STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 28, 1984

Mr. Roger Pfaff
Air Management Branch
Air & Water Management Division
USEPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Roger:

Re: Draft Permit Conditions - Final Determination
Florida Crushed Stone Company Power Plant/Cement Plant

We have completed our review of the draft federal permit for Florida Crushed Stone (FCS) that you sent to us. In addition, FCS has reviewed this draft and submitted their comments to us through their consultant, Dr. John Koogler. We have answered their comments in a letter to Dr. Koogler dated February 21, 1984. FCS has accepted our answers to these comments. Therefore, we are sending you a copy of FCS's comments and our answers to their comments with this letter. In addition, we are including the following comments which were discussed with you on the telephone last week:

1. Section A.1.a - This condition should be changed to read, "SO_2 - 0.91b. per million Btu heat input, maximum three-hour average (not to exceed 915 lb. per hour, maximum three-hour average)."

2. Section A.2.a - This condition should be changed to read, "SO_2 - 50 lb. per hour plus 0.74 lb. per million Btu boiler heat input, maximum three-hour average (not to exceed 965 lb. per hour, maximum three hour average)."

3. Section C.1. - The requirement for the continuous oxygen monitoring device for the boiler/cement plant exhaust should be deleted.

If you have any questions concerning this response to the draft permit conditions, please call Cleve Holladay or Ed Palagyi at (904)488-1344.

Sincerely,

Clair Fancy

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

CHF/CH/s

enclosures

cc: Dan Williams
SW District
Richard Entorf
Florida Crushed Stone

Attachments for
Technical Evaluation
and
Preliminary Determination

Florida Crushed Stone Company
Power Plant/Cement Plant Cogeneration Facility

State Permit Numbers

AC 27-61012
AC 27-61013
AC 27-61016
AC 27-61017
AC 27-61019
AC 27-61020
AC 27-61021
AC 27-61026

AC 27-61027
AC 27-61030
AC 27-61032
AC 27-61033
AC 27-61037
AC 27-61038
AC 27-61040
AC 27-61041
AC 27-61042

Permit Numbers
PSD-FL-090
PSD-FL-091

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

May 24, 1983

ATTACHMENT 1

AC 27-61021

DER

FEB 18 1983

BAQM

~~9/28/82~~
12/21/82

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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 ____ ° ____ ' ____ "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: 12/21/82 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: 12/21/82 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 - $100,800

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	0.8	2.9	17-2.630 FAC	0.8	1,029	3,919	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	99.93%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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: 2.0 ft.

Gas Flow Rate: 6,000 ACFM Gas Exit Temperature: 200 °F.

Water Vapor Content: 2-3 % Velocity: 31.8 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 estimated inlet concentration. See Attachment
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 99.93%
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 ___ Unknowr

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 informatior describing the theory and application of the requested best available control technology.

E - 360.044
N - 3162.306

FORM PI-2 (72-9)

P.n. = 6,000 | × 0.015 × 60 × 1/7000
× 0.126
= 0.10 g/sec
Ht = 50'
dia = 2.0'
Vel = 31.8 fps

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
6,000'		200	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
11"		20	6300'

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	60	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

AC 27-61013

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/29/82
12/21/82

SOURCE TYPE: Cement Kiln [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-20)

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

UTM: East 360.008 km North 3162.392 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: 12/21/82 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: 12/21/82 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.)

$10,200,000 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

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 Deteriority" (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
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 3b a							

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	C03
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

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	172.9	675	NSPS & BACT	17,290	67,540
Sulfur Dioxide	1488.8	6142	BACT	1,729	7,056
Nitrogen Oxides	1279.8	4990	BACT	1,280	4,990
Cement Plant					
Part. Matter	49.5	189	NSPS	4,950	18,900
Sulfur Dioxide	80.0	305	BACT	320	1,219
Nitrogen Oxides	416.0	1585	BACT	416	1,585

---

(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

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

Fuel Analysis: Coal

Percent Sulfur: 0.75 Percent Ash: 10

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

Heat Capacity: 12,000 BTU/lb ---- 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: 300 ft. Stack Diameter: 16 ft.

Gas Flow Rate: 577,700/335,400 ACFM Gas Exit Temperature: 226/220 °F.

Water Vapor Content: 16/16 % Velocity: 47.9/27.8 FPS

Power plant and cement plant/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.

Best Available Copy

E - 360.008
N - 3162.392

FORM PI-2 (72-9)

See Attached sheet for emission Calculations

Ht = 300'
dia = 16'
Vel = 47.9 fps - includes power plant gases

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) E20	**Manufacturer & Model No. (if available)**
Name of Abatement Device POWER PLANT - KILN MILL BAGHOUSE	**Type of Particulate Controlled** LIMESTONE / FLYASH

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
578,800	550,000	230	25	

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
6	0.0408	2250	580,000

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 %	%
10-20	%	%
over 20	%	%

FILTER CHARACTERISTICS

Filtering Velocity (acfm/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
1.6	12	37	3192	28

Bag rows will be: Staggered [✓ Straight]

Walkways will be provided between banks of bags: [✓ Yes] No

Filtering Material: Fiber Glass - TEFLON COATED

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

Kiln & Cooler

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.

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 (0.0074x2) 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)x100/304.9

= 73.8%

Cooler : SO_2 emissions = 0.0

NITROGEN OXIDES

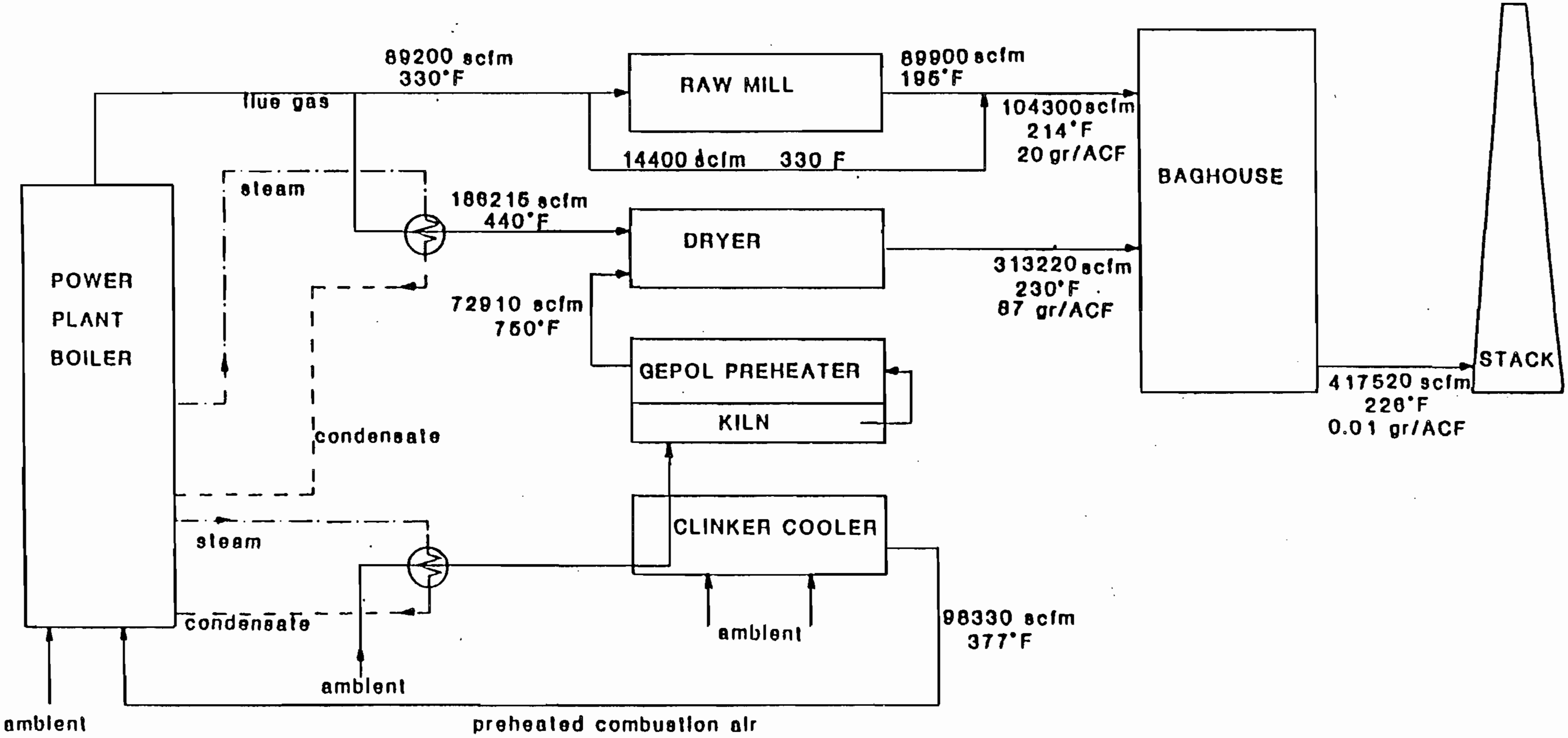
Kiln : NO_x = 416.0 lb/hr (estimated by Polysius)

CARBON MONOXIDE

All Sources = 0.0 lb/hr

HYDROCARBONS

All Sources = 0.0 lb/hr



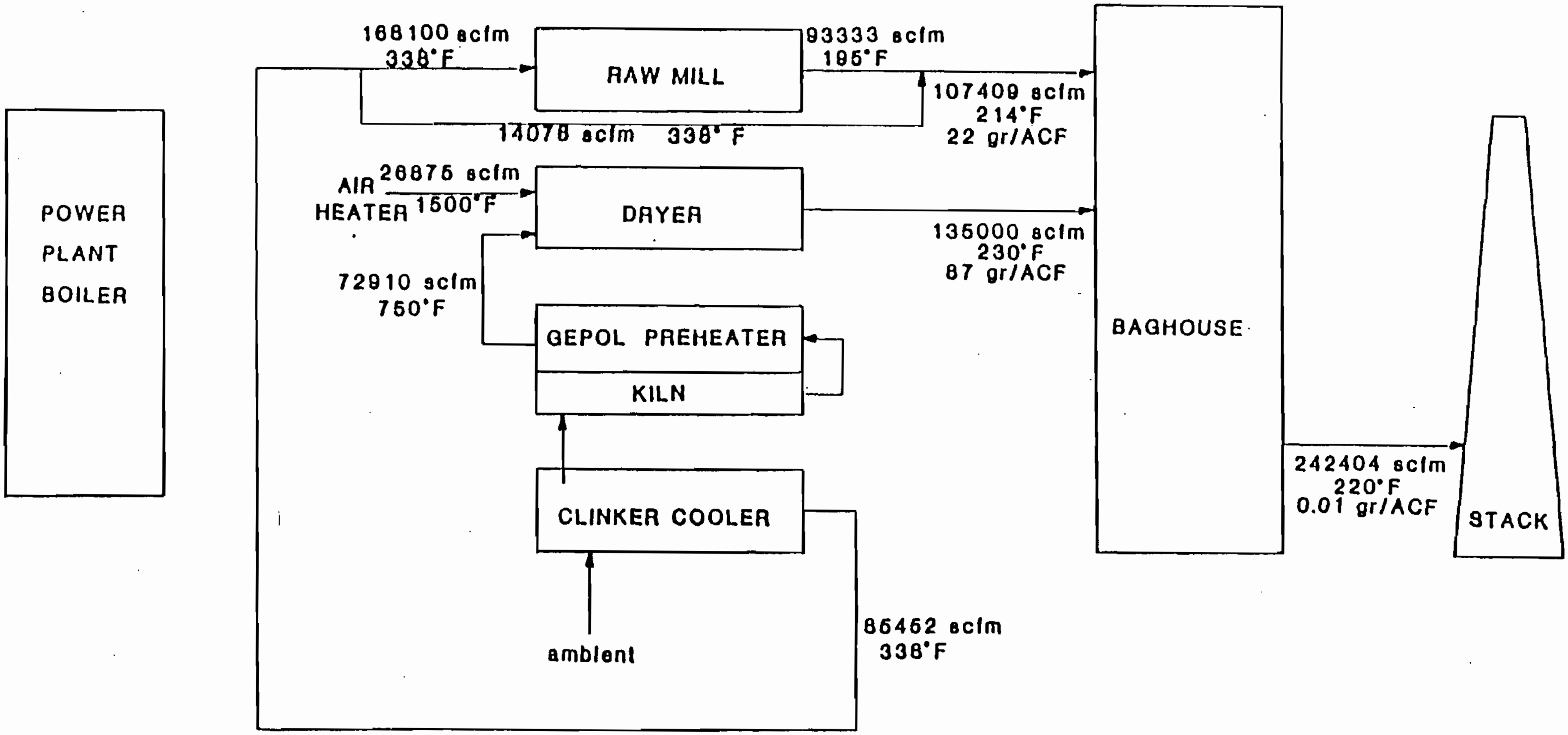
POWER PLANT OPERATING/CEMENT PLANT OPERATING

P.O. Box 317

Florida Crushed Stone Company

Leesburg, Fla. 32748

Revised 10/29/82



POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

Florida Crushed Stone Company

P.O. Box 317

Leesburg, Fla. 32748

Revised 10/29/82

AC 27-61026

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Raw Coal Handling ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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 Handling (S-04)

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

UTM: East 360.102 km North 3162.210 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:

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

Date: 12/21/82 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: 12/21/82 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 coal handling equipment 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 - $100,800

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	0.8	2.9	17-2.630 FAC	0.8	514	1,959	--
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	99.85%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached.

[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: 15 ft. Stack Diameter: 2.0 ft.

Gas Flow Rate: 6,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 31.8 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 estimated inlet concentration. See Attachment.

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 99.85%

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.

Best Available Copy

FORM PI-2 (72-9)

P.M. = 6000x60 x 0.015 x 1/7000 x 0.126
= 0.10 g/sec
Ht = 15'
dia = 2.0'
Vel = 31.8 fps

360.102
3162.210

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
6,000		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 (ft³/min)
11"		20	6300

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	60	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.

AC 27-61013

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Fly Ash Bin ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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) Fly Ash Bin Baghouse (D23)

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

UTM: East 360.017 km North 3162.337 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:

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

Date: 12/21/82 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: 12/21/82 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 fly ash 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 - $101,000

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 Deteriori ation" (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		
Fly Ash	Particulate	5-6	8,000	D-19
	Matter			

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

1. Total Process Input Rate (lbs/hr): 8,000

2. Product Weight (lbs/hr): 8,000

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	2.4	17-2.630 FAC	0.6	771	2,939	D-23
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	99.92%	>0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

---

[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.

Fly ash collected in baghouse will be returned to the process

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

Stack Height: 125 ft. Stack Diameter: 2.0 ft.

Gas Flow Rate: 6,000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 31.8 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 estimated inlet concentration. See Attachment
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 99.92%
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

Revised 2/15/83

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__ ( ) SO2* __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 ____ Unknow

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 descriptior

2. __PTMTPW, Unmodified__ Modified? If yes, attach descriptior

3. __ISC - LT, Unmodified__ Modified? If yes, attach descriptior

4. ________ Modified? If yes, attach descriptior

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
SO2		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 informatio describing the theory and application of the requested best available control technology.

E - 360.017
N - 3162.337

FORM PI-2 (72-9)

P.M. = 6000 × 50 × 0.012 × 1/7000 × 0.1 [illegible]
= 0.08 g/sec

Ht = 125'
dia = 2.0'
Vel = 31.8 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) D23	**Manufacturer & Model No. (if available)**
Name of Abatement Device FLY ASH BIN	**Type of Particulate Controlled** FLY ASH

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
6000				
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 (ft³/min)
10"		20	6300

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	60	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

AC 27-61012

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Pre Mix Bin ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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) Pre Mix Bins Baghouse D-12

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

UTM: East 360.005 km North 3162.477 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:

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

Date: 12/21/82 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: 12/21/82 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 associated with a new cement manufacturing facility to vent the pre mix and limestone bins. 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 - $106,000.

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		
Limestone	Particulate	2-3	900,000	D 08
	Matter			

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

1. Total Process Input Rate (lbs/hr): 900,000

2. Product Weight (lbs/hr): 900,000

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	771	2,939	D12
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	99.92%	> 0.5	Estimate -
Air to Cloth Ratio	Matter			See Attached

[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 process

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

Stack Height: 125 ft. Stack Diameter: 2.0 ft.

Gas Flow Rate: 6000 ACFM Gas Exit Temperature: 70 °F.

Water Vapor Content: 2-3 % Velocity: 31.8 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 inpu 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 estimated inlet concentration. See Attachment
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 99.92%
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

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 ____ Unknowr

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 informatio describing the theory and application of the requested best available control technology.

BEST AVAILABLE COPY

E - 360.005
N - 3162.477

FORM PI-2 (72-9)

P.M. = 6000 × 60 × 0.012 × [illegible]
= 0.08 g/sec

TABLE II
FABRIC FILTERS

Ht = 125'
dia = 2.0' Vel = 31.8 fps

Point Number (from Flow Diagram) 012	**Manufacturer & Model No. (if available)**
Name of Abatement Device PREMIX BINS	**Type of Particulate Controlled** LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
6000		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 (ft³/min)
11"		20	6300

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	60	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

AC 27-61019

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Raw Material Bins Discharge ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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 Material Bins Baghouse (D18)

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

UTM: East 359.950 km North 3162.477 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:
Richard C. Entorf, Senior Vice-President
Name and Title (Please Type)

Date: 12/21/82 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: 12/21/82 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 materials bin discharge. 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	D26
	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	1,029	3,919	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	99.92%	> 0.5	Estimate -
Air to Cloth Ratio	Matter			See Attached

---

[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

Revised 2/15/83

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: 25 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 estimated inlet concentration. See Attachment
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 99.92%
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 ( ) SO2* 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
SO2	____________ 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.

Best Available Copy

E- 359.950
N - 3162.477

FORM PI-2 (72-9)

P.M. = 8000 × 60 × 0.012 × 1/7000 × 0.
= 0.10 g/sec

Ht = 25'
dia = 2.0'
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) D18	**Manufacturer & Model No. (If available)**
Name of Abatement Device RAW MATERIAL BINS DISCHARGE LIMESTONE TRANSFER	**Type of Particulate Controlled** 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 (ft³/min)
11"		25	8200

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/ft² 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: 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

AC 27-61017

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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-14)

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

UTM: East 360.030 km North 3162.335 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:

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

Date: 12/21/82 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: 12/21/82 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-13) and Aeropol (F-11) 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 - $33,600

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 [✓ 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	F-11 and F-13
	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	0.3	1.0	17-2.630 FAC	0.3	343	1,306	F-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	99.93%	>0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

---

[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: 60 ft. Stack Diameter: 1.0 ft.

Gas Flow Rate: 2000 ACFM Gas Exit Temperature: 180 °F.

Water Vapor Content: 2-3 % Velocity: 42.4 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 estimated inlet concentration. See Attachment
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 99.93%
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

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 ___ Unknow

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, pro duction, 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 informatio describing the theory and application of the requested best available control technology.

Best Available Copy

E - 360.030
N - 3162.335

FORM PI-2 (72-9)

P.M. = 2000 x 60 x 0.015 x 1/7000 x 0.126
= 0.03 g/sec

Ht = 60'
dia = 1.0'
Vel = 42.4 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) F14	**Manufacturer & Model No. (if available)**
Name of Abatement Device Raw Meal Transfer	**Type of Particulate Controlled** Raw meal

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
2000		180	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)
10"		10	2100

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	20	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

AC 27-61020

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Blending Silo ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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 ___ ° ___ ' ___ "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: 12/21/82 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: 12/21/82 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 - $436,800

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		
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	3.3	12.7	17-2.630 FAC	3.3	6,686	25,473	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	99.95%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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: 26,000 ACFM Gas Exit Temperature: 180 °F.

Water Vapor Content: 2-3 % Velocity: 45.0 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 (^{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 estimated inlet concentration. See Attachment
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 99.95%
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

Revised 2/15/83

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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.037
N - 3162.312

P.M. = 26,000 × 60 × 0.015 × 1/7000 × 0.126
= 0.42 g/sec
Ht = 205'
dia = 3.5'
Vel = 45.0 fps

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
26,000		180	30	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements	
		(hp)	(ft³/min)
11"		75	27,300

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	260	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

AC 27-61027

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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-16)

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

UTM: East 360.086 km North 3162.200 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:

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

Date: 12/21/82 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: 12/21/82 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 - $100,800

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	K-07 and L-01
	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	0.8	2.9	17-2.630 FAC	0.8	514	1,959	L-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	99.85%	0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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

Revised 2/15/83

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: 29 ft. Stack Diameter: 2.0 ft.

Gas Flow Rate: 6,000 ACFM Gas Exit Temperature: 200 °F.

Water Vapor Content: 2-3 % Velocity: 31.8 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 estimated inlet concentration. See Attachment
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 99.85%
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.

BEST AVAILABLE COPY

E - 360.086
N - 3162.200

FORM PI-2 (72-9)

P.M = 6000 x 60 x 0.015 x 1/7000 x 0.126
= 0.10 g/sec
Ht = 29'
dia = 2.0'
Vel = 31.8 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram): L-16

Manufacturer & Model No. (if available):

Name of Abatement Device: COOLER DISCHARGE

Type of Particulate Controlled: Clinker

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
6000		200	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements	
		(hp)	(ft^3/min)
11"		20	6300

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	60	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

AC 27-61030

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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-06)

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

UTM: East 360.108 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:

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

Date: 12/21/82 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: 12/21/82 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 cemant 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 - $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	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	0.6	2.4	17-2.630 FAC	0.6	429	1,633	L-06
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	99.85%	>0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 200 °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 estimated inlet concentration. See Attachment
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 99.85%
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 ____ Unknow

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 descriptior

2. __PTMTPW, Unmodified__ Modified? If yes, attach descriptior

3. __ISC - LT, Unmodified__ Modified? If yes, attach descriptior

4. ________ Modified? If yes, attach descriptior

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, pro duction, 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 informatio 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. = 5000 x 60 x 0.015 x 1/7000 x 0.126
= 0.08 g/sec
Ht = 200'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) L-06	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO	**Type of Particulate Controlled** CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5,000		200	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
11"		20	5250

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/ft² 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

AC 27-61032

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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-08)

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

UTM: East 360.114 km North 3162.137 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:

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

Date: 12/21/82 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: 12/21/82 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-07), limestone bin (L-12) and gypsum bin (L-14), 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 Deterioration" (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-07
	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	2.4	17-2.630 FAC	0.6	429	1,633	L-08
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	99.85%	0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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: 135 ft. Stack Diameter: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 2,000 °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 estimated inlet concentration. See Attachment
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 99.85%
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

Revised 2/15/83

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 ____ Unknow

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, pro-duction, 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 informatio describing the theory and application of the requested best available control technology.

E - 360.114
N - 3162.137

FORM PI-2 (72-9)

P.M. = 5000 × 60 × 0.015 × 1/7000 × 0.12
= 0.08g/sec
Ht = 135'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) L-08	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO	**Type of Particulate Controlled** CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		**Gas Stream Temperature (°F)**	**Particulate Grain Loading (grain/scf)**	
Design Maximum	**Average Expected**		**Inlet**	**Outlet**
5,000		200	10	0.015

Pressure Drop (in. H_2O)	**Water Vapor Content of Effluent Stream (lb water/lb dry air)**	**Fan Requirements (hp)**	**Fan Requirements (ft³/min)**
11"		20	5250

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/ft² 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

AC 27-61033

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

12/21/82

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

SOURCE TYPE: Silo Discharge ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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) Silo Discharge Baghouse (M- 08)

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:

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

Date: 12/21/82 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: 12/21/82 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 material handling equipment under silos L-07, 12, 14 , 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 - $235,000

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,Gypsum,	Particulate	2-3	244,000	L-07,12,14
Limestone	Matter			

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

1. Total Process Input Rate (lbs/hr): 244,000
2. Product Weight (lbs/hr): 244,000

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	1.8	6.9	17-2.630 FAC	1.8	1,200	4,572	M-08
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	99.85%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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: 14,000 ACFM Gas Exit Temperature: 100 °F.

Water Vapor Content: 2-3 % Velocity: 47.5 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 estimated inlet concentration. See Attachment
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 99.85%
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 ____ Unknov

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 descriptic

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

3. ISC - LT, Unmodified Modified? If yes, attach descriptic

4. ________ Modified? If yes, attach descriptic

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 numbe 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, p duction, 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 informati describing the theory and application of the requested best available control technology.

Best Available Copy

360.105
3162.125

FORM PI-2 (72-9)

P. M. = 14000×60×0.015×1/7000×0.126
= 0.23 g/sec

Ht = 50'
dia = 2.5'
Vel = 47.5 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) M-08	**Manufacturer & Model No. (if available)**
Name of Abatement Device SILO DISCHARGE	**Type of Particulate Controlled** CLINKER, GYPSUM, LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
14,000		100	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
11"		50	14,700

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	140	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 27-61037

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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 ____ ° ____ ' ____ "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: 12/21/82 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: 12/21/82 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 - $840,200

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	6.4	24.5	17-2.630 FAC	6.4	85,714	326,571	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	99.99%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

---

[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: 70 ft. Stack Diameter: 5 ft.

Gas Flow Rate: 50,000 ACFM Gas Exit Temperature: 210 °F.

Water Vapor Content: 2-3 % Velocity: 42.4 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 estimated inlet concentration to this special baghouse and on outlet concentration of 0.15 gr/ACF. (See Attachment)

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 99.99%

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 ____ Unknow

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 descriptior

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, pro duction, 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 informatio describing the theory and application of the requested best available control technology.

Best Available Copy

FORM PI-2 (72-9)

E - 363.111
N - 3162.133

PM = 50,000 × 0.015 × 60 × 1/7000 × 0.126
= 0.81g/sec
Ht = 70'
dia = 5.0'
Vel = 42.4 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) N 13	**Manufacturer & Model No. (if available)**
Name of Abatement Device FINISH MILL	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
50,000		210	200	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	(ft³/min)
20"	0.043	300	52,500

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
5	6	10	650	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

AC 27-61638

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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 (0-17)

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: RC Entorf

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

Date: 12/21/82 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: 12/21/82 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 - $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		
Cement	Particulate	2-3	600,000	0-13
	Matter			

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

1. Total Process Input Rate (lbs/hr): 600,000
2. Product Weight (lbs/hr): 600,000

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	2.4	17-2.630 FAC	0.6	857	3,266	0-17
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	99.93%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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 as fines.

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

Stack Height: 50 ft. Stack Diameter: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 160 °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 estimated inlet concentration. See Attachment
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 99.93%
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.

Best Available Copy

FORM PI-2 (72-9)

Locate all at
360.125
3162.100

PM = 5,000 x 60 x 0.015 x 1/7000 x 0.126
= 0.08 g/sec, each source
Ht = 50'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) Q.17	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO DISCHARGE	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5,000		160	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
11"		20	5250

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/ft² 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

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DER
FEB 16 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Cement Silo ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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 Uni No. 2, Gas Fired) Cement Silo Dishcarge Baghouse (0-18)

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 th 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, i granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of th permitted establishment.

*Attach letter of authorization

Signed:

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

Date: 12/21/82 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 t be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in th permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when prop erly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and th rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the appli cant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollutio sources.

Signed:

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

(Affix Seal)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANT IN
Company Name (Please Type)

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

Florida Registration No. 12925 Date: 12/21/82 Telephone No. (904) 377-5822

---

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

BEST AVAILABLE COPY

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	600,000	Q-09, M-15
	Matter			

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

1. Total Process Input Rate (lbs/hr): 600,000

2. Product Weight (lbs/hr): 600,000

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	2.4	17-2.630 FAC	0.6	857	3,266	Q-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	99.93%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attache

[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

	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 estimated inlet concentration. See Attachment
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 99.93%
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

AC 27-61040

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

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 A (0-15)

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

UTM: East 360.125 km North 3162.110 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:

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

Date: 12/21/82 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: 12/21/82 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 - $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		
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	0.6	2.4	17-2.630 FAC	0.6	643	2,449	0-15
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	99.90%	> 0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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

Revised 2/15/83

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: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 180 °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 estimated inlet concentration. See Attachment
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 99.90%
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

Revised 2/15/83

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 ____ Unknow

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 descriptio

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

3. ISC - LT, Unmodified Modified? If yes, attach descriptio

4. ______ Modified? If yes, attach descriptio

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, pro duction, 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 informatio describing the theory and application of the requested best available control technology.

Best Available Copy

Locate all at
360.125
3163.110

FORM PI-2 (72-9)

PM=5,000x60x0.015x 1/7000 x 0.12
=0.08 g/sec, each source
Ht=200'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) Q 15 (9 Units)	Manufacturer & Model No. (if available)
Name of Abatement Device CEMENT SILO	Type of Particulate Controlled CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5,000		180	15	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements	
		(hp)	(ft³/min)
10"		.15	5250

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/ft² 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

AC 27-61041

DER

JAN 13 1983

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Cement Silo ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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 B (Q-15)

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

UTM: East 360.125 km North 3162.110 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: 12/21/82 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: 12/21/82 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 - $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		
Cement	Particulate	2-3	200,000	0-01
	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	0.6	2.4	17-2.630 FAC	0.6	643	2,449	0-15
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	99.90%	0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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

Revised 2/15/83

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: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 180 °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 estimated inlet concentration. See Attachment
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 99.90%
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

Revised 2/15/83

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.

Best Available Copy

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 ___ Unknow

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 descriptior

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

3. ISC - LT, Unmodified Modified? If yes, attach descriptior

4. ______ Modified? If yes, attach descriptior

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, pro duction, 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 informatio describing the theory and application of the requested best available control technology.

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Locate all at
360.125
3163.110

FORM PI-2 (72-9)

PM = 5,000 x 60 x 0.015 x 1/7000 x 0.126
= 0.08 g/sec, each source
Ht = 200'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) Q 15 (9 Units)	Manufacturer & Model No. (If available)
Name of Abatement Device CEMENT SILO	Type of Particulate Controlled CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5,000.		180	15	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements	
		(hp)	(ft³/min)
10"		15	5250

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/ft² 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.

AC 27-61042

DER
JAN 13 1983
BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

9/28/82
12/21/82

SOURCE TYPE: Cement Silo ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ 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 C (Q-15)

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

UTM: East 360.125 km North 3162.110 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:

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

Date: 12/21/82 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: 12/21/82 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 - $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		
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	0.6	2.4	17-2.630 FAC	0.6	643	2,449	0-15
Matter							

D. Control Device : (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	99.90%	>0.5	Estimate
Air to Cloth Ratio	Matter			See Attached

[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: 1.5 ft.

Gas Flow Rate: 5,000 ACFM Gas Exit Temperature: 180 °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 estimated inlet concentration. See Attachment
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 99.90%
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.

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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 ____ Unknow

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 descriptio

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

3. ISC - LT, Unmodified Modified? If yes, attach descriptio

4. ________ Modified? If yes, attach descriptio

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 numbe 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, pr duction, 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 informatic describing the theory and application of the requested best available control technology.

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FORM PI-2 (72-9)

Locate all at
360.125
3163.110

PM = 5,000x60 x 0.015 x 1/7000 x 0.1
= 0.08 g/sec, each source
Ht = 200'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) Q 15 (9 Units)	Manufacturer & Model No. (If available)
Name of Abatement Device CEMENT SILO	Type of Particulate Controlled CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
5,000		180	15	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	(ft³/min)
10"		.15	5250

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/ft² 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

ATTACHMENT 2

PSD-FL-090 [illegible]
PSD-FL-091 Cement plant

DER
SEP 30 1982
BAQM

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

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(Continued)

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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.

Heat input of boiler ?

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.

limited to [illegible] 25 MW

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.

it will [illegible]

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

	Pollutant Emission Rate (tpy)				
Source	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.

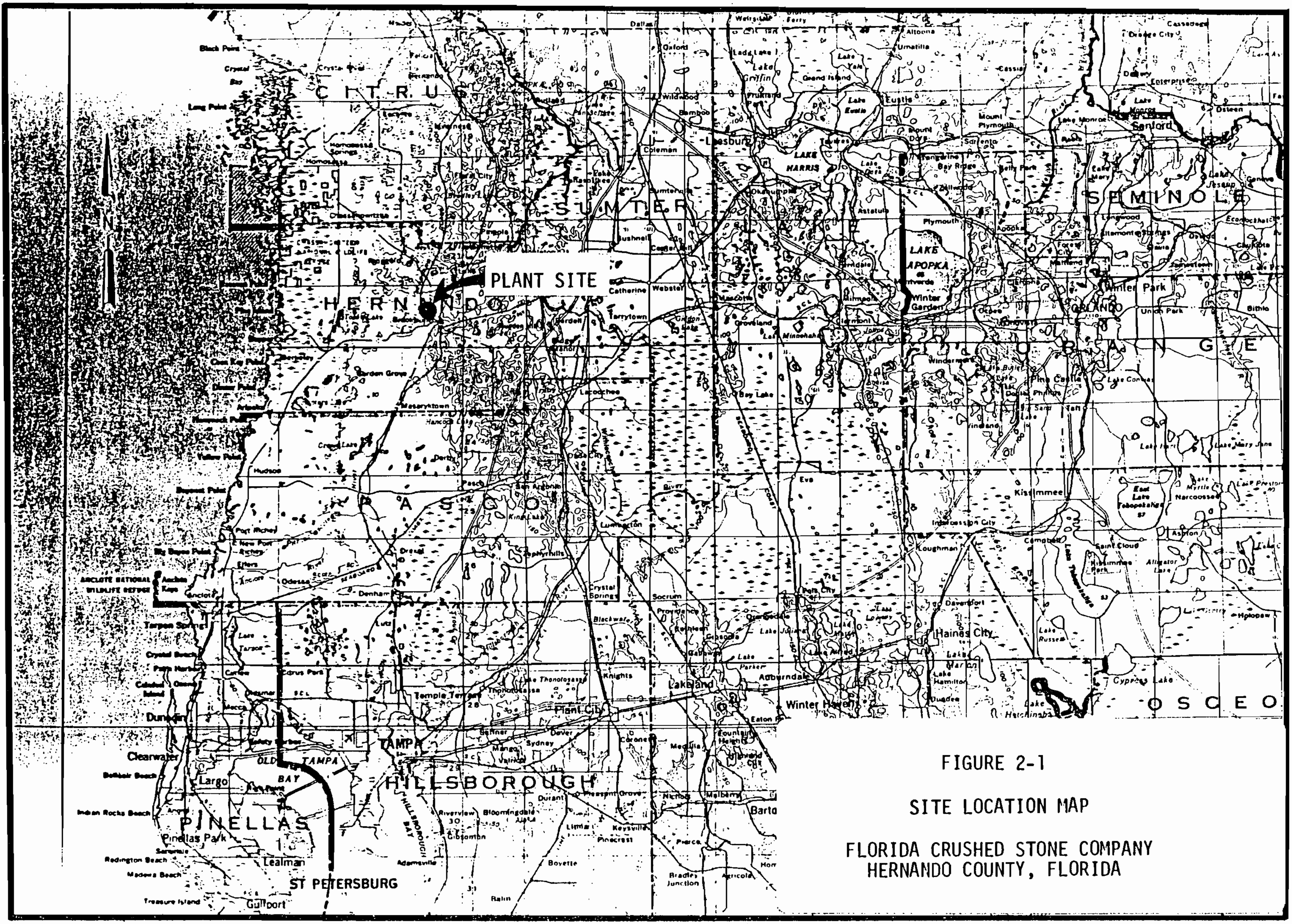


FIGURE 2-1

SITE LOCATION MAP

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

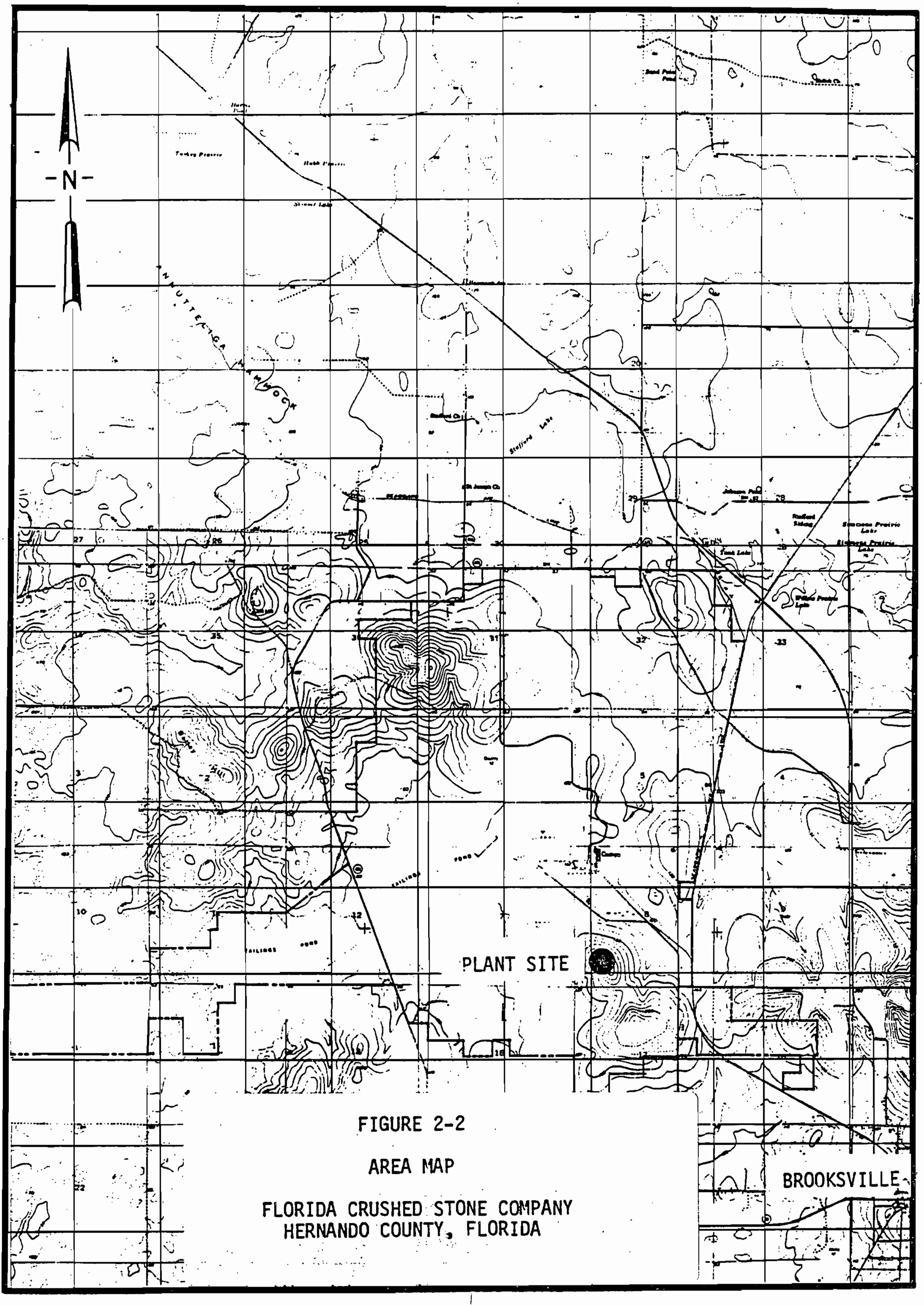


FIGURE 2-2

AREA MAP

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

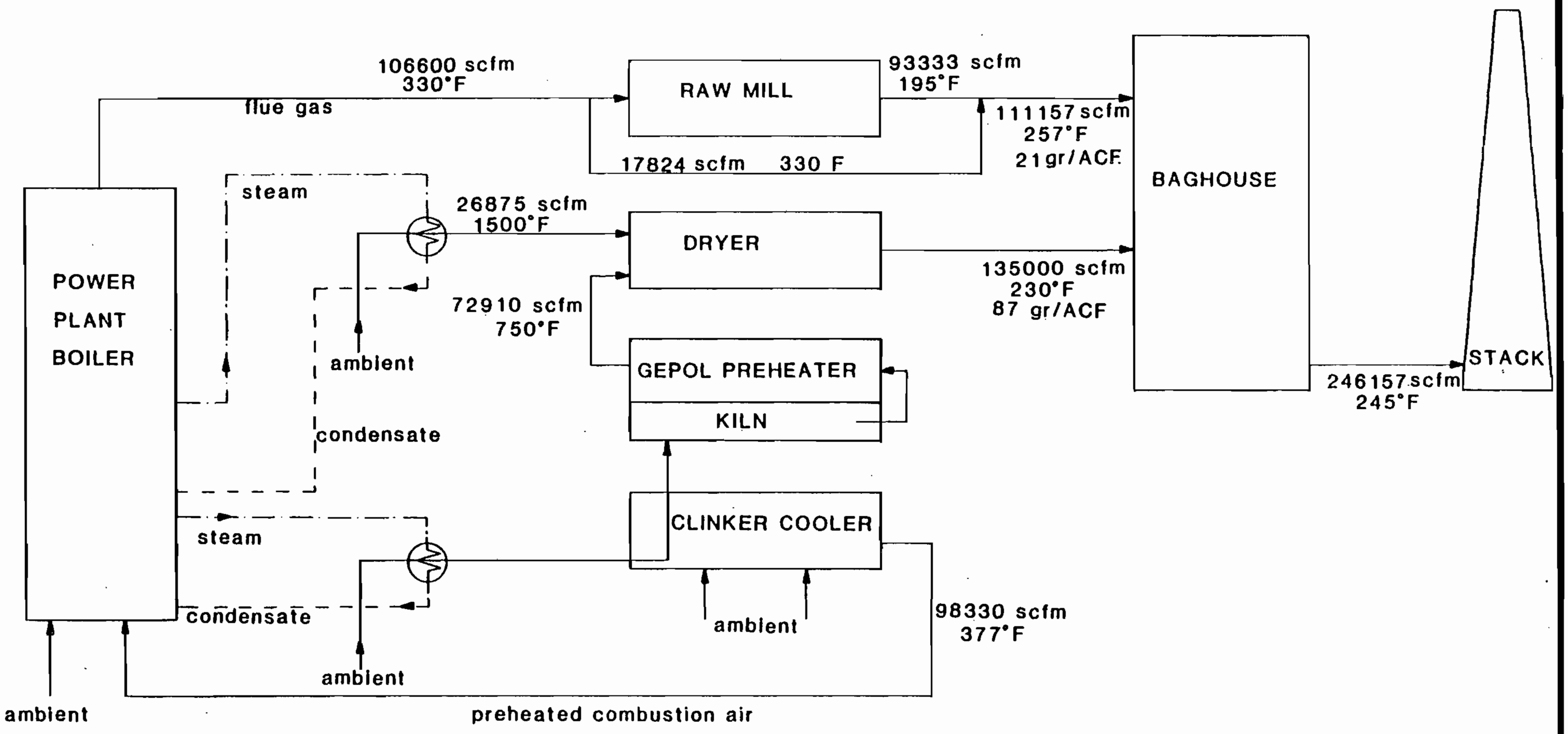


FIGURE 2-3

POWER PLANT OPERATING/CEMENT PLANT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

