matter, sulfur dioxide and nitrogen oxide sources.

At the proposed Florida Crushed Stone facility there are 32 particulate matter sources associated with the cement plant and power plant and one source each of nitrogen oxides and sulfur dioxide; the kiln-power plant stack. In Section 2.0 of this application these sources are described and control technology proposed for the sources is discussed.

Fabric filters will be used to control particulate matter emissions from all particulate matter emitting sources. Plant design and operating parameters and fuel characteristics will be used to control sulfur dioxide and nitrogen oxides emissions.

3.1 Cement Kiln/Clinker Cooler/Power Plant

As discussed in Section 2.0 the gas streams from the cement kiln, clinker cooler and the power plant plus the gas streams vented from the raw mill and raw materials dryer will be combined and discharged through a single bag collector. With both the power plant and cement plant operating, as will normally be the case, the gas flow rate through the bag collector will be 246,157 standard cubic feet per minute (397,400 ACFM at 245°F and 16 percent moisture). When the power plant only is operating the gas flow rate through the bag collector will be 106,600 standard cubic feet per minute (173,400 ACFM at 330°F and 8 percent moisture) and when the cement plant only is operating the gas flow rate will be 242,400 standard cubic feet per minute (371,650 ACFM at 220°F and 16 percent moisture).

Because of the potential variation in flow rate through this collector it was decided that a fabric filter was the most feasible control system. The fabric filter has the capability of controlling particulate matter emissions over a wide range of gas flow rates with no significant change in efficiency. The fabric filter also permits the particulate matter collected in the system to be collected in a dry state and be recovered. The fact that the material is collected in a dry state also eliminates a potential water treatment problem.

The fabric filters proposed by Florida Crushed Stone will reduce the particulate matter emission rate from the kiln to 0.3 pounds per ton of dry kiln feed and will reduce particulate matter emissions from the cooler to 0.1 pounds per ton of dry kiln feed. Particulate matter emissions from the power plant will be reduced to 0.1 pounds per million BTU of heat input to the power plant. These emission standards will result in particulate matter emission rates of 94.3 pounds per hour when both the power plant and cement plant are operating, 44.8 pounds per hour when only the power plant is operating and 49.5 pounds per hour when only the cement plant is operating.

The emission standards proposed by Florida Crushed Stone are equivalent to New Source Performance Standards for the Portland cement industry and equivalent to New Source Performance Standards for power boilers constructed between 1971 and 1978.

EPA reviewed the New Source Performance Standards for the Portland cement industry within the past few years and concluded that there was no justification for making the emission limitations less stringent and further concluded there was no demonstrated technology that would justify making the emission limitations for particulate matter more stringent. The emission standard proposed by Florida Crushed Stone for particulate matter emissions from the power plant are equivalent to the original federal New Source Performance Standards for power boilers. This emission standard is proposed as Best Available Control Technology for the power boiler. As discussed in earlier sections of this application, the power boiler and the associated turbine generator were manufactured prior to August, 1971 and are, therefore, not subject to federal New Source Performance Standards.

Sulfur dioxide will be generated in the kiln/cooler/power plant system as a result of coal combustion in the kiln and power plant and No. 2 fuel oil combustion in the rotary raw materials dryer. As discussed in Section 2.0 this application is being prepared under the assumption that Florida Crushed Stone will use coal with a 0.75 percent sulfur content. This sulfur content is necessary to satisfy the emission rate of 1.2 pounds of sulfur dioxide per million BTU heat input consistent with the Best Available Control Technology for sulfur dioxide proposed by Florida Crushed Stone. If, after plant operations begin, it is found that there is significant sulfur dioxide sorption as the power plant gases pass through the cement plant and kiln-power plant bag collector, Florida Crushed Stone Company may elect to use coal with a higher sulfur content as long as the sulfur dioxide emission rate of 1.2 pounds per million BTU from the power plant is not exceeded.

The Best Available Control Technology proposed by Florida Crushed Stone for sulfur dioxide from the power plant is 1.2 pounds per million BTU heat input to the boiler. This standard is equivalent to the original federal New Source Performance Standards for power boilers and is the lowest practical sulfur dioxide emission rate achievable without using flue gas desulfurization.

The use of coal with a 0.75 percent sulfur content in the cement plant will result in a sulfur dioxide emission rate of 80.0 pounds per hour. Based on a coal feed rate to the kiln of 10.3 tons per hour (248 million BTU per hour) the sulfur dioxide emission rate from the cement plant kiln will be 0.3 pounds per million BTU heat input.

The remaining source of sulfur dioxide emissions in the system is the rotary dryer which will be used to dry the limestone fines and clay. Heat will be provided to this dryer from gases exhausted from the kiln preheater and from an oil fired burner. The burner will use No. 2 fuel oil at the rate of 287 gallons per hour (39 million BTU per hour). The sulfur dioxide emission rate from the dryer will be 20.0 pounds per hour or 0.5 pounds of sulfur dioxide per million BTU of heat input.

The total sulfur dioxide emission rate from the cement plant and power plant will be 638 pounds per hour or 0.9 pounds per million BTU heat input to all systems. When only the power plant is operating the sulfur dioxide emission rate will be 538 pounds per hour and when only the cement plant is operating the sulfur dioxide emission rate will be 100 pounds per hour.

The use of low sulfur coal in the power plant and cement plant and the use of No. 2 fuel oil with a 0.5 percent sulfur content in the rotary dryer are proposed by Florida Crushed Stone as Best Available Control Technology for controlling sulfur dioxide emissions. The only alternative for reducing sulfur dioxide emissions below the rates proposed is through flue gas desulfurization; the cost of which could well make the proposed project unfeasible.

Nitrogen oxides will be generated in the cement plant and power plant as a result of coal combustion in the power plant and the cement kiln and the combustion of the No. 2 fuel oil in the rotary dryer. The nitrogen oxides emissions from the power plant will be controlled by using low-NO_x burners. The use of these burners will result in a nitrogen oxides emission rate of 0.7 pounds of nitrogen oxides per million BTU of heat input. This emission rate is being proposed by Florida Crushed Stone as Best Available Control Technology for nitrogen oxides emissions from the proposed power plant.

Nitrogen oxides generated in the cement kiln are the subject of considerable uncertainty. Because of the nature of the kiln; that is to transfer heat from a gas stream to the kiln feed, considerably more excess air is present in the kiln than in a power boiler. Since much of this air is injected adjacent to the fuel burners, the burners function in a manner similar to the low-NO_x burners. It has been estimated by the cement plant design engineer that the nitrogen oxides emission rate from the kiln will be 416 pounds per hour. This is equivalent to a nitrogen oxides emission rate of 1.7 pounds per million BTU heat input to the kiln. This emission rate is proposed by Florida Crushed Stone as Best Available Control Technology for nitrogen oxides emissions from a cement kiln.

The nitrogen oxides emissions from the rotary materials dryer will be 6.3 pounds per hour or less than 0.2 pounds of nitrogen oxides per million BTU at a heat input rate of 39 BTU per hour. This emission rate is proposed as Best Available Control Technology for nitrogen oxides from the material dryer.

With both the cement plant and power plant operating the total nitrogen oxides emissions from the kiln-power plant bag collector will be 736 pounds per hour. With the power plant only operating the nitrogen oxides emission rate will be 314 pounds per hour and with only the cement plant operating the nitrogen oxides emission rate will be 422 pounds per hour.

3.2 Clinker Cooler

Because of the waste heat recovery system proposed by Florida Crushed Stone, and described in detail in Section 2.0, there will be no separate emission control system for the clinker cooler. The gases exhausted from the clinker cooler will be totally utilized as combustion gases in the cement kiln and power plant. The gases will further be used to exhaust the sensible heat and will then be discharged through the kiln-power plant bag collector and stack.

3.3 All Other Cement Plant & Power Plant Particulate Matter Sources

Florida Crushed Stone is proposing the use of fabric filters to control particulate matter emissions from all other sources of particulate matter in the cement plant and power plant. The specifications for the individual source collectors are included in Appendix A2-1. Fabric filters are proposed by Florida Crushed Stone since they are capable of accommodating a wide range in gas flow rates and particulate matter loadings and because they collect materials dry allowing for the recycling of material.

The only alternative to the fabric filters on the transfer and conveying sources would be mechanical collectors which will not satisfy Best Available Control Technology requirements or scrubbers which will generate water recirculation and disposal problems.

Florida Crushed Stone is proposing the use of fabric filters on all sources as Best Available Control Technology. The particulate matter concentrations in the stack gases discharged from the individual sources will range between 0.012 and 0.015 grains per actual cubic foot depending on the nature of the source. The specifications for individual sources are included in Appendix 2A-1.

4.0 AIR QUALITY DATA

State and federal PSD regulations (40 CFR 52.21 and Chapter 17-2.500, FAC) require that air quality monitoring be conducted and the data submitted with an application for PSD approval for the application to be considered complete. Air quality monitoring is required by these regulations for pollutants which are subject to a PSD review and which result in an ambient impact greater than a de minimus impact level defined in the regulations.

The application prepared by Florida Crushed Stone addresses particulate matter, sulfur dioxide and nitrogen oxides. Air quality modeling, reported in Section 5.0 of this application, has shown the impact of particulate matter and sulfur dioxide to be greater than the respective de minimus impact levels for these pollutants but has shown the impact of nitrogen oxides to be less than the de minimus level for that pollutant.

The maximum 24-hour particulate matter impact from the proposed facility is 21 micrograms per cubic meter compared with a de minimus impact level of 10 micrograms per cubic meter, 24-hour average. The maximum sulfur dioxide impact resulting from the proposed complex is 15 micrograms per cubic meter, 24-hour average, compared with a de minimus 24-hour impact level of 13 micrograms per cubic meter. The de minimus impact level for nitrogen oxides is 14 micrograms per cubic meter, annual average. The maximum nitrogen oxides impact resulting from the proposed facility is 1.0 microgram per cubic meter, annual average.

Based on these modeling results air quality monitoring was required for sulfur dioxide and particulate matter. The monitoring requirements for these pollutants were discussed with FDER staff and a monitoring program agreed upon. One continuous sulfur dioxide monitor was located east of the plant site, between the proposed plant site and Brooksville, and two total suspended particulate monitors were deployed. One of the particulate matter monitors was located at the sulfur dioxide monitoring site and the second was located west of the plant site. The locations of the monitoring sites are shown in Figure 4-1.

The east monitoring site was given the SAROAD identification number 101740005 and the west monitoring site was given the SAROAD site identification number 101740004.

Monitoring was conducted during the period May 25, 1982 through September 26, 1982. The four-month sampling period was approved by FDER at the time the monitoring program was initiated.

During the monitoring period all required Quality Assurance Procedures were incorporated to assure the quality of the data. These procedures were outlined in quality assurance documents and the monitoring network operating procedure manual filed with FDER. At the east monitoring site, two high-volume samplers were located for quality assurance. The sulfur dioxide monitor located at this site was equipped with an antomatic calibrator which injected a known calibration gas every 24 hours.

The particulate matter and sulfur dioxide monitoring data collected at the monitoring network are included in Appendices 4A-1 (Particulate Matter) and 4A-2 (Sulfur Dioxide). The four-month average particulate matter concentration at the east monitoring site was 34.7 micrograms per cubic meter and at the west site was 31.7 micrograms per cubic meter. This level compares with an annual ambient air quality standard for particulate matter of 60 micrograms per cubic meter. The expected second-high 24-hour particulate matter concentration at the east monitoring site, based on a full year of monitoring data, is 112 micrograms per cubic meter. The second-high 24-hour concentration expected at the west monitoring site is 100 micrograms per cubic meter. These concentrations compare with a 24-hour air quality standard for particulate matter of 150 micrograms per cubic meter, not to be exceeded more than once per year.

The sulfur dioxide levels monitored in the area were extremely low. The four-month average sulfur dioxide level at the east monitoring site was 0.6 micrograms per cubic meter compared with an annual average sulfur dioxide standard of 60 micrograms per cubic meter. The maximum observed 24-hour sulfur dioxide concentration at the site was 9.4 micrograms per cubic meter compared with the 24-hour sulfur dioxide standard of 260 micrograms per cubic meter and the maximum observed 3-hour sulfur dioxide concentration was 42 micrograms per cubic meter compared with a 3-hour standard of 1,300 micrograms per cubic meter.

During the four-month monitoring period for sulfur dioxide, valid data were collected 2,563 hours. During 2,498 of these hours the sulfur dioxide concentration measured was zero. The zero sulfur dioxide concentration level occurred 97.5 percent of the time and is a good indication that the background sulfur dioxide level in the area is zero.

For air quality modeling purposes, the background sulfur dioxide concentration was assumed to be zero. The background particulate matter level for the annual period was assumed to be 34 micrograms per cubic meter, the four-month average total suspended particulate matter level at the east monitoring site. The 24-hour background level was assumed to be 112 micrograms per cubic meter which is equivalent to the expected second-high total suspended particulate matter level at the east monitoring site.