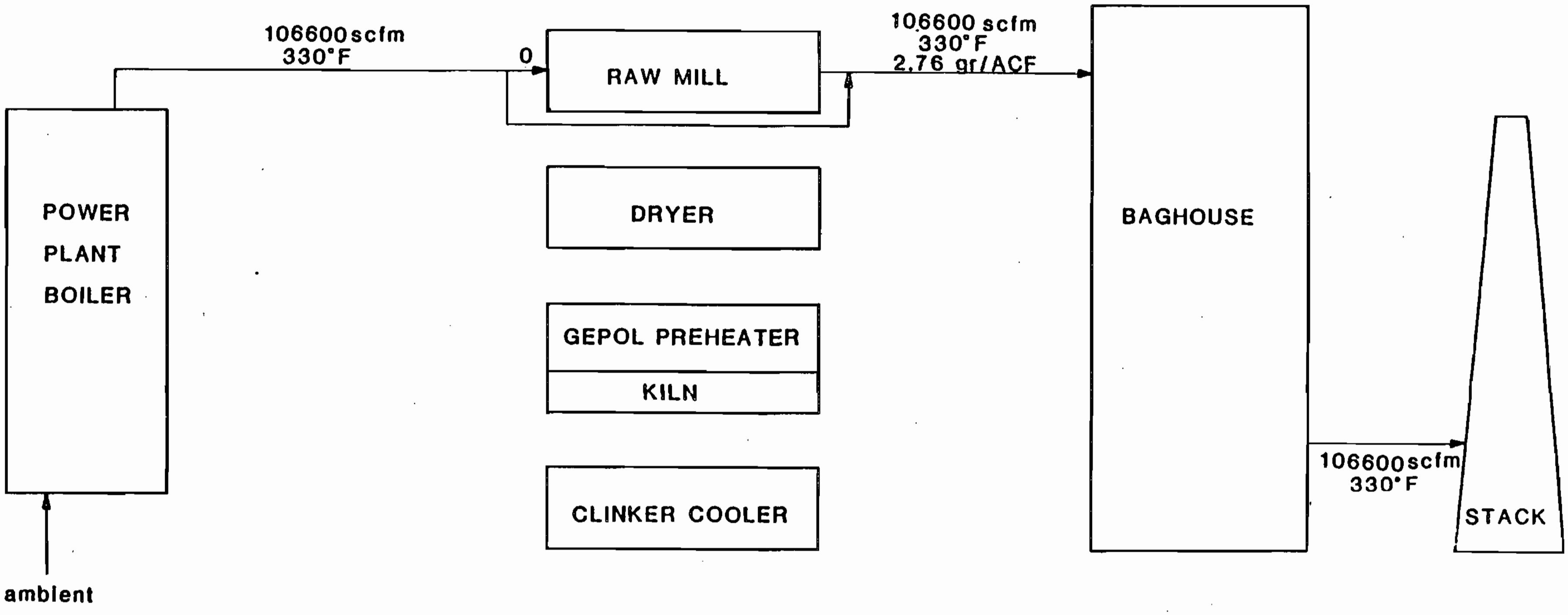


FIGURE 2-4

POWER PLANT OPERATING/CEMENT PLANT NOT OPERATING

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

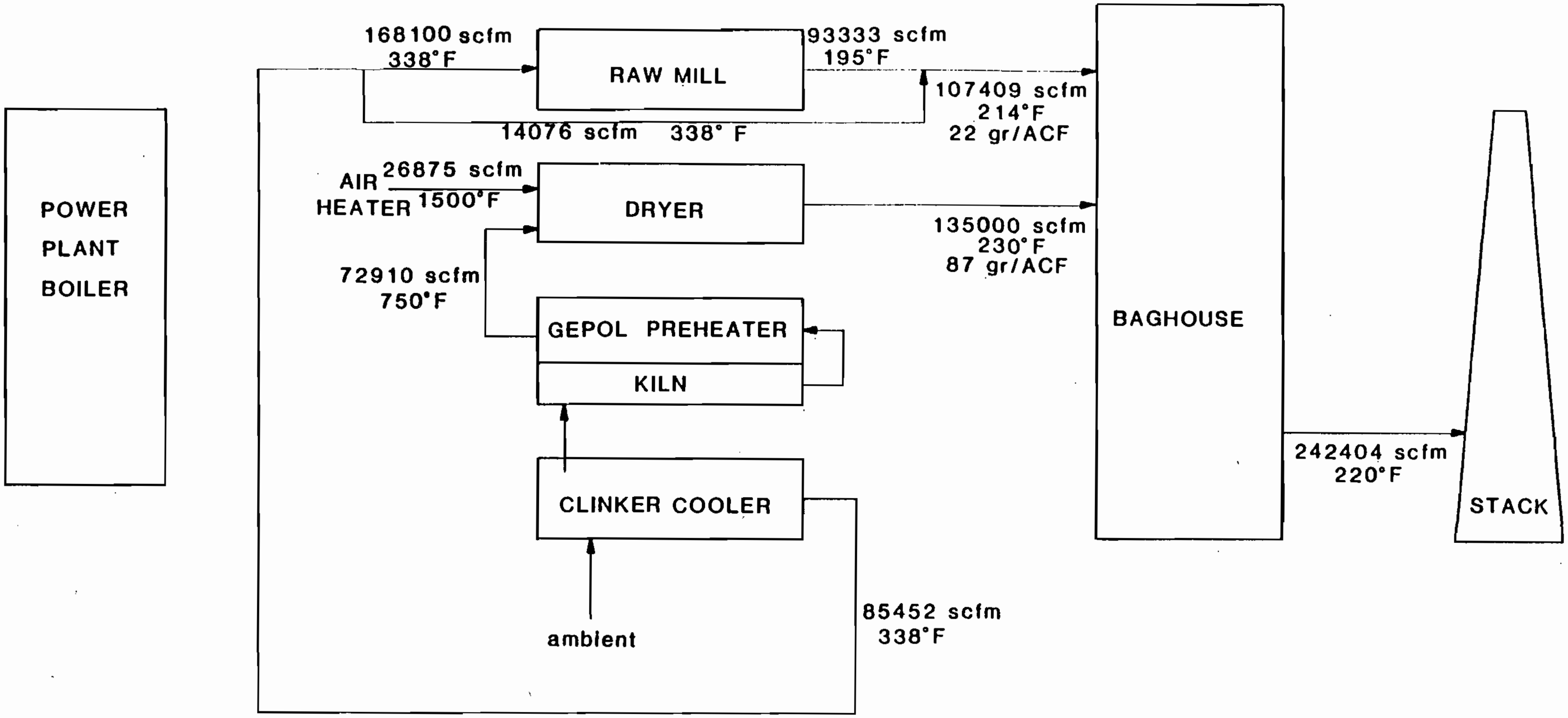


FIGURE 2-5

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

Best Available Copy

E - 360.044
N - 3162.648

FORM PI-2 (72-9)

P.M. = 10000 cfm x 60 min/hr x 0.012 gr/ft3
x 1/7000 lb/grain x 0.126 g/sec/lb/hr
= 0.13 g/sec

Ht = 25 ft
dia = 2.3 ft
Vs = 40.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) B09	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLAY CRUSHER	**Type of Particulate Controlled** 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)	(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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.123
N - 3162.379

P.M = 5000 x 60 x 0.012 x 1/7000 x 0.126
= 0.06 g/sec

Ht = 55'
dia = 1.5 ft
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) B10	**Manufacturer & Model No. (if available)**
Name of Abatement Device LIMESTONE CONVEYOR	**Type of Particulate Controlled** LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	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)	(ft³/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/ft² 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.

Best Available Copy

E- 359.950
N - 3162.477

FORM PI-2 (72-9)

P.M. = 8000 x 60 x 0.012 x 1/7000 x 0.[illegible]
= 0.10 [illegible]

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

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) D16	**Manufacturer & Model No. (if available)**
Name of Abatement Device LIMESTONE TRANSFER	**Type of Particulate Controlled** 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 (ft³/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/ft² 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: 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.

Best Available Copy

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 fps

Point Number (from Flow Diagram) D21	**Manufacturer & Model No. (if available)**
Name of Abatement Device PREMIX BIN	**Type of Particulate Controlled** LIMESTONE

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	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/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/ft² 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.

Best Available Copy

E - 360.017
N - 3162.337

FORM PI-2 (72-9)

P.M. = 10,000 × 60 × 0.012 × 1/7000 × 0.126
= 0.129 g/sec

Ht = 125'
dia = 2.3'
Vel = 42.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) D22	**Manufacturer & Model No. (if available)**
Name of Abatement Device FLY ASH BIN	**Type of Particulate Controlled** FLY ASH

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
10,000				
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)	(ft³/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/ft² 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.

Best Available Copy

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 power
plant gases

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) E16	**Manufacturer & Model No. (if available)**
Name of Abatement Device KILN MILL BAGHOUSE	**Type of Particulate Controlled** 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)**	**(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/ft² 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) = (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 (0.0074x2) 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 × 0.287×10^3 gal/hr

= 1.4 lb/hr

= 5.5 tpy

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

= 1 × 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 × 0.287×10^3 gal/hr

= 0.3 lb/hr

= 1.1 tpy

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

= 0.3 × 18.7 tons/hr

= 5.6 lb/hr

= 22.1 tpy

Best Available Copy

E - 360.030
N - 3162.335

FORM PI-2 (72-9)

P.M = 5000 x 60 x 0.015 x [illegible]
= 0.09 g/sec.

Ht = 25'
dia = 1.5'
Vel = 47.2 fps

TABLE II
FABRIC FILTERS

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

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.

Best Available Copy

E - 360.037
N - 3162.312

FORM PI-2 (72-9)

PM = 23000 × 60 × 0.015 × 1/7000 × 0.[illegible]
= 0.37 g/sec
Ht = 205'
dia = 3.5'
Vel = 40.0 fps

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{O}F)	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]

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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.044
N - 3162.306

P.M. = 10,000 × 0.015 × 60 × 1/7000
× 0.126
= 0.16 g/sec
Ht = 50
dia = 2.5'
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) H15	Manufacturer & Model No. (if available)
Name of Abatement Device KILN FEED	Type of Particulate Controlled 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 (ft³/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/ft² 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.

Best Available Copy

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 = 47.2 fps

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}F)	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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.114
N - 3162.137

P.M. = 10,000 × 60 × 0.015 × 1/7000 × 0.
= 0.16 g/sec
Ht = 200'
dia = 2.5'
Vex = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) L12	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO	**Type of Particulate Controlled** 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/ft² 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.

Best Available Copy

E - 360.108
N - 3162.125

FORM PI-2 (72-9)

P.M. = 10000 × [illegible]
= 0. [illegible]

Ht = 200'
d.a = 2.5'
Vel = 34.1 [illegible]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) L 13	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO	**Type of Particulate Controlled** 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)	Fan Requirements (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/ft² 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.

Best Available Copy

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) M 18	Manufacturer & Model No. (if available)
Name of Abatement Device CLINKER SILO DISCHARGE	Type of Particulate Controlled CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	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 (ft³/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/ft² 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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.105
N - 3162.143

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) M19	**Manufacturer & Model No. (if available)**
Name of Abatement Device LIMESTONE SILO	**Type of Particulate Controlled** LIMESTONE

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 (ft³/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/ft² 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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.123
N - 3762.133

P.H. = 8000 x 60 x 0.015 x 1/7000 x 0.126
= 0.13 g/sec

Ht = 25'
dia = 2.0'
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) M 20	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	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 (ft³/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/ft² 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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.111
N - 3162.133

E13 = 46,000 × 0.014 × 60 × 1/7000 × 0.1[illegible]
= 0.70 g/sec
Ht - 100'
dia = 5.0'
Vel = 39.0 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) N 13	**Manufacturer & Model No. (if available)**
Name of Abatement Device FINISH MILL	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	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: 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.

Best Available Copy

FORM PI-2 (72-9)

Locate all at
360.125
3162.100

PM = 8000 × 60 × 0.015 × 1/7000 × 0.126
= 0.13 g/sec, each source
Ht = [illegible]'
dia = 1.5'
Vel = 13.[illegible]

TABLE 11
FABRIC FILTERS

Point Number (from Flow Diagram) Q 08 (4 Units)	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO DISCHARGE	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{O}F)	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]

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.

Best Available Copy

FORM PI-2 (72-9)

Locate all at
360.125
3163.110

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 = 20.7 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) Q 09 (5 Units)	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO	**Type of Particulate Controlled** 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.

Best Available Copy

FORM PI-2 (72-9)

E - 360.155
N - 3162.032

PM = 10,000 × 60 × 0.015 × 1/7000 × 0.12
= 0.16 g/sec
Ht = 55
dia = 2.5'
Vel = 34.1 fps

TABLE 11
FABRIC FILTERS

Point Number (from Flow Diagram) R 14	**Manufacturer & Model No. (if available)**
Name of Abatement Device PACKING PLANT	**Type of Particulate Controlled** 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)	**(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/ft² 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.

Best Available Copy

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
= 0.16g/sec, each source
Ht = 80'
dia = 2.5
Vel = 34.1 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) R16 (3 units)	**Manufacturer & Model No. (if available)**
Name of Abatement Device MASONRY SILO	**Type of Particulate Controlled**

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)	(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.

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) S-04	**Manufacturer & Model No. (if available)**
Name of Abatement Device RAW COAL BIN	**Type of Particulate Controlled** 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)	(ft³/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/ft² 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 x(1/1.25) cars/employee x 350 trips/yr x 2 miles/trip

= 50,000 miles/yr

Emissions

Part. Matter
Roads = 0.012 lb/mile x 50,000 miles x 1/2000 = 0.3 tpy
Auto = 0.6 g/mi x 1/453.6 x 50,000 x 1/2000 = <0.1

CO = 76.5 g/mi x( ) = 4.2
HC = 10.8 g/mi x( ) = 0.6
NO_x = 4.9 g/mi x( ) = 0.3
SO_2 = 0.2 g/mi x( ) = <0.1

TRUCK TRAFFIC

20,800 trucks/yr x 2 mi/trip = 41,600 miles/yr

Emissions

Part. Matter
Roads = 0.024 lb/mi x 41,600 x 1/2000 = 0.5 tpy
Auto = 1.3 g/mi x 1/453.6 x 41,600 x 1/2000 = 0.1

CO = 28.7 g/mi x ( ) = 1.3
HC = 4.6 g/mi x ( ) = 0.2
NO_x = 20.9 g/mi x ( ) = 1.0
SO_2 = 2.8 g/mi x ( ) = 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 x 30 day/yr x 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.

Best Available Copy

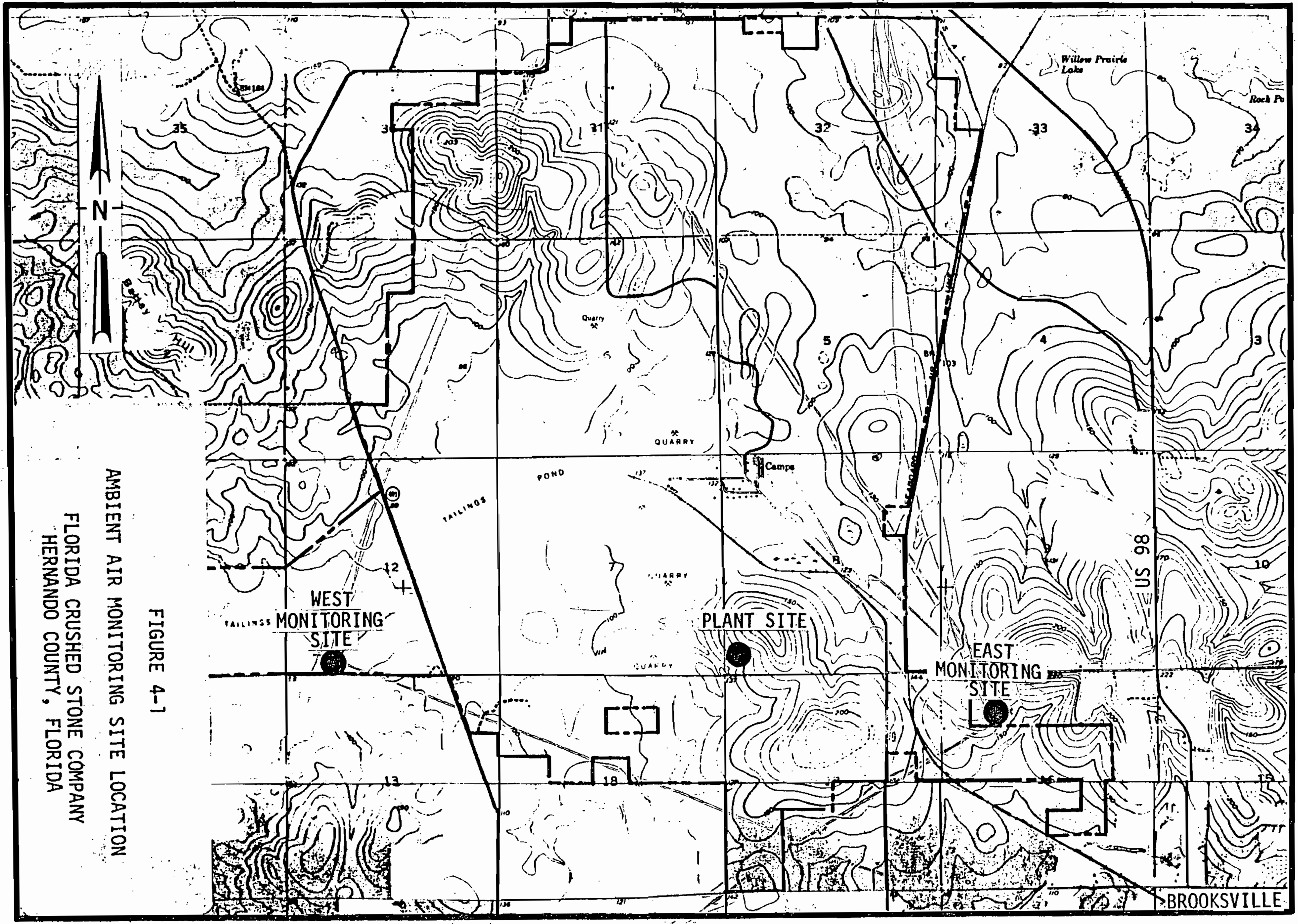


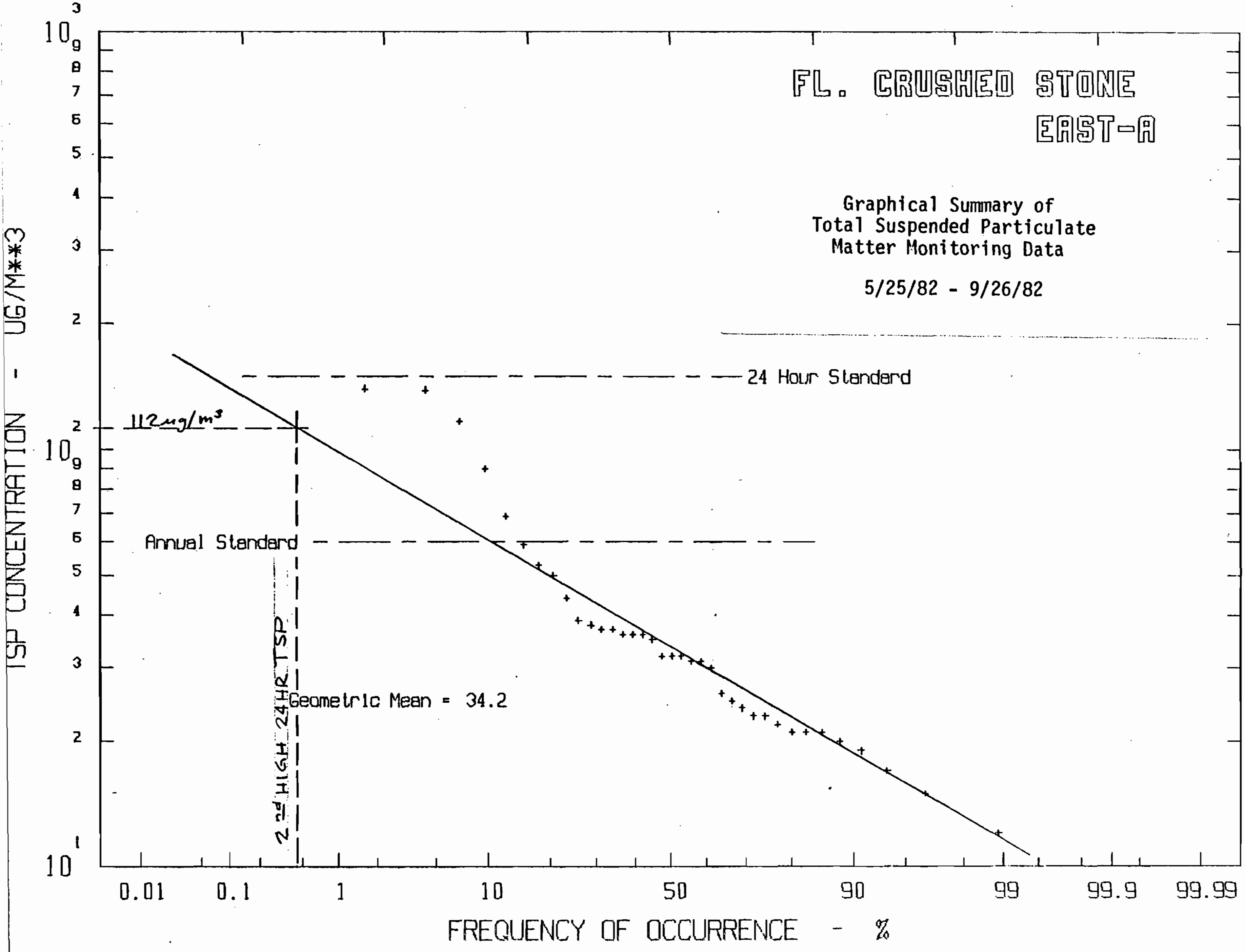
FIGURE 4-1

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
10^3
9
8
7
6
5
4
3
2
10^2
9
8
7
6
5
4
3
2
10^1
0.01
0.1
1
10
50
90
99
99.9
99.99
FREQUENCY OF OCCURRENCE - %

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National Aerometric Data Bank
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Research Triangle Park, N.C. 27711

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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		
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	3	7	8	2	0	5
11	12	13	14	15	16	17	18

	TSP			
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	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
0 1					
0 2					
0 3					
0 4					
0 5					
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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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Site Address

BACKGROUND SURVEILLANCE
Project

24 HOUR
Time Interval

State (2-3)	Area (4-7)	Site (8-10)
10	1740	005

Agency (11)	Project (12-13)	Time (14)	Year (15-16)	Month (17-18)
5	03	7	82	06

	Name	PARAMETER Code	Method	Units	DP
1	TSP	11101 (23-27)	91 (28-29)	01 (30-31)	0 (32)
2		(37-41)	(42-43)	(44-45)	(46)
3		(51-55)	(56-57)	(58-59)	(60)
4		(65-69)	(70-71)	(72-73)	(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		50			
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04		43			
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13		37			
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25		22			
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30					
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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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City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE
Project

24 HOUR
Time Interval

State: 1 0 (2 3) Area: 1 7 4 0 (4 5 6 7) Site: 0 0 5 (8 9 10)

Agency: 5 (11) Project: 0 3 (12 13) Time: 7 (14) Year: 8 2 (15 16) Month: 0 7 (17 18)

	TSP			
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)	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
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02					
03					
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07		✓ 21 r			
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19		✓ 32 —			
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22		✓ 36 —			
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25		✓ 23 —			
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28		✓ 30 —			
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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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City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE — Project
24 HOUR — Time Interval

State (2 3)	Area (4 5 6 7)	Site (8 9 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 3	7	8 2	0 8

Name	PARAMETER Code	Method	Units	DP
TSP	1 1 1 0 1 (23 24 25 26 27)	9 1 (28 29)	0 1 (30 31)	0 (32)
	(37 38 39 40 41)	(42 43)	(44 45)	(46)
	(51 52 53 54 55)	(56 57)	(58 59)	(60)
	(65 66 67 68 69)	(70 71)	(72 73)	(74)

Day (19 20)	St Hr (21 22)	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
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30		37			
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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City Name

FLORIDA CRUSHED STONE, EAST A
Site Address

BACKGROUND SURVEILLANCE — Project
24 HOUR — 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 3	7	8 2	0 9
11	12 13	14	15 16	17 18

Name	TSP			
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)	33	34	35	36	47 48 49 50	61 62 63 64	75 76 77 78
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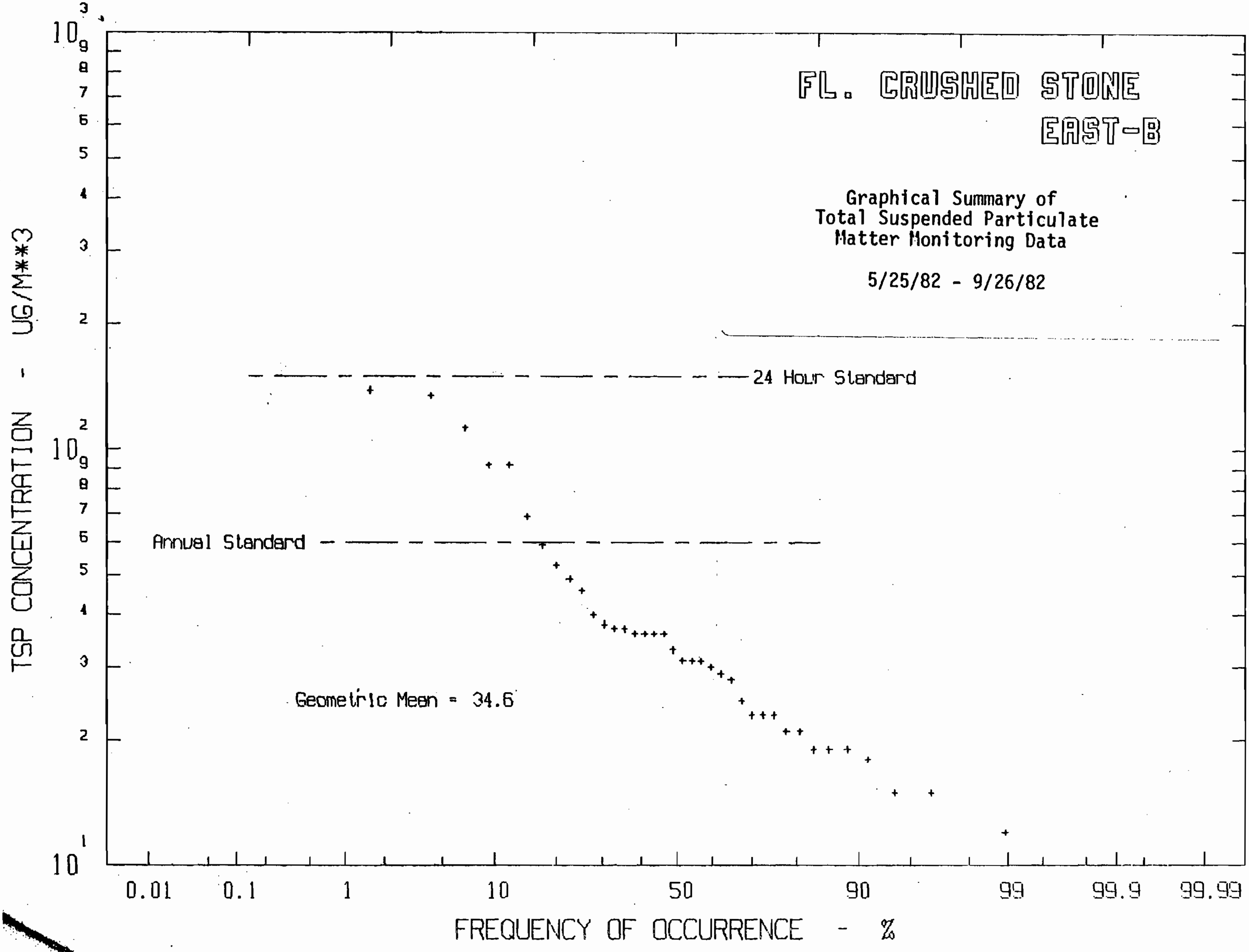
FL. CRUSHED STONE
EAST-B
Graphical Summary of
Total Suspended Particulate
Matter Monitoring Data
5/25/82 - 9/26/82
24 Hour Standard
Annual Standard
Geometric Mean = 34.6
TSP CONCENTRATION - UG/M**3
10^3
9
8
7
6
5
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3
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10^2
9
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6
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90
99
99.9
99.99
FREQUENCY OF OCCURRENCE - %

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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	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	0 5
11	12 13	14	15 16	17 18

	TSP			
Name	TSP			
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	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
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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
2 3	4 5 6 7	8 9 10

Agency	Project	Time	Year	Month
5	0 9	7	8 2	0 6
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	PARAMETER Code 37 38 39 40 41	PARAMETER Code 51 52 53 54 55	PARAMETER Code 65 66 67 68 69
Method 9 1 (28 29) Units 0 1 (30 31) DP 0 (32)	Method (42 43) Units (44 45) DP (46)	Method (56 57) Units (58 59) DP (60)	Method (70 71) Units (72 73) DP (74)

Day 19 20	St Hr 21 22	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
0 1		4 9			
0 2					
0 3					
0 4		1 9			
0 5					
0 6					
0 7					
0 8					
0 9					
1 0		1 3 5			
1 1					
1 2					
1 3		3 6			
1 4					
1 5					
1 6		3 0			
1 7					
1 8					
1 9					
2 0					
2 1					
2 2		5 3			
2 3					
2 4					
2 5		2 3			
2 6					
2 7					
2 8		4 6			
2 9					
3 0					
3 1					
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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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 B
Site Address

DUPLICATE
Project

24 HOUR
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	09	7	82	07
11	12 13	14	15 16	17 18

	TSP			
Name 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	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
01		113			
02					
03					
04		38			
05					
06					
07		21			
08					
09					
10		36			
11					
12					
13		36			
14					
15					
16		21			
17					
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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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: 1 0 (2 3)
Area: 1 7 4 0 (4 5 6 7)
Site: 0 0 5 (8 9 10)
Agency: 5 (11)
Project: 0 9 (12 13)
Time: 7 (14)
Year: 8 2 (15 16)
Month: 0 8 (17 18)

	TSP			
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)	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

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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		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	0	9
11	12	13	14	15	16	17	18

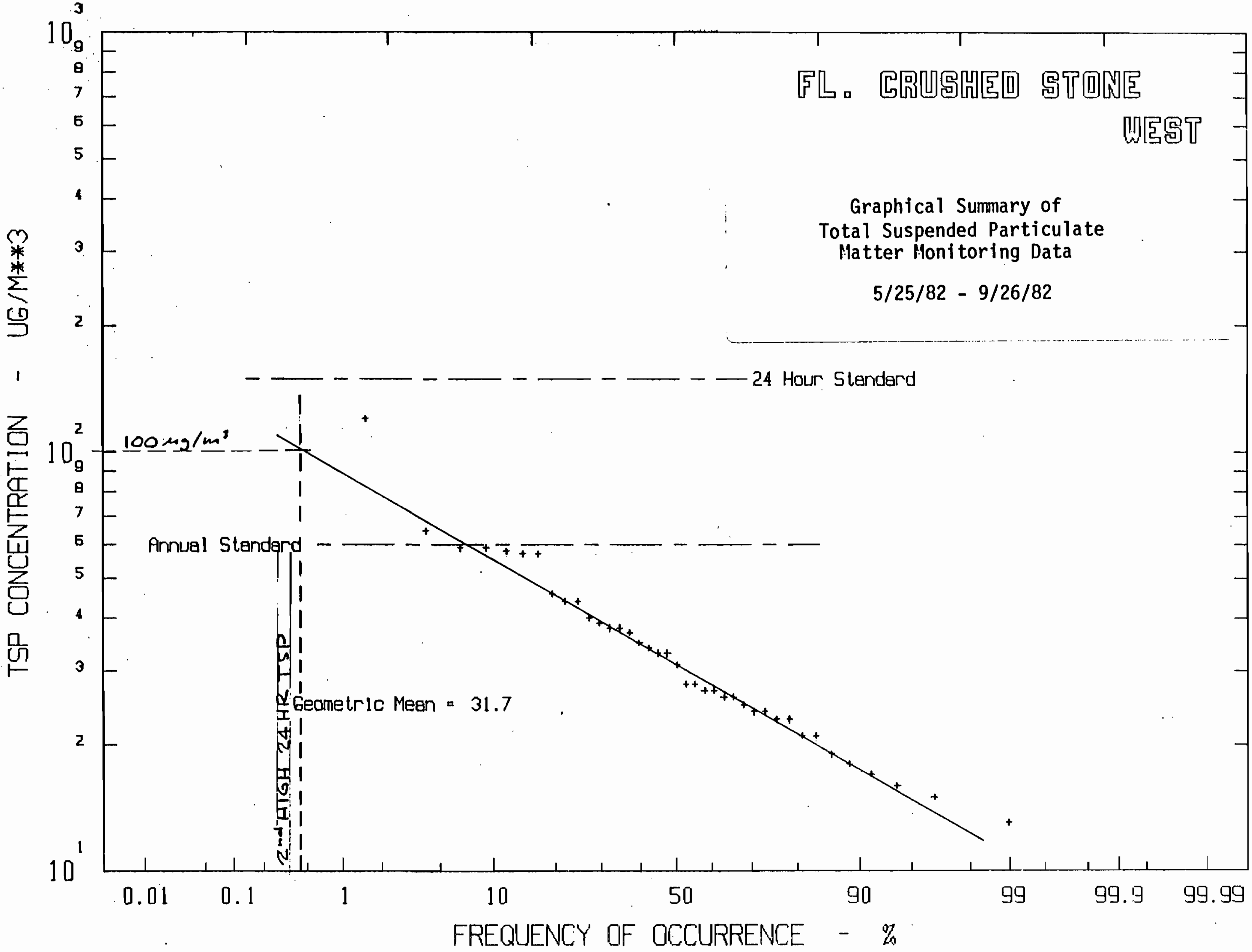
TSP
Name
PARAMETER
Code
1 1 1 0 1
23 24 25 26 27
Method 9 1 (28 29) Units 0 1 (30 31) DP 0 (32)

Name
PARAMETER
Code
37 38 39 40 41
Method (42 43) Units (44 45) DP (46)

Name
PARAMETER
Code
51 52 53 54 55
Method (56 57) Units (58 59) DP (60)

Name
PARAMETER
Code
65 66 67 68 69
Method (70 71) Units (72 73) DP (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		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	4 3 2 1 0	4 3 2 1 0	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
Geometric Mean = 31.7
2nd HIGH 24 HR TSP
TSP CONCENTRATION - UG/M**3
10³
10²
10¹
9
8
7
6
5
4
3
2
FREQUENCY OF OCCURRENCE - %
0.01
0.1
1
10
50
90
99
99.9
99.99

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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		
1	0	1	7	4	0	0	0	4
2	3	4	5	6	7	8	9	10

Agency	Project		Time	Year		Month	
5	0	3	7	8	2	0	5
11	12	13	14	15	16	17	18

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	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
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	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

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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
1 0	1 7 4 0	0 0 4
2 3	4 5 6 7	8 9 10

Agency	Project	Time	Year	Month
5	0 3	7	8 2	06
11	12 13	14	15 16	17 18

	TSP	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	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
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 →		4 3 2 1 0	4 3 2 1 0	4 3 2 1 0	4 3 2 1 0

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P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

1 [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 (2-3): 1 0 — Area (4-7): 1 7 4 0 — Site (8-10): 0 0 4

Agency (11): 5 — Project (12-13): 0 3 — Time (14): 7 — Year (15-16): 8 2 — Month (17-18): 0 7

	TSP			
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	33 34 35 36	47 48 49 50	61 62 63 64	75 76 77 78
0 1		57			
0 2					
0 3					
0 4		44			
0 5					
0 6					
0 7		27			
0 8					
0 9					
1 0					
1 1					
1 2					
1 3					
1 4					
1 5					
1 6		38			
1 7					
1 8					
1 9		40			
2 0					
2 1					
2 2		25			
2 3					
2 4					
2 5		24			
2 6					
2 7					
2 8		21			
2 9					
3 0					
3 1		120			
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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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		
1	0	1	7	4	0	0	0	4
2	3	4	5	6	7	8	9	10

Agency	Project	Time	Year	Month
5	0 3	7	8 2	0 8
11	12 13	14	15 16	17 18

TSP
Name
PARAMETER
Code
1 1 1 0 1
23 24 25 26 27
Method 9 1 (28 29) Units 0 1 (30 31) DP 0 (32)

Name
PARAMETER
Code
37 38 39 40 41
Method (42 43) Units (44 45) DP (46)

Name
PARAMETER
Code
51 52 53 54 55
Method (56 57) Units (58 59) DP (60)

Name
PARAMETER
Code
65 66 67 68 69
Method (70 71) Units (72 73) DP (74)

Day 19	Day 20	St Hr 21	St Hr 22	33	34	35	36	47	48	49	50	61	62	63	64	75	76	77	78
0	1																		
0	2																		
0	3					2	3												
0	4																		
0	5																		
0	6																		
0	7																		
0	8																		
0	9					6	5												
1	0																		
1	1																		
1	2					2	8												
1	3																		
1	4																		
1	5					4	4												
1	6																		
1	7																		
1	8					2	1												
1	9																		
2	0																		
2	1					2	4												
2	2																		
2	3																		
2	4					1	6												
2	5																		
2	6																		
2	7					5	7												
2	8																		
2	9																		
3	0					5	8												
3	1																		
DP →				4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1

0 0 0 0

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ENVIRONMENTAL PROTECTION AGENCY
National Aerometric Data Bank
P.O. Box 12055
Research Triangle Park, N.C. 27711

24-HOUR OR GREATER SAMPLING INTERVAL

2 (1) SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
Agency

1213 NW 6 STREET, GAINESVILLE, FL 32601
City Name

FLORIDA CRUSHED STONE, WEST
Site Address

BACKGROUND SURVEILLANCE
Project

24 HOUR
Time Interval

State (2-3)	Area (4-7)	Site (8-10)
1 0	1 7 4 0	0 0 4

Agency (11)	Project (12-13)	Time (14)	Year (15-16)	Month (17-18)
5	0 3	7	8 2	0 9

Name	PARAMETER Code	Method	Units	DP
TSP	1 1 1 0 1 (23-27)	9 1 (28-29)	0 1 (30-31)	0 (32)
	(37-41)	(42-43)	(44-45)	(46)
	(51-55)	(56-57)	(58-59)	(60)
	(65-69)	(70-71)	(72-73)	(74)

Day 19 20	St Hr 21 22	33	34	35	36
01					
02				5	9
03					
04					
05				3	1
06					
07					
08				2	8
09					
10					
11				3	3
12					
13					
14				2	6
15					
16					
17				5	9
18					
19					
20				2	3
21					
22					
23				3	9
24					
25					
26				1	5
27					
28					
29					
30					
31					
DP →		4 3	2	1	0

47 48 49 50 / 61 62 63 64 / 75 76 77 78

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

FCS - East Sulfur Dioxide July 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	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%

FCS - East Sulfur Dioxide July 1982

	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

FCS - East Sulfur Dioxide August 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	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%

	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
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

APPLICATION FOR STATE & FEDERAL PSD APPROVAL

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

VOLUME I

DER

SEP 30 1982

BAQM

SEPTEMBER, 1982

SHOLTES & KOOGLER
Environmental Consultants
[illegible] W 6TH ST ■ GAINESVILLE, FL 32601 ■ [illegible]

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.

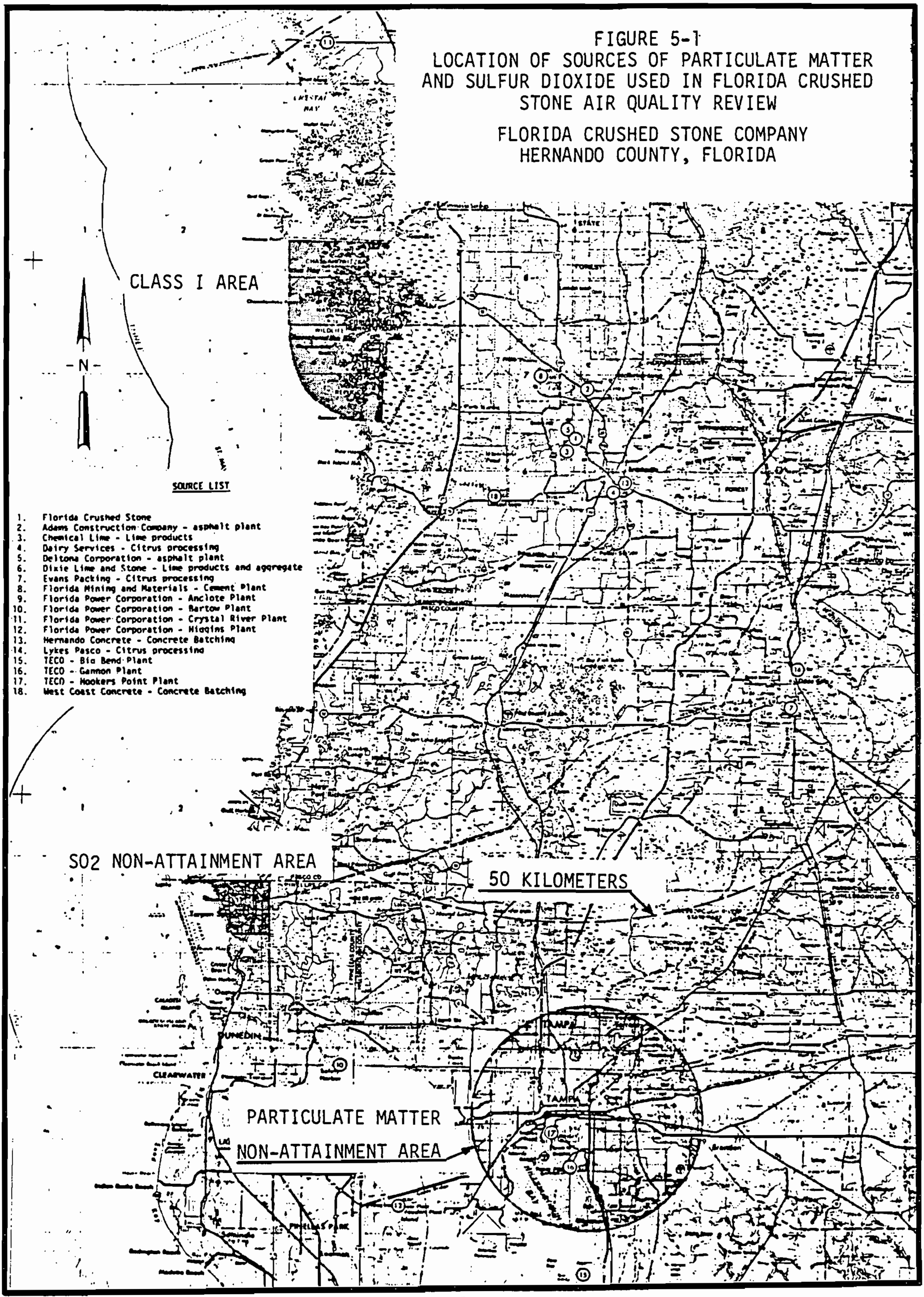
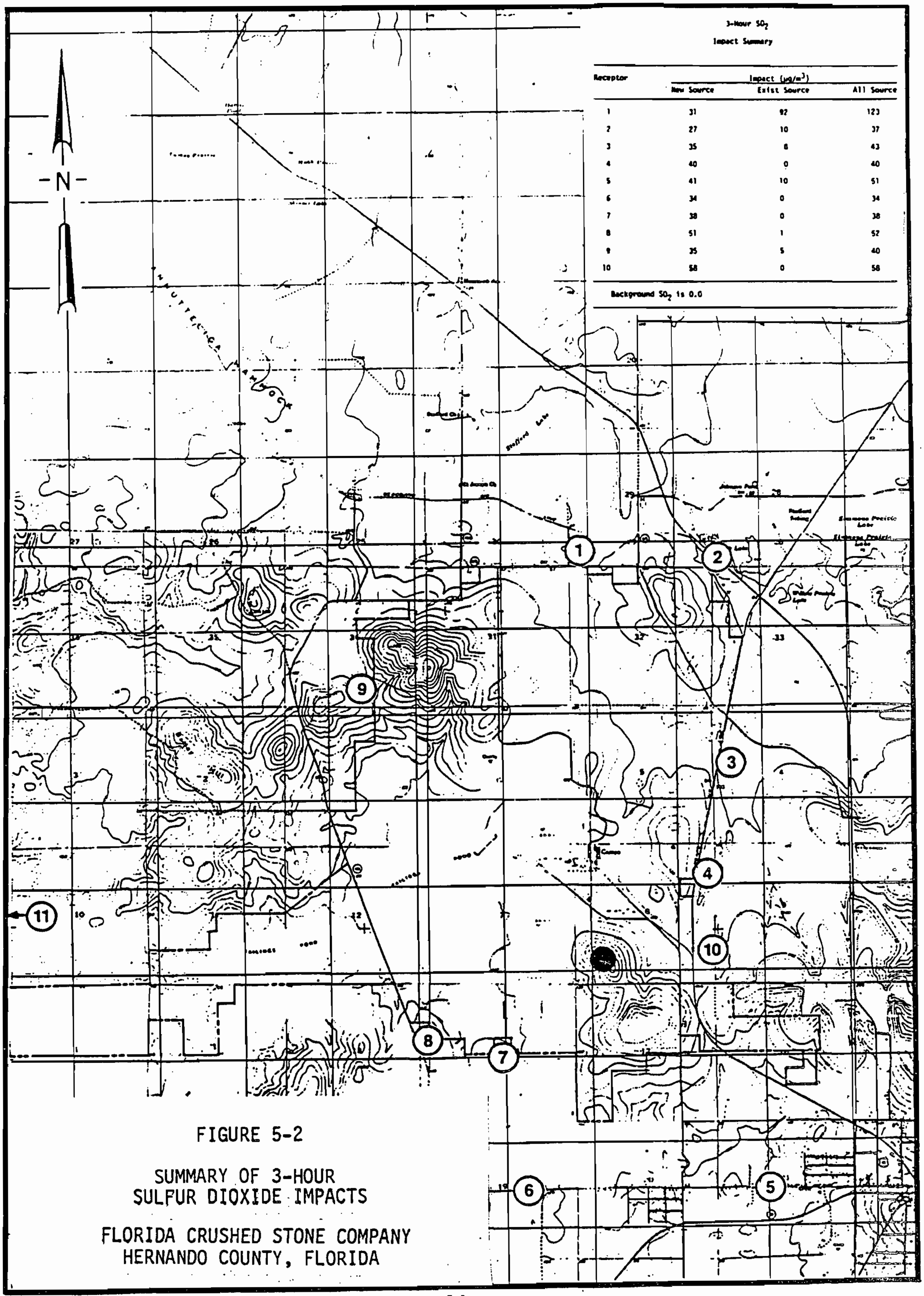


FIGURE 5-1
LOCATION OF SOURCES OF PARTICULATE MATTER AND SULFUR DIOXIDE USED IN FLORIDA CRUSHED STONE AIR QUALITY REVIEW
FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA



3-Hour SO_2

Impact Summary

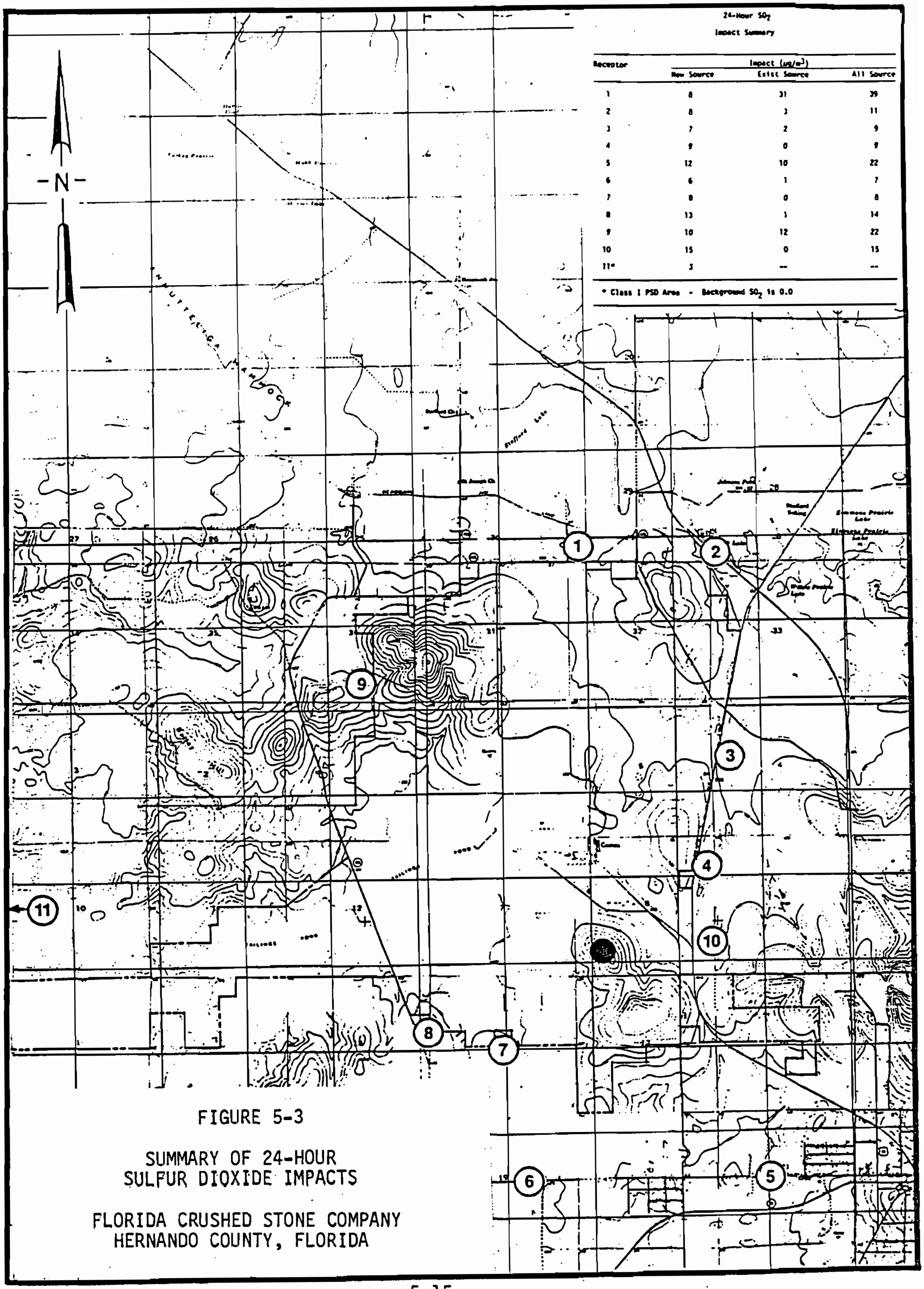
Receptor	Impact ($\mu g/m^3$)		
	New Source	Exist Source	All Source
1	31	92	123
2	27	10	37
3	35	8	43
4	40	0	40
5	41	10	51
6	34	0	34
7	38	0	38
8	51	1	52
9	35	5	40
10	58	0	58

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

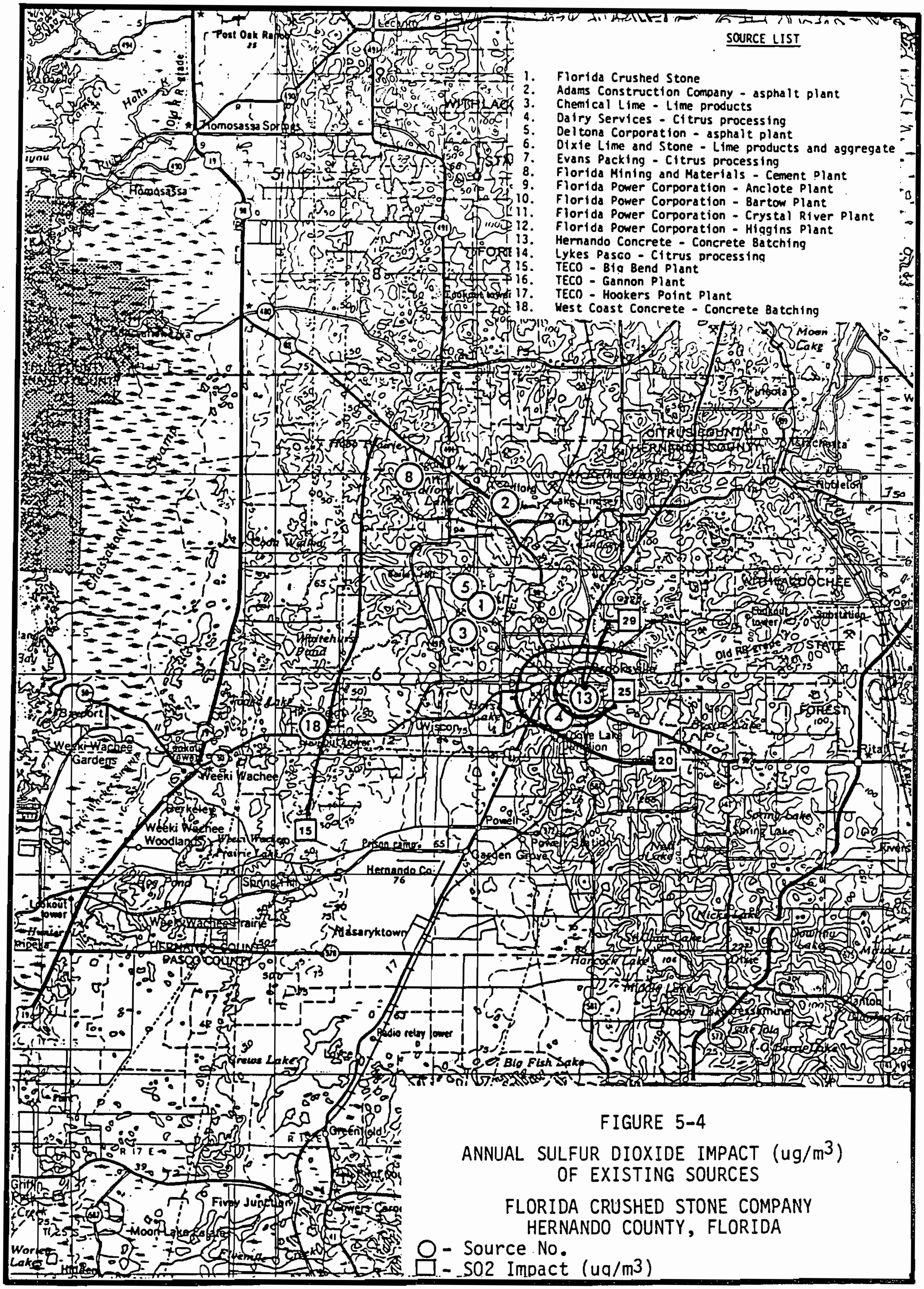
Receptor	Impact ($\mu g/m^3$)		
	New Source	Exist Source	All Source
1	8	31	39
2	8	3	11
3	7	2	9
4	9	0	9
5	12	10	22
6	6	1	7
7	8	0	8
8	13	1	14
9	10	12	22
10	15	0	15
11*	3	--	--

* 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



SOURCE LIST

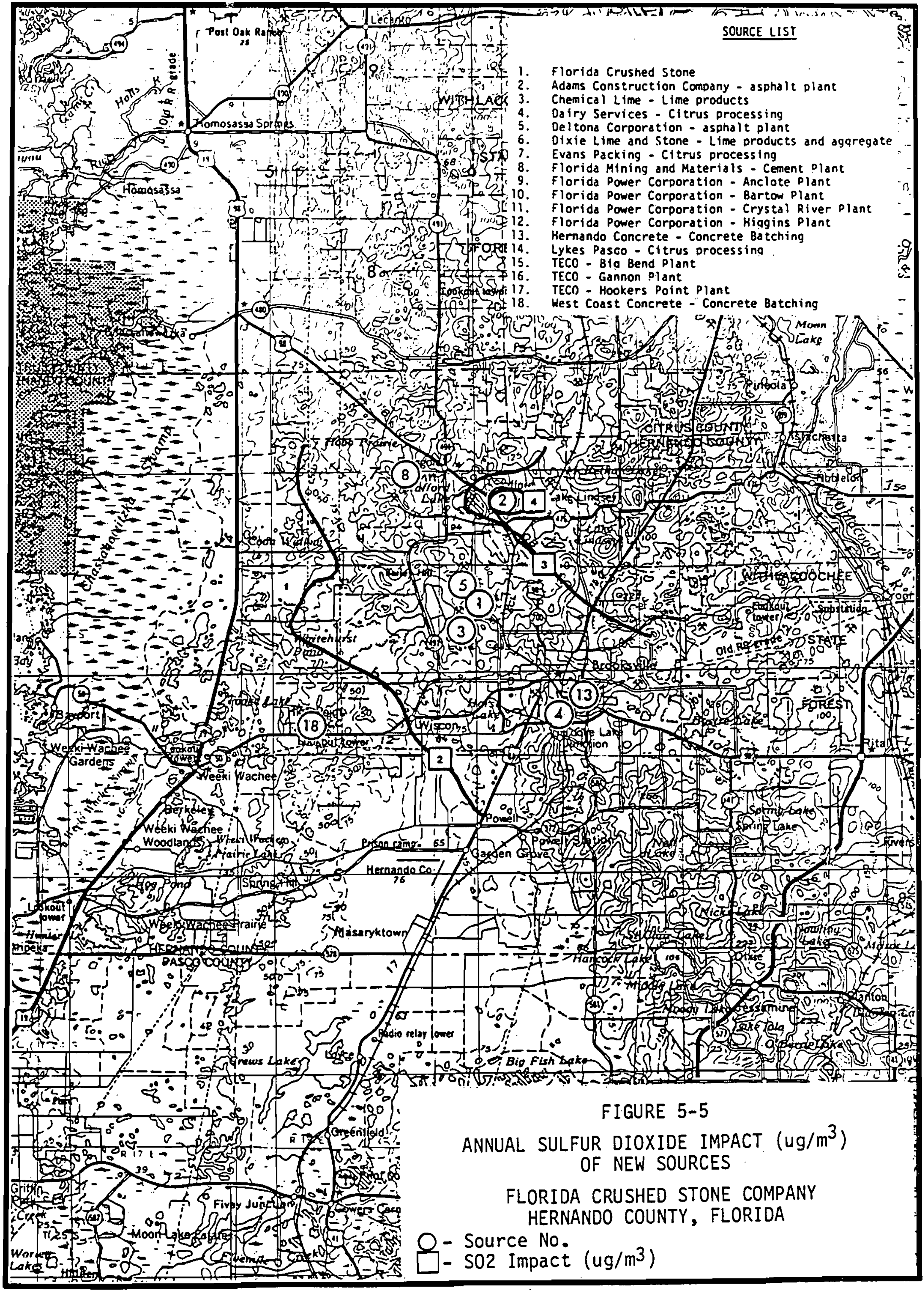
1. Florida Crushed Stone
2. Adams Construction Company - asphalt plant
3. Chemical Lime - Lime products
4. Dairy Services - Citrus processing
5. Deltona Corporation - asphalt plant
6. Dixie Lime and Stone - Lime products and aggregate
7. Evans Packing - Citrus processing
8. Florida Mining and Materials - 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 5-4

ANNUAL SULFUR DIOXIDE IMPACT (ug/m^3)
OF EXISTING SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
☐ - SO2 Impact (ug/m^3)



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
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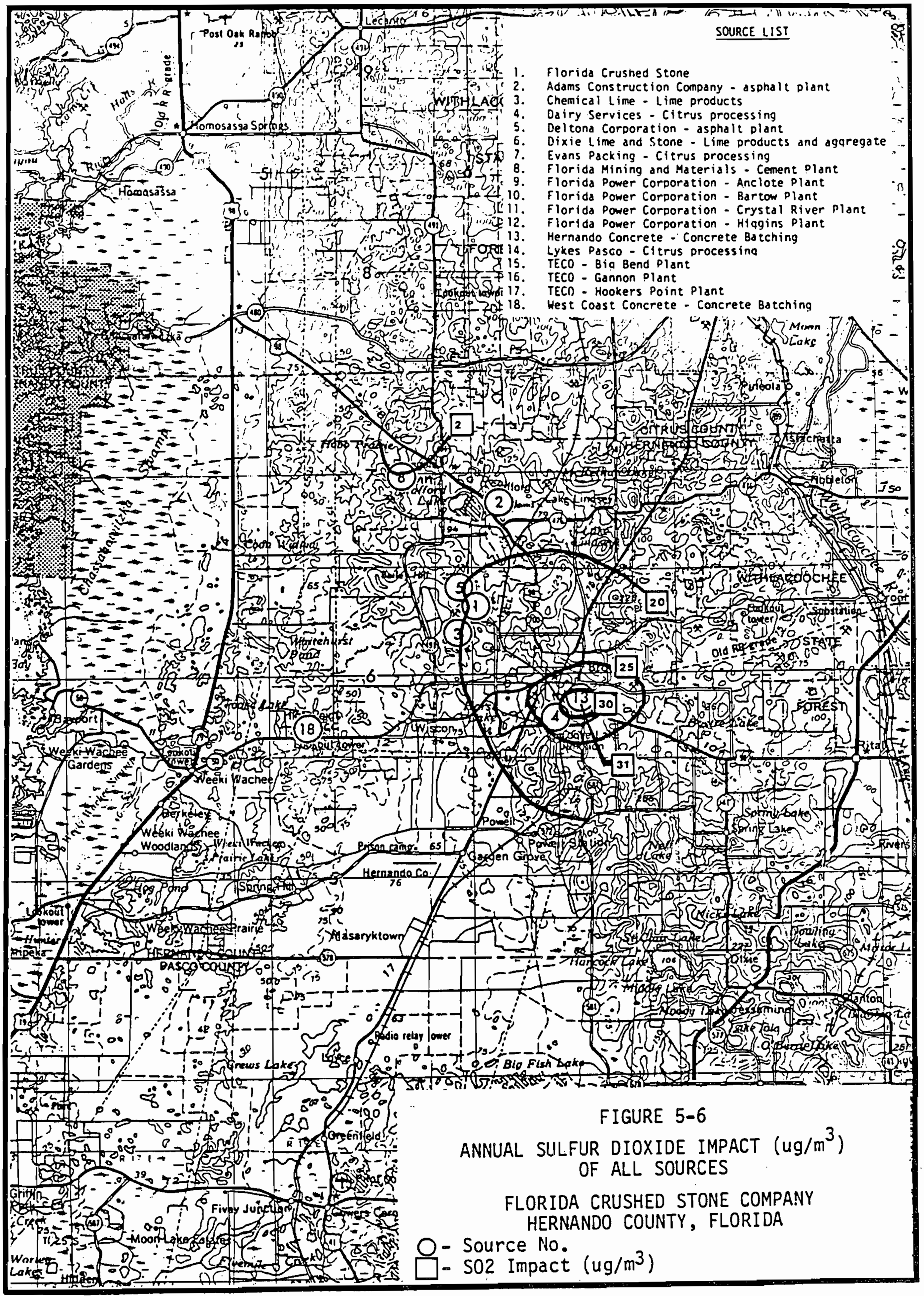
10. Florida Power Corporation - Bartow Plant
11. Florida Power Corporation - Crystal River Plant
12. Florida Power Corporation - Higgins Plant
13. Hernando Concrete - Concrete Batching
14. Lykes Pasco - Citrus processing
15. TECO - Big Bend Plant
16. TECO - Gannon Plant
17. TECO - Hookers Point Plant
18. West Coast Concrete - Concrete Batching

FIGURE 5-5

ANNUAL SULFUR DIOXIDE IMPACT (ug/m^3) OF NEW SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
□ - SO2 Impact (ug/m^3)



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
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12. Florida Power Corporation - Higgins Plant
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17. TECO - Hookers Point Plant
18. West Coast Concrete - Concrete Batching

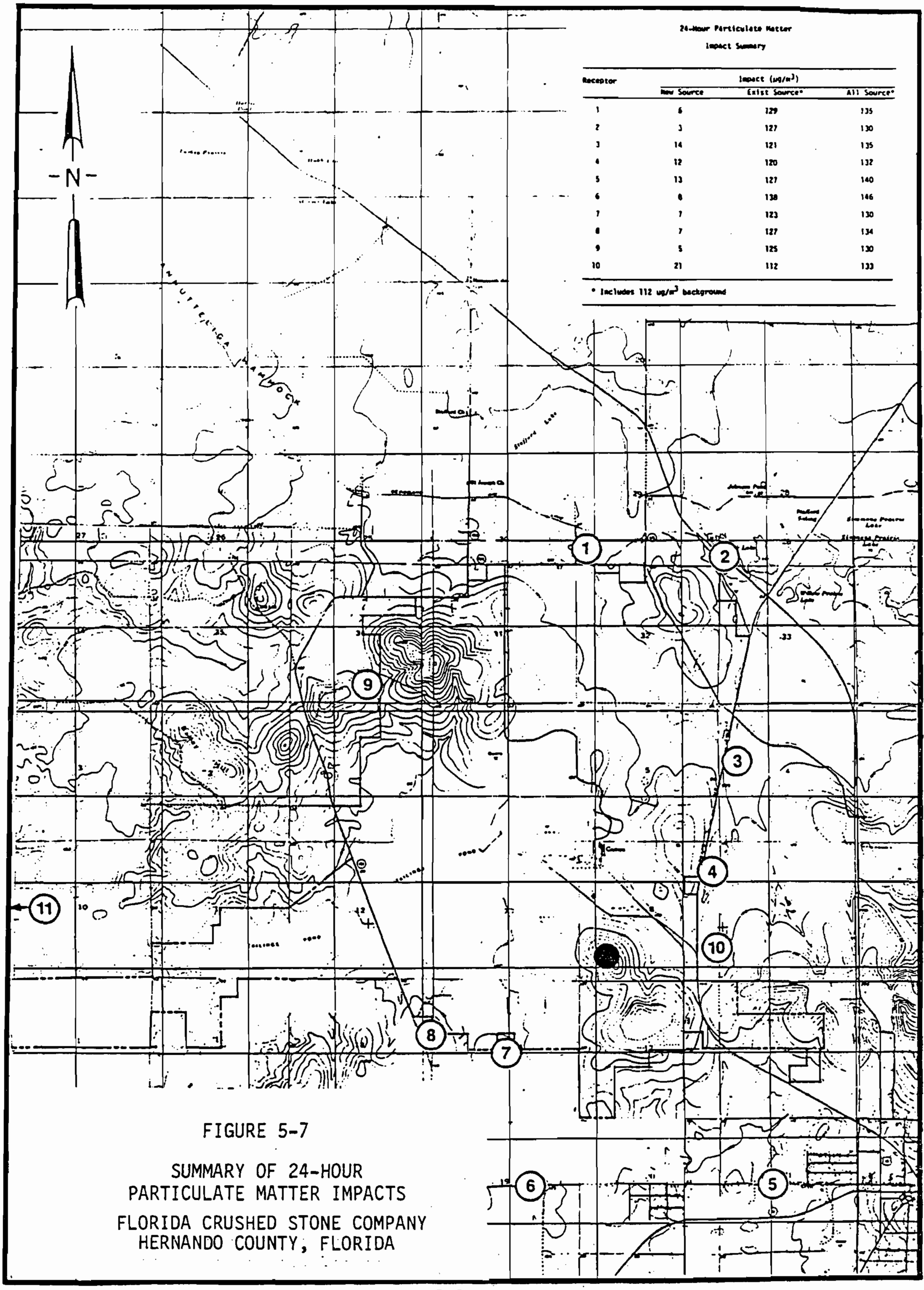
FIGURE 5-6

ANNUAL SULFUR DIOXIDE IMPACT (ug/m^3) OF ALL SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
☐ - S02 Impact (ug/m^3)

Best Available Copy



24-Hour Particulate Matter

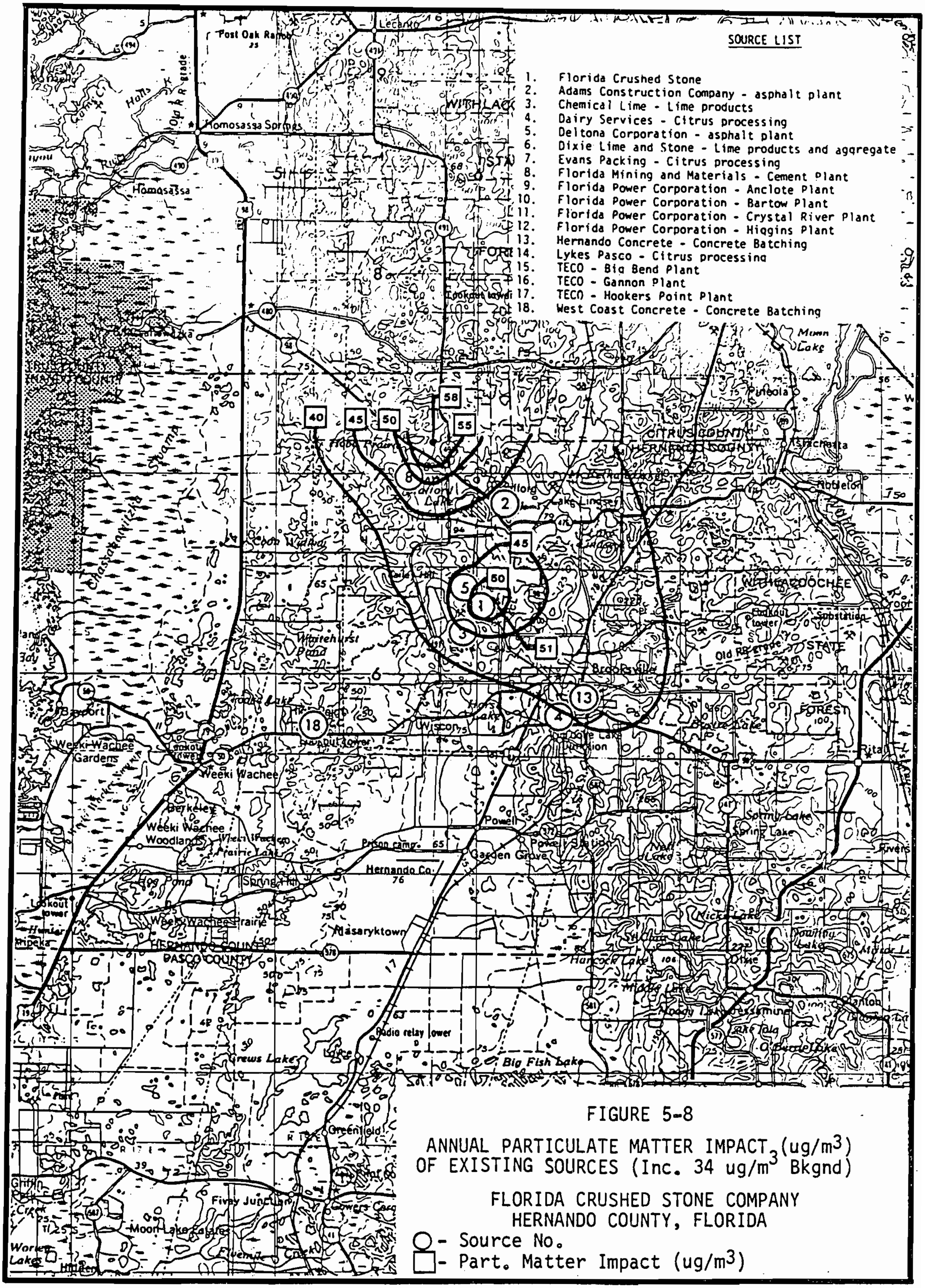
Impact Summary

Receptor	Impact (μg/m³)		
	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/m³ background