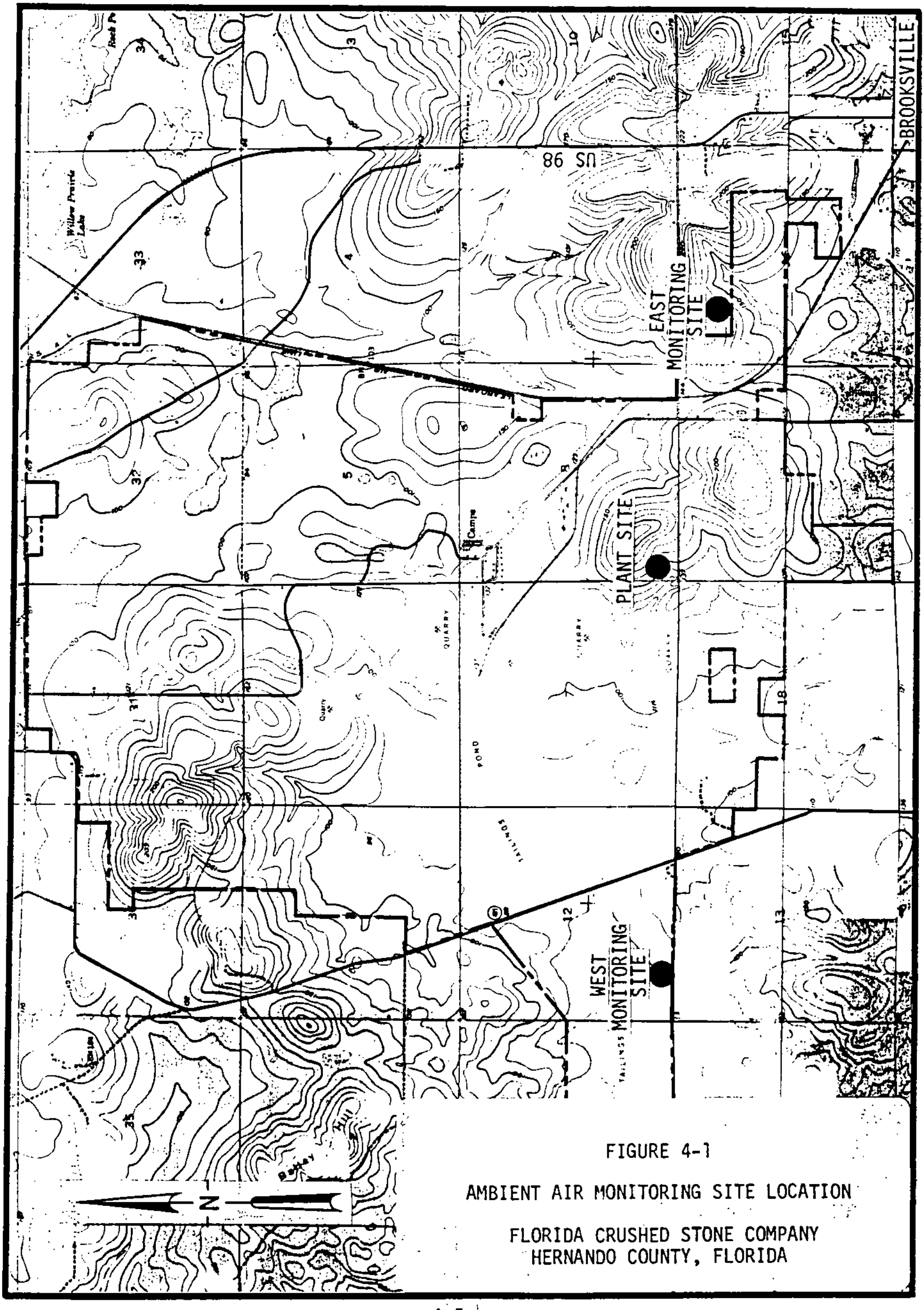


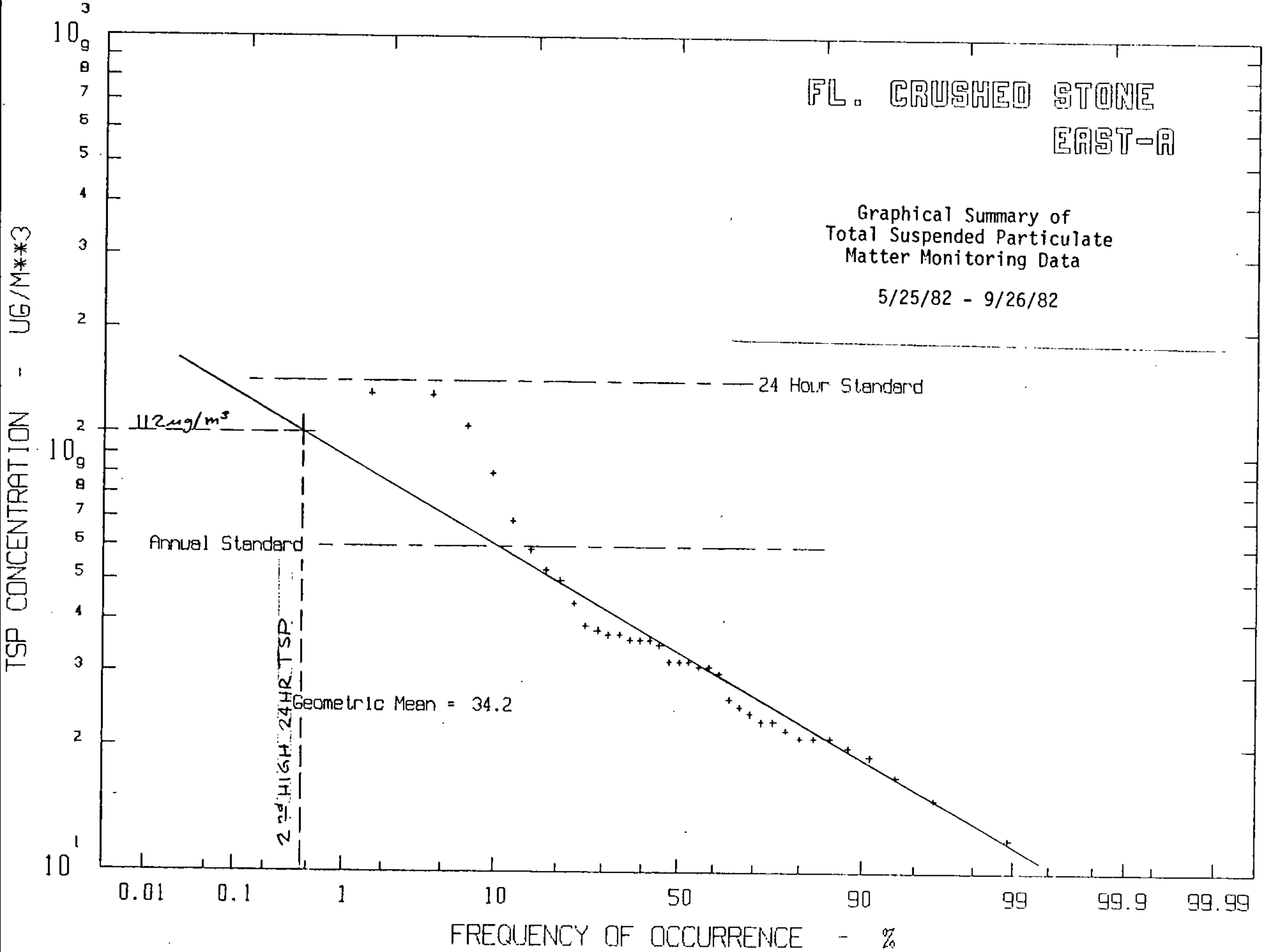
FIGURE 4-1

AMBIENT AIR MONITORING SITE LOCATION

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

APPENDIX A4-1

TOTAL SUSPENDED PARTICULATE MATTER
MONITORING DATA
May 25, 1982 - September 26, 1982



FL. CRUSHED STONE
EAST-A
Graphical Summary of
Total Suspended Particulate
Matter Monitoring Data
5/25/82 - 9/26/82
24 Hour Standard
112 ug/m³
Annual Standard
2nd HIGH 24HR TSP
Geometric Mean = 34.2
TSP CONCENTRATION - UG/M**3
FREQUENCY OF OCCURRENCE - %
0.01
0.1
1
10
50
90
99
99.9
99.99

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1 Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE — 24 HOUR
Project — Time Interval

State (2-3)	Area (4-7)	Site (8-10)	Agency (11)	Project (12-13)	Time (14)	Year (15-16)	Month (17-18)
10	1740	005	5	03	7	82	05

	TSP	Name	Name	Name
PARAMETER Code	11101 (23-27)	(37-41)	(51-55)	(65-69)
Method	91 (28-29)	(42-43)	(56-57)	(70-71)
Units	01 (30-31)	(44-45)	(58-59)	(72-73)
DP	0 (32)	(46)	(60)	(74)

Day (19-20)	St Hr (21-22)	33-36	47-50	61-64	75-78
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
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14					
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19					
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21					
22					
23					
24					
25		32			
26					
27					
28		21			
29					
30					
31					

DP → 4 3 2 1 0 | 4 3 2 1 0 | 4 3 2 1 0 | 4 3 2 1 0

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24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, EAST A

Site Address

BACKGROUND SURVEILLANCE — 24 HOUR

Project — Time Interval

State	Area	Site	Agency	Project	Time	Year	Month
10	174	0005	5	03	7	82	06

TSP

Name / PARAMETER Code: 11101 — Method: 91 — Units: 01 — DP: 0

Day	St Hr	TSP (33–36)
01		50
02		
03		
04		3
05		
06		
07		
08		
09		
10		139
11		
12		
13		37
14		
15		
16		31
17		
18		
19		
20		
21		
22		53
23		
24		
25		22
26		
27		
28		44
29		
30		
31		

DP → 4 3 2 1 0

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Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1 Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE — Project
24 HOUR — Time Interval

State (2-3)	Area (4-7)	Site (8-10)	Agency (11)	Project (12-13)	Time (14)	Year (15-16)	Month (17-18)
10	1740	005	5	03	7	82	07

	TSP	Name	Name	Name
PARAMETER Code	11101 (23-27)	(37-41)	(51-55)	(65-69)
Method	91 (28-29)	(42-43)	(56-57)	(70-71)
Units	01 (30-31)	(44-45)	(58-59)	(72-73)
DP	0 (32)	(46)	(60)	(74)

Day (19-20)	St Hr (21-22)	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
01		117			
02					
03					
04		36			
05					
06					
07		21			
08					
09					
10		35			
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12					
13		36			
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19		32			
20					
21					
22		36			
23					
24					
25		23			
26					
27					
28		30			
29					
30					
31		140			
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

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24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE — Project
24 HOUR — Time Interval

State	Area	Site	Agency	Project	Time	Year	Month
10	174	0005	5	03	7	82	08

	TSP			
Name	TSP			
PARAMETER Code	11101			
Method	91			
Units	01			
DP	0			

Day	St Hr	TSP			
01					
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03		90			
04					
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06		31			
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11					
12		69			
13					
14					
15		19			
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24		26			
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26					
27		39			
28					
29					
30		37			
31					

DP → 4 3 2 1 0

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24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1 Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE — 24 HOUR
Project — Time Interval

State		Area				Site		
1	0	1	7	4	0	0	0	5
2	3	4	5	6	7	8	9	10

Agency	Project	Time	Year	Month
5	03	7	82	09
11	12 13	14	15 16	17 18

	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Name	TSP			
PARAMETER Code	11101 (23 24 25 26 27)	(37 38 39 40 41)	(51 52 53 54 55)	(65 66 67 68 69)
Method	91 (28 29)	(42 43)	(56 57)	(70 71)
Units	01 (30 31)	(44 45)	(58 59)	(72 73)
DP	0 (32)	(46)	(60)	(74)

Day (19 20)	St Hr (21 22)	TSP (33 34 35 36)	(47 48 49 50)	(61 62 63 64)	(75 76 77 78)
01					
02		59			
03					
04					
05		24			
06					
07					
08		17			
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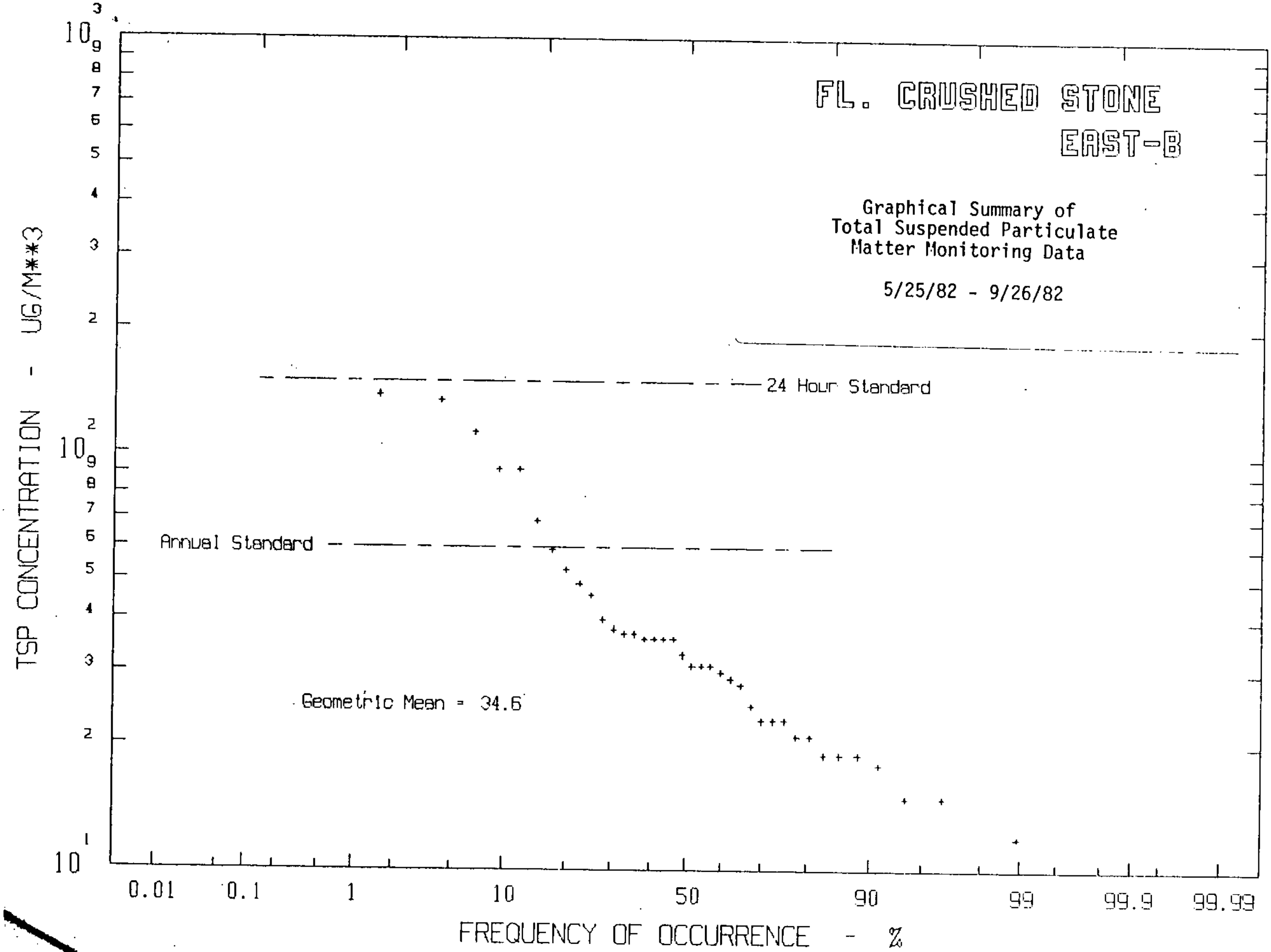

FL. CRUSHED STONE
EAST-B
Graphical Summary of
Total Suspended Particulate
Matter Monitoring Data
5/25/82 - 9/26/82
24 Hour Standard
Annual Standard
Geometric Mean = 34.6
TSP CONCENTRATION - UG/M**3
FREQUENCY OF OCCURRENCE - %
0.01
0.1
1
10
50
90
99
99.9
99.99

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24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1 Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, EAST B

Site Address

DUPLICATE — 24 HOUR

Project — Time Interval

State	Area	Site
1 0	1 7 4 0	0 0 5
2 3	4 5 6 7	8 9 10

Agency	Project	Time	Year	Month
5	0 9	7	8 2	05
11	12 13	14	15 16	17 18

	TSP	Name	Name	Name
Name PARAMETER Code	1 1 1 0 1 (23 24 25 26 27)	(37 38 39 40 41)	(51 52 53 54 55)	(65 66 67 68 69)
Method	9 1 (28 29)	(42 43)	(56 57)	(70 71)
Units	0 1 (30 31)	(44 45)	(58 59)	(72 73)
DP	0 (32)	(46)	(60)	(74)

Day (19 20)	St Hr (21 22)	TSP (33 34 35 36)	(47 48 49 50)	(61 62 63 64)	(75 76 77 78)
01					
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28		19			
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30					
31					
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

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24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, EAST B

Site Address

DUPLICATE

Project

24 HOUR

Time Interval

State	Area	Site
1 0	1 7 4 0	0 0 5

Agency	Project	Time	Year	Month
5	0 9	7	8 2	0 6

	TSP			
Name PARAMETER Code	11101			
Method	91			
Units	01			
DP	0			

Day	St Hr	TSP			
01		49			
02					
03					
04		19			
05					
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09					
10		135			
11					
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13		36			
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27					
28		46			
29					
30					
31					
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

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24-HOUR OR GREATER SAMPLING INTERVAL

| 2 | SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

1 Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, EAST B

Site Address

DUPLICATE — Project

24 HOUR — Time Interval

State (2–3)	Area (4–7)	Site (8–10)
1 0	1 7 4 0	0 0 5

Agency (11)	Project (12–13)	Time (14)	Year (15–16)	Month (17–18)
5	0 9	7	8 2	0 7

	TSP	Name	Name	Name
PARAMETER Code	1 1 1 0 1 (23–27)	(37–41)	(51–55)	(65–69)
Method	9 1 (28–29)	(42–43)	(56–57)	(70–71)
Units	0 1 (30–31)	(44–45)	(58–59)	(72–73)
DP	0 (32)	(46)	(60)	(74)

Day (19–20)	St Hr (21–22)	TSP (33–36)	(47–50)	(61–64)	(75–78)
01		113			
02					
03					
04		38			
05					
06					
07		21			
08					
09					
10		36			
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12					
13		36			
14					
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16		27			
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18					
19		33			
20					
21					
22		37			
23					
24					
25		23			
26					
27					
28		31			
29					
30					
31		139			
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

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24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, EAST B
Site Address

DUPLICATE — Project

24 HOUR — Time Interval

State (2-3)	Area (4-7)	Site (8-10)	Agency (11)	Project (12-13)	Time (14)	Year (15-16)	Month (17-18)
10	1740	005	5	09	7	82	08

	TSP			
Name	TSP			
PARAMETER Code	11101 (23-27)	(37-41)	(51-55)	(65-69)
Method	91 (28-29)	(42-43)	(56-57)	(70-71)
Units	01 (30-31)	(44-45)	(58-59)	(72-73)
DP	0 (32)	(46)	(60)	(74)

Day (19-20)	St Hr (21-22)	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
01					
02					
03		92			
04					
05					
06		31			
07					
08					
09		92			
10					
11					
12		69			
13					
14					
15		18			
16					
17					
18					
19					
20					
21					
22					
23					
24		25			
25					
26					
27		40			
28					
29					
30		36			
31					
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, EAST B

Site Address

DUPLICATE — Project

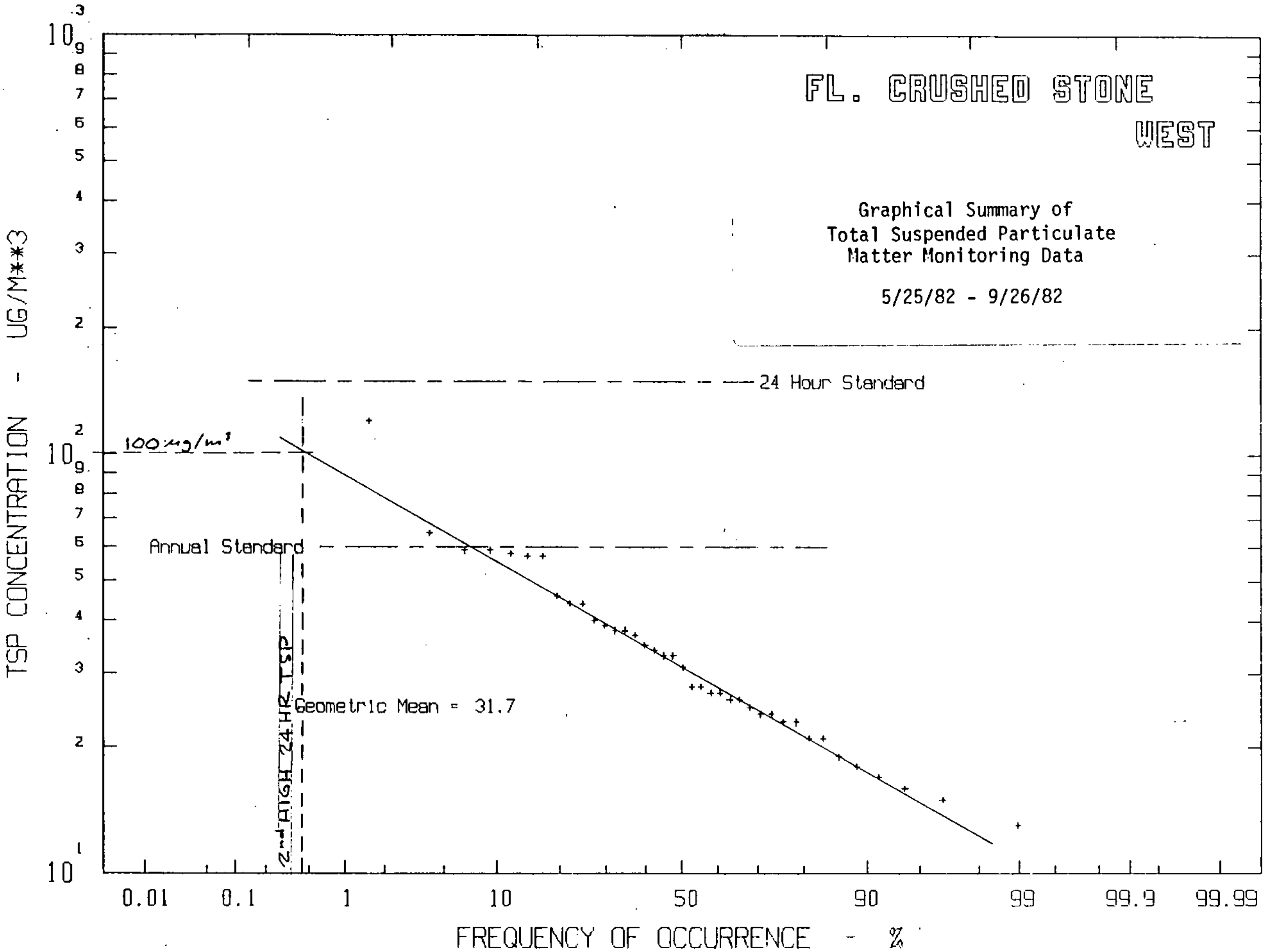
24 HOUR — Time Interval

State (2-3)	Area (4-7)	Site (8-10)	Agency (11)	Project (12-13)	Time (14)	Year (15-16)	Month (17-18)
10	1740	005	5	09	7	82	09