FIGURE 5-7

SUMMARY OF 24-HOUR
PARTICULATE MATTER IMPACTS
FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA



SOURCE LIST

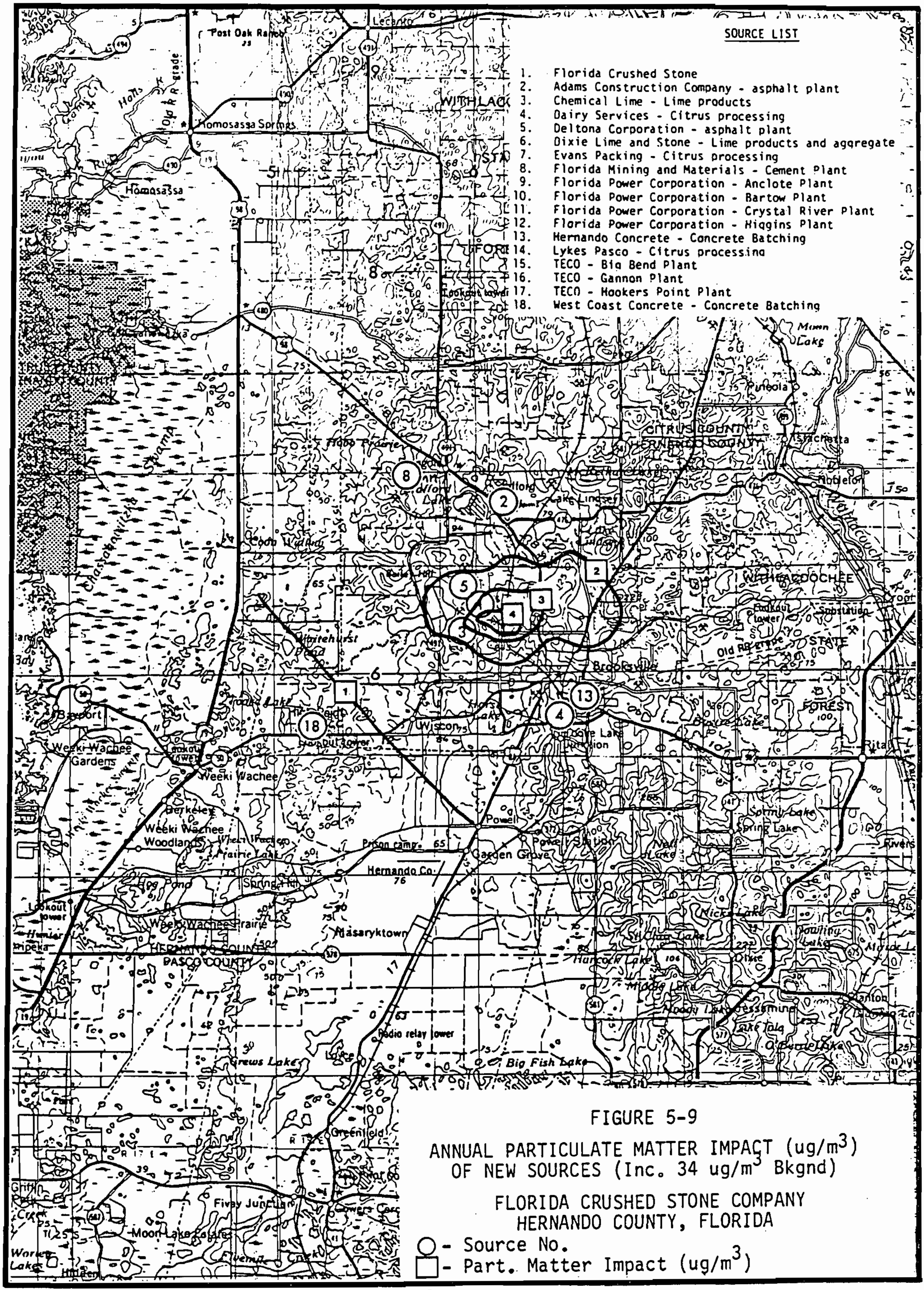
1. Florida Crushed Stone
2. Adams Construction Company - asphalt plant
3. Chemical Lime - Lime products
4. Dairy Services - Citrus processing
5. Deltona Corporation - asphalt plant
6. Dixie Lime and Stone - Lime products and aggregate
7. Evans Packing - Citrus processing
8. Florida Mining and Materials - 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)



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
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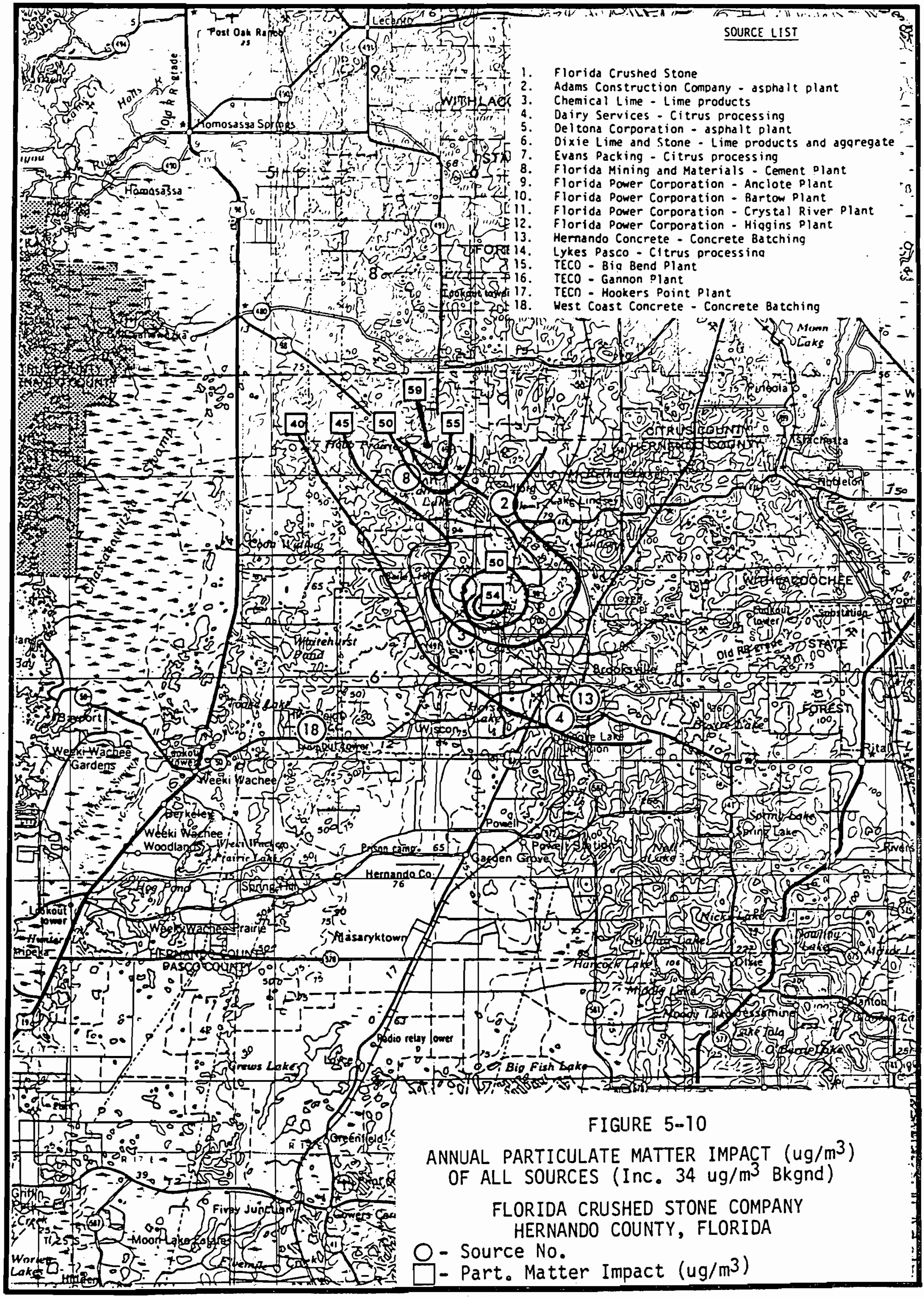
12. Florida Power Corporation - Higgins Plant
13. Hernando Concrete - Concrete Batching
14. Lykes Pasco - Citrus processing
15. TECO - Big Bend Plant
16. TECO - Gannon Plant
17. TECO - Hookers Point Plant
18. West Coast Concrete - Concrete Batching

FIGURE 5-9

ANNUAL PARTICULATE MATTER IMPACT (ug/m^3) OF NEW SOURCES (Inc. 34 ug/m^3 Bkgnd)

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
☐ - Part. Matter Impact (ug/m^3)



SOURCE LIST

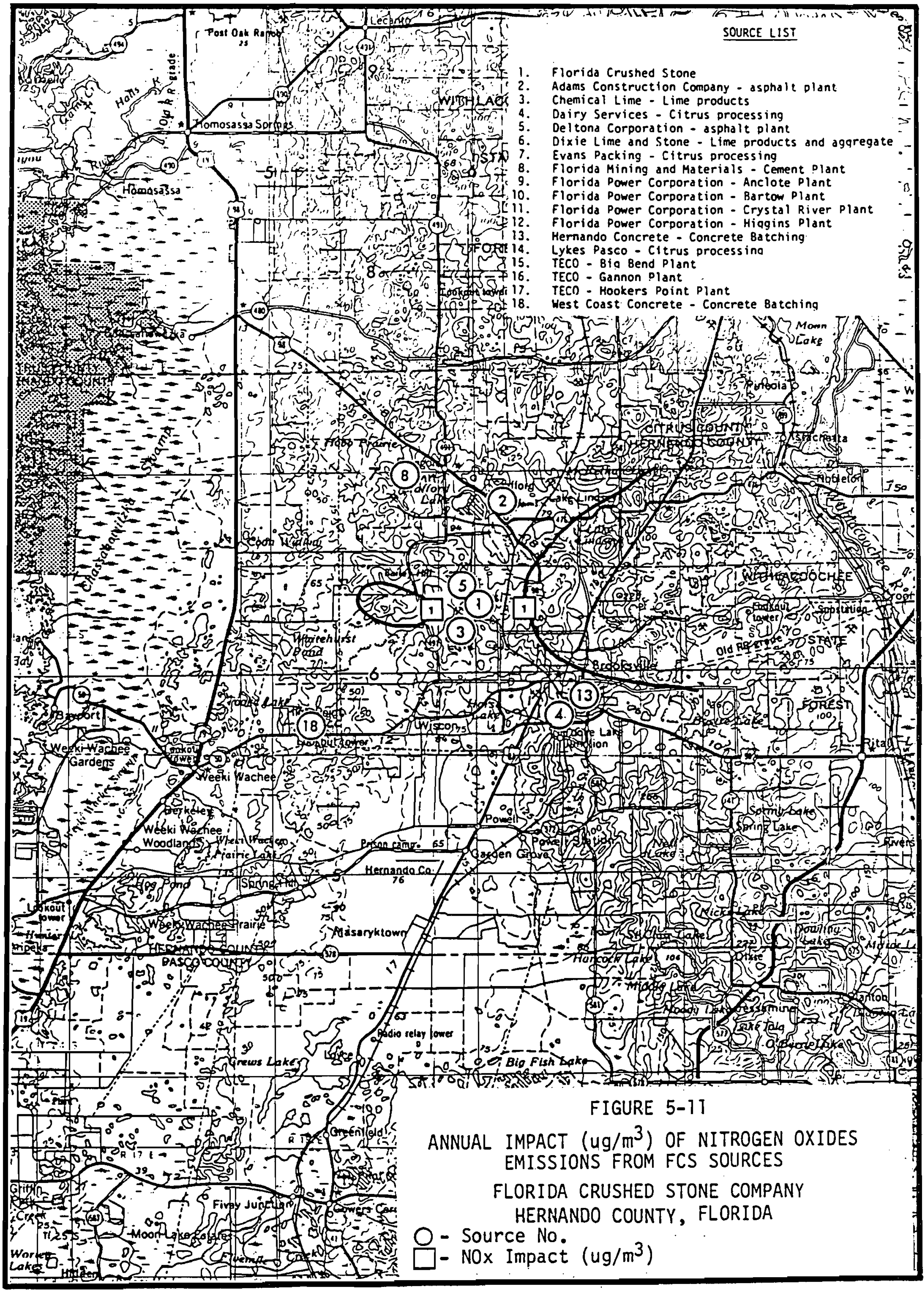
1. Florida Crushed Stone
2. Adams Construction Company - asphalt plant
3. Chemical Lime - Lime products
4. Dairy Services - Citrus processing
5. Deltona Corporation - asphalt plant
6. Dixie Lime and Stone - Lime products and aggregate
7. Evans Packing - Citrus processing
8. Florida Mining and Materials - 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 5-10

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)



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
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FIGURE 5-11

ANNUAL IMPACT (ug/m^3) OF NITROGEN OXIDES EMISSIONS FROM FCS SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Source No.
☐ - NOx Impact (ug/m^3)

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 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)
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] Combined	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

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 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.

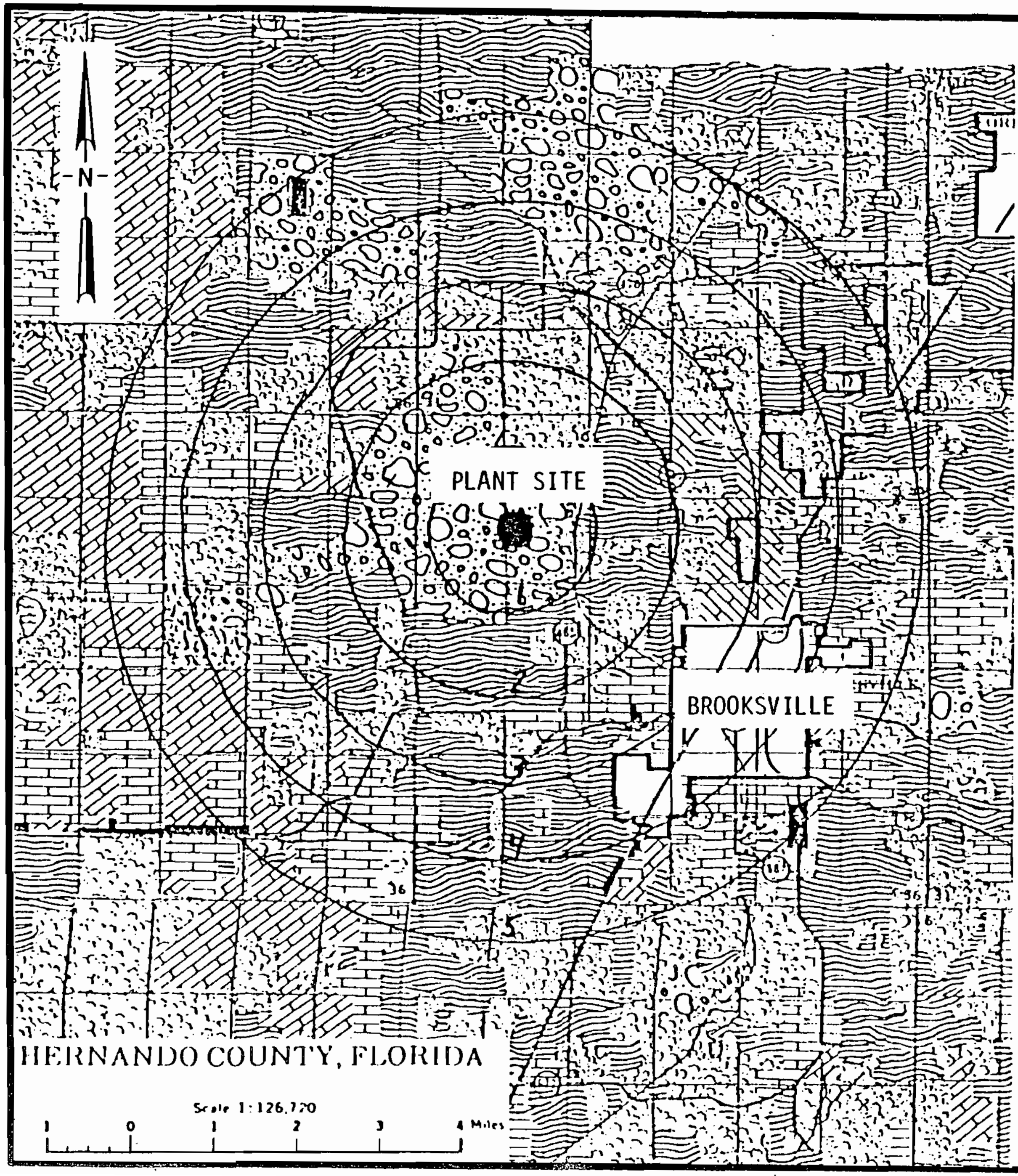

FIGURE 6-1

PRESENT LAND USE WITHIN FIVE MILES OF FLORIDA CRUSHED STONE SITE

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

ATTACHMENT 3

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

October 29, 1982

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Richard C. Entorf
Senior Vice President
Florida Crushed Stone Company
Post Office Box 317
Leesburg, Florida 32748

Dear Mr. Entorf:

RE: Florida Crushed Stone Company, Cement/Power Plant Applications, Hernando County

The subject applications for construction were received by the Florida Department of Environmental Regulation on September 30, 1982. Since then, you enlarged the size of the power plant and submitted an application for Power Plant Site Certification to FDER on October 18, 1982.

Based on the major changes in your power plant project, it has been determined that we have to know the effects of these changes on each of the subject applications before we can review the applications in detail.

Please submit the $5,100 application fee for the cement plant complex, the itemized cost on each source is as follows:

Permit No.	Source Type	Cost
AC 27-61016	Cement Kiln	$1,000
"	Clinker Cooler	250
"	Dryer	750
"	Raw Mill	100
AC 27-61009	Clay Crusher	100
AC 27-61010	Limestone Conveyor	100
AC 27-61012	Pre Mix Bin	100
AC 27-61013	Fly Ash Bin	100
AC 27-61017	Raw Meal Transfer	100
AC 27-61019	Limestone Transfer	100
AC 27-61020	Blending Silo	100
AC 27-61021	Kiln Feed	100

Permit No.	Source Type	Cost
AC 27-61026	Raw Coal Bin	$ 100
AC 27-61027	Cooler Discharge	100
AC 27-61029	Gypsum Storage Silo	100
AC 27-61030	Clinker Silo (L-12)	100
AC 27-61032	Clinker Silo (L-13)	100
AC 27-61033	Clinker Silo Discharge	100
AC 27-61034	Limestone Silo	100
AC 27-61036	Cement Silo	100
AC 27-61037	Finish Mill	100
AC 27-61038	Cement Silo (Q-08)	100
"	"	100
"	"	100
"	"	100
AC 27-61040	Cement Silo (Q-09)	100
"	"	100
"	"	100
"	"	100
"	"	100
AC 27-61041	Masonry Silo	100
"	"	100
"	"	100
AC 27-61042	Packing Plant	100

The total cost of the application fees was originally $6,200. After dropping $1,100 for the power plant and raw coal bin, the fee now is $5,100.

As soon as these two items of incompleteness are cleared up, we will proceed with the processing of your applications. If you have any questions, please call Bill Thomas at (904) 488-1344.

Sincerely,

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

CHF/pa

cc: John Koogler, Sholtes & Koogler
Hamilton S. Oven, DER, Power Plant Siting
Dan Williams, DER Southwest District Office

ATTACHMENT 4

SK SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-01

November 1, 1982

DER
NOV 03 1982
BAQM

Mr. Clair Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Subject: Florida Crushed Stone Company
PSD Application

Dear Mr. Fancy:

For your records, I would like to confirm that the Florida Crushed Stone Company is withdrawing the Application for PSD approval for the 40 megawatt electric power generating station that was proposed in conjunction with the Portland Cement Plant the firm plans to construct in Hernando County, Florida. This decision was verbally transmitted to your staff in mid-October, 1982.

In lieu of the 40 megawatt power plant, the Florida Crushed Stone Company is proposing to construct a 125 megawatt power plant. The application for this power plant was forwarded to the Power Plant Site Certification Staff of FDER on October 18, 1982.

The change in power plant capacity has resulted in some modifications to the proposed cement plant. These modifications, plus additional modifications resulting from more detailed engineering design, will be forwarded to your office as soon as the necessary data can be compiled. It is still the intent of the Florida Crushed Stone Company for the review of the PSD application for the proposed cement plant to proceed as expeditiously as possible.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:sc

cc: Mr. Richard C. Entorf
Mr. Skip Haskell
Mr. Larry Curtin

Dispersion Modeling, Air Quality Monitoring, Emission Measurements, Meteorological Studies, Control Systems Design, Control System Evaluation, Environmental Impact Studies, Noise Surveys, Radiological Studies, Instrumentation for Control Systems, Instrumentation for Environmental Monitoring

SK SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-01

November 4, 1982

DER
NOV 08 1982
BAQM

Mr. Clair Fancy
Florida Department of
  Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: Florida Crushed Stone Company
Hernando County, Florida
Application for State and Federal PSD Review

Dear Mr. Fancy:

In mid-October 1982, your staff was informed that the Florida Crushed Stone Company was making some major revisions to the cement plant and power plant proposed for construction in Hernando County. The most significant change was an increase in the capacity of the electric power generating plant from 40 megawatts to 125 megawatts. As a result of this revision, all permitting for the power plant, including State and Federal PSD Review, will be reviewed under the requirements of the Florida Power Plant Siting Act.

In addition to the increased capacity of the power plant, Florida Crushed Stone has made some revisions in the cement plant. These revisions include the elimination of the auxiliary burner on the rotary raw materials dryer and the elimination of several bag collectors throughout the plant as a result of more efficient venting of materials handling sources.

All of the modifications related to the increased capacity of the power plant have been addressed in the Power Plant Siting Application submitted to FDER by Florida Crushed Stone on October 18, 1982. The purpose of this letter is to describe the modifications to the cement plant and the effect of these modifications on ambient air quality.

It will be noted from Table 2-1, revised (attached hereto), that the proposed power plant will become subject to PSD review for carbon monoxide and hydrocarbons in addition to particulate matter, sulfur dioxide and nitrogen oxides as it was originally. The cement plant, however, will still be subject to PSD review only for particulate matter, sulfur dioxide and nitrogen oxides.

Attached hereto are two copies each of a revised plot plan of the cement plant, a process flow diagram defining the operations of the cement plant and an equipment list defining all items shown in the flow diagram. These materials replace the materials which were submitted with the original PSD application on September 30, 1982.

Also attached is a summary (Table A) identifying the changes in control equipment throughout the cement plant. It should be noted that there are no changes in the production rate of the plant; only changes in the handling of raw materials and the placement of bag collectors to control emissions from vented materials handling sources. In addition to the summary of changes in Table A, the material presented in Appendix A2-1 of the original application has been modified to reflect the revisions to individual sources and is attached hereto.

Since the change in the capacity of the power plant will have a significant effect on the gas flows through the raw materials dryer, the raw mill, the kiln and the clinker cooler of the cement plant, revised copies of Figures 2-3, 2-4 and 2-5 of the original application have been prepared and are attached. In these figures, the gas flow through the power plant and the referenced portions of the cement plant are shown when both the power plant and the cement plant are operating, when the power plant only is operating and when the cement plant only is operating.

As a result of the increase in particulate matter, sulfur dioxide and nitrogen oxides emissions from the larger power plant, the air quality impact study had to be revised. The impact analysis, reflecting the increased emission rates has been included in the Power Plant Siting Application submitted to FDER by Florida Crushed Stone on October 18, 1982. Verbal discussion with your staff has indicated that it will be unnecessary to duplicate the air quality modeling material and submit it as a revision to the PSD application for the cement plant.

The revised modeling for cement plant and power plant particulate matter emissions as submitted with the Power Plant Siting Application reflected only the increase in particulate matter emissions from the power plant. The modeling did not reflect the reduction in particulate matter emissions from the various bag collectors throughout the cement plant as summarized in Table A, delineating cement plant equipment changes.

As a result of the equipment changes within the cement plant, particulate matter emissions from sources other than the kiln/power plant bag collector will be reduced from 45.1 pounds per hour to 24.8 pounds per hour (Table A). In addition to emission changes many of the source parameters (stack height, stack diameter, stack gas temperature and stack gas velocity) were also changed. Rather than revise all of the particulate matter air quality modeling to reflect the equipment changes, only the conditions resulting in the maximum impact from the proposed Florida Crushed Stone sources were remodeled. These conditions were represented by meteorological conditions from day 174, 1972, the revised particulate matter emission data summarized in Table A and receptors shown at Location 10 in Figure 5-7 of the original PSD application.

The modeling conducted in conjunction with the original PSD application (an emission rate from materials handling sources of 41.5 pounds per hour) showed a maximum particulate matter impact from Florida Crushed Stone sources of 21 micrograms per cubic meter. The modeling conducted with the revised sources (24.8 pounds per hour) shows a maximum particulate matter impact from Florida Crushed Stone sources of 12 micrograms per cubic meter.

Since the maximum impact decreased approximately 43 percent as a result of changes in equipment, it is anticipated that the impacts at the other locations shown in Figure 5-7 will also decrease and since PSD increments and air quality standards were not threatened with the 41.5 pound per hour particulate matter emission rate, it follows that these standards will not be threatened under revised conditions with an emission rate of 24.8 pounds per hour. A copy of the air quality modeling, conducted with the ISC-ST model, analyzing the worst case impact of particulate matter emissions is attached hereto.

One matter which was not discussed in the original PSD application is that of downwash. This condition can develop when emissions from various sources within a plant are trapped in the wake of the stack or an adjacent building and are rapidly mixed to ground-level. For the Florida Crushed Stone sources, the effects of downwash were analyzed on the 24-hour particulate matter impact, the 24-hour sulfur dioxide impact and the 3-hour sulfur dioxide impact. It should be recognized in reviewing the results of these analyses that the potential for downwash to exist during an entire 24-hour period is extremely remote.

The particulate matter downwash was analyzed for conditions which resulted in the greatest particulate matter impact from Florida Crushed Stone sources under normal conditions. This was with meteorology from day 174, 1972 and at receptors shown at location 10 in Figure 5-7 of the original application. As discussed in a preceeding paragraph, the maximum impact of particulate matter emissions at this receptor under normal dispersion conditions was 12.0 micrograms per cubic meter. Under downwash conditions, as analyzed with the ISC-ST model, the maximum impact is 9.9 micrograms per cubic meter. The reduced impact undoubtedly results from the fact that the particulate matter emissions are dispersed over a wider area normal to the wind. This factor apparently offsets the increased impact expected due to the particulate matter reaching ground-level more rapidly.

The 24-hour sulfur dioxide downwash analysis was conducted using meteorology from day 286, 1974 and receptors at Location 8 in Figure 6.3 of the Power Plant Siting Application. A copy of this figure is attached hereto. The maximum impact under normal dispersion conditions as shown in Figure 6-3, was 19.0 micrograms per cubic meter. Under downwash conditions, as defined by the ISC-ST model, the maximum impact at Receptor No. 8 will be 18.0 micrograms per cubic meter. A copy of the modeling showing this analysis is attached.

For the 3-hour sulfur dioxide downwash analysis, conditions represented by meteorology from day 284, 1974 were used with receptors shown at Location 8 and Figure 6-2 of the Power Plant Siting Application. A copy of this figure is attached. Under normal dispersion conditions, the maximum 3-hour impact of emissions from Florida Crushed Stone sources at this receptor was 73 micrograms per cubic meter. Under downwash conditions, as defined by the ISC-ST model, the maximum of 3-hour impact will be 75 micrograms per cubic meter. A copy of the modeling showing this analysis is attached hereto.

The results of the downwash analyses show that the 24-hour particulate matter and sulfur dioxide emission impacts will be reduced slightly if downwash occurs during the entire 24-hour period. The analyses further show that the impact of 3-hour sulfur dioxide emissions will increase by three micrograms per cubic meter if downwash occurs during the worst case 3-hour period. These changes in impacts will not result in violations of applicable air quality standards or applicable PSD increments.

The FDER Construction Permit Applications submitted in conjunction with the PSD application for the cement plant are being revised to reflect changes in control equipment. These revised applications will be submitted to your office as soon as they are completed.

If any additional information is needed to complete the PSD application for the cement plant, please contact our office.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:ldh
Enclosures
cc: Mr. Richard C. Entorf
Mr. Larry Curtin

Summary of Air Pollutant Emission Rates from 125 Megawatt Power Plant and 600,000 Ton per Year Cement Plant

TABLE 2-1

ANNUAL AIR POLLUTANT EMISSION RATES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

	Pollutant Emission Rate (tpy)				
Source	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides	Carbon Monoxide	Hydrocarbons
Kiln	141	305	1585	0	0
Cooler	47	0	0	0	0
Power Plant	486	5837	3405	197	59
Other					
Cement Plant	95	0	0	0	0
Secondary (1)	2	1	10	8	3
Total	771	6143	5000	205	62
Power Plant	486	5837	3405	197	59
Cement Plant	285	306	1595	8	3
De Minimus Emission Rate	25	40	40	100	40

(1) See Appendix A2-2

REVISED 11/3/82

Summary of Control Equipment Changes in Cement Plant

TABLE A

SUMMARY OF CHANGES IN SOURCE IDENTIFICATION AND CHARACTERISTICS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

SOURCE DATA IN SEPTEMBER, 1982 APPLICATION						REVISED SOURCE DATA					
	PART. MATTER	STACK		STACK GAS			PART. MATTER	STACK		STACK GAS	
IDENTIFICATION	EMISSIONS (g/sec)	HT. (M)	DIA. (M)	VEL. (M/S)	TEMP. (°K)	IDENTIFICATION	EMISSIONS (g/sec)	HT. (M)	DIA. (M)	VEL. (M/S)	TEMP. (°K)
B09 - Clay Crusher	0.13	7.6	0.70	12.3	314	Eliminated					
B10 - Limestone Conveyor	0.06	16.9	0.50	14.4	314	Eliminated					
D16 - Limestone Transfer	0.10	4.6	0.61	12.9	314	D18 - Raw Materials Bin	0.10	7.6	0.61	12.9	314
D21 - Premix Bin	0.13	38.1	0.70	12.8	314	D12 - Premix Bins	0.08	38.1	0.61	9.7	314
D22 - Fly Ash Bin	0.13	38.1	0.61	12.8	314	D23 - Fly Ash Bin	0.08	38.1	0.61	9.7	314
E16 - Kiln/Power Plant	11.88	61.0	4.27	13.1	391	E20 - Kiln/Power Plant	21.8	91.5	4.88	14.6	389
SO_2 Emissions	80.34					SO_2 Emissions	196.7				
NO_x Emissions	92.70					NO_x Emissions	161.3				
F04 - Raw Meal Transfer	0.08	7.6	0.46	14.4	339	F14 - Raw Meal Transfer	0.03	18.3	0.30	12.9	355
G12 - Blending Silo	0.37	62.5	1.07	12.2	339	G12 - Blending Silo	0.42	62.5	1.07	13.7	355
H15 - Kiln Feed	0.16	15.2	0.76	10.4	339	H15 - Kiln Feed	0.10	15.2	0.61	9.7	366
L12 - Clinker Silo	0.16	61.0	0.76	10.4	339	L06 - Clinker Silo	0.08	61.0	0.46	14.4	366
L13 - Clinker Silo	0.16	61.0	0.76	10.4	339	L08 - Clinker Silo	0.08	41.2	0.46	14.4	366
L14 - Cooler Discharge	0.08	3.0	0.46	14.4	339	L16 - Cooler Discharge	0.10	8.8	0.61	9.7	366
M18 - Clinker Silo Discharge	0.08	7.6	0.46	14.4	339	M08 - Silo Discharges	0.23	15.2	0.76	14.5	314
M19 - Limestone Silo Discharge	0.05	7.6	0.40	12.4	314						
M20 - Cement Silo Discharge	0.13	7.6	0.61	12.9	339						
N13 - Finish Mill	0.70	30.5	1.52	11.9	366	N13 - Finish Mill	0.81	21.3	1.52	12.9	372
Q08 - 4 Cement Silo Discharge	0.52*	7.6	0.46	12.9	339	Q17 - Cement Silo Discharge	0.08	15.2	0.46	14.4	344
						Q18 - Cement Silo Discharge	0.08	15.2	0.46	14.4	344
Q09 - 5 Cement Silos	0.95*	61.0	0.76	12.4	339	Q15 - 3 Cement Silos	0.24*	61.0	0.46	14.4	355
R14 - Packing Plant	0.16	16.8	0.76	10.4	314	R14 - Packing Plant	0.13	15.2	0.61	12.9	344
R16 - 3 Masonry Silos	0.48*	24.4	0.76	10.4	339	R16 - 3 Masonry Silos	0.24*	30.5	0.46	14.4	355
S04 - Raw Coal Bin	0.05	30.5	0.40	12.4	314	S04 - Coal Handle	0.10	4.6	0.61	9.7	314
--- - Power Plant Coal Bin	0.05	30.5	0.40	12.4	314	S11 - Power Plant Coal Bin	0.15	30.5	0.76	9.3	314
--- - Gypsum Silo	0.50	7.6	0.40	12.4	314	Eliminated					
	5.23 or 41.5 lb/hr**						3.13 or 24.8 lb/hr**				

* Includes Emissions From All Units

** Does Not Include Kiln And Power Plant Emissions

APPENDIX A2-1

Tentative Specifications
for Control Equipment
Revised 11/3/82

Best Available Copy

E - 360.044
N - 3162.648

FORM PI-2 (72-9)

P.M. = 10000 cfm x 60 min/hr x 0.012 gr/ft3
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) B09 [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLAY CRUSHER	**Type of Particulate Controlled** CLAY

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}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)	(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

[redacted]

FORM PI-2 (72-9)

E - 360.123
N - 3162.379

P.M = [redacted] ~~5000~~ x 60 x 0.012 x 1/7000 x 0.126
= ~~0.06~~ g/sec
0.05

Ht [redacted]
dia = [redacted]ft
Vel = ~~47.2 fps~~ [redacted]s

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~B10~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device LIMESTONE CONVEYOR	**Type of Particulate Controlled** LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~5000~~		70 [redacted]	15	0.012

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
~~6~~ [redacted]		15	~~5000~~ [redacted]

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	~~50~~ [redacted]	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.

[redacted]

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E - [redacted] ✓
N - [redacted]

FORM PI-2 (72-9)

P.M. = [redacted] × 60 × 0.012 × 1/7000 × 0.126
= ~~0.13~~ g/sec [redacted]

Ht = ~~23~~ [redacted]
dia = ~~2.3~~ [redacted] Vel = ~~42.0 ft~~ [redacted] fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~D21~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device [redacted] ~~PREMIX BIN~~	**Type of Particulate Controlled** LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~10,000~~		[redacted] ✓	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~~ [redacted]		~~25~~ [redacted]	~~10000~~ 1050

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	[redacted] ~~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

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E - 360.005 [redacted]
N - 3162.477

FORM PI-2 (72-9)

P.M. = [redacted] ~~10,000~~ × 60 × 0.012 × 1/7000 × 0.12
= ~~0.13~~ g/sec
[redacted]

Ht = [redacted] ✓
dia = ~~2.7~~ [redacted] Vel = ~~42.0 f~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~D-21~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device [redacted] ~~BAG~~ [redacted]	**Type of Particulate Controlled** LIMESTONE

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~10,000~~		70 [redacted]	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~~ [redacted]		~~25~~ [redacted]	~~10000~~ [redacted]

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	[redacted]	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.

[redacted]

E- [redacted] ✓

N- [redacted]

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FORM PI-2 (72-9)

P.M. [redacted] × 60 × 0.012 × 1/7000 × 0.126

= ~~0.12~~g/sec

[redacted]

Ht = [redacted] ✓

dia = ~~2.~~ [redacted] vel = ~~42.0 f~~ [redacted] fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~021~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device [redacted] BIN	**Type of Particulate Controlled** ~~LIMESTONE~~ CLAY

GAS STREAM CHARACTERISTICS

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

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
6 [redacted]		~~25~~ [redacted]	~~10000~~ 4200

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	[redacted]	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

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E - 359.95[redacted]
N - 3162.477

FORM PI-2 (72-9)

P.M. = ~~8000~~ x 60 x 0.012 x 1/7000 x 0.126
= 0.10 g/sec

Ht = [redacted] ✓
dia = [redacted] ✓
Vel = [redacted] fps ✓

TABLE 11
FABRIC FILTERS

Point Number (from Flow Diagram) ~~D-16~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device [redacted] ~~LIMESTONE TRANSFER~~	**Type of Particulate Controlled** LIMESTONE

GAS STREAM CHARACTERISTICS

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

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

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	[redacted]	

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.

BEST AVAILABLE COPY

[redacted]

E - 360.017
N - 3162.337

FORM PI-2 (72-9)

P.M. = [redacted] ~~10,000~~ × 60 × 0.012 × 1/7000 × 0.126
= ~~0.13 g/sec~~ [redacted] /sec
Ht = [redacted] ' ✓
dia = ~~2.3'~~ [redacted]
Vel = ~~42.0 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~D22~~ [redacted]

Manufacturer & Model No. (if available)

Name of Abatement Device FLY ASH BIN

Type of Particulate Controlled FLY ASH

GAS STREAM CHARACTERISTICS

Flow Rate (acfm) ~~10,000~~ [redacted]

Design Maximum [redacted]

Average Expected

Gas Stream Temperature (^oF) 70 [redacted]

Particulate Grain Loading (grain/scf)

Inlet 15

Outlet 0.012

Pressure Drop (in. H_2O) ~~6~~ [redacted]

Water Vapor Content of Effluent Stream (lb water/lb dry air)

Fan Requirements

(hp) ~~25~~ [redacted]

(ft^3/min) ~~10,000~~ [redacted]

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~~ [redacted]	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

[redacted]

Ht = [redacted]
dia = [redacted]
Vel = [redacted] - Includ. power plant of Cement pl

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~E16~~ [redacted]	Manufacturer & Model No. (if available)
Name of Abatement Device POWER PLANT — KILN MILL BAGHOUSE	Type of Particulate Controlled [redacted]

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted]	550,000	[redacted]	25	[redacted]

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		2250	580,000

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
1.6	12	37	[redacted]	28

Bag rows will be: Staggered [✓ Straight]

Walkways will be provided between banks of bags: [✓ Yes] No

Filtering Material: Teflon coated fiber glass

Describe Bag Cleaning Method and Cycle: Reverse Air

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.