	TSP	Name	Name	Name
PARAMETER Code	11101 (23-27)	(37-41)	(51-55)	(65-69)
Method	91 (28-29)	(42-43)	(56-57)	(70-71)
Units	01 (30-31)	(44-45)	(58-59)	(72-73)
DP	0 (32)	(46)	(60)	(74)

Day (19-20)	St Hr (21-22)	TSP (33-36)
01		
02		59
03		
04		
05		23
06		
07		
08		15
09		
10		
11		19
12		
13		
14		15
15		
16		
17		37
18		
19		
20		31
21		
22		
23		29
24		
25		
26		12
27		
28		
29		
30		
31		

DP → 4 3 2 1 0



FL. CRUSHED STONE
WEST
Graphical Summary of
Total Suspended Particulate
Matter Monitoring Data
5/25/82 - 9/26/82
24 Hour Standard
100 µg/m³
Annual Standard
2nd HIGH 24 HR TSP
Geometric Mean = 31.7
TSP CONCENTRATION - UG/M**3
FREQUENCY OF OCCURRENCE - %
0.01
0.1
1
10
50
90
99
99.9
99.99

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, WEST

Site Address

BACKGROUND SURVEILLANCE — 24 HOUR

Project — Time Interval

State	Area	Site
1 0	1 7 4 0	0 0 4

Agency	Project	Time	Year	Month
5	0 3	7	8 2	05

	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Name	TSP			
Parameter Code	11101			
Method	91			
Units	01			
DP	0			

Day	St Hr	TSP			
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25		18			
26					
27					
28		19			
29					
30					
31					

DP → 4 3 2 1 0

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, WEST
Site Address

BACKGROUND SURVEILLANCE — 24 HOUR
Project — Time Interval

State	Area	Site	Agency	Project	Time	Year	Month
10	1740	0004	5	03	7	82	06

	TSP	Name	Name	Name
PARAMETER Code	11101			
Method	91			
Units	01			
DP	0			

Day	St Hr	TSP			
01		17			
02					
03					
04		27			
05					
06					
07		38			
08					
09					
10		37			
11					
12					
13		34			
14					
15					
16		35			
17					
18					
19		13			
20					
21					
22		46			
23					
24					
25		26			
26					
27					
28		33			
29					
30					
31					

DP →

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601

City Name

FLORIDA CRUSHED STONE, WEST

Site Address

BACKGROUND SURVEILLANCE — 24 HOUR

Project — Time Interval

State	Area	Site	Agency	Project	Time	Year	Month
10	1740	004	5	03	7	82	07

Parameter	Name	Code	Method	Units	DP
1	TSP	11101	91	01	0
2					
3					
4					

Day	St Hr	TSP	Param 2	Param 3	Param 4
01		57			
02					
03					
04		44			
05					
06					
07		27			
08					
09					
10					
11					
12					
13					
14					
15					
16		38			
17					
18					
19		40			
20					
21					
22		25			
23					
24					
25		24			
26					
27					
28		21			
29					
30					
31		120			

DP → 4 3 2 1 0

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1 Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, WEST
Site Address

BACKGROUND SURVEILLANCE — Project
24 HOUR — Time Interval

State	Area	Site	Agency	Project	Time	Year	Month
10	1740	004	5	03	7	82	08

Name	Parameter Code	Method	Units	DP
TSP	11101	91	01	0

Day	St Hr	TSP (33 34 35 36)	(47 48 49 50)	(61 62 63 64)	(75 76 77 78)
01					
02					
03		23			
04					
05					
06					
07					
08					
09		65			
10					
11					
12		28			
13					
14					
15		44			
16					
17					
18		21			
19					
20					
21		24			
22					
23					
24		16			
25					
26					
27		57			
28					
29					
30		58			
31					

DP → 4 3 2 1 0

ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

Field	Value
Agency (1)	2 — SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
City Name	1213 NW 6 STREET, GAINESVILLE, FL 32601
Site Address	FLORIDA CRUSHED STONE, WEST
Project	BACKGROUND SURVEILLANCE
Time Interval	24 HOUR

State (2–3)	Area (4–7)	Site (8–10)	Agency (11)	Project (12–13)	Time (14)	Year (15–16)	Month (17–18)
10	1740	004	5	03	7	82	09

	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Name	TSP			
PARAMETER Code	11101 (23–27)	(37–41)	(51–55)	(65–69)
Method	91 (28–29)	(42–43)	(56–57)	(70–71)
Units	01 (30–31)	(44–45)	(58–59)	(72–73)
DP	0 (32)	(46)	(60)	(74)

Day (19–20)	St Hr (21–22)	TSP (33–36)	(47–50)	(61–64)	(75–78)
01					
02		59			
03					
04					
05		31			
06					
07					
08		28			
09					
10					
11		33			
12					
13					
14		26			
15					
16					
17		59			
18					
19					
20		23			
21					
22					
23		39			
24					
25					
26		15			
27					
28					
29					
30					
31					
DP →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

APPENDIX A4-2

SULFUR DIOXIDE MONITORING DATA
May 25, 1982 - September 26, 1982

FCS - East	Sulfur Dioxide	June 1982

Day	No. of Hourly Samples	Daily Average (PPB)	High 3-Hour Average	Period
1	24	0.0	0.0	
2	24	0.0	0.0	
3	24	0.0	0.0	
4	24	0.0	0.0	
5	24	0.0	0.0	
6	24	0.0	0.0	
7	24	0.0	0.0	
8	24	0.0	0.0	
9	24	0.0	0.0	
10	24	0.0	0.0	
11	24	0.0	0.0	
12	24	0.0	0.0	
13	24	0.0	0.0	
14	24	0.0	0.0	
15	24	0.0	0.0	
16	24	0.0	0.0	
17	24	0.0	0.0	
18	24	0.0	0.0	
19	24	0.0	0.0	
20	24	0.0	0.0	
21	24	0.0	0.0	
22	24	0.0	0.0	
23	24	0.0	0.0	
24	24	0.0	0.0	
25	24	0.0	0.0	
26	24	.2	1.7	1700-1959
27	24	.5	3.3	1100-1359
28	24	0.0	0.0	
29	24	0.0	0.0	
30	24	0.0	0.0	

Total # Hours in Month - 720
Total # Hourly Samples - 720
Percent Data Acquisition - 100%

	FORM	1
FCS - East	SITE IDENT	101740005
Florida Crushed Stone	AGENCY	J
Source - Ambient	PROJECT	02
One-Hour	TIME INTVL	1
1982	YEAR	82
June	MONTH	06
Sulfur Dioxide	PARAMETER	42401
Flame Photometric	METHOD	16
Parts Per Billion	UNITS	08
	DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
01	00	0	0	0	0	0	0	0	0	0	0	0	0
01	12	0	0	0	0	0	0	0	0	0	0	0	0
02	00	0	0	0	0	0	0	0	0	0	0	0	0
02	12	0	0	0	0	0	0	0	0	0	0	0	0
03	00	0	0	0	0	0	0	0	0	0	0	0	0
03	12	0	0	0	0	0	0	0	0	0	0	0	0
04	00	0	0	0	0	0	0	0	0	0	0	0	0
04	12	0	0	0	0	0	0	0	0	0	0	0	0
05	00	0	0	0	0	0	0	0	0	0	0	0	0
05	12	0	0	0	0	0	0	0	0	0	0	0	0
06	00	0	0	0	0	0	0	0	0	0	0	0	0
06	12	0	0	0	0	0	0	0	0	0	0	0	0
07	00	0	0	0	0	0	0	0	0	0	0	0	0
07	12	0	0	0	0	0	0	0	0	0	0	0	0
08	00	0	0	0	0	0	0	0	0	0	0	0	0
08	12	0	0	0	0	0	0	0	0	0	0	0	0
09	00	0	0	0	0	0	0	0	0	0	0	0	0
09	12	0	0	0	0	0	0	0	0	0	0	0	0
10	00	0	0	0	0	0	0	0	0	0	0	0	0
10	12	0	0	0	0	0	0	0	0	0	0	0	0
11	00	0	0	0	0	0	0	0	0	0	0	0	0
11	12	0	0	0	0	0	0	0	0	0	0	0	0
12	00	0	0	0	0	0	0	0	0	0	0	0	0
12	12	0	0	0	0	0	0	0	0	0	0	0	0
13	00	0	0	0	0	0	0	0	0	0	0	0	0
13	12	0	0	0	0	0	0	0	0	0	0	0	0
14	00	0	0	0	0	0	0	0	0	0	0	0	0
14	12	0	0	0	0	0	0	0	0	0	0	0	0
15	00	0	0	0	0	0	0	0	0	0	0	0	0
15	12	0	0	0	0	0	0	0	0	0	0	0	0
16	00	0	0	0	0	0	0	0	0	0	0	0	0

	FORM	1
FCS - East	SITE IDENT	101740005
Florida Crushed Stone	AGENCY	J
Source - Ambient	PROJECT	02
One-Hour	TIME INTVL	1
1982	YEAR	82
June	MONTH	06
Sulfur Dioxide	PARAMETER	42401
Flame Photometric	METHOD	16
Parts Per Billion	UNITS	08
	DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
16	12	0	0	0	0	0	0	0	0	0	0	0	0
17	00	0	0	0	0	0	0	0	0	0	0	0	0
17	12	0	0	0	0	0	0	0	0	0	0	0	0
18	00	0	0	0	0	0	0	0	0	0	0	0	0
18	12	0	0	0	0	0	0	0	0	0	0	0	0
19	00	0	0	0	0	0	0	0	0	0	0	0	0
19	12	0	0	0	0	0	0	0	0	0	0	0	0
20	00	0	0	0	0	0	0	0	0	0	0	0	0
20	12	0	0	0	0	0	0	0	0	0	0	0	0
21	00	0	0	0	0	0	0	0	0	0	0	0	0
21	12	0	0	0	0	0	0	0	0	0	0	0	0
22	00	0	0	0	0	0	0	0	0	0	0	0	0
22	12	0	0	0	0	0	0	0	0	0	0	0	0
23	00	0	0	0	0	0	0	0	0	0	0	0	0
23	12	0	0	0	0	0	0	0	0	0	0	0	0
24	00	0	0	0	0	0	0	0	0	0	0	0	0
24	12	0	0	0	0	0	0	0	0	0	0	0	0
25	00	0	0	0	0	0	0	0	0	0	0	0	0
25	12	0	0	0	0	0	0	0	0	0	0	0	0
26	00	0	0	0	0	0	0	0	0	0	0	0	0
26	12	0	0	0	0	0	0	4	1	0	0	0	0
27	00	0	0	0	0	0	0	0	0	0	0	0	2
27	12	6	2	0	1	0	0	0	0	0	0	0	0
28	00	0	0	0	0	0	0	0	0	0	0	0	0
28	12	0	0	0	0	0	0	0	0	0	0	0	0
29	00	0	0	0	0	0	0	0	0	0	0	0	0
29	12	0	0	0	0	0	0	0	0	0	0	0	0
30	00	0	0	0	0	0	0	0	0	0	0	0	0
30	12	0	0	0	0	0	0	0	0	0	0	0	0

Day	No. of Hourly Samples	Daily Average (PPB)	High 3-Hour Average	Period
1	24	0.0	0.0	
2	24	0.0	0.0	
3	24	0.0	0.0	
4	24	0.0	0.0	
5	24	0.0	0.0	
6	24	1.3	10.7	900-1159
7	24	0.0	0.0	
8	24	0.0	0.0	
9	24	0.0	0.0	
10	24	0.0	0.0	
11	24	0.0	0.0	
12	24	0.0	0.0	
13	20	0.0	0.0	
14	0			
15	11	0.0	0.0	
16	24	0.0	0.0	
17	24	0.0	0.0	
18	24	1.3	10.3	1200-1459
19	24	0.0	0.0	
20	24	3.5	16.3	900-1159
21	24	0.0	0.0	
22	24	0.0	0.0	
23	24	0.0	0.0	
24	24	0.0	0.0	
25	24	0.0	0.0	
26	24	1.7	13.3	900-1159
27	24	0.0	0.0	
28	24	0.0	0.0	
29	24	1.4	10.0	1000-1259
30	24	1.7	12.3	800-1059
31	24	1.5	11.3	1500-1759

Total # Hours in Month - 744
Total # Hourly Samples - 703
Percent Data Acquisition - 94%

	FORM	1
FCS - East	SITE IDENT	101740005
Florida Crushed Stone	AGENCY	J
Source - Ambient	PROJECT	02
One-Hour	TIME INTVL	1
1982	YEAR	82
July	MONTH	07
Sulfur Dioxide	PARAMETER	42401
Flame Photometric	METHOD	16
Parts Per Billion	UNITS	08
	DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
01	00	0	0	0	0	0	0	0	0	0	0	0	0
01	12	0	0	0	0	0	0	0	0	0	0	0	0
02	00	0	0	0	0	0	0	0	0	0	0	0	0
02	12	0	0	0	0	0	0	0	0	0	0	0	0
03	00	0	0	0	0	0	0	0	0	0	0	0	0
03	12	0	0	0	0	0	0	0	0	0	0	0	0
04	00	0	0	0	0	0	0	0	0	0	0	0	0
04	12	0	0	0	0	0	0	0	0	0	0	0	0
05	00	0	0	0	0	0	0	0	0	0	0	0	0
05	12	0	0	0	0	0	0	0	0	0	0	0	0
06	00	0	0	0	0	0	0	0	0	0	15	15	2
06	12	0	0	0	0	0	0	0	0	0	0	0	0
07	00	0	0	0	0	0	0	0	0	0	0	0	0
07	12	0	0	0	0	0	0	0	0	0	0	0	0
08	00	0	0	0	0	0	0	0	0	0	0	0	0
08	12	0	0	0	0	0	0	0	0	0	0	0	0
09	00	0	0	0	0	0	0	0	0	0	0	0	0
09	12	0	0	0	0	0	0	0	0	0	0	0	0
10	00	0	0	0	0	0	0	0	0	0	0	0	0
10	12	0	0	0	0	0	0	0	0	0	0	0	0
11	00	0	0	0	0	0	0	0	0	0	0	0	0
11	12	0	0	0	0	0	0	0	0	0	0	0	0
12	00	0	0	0	0	0	0	0	0	0	0	0	0
12	12	0	0	0	0	0	0	0	0	0	0	0	0
13	00	0	0	0	0	0	0	0	0	0	0	0	0
13	12	0	0	0	0	0	0	0	0				
14	00												
14	12												
15	00												
15	12		0	0	0	0	0	0	0	0	0	0	0
16	00	0	0	0	0	0	0	0	0	0	0	0	0

	FORM	1
FCS - East	SITE IDENT	101740005
Florida Crushed Stone	AGENCY	J
Source - Ambient	PROJECT	02
One-Hour	TIME INTVL	1
1982	YEAR	82
July	MONTH	07
Sulfur Dioxide	PARAMETER	42401
Flame Photometric	METHOD	16
Parts Per Billion	UNITS	08
	DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
16	12	0	0	0	0	0	0	0	0	0	0	0	0
17	00	0	0	0	0	0	0	0	0	0	0	0	0
17	12	0	0	0	0	0	0	0	0	0	0	0	0
18	00	0	0	0	0	0	0	0	0	0	0	0	0
18	12	8	13	10	1	0	0	0	0	0	0	0	0
19	00	0	0	0	0	0	0	0	0	0	0	0	0
19	12	0	0	0	0	0	0	0	0	0	0	0	0
20	00	0	0	0	0	0	0	0	0	7	30	6	13
20	12	19	10	0	0	0	0	0	0	0	0	0	0
21	00	0	0	0	0	0	0	0	0	0	0	0	0
21	12	0	0	0	0	0	0	0	0	0	0	0	0
22	00	0	0	0	0	0	0	0	0	0	0	0	0
22	12	0	0	0	0	0	0	0	0	0	0	0	0
23	00	0	0	0	0	0	0	0	0	0	0	0	0
23	12	0	0	0	0	0	0	0	0	0	0	0	0
24	00	0	0	0	0	0	0	0	0	0	0	0	0
24	12	0	0	0	0	0	0	0	0	0	0	0	0
25	00	0	0	0	0	0	0	0	0	0	0	0	0
25	12	0	0	0	0	0	0	0	0	0	0	0	0
26	00	0	0	0	0	0	0	0	0	0	3	27	10
26	12	0	0	0	0	0	0	0	0	0	0	0	0
27	00	0	0	0	0	0	0	0	0	0	0	0	0
27	12	0	0	0	0	0	0	0	0	0	0	0	0
28	00	0	0	0	0	0	0	0	0	0	0	0	0
28	12	0	0	0	0	0	0	0	0	0	0	0	0
29	00	0	0	0	0	0	0	0	0	0	0	10	7
29	12	13	3	0	0	0	0	0	0	0	0	0	0
30	00	0	0	0	0	0	0	0	0	7	20	10	3
30	12	0	0	0	0	0	0	0	0	0	0	0	0
31	00	0	0	0	0	0	0	0	0	0	0	0	0
31	12	0	0	3	12	15	7	0	0	0	0	0	0

Day	No. of Hourly Samples	Daily Average (PPB)	High 3-Hour Average	Period
1	24	0.0	0.0	
2	24	0.0	0.0	
3	24	0.0	0.0	
4	24	0.0	0.0	
5	24	0.0	0.0	
6	24	0.0	0.0	
7	24	0.0	0.0	
8	24	0.0	0.0	
9	24	2.1	15.0	1700-1959
10	24	0.0	0.0	
11	24	0.0	0.0	
12	24	0.0	0.0	
13	24	0.0	0.0	
14	24	0.0	0.0	
15	24	0.0	0.0	
16	24	0.0	0.0	
17	20	0.0	0.0	
18	0			
19	0			
20	0			
21	0			
22	0			
23	0			
24	0			
25	0			
26	13	0.0	0.0	
27	24	0.0	0.0	
28	24	0.0	0.0	
29	24	0.0	0.0	
30	24	0.0	0.0	
31	0			

Total # Hours in Month - 744
Total # Hourly Samples - 513
Percent Data Acquisition - 69%

FCS - East	SITE IDENT	FORM	1
			101740005
Florida Crushed Stone	AGENCY		J
Source - Ambient	PROJECT		02
One-Hour	TIME INTVL		1
1982	YEAR		82
August	MONTH		08
Sulfur Dioxide	PARAMETER		42401
Flame Photometric	METHOD		16
Parts Per Billion	UNITS		08
	DP		0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
01	00	0	0	0	0	0	0	0	0	0	0	0	0
01	12	0	0	0	0	0	0	0	0	0	0	0	0
02	00	0	0	0	0	0	0	0	0	0	0	0	0
02	12	0	0	0	0	0	0	0	0	0	0	0	0
03	00	0	0	0	0	0	0	0	0	0	0	0	0
03	12	0	0	0	0	0	0	0	0	0	0	0	0
04	00	0	0	0	0	0	0	0	0	0	0	0	0
04	12	0	0	0	0	0	0	0	0	0	0	0	0
05	00	0	0	0	0	0	0	0	0	0	0	0	0
05	12	0	0	0	0	0	0	0	0	0	0	0	0
06	00	0	0	0	0	0	0	0	0	0	0	0	0
06	12	0	0	0	0	0	0	0	0	0	0	0	0
07	00	0	0	0	0	0	0	0	0	0	0	0	0
07	12	0	0	0	0	0	0	0	0	0	0	0	0
08	00	0	0	0	0	0	0	0	0	0	0	0	0
08	12	0	0	0	0	0	0	0	0	0	0	0	0
09	00	0	0	0	0	0	0	0	0	0	0	0	0
09	12	0	0	0	0	2	25	12	8	3	0	0	0
10	00	0	0	0	0	0	0	0	0	0	0	0	0
10	12	0	0	0	0	0	0	0	0	0	0	0	0
11	00	0	0	0	0	0	0	0	0	0	0	0	0
11	12	0	0	0	0	0	0	0	0	0	0	0	0
12	00	0	0	0	0	0	0	0	0	0	0	0	0
12	12	0	0	0	0	0	0	0	0	0	0	0	0
13	00	0	0	0	0	0	0	0	0	0	0	0	0
13	12	0	0	0	0	0	0	0	0	0	0	0	0
14	00	0	0	0	0	0	0	0	0	0	0	0	0
14	12	0	0	0	0	0	0	0	0	0	0	0	0
15	00	0	0	0	0	0	0	0	0	0	0	0	0
15	12	0	0	0	0	0	0	0	0	0	0	0	0
16	00	0	0	0	0	0	0	0	0	0	0	0	0

	FORM	1
FCS - East	SITE IDENT	101740005
Florida Crushed Stone	AGENCY	J
Source - Ambient	PROJECT	02
One-Hour	TIME INTVL	1
1982	YEAR	82
August	MONTH	08
Sulfur Dioxide	PARAMETER	42401
Flame Photometric	METHOD	16
Parts Per Billion	UNITS	08
	DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
16	12	0	0	0	0	0	0	0	0	0	0	0	0
17	00	0	0	0	0	0	0	0	0	0	0	0	0
17	12	0	0	0	0	0	0	0	0				
18	00												
18	12												
19	00												
19	12												
20	00												
20	12												
21	00												
21	12												
22	00												
22	12												
23	00												
23	12												
24	00												
24	12												
25	00												
25	12												
26	00												0
26	12	0	0	0	0	0	0	0	0	0	0	0	0
27	00	0	0	0	0	0	0	0	0	0	0	0	0
27	12	0	0	0	0	0	0	0	0	0	0	0	0
28	00	0	0	0	0	0	0	0	0	0	0	0	0
28	12	0	0	0	0	0	0.	0	0	0	0	0	0
29	00	0	0	0	0	0	0	0	0	0	0	0	0
29	12	0	0	0	0	0	0	0	0	0	0	0	0
30	00	0	0	0	0	0	0	0	0	0	0	0	0
30	12	0	0	0	0	0	0	0	0	0	0	0	0
31	00												
31	12												

FCS - East	Sulfur Dioxide	Sept 1982

Day	No. of Hourly Samples	Daily Average (PPB)	High 3-Hour Average	Period
1	9	0.0	0.0	
2	24	0.0	0.0	
3	24	3.5	14.7	1700-1959
4	24	2.1	14.0	900-1159
5	24	0.0	0.0	
6	24	0.0	0.0	
7	24	0.0	0.0	
8	24	0.0	0.0	
9	24	0.0	0.0	
10	24	0.0	0.0	
11	24	0.0	0.0	
12	24	0.0	0.0	
13	8	0.0	0.0	
14	0			
15	0			
16	10	0.0	0.0	
17	24	0.0	0.0	
18	24	0.0	0.0	
19	24	0.0	0.0	
20	24	0.0	0.0	
21	24	0.0	0.0	
22	24	3.6	14.7	1500-1759
23	24	0.0	0.0	
24	24	0.0	0.0	
25	24	0.0	0.0	
26	24	.8	6.7	1000-1259
27	24	0.0	0.0	
28	24	0.0	0.0	
29	24	0.0	0.0	
30	24	0.0	0.0	

Total # Hours in Month - 720
Total # Hourly Samples - 627
Percent Data Acquisition - 87%

		FORM	1
FCS - East		SITE IDENT	101740005
Florida Crushed Stone		AGENCY	J
Source - Ambient		PROJECT	02
One-Hour		TIME INTVL	1
1982		YEAR	82
Sept		MONTH	09
Sulfur Dioxide		PARAMETER	42401
Flame Photometric		METHOD	16
Parts Per Billion		UNITS	08
		DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
01	00												
01	12				0	0	0	0	0	0	0	0	0
02	00	0	0	0	0	0	0	0	0	0	0	0	0
02	12	0	0	0	0	0	0	0	0	0	0	0	0
03	00	0	0	0	0	0	0	0	0	0	0	0	0
03	12	0	0	0	7	11	10	16	18	0	9	8	6
04	00	5	0	0	0	0	0	0	0	0	12	17	13
04	12	3	0	0	0	0	0	0	0	0	0	0	0
05	00	0	0	0	0	0	0	0	0	0	0	0	0
05	12	0	0	0	0	0	0	0	0	0	0	0	0
06	00	0	0	0	0	0	0	0	0	0	0	0	0
06	12	0	0	0	0	0	0	0	0	0	0	0	0
07	00	0	0	0	0	0	0	0	0	0	0	0	0
07	12	0	0	0	0	0	0	0	0	0	0	0	0
08	00	0	0	0	0	0	0	0	0	0	0	0	0
08	12	0	0	0	0	0	0	0	0	0	0	0	0
09	00	0	0	0	0	0	0	0	0	0	0	0	0
09	12	0	0	0	0	0	0	0	0	0	0	0	0
10	00	0	0	0	0	0	0	0	0	0	0	0	0
10	12	0	0	0	0	0	0	0	0	0	0	0	0
11	00	0	0	0	0	0	0	0	0	0	0	0	0
11	12	0	0	0	0	0	0	0	0	0	0	0	0
12	00	0	0	0	0	0	0	0	0	0	0	0	0
12	12	0	0	0	0	0	0	0	0	0	0	0	0
13	00	0	0	0	0	0	0	0	0				
13	12												
14	00												
14	12												
15	00												
15	12												
16	00												

	FORM	1
FCS - East	SITE IDENT	101740005
Florida Crushed Stone	AGENCY	J
Source - Ambient	PROJECT	02
One-Hour	TIME INTVL	1
1982	YEAR	82
Sept	MONTH	09
Sulfur Dioxide	PARAMETER	42401
Flame Photometric	METHOD	16
Parts Per Billion	UNITS	08
	DP	0

DAY	ST HR	RDG 1	RDG 2	RDG 3	RDG 4	RDG 5	RDG 6	RDG 7	RDG 8	RDG 9	RDG10	RDG11	RDG12
16	12			0	0	0	0	0	0	0	0	0	0
17	00	0	0	0	0	0	0	0	0	0	0	0	0
17	12	0	0	0	0	0	0	0	0	0	0	0	0
18	00	0	0	0	0	0	0	0	0	0	0	0	0
18	12	0	0	0	0	0	0	0	0	0	0	0	0
19	00	0	0	0	0	0	0	0	0	0	0	0	0
19	12	0	0	0	0	0	0	0	0	0	0	0	0
20	00	0	0	0	0	0	0	0	0	0	0	0	0
20	12	0	0	0	0	0	0	0	0	0	0	0	0
21	00	0	0	0	0	0	0	0	0	0	0	0	0
21	12	0	0	0	0	0	0	0	0	0	0	0	0
22	00	0	0	0	0	0	0	0	0	0	0	0	19
22	12	10	3	6	17	17	10	4	1	0	0	0	0
23	00	0	0	0	0	0	0	0	0	0	0	0	0
23	12	0	0	0	0	0	0	0	0	0	0	0	0
24	00	0	0	0	0	0	0	0	0	0	0	0	0
24	12	0	0	0	0	0	0	0	0	0	0	0	0
25	00	0	0	0	0	0	0	0	0	0	0	0	0
25	12	0	0	0	0	0	0	0	0	0	0	0	0
26	00	0	0	0	0	0	0	0	0	0	0	4	11
26	12	5	0	0	0	0	0	0	0	0	0	0	0
27	00	0	0	0	0	0	0	0	0	0	0	0	0
27	12	0	0	0	0	0	0	0	0	0	0	0	0
28	00	0	0	0	0	0	0	0	0	0	0	0	0
28	12	0	0	0	0	0	0	0	0	0	0	0	0
29	00	0	0	0	0	0	0	0	0	0	0	0	0
29	12	0	0	0	0	0	0	0	0	0	0	0	0
30	00	0	0	0	0	0	0	0	0	0	0	0	0
30	12	0	0	0	0	0	0	0	0	0	0	0	0

5.0 AIR QUALITY IMPACT ANALYSIS

5.1 Introduction

An air quality review was required to evaluate the impact of particulate matter, sulfur dioxide and nitrogen oxides emissions from the proposed Florida Crushed Stone facility. The baseline concentration for the pollutants and the impact of new or modified sources (all major sources constructed since January 6, 1975 and all sources since August 7, 1977) have been established by air quality modeling. The impact of new or modified sources within the area of the proposed facility have been included in the air quality impact analysis.

The air quality modeling performed to Access long-term and short-term impacts was conducted in accordance with guidelines established by EPA (Guideline for Air Quality Models, March, 1978). For particulate matter the annual and 24-hour impacts were evaluated; for sulfur dioxide the annual, 24-hour and 3-hour impacts were investigated and nitrogen oxides the annual impact was investigated. These periods of investigation correspond to periods for which air quality standards exist for these pollutants.

The annual impact of pollutants was evaluated using the Industrial Source Complex-Long Term (ISC-LT). The short-term impacts, that is the 24-hour and 3-hour impacts, were evaluated using the CRSTER and PTMTPW models. With all models, five years of meteorological data from Tampa representing the period 1970-1974 were used.

Source emission data for all major sources within approximately 75 kilometers of the proposed site were used in the air quality review. In addition to these sources all of the smaller sources within 50 kilometers of the site that would have a significant impact on the site were included in the review.

5.2 Meteorological Data

The EPA guidelines for air quality modeling recommend that five years of meteorological data be used for the air quality review. The potential sources of meteorological data were Orlando, Florida (104 kilometers east of the site), and Tampa, Florida (70 kilometers south of the site). The Tampa site is located in a coastal area whereas the Florida Crushed Stone site is approximately 20 kilometers from the Gulf Coast. Orlando, Florida is located on peninsular Florida and is subject to even less maritime influences than is the Brooksville area. In addition, Orlando is significantly further from the Florida Crushed Stone site than is Tampa. Based on these considerations, Tampa meteorological data were selected for the air quality review.

Hourly surface meteorological data are available from Tampa for the period 1970-1974. These data were combined with Tampa upper air data for the same period of record to obtain mixing heights applicable to the Brooksville area. The data were also summarized into the STAR format with five stability classes for use with the ISC-LT model.

5.3 Emission Data

The permit files of the FDER office in Tampa were reviewed for sources which might have an impact on the air quality at the proposed Florida Crushed Stone site. The sources included in the emission inventory are shown on Figure 5-1 and are listed in Appendix A5-1. The emission and stack parameters associated with these sources are included in Appendix A5-1.

The sources included in the emission inventory include all major sources (such as power plants) within approximately 75 kilometers of the proposed site and smaller sources which were judged to have a potential impact on air quality at the site. Several small sources within 50 kilometers of the site, such as asphalt plants and commercial and pathological incinerators, were excluded from the emission inventory because it was estimated that these sources would not have a significant impact on the air quality at the Florida Crushed Stone site.

In conducting the air quality review, meteorological conditions were selected which would align the various sources shown in Figure 5-1 with the sources at the Florida Crushed Stone site to investigate source interaction.

5.4 Air Quality Review

The air quality review included both the short-term and long-term impact of air pollutants. The short-term impacts are defined as the 3-hour and 24-hour impacts of pollutants emitted from sources in the study area. The short-term impact analysis was conducted with the CRSTER and PTMTPW air quality models. The CRSTER model was run first using as input the emission data from the proposed sources and the meteorological data for the period 1970-1974 from Tampa, Florida. The four inner receptor distances in the CRSTER model were set to predict the point of maximum impact for the pollutants and the outer set of CRSTER receptors was set to evaluate the impact of emissions on the Class I PSD area 20 kilometers west of the site.

Meteorological data for evaluating the 3-hour and 24-hour pollutant levels in the ambient air were selected from the CRSTER model output. A summary of the maximum impacts for each year of meteorology and the meteorology selected for evaluating pollutant impacts in several directions is included at the beginning of the CRSTER output for particulate matter and for sulfur dioxide in Volume II of this application.

Meteorological data resulting in the highest second-high 24-hour and 3-hour impacts in several directions were selected for further investigation. These directions corresponded to the direction of the highest second-high impact regardless of direction and the highest second-high impact in the directions that would align the various sources with the Florida Crushed Stone sources.

The long-term air quality impact is defined as the annual average impact of pollutants emitted from sources within the study area. The long-term impact analyses were conducted with the ISC-LT. The input data to the ISC-LT included emission data from all sources within the study area and meteorological data from Tampa for the period 1970-1974. These data were in the STAR format with five stability classes.

5.4.1 Sulfur Dioxide Impact Analysis

5.4.1.1 Short-Term Sulfur Dioxide Impact

The short-term impact analysis for sulfur dioxide involved the 3-hour impact analysis and a 24-hour impact analysis. These time periods correspond to applicable short-term air quality standards for sulfur dioxide. The CRSTER model was run with sulfur dioxide emission data from the proposed Florida Crushed Stone sources. The receptors were set to determine the maximum air quality impact of the new sources. From these runs the meteorological conditions resulting in the highest second-high 24-hour and 3-hour impacts at several locations were selected. The locations selected represented the direction to the maximum highest second-high concentration for both 24-hour and 3-hour periods and the directions that would allow the investigation of the interaction of pollutants emitted from the various sources defined in Figure 5-1 with Florida Crushed Stone emissions. The meteorological conditions selected for evaluating impacts with various source alignments are summarized at the beginning of the CRSTER output for sulfur dioxide in Volume II of this application.

Also, from this set of CRSTER runs the annual, 24-hour and 3-hour impacts of sulfur dioxide on the Chassahowitzka National Wildlife Refuge were evaluated and the impact of emissions on the Pineallas County Sulfur Dioxide Non-Attainment Area was inferred. The Class I PSD Area is 19.9 kilometers west of the Florida Crushed Stone site. It was determined from the CRSTER model runs that sulfur dioxide emissions from the proposed Florida Crushed Stone facility will not significantly impact the Class I area for the annual or 3-hour periods. For the 24-hour period the CRSTER model indicated one 24-hour set of meteorological conditions that might result in a significant 24-hour sulfur dioxide impact. This period was investigated with the PTMTWP model and the impact were found to be less than significant.

Since the sulfur dioxide impacts in the direction of the sulfur dioxide non-attainment area were not significant at 19.9 kilometer, it was inferred that the impacts would not be significant at the non-attainment area which is 55 kilometers from the site.