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[redacted]

E-360.030
N-3162.335

FORM PI-2 (72-9)

[redacted]
P.M. = ~~5000~~ x60x0.015x1/7000x0.126
= ~~0.08 g/sec~~ [redacted]
Ht= [redacted]
dia = ~~1.5~~ [redacted]
Vel= ~~47.2 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~F04~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device Raw Meal Transfer	**Type of Particulate Controlled** Raw meal

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~5000~~		[redacted] ~~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~~ [redacted]		~~15~~ [redacted]	~~5000~~ [redacted]

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	[redacted] ~~36~~	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

BEST AVAILABLE COPY

E- 360.037 [redacted]
N -3162.312

FORM PI-2 (72-9)

P.M. = [redacted]x 60 x 0.015 x 1/7000 x 0.126
= ~~0.37 g/sec~~ [redacted]
Ht = ~~205~~' [redacted]
dia = [redacted]
Vel = ~~40.0 fps~~ [redacted]

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maxi[redacted]	Average Expected		Inlet	Outlet
[redacted] ~~23000~~		[redacted] ~~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 (ft³/min)
~~.6~~ [redacted]		~~90~~ [redacted]	~~23000~~ [redacted]

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	[redacted] ~~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.

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E - 360.044
N - 3162.306

FORM PI-2 (72-9)

P.M. = [redacted] ~~10,000~~ x 0.015 x 60 x 1/700
x 0.126
= ~~0.16 g/sec~~ [redacted]
Ht = [redacted]
dia = ~~2.5'~~ [redacted]
Vel = ~~34.1 fps~~ [redacted]

TABLE 11
FABRIC FILTERS

Point Number (from Flow Diagram) H [redacted]

Manufacturer & Model No. (if available)

Name of Abatement Device KILN FEED

Type of Particulate Controlled RAW MEAL

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
[redacted] ~~10,000~~		[redacted] ~~450~~	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~~ [redacted]		~~25~~ [redacted]	~~10,000~~ [redacted]

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	[redacted] ~~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

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E - 360.114 [redacted]
N - 3162.137

FORM PI-2 (72-9)

P.M. = [redacted] x 60 x 0.015 x 1/7000 x 0.126
= ~~0.16 g/sec~~ [redacted]c
Ht = [redacted] ✓
dia = ~~2.3'~~ [redacted]
Val = ~~34.1 fps~~ [redacted]2 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~E12~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO [redacted]	**Type of Particulate Controlled** CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~10,000~~		[redacted] ~~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~~ [redacted]		~~25~~ [redacted]	~~10,000~~ [redacted]

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	[redacted] ~~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.

[redacted]

E - 360.108
N - 3162.125

FORM PI-2 (72-9)

[redacted]
P.M. = ~~10000~~ × 60 × 0.015 × 1/7000 × 0.126
= ~~0.16 g/sec~~ [redacted]c
Ht = ~~200'~~ [redacted]
dia = ~~2.5~~ [redacted]
Vel = ~~34.1 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~L13~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO ✓	**Type of Particulate Controlled** CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		**Gas Stream Temperature (°F)**	**Particulate Grain Loading (grain/scf)**	
Design Maximum	**Average Expected**		**Inlet**	**Outlet**
[redacted] ~~10,000~~		[redacted] ~~730~~	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~~ [redacted]		~~25~~ [redacted]	~~10,000~~ [redacted]

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/ft² of Cloth)	**Bag Diameter (in.)**	**Bag Length (ft)**	**Number of Bags**	**Number of Compartments in Baghouse**
6.5	6	10	[redacted] ~~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

Best Available Copy

[redacted]

E - 360.086

N - 3162.200

FORM PI-2 (72-9)

P.M = ~~5000~~ [redacted] x 60 x 0.015 x 1/7000 x 0.126
= ~~0.08 g/sec~~ 0 [redacted]
Ht = [redacted] [redacted]
dia = ~~1.5~~ [redacted]
Vel = ~~47.2 fps~~ [redacted]

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

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

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

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	[redacted] ~~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

BEST AVAILABLE COPY

360.105
3162.125

FORM PI-2 (72-9)

[redacted]
P. M. = ~~5000~~ x 60 x 0.015 x 1/7000 x 0.126
= ~~0.08 g/sec~~ [redacted]
Ht = [redacted] [redacted]
dia = ~~1.5'~~ [redacted]
Vel = ~~47.2 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~M-18~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CLINKER SILO DISCHARGE	**Type of Particulate Controlled** CLINKER

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~5000~~		[redacted] ~~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~~ [redacted]		~~15~~ [redacted]	~~5000~~ [redacted]

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	[redacted] ~~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

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E-360.105
N-3162.143

FORM PI-2 (72-9)

P.M = 3000 x 60 x 0.015 x 1/7000 x 0.126
= 0.05 g/sec
Ht = 25'
dia = 1.3'
Vel = 40.7 fps

TABLE 11
FABRIC FILTERS

Point Number (from Flow Diagram): ~~M-9~~ [redacted]

Manufacturer & Model No. (if available):

Name of Abatement Device: LIMESTONE SILO

Type of Particulate Controlled: LIMESTONE

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: 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

BEST AVAILABLE COPY

FORM PI-2 (72-9)

E - 360.123
N - 3162.133

P.h. = 8000×60×0.015×1/7000 ×0.126
= 0.13g/sec

Ht = 25'
dia = 2.0
Vel = 42.3 fps

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~M 20~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	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]

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

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E- 360.111 [redacted]

N - 3162.133

FORM PI-2 (72-9)

[redacted]

P.M = ~~46,000~~ × 0.015 × 60 × 1/7000 × 0.12

= ~~0.70g/sec~~ [redacted]

Ht = [redacted] [redacted]

dia = [redacted]

Vel = ~~39 0f~~s [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) N 13 [redacted]	Manufacturer & Model No. (if available)
Name of Abatement Device FINISH MILL ✓	Type of Particulate Controlled CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^{o}F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~46,000~~		[redacted] ~~200~~	200	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	(ft^3/min)
~~6~~ [redacted]	0.043	~~250~~ [redacted]	[redacted]

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	[redacted] ~~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.

BEST AVAILABLE COPY

Locate all at
360.125 [redacted]
3162.110

FORM PI-2 (72-9)

[redacted]
PM = ~~12000~~ × 60 × 0.015 × 1/7000 × 0.126
≈ ~~0.1~~ [redacted] /sec, each source
Ht = [redacted]
dia = ~~2.5'~~ [redacted]
Vel = ~~40.78~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) [redacted] [redacted] ~~Q-09~~ (8 Units)	Manufacturer & Model No. (if available)
Name of Abatement Device CEMENT SILO ✓	Type of Particulate Controlled CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~12000~~		[redacted] ~~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 (ft³/min)
6 [redacted]		~~30~~ [redacted]	~~12000~~ [redacted]

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	[redacted] ~~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

~~Locate all at~~

360.125 [redacted]

3162.100

FORM PI-2 (72-9)

PM = [redacted] × 60 × 0.015 × 1/7000 × 0.126

= ~~0.13~~g/sec, ~~[illegible]~~

[redacted] Ht = [redacted]

dia = [redacted]

Vel = ~~42.3 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~Q-08 (4 units)~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO DISCHARGE	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design [redacted]	Average Expected		Inlet	Outlet
[redacted] ~~8000~~		[redacted] ~~750~~	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~~ [redacted]		2[redacted]	~~8000~~ [redacted]

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	[redacted] ~~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.

Best Available Copy

~~Locate 211 at~~
360.125 [redacted]
3162.100

FORM PI-2 (72-9)

PM = [redacted] ~~6000~~ × 60 × 0.015 × 1/7000 × 0.126
= ~~7.7~~ g/sec, ~~each source~~
[redacted]
Ht = [redacted]
dia = [redacted]
Vel = ~~42.3 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~Q08 (4 units)~~ [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device CEMENT SILO DISCHARGE	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~8000~~		[redacted] ~~450~~	20	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements	
		(hp)	(ft³/min)
6 [redacted]		20 [redacted]	~~8000~~ [redacted]

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	[redacted] ~~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.

BEST AVAILABLE COPY [redacted]

E - 360.155 [redacted]
N -3162.032

FORM PI-2 (72-9)

[redacted]
P.M = ~~10,000~~ x 60 x 0.015 x 1/7000 x 0.126
= ~~0.169/500~~ 0 [redacted]
Ht = [redacted]
dia = ~~2.5'~~ [redacted]
Vel = ~~34 fps~~ [redacted]

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) R 14 [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device PACKING PLANT [redacted]	**Type of Particulate Controlled** CEMENT

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~10,000~~		[redacted] ~~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 (ft³/min)
~~6~~ [redacted]		~~25~~ [redacted]	~~10000~~ [redacted]

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	[redacted] ~~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.

BEST AVAILABLE COPY [redacted]

Locate all at
360.147 [redacted]
3162.047

[redacted]
P.M = ~~10,000~~ x 60 x 0.015 x 1/7000 x 0.126
= ~~0.1~~ [redacted] g/sec, each source
Ht = ~~80~~ [redacted]
dia = ~~2.5'~~ [redacted]
Vel = ~~34.1 fps~~ [redacted]

FORM PI-2 (72-9)

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) R16 (3 units) [redacted]	**Manufacturer & Model No. (if available)**
Name of Abatement Device MASONRY SILO [redacted]	**Type of Particulate Controlled**

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (^oF)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~10,000~~		[redacted] ~~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~~ [redacted]		~~25~~ [redacted]	~~10,000~~ [redacted]

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	[redacted] ~~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

360.102 [redacted]

3162.210

P.M. = [redacted] ~~5000~~ × 60 × 0.015 × 1/7000 × 0.126
= ~~0.05 g/sec~~ [redacted]
Ht = ~~100'~~ [redacted]
dia = ~~1.5'~~ [redacted]
Vel = ~~40.7 fps~~ [redacted]

TABLE II
FABRIC FILTERS

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

GAS STREAM CHARACTERISTICS

Flow Rate (acfm)		Gas Stream Temperature (°F)	Particulate Grain Loading (grain/scf)	
Design Maximum	Average Expected		Inlet	Outlet
[redacted] ~~5000~~		7 [redacted]	10	0.015

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements	
		(hp)	(ft^3/min)
~~6~~ [redacted]		~~10~~ [redacted]	~~5000~~ [redacted]

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~~ [redacted]	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.

JUL 16 1982

P.M. = [redacted] ~~5000~~ × 60 × 0.015 × 1/7000 × 0.126
= ~~0.03 gr/sec~~ [redacted]
Ht = [redacted]
dia = ~~1.3'~~ [redacted]
Vel = ~~40.7 fps~~ [redacted]

360.102[redacted]

3162.210

TABLE II
FABRIC FILTERS

Point Number (from Flow Diagram) ~~5-04~~ [redacted]

Manufacturer & Model No. (if available)

Name of Abatement Device RAW COAL BI[redacted]

Type of Particulate Controlled COAL[redacted]

GAS STREAM CHARACTERISTICS

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

Pressure Drop (in. H_2O)	Water Vapor Content of Effluent Stream (lb water/lb dry air)	Fan Requirements (hp)	Fan Requirements (ft³/min)
~~6~~ [redacted]		~~7~~ [redacted]	~~5000~~ [redacted]

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/ft² of Cloth)	Bag Diameter (in.)	Bag Length (ft)	Number of Bags	Number of Compartments in Baghouse
6.5	6	10	~~30~~ [redacted]	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

JUL 16 1982

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/Power Plant Gas Flows for 125 Megawatt Power Plant and 600,000 Tons per Year Cement Plant

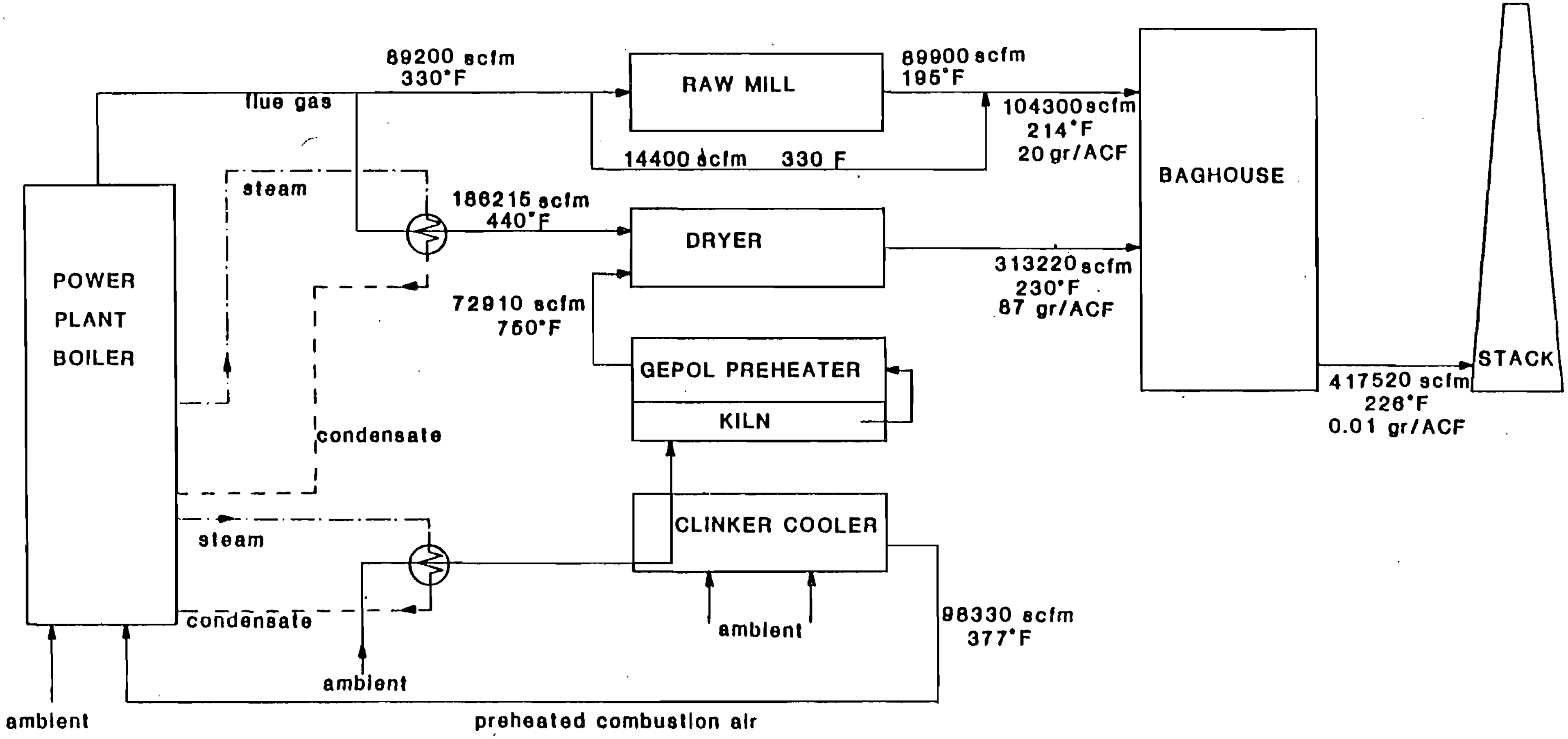


FIGURE 2-3

POWER PLANT OPERATING/CEMENT PLANT OPERATING

Revised 10/29/82

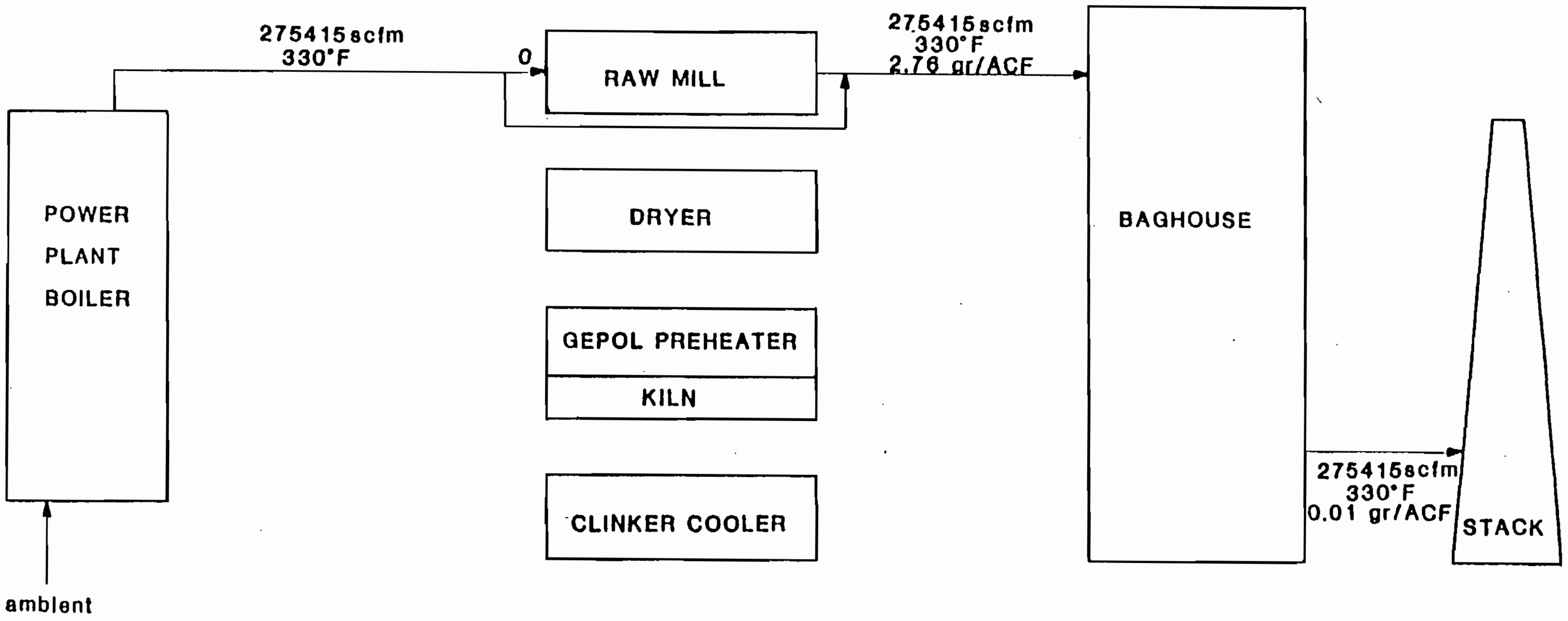


FIGURE 2-4

POWER PLANT OPERATING/CEMENT PLANT NOT OPERATING

Revised 10/29/82

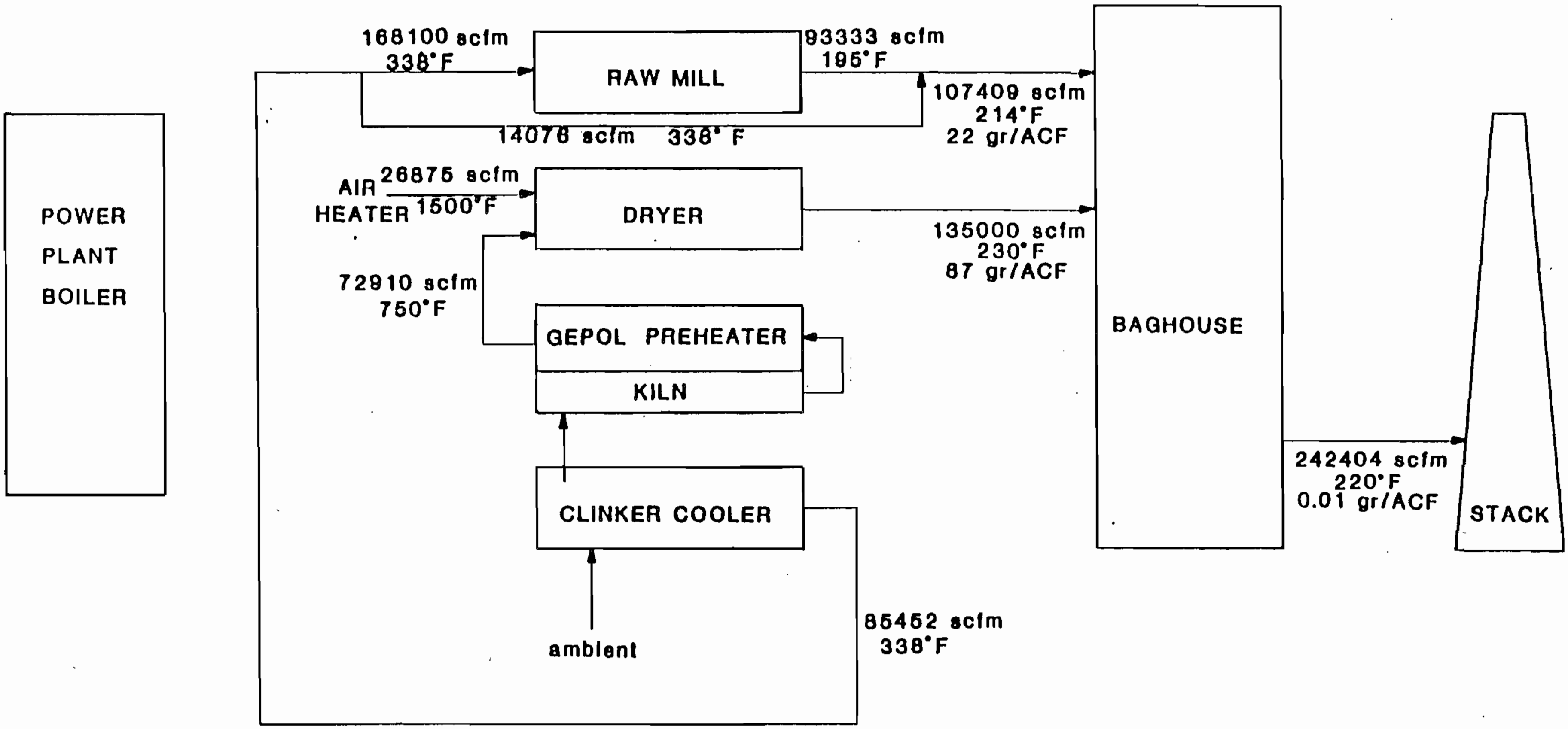


FIGURE 2-5
POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

Florida Crushed Stone Company

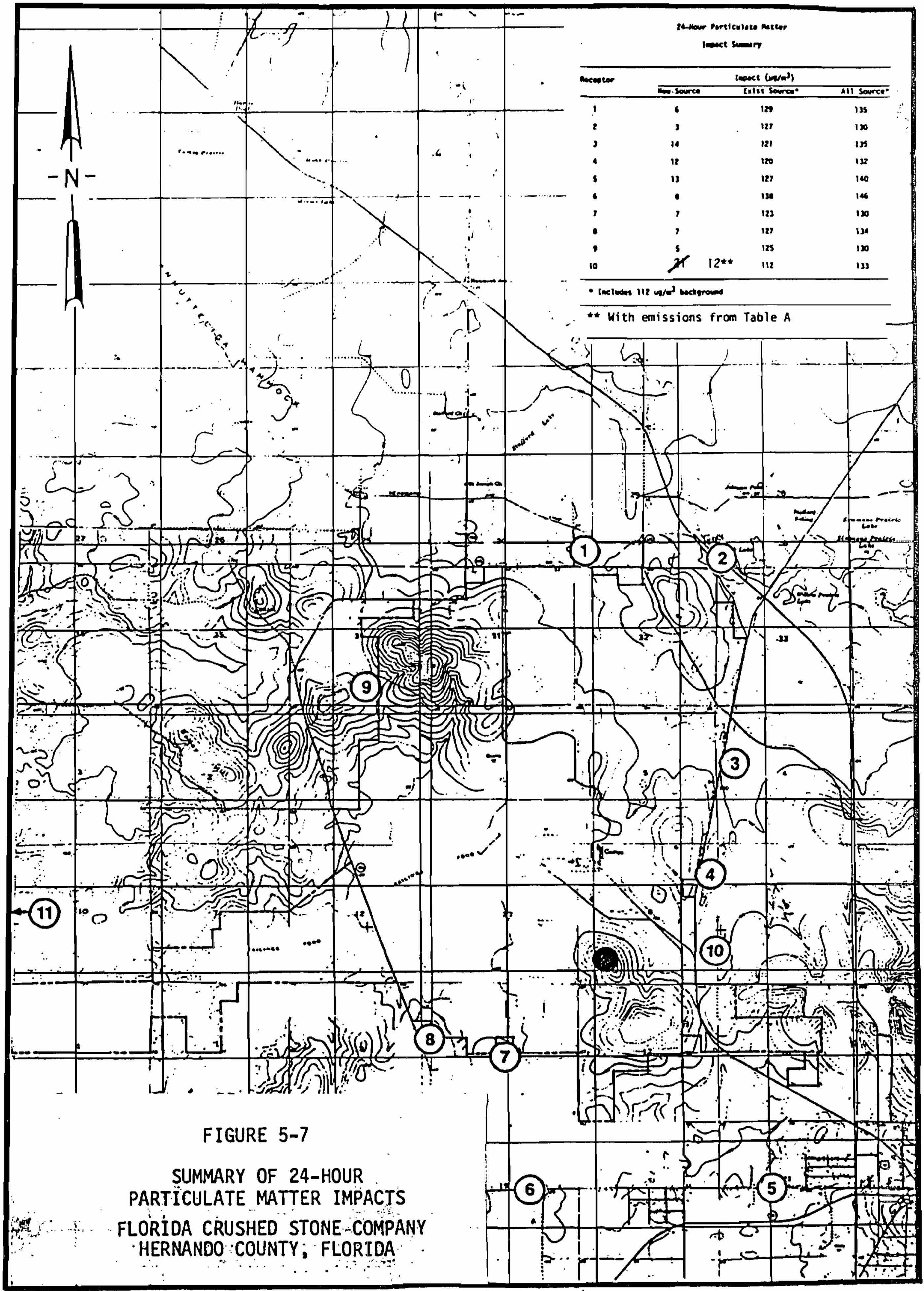
P.O. Box 317

Leesburg, Fla. 32748

Revised 10/29/82

Impact of Particulate Matter Emissions from Revised Sources

Best Available Copy



24-Hour Particulate Matter

Impact Summary

Receptor	Impact (ug/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~~ 12**	112	133

* Includes 112 ug/m^3 background

** With emissions from Table A

FIGURE 5-7

SUMMARY OF 24-HOUR PARTICULATE MATTER IMPACTS
FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

```
              *** Particulate Matter -  Max Impact  -  Day 174,1972          ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)                               ISW(1) =   1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)                ISW(2) =   3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)                       ISW(3) =   1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)                               ISW(4) =   0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)                          ISW(5) =   0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)                       ISW(6) =   2

COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)
WITH THE FOLLOWING TIME PERIODS:
  HOURLY (YES=1,NO=0)                                                  ISW(7) =   0
  2-HOUR (YES=1,NO=0)                                                  ISW(8) =   0
  3-HOUR (YES=1,NO=0)                                                  ISW(9) =   0
  4-HOUR (YES=1,NO=0)                                                 ISW(10) =   0
  6-HOUR (YES=1,NO=0)                                                 ISW(11) =   0
  8-HOUR (YES=1,NO=0)                                                 ISW(12) =   0
  12-HOUR (YES=1,NO=0)                                                ISW(13) =   0
  24-HOUR (YES=1,NO=0)                                                ISW(14) =   1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)                                   ISW(15) =   0

PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE
SPECIFIED BY ISW(7) THROUGH ISW(14):
  DAILY TABLES (YES=1,NO=0)                                           ISW(16) =   1
  HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)                        ISW(17) =   0
  MAXIMUM 50 TABLES (YES=1,NO=0)                                      ISW(18) =   0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)             ISW(19) =   2
RURAL-URBAN OPTION (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)            ISW(20) =   0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)             ISW(21) =   1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)      ISW(22) =   1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)                     ISW(23) =   0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)                 ISW(24) =   1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)           ISW(25) =   1

NUMBER OF INPUT SOURCES                                                NSOURC =  18
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)                               NGROUP =   0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)                   IPERD =   0
NUMBER OF X (RANGE) GRID VALUES                                        NXPNTS =   8
NUMBER OF Y (THETA) GRID VALUES                                        NYPNTS =   7
NUMBER OF DISCRETE RECEPTORS                                           NXWYPT =   0
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA                         NHOURS =  24
NUMBER OF DAYS OF METEOROLOGICAL DATA                                   NDAYS =   1
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                               TK =.10000E 07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                         BETA1 =0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                           BETA2 =0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED                       ZR =  10.00  METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                               IMET =   5
ALLOCATED DATA STORAGE                                                  LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                              MIMIT =  4053 WORDS
```

```
                    *** Particulate Matter -  Max Impact  -  Day 174,1972           ***


                     *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                              (METERS/SEC)

                                     1.54,    3.09,    5.14,    8.23,   10.80,

                                 *** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                                (METERS)

 361100.0,  361200.0,  361300.0,  361400.0,  361500.0,  361600.0,  361700.0,  361800.0,

                                 *** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                                (METERS)

3161900.0, 3162000.0, 3162100.0, 3162200.0, 3162300.0, 3162400.0, 3162500.0,
```

```
                                  *** Particulate Matter -  Max Impact  -  Day 174,1972          ***


                                                           *** SOURCE DATA ***

                      EMISSION RATE                                           TEMP.     EXIT VEL.
                         TYPE=0,1                                             TYPE=0     TYPE=0
          T W         (GRAMS/SEC)                                            (DEG.K);  (M/SEC);               BLDG.     BLDG.     BLDG.
          Y A NUMBER     TYPE=2                            BASE              VERT.DIM   HORZ.DIM DIAMETER    HEIGHT    LENGTH     WIDTH
  SOURCE  P K  PART.   (GRAMS/SEC)        X         Y       ELEV.   HEIGHT    TYPE=1    TYPE=1,2   TYPE=0    TYPE=0    TYPE=0    TYPE=0
  NUMBER  E E  CATS. *PER METER**2 (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS) (METERS) (METERS) (METERS) (METERS)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


    101   0 0    0    0.10000E 00   359950.0 3162477.0         0.0      7.60    314.00      12.90      0.60      0.0       0.0      0.0
    102   0 0    0    0.80000E-01   360005.0 3162337.0         0.0     38.10    314.00       9.70      0.61      0.0       0.0      0.0
    103   0 0    0    0.80000E-01   360017.0 3162337.0         0.0     38.10    314.00       9.70      0.61      0.0       0.0      0.0
    104   0 0    0    0.21800E 02   360008.0 3162392.0         0.0     91.50    389.00      14.66      4.88      0.0       0.0      0.0
    105   0 0    0    0.30000E-01   360030.0 3162335.0         0.0     18.30    355.00      12.90      0.30      0.0       0.0      0.0
    106   0 0    0    0.42000E 00   360037.0 3162312.0         0.0     62.50    355.00      13.70      1.07      0.0       0.0      0.0
    107   0 0    0    0.10000E 00   360044.0 3162306.0         0.0     15.20    366.00       9.70      0.61      0.0       0.0      0.0
    108   0 0    0    0.10000E 00   360086.0 3162200.0         0.0      8.80    366.00       9.70      0.61      0.0       0.0      0.0
    109   0 0    0    0.80000E-01   360114.0 3162137.0         0.0     61.00    366.00      14.40      0.46      0.0       0.0      0.0
    110   0 0    0    0.80000E-01   360108.0 3162125.0         0.0     41.20    366.00      14.40      0.46      0.0       0.0      0.0
    111   0 0    0    0.23000E 00   360105.0 3162125.0         0.0     15.20    314.00      14.50      0.76      0.0       0.0      0.0
    112   0 0    0    0.81000E 00   360111.0 3162157.0         0.0     21.30    372.00      12.90      1.50      0.0       0.0      0.0
    113   0 0    0    0.16000E 00   360125.0 3162100.0         0.0     15.20    344.00      14.40      0.46      0.0       0.0      0.0
    114   0 0    0    0.24000E 00   360125.0 3162110.0         0.0     61.00    355.00      14.40      0.46      0.0       0.0      0.0
    115   0 0    0    0.13000E 00   360155.0 3162032.0         0.0     15.20    344.00      12.90      0.61      0.0       0.0      0.0
    116   0 0    0    0.24000E 00   360147.0 3162047.0         0.0     30.50    355.00      14.40      0.46      0.0       0.0      0.0
    117   0 0    0    0.10000E 00   360102.0 3162210.0         0.0      4.60    314.00       9.70      0.61      0.0       0.0      0.0
    118   0 0    0    0.15000E 00   360080.0 3162010.0         0.0     30.50    314.00       9.30      0.76      0.0       0.0      0.0
```

```
*** Particulate Matter -  Max Impact  -  Day 174,1972            ***

                       * METEOROLOGICAL DATA FOR DAY 174 *

                                                      POT. TEMP.
          FLOW       WIND     MIXING                  GRADIENT                 WIND      DECAY
         VECTOR      SPEED    HEIGHT       TEMP.      (DEG. K    STABILITY    PROFILE   COEFFICIENT
HOUR   (DEGREES)     (MPS)   (METERS)   (DEG. K)   PER METER)    CATEGORY    EXPONENT    (PER SEC)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  1       85.0       5.66      785.0     300.0       0.0            4         0.2500    0.0
  2       82.0       5.14      823.0     300.0       0.0            4         0.2500    0.0
  3       87.0       6.17      862.0     300.0       0.0            4         0.2500    0.0
  4       93.0       6.17      901.0     300.0       0.0            4         0.2500    0.0
  5       90.0       6.17      939.0     300.0       0.0            4         0.2500    0.0
  6       88.0       6.17      978.0     300.0       0.0            4         0.2500    0.0
  7       92.0       4.63     1016.0     300.0       0.0            4         0.2500    0.0
  8       95.0       5.14     1055.0     300.0       0.0            4         0.2500    0.0
  9       87.0       6.17     1094.0     301.0       0.0            4         0.2500    0.0
 10       92.0       6.17     1132.0     301.0       0.0            4         0.2500    0.0
 11      102.0       6.69     1171.0     302.0       0.0            4         0.2500    0.0
 12       99.0       6.69     1210.0     303.0       0.0            4         0.2500    0.0
 13      104.0       7.20     1248.0     303.0       0.0            4         0.2500    0.0
 14      100.0       7.20     1287.0     303.0       0.0            3         0.2000    0.0
 15       88.0       8.23     1287.0     303.0       0.0            4         0.2500    0.0
 16      103.0       7.72     1287.0     303.0       0.0            4         0.2500    0.0
 17       92.0       7.20     1287.0     302.0       0.0            4         0.2500    0.0
 18       91.0       7.72     1287.0     302.0       0.0            4         0.2500    0.0
 19       94.0       6.69     1287.0     301.0       0.0            4         0.2500    0.0
 20       93.0       5.66     1292.0     300.0       0.0            4         0.2500    0.0
 21       88.0       6.17     1300.0     300.0       0.0            4         0.2500    0.0
 22       91.0       5.14     1308.0     300.0       0.0            4         0.2500    0.0
 23       81.0       5.14     1316.0     300.0       0.0            4         0.2500    0.0
 24       78.0       5.14     1324.0     300.0       0.0            4         0.2500    0.0
```

```
                                                                                                                         DAILY: 174
                                                                                                                         24-HR/PD 1
                                                                                                                         SGROUP#  1
                              *** Particulate Matter -  Max Impact  -  Day 174,1972            ***


                              * DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)     *
                                               * ENDING WITH HOUR 24 FOR DAY 174 *
                                                      * FROM ALL SOURCES *
                                                   * FOR THE RECEPTOR GRID *

                          * MAXIMUM VALUE EQUALS     11.99813 AND OCCURRED AT (  361200.0, 3162100.0) *

  Y-AXIS   /                                                   X-AXIS (METERS)
 (METERS)  /          0.0      361200.0     361300.0     361400.0     361500.0     361600.0     361700.0     361800.0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 3162500.0 /      0.0           2.04800      2.18804      2.34575      2.50298      2.64660      2.76920      2.86819
 3162400.0 /      0.0           4.14795      4.32071      4.44134      4.51169      4.53854      4.53093      4.49815
 3162300.0 /      0.0           7.26204      7.20228      7.08063      6.91556      6.72346      6.51739      6.30704
 3162200.0 /      0.0          10.86109     10.33832      9.82437      9.32863      8.85652      8.41114      7.99418
 3162100.0 /      0.0          11.99813     11.31013     10.66520     10.06353      9.50388      8.98454      8.50369
 3162000.0 /      0.0           8.57389      8.31245      8.05642      7.80222      7.54828      7.29478      7.04300
 3161900.0 /      0.0           4.68837      4.76473      4.78768      4.78546      4.77110      4.74909      4.72020




TCP OUTPUT CHARGE: $  .06
```

Downwash Analyses

Best Available Copy

24-Hour Particulate Matter

Impact Summary

Receptor	Impact (µg/m³)		
	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 12**	125	130
10	~~21~~ 9.9***	112	133