The critical meteorological conditions established with the CRSTER model and the emission data from the Florida Crushed Stone sources other than new and existing sources were input to the PTMTPW model to determine the maximum impact of sulfur dioxide for each condition investigated. The receptor spacing used for determining the point of maximum impact was 0.1 kilometers. The results of the short-term sulfur dioxide air quality review are summarized in Table 5-2 and Figures 5-2 and 5-3.

5.4.1.2 Long-Term Sulfur Dioxide Impact

The long-term sulfur dioxide air quality review was conducted with the ISC-LT. This model was run first to establish a baseline sulfur dioxide concentrations; that is the air quality level resulting from the sulfur dioxide emissions from existing sources in the study area. The model was run a second time to determine the impact of emissions from new sources within the study area including the Florida Crushed Stone sources and a third time to determine the impact of the sulfur dioxide emissions from all sources. The ISC-LT was also run to determine the impact of Florida Crushed Stone sulfur dioxide sources on the Class I PSD area - a confirmation of the CRSTER results.

The annual average sulfur dioxide levels resulting from these various combinations of sources are summarized in Table 5-2 and Figures 5-4 through 5-6.

5.4.2 Particulate Matter Impact Analysis

5.4.2.1 Short-Term Particulate Matter Impact

The short-term impact analysis for particulate matter involved a 24-hour particulate matter analysis. This time period corresponds to the applicable short-term air quality standard for particulate matter.

The short-term particulate matter air quality review was conducted in a manner identical to the short-term sulfur dioxide impact analysis. The meteorological data which were selected from the CRSTER run for further investigation with PTMTPW are summarized immediately proceeding the CRSTER output for particulate matter in Volume II of this application. The maximum 24-hour particulate matter impacts resulting from Florida Crushed Stone emissions and the interaction of Florida Crushed Stone emissions with the other source emissions are summarized in Figure 5-7 and Table 5-2.

The CRSTER model rur was also used to determine that the annual and 24-hour particulate matter impacts at the boundaries of the Class I PSD area and the Hillsborough County Particulate Matter Non-Attainment Area (57 kilometers south-southeast of the Florida Crushed Stone site) were not significant.

5.4.2.2 Long-Term Particulate Matter Impact

The long-term particulate matter air quality review was conducted in a manner identical to the long-term sulfur dioxide impact review. The annual average particulate matter levels resulting from the emissions of all sources within the study area, are summarized in Table 5-2 and in Figures 5-8 through 5-10.

5.4.3 Nitrogen Oxides Impact Analysis

Since an air quality standard exists for nitrogen oxides for only the annual period a long-term impact analysis was conducted. This analysis was conducted with the ISC-LT in a manner identical to the long-term sulfur dioxide and particulate matter impact analyses. The results of this analysis are summarized in Figure 5-11 and in Table 5-2.

The results of this analysis indicated that the maximum annual nitrogen oxides concentration expected from the Florida Crushed Stone sources will be one microgram per cubic meter. This compares with a deminimus impact level of 14 micrograms per cubic meter, annual average, and an air quality standard of 100 micrograms per cubic meter, annual average.

5.5 Impact on Class I Areas and Non-Attainment Areas

The nearest Class I area to the Florida Crushed Stone site is the Chassahowitzka National Wildlife Refuge 19.9 kilometers west of the site. Other Class I areas and all particulate matter and sulfur dioxide non-attainment areas in the west central Florida area are over 50 kilometers from the site. By reviewing the output of the CRSTER model for sulfur dioxide, and particulate matter and the output of the ISC-LT for nitrogen oxides, it is apparent that emissions from the proposed Florida Crushed Stone sources do not significantly impact Class I PSD areas or the particulate matter or sulfur dioxide non-attainment areas.

5.6 Air Quality Review Summary

The air quality review for the proposed Florida Crushed Stone facility was conducted with modeling guidelines established by the U.S. Environmental Protection Agency. The long-term impact analyses were conducted with the ISC-LT and short-term analyses were conducted with the CRSTER and PTMTPW.

The air quality review indicates that the cement plant and power plant proposed by Florida Crushed Stone can be constructed and operated with no threat to ambient air quality standards, to PSD increments, or to non-attainment areas for particulate matter or sulfur dioxide.

TABLE 5-1

AIR QUALITY STANDARDS AND INCREMENTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

Time Period	Air Quality Standard (ug/m^3)	Class II PSD Increment (ug/m^3)	Class I PSD Increments (ug/m^3)	Significant Impact Levels (ug/m^3)
Sulfur Dioxide				
Annual	60	20	2	1
24-Hour	260	91	5	5
3-Hour	1300	512	25	25
Particulate Matter				
Annual	60	19	5	1
24-Hour	150	37	10	5
Nitrogen Oxides				
Annual	100	N/A	N/A	N/A

TABLE 5-2

SUMMARY OF AIR QUALITY REVIEW

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

	Impact (ug/m^3)			
	CLASS II AREAS			CLASS I AREAS
Pollutant	Max. Impact New Sources	Max. Impact Exist. Sources	Max. Impact All Sources	Max. Impact FCS Sources
Particulate Matter				
Annual	4	58[1]	59[1]	0.2
24-Hour	21	138[2]	146[2]	1.8
Sulfur Dioxide[3]				
Annual	4	29	31	0.7
24-Hour	15	31	39	3.0
3-Hour	58	92	123	21.0
Nitrogen Oxides				
Annual	1[4]	--	--	0.0

(1) Includes a background of 34 ug/m^3.

(2) Includes a background of 112 ug/m^3.

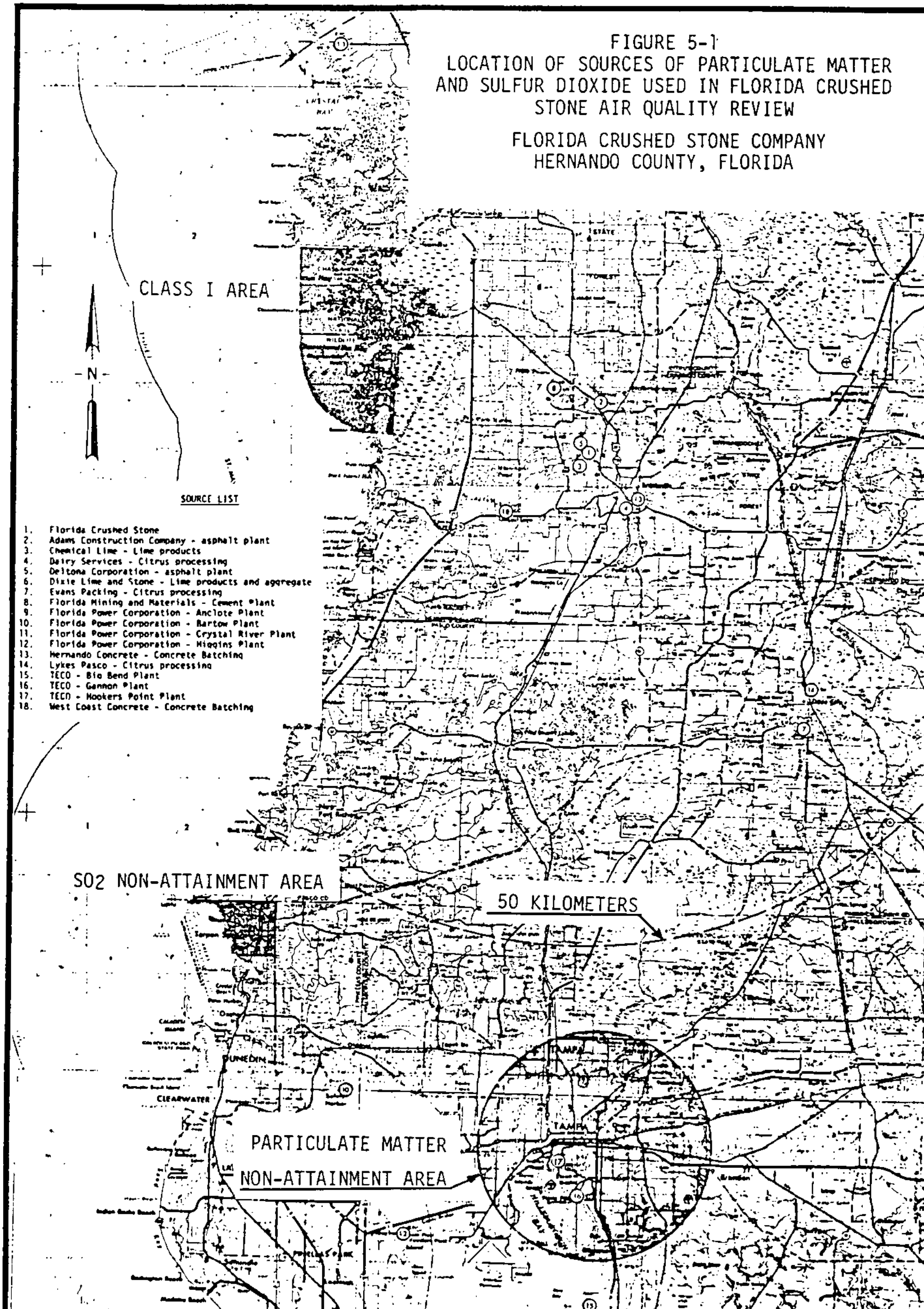
(3) Includes a background of zero for all time periods.

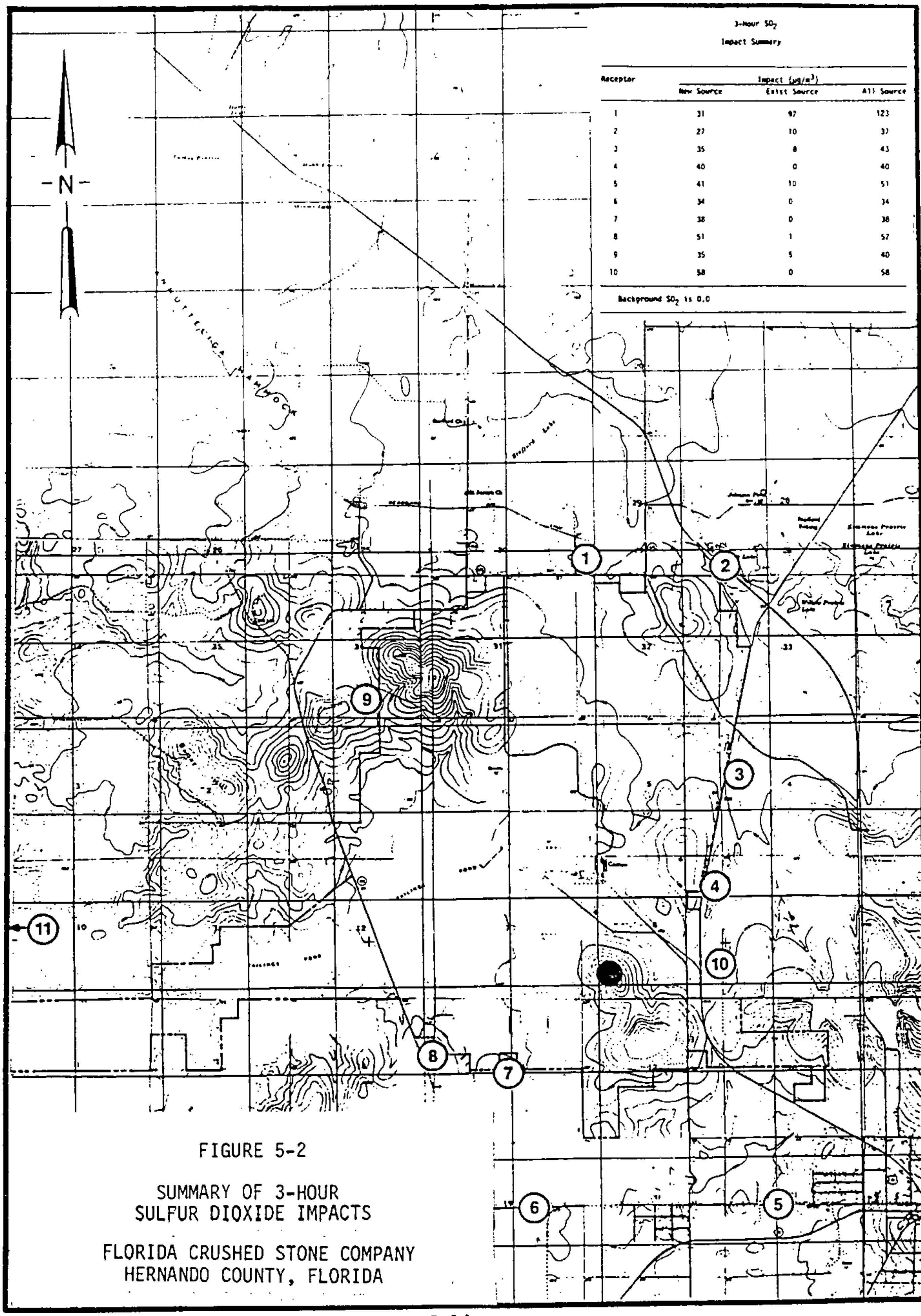
(4) Impact of Florida Crushed Stone Sources only.

NOTE: Impacts on Pinellas County Sulfur Dioxide Non-Attainment area and Hillsborough County Particulate Matter Non-Attainment area are less than significant for all time periods.

FIGURE 5-1
LOCATION OF SOURCES OF PARTICULATE MATTER AND SULFUR DIOXIDE USED IN FLORIDA CRUSHED STONE AIR QUALITY REVIEW

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA





3-Hour SO_2

Impact Summary

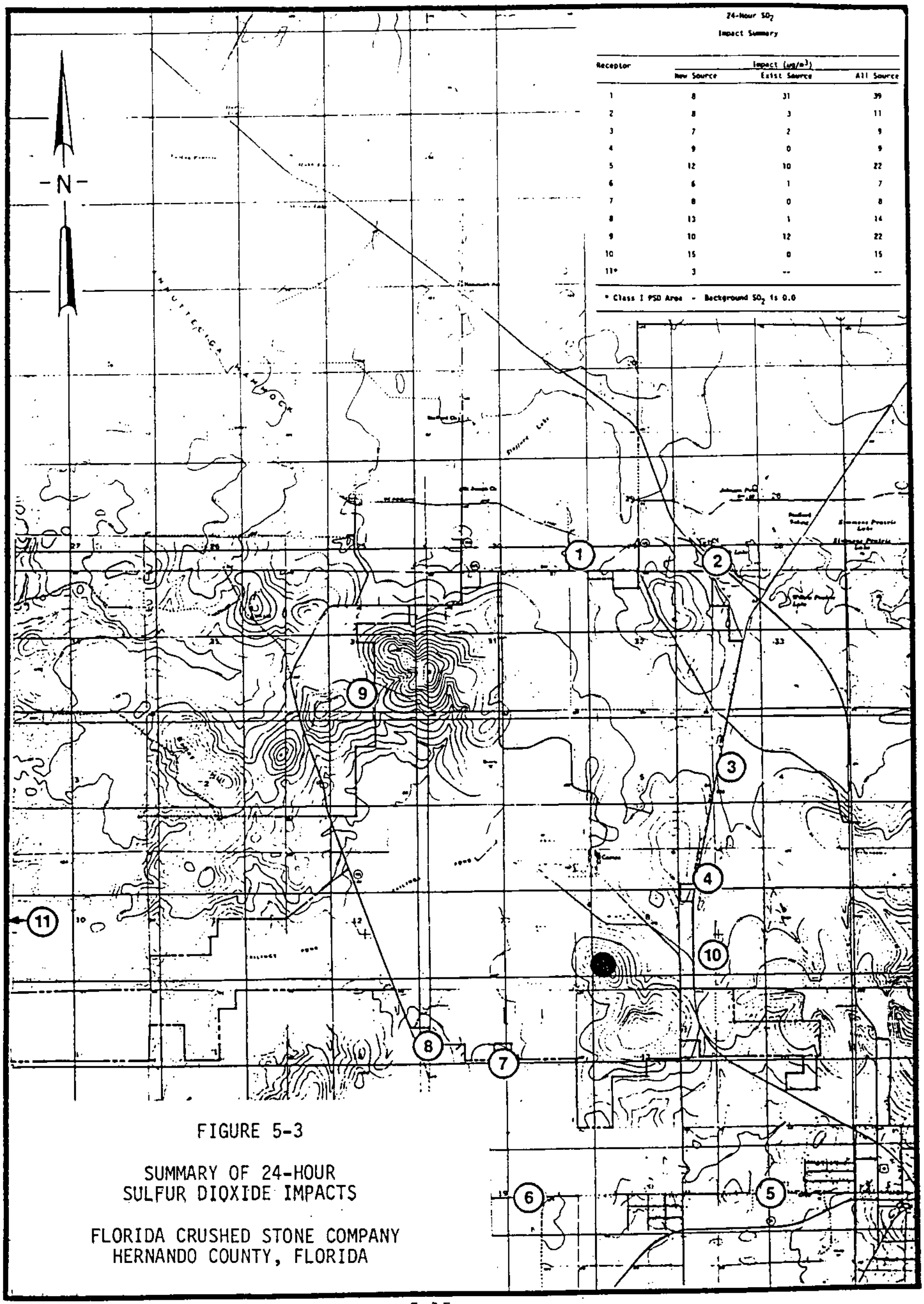
Receptor	Impact ($\mu g/m^3$)		
	New Source	Exist Source	All Source
1	31	92	123
2	27	10	37
3	35	8	43
4	40	0	40
5	41	10	51
6	34	0	34
7	38	0	38
8	51	1	57
9	35	5	40
10	58	0	58

Background SO_2 is 0.0

FIGURE 5-2

SUMMARY OF 3-HOUR SULFUR DIOXIDE IMPACTS

FLORIDA CRUSHED STONE COMPANY HERNANDO COUNTY, FLORIDA



24-Hour SO_2

Impact Summary

Receptor	Impact ($\mu g/m^3$)		
	New Source	Exist Source	All Source
1	8	31	39
2	8	3	11
3	7	2	9
4	9	0	9
5	12	10	22
6	6	1	7
7	8	0	8
8	13	1	14
9	10	12	22
10	15	0	15
11*	3	--	--

* Class I PSD Area - Background SO_2 is 0.0

FIGURE 5-3

SUMMARY OF 24-HOUR
SULFUR DIOXIDE IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

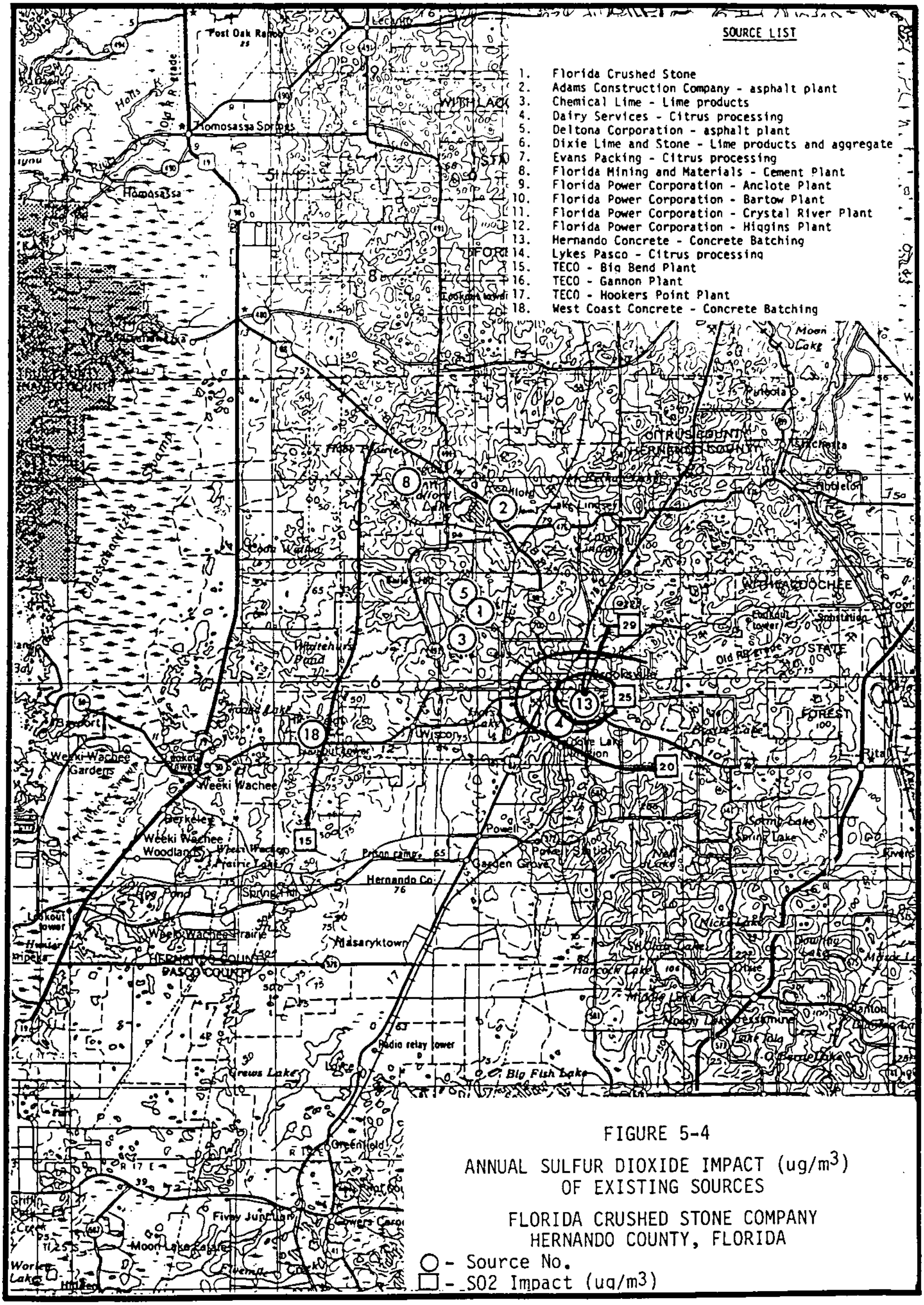


FIGURE 5-4

ANNUAL SULFUR DIOXIDE IMPACT (ug/m^3) OF EXISTING SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

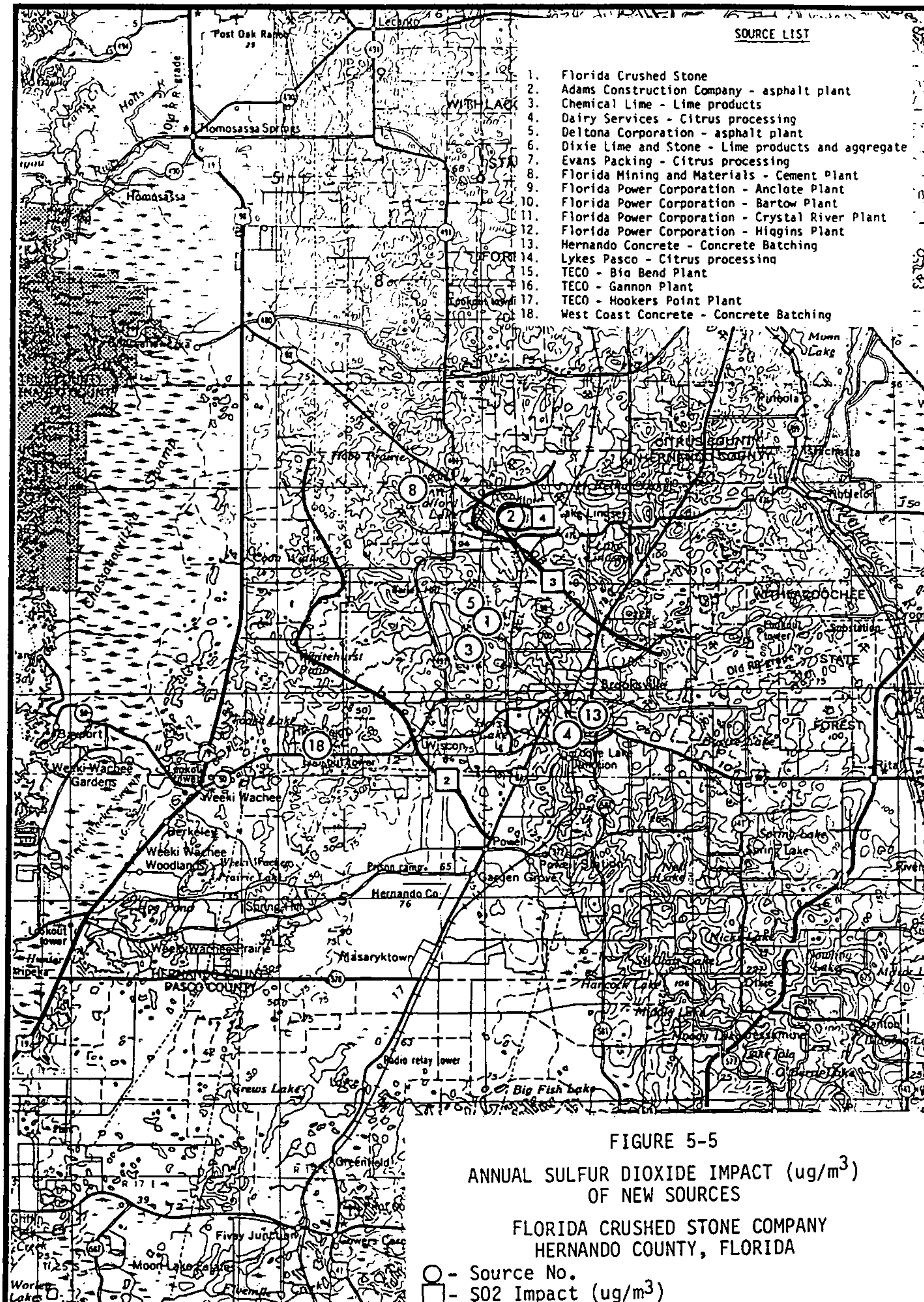


FIGURE 5-5

ANNUAL SULFUR DIOXIDE IMPACT (ug/m^3) OF NEW SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

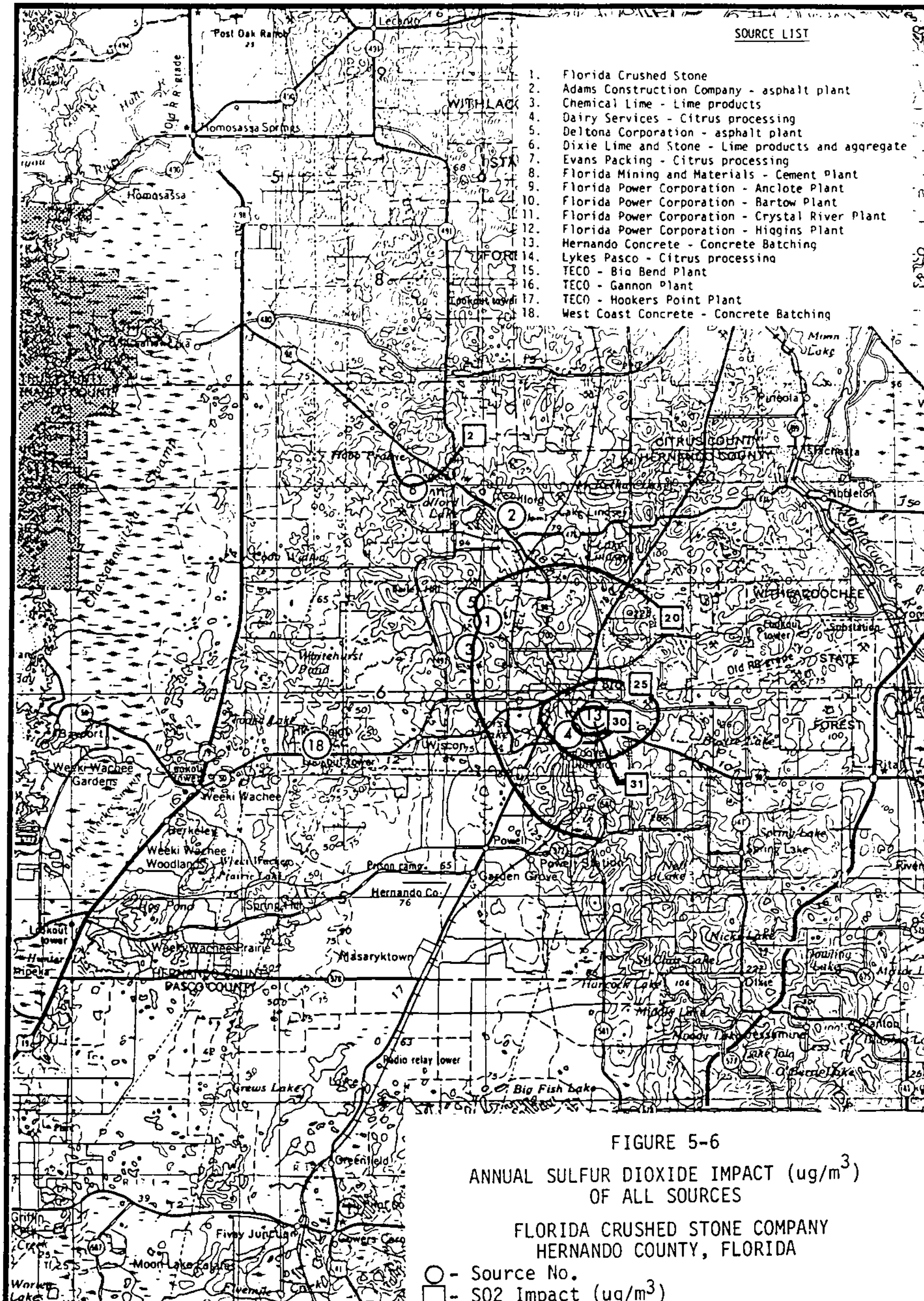
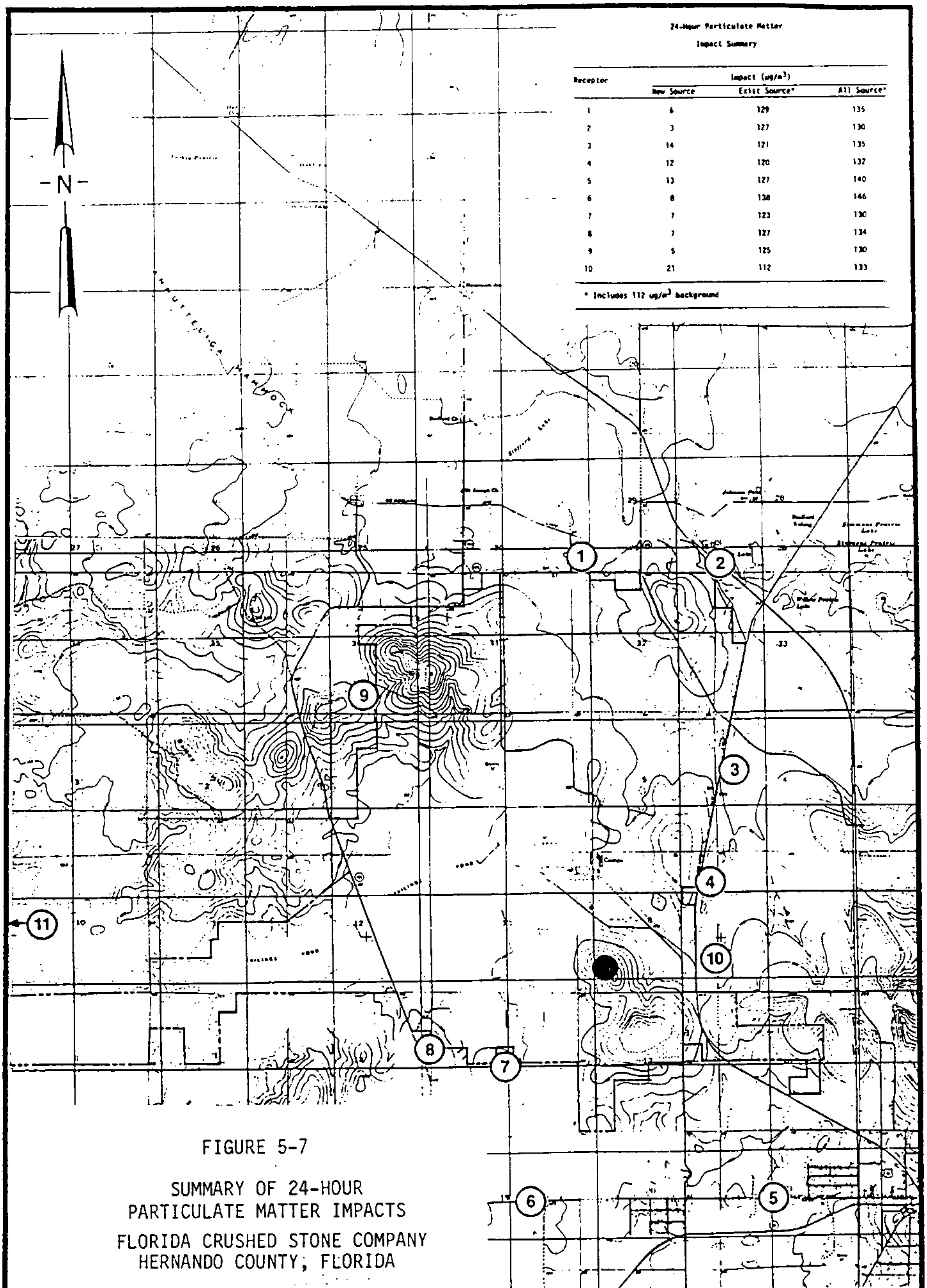


FIGURE 5-6

ANNUAL SULFUR DIOXIDE IMPACT (ug/m^3)
OF ALL SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA



24-Hour Particulate Matter

Impact Summary

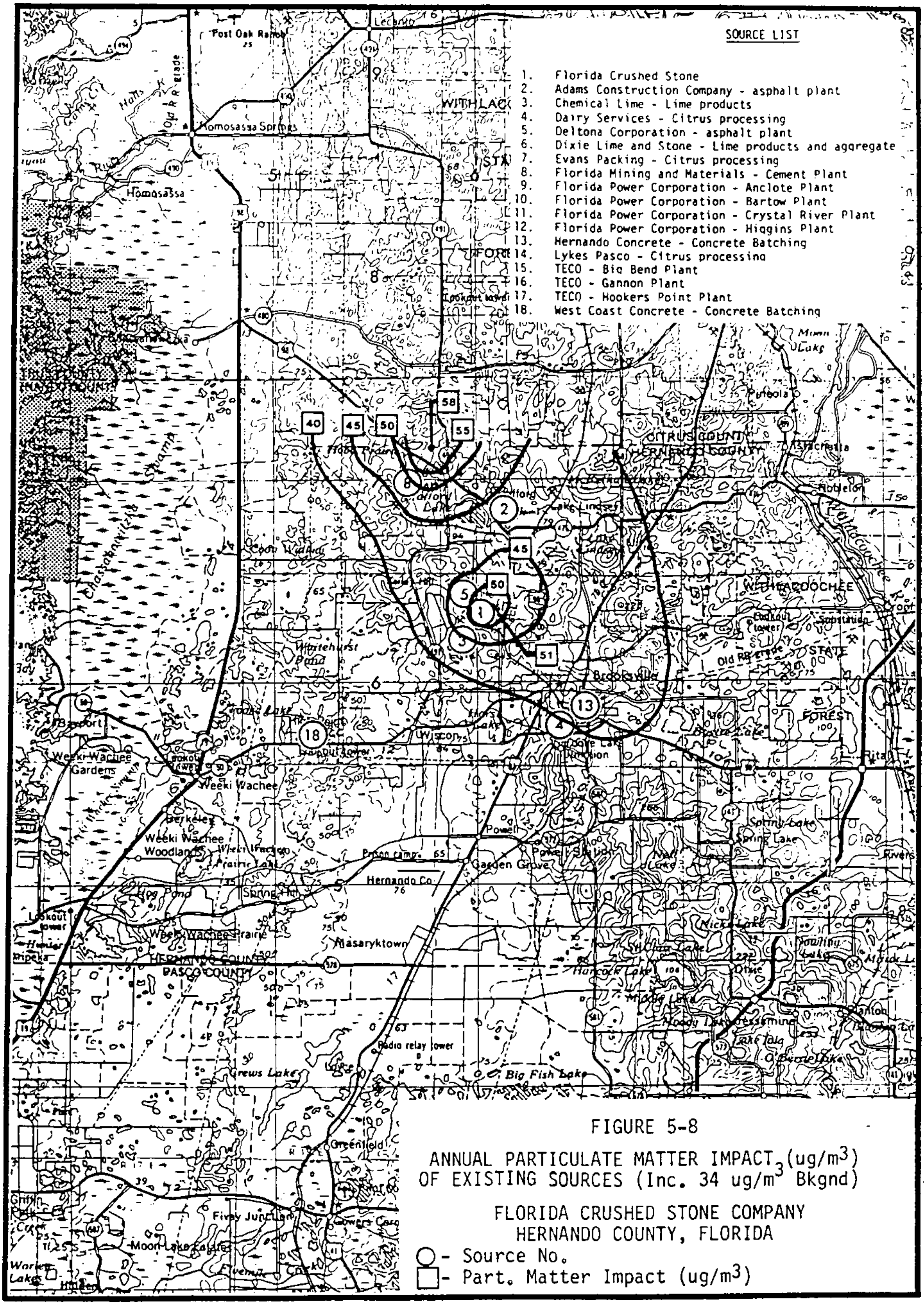
Receptor	Impact ($\mu g/m^3$)		
	New Source	Exist Source*	All Source*
1	6	129	135
2	3	127	130
3	14	121	135
4	12	120	132
5	13	127	140
6	8	138	146
7	7	123	130
8	7	127	134
9	5	125	130
10	21	112	133

* Includes 112 ug/m^3 background

FIGURE 5-7

SUMMARY OF 24-HOUR PARTICULATE MATTER IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA



SOURCE LIST

1. Florida Crushed Stone
2. Adams Construction Company - asphalt plant
3. Chemical Lime - Lime products
4. Dairy Services - Citrus processing
5. Deltona Corporation - asphalt plant
6. Dixie Lime and Stone - Lime products and aggregate
7. Evans Packing - Citrus processing
8. Florida Mining and Materials - Cement Plant
9. Florida Power Corporation - Anclote Plant
10. Florida Power Corporation - Bartow Plant
11. Florida Power Corporation - Crystal River Plant
12. Florida Power Corporation - Higgins Plant
13. Hernando Concrete - Concrete Batching
14. Lykes Pasco - Citrus processing
15. TECO - Big Bend Plant
16. TECO - Gannon Plant
17. TECO - Hookers Point Plant
18. West Coast Concrete - Concrete Batching

FIGURE 5-8

ANNUAL PARTICULATE MATTER IMPACT (ug/m^3) OF EXISTING SOURCES (Inc. 34 ug/m^3 Bkgnd)

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
□ - Part. Matter Impact (ug/m^3)

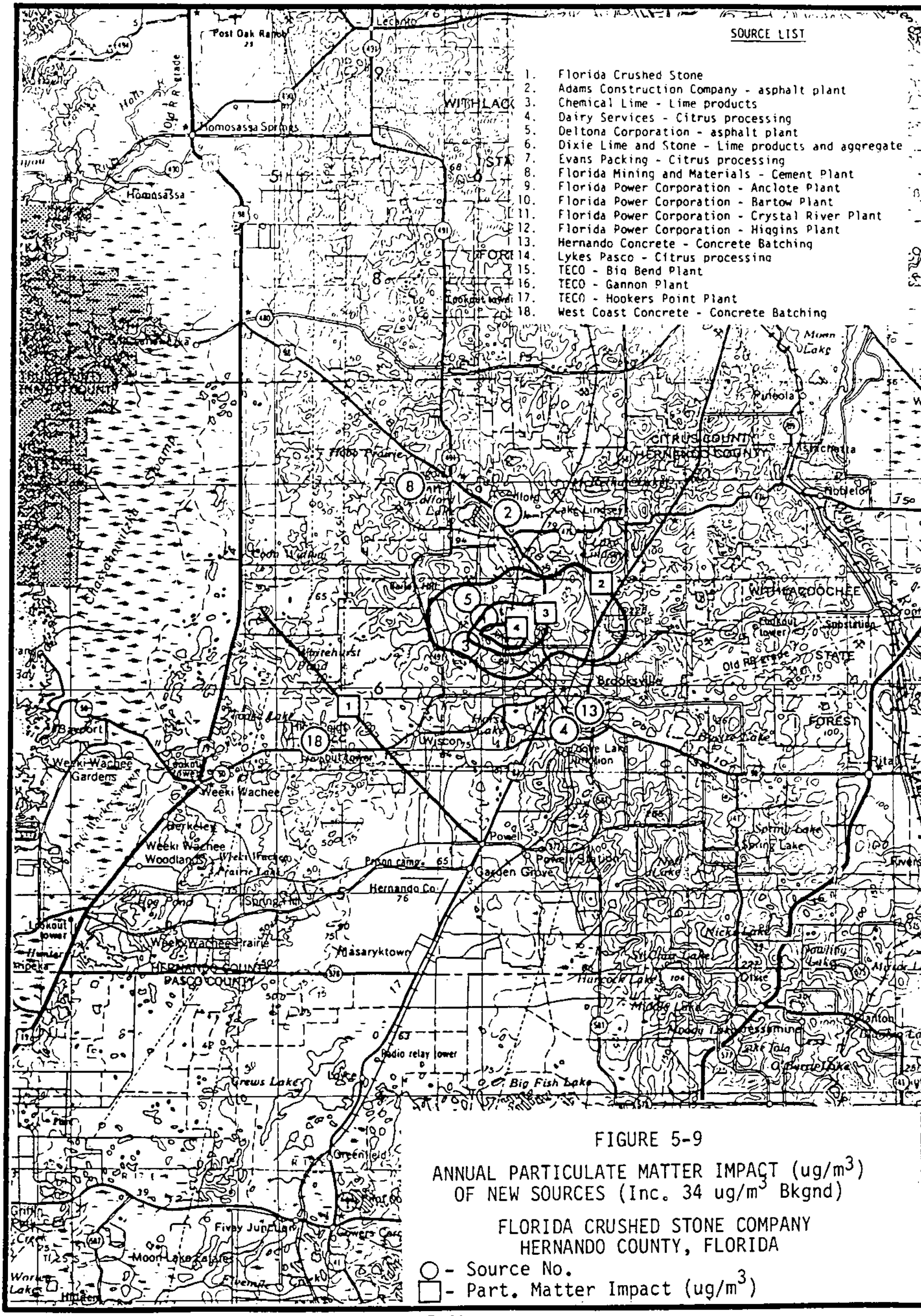


FIGURE 5-9

ANNUAL PARTICULATE MATTER IMPACT (ug/m^3) OF NEW SOURCES (Inc. 34 ug/m^3 Bkgnd)

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

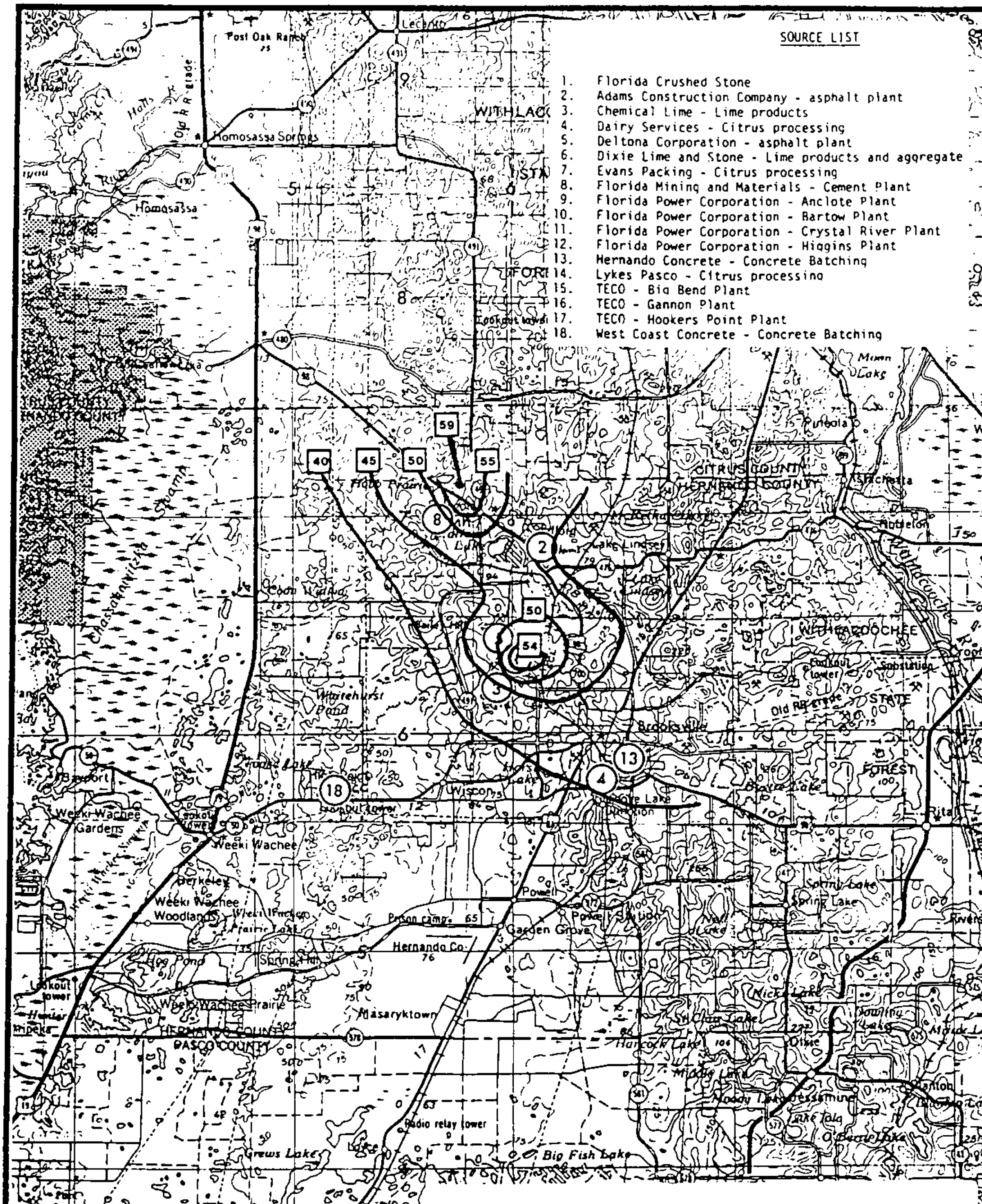


FIGURE 5-10

ANNUAL PARTICULATE MATTER IMPACT (ug/m^3) OF ALL SOURCES (Inc. 34 ug/m^3 Bkgnd)

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
□ - Part. Matter Impact (ug/m^3)

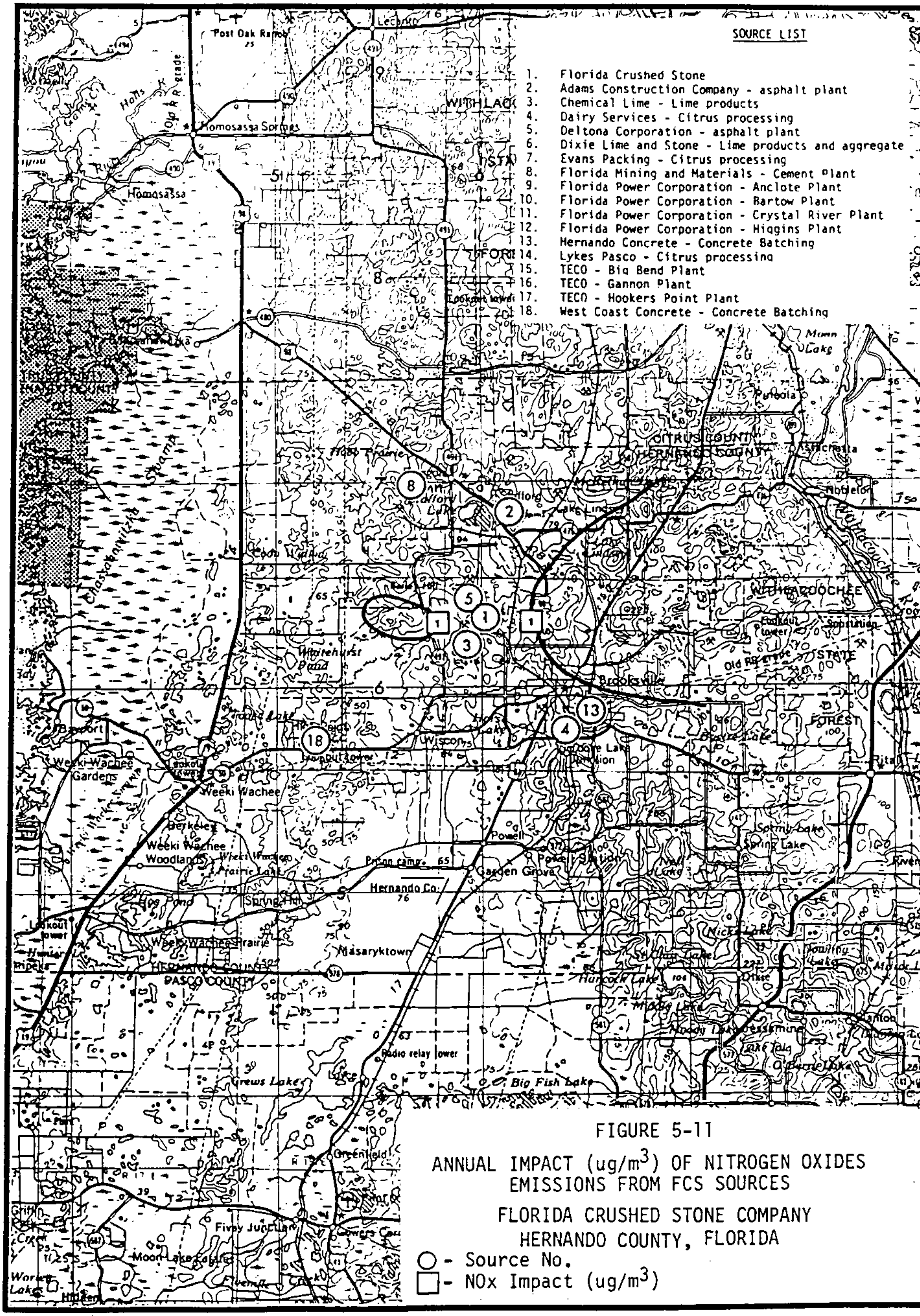


FIGURE 5-11

ANNUAL IMPACT (ug/m^3) OF NITROGEN OXIDES EMISSIONS FROM FCS SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

APPENDIX A5-1

SOURCES USED IN FLORIDA CRUSHED STONE
AIR QUALITY REVIEW

(NOTE: The number following the three character source identification corresponds with the source number in the Source List of Figure 5-1.)