* Includes 112 µg/m³ background

** With emissions from Table A
*** With downwash

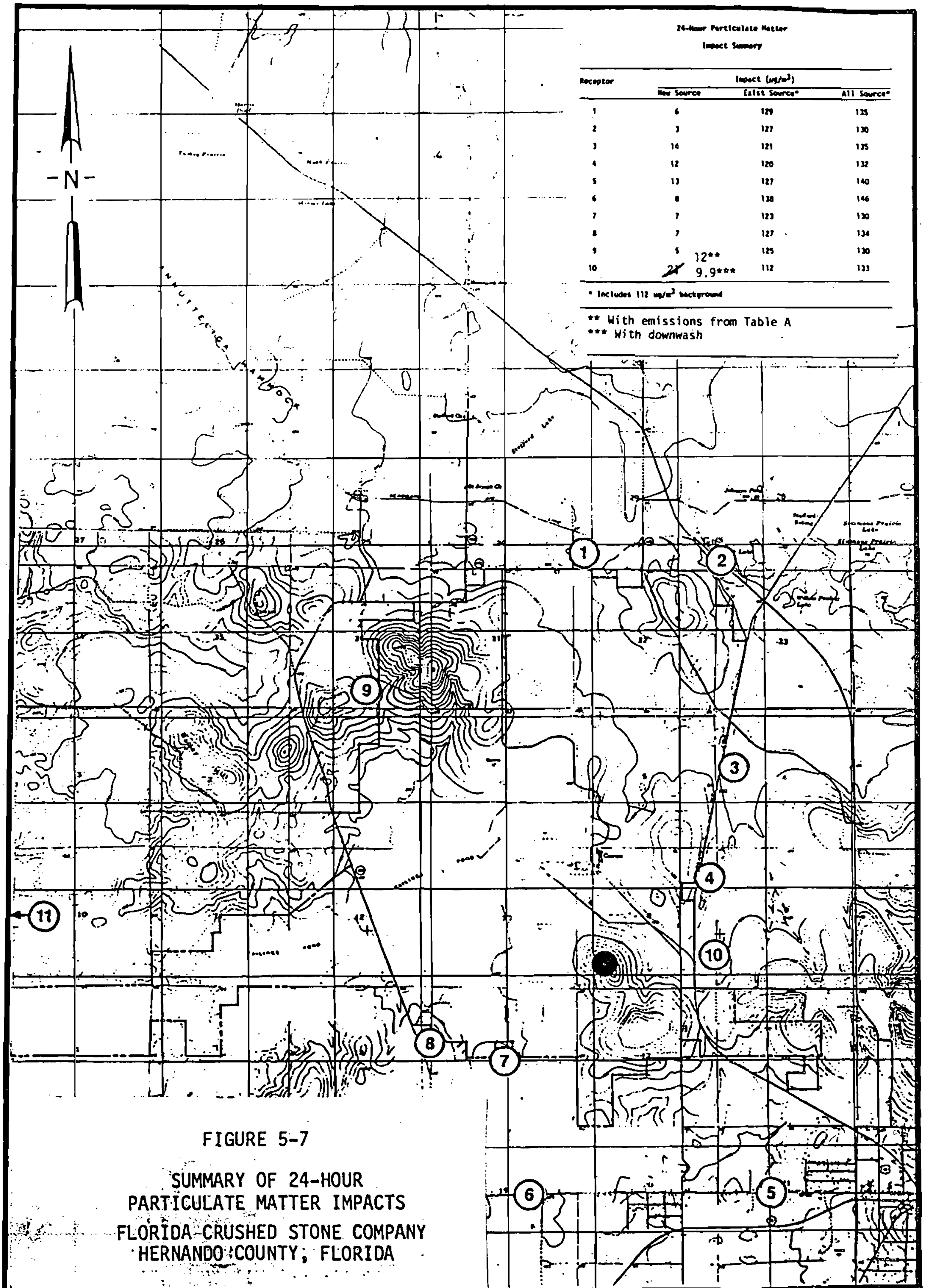
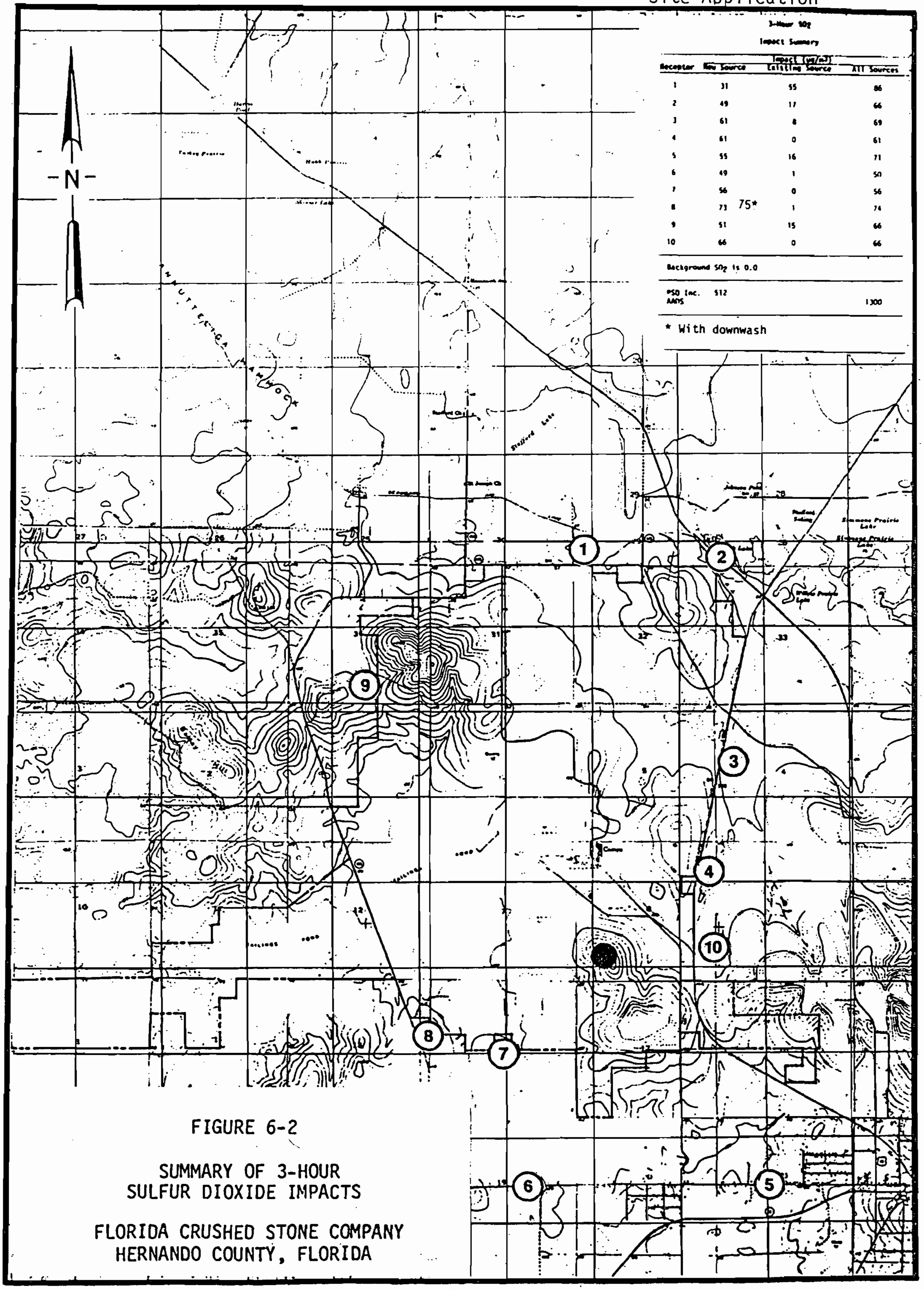


FIGURE 5-7

SUMMARY OF 24-HOUR PARTICULATE MATTER IMPACTS
FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA



3-Hour SO_2

Impact Summary

	Impact (ug/m3)		
Receptor	New Source	Existing Source	All Sources
1	31	55	86
2	49	17	66
3	61	8	69
4	61	0	61
5	55	16	71
6	49	1	50
7	56	0	56
8	73 75*	1	74
9	51	15	66
10	66	0	66

Background SO_2 is 0.0

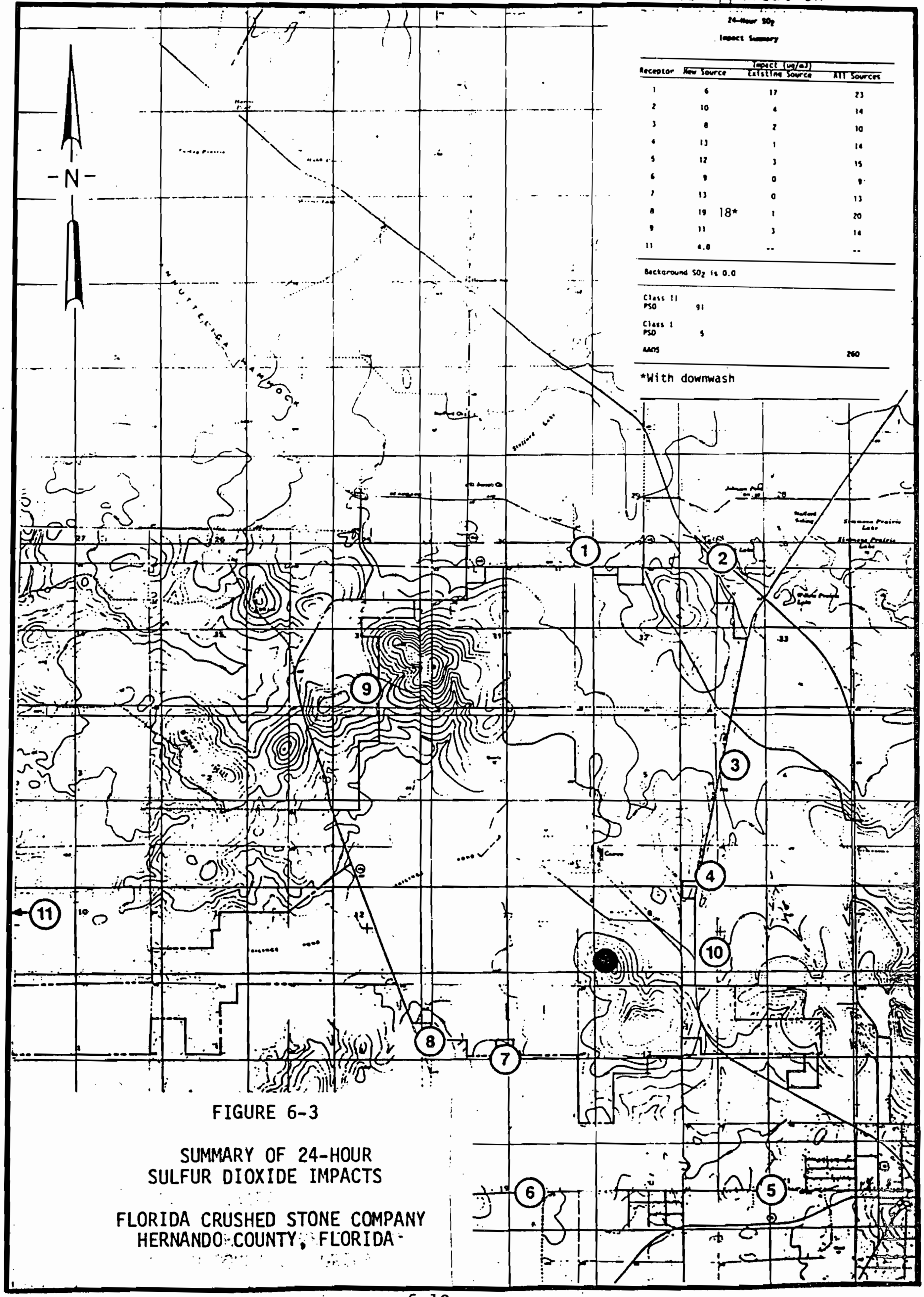
PSD Inc. 512
AAQS 1300

* With downwash

FIGURE 6-2

SUMMARY OF 3-HOUR
SULFUR DIOXIDE IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA



24-Hour SO_2

Impact Summary

Receptor	Impact (ug/m3)		
	New Source	Existing Source	All Sources
1	6	17	23
2	10	4	14
3	8	2	10
4	13	1	14
5	12	3	15
6	9	0	9
7	13	0	13
8	19 18*	1	20
9	11	3	14
11	4.8	--	--

Background SO_2 is 0.0

Class II PSD	91		
Class I PSD	5		
AAQS			260

*With downwash

FIGURE 6-3

SUMMARY OF 24-HOUR
SULFUR DIOXIDE IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

```
                 *** Particulate Matter -  Downwash Analysis  -  Day 174,1972     ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)                                ISW(1) =   1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)                 ISW(2) =   3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)                        ISW(3) =   1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)                                ISW(4) =   0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)                           ISW(5) =   0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)                        ISW(6) =   2

COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)
WITH THE FOLLOWING TIME PERIODS:
  HOURLY (YES=1,NO=0)                                                   ISW(7) =   0
  2-HOUR (YES=1,NO=0)                                                   ISW(8) =   0
  3-HOUR (YES=1,NO=0)                                                   ISW(9) =   0
  4-HOUR (YES=1,NO=0)                                                  ISW(10) =   0
  6-HOUR (YES=1,NO=0)                                                  ISW(11) =   0
  8-HOUR (YES=1,NO=0)                                                  ISW(12) =   0
   12-HOUR (YES=1,NO=0)                                                ISW(13) =   0
   24-HOUR (YES=1,NO=0)                                                ISW(14) =   1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)                                    ISW(15) =   0

PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE
SPECIFIED BY ISW(7) THROUGH ISW(14):
  DAILY TABLES (YES=1,NO=0)                                            ISW(16) =   1
  HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)                         ISW(17) =   0
  MAXIMUM 50 TABLES (YES=1,NO=0)                                       ISW(18) =   0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)              ISW(19) =   2
RURAL-URBAN OPTION (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)             ISW(20) =   0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)              ISW(21) =   1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)       ISW(22) =   1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)                      ISW(23) =   0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)                  ISW(24) =   1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)            ISW(25) =   1

NUMBER OF INPUT SOURCES                                                 NSOURC =  18
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)                                NGROUP =   0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)                    IPERD =   0
NUMBER OF X (RANGE) GRID VALUES                                         NXPNTS =   8
NUMBER OF Y (THETA) GRID VALUES                                         NYPNTS =   7
NUMBER OF DISCRETE RECEPTORS                                            NXWYPT =   0
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA                          NHOURS =  24
NUMBER OF DAYS OF METEOROLOGICAL DATA                                    NDAYS =   1
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                                TK =.10000E 07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                          BETA1 =0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                            BETA2 =0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED                        ZR =  10.00  METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                                IMET =   5
ALLOCATED DATA STORAGE                                                   LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                               MIMIT =  4053 WORDS
```

```
                        *** Particulate Matter -  Downwash Analysis  -  Day 174,1972     ***


                         *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                   (METERS/SEC)

                                     1.54,    3.09,    5.14,    8.23,   10.80,


                                   *** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                                     (METERS)

 361100.0,  361200.0,  361300.0,  361400.0,  361500.0,  361600.0,  361700.0,  361800.0,


                                   *** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                                     (METERS)

3161900.0, 3162000.0, 3162100.0, 3162200.0, 3162300.0, 3162400.0, 3162500.0,
```

```
                              *** Particulate Matter -  Downwash Analysis  -  Day 174,1972     ***

                                                                  *** SOURCE DATA ***

                  EMISSION RATE                                      TEMP.    EXIT VEL.
                     TYPE=0,1                                        TYPE=0    TYPE=0
       T W        (GRAMS/SEC)                                       (DEG.K);  (M/SEC);           BLDG.    BLDG.    BLDG.
       Y A NUMBER    TYPE=2                                 BASE            VERT.DIM  HORZ.DIM DIAMETER  HEIGHT   LENGTH   WIDTH
SOURCE P K  PART.  (GRAMS/SEC)      X        Y      ELEV.   HEIGHT   TYPE=1    TYPE=1,2  TYPE=0   TYPE=0   TYPE=0   TYPE=0
NUMBER E E  CATS. *PER METER**2 (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS) (METERS) (METERS) (METERS) (METERS)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  101  0 0    0   0.10000E 00  359950.0 3162477.0     0.0     7.60   314.00     12.90     0.60    37.00    21.00    31.00
  102  0 0    0   0.80000E-01  360005.0 3162337.0     0.0    38.10   314.00      9.70     0.61    37.00    21.00    31.00
  103  0 0    0   0.80000E-01  360017.0 3162337.0     0.0    38.10   314.00      9.70     0.61    37.00    21.00    31.00
  104  0 0    0   0.21800E 02  360008.0 3162392.0     0.0    91.50   389.00     14.66     4.88    63.00    17.00    24.00
  105  0 0    0   0.30000E-01  360030.0 3162335.0     0.0    18.30   355.00     12.90     0.30    63.00    17.00    24.00
  106  0 0    0   0.42000E 00  360037.0 3162312.0     0.0    62.50   355.00     13.70     1.07    63.00    17.00    24.00
  107  0 0    0   0.10000E 00  360044.0 3162306.0     0.0    15.20   366.00      9.70     0.61    63.00    17.00    24.00
  108  0 0    0   0.10000E 00  360086.0 3162200.0     0.0     8.80   366.00      9.70     0.61    24.00    61.00    27.00
  109  0 0    0   0.80000E-01  360114.0 3162137.0     0.0    61.00   366.00     14.40     0.46    61.00    40.00    40.00
  110  0 0    0   0.80000E-01  360108.0 3162125.0     0.0    41.20   366.00     14.40     0.46    61.00    40.00    40.00
  111  0 0    0   0.23000E 00  360105.0 3162125.0     0.0    15.20   314.00     14.50     0.76    61.00    40.00    40.00
  112  0 0    0   0.81000E 00  360111.0 3162157.0     0.0    21.30   372.00     12.90     1.50    61.00    40.00    40.00
  113  0 0    0   0.16000E 00  360125.0 3162100.0     0.0    15.20   344.00     14.40     0.46    61.00    40.00    40.00
  114  0 0    0   0.24000E 00  360125.0 3162110.0     0.0    61.00   355.00     14.40     0.46    61.00    40.00    40.00
  115  0 0    0   0.13000E 00  360155.0 3162032.0     0.0    15.20   344.00     12.90     0.61    61.00    40.00    40.00
  116  0 0    0   0.24000E 00  360147.0 3162047.0     0.0    30.50   355.00     14.40     0.46    61.00    40.00    40.00
  117  0 0    0   0.10000E 00  360102.0 3162210.0     0.0     4.60   314.00      9.70     0.61     4.00     5.00     5.00
  118  0 0    0   0.15000E 00  360080.0 3162010.0     0.0    30.50   314.00      9.30     0.76    24.00    61.00    27.00
```

```
                *** Particulate Matter -  Downwash Analysis  -  Day 174,1972     ***

                            * METEOROLOGICAL DATA FOR DAY 174 *

                                                     POT. TEMP.
          FLOW      WIND      MIXING                 GRADIENT                  WIND      DECAY
         VECTOR     SPEED     HEIGHT      TEMP.      (DEG. K    STABILITY    PROFILE  COEFFICIENT
HOUR    (DEGREES)   (MPS)    (METERS)   (DEG. K)   PER METER)   CATEGORY    EXPONENT   (PER SEC)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  1       85.0      5.66      785.0      300.0       0.0           4         0.2500   0.0
  2       82.0      5.14      823.0      300.0       0.0           4         0.2500   0.0
  3       87.0      6.17      862.0      300.0       0.0           4         0.2500   0.0
  4       93.0      6.17      901.0      300.0       0.0           4         0.2500   0.0
  5       90.0      6.17      939.0      300.0       0.0           4         0.2500   0.0
  6       88.0      6.17      978.0      300.0       0.0           4         0.2500   0.0
  7       92.0      4.63     1016.0      300.0       0.0           4         0.2500   0.0
  8       95.0      5.14     1055.0      300.0       0.0           4         0.2500   0.0
  9       87.0      6.17     1094.0      301.0       0.0           4         0.2500   0.0
 10       92.0      6.17     1132.0      301.0       0.0           4         0.2500   0.0
 11      102.0      6.69     1171.0      302.0       0.0           4         0.2500   0.0
 12       99.0      6.69     1210.0      303.0       0.0           4         0.2500   0.0
 13      104.0      7.20     1248.0      303.0       0.0           4         0.2500   0.0
 14      100.0      7.20     1287.0      303.0       0.0           3         0.2000   0.0
 15       88.0      8.23     1287.0      303.0       0.0           4         0.2500   0.0
 16      103.0      7.72     1287.0      303.0       0.0           4         0.2500   0.0
 17       92.0      7.20     1287.0      302.0       0.0           4         0.2500   0.0
 18       91.0      7.72     1287.0      302.0       0.0           4         0.2500   0.0
 19       94.0      6.69     1287.0      301.0       0.0           4         0.2500   0.0
 20       93.0      5.66     1292.0      300.0       0.0           4         0.2500   0.0
 21       88.0      6.17     1300.0      300.0       0.0           4         0.2500   0.0
 22       91.0      5.14     1308.0      300.0       0.0           4         0.2500   0.0
 23       81.0      5.14     1316.0      300.0       0.0           4         0.2500   0.0
 24       78.0      5.14     1324.0      300.0       0.0           4         0.2500   0.0
```

```
                                                                                                    DAILY: 174
                                                                                                    24-HR/PD 1
                                                                                                    SGROUP#  1
                        *** Particulate Matter - Downwash Analysis  -  Day 174,1972      ***

                        * DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)      *
                                         * ENDING WITH HOUR 24 FOR DAY 174 *
                                                * FROM ALL SOURCES *
                                             * FOR THE RECEPTOR GRID *

                      * MAXIMUM VALUE EQUALS       9.91523 AND OCCURRED AT (  361200.0, 3162100.0) *

   Y-AXIS   /                                            X-AXIS (METERS)
  (METERS)  /         0.0     361200.0     361300.0     361400.0     361500.0     361600.0     361700.0     361800.0
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  3162500.0 /      0.0         1.85651      1.99165      2.12624      2.25093      2.35972      2.45020      2.52266
  3162400.0 /      0.0         3.84906      3.94587      3.99796      4.01425      4.00270      3.97077      3.92530
  3162300.0 /      0.0         6.65502      6.47565      6.28558      6.07348      5.85868      5.64760      5.44485
  3162200.0 /      0.0         9.42658      8.86214      8.37736      7.91009      7.48262      7.09150      6.73401
  3162100.0 /      0.0         9.91523      9.27654      8.74730      8.24343      7.78820      7.37410      6.99582
  3162000.0 /      0.0         6.99679      6.77041      6.57371      6.36602      6.16502      5.96932      5.77835
  3161900.0 /      0.0         3.77666      3.86407      3.91422      3.93493      3.94263      3.94113      3.93184




 TCP OUTPUT CHARGE: $  .06
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                    *** SO2 24-Hour Downwash Analysis  -  Day 286,1974               ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)                                  ISW(1) =   1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)                   ISW(2) =   3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)                          ISW(3) =   1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)                                  ISW(4) =   0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)                             ISW(5) =   0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)                          ISW(6) =   2

COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)
WITH THE FOLLOWING TIME PERIODS:
  HOURLY (YES=1,NO=0)                                                     ISW(7) =   0
  2-HOUR (YES=1,NO=0)                                                     ISW(8) =   0
  3-HOUR (YES=1,NO=0)                                                     ISW(9) =   0
  4-HOUR (YES=1,NO=0)                                                    ISW(10) =   0
  6-HOUR (YES=1,NO=0)                                                    ISW(11) =   0
  8-HOUR (YES=1,NO=0)                                                    ISW(12) =   0
  12-HOUR (YES=1,NO=0)                                                   ISW(13) =   0
  24-HOUR (YES=1,NO=0)                                                   ISW(14) =   1
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)                                      ISW(15) =   0

PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE
SPECIFIED BY ISW(7) THROUGH ISW(14):
  DAILY TABLES (YES=1,NO=0)                                              ISW(16) =   1
  HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)                           ISW(17) =   0
  MAXIMUM 50 TABLES (YES=1,NO=0)                                         ISW(18) =   0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)                ISW(19) =   2
RURAL-URBAN OPTION (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)               ISW(20) =   0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)                ISW(21) =   1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)         ISW(22) =   1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)                        ISW(23) =   0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)                    ISW(24) =   1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)              ISW(25) =   1

NUMBER OF INPUT SOURCES                                                   NSOURC =   1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)                                  NGROUP =   0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)                      IPERD =   0
NUMBER OF X (RANGE) GRID VALUES                                           NXPNTS =   8
NUMBER OF Y (THETA) GRID VALUES                                           NYPNTS =   7
NUMBER OF DISCRETE RECEPTORS                                              NXWYPT =   0
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA                            NHOURS =  24
NUMBER OF DAYS OF METEOROLOGICAL DATA                                      NDAYS =   1
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                                  TK =.10000E 07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                            BETA1 =0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                              BETA2 =0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED                          ZR =  10.00  METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                                  IMET =   5
ALLOCATED DATA STORAGE                                                     LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                                 MIMIT =   398 WORDS
```

```
*** SO2 24-Hour Downwash Analysis  -  Day 286,1974              ***


        *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                (METERS/SEC)

                     1.54,    3.09,    5.14,    8.23,   10.80,

                *** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                  (METERS)

357600.0,  357700.0,  357800.0,  357900.0,  358000.0,  358100.0,  358200.0,  358300.0,

                *** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                  (METERS)

3161000.0, 3161100.0, 3161200.0, 3161300.0, 3161400.0, 3161500.0, 3161600.0,
```

```
                        *** SO2 24-Hour Downwash Analysis  -  Day 286,1974            ***

                                                   *** SOURCE DATA ***

                     EMISSION RATE                                                TEMP.    EXIT VEL.
                       TYPE=0,1                                                   TYPE=0    TYPE=0
          T W        (GRAMS/SEC)                                                 (DEG.K);  (M/SEC);            BLDG.     BLDG.     BLDG.
          Y A NUMBER   TYPE=2                              BASE                  VERT.DIM  HORZ.DIM DIAMETER  HEIGHT    LENGTH    WIDTH
  SOURCE  P K  PART.  (GRAMS/SEC)      X         Y         ELEV.     HEIGHT     TYPE=1    TYPE=1,2  TYPE=0    TYPE=0    TYPE=0    TYPE=0
  NUMBER  E E  CATS. *PER METER**2 (METERS)  (METERS)  (METERS)  (METERS)  (METERS)   (METERS)  (METERS)  (METERS)  (METERS)  (METERS)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

    101   0 0    0   0.19670E 03  360008.0 3162392.0      0.0     91.50    389.00      14.66      4.88     63.00     17.00     24.00
```

```
*** SO2 24-Hour Downwash Analysis  -  Day 286,1974             ***


                       * METEOROLOGICAL DATA FOR DAY 286 *

                                             POT. TEMP.
         FLOW      WIND     MIXING           GRADIENT                WIND      DECAY
HOUR    VECTOR     SPEED    HEIGHT     TEMP.  (DEG. K   STABILITY  PROFILE  COEFFICIENT
       (DEGREES)   (MPS)   (METERS)  (DEG. K) PER METER)  CATEGORY  EXPONENT   (PER SEC)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  1      253.0     1.54     352.0     293.0    0.0350        6      0.3000   0.0
  2      242.0     2.06     352.0     293.0    0.0350        6      0.3000   0.0
  3      232.0     3.60     352.0     293.0    0.0200        5      0.3000   0.0
  4      230.0     3.60     352.0     293.0    0.0200        5      0.3000   0.0
  5      238.0     3.60     352.0     293.0    0.0200        5      0.3000   0.0
  6      227.0     3.60     352.0     293.0    0.0200        5      0.3000   0.0
  7      221.0     3.60     457.0     293.0    0.0           4      0.2500   0.0
  8      244.0     4.12     680.0     294.0    0.0           3      0.2000   0.0
  9      236.0     4.63     903.0     297.0    0.0           3      0.2000   0.0
 10      238.0     5.14    1126.0     300.0    0.0           3      0.2000   0.0
 11      216.0     5.14    1349.0     301.0    0.0           3      0.2000   0.0
 12      245.0     4.12    1573.0     302.0    0.0           3      0.2000   0.0
 13      248.0     3.60    1796.0     302.0    0.0           2      0.1500   0.0
 14      232.0     3.60    2019.0     303.0    0.0           2      0.1500   0.0
 15      248.0     3.60    2019.0     303.0    0.0           2      0.1500   0.0
 16      236.0     4.63    2019.0     303.0    0.0           3      0.2000   0.0
 17      234.0     4.12    2019.0     303.0    0.0           4      0.2500   0.0
 18      246.0     5.66    2019.0     301.0    0.0           4      0.2500   0.0
 19      236.0     5.14    2029.0     300.0    0.0           4      0.2500   0.0
 20      255.0     5.14    2039.0     298.0    0.0           4      0.2500   0.0
 21      251.0     4.63    1144.0     298.0    0.0200        5      0.3000   0.0
 22      254.0     4.12     852.0     297.0    0.0200        5      0.3000   0.0
 23      260.0     3.60     560.0     296.0    0.0200        5      0.3000   0.0
 24      254.0     2.57     268.0     295.0    0.0350        6      0.3000   0.0
```

```
                                                                                                                        DAILY: 286
                                                                                                                        24-HR/PD 1
                                                                                                                        SGROUP#  1
                                              *** SO2 24-Hour Downwash Analysis  -  Day 286,1974              ***


                                              * DAILY 24-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)      *
                                                           * ENDING WITH HOUR 24 FOR DAY 286 *
                                                                 * FROM ALL SOURCES *
                                                               * FOR THE RECEPTOR GRID *

                                           * MAXIMUM VALUE EQUALS     18.05806 AND OCCURRED AT (  357900.0, 3161200.0) *

   Y-AXIS   /                                                            X-AXIS (METERS)
  (METERS)  /             0.0       357700.0     357800.0     357900.0     358000.0     358100.0     358200.0     358300.0
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  3161600.0 /         0.00000       9.53827     10.55792     11.58904     12.57934     13.46125     14.15496     14.57338
  3161500.0 /         0.00000      11.98260     13.04732     14.05116     14.93212     15.62043     16.04024     16.10974
  3161400.0 /         0.00000      14.26472     15.23522     16.07405     16.72121     17.10789     17.15279     16.76115
  3161300.0 /         0.00000      16.10027     16.86725     17.44598     17.76981     17.75450     17.30086     16.31267
  3161200.0 /         0.00000      17.32689     17.81917     18.05806     17.95659     17.41646     16.35172     14.72990
  3161100.0 /         0.00000      17.88866     18.02896     17.82658     17.19040     16.05147     14.40094     12.32646
  3161000.0 /         0.00000      17.74802     17.44032     16.71028     15.50956     13.85226     11.83965      9.66298




 TCP OUTPUT CHARGE: $  .06
```

```
                                                                                                    DAILY: 284
                                                                                                     3-HR/PD 1
                                                                                                    SGROUP#  1
                     *** SO2  3-Hour Downwash Analysis  -  Day 284(4), 1974          ***


                     * DAILY  3-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER)     *
                                        * ENDING WITH HOUR  3 FOR DAY 284 *
                                               * FROM ALL SOURCES *
                                             * FOR THE RECEPTOR GRID *

                   * MAXIMUM VALUE EQUALS     74.85649 AND OCCURRED AT (  357600.0, 3161100.0) *

 Y-AXIS   /                                                X-AXIS (METERS)
(METERS)  /          0.0      357100.0     357200.0     357300.0     357400.0     357500.0     357600.0     357700.0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

3161400.0 /       0.00000     18.07910     22.10892     26.84819     32.30779     38.42686     45.03510     51.80923
3161300.0 /       0.00000     29.14171     34.64967     40.77063     47.35414     54.12590     60.65852     66.35660
3161200.0 /       0.00000     42.06181     48.43158     54.98746     61.37663     67.11276     71.58597     74.10637
3161100.0 /       0.00000     54.78749     60.88130     66.45982     71.02823     74.01985     74.85649     73.04480
3161000.0 /       0.00000     64.86914     69.36275     72.58298     74.04677     73.31401     70.07564     64.25458
3160900.0 /       0.00000     70.28799     72.14005     72.18147     70.11305     65.78812     59.28502     50.95715
3160800.0 /       0.00000     70.13448     68.94969     65.82990     60.75859     53.92047     45.72240     36.77238




TCP OUTPUT CHARGE: $  .06
```

```
*** SO2  3-Hour Downwash Analysis  -  Day 284(4), 1974          ***


                       * METEOROLOGICAL DATA FOR DAY 284 *

                                                   POT. TEMP.
          FLOW      WIND     MIXING                GRADIENT                 WIND      DECAY
         VECTOR     SPEED    HEIGHT      TEMP.     (DEG. K    STABILITY    PROFILE   COEFFICIENT
 HOUR   (DEGREES)   (MPS)   (METERS)   (DEG. K)   PER METER)   CATEGORY    EXPONENT   (PER SEC)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

   1      241.0      5.66    1048.0     298.0       0.0           3        0.2000   0.0
   2      244.0      5.14    1288.0     300.0       0.0           3        0.2000   0.0
   3      241.0      4.12    1528.0     301.0       0.0           3        0.2000   0.0
```

```
                               *** SO2  3-Hour Downwash Analysis  -  Day 284(4), 1974          ***


                                                      *** SOURCE DATA ***

                    EMISSION RATE                                      TEMP.    EXIT VEL.
                       TYPE=0,1                                        TYPE=0    TYPE=0
         T W        (GRAMS/SEC)                                        (DEG.K); (M/SEC);            BLDG.    BLDG.    BLDG.
         Y A NUMBER    TYPE=2                         BASE            VERT.DIM  HORZ.DIM DIAMETER  HEIGHT   LENGTH    WIDTH
  SOURCE P K  PART.  (GRAMS/SEC)      X        Y      ELEV.   HEIGHT   TYPE=1   TYPE=1,2  TYPE=0   TYPE=0   TYPE=0   TYPE=0
  NUMBER E E  CATS. *PER METER**2 (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS) (METERS) (METERS) (METERS) (METERS)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

    101  0 0     0  0.19670E 03  360008.0 3162392.0     0.0    91.50   389.00     14.66     4.88    63.00    17.00    24.00
```

```
                    *** SO2  3-Hour Downwash Analysis  -  Day 284(4), 1974          ***


                     *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                (METERS/SEC)

                                   1.54,    3.09,    5.14,    8.23,   10.80,


                                *** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                                  (METERS)

 357000.0,  357100.0,  357200.0,  357300.0,  357400.0,  357500.0,  357600.0,  357700.0,


                                *** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
                                                  (METERS)

3160800.0, 3160900.0, 3161000.0, 3161100.0, 3161200.0, 3161300.0, 3161400.0,
```

```
                    *** SO2  3-Hour Downwash Analysis  -  Day 284(4), 1974          ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)                                   ISW(1) =   1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)                    ISW(2) =   3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)                           ISW(3) =   1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)                                   ISW(4) =   0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)                              ISW(5) =   0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)                           ISW(6) =   2

COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)
WITH THE FOLLOWING TIME PERIODS:
  HOURLY (YES=1,NO=0)                                                      ISW(7) =   0
  2-HOUR (YES=1,NO=0)                                                      ISW(8) =   0
  3-HOUR (YES=1,NO=0)                                                      ISW(9) =   1
  4-HOUR (YES=1,NO=0)                                                     ISW(10) =   0
  6-HOUR (YES=1,NO=0)                                                     ISW(11) =   0
  8-HOUR (YES=1,NO=0)                                                     ISW(12) =   0
  12-HOUR (YES=1,NO=0)                                                    ISW(13) =   0
  24-HOUR (YES=1,NO=0)                                                    ISW(14) =   0
PRINT ´N´-DAY TABLE(S) (YES=1,NO=0)                                       ISW(15) =   0

PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE
SPECIFIED BY ISW(7) THROUGH ISW(14):
  DAILY TABLES (YES=1,NO=0)                                               ISW(16) =   1
  HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)                            ISW(17) =   0
  MAXIMUM 50 TABLES (YES=1,NO=0)                                          ISW(18) =   0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)                 ISW(19) =   2
RURAL-URBAN OPTION (RURAL=0,URBAN MODE 1=1,URBAN MODE 2=2)                ISW(20) =   0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)                 ISW(21) =   1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)          ISW(22) =   1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)                         ISW(23) =   0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)                     ISW(24) =   1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)               ISW(25) =   1

NUMBER OF INPUT SOURCES                                                   NSOURC =   1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)                                  NGROUP =   0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)                      IPERD =   0
NUMBER OF X (RANGE) GRID VALUES                                           NXPNTS =   8
NUMBER OF Y (THETA) GRID VALUES                                           NYPNTS =   7
NUMBER OF DISCRETE RECEPTORS                                              NXWYPT =   0
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA                            NHOURS =   3
NUMBER OF DAYS OF METEOROLOGICAL DATA                                      NDAYS =   1
SOURCE EMISSION RATE UNITS CONVERSION FACTOR                                  TK =.10000E 07
ENTRAINMENT COEFFICIENT FOR UNSTABLE ATMOSPHERE                            BETA1 =0.600
ENTRAINMENT COEFFICIENT FOR STABLE ATMOSPHERE                              BETA2 =0.600
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED                          ZR =  10.00  METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA                                  IMET =   5
ALLOCATED DATA STORAGE                                                     LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN                                 MIMIT =   398 WORDS
```

ATTACHMENT 5

Subj. file

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 1, 1983

Mr. Richard C. Entorf
Senior Vice-President
Florida Crushed Stone Company
Post Office Box 317
Leesburg, Florida 32748

Subject: Proposed 125 MW Electric Co-generating Plant
Brooksville, Florida

Dear Mr. Entorf:

The letter is a request for additional information concerning the planned boiler to be installed at subject plant. The BACT review group requires this information to determine if subject source is an affected facility to which the provisions of New Source Performance Standards (NSPS) 40 CFR 60.40, Subpart D or 40 CFR 60.40a, Subpart Da would apply.

Please supply the following information:

1. The actual cost data to reconstruct the 1234 million Btu per hour steam generator to be installed at the subject plant. This data must include the fixed capital needed to provide all the depreciable components as defined in 40 CFR 60.2 (copy attached).

2. The fixed capital cost that would be required to construct a comparable entirely new source.

3. The amount (lbs/hr) of particulate, SO_2, and NO_x emitted to the atmosphere from the boiler prior to the boiler being shut down in 1977. Include any available emission test data and operating permit conditions from Ohio.

4. List all boiler components that were replaced and indicate if the item was purchased new from a manufacturer of said components, or, is a reconditioned component obtained from another existing source. For example: forced draft fan, burners, coal-pulverizers, air heaters, attemperator, radiant or convection superheaters, etc. Please be as specific as possible.

5. The city, state, owner, and address of the aforementioned boiler when operated during the period from 1944 to 1977.

If any of the submitted information is stamped confidential, the data will be handled according to the provision of Subsection 403.111 of the Florida Statutes. As soon as the requested information is received, the determination of Best Available Control Technology will continue.

Sincerely yours,

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

CHF/bjm

cc: without attachment

Hamilton S. Oven, Jr.
Power Plant Siting

John B. Koogler, Ph.D., P.E.
Sholtes & Koogler
Environmental Consultants, Inc.

Brian Beals, EPA Region IV

Dan Williams, DER Southwest District

ATTACHMENT 6

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 14, 1983

CERTIFIED MAIL

Richard Entorf
Senior Vice-President
Florida Crushed Stone Company
P. O. Box 317
Leesburg, Florida 32748

Subject: Cement Plant, AC 27-16016, etc., Brooksville, Florida

Dear Mr. Entorf:

The Department has received all the revised applications of January 13, 1983, concerning your permit applications for all sources associated with your proposed Cement Plant/Power Plant project near Brooksville.

After reviewing your revised applications, we found that your proposed Cement Kiln-Power Plant baghouse (E-20) would not have the ability to reduce particulate emissions from the kiln and cooler to 37.1 lb/hr and 12.4 lb/hr based on AP-42 emission factors. We believe that AP-42 should be used as the basis for particulate emissions calculations. Please recalculate the particulate emissions from the kiln and cooler by AP-42 and recalculate the required efficiency for the baghouse.

We also need the explanations for each application which has been eliminated, those applications include Packing Plant (R 14), Masonary Silos (R 16), and Kiln Feed (H15).

When all the required information is received, we will resume processing your applications. If you have any questions on the data requested, please contact Bill Thomas and Bob King at (904) 488-1344.

Sincerely,

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

cc: Dan Williams
John Koogler

ATTACHMENT 7

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-02

February 16, 1983

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

Subject: Florida Crushed Stone Company
Brooksville, Hernando County, Florida
AC27-16016

Dear Mr. Fancy:

In response to your letter dated February 14, 1983, I have performed the necessary calculations to estimate the uncontrolled particulate matter entering the cement plant-power plant baghouse (Source E-20) and have calculated the expected efficiency of this baghouse for reducing particulate matter emissions under various operating conditions. All of the calculations and the assumptions and conditions upon which the calculations were based are included in the attached package. To expedite your review of this material I will summarize the attached material.

The cement plant-power plant can operate under three basic sets of conditions; (1) both the cement plant and power plant operating, (2) the cement plant only operating and (3) the power plant only operating. In addition to these three operating modes, the recovery of waste heat from gas streams, as proposed by Florida Crushed Stone, results in exhaust gas recirculation and reuse which is unique to this facility. Taking these factors into consideration I have applied the uncontrolled emission factors from the EPA publication AP-42 that you referenced to estimate the uncontrolled emission rate of all pollutants generated by the facility. These uncontrolled emissions were then combined with the proposed allowable emission rates to calculate the control efficiency of either the baghouse or the plant operating system for removing the various pollutants.

Prior to discussing the assumptions that were used to calculate the uncontrolled emissions, a comment on the applicability of the AP-42 emission factors is in order. For the coal fired power plant operating as an individual source, the emission factors presented in Section 1.1 of AP-42 are appropriate and will provide a "best estimate" of uncontrolled emissions. Likewise, the uncontrolled emission estimates in Section 8.6 of AP-42 for "dryers, grinders, etc." represent reasonably well the expected uncontrolled emissions from the raw mill and the raw materials dryer associated with the cement plant. The uncontrolled particulate matter emission factor associated with these sources is reported to be 96 pounds of particulate matter per ton of material processed. This same emission factor will also represent, reasonably well, the uncontrolled emissions from the clinker cooler. The uncontrolled emission factor for particulate matter emissions from a dry process cement kiln, as reported in AP-42, is 245 pounds per ton of kiln feed.

These emission factors are based upon the cement plant depicted in Figure 8.6-1 of AP-42. The cement plant proposed by Florida Crushed Stone is different in many respects from the cement plant depicted in AP-42. First, in the Florida Crushed Stone plant all of the air which passes through the clinker cooler is used as combustion air for the cement kiln, combustion air for the power plant boiler or as drying air in the raw mill. Secondly, in the Florida Crushed Stone cement plant all of the gases exhausted from the cement kiln are used to provide heat to the raw materials dryer. These gases, after passing through the raw materials dryer, then enter the baghouse. Thirdly, the gases exhausted from the power plant proposed by Florida Crushed Stone are exhausted directly to the baghouse if only the power plant is operating or they are split between the raw mill and raw materials dryer if the cement plant is operating. In the latter case, a small fraction of the power plant exhaust gases by-pass the raw mill and are used to reheat the gas stream exhausted from the raw mill prior to this gas stream being introduced to the baghouse.

It should be quite apparent, based on the factors just discussed, that the AP-42 emission factors are not directly applicable to the Florida Crushed Stone plant. In spite of the differences, the emission factors were applied in order to obtain some reasonable estimate of uncontrolled emissions. In applying the emission factors two basic assumptions were made. In several cases a single gas stream passes through more than one processing unit; for example, the clinker cooler gases pass through the kiln and then through the raw materials dryer. When such a condition exists, it was assumed that the uncontrolled emissions transported by the gas stream as it entered the baghouse would be the highest uncontrolled emission rate from any single processing unit the gas stream passed through. This assumption has been made rather than to assume the gas stream would accumulate uncontrolled emissions from each processing unit. As a basic example of this assumption, assume that all of the gases exhausted from the clinker cooler pass through the kiln and that all the gases from the kiln pass through the dryer before they enter the baghouse. By applying the emission factors from AP-42, the uncontrolled emissions from the clinker cooler are calculated to be 7,200 pounds per hour; from the kiln they are calculated to be 30,331 pounds per hour; and from the dryer they are calculated to be 10,810 pounds per hour. For this particular example, the maximum uncontrolled emissions entering the baghouse in the gas stream which passed through all three processing units would be 30,331 pounds per hour. This assumption appears to be much more reasonable than the assumption that the uncontrolled emissions will be cumulative since there will be some deposition of particles within individual processing units.

The other assumption that was made in applying the AP-42 emission factors was that uncontrolled emissions would be prorated based on gas flow rates if an air stream was split. For example, when the power plant exhaust gases are split between the raw mill (32 percent) and the raw materials dryer (68 percent) it was assumed that 32 percent of the uncontrolled power plant emissions were introduced to the raw mill and 68 percent of the uncontrolled emissions were introduced to the raw materials dryer.

To be consistent throughout the applications for the construction permits for the cement plant kiln and the power plant, uncontrolled emission rates of sulfur dioxide, nitrogen dioxides, carbon monoxide and hydrocarbons were also calculated as were control efficiencies for these pollutants. Also, the construction permit applications for all of the other particulate matter emitting sources in the cement plant were revised to reflect the actual expected control efficiency for particulate matter. These latter calculations were based on particulate matter concentrations at the inlet and outlet of the control systems as estimated by Polysius Corporation, the design engineer for the cement plant.

I cannot help but comment regarding the requirement for the information provided herein. Florida Crushed Stone recognizes and accepts the fact that the emission rates of all pollutants from all sources at the proposed facility will be limited by emission limiting standards. These emission limiting standards will be the result of BACT determinations made by the Department. These emission limiting standards will also be the enforceable permit conditions regardless of whether a particular control efficiency is 100 percent or zero percent or any efficiency in between. The fact that the control efficiency stated in the original permit applications, when applied to uncontrolled emissions determined using very crude assumptions; do not yield a number which is equal to the allowable emission rate proposed by Florida Crushed Stone as BACT is, in my opinion, irrelavent. To require an applicant to go through an exercise of estimating uncontrolled emissions and then calculating an efficiency for a fabric filter collector also appears to be very academic.

It should be recognized by the Department that the fabric filter collectors proposed by Florida Crushed Stone are undoubtedly the most efficient control systems that are available for controlling particulate matter emissions. It should also be realized by the Department that these control systems have been proven effective in controlling emissions from other cement plants in the State of Florida and throughout the United States. And, it should further be realized that Florida Crushed Stone will comply with the emission limiting standard imposed for each source regardless of what the collector efficiency is and regardless of what the uncontrolled emissions going to the collector are. If there are any additional questions regarding the emission calculations or the efficiency calculations included herein, please give me a call.

Regarding the explanation of the applications which have been eliminated, the following reasons apply. The packing plant source (R-14) has been eliminated since all finished product will be shipped from the plant in bulk form and the packing plant will not be constructed. The masonry silos (R-16) have been eliminated because Florida Crushed Stone does not propose to produce masonry cement at the plant. The kiln feed source (H-15) is being evaluated by Florida Crushed Stone. The air stream from the calibration bin (H-05) which was vented through this source may be vented through collector F-14 or collector F-15 may be reinstalled. We will clarify this matter within the next few days.

If there are any questions regarding these sources, or other matters relating to Florida Crushed Stone Company permits, please give me a call.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:sc
Enclosures

cc: Mr. Richard C. Entorf
Mr. Larry Curtin

D.E.R.

FEB 16 1983

BAQM

ATTACHMENT PACKAGE FOR

FLORIDA CRUSHED STONE COMPANY

SOURCES:

POWER PLANT
CEMENT KILN

SHOLTES & KOOGLER

I. Allowable Emissions

A. Power Plant

PM @ 0.1 lb/10^6 BTU = 123.4 lbs/hr ✓
SO_2 @ 1.2 lb/10^6 BTU = 1,408.8 lbs/hr ✓ was 1481)
NOx @ 0.7 lb/10^6 BTU = 863.8 lbs/hr ✓
CO @ 1 lb/ton coal = 50.0 lbs/hr ✓
HC @ 0.3 lb/ton coal = 15.0 lbs/hr ✓

B. Cement Plant

1. Assumptions or Conditions

Clinker cooler exhaust is split between the kiln as combustion air; the raw mill, to provide heat for drying; and the raw mill by-pass. The raw mill by-pass gases are re-combined with the gases which have passed through the raw mill and enter the baghouse.

All kiln exhaust passes through raw materials dryer to provide heat for drying.

Exhaust from raw mill and raw materials dryer pass directly through the baghouse.

2. Emissions

Particulate Matter - Propose allowable particulate matter emissions to be equal to limit established by NSPS for kiln and clinker cooler

PM = Kiln - 0.3 lb/ton (123.8 ton fee /hr) = 37.1 lbs/hr
Cooler - 0.1 lb/ton (123.8 ton feed/hr) = 12.4 lbs/hr
49.5 lbs/hr
SO_2 (Polysius estimate) = 80.0 lbs/hr
NOx (Polysius estimate) =416.0 lbs/hr
CO = 0
HC = 0

C. Cement Plant & Power Plant

1. Assumptions or Conditions

Clinker cooler exhaust is split between power plant and kiln as combustion air.

All kiln exhaust passes through raw materials dryer to provide heat for drying.

1. Assumptions or Conditions (continued)

Power plant exhaust is split between the raw mill, the raw materials dryer and the raw mill by-pass. The raw mill by-pass gases are re-combined with the gases passing through the raw mill and enter the baghouse.

Exhaust from raw mill is re-combined with raw mill by-pass gases and enters the baghouse.

Raw materials exhaust gases enter baghouse.

2. Emissions

Particulate Matter - Propose allowable particulate matter emissions to be equal to the limit established by NSPS for the kiln and clinker cooler plus the limit established by the standard of 0.1 lb/10^6 BTU for the power plant.

PM = Kiln - 0.3 lb/ton (123.8) = 37.1 lbs/hr
Cooler - 0.1 lb/ton (123.8) = 12.4 lbs/hr
Power Plant - 0.1 (1234.0) = 123.4 lbs/hr
172.9 lbs/hr 21.8 gs^{-1}

Sulfur Dioxide - Propose allowable sulfur dioxide emissions to be equal to the limit established by 1.2 lbs/10^6 BTU for the power plant plus the limit established by the Polysius estimate for the kiln.

SO_2 = Kiln - Polusius estimate = 80.0 lbs/hr
Power Plant - 1.2 (1234.0) = 1,408.8 lbs/hr
1,488.8 lbs/hr 187.6 gs^{-1}

Nitrogen Oxides - Propose allowable nitrogen oxides emissions to be equal to the limit established by 0.7 lb/10^6 BTU for the power plant plus the limit established by the Polysius estimate for the kiln.

NOx = Kiln - Polysius estimate = 416.0 lbs/hr
Power Plant - 0.7 (1234.0) = 863.8 lbs/hr
1,279.8 lbs/hr

Other Pollutants -

CO = Kiln = 0 lbs/hr
Power Plant (1 lb/ton coal)
(50 tons/hr) = 50.0 lbs/hr
50.0 lbs/hr

HC = Kiln = 0 lbs/hr
Power Plant (0.3 lb/ton coal)
(50 tons/hr) = 15.0 lbs/hr
15.0 lbs/hr

$SO_2 \rightarrow SO_3$

II. Potential Emissions From Individual Sources

A. Power Plant

50 x 2000 lbs/ton x .0074 x 2 = 1480

Fuel Consumption - 50.0 tons/hr coal
Ash = 10.0%
Sulfur = 0.74%

.75 x 2

PM = 16(10) lbs/ton x 50 tons/hr = 8,000 lbs/hr (AP-42)
SO_2 = 38(0.74) x 50 tons/hr = 1,406 lbs/hr (AP-42)
CO = 1 lb/ton x 50 tons/hr = 50 lbs/hr (AP-42)
HC = 0.3 lb/ton x 50 tons/hr = 15 lbs/hr (AP-42)
NOx = 0.7 lb/10^6 BTU = 863.8 lbs/hr (low NOx burner)

B. Kiln

Fuel Consumption - 10.3 tons/hr coal
Ash = 10.0%
Sulfur = 0.74%

PM = (245 lb/ton of feed)(123.8 tons/hr) = 30,331 lbs/hr (AP-42)
SO_2 = 10.3 (2,000) (0.0074)(2) = 305 lbs/hr
NOx = (Polysius estimate) = 416 lbs/hr
CO = = 0 lbs/hr
HC = = 0 lbs/hr

C. Dryer

Heat provided by external sources

PM = [(205,400 + 19,800)/2,000 ton/hr] x 96 lbs/ton = 10,810 lbs/hr (AP-42)

D. Raw Mill Grinder

PM = [(205,400 + 19,800 + 5,000 + 17,300) /2,000] x 96 lbs/ton = 11,880 lbs/hr (AP-42)

E. Clinker Cooler (Assume same emission factor as for grinder and dryer from AP-42)

PM = (75.0 tons clinker/hr)(96 lbs/ton) = 7,200 lbs/hr (AP-42)

III. Potential Emissions From Operating Plant

A. Power Plant (Same as from power plant as individual source)

PM = 8,000 lbs/hr
SO_2 = 1,406 lbs/hr 1480
CO = 50 lbs/hr
HC = 15 lbs/hr
NOx = 864 lbs/hr

B. Cement Plant

1. Assumptions or Conditions

Clinker cooler exhaust is split between the kiln as combustion air; the raw mill to provide heat for drying; and the raw mill by-pass. The raw mill by-pass gases are re-combined with the gases which have passed through the raw mill and the combined stream enters the baghouse.

All kiln gases pass through the raw materials dryer to provide heat for drying. Supplemental heat is provided by externally pre-heated air. The entire gas stream exhausted from the dryer enters the baghouse.

2. Emissions

Particulate Matter -

a. assume emissions from raw mill to be 11,880 lbs/hr based on AP-42 emission factor.

b. assume clinker cooler emissions to be included in raw mill emissions for that portion of the cooler gases that pass through the raw mill.

c. Assume the particulate matter in the cooler gases by-passing the raw mill to be in proportion to the fraction of the gas stream by-passing. It is estimated that 93,333 scfm of cooler gases will pass through the raw mill and that 14,078 scfm of cooler gases will by-pass the raw mill. Potential emissions from the cooler therefore are:

$$[14,078/(14,078 + 93,333)] \times 7,200 = 944 \text{ lbs/hr}$$

d. assume potential emissions from kiln to be 30,331 lbs/hr (AP-42) even through the kiln gases pass through the dryer. Kiln emissions are greater than dryer emissions so this assumption is conservative.

2. Emissions (continued)

e. Assume the potential dryer emissions resulting from the externally pre-heated supplemental air are equal to the potential dryer emissions (AP-42) reduced by the fraction of dryer air provided by the kiln. The potential dryer emissions therefore are:

[26,875/(26,875 + 72,910)] x 10,810 = 2,911 lbs/hr.

f. the maximum potential particulate matter emissions expected from the cement plant will be:

Raw Mill	11,880 lbs/hr
Raw Mill By-Pass	944 lbs/hr
Kiln	30,331 lbs/hr
Dryer Supplemental Air	2,911 lbs/hr
Total Potential	46,066 lbs/hr

Other Potential Emissions - (same as from kiln as an individual source)

SO_2 = 305 lbs/hr
NOx = 416 lbs/hr
CO = 0 lbs/hr
HC = 0 lbs/hr

C. Cement Plant & Power Plant

1. Assumptions or Conditions

See description of air stream re-use under Section entitled Allowable Emissions; Cement Plant and Power Plant and refer to attached flow diagram.

2. Emissions

Particulate Matter -

a. raw mill potential emissions equal 11,880 lbs/hr based on AP-42.

b. raw mill by-pass potential emissions are a fraction of potential power plant emissions:

[14,400/(89,200 + 186,215)] x 8,000 = 418 lbs/hr.

2. Emissions (continued)

c. Dryer potential emissions the greater of potential dryer emissions (10,810 lbs/hr from AP-42) or the sum of potential kiln emissions and a fraction of the power plant emissions since kiln and power plant gases are used in the dryer. Kiln and fractional power plant emissions are:

30,331 lbs/hr + [186,215/(186,215 + 89,200)] x 8,000

= 35,740 lbs/hr.

d. the maximum potential particulate matter emissions expected from the cement plant and power plant during combined operation will be:

Raw Mill	11,880 lbs/hr
Raw Mill By-Pass	418 lbs/hr
Dryer (kiln & power plant)	35,740 lbs/hr
Total Potential	48,038 lbs/hr

Other Potential Emissions

SO_2 = 1,406 + 305 = 1,711 lbs/hr
NOx = 864 + 416 = 1,280 lbs/hr
CO = 50 lbs/hr
HC = 15 lbs/hr

$SO_2 \rightarrow SO_3$ and ash

IV. Equipment and System Control Efficiency

A. Power Plant

PM - E_p = (8,000 - 123.4)x 100/8,000 = 98.46%
SO_2 - E_s = 0%
NOx - E_n = 0%
CO - E_c = 0%
HC - E_h = 0%

1480-1480.8=

B. Cement Plant

PM - E_p = (46,066 - 49.5) x 100/46,066 = 99.89%
SO_2 - E_s = (305 - 80) x 100/305 = 73.8%
NOx - E_n = 0%
CO - E_c = 0%
HC - E_h = 0%

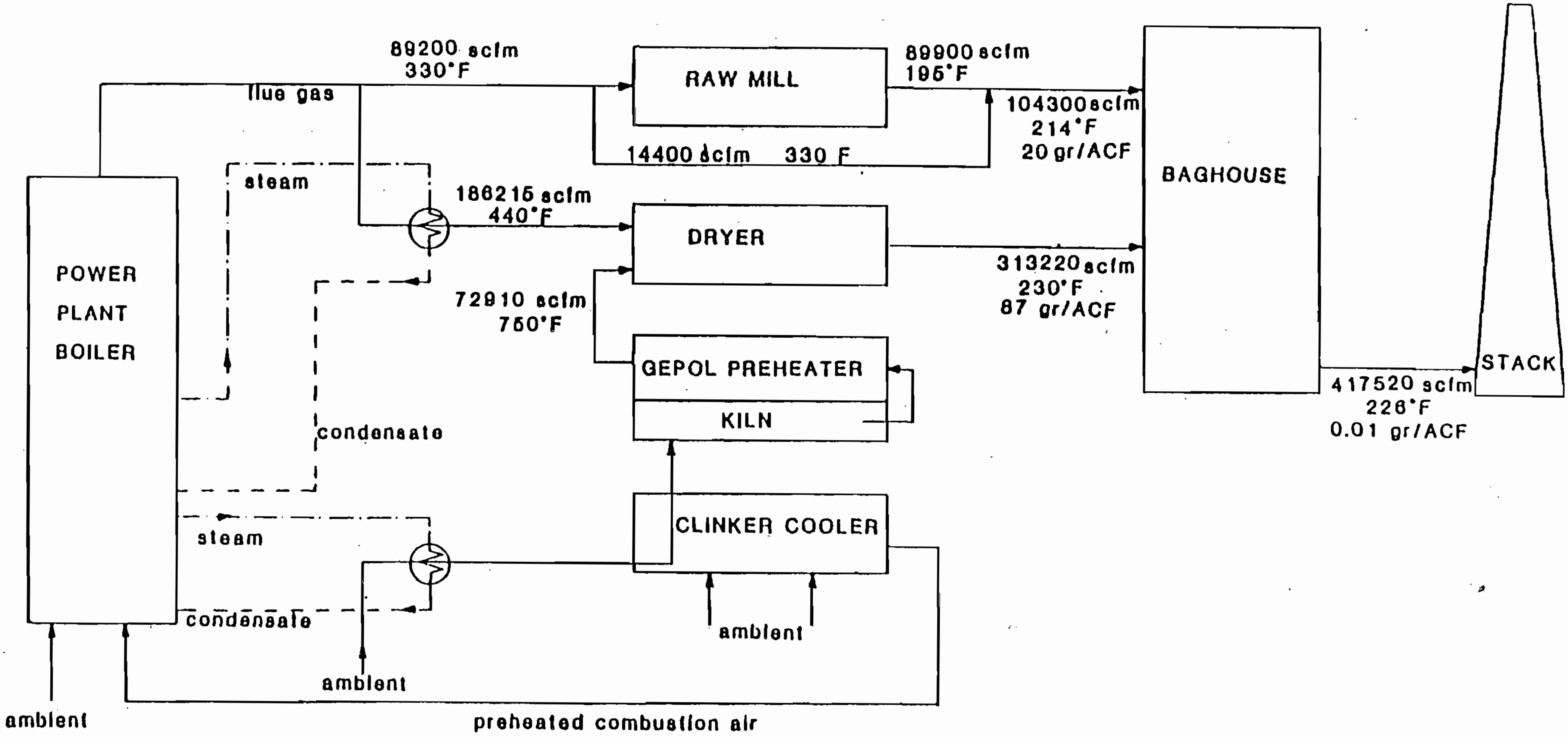
C. Cement Plant & Power Plant

PM - E_p = (48,038 - 172.9) x 100/48,038 = 99.64%
SO_2 - E_s = (1,711 - 1,488.8) x 100/1,711 = 13.0%
NOx - E_n = 0%
CO - E_c = 0%
HC - E_h = 0%

1,711

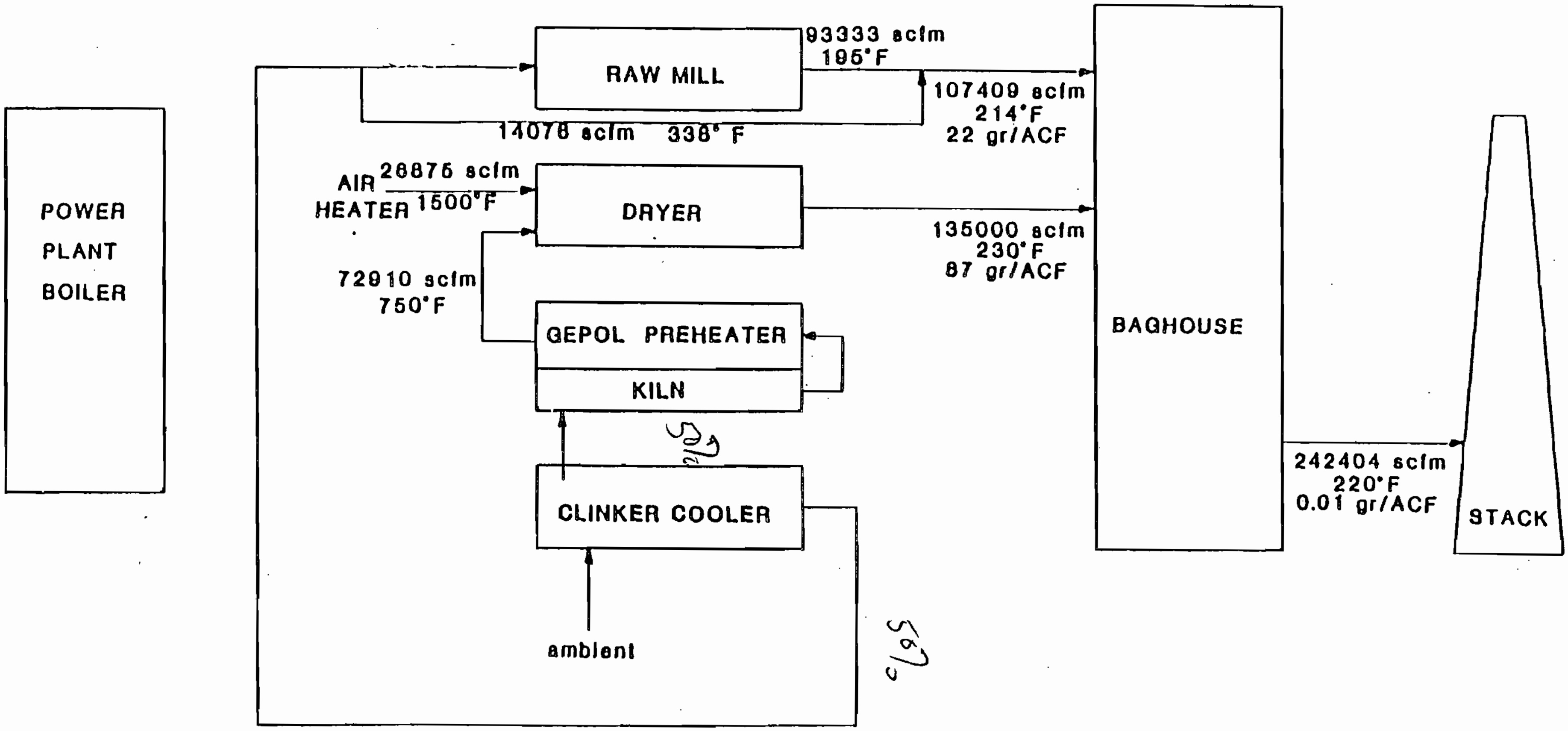
1480 + 305 = 1785
(1785 - 1488.8) x 100/1785
296.2 x = 16.6%

1.2 lb/MMBTU
Verify 30% removal thru process
1250 lbs hr⁻¹ out of stack
80% load factor
cogeneration project



POWER PLANT OPERATING/CEMENT PLANT OPERATING

Revised 10/29/82



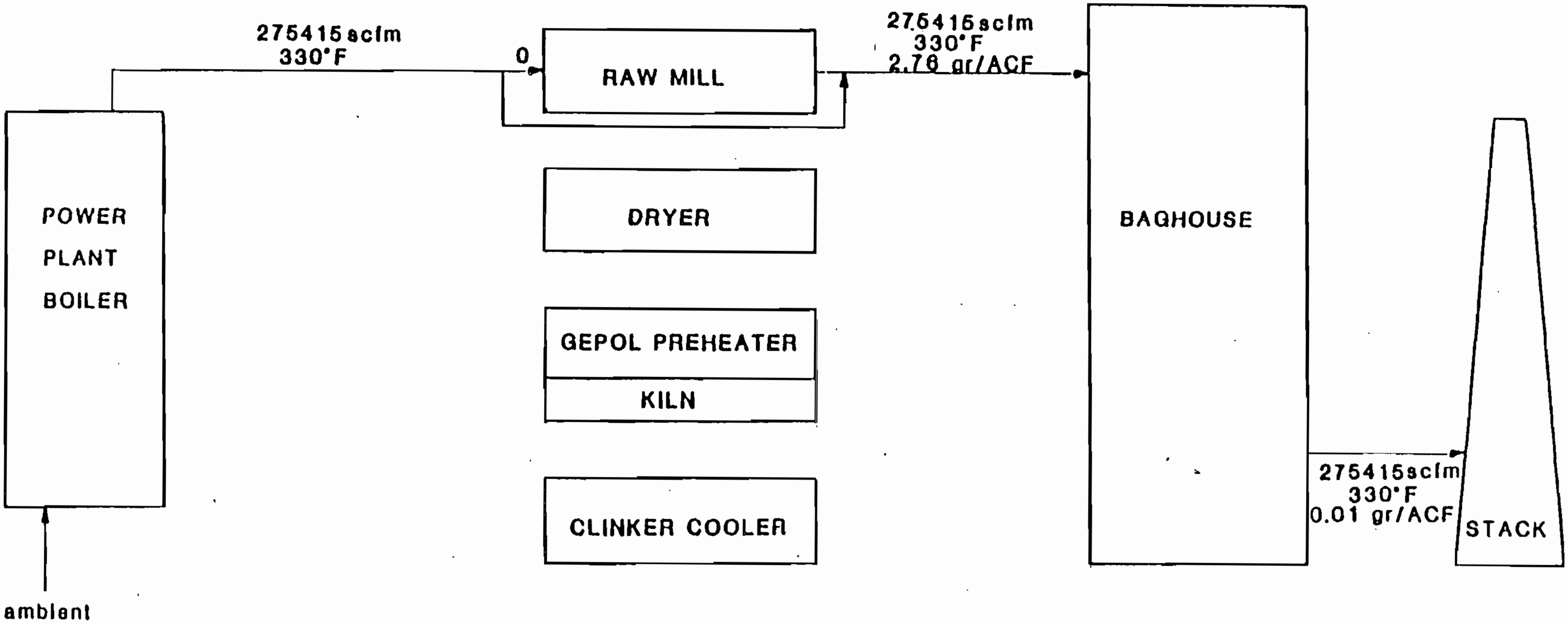
POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

Florida Crushed Stone Company

P.O. Box 317

Leesburg, Fla. 32748

Revised 10/29/82



POWER PLANT OPERATING/CEMENT PLANT NOT OPERATING

Revised 10/29/82

FCS

FLORIDA CRUSHED STONE COMPANY

February 17, 1983

Patty

DER
FEB 18 1983
BAQM

Mr. C. H. Fancy, P.E.
Deputy Chief
Department of Environmental Regulation
Twin Towers Office Building
2600 Blairstone Road
Tallahassee, FL 32301-8241

Re: Cement Plant
Brooksville, FL

Dear Mr. Fancy:

In reference to Dr. John Koogler's letter dated February 16, 1983 to you, it has been determined that source H-15 (Kiln Feed Baghouse) will be left in the system. Attached please find four copies of source application.

If you have any questions concerning this, please contact me.

Sincerely,

Skip Haskell

G. A. Skip Haskell
Manager Industrial Relations

GAH/se
enclosures

POST OFFICE BOX 300 / LEESBURG, FLORIDA 32748 / PHONE (904) 787-0608

SK SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-02

February 24, 1983

Mr. Larry Curtin
Holland & Knight
92 Lake Wire Drive
Lakeland, FL 33802

DER
FEB 25 1983
BAQM

Subject: Florida Crushed Stone Company
Proposed Cement Plant/Power Plant
Hernando County, Florida

Dear Larry:

During the past week, I have had discussions with two FDER staff members regarding the applications for state and federal PSD review and for the air pollution source construction permits that have been submitted to FDER for the cement plant and power plant proposed by Florida Crushed Stone. I am hereby transmitting the information discussed during these conversations so that you can forward it to FDER. Hopefully this information will satisfactorily respond to the final questions that FDER has on these applications.

Cement Plant On February 16, 1983, I hand delivered to the FDER staff information related to controlled and uncontrolled pollutant emission rates from the cement plant and power plant and to the associated air pollution control equipment efficiencies for controlling these emissions. Included in this information were three figures showing gas flows through the cement plant and power plant under three sets of operating conditions; with both the cement plant and power plant operating, with the power plant only operating and with the cement plant only operating. There were questions raised regarding the gas flow when both the power plant and cement plant were operating and when the cement plant only was operating. These questions related to the distribution of the air from the clinker cooler and to the reference to an air heater shown on the flow sheet which depicted air flows when only the cement plant was operating.

On the attached revised sheets showing air flow when the power plant and cement plant are operating and when the cement plant only is operating, I have shown the distribution of the heated air from the clinker cooler. When the power plant and cement plant both are operating, 36,350 standard cubic feet per minute, wet (0°C, at 29.92 inches, Hg) of clinker cooler gases at a temperature of 1,650°F are directed to the cement kiln. The remaining 72,700 standard cubic feet per minute, wet, of clinker cooler gases are used as combustion air in the power plant. When only the cement plant is operating, the same volume of heated clinker cooler air is used as combustion air in the cement kiln. The remaining 72,700 standard cubic feet per minute, wet, of gases at 410°F are split with 58,624 standard cubic feet per minute passing through the raw mill and 14,078 standard cubic feet per minute by-passing the raw mill. These air flows are shown on the attached sheets.

The air heater which was referenced on the flow diagram depicting air flows when the cement plant only is operating, will not be installed by Florida Crushed Stone. This air heater was proposed at the time that Florida Crushed Stone was considering a 75 megawatt power plant. With the 125 megawatt power plant presently proposed by Florida Crushed Stone, the air heater will not be necessary and will not be installed. The attached revised flow diagram shows this air heater deleted.

There was also a question related to the status of two proposed sources; H-15, a fabric filter collector controlling emissions from the kiln feed calibration bin and source Q-18, the fabric filter collector controlling emissions from loading spouts on cement silos. Source H-15 will be constructed. Signed construction permit applications have been forwarded to FDER by Florida Crushed Stone Company. Source Q-18 will not be constructed at this time since the cement silos which would have been vented through this collector will not be constructed. Four cement storage silos will be constructed and the discharge from these silos will be controlled by collector Q-17.

A general information question was also raised regarding the operation of the bag collector controlling emissions from the cement plant and power plant. This question related to the internal workings of the bag collector when the cement plant only or the power plant only was operating. The total gas stream entering the baghouse under all conditions; with both the cement plant and power plant operating, with the power plant only operating and with the cement plant only operating, will pass through the entire baghouse. There are no internal dampers which partition off sections of the baghouse when the air flow rate is reduced as a result of either the cement plant or the power plant not operating. There are 28 compartments within the baghouse, each containing 114 bags. These individual compartments are partitioned off by internal dampers during the cleaning cycle for each compartment and can also be partitioned off to permit maintenance within individual compartments while the remaining sections of the baghouse operate normally. The partitioning off of one of the 28 baghouse compartments for maintenance will result in the air to cloth ratio being increased from 1.6 ACFM per square foot to 1.66 ACFM per square foot. Even at the increased air to cloth ratio of 1.66, the baghouse will meet design specifications.

Cement Plant/Power Plant - Questions were raised regarding the impact of emissions from the combined cement plant and power plant on the Chassahowitzka Class I PSD Area. The questions related to the use of a decay coefficient for sulfur dioxide, the mixing height meteorological data used in some of the sulfur dioxide impact analyses, and the meteorological data used in evaluating the particulate matter impacts.

A sulfur dioxide half-life of 12 hours had been used in evaluating the impact of sulfur dioxide emissions from the proposed facility on the Class I PSD area. EPA has adopted a rather arbitrary policy which disallows the use of a sulfur dioxide half-life if the distance from the source to the receptor is less than 50 kilometers. The distance from the proposed Florida Crushed Stone facility to the Chassahowitzka National Wildlife Refuge is approximately 20 kilometers hence, the use of the sulfur dioxide half-life is not permitted by EPA. This half-life has been removed and the Class I Area sulfur dioxide impact re-evaluated.

The meteorological data which were used to evaluate the sulfur dioxide impacts on the Class I PSD area represented data for calendar years 1973, 1974, 1975, 1978 and 1979 from Tampa, Florida. When the model runs were made using 1975 and 1978 data, mixing height data which were generated using Orlando surface observations and Tampa upper air observations were inadvertently used. The revised model runs have been made using mixing height data for all years that has been generated using Tampa surface and Tampa upper air observations (referred to as Tampa-Tampa mixing height data). The revised impact analyses use 1981 Tampa data in place of the 1978 data since 1978 Tampa-Tampa mixing height data are not presently available.

As a result of the revisions described herein, the sulfur dioxide impact analyses on the Class I PSD area were conducted with meteorological data from Tampa representing calendar years 1973, 1974, 1975, 1979 and 1981 and incorporating the assumption that the life of sulfur dioxide in the ambient air was infinite. The sources included in the analyses are the power plant and cement plant proposed by Florida Crushed Stone and other new sources of sulfur dioxide that can be expected to impact the Class I PSD area under the same meteorological conditions that cause the Florida Crushed Stone sources to impact the area.

To make the particulate matter impact analyses on the Class I PSD area consistent with the sulfur dioxide impact analyses, the particulate matter analyses were revised to incorporate meteorology for calendar years 1973, 1974, 1975, 1979 and 1981 from Tampa. The particulate matter impact analyses incorporate the assumption that there is no particle settling or deposition and included all new particulate matter sources expected to impact the Class I Area under the conditions that cause the Florida Crushed Stone sources to impact the Area.

The height of the cement plant/power plant baghouse stack proposed by Florida Crushed Stone was increased to 310 feet to assure there would be no significant impact on the Class I Area.

The ISC-ST model runs which comprise the sulfur dioxide and particulate matter impact analyses on the Class I PSD Area are attached hereto. The results of these impact analyses are summarized in the attached Table. These results show that neither the Florida Crushed Stone sources alone, nor the Florida Crushed Stone sources combined with other new sources in the area will result in a particulate matter or sulfur dioxide impact on the Chassahowitzka Class I PSD Area that will exceed applicable PSD increments.

The information contained herein should satisfactorily respond to the questions raised by the FDER staff within the past week. If there are further questions regarding this information or if additional information is required, please feel free to contact me.

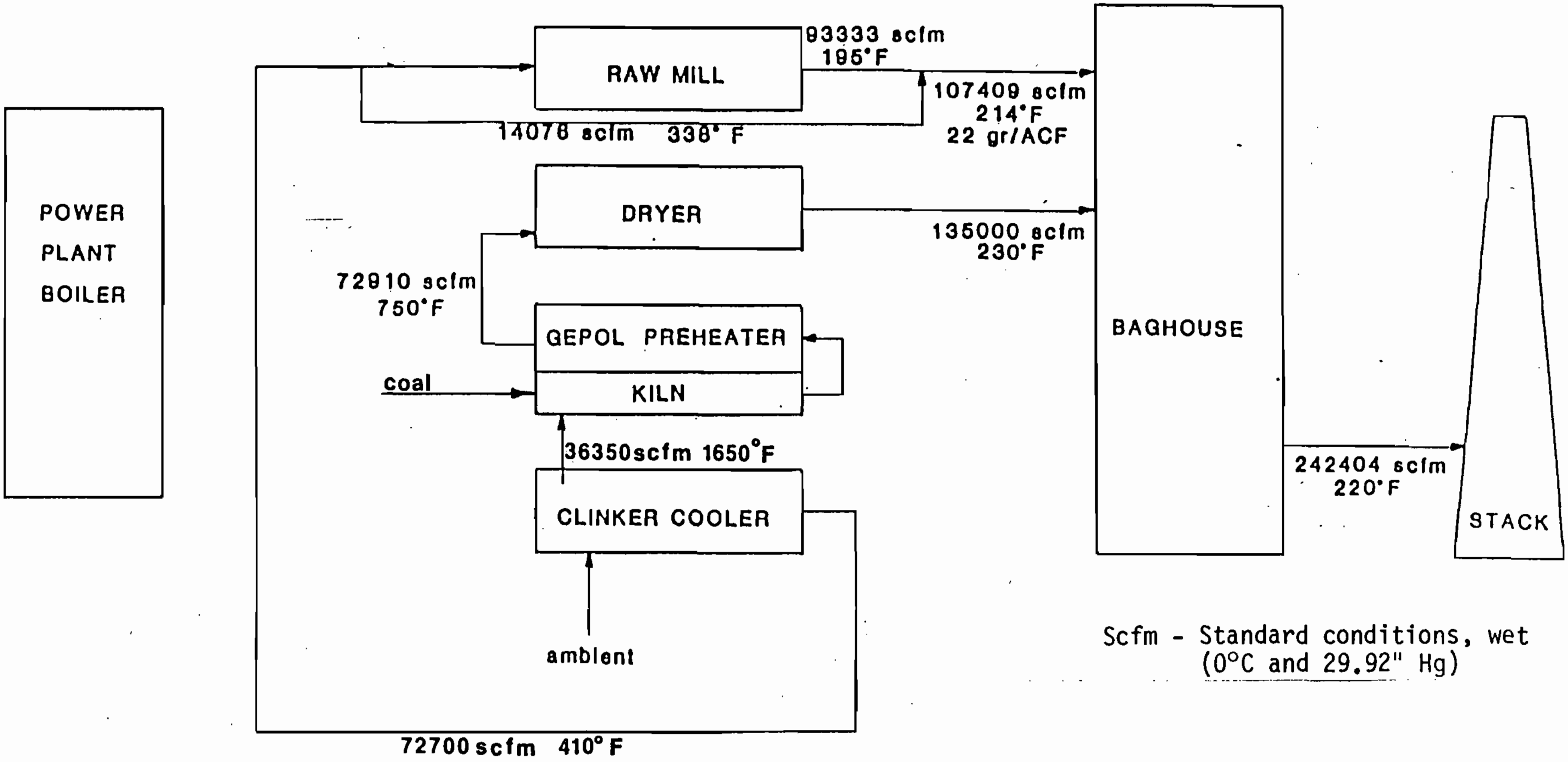
Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:sc
Enclosures

cc: Mr. Richard C. Entorf (w/att.)
Mr. Clair Fancy (w/att.)



Scfm - Standard conditions, wet
(0°C and 29.92" Hg)

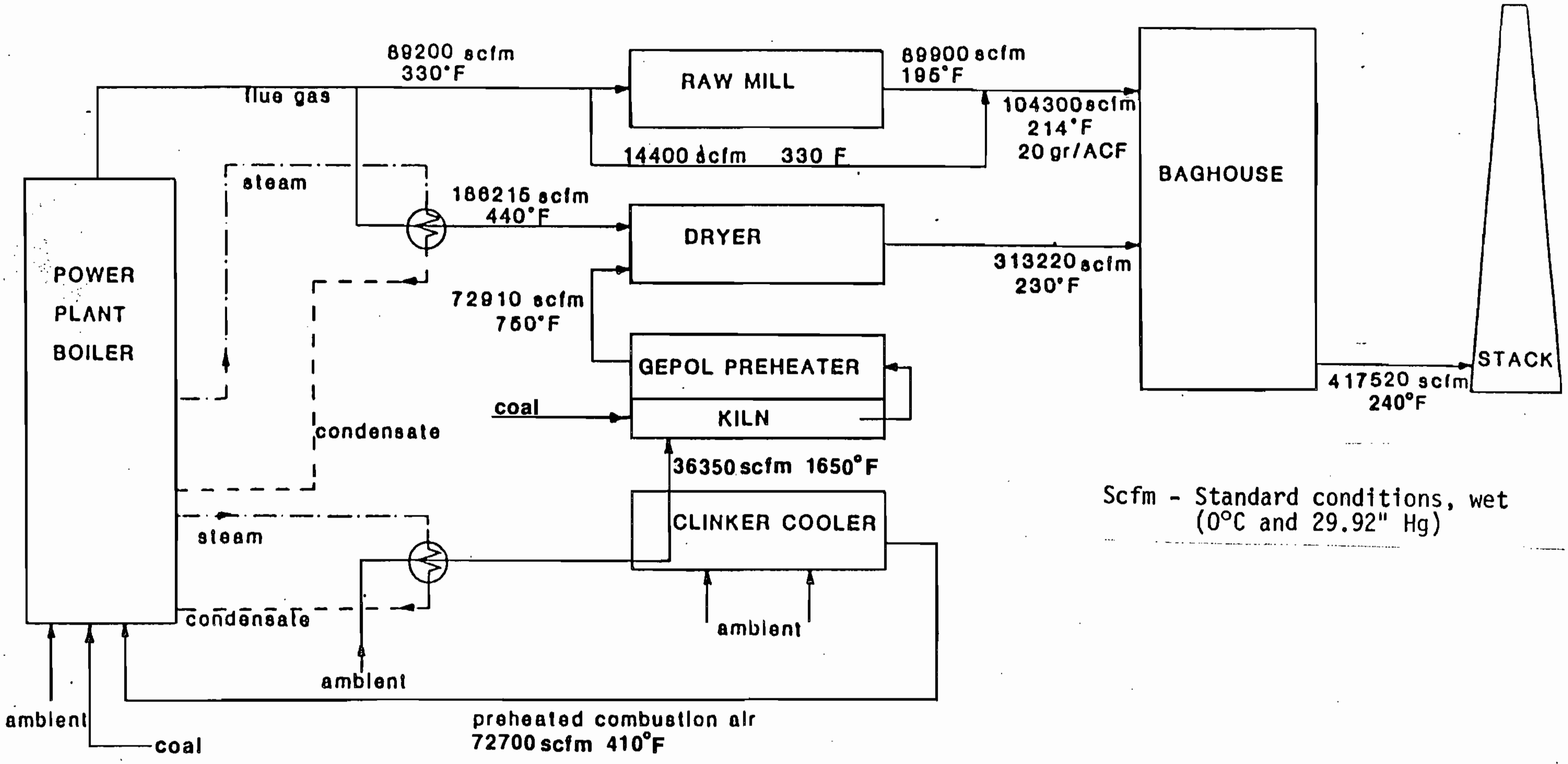
POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

Florida Crushed Stone Company

P.O. Box 317

Leesburg, Fla. 32748

Revised 10/29/82



Scfm - Standard conditions, wet
(0°C and 29.92" Hg)

POWER PLANT OPERATING/CEMENT PLANT OPERATING

P.O. Box 317

Florida Crushed Stone Company

Leesburg, Fla. 32748

Revised 10/29/82

SUMMARY OF NEW SOURCE IMPACTS
ON CLASS I PSD AREAS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

	Sulfur Dioxide Impact (ug/m3)					
	Annual		24-Hour		3-Hour	
Year	FCS	All New	FCS	All New	FCS	All New
1973	0.6 ✓	0.6 ✓	4.1 ✓	4.4 ✓	17.5 ✓	✓ 19.1
1974	0.6 ✓	0.7 ✓	4.1 ✓	4.3 ✓	~~17.3~~ 19.4	✓ 17.6
1975	0.6 ✓	0.7 ✓	4.7 ✓	4.7 ✓	~~18.1~~ 20.0	✓ 20.1
1979	0.5 ✓	0.6 ✓	4.4 ✓	4.7 ✓	✓ 15.4	✓ 16.6
1981	0.5 ✓	0.5 ✓	3.5 ✓	3.6 ✓	✓ 16.4	✓ 16.4

	Particulate Matter Impact (ug/m3)			
	Annual		24-Hour	
Year	FCS	All New	FCS	All New
1973	0.1 ✓	~~0.4~~ .3	~~1.0~~ 1.4	~~1.8~~ 1.6
1974	0.1 ✓	0.3 ✓	~~0.9~~ .8	1.5 1.3
1975	0.1 ✓	0.3 ✓	✓ 0.8	1.5 ✓
1979	0.1 ✓	0.3 ✓	0.8 .9	~~1.3~~ 1.5
1981	0.1 ✓	~~0.3~~ .4	~~0.8~~ 1.0	~~1.6~~ 1.8

ATTACHMENT 8

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 10, 1983

Richard Entorf
Senior Vice-President
Florida Crushed Stone Company
P. O. Box 317
Leesburg, Florida 32748

Subject: Proposed 125 MW Electric Co-generating Plant -
Brooksville, Florida

Dear Mr. Entorf:

We have found inaccuracies in the meteorological data used to analyze the impacts of the proposed power plant on the air quality in the vicinity of the proposed power plant site and in the Chassahowitzka Class I PSD area. These inaccuracies would change the values of the predicted air quality impacts due to particulate matter and sulfur dioxide emissions from the proposed power plant. These values are summarized in Table 6-2 of the air quality review which was submitted as part of the original power plant siting application. In addition, these inaccuracies would change the values of the predicted air quality impacts on the Chassahowitzka Class I area contained in the December 27, 1982 letter from Holland and Knight to the Department.

Since the predicted 24-hour average and annual average particulate matter impacts shown in Table 6-2 are extremely close to their respective ambient standards, we require these impacts to be determined from accurate meteorological data. Table 6-2 in the air quality review should be updated to reflect these changes. In addition, the predicted sulfur dioxide impacts on the Class I PSD area as shown in the table in the December 27, 1982 letter are very close to the maximum allowable 24-hour average Class I PSD increment. Again, we require these impacts to be determined from accurate meteorological data, with the results summarized in a table.

Moreover, the air quality impact values presently shown in Table 6-2 and in the December 27, 1982, letter do not reflect the reduced impacts due to the reduction of calculated emissions from the power plant stack and the proposed reduction in particulate matter emissions from the cement plant portion of your proposed project. Consequently, the required reanalysis may result in air quality impact values that are somewhat less than the previous values.

Within the past two weeks, the Department has communicated the details of these inaccuracies to your consultant, Dr. John Koogler of Sholtes and Koogler, Environment Consultants. He has already provided the Department with some of the corrected information we require to continue processing this application, and he is in the process of providing the remainder of this required information.

Even though the corrected information may show smaller air quality impact values, these values are still likely to be close to air quality standards and PSD increments. Because of this, we are concerned about the impact this project will have on future, proposed industrial projects in the Hernando County area. Therefore, we are also requesting that you provide additional socioeconomic information that will address this concern.

If you have any questions concerning these matters, please call Cleve Holladay at 904-488-1344.

Sincerely,

Hamilton S. Oven, Jr.
Hamilton S. Oven, Jr., P.E.
Administrator
Power Plant Siting Section

HSO/CH/bjm

cc: C. H. Fancy
J. Koogler

ATTACHMENT 9

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 18, 1983

CERTIFIED MAIL

Mr. Richard Entorf
Senior Vice-President
Florida Crushed Stone Company
P. O. Box 317
Leesburg, Florida 32748

Subject: Cement Plant, AC 27-16016, etc., Brooksville, Florida
Cement Plant/Power Plant, PSD-FL-090 and FL-091

Dear Mr. Entorf:

The Department has received the revised applications of February 16, 1983, concerning your permit applications for all sources associated with your proposed cement plant. We also received additional information (SKEC 307-82-02), the letter to Larry Curtin from John Koogler dated February 24, 1983.

After reviewing your revised applications and additional information, we have some questions on the revised flow diagrams:

1. Why does the clinker cooler exhaust have two different temperatures, 410°F and 1650°F?

2. The temperature of raw mill by-pass gases is 338°F and the temperature of clinker cooler exhaust to raw mill is 410°F on the flow chart of cement plant operation only. What is the reason the temperature drops from 410°F to 338°F?

3. Comparing the two revised flow diagrams, we have some questions on the input and output temperature balance for some equipment. Please give detailed energy balances for each piece of equipment--raw mill, dryer, kiln and cooler. Submit all the input and output temperatures of each piece of equipment under two conditions: cement plant operating only, and cement plant operating with power plant operating.

Protecting Florida and Your Quality of Life

Richard Entorf
March 18, 183
Page Two

Also contained in the letter from John Koogler dated February 24, 1983, was information responding to questions the Department had asked him by telephone concerning the impact of emissions from the combined cement plant/power plant on the Chassahowitzka Class I PSD area. The Department sent a letter to you on March 10, 1983, formally requesting that a response to these questions be provided as part of the power plant siting application for this project. In that letter we also stated that we had found inaccuracies in the meteorological data used to analyze the impacts of the proposed cement plant/power plant on the air quality in the vicinity of the proposed project, and we requested that these impacts be determined from accurate meteorological data. The information requested in that letter (except for the additional socioeconomic impact information) is also required by the Bureau before we can continue processing the state permit applications for the cement plant and federal PSD permit application for the proposed cement plant/power plant project. Please send us a copy of the information you provide the Power Plant Siting Section as a response to the March 10 letter. You do not have to send us a duplicate of the modeling output.

When all the required information is received, we will resume processing your applications. If you have any questions on the data requested, please contact Bill Thomas, Bob King or Cleve Holladay at (904)488-1344.

Sincerely,

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

CHF/CH/bjm

cc: John Koogler
Dan Williams

ATTACHMENT 10

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-02

DER
MAR 21 1983
BAQM

March 18, 1983

Mr. Larry Curtin
Holland & Knight
92 Lake Wire Drive
Lakeland, Florida 33802

Subject: Florida Crushed Stone Company
Proposed Cement Plant/Power Plant
Hernando County, Florida

Dear Larry,

The enclosed information has been developed in response to Buck Oven's letter of March 11, 1983 to Dick Entorf and to supplement the material I provided to you under cover of my letter of February 24, 1983. The information is related to the air quality review which has been prepared to evaluate the impact of the proposed Florida Crushed Stone cement plant/power plant on ambient air quality.

In my letter to you of February 24, 1983, I provided revised information showing the impact of the proposed cement plant/power plant on the Chassahowitzka Class I PSD area. The information was based on meteorological data for calendar years 1973, 1974, 1975, 1979 and 1981. Meteorological data for calendar year 1978 were not included in the air quality review at that time because a portion of the data had not been received from the National Clamatic Center in Asheville, North Carolina.

Subsequent to that time, we received the mixing height data for calendar year 1978 and have evaluated the impact of sulfur dioxide and particulate matter emissions from the proposed cement plant/power plant on the Chassahowitska Class I PSD area using these meteorological data. The impact of the proposed Florida Crushed Stone sources, under 1978 meteorological conditions, are summarized in Table 1. Also, included in Table 1 are the data which were included in my February 24 letter.

A review of these data show that the sources proposed by Florida Crushed Stone can be constructed without causing or contributing to a violation of the Class I PSD increments for either sulfur dioxide or particulate matter. The maximum sulfur dioxide impacts at the Class I PSD area for all new sources in the vicinity of the Florida Crushed Stone site are 0.7 micrograms per cubic meter, annual average; 4.7 micrograms per cubic meter, 24-hour average; and 20.1 micrograms per cubic meter, 3-hour average. These impacts compared with allowable Class I sulfur dioxide increments of 2.0 micrograms per cubic meter, annual average; 5.0 micrograms per cubic meter, 24-hour average; and 25.0 micrograms per cubic meter, 3-hour average.

The maximum particulate matter impacts at the Class I area boundary from all new sources in the vicinity of the proposed Florida Crushed Stone site are 0.4 micrograms per cubic meter, annual average, and 1.8 micrograms per cubic meter, 24-hour average. These impacts compare with allowable Class I PSD increments for particulate matter of 5.0 micrograms per cubic meter, annual average and 10.0 micrograms per cubic meter, 24-hour average. It should be noted that particulate matter emissions from some of the smaller bag collectors in the proposed Florida Crushed Stone cement plant have been modified slightly since this portion of the air quality review was completed. The overall emission rates from the affected sources change by less than 0.5 percent, however. This slight change in emission rate is not expected to have an effect on the predicted impacts of particualte matter emissions on the Class I area.

The impact of Florida Crushed Stone emissions on the Class I PSD area calculated with 1978 meteorological data plus the Class I PSD impact analyses that I provided under cover of my letter of February 24, 1983 completely updates the Class I area air quality review that you provided FDER under cover of your letter dated December 27, 1982. The current impact analyses also reflect the latest changes in source emission data and correct the inconsistencies in the 1975 and 1978 meteorological data.

In addition to revising the Class I PSD area air quality review, the Class II PSD air quality review has also been revised to take into consideration the changes in particulate matter emissions from several sources in the proposed cement plant and to use meteorological data for the periods 1973, 1974, 1975, 1978 and 1979 from Tampa, Florida. The use of these meteorological data make the air quality review for the Class II PSD area consistent with the air quality review conducted for the Class I PSD area.

In addition to these revisions, the air quality review for particulate matter is now based on actual emissions from two major existing particulate matter emitting sources in the Hernando County area. These are the Chemical Lime Company which is totally owned by Florida Crushed Stone and the existing particulate matter sources at the Florida Mining and Materials Company cement plant.

The Chemical Lime Company operates a lime kiln, a hydrator, a limestone dryer and a lime bagging plant. The present FDER operating permits, the allowable particulate matter emission rate and the actual particulate matter emission rates associated with these sources are:

		Particulate Matter (lb/hr)	
Source	Permit	Allowable	Actual
Kiln	A027-55581	21.7 2.73	18.0 2.26
Hydrator	A027-25269	14.0 1.77	14.0 1.77
Dryer	A027-50400	33.3 4.19	16.0 2.02
Bagging	A027-17352	12.0 1.51	6.0 .76
		10.20	6.81

The Chemical Lime Company is willing to modify the operating permits for these sources to reflect the actual emission rates used in this air quality review if required by FDER.

Particulate matter emission rates from existing Florida Mining and Materials sources were similarly reduced to reflect actual emissions. This was done so that the air quality review results would more realistically represent ambient particulate matter concentrations in the vicinity of the Florida Mining and Material plant. The original air quality review conducted for Florida Crushed Stone indicated an annual average of particulate matter concentration near the Florida Mining and Materials plant of 59 micrograms per cubic meter; compared with an air quality standard of 60 micrograms per cubic meter. Unreported short-term modeling in the vicinity of Florida Mining and Materials further indicated that the 24-hour air quality standard of 150 micrograms per cubic meter would be exceeded if the existing particulate matter sources were emitting at the permitted emission rates.

The Florida Mining and Materials sources for which emission rates were modified, the source permit numbers and the emission rates allowed by permit, the emission rates reported to FDER and emission rates used in the modeling are:

		Particulate Matter (lb/hr)		
Source	Permit	Allowable	Actual	Modeled
Raw Materials Storage	A027-31412	37.0	1.3 .16	2.6 .33
Raw Materials Gnd.	A027-31411	37.0	1.0 .13	2.6 .33
Kiln	A027-20213	36.9	26.2 3.30	36.9 4.65
.0045% → Cooler	A027-41208	34.2	12.0 1.51	24.0 3.02
142,500/hr Clinker Gnd.	A027-31410	36.0	6.4 .80	12.6 1.59
Bottom Blend	A027-31413	37.0	1.0	5.0 .63
Clinker Silo	A027-31409	34.2	1.7	1.7 .21
Clay Crush	A027-31408	26.4	2.1	5.0 .63
Product Storage 142,000 lb/hr	A027-31406 .002%	34.2	1.3 →	5.0 .63
		312.9	51.0	95.4

The revised particulate matter emission data from the Florida Crushed Stone sources, the "actual" particulate matter emission rates from the Chemical Lime and Florida Mining and Materials sources, meteorological data from the period 1973 through 1979 from Tampa, Florida and emission rates particulate matter and sulfur dioxide or other sources in the area as used in the previous air quality review were used as input to the ISC-ST model to evaluate the impact of new and existing sources on ambient air quality. A preliminary receptor grid was used with this model to determine the location of the maximum particulate matter and sulfur dioxide impacts for all 3-hour and 24-hour time periods from the Florida Crushed Stone sources, from all new sources and from all sources (new plus existing sources). The preliminary receptor grid used in the modelling is shown in Figure 1.

The results of the air quality modeling were reviewed and the second highest particulate matter and sulfur dioxide impacts for all time periods and source groups were selected. These impacts are summarized in the bound volume of modeling results. From this summary, the highest second-high of particulate matter impacts from various source groups for the 24-hour period were selected and the highest second-high sulfur dioxide impacts for the 3-hour and 24-hour periods from various source groups were selected. The meteorological data resulting in these impacts were again input into the ISC-ST model with a receptor grid which would allow the determination of the maximum impact within 0.1 kilometers. The results of this modeling are summarized in Table 2 and Figures 2 and 3.

The short-term modeling results indicate that the sulfur dioxide emissions from the Florida Crushed Stone sources and all new sources combined are well below the Class II PSD increments for both the 3-hour and the 24-hour period. The modeling also shows that the sulfur dioxide emissions from the proposed Florida Crushed Stone sources, when combined with all other new and existing sulfur dioxide emitting sources in the area result in maximum 3-hour and 24-hour ambient impacts which are well below the 3-hour and 24-hour sulfur dioxide air quality standards.

The results of the short-term particulate matter modeling show that the 24-hour particulate matter impact of emissions from the proposed Florida Crushed Stone sources is 6 micrograms per cubic meter. This is approximately half the impact reported in the previous air quality review and is a result of a reduction in the proposed particulate matter emissions from the proposed cement plant. The impact of the proposed Florida Crushed Stone emissions combined with particulate matter emissions from other new sources in the area result in a maximum 24-hour impact of 7 micrograms per cubic meter compared with an allowable Class II PSD incremental impact of 37 micrograms per cubic meter. The impact of all particulate matter emitting sources in the area (new and existing) is 144 micrograms per cubic meter compared with a 24-hour air quality standard of 150 micrograms per cubic meter. This impact includes a background particulate matter concentration of 112 micrograms per cubic meter and reflects actual particulate matter emissions from the Chemical Lime Company sources and the existing Florida Mining and Materials sources.

The annual average impacts of sulfur dioxide and particulate matter emissions were determined with the ISC-LT model. Meteorological data for calendar years 1973, 1974, 1975, 1978 and 1979 were summarized in the STAR format with six stability classifications for use in this model. The sulfur dioxide and particulate matter emission rates as used in the short-term modeling were input to the model with a receptor grid covering a 15 x 15 kilometer area. Receptor spacings of 1.0 kilometers were used. The results of this modeling are summarized in Table 2 and Figures 4 through 9.

The results of the long-term modeling show that the impact of sulfur dioxide emissions from all new sources is 6 micrograms per cubic meter compared with a Class II PSD increment of 20 micrograms per cubic meter. The maximum annual average impact of all existing sources in the area is 20 micrograms per cubic meter and the maximum impact of all sources (new and existing) is 22 micrograms per cubic meter. This impact compares with an annual sulfur dioxide ambient air quality standard of 60 microgrms per cubic meter. The maximum annual average impact of sulfur dioxide emissions from the proposed Florida Crushed Stone source, as determined from the ISC-ST model, is 1.8 micrograms per cubic meter.

The long-term modeling of particulate matter emissions shows a new source impact of 2 micrograms per cubic meter compared with an annual Class II PSD increment for particulate matter of 19 micrograms per cubic meter. The maximum impact of all existing sources in the area is 50 micrograms per cubic meter including a background concentration of 34 micrograms per cubic meter. The maximum annual particulate matter impact of all sources (new plus existing) is 51 micrograms per cubic meter including a background of 34 micrograms per cubic meter. This impact compares with an annual average of particulate matter air quality standard of 60 micrograms per cubic meter. The maximum annual impact of particulate matter emissions from proposed Florida Crushed Stone sources, as determined by the ISC-ST model, is 0.7 micrograms per cubic meter.

One matter that was raised by FDER during the review of the air quality modeling was the impact of emissions at the Deltona site. The Deltona Corporation operates an asphalt batching plant on property leased from Florida Crushed Stone. FDER stated that this property might be considered property to which "the general public" has access and ask that the impact of the emissions be evaluated at this point. The modeling results show that the maximum annual sulfur dioxide impact at this source is 10 micrograms per cubic meter; the maximum 24-hour impact is 60 micrograms per cubic meter and the maximum 3-hour impact is 91 micrograms per cubic meter. These impacts result from emissions from all sources in the area and are well below applicable ambient air quality standards.

The maximum annual particulate matter impact from all sources at the Deltona site is 38 micrograms per cubic meter including a background concentration of 34 micrograms per cubic meter and the maximum 24-hour concentration at the site is 142 micrograms per cubic meter including the background concentration of 112 micrograms per cubic meter. Both of these impacts are below the air quality standards for particulate matter. The new source particulate matter impact for the 24-hour period at the Deltona site is 5 micrograms per cubic meter which is well below the Class II PSD increment for particulate matter of 37 micrograms per cubic meter.

In the March 10 letter to Florida Crushed Stone, FDER also asked for socioeconomic information related to possible limits on development in Hernando County as a result of the consumption of air quality and PSD increments. This request resulted from predicted 24-hour average and annual average of particulate matter impacts being near the air quality standards and the projected 24-hour sulfur dioxide impact of the Class I area being close to the allowable Class I PSD increment. The revised particulate matter modeling presented herein, incorporating reduced emission rates from the Florida Crushed Stone sources and actual particulate matter emissions from the Chemical Lime Company sources and existing Florida Mining and Materials mining sources, indicates there is a reasonable increment remaining between maximum 24-hour and annual average particulate matter impacts and the applicable air quality standards. The modeling shows that there is a 6 micrograms per cubic meter increment between the maximum 24-hour impact of 144 micrograms per cubic meter and the 24-hour particulate matter air quality standard of 150 micrograms per cubic meter. Considering the fact that the maximum 24-hour particulate matter impact from the cement plant/power plant proposed by Florida Crushed Stone is 6 micrograms per cubic meter, one could conclude that an identical facility could be built at the same site without exceeding the 24-hour air quality standard for particulate matter of 150 micrograms per cubic meter. Since such a facility can be constructed at the same site without violating the 24-hour particulate matter air quality standard, it is reasonable to assume that projects of equal size or larger could reasonable be constructed anywhere in the vicinity of the proposed Florida Crushed Stone site without violating the 24-hour particulate matter air quality standard.

A similar argument can be presented for the annual average particulate matter standard. The increment of between the maximum predicted annual average particulate matter impact of 51 micrograms per cubic meter and the annual average particulate matter air quality standards of 60 micrograms per cubic meter is nine micrograms per cubic meter. In contrast, the maximum annual average impact of emissions from the proposed Florida Crushed Stone complex is less than one microgram per cubic meter. It is apparent that several sources of the size of the proposed Florida Crushed Stone facility can be constructed in the vicinity of the Florida Crushed Stone site without threatening the annual average particulate matter standard.

The maximum sulfur dioxide impacts of all sources, for all time periods are well below the applicable air quality standards and the sulfur dioxide impacts of all new sources on the Class II area are well below applicable Class II PSD increments for all time periods. Additionally, the annual and 24-hour impact of new particulate matter sources are well below the Class I and Class II PSD increments. From this it can be concluded that sulfur dioxide air quality standards, Class II PSD area sulfur dioxide increments and Class I and II PSD area particulate matter increments will not limit growth and development in the Hernando County area.

New source sulfur dioxide emissions from the Hernando County area on the Chassahowitzka Class I PSD area represent the greatest potential for limiting sulfur dioxide emitting developments in Hernando County. An adequate portion of the annual Class I area PSD increment will remain even after the construction of the proposed Florida Crushed Stone sources. The maximum annual impact of new souce sulfur dioxide emissions on the Class I PSD area is 0.7 micrograms per cubic meter compared with an annual Class I PSD sulfur dioxide increment of 2 micrograms per cubic meter. As a point of reference, the maximum annual impact of sulfur dioxide emissions from the proposed Florida Crushed Stone cement plant/power plant is 0.6 micrograms per cubic meter. This indicates that two additional facilities, with sulfur dioxide emissions equal to the proposed Florida Crushed Stone facility, can be built in the immediate vicinity of the Florida Crushed Stone site without violating the annual Class I PSD area sulfur dioxide increment.

The 3-hour impact of sulfur dioxide emissions from all new sources on the Class I PSD area is 20.1 micrograms per cubic meter compared with a Class I increment of 25 micrograms per cubic meter. The maximum 3-hour impact of the Florida Crushed Stone facility on the Class I area is 18.2 micrograms per cubic meter; 1 microgram per cubic meter from the cement plant and 17.2 micrograms per cubic meter from the power plant. From these data, it can be deduced that a source with a stack height of approximately 300 feet and a sulfur dioxide emission rate of approximately 400 pounds per hour can be built in the vicinity of the Florida Crushed Stone site without exceeding the 3-hour sulfur dioxide Class I PSD increment. Sources with a greater emission rates or sources with lower emission rates and also a lower stack heights can be constructed north, east or south of the Florida Crushed Stone site without exceeding the 3-hour Class I PSD increment for sulfur dioxide. Sources constructed west of the proposed Florida Crushed Stone site will be limited to sulfur dioxide emission rates of less than 400 pounds per hour with a stack height of 300 feet or some combination of higher emissions and a higher stack height or lower emissions and a lower stack height. As a point of reference, the sulfur dioxide emission rate from the proposed Florida Crushed Stone cement plant is 80.0 pounds per hour.

The maximum 24-hour impact of all new sulfur dioxide emitting sources on the Class I PSD area is 4.7 micrograms per cubic meter. This compares with Class I 24-hour sulfur dioxide impact increment of 5.0 micrograms per cubic meter and results with winds blowing from an easterly direction. The 0.3 microgram per cubic meter increment remaining will result in some limitation on the construction of sources to the east and west of the proposed Florida Crushed Stone site. A facility locating adjacent to the Florida Crushed Stone site with a 300 foot stack would be limited to a sulfur dioxide emission rate of approximately 95 pounds per hour. With a 200 foot stack height, the facility would be limited to a sulfur dioxide emission rate of approximately 50 pounds per hour; with a 100 foot stack, the sulfur dioxide emission rate would be limited to approximately 40 pounds per hour; and with a 50 foot stack height, the sulfur dioxide emission rate would be limited to approximately 30 pounds per hour. Sources locating west of the Florida Crushed Stone site will be more limited in sulfur dioxide emissions while sources locating east of the Florida Crushed Stone site will be able to have a greter sulfur dioxide emission rate. Also, sources which operate 8 to 12 hours per day will be able to have sulfur dioxide emission rates two to three times the emission rates stated above. This is a result of averaging into the 24-hour period hours when the source would not be operating and the more favorable meteorological dispersion conditions which exist during the daylight hours.

To place in ~~prospective~~ perspective the emission rates stated in the above paragraph, the proposed Florida Crushed Stone cement plant has a sulfur dioxide emission rate of 80 pounds per hour. The Florida Mining and Materials cement plant kilns have emission rates of less than 10 pounds per hour. A 200 tons per hour asphalt batching plant will have a sulfur dioxide emission rate of approximately 80 pounds per hour. A source with an allowable sulfur dioxide emission rate of 100 pounds per hour will be capable of generating approximately 80 million BTU's per hour of heat. This translates, in terms of electric power, to approximately a 8 megawatts of electric power output.

The source emission limits considered in the above paragraphs are for sources locating to the east or west of the Florida Crushed Stone site. For sources locating north or south of the Florida Crushed Stone site, emission limitations will be less restricted. It has been estimated, using the Class I PSD area impact modeling conducted for Florida Crushed Stone, that a source locating approximately five miles to the north or south of Florida Crushed Stone will be able to have a sulfur dioxide emission rate of approximately 250 pounds per hour without the combined new source sulfur dioxide impact exceeding 5.0 micrograms per cubic meter in the Class I area or a 24-hour period. Again, sources locating to the east of Florida Crushed Stone as well as north or south will be able to have greater emissions while sources locating to the west as well as north or south will be more restircted in sulfur dioxide emissions. The 250 pounds per hour emission rate is referenced to a 300 foot stack height. With a 200 foot stack height, the sulfur dioxide emission rate would be limited to approximately 125 pounds per hour, with a 100 foot stack, to approximately 100 pounds per hour; and with a 50 foot stack, to approximately 80 pounds per hour.

The socioeconomic analysis provided herein has demonstrated that there will be a limited restriction on new sources of sulfur dioxide proposing to locate in certain areas of Hernando County. The analyses further demonstrates that this limitation will apply to rather large sources of sulfur dioxide emissions operating 24-hours per day. Sources locating five or more miles to the north or south of the Florida Crushed Stone site will be able to have sulfur dioxide emission rates of up to 100 pounds per hour with stack heights of 50 to 75 feet and emission rates of up to 250 pounds per hour with stack heights of 300 feet. Taking into consideration, the Best Available Control Technology requirements imposed by the Florida Department of Environmental Regulation on new sources and the Class I PSD increments increments remaining for sulfur dioxide and particulate matter for the various time periods, it can be concluded that very few, if any, sources will actually be prevented from locating in Hernando County.

The items presented herein have addressed the issues raised in the FDER letter of March 10, 1983 and other matters which I have discussed with the FDER staff. If you have any questions regarding this information or feel additional response is required, please give me a call.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:ldh
Enclosures

cc: Mr. Clair Fancy (with enclosures)
Mr. Richard Entorf (with enclosures)

TABLE 1

SUMMARY OF NEW SOURCE IMPACTS
ON CLASS I PSD AREAS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

	Sulfur Dioxide Impact (ug/m^3)						
	Annual		24-Hour		3-Hour		
Year	FCS	All New	FCS	All New	FCS	All New	
1973	0.6	0.6	4.1	4.4	17.5	19.1	
1974	0.6	0.7	4.1	4.3	~~17.3~~ 17.4	17.6	
1975	0.6	~~0.7~~ 0.7	4.7	4.7 4.7	~~18.1~~ [illegible]	20.1	20
*1978	0.5	0.6	4.1	4.1	18.2	18.2	
1979	0.5	0.6	4.4	4.7	15.4	16.6	
1981	0.5	0.5	3.5	3.6	16.4	16.4	

	Particulate Matter Impact (ug/m^3)			
	Annual		24-Hour	
Year	FCS	All New	FCS	All New
1973	0.1	0.4	1.0	1.8
1974	0.1	0.3	0.9	1.5
1975	0.1	0.3	0.8	1.5
*1978	0.1	0.3	0.9	1.8
1979	0.1	0.3	0.8	1.3
1981	0.1	0.3	0.8	1.6

Model: ISC-ST
Met Data: Tampa/Tampa
Years - 1973, 74, 75, 78, 79, 81 (1976, 77 & 80 not available)
Data pre-processed with FDER program

*Added 3/16/83

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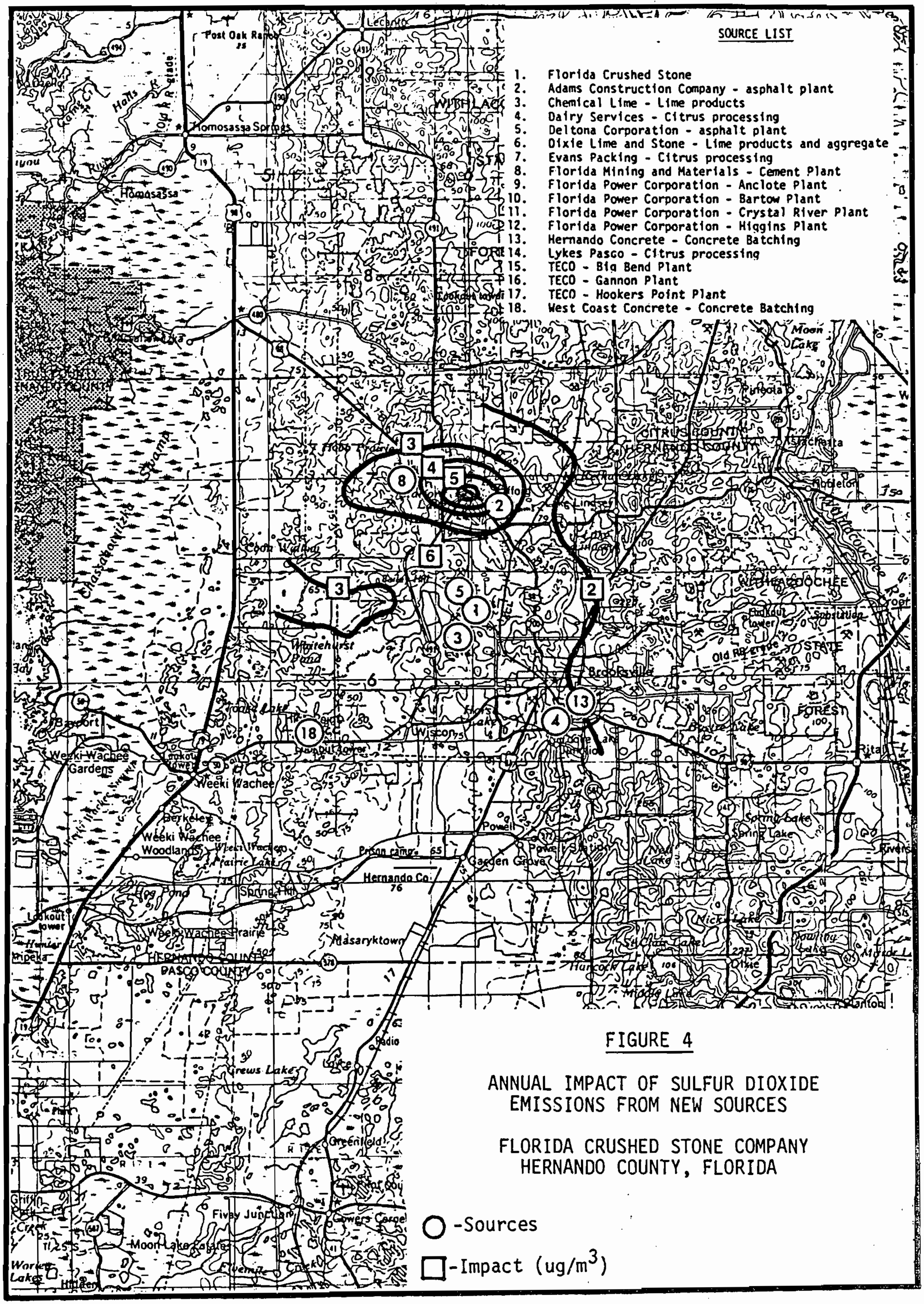