PAGE NO. 00001
09/29/82

STACK PARAMETERS AND EMISSION RATES

For All Sources Used in Air Quality Review

Florida Crushed Stone Company
Hernando County, Florida

Source	Emission Rates PM (Lb/Hr)	SO2 (Lb/Hr)	Stack Height (Ft)	Stack Diam. (Ft)	Stack Velocity (FPS)	Gas Temp. (Deg F)	X Coord. (km)	Y Coord. (km)
FCS 1 Clay Crush	1.0322	0.0000	25.080	2.310	40.260	105.80	360.044	3162.648
FCS 1 Limestone Conv	0.4764	0.0000	55.440	1.650	47.520	105.80	360.123	3162.379
FCS 1 Limestone Transfer	0.7940	0.0000	15.180	1.980	42.570	105.80	359.950	3162.477
FCS 1 Premix Bin	1.0322	0.0000	125.730	2.310	42.240	105.80	360.005	3162.337
FCS 1 Fly Ash Bin	1.0322	0.0000	125.730	2.310	42.240	105.80	360.017	3162.337
FCS 1 Kiln	94.3272	638.0584	201.300	14.190	43.230	244.40	360.008	3162.392
FCS 1 Raw Mat'ls Transfer	0.6352	0.0000	25.080	1.650	47.520	150.80	360.030	3162.335
FCS 1 Blend Silo	2.9378	0.0000	206.250	3.630	40.260	150.80	360.037	3162.312
FCS 1 Kiln Feed	1.2704	0.0000	50.160	2.640	34.320	150.80	360.044	3162.306
FCS 1 Cooler Discharge	0.6352	0.0000	9.900	1.650	47.520	150.80	360.086	3162.200
FCS 1 Clinker Silo L12	1.2704	0.0000	201.300	2.640	34.320	150.80	360.114	3162.137
FCS 1 Clinker Silo L13	1.2704	0.0000	201.300	2.640	34.320	150.80	360.108	3162.125
FCS 1 Clinker Silo Discharge	0.6352	0.0000	25.080	1.650	47.520	150.80	360.105	3162.125
FCS 1 Limestone Silo	0.3970	0.0000	25.080	1.320	40.920	105.80	360.105	3162.143
FCS 1 Cement Silo	1.0322	0.0000	25.080	1.980	42.570	150.80	360.123	3162.133
FCS 1 Finish Mill	5.5580	0.0000	100.650	4.950	39.270	199.40	360.111	3162.157
FCS 1 Cement Silo Discharge (4)	4.1288	0.0000	25.080	1.980	42.570	150.80	360.125	3162.100
FCS 1 Cement Silos (5)	7.7018	0.0000	201.300	2.640	40.920	150.80	360.125	3162.110
FCS 1 Packing Plant	1.2704	0.0000	55.440	2.640	34.320	105.80	360.155	3162.032
FCS 1 Masonry Silos (3)	3.8906	0.0000	80.520	2.640	34.320	150.80	360.147	3162.047
FCS 1 Raw Coal Bin	0.3970	0.0000	100.650	1.320	40.920	105.80	360.102	3162.210
FCS 1 Power Plant Coal Bin	0.3970	0.0000	100.650	1.320	40.920	105.80	360.080	3162.010
FCS 1 Gypsum 5.10	3.9700	0.0000	25.080	1.320	40.920	105.80	360.080	3162.010
EVN 7 20493	0.0794	1.5880	40.260	1.320	30.030	379.40	383.300	3135.800
EVN 7 54003&4	16.1976	218.3500	40.260	3.630	39.270	449.60	383.300	3135.800
EVN 7 6657	30.9660	187.3840	85.470	3.300	57.090	163.40	383.300	3135.800
EVN 7 7038, 39, 40	96.0740	562.1520	85.470	3.300	57.090	163.40	383.300	3135.800
FPC 9 #1 Anclote	485.1340	13343.1700	502.920	25.080	21.450	289.40	324.500	3118.600
FPC 9 #2 Anclote	485.1340	13343.1700	502.920	24.090	51.480	289.40	324.500	3187.500
L/P 14 D1 & D2	63.5200	457.3440	75.570	2.970	91.740	161.60	383.500	3139.200
L/P 14 3 Boilers	86.5460	1211.6440	75.570	4.620	60.060	334.40	383.500	3139.200
L/P 14 ST Dryers	73.8420	0.0000	65.340	2.640	12.540	188.60	383.500	3139.200
FPC 12 Higgins 1	50.0220	1375.2080	174.570	12.540	26.070	303.80	336.500	3098.200
FPC 12 Higgins 2	50.0220	1375.2080	174.570	12.540	29.700	303.80	336.500	3098.200
FPC 12 Higgins 3	50.8160	1408.5560	174.570	12.540	20.460	303.80	336.500	3098.200
FPC 10 Bartow 2	129.4220	3560.2960	301.950	8.910	102.630	300.20	342.400	3082.700
FPC 10 Bartow 3	204.8520	5637.4000	301.950	11.220	96.030	314.60	342.400	3082.700
FPC 11 #1	479.5760	12064.0360	502.920	15.180	150.480	296.60	334.400	3204.510
FPC 11 #2	479.5760	14623.0980	506.220	16.170	147.840	296.60	334.400	3204.510
FPC 11 Fly Ash 1, 2, 5	88.1340	0.0000	7.920	0.990	24.420	199.40	334.400	3204.510
FPC 11 Fly Ash 3	36.5240	0.0000	93.720	1.650	153.120	150.80	334.400	3204.510
FPC 11 Fly Ash 4	35.7300	0.0000	35.310	1.980	1.650	150.80	334.400	3204.510
FPC 11 #4	667.7540	8009.8720	603.570	22.770	90.420	257.00	334.400	3204.510

STACK PARAMETERS AND EMISSION RATES

For All Sources Used in Air Quality Review

Florida Crushed Stone Company
Hernando County, Florida

Source	Emission PM (Lb/Hr)	Rates SO2 (Lb/Hr)	Stack Height (Ft)	Stack Diam. (Ft)	Stack Velocity (FPS)	Gas Temp. (Deg F)	X Coord. (km)	Y Coord. (km)
FPC 11 #5	667.7540	8009.8720	603.570	22.770	90.420	257.00	334.400	3204.510
DLS 6 Kiln 2	7.9400	10.3220	70.290	4.620	41.580	244.40	397.200	3182.600
DLS 6 Lime Dry	7.9400	59.5500	30.360	3.960	42.570	132.80	397.200	3182.600
DLS 6 Lime Cool	5.0816	0.0000	95.700	4.620	32.670	240.80	397.200	3182.600
DLS 6 CaCO3	1.5880	0.0000	55.110	1.650	47.520	105.80	397.200	3182.600
DLS 6 Misc	5.5580	0.0000	21.120	1.650	76.560	105.80	397.200	3182.600
DLS 6 Coal Handling	0.1588	0.0000	23.100	0.990	12.870	105.80	397.200	3182.600
DLS 6 Kiln 1	5.6374	10.3220	69.300	3.960	44.880	244.40	397.200	3182.600
DLS 6 Kiln 1 Dust	0.4764	0.0000	23.100	1.320	37.290	105.80	397.200	3182.600
TEC 16 Gannon 1	125.4520	1383.1480	307.890	12.210	74.250	329.00	360.000	3087.500
TEC 16 Gannon 2	125.4520	1383.1480	307.890	10.230	106.920	329.00	360.000	3087.500
TEC 16 Gannon 3	142.9200	1573.7080	307.890	10.560	116.820	309.20	360.000	3087.500
TEC 16 Gannon 4	187.3840	2064.4000	307.890	9.570	81.180	338.00	360.000	3087.500
TEC 16 Gannon 5	228.6720	2513.8040	307.890	14.850	68.310	287.60	360.000	3087.500
TEC 16 Gannon 6	379.5320	4179.6160	307.890	17.820	77.220	287.60	360.000	3087.500
TEC 17 Hookers Pt. 1	30.1720	327.9220	281.820	11.220	60.060	264.20	358.000	3091.000
TEC 17 Hookers Pt. 2	30.1720	327.9220	281.820	11.220	60.060	264.20	358.000	3091.000
TEC 17 Hookers Pt. 3	41.2880	452.5800	281.820	12.210	37.950	255.20	358.000	3091.000
TEC 17 Hookers Pt. 4	41.2880	452.5800	281.820	12.210	37.950	255.20	358.000	3091.000
TEC 17 Hookers Pt. 5	61.1380	670.9300	281.820	11.220	60.060	264.20	358.000	3091.000
TEC 17 Hookers Pt. 6	77.8120	855.9320	281.820	9.570	59.070	325.40	358.000	3091.000
TEC 15 Big Bend 1	222.3200	18273.9100	493.020	24.090	42.570	307.40	361.500	3075.000
TEC 15 Big Bend 2	202.4700	15749.7840	493.020	24.090	44.880	269.60	361.500	3075.000
TEC 15 Big Bend 3	411.2920	26759.3880	493.020	24.090	35.640	278.60	361.500	3075.000
TEC 15 Packing 1 & 2	18.2620	514.5120	75.570	16.500	117.810	928.40	361.500	3075.000
TEC 15 Turbine 1 & 2	3.1760	65.1080	35.310	11.220	92.400	1009.40	361.500	3075.000
TEC 15 Big Bend 4	130.0572	5198.3180	493.020	24.156	66.000	156.20	361.600	3075.000
FMM 8 Raw Material Storage	37.3180	0.0000	80.520	2.970	35.640	105.80	356.200	3169.900
FMM 8 Raw Material Grinding	37.3180	0.0000	80.520	2.970	35.640	105.80	356.200	3169.900
FMM 8 Kiln 1	37.3180	5.5580	75.570	9.900	35.640	260.60	356.200	3169.900
FMM 8 Cooler 1	34.1420	0.0000	80.520	7.590	31.680	217.40	356.200	3169.900
FMM 8 Clinker Grinding	35.7300	0.0000	82.500	2.970	52.140	105.80	356.200	3169.900
FMM 8 Clinker Silo 1	34.1420	0.0000	145.860	1.980	16.170	105.80	356.200	3169.900
FMM 8 Clay Crush 1	26.2020	16.6740	24.090	1.980	45.540	269.60	356.200	3169.900
FMM 8 Btm Blend	37.3180	0.0000	206.250	2.640	61.710	199.40	356.200	3169.900
FMM 8 Product Storage	34.1420	0.0000	135.960	2.970	34.650	105.80	356.200	3169.900
FMM 8 Masonry Silo (3)	2.3820	0.0000	211.200	2.310	50.160	145.40	356.200	3169.900
FMM 8 Kiln 2	21.5968	3.1760	90.420	16.170	25.080	386.60	356.200	3169.900
FMM 8 Cooler 2	7.1460	0.0000	50.160	7.590	72.270	399.20	356.200	3169.900
FMM 8 Clinker Silo (L07)	1.7468	0.0000	150.810	2.970	53.460	185.00	356.200	3169.900
FMM 8 Finish Mill 1 & 2	4.7640	0.0000	75.570	4.620	50.160	199.40	356.200	3169.900
FMM 8 Clay Crush 2	7.9400	0.0000	20.130	4.950	50.160	269.60	356.200	3169.900
FMM 8 Kiln.Feed	0.7940	0.0000	90.420	1.650	44.550	129.20	356.200	3169.900

STACK PARAMETERS AND EMISSION RATES

For All Sources Used in Air Quality Review

Florida Crushed Stone Company
Hernando County, Florida

Source	Emission PM (Lb/Hr)	Rates SO2 (Lb/Hr)	Stack Height (Ft)	Stack Diam. (Ft)	Stack Velocity (FPS)	Gas Temp. (Deg F)	X Coord. (km)	Y Coord. (km)
FMM 8 Blend Silo	2.3820	0.0000	221.430	2.640	61.710	199.40	356.200	3169.900
FMM 8 Raw Materials Feed	0.8734	0.0000	10.230	3.300	50.160	105.80	356.200	3169.900
2 Adams Construction	9.5280	58.7560	28.050	3.960	56.100	199.40	361.400	3168.400
4 Dairy Service Boiler	2.6996	37.3180	30.360	1.980	34.650	399.20	364.200	3158.300
4 Dairy Service Dryer	10.6396	37.3180	60.390	2.640	40.920	145.40	364.200	3158.300
5 Deltona	37.3180	11.1160	25.080	5.940	16.500	165.20	359.800	3164.000
13 Hernando Conc..	12.7040	0.0000	50.160	1.980	16.170	105.80	365.300	3158.300
18 West Coast Conc.	3.1760	0.0000	55.110	1.980	16.170	105.80	352.000	3157.000
3 Chem Lime Calc.	21.6762	0.0000	90.420	3.960	15.510	114.80	359.400	3162.300
3 Chem Lime Hyd.	14.0538	0.0000	20.130	3.960	14.520	105.80	359.400	3162.300
3 Chem Lime Dryer	33.3480	0.0000	30.360	3.630	61.050	249.80	359.400	3162.300
3 Chem Lime Boiler 1 & 2	0.0794	1.5880	35.310	0.660	48.180	300.20	359.400	3162.300
3 Chem Lime Bagging	11.9894	0.0000	62.370	1.650	36.960	105.80	359.400	3162.300

6.0 IMPACT ON SOILS, VEGETATION AND VISIBILITY AND SECONDARY IMPACTS

A qualitative evaluation of the impact of the proposed plant on soils, vegetation, visibility and commercial growth in the area has been prepared.

The land use in the general area of the Florida Crushed Stone site is dedicated to agriculture and mining with the agricultural activities divided between cattle and citrus. Brooksville, population 7,000, is located three miles southeast of the site and scattered residential developments are located two miles or more from the site in the easternly and westernly directions. (See Figure 6-1). The activities proposed by Florida Crushed Stone, including the air pollutant emissions from the proposed facility, are not anticipated to adversely impact any activity presently practiced in the area.

The 6,400 acres owned by Florida Crushed Stone has been actively mined since 1938. The mining and the operation of a lime plant, a lime rock plant and an aggregate plant, all located on the site and owned by Florida Crushed Stone, are expected to continue well into the twenty-first Century.

The particulate matter emissions from the proposed cement plant will be similar in nature to the particulate matter emissions resulting from activities presently in existance at the site. The particulate matter emissions which have occurred over the past 44 years have not been observed to adversely affect the soil, vegetation and visibility in the area. The emissions that will result from the proposed cement plant and power plant, likewise, are not expected to impact the soils, vegetation and visibility in the area.

The nitrogen oxides and sulfur dioxides emissions from the proposed cement plant and power plant will result in impacts that are well below applicable air quality standards; standards which have been developed to protect the health and welfare of the general public. The impact of sulfur dioxides from the proposed complex are less than 10 percent of the annual and 24-hour standards and less than 5 percent of the 3-hour standard. The impact of nitrogen oxides from the proposed facility is approximately one percent of the nitrogen oxides air quality standard for the annual period. Since the impacts of sulfur dioxide and nitrogen oxides in the area will be so much lower than the air quality standards for these pollutants, no adverse impacts on soils, vegetation and visibility is anticipated.

During the construction period which will commence in early 1983, activities on the site may generate more than the normal amount of fugitive particulate matter. Florida Crushed Stone will control these fugitive emissions by watering or with other dust suppressants and by assuring that sound construction policies are adhered to.

During the construction period there will be a maximum labor force on site of approximately 600 persons. This labor force will be drawn from the present population of the west-central Florida area. During normal plant operations approximately 90 persons will be employed at the plant. The majority of these employees will also be drawn from the west-central Florida work force. During neither the construction phase of the project nor the operation phase of the project; therefore, will an influx of permanent or transient workers be expected.

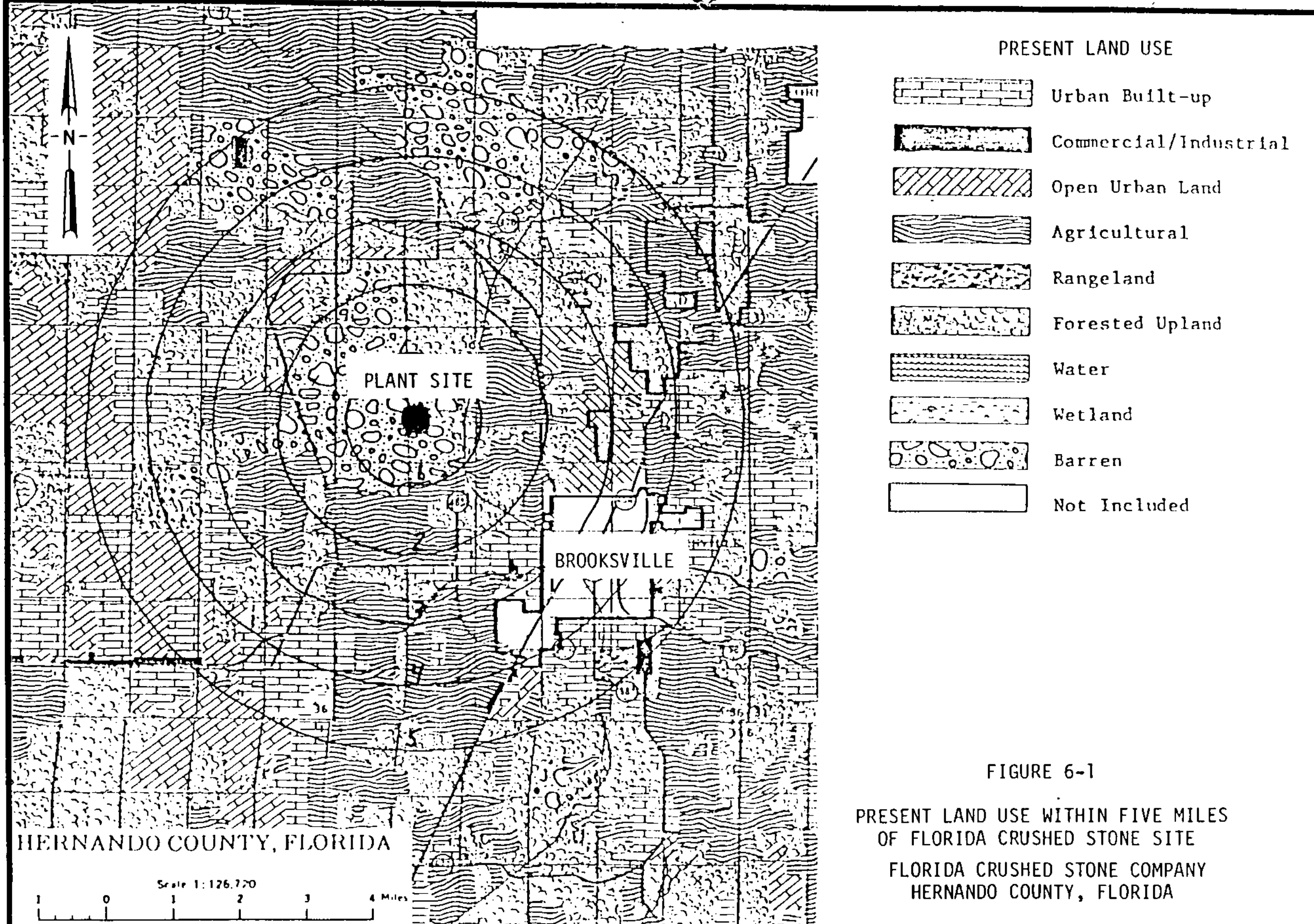


FIGURE 6-1

PRESENT LAND USE WITHIN FIVE MILES
OF FLORIDA CRUSHED STONE SITE

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA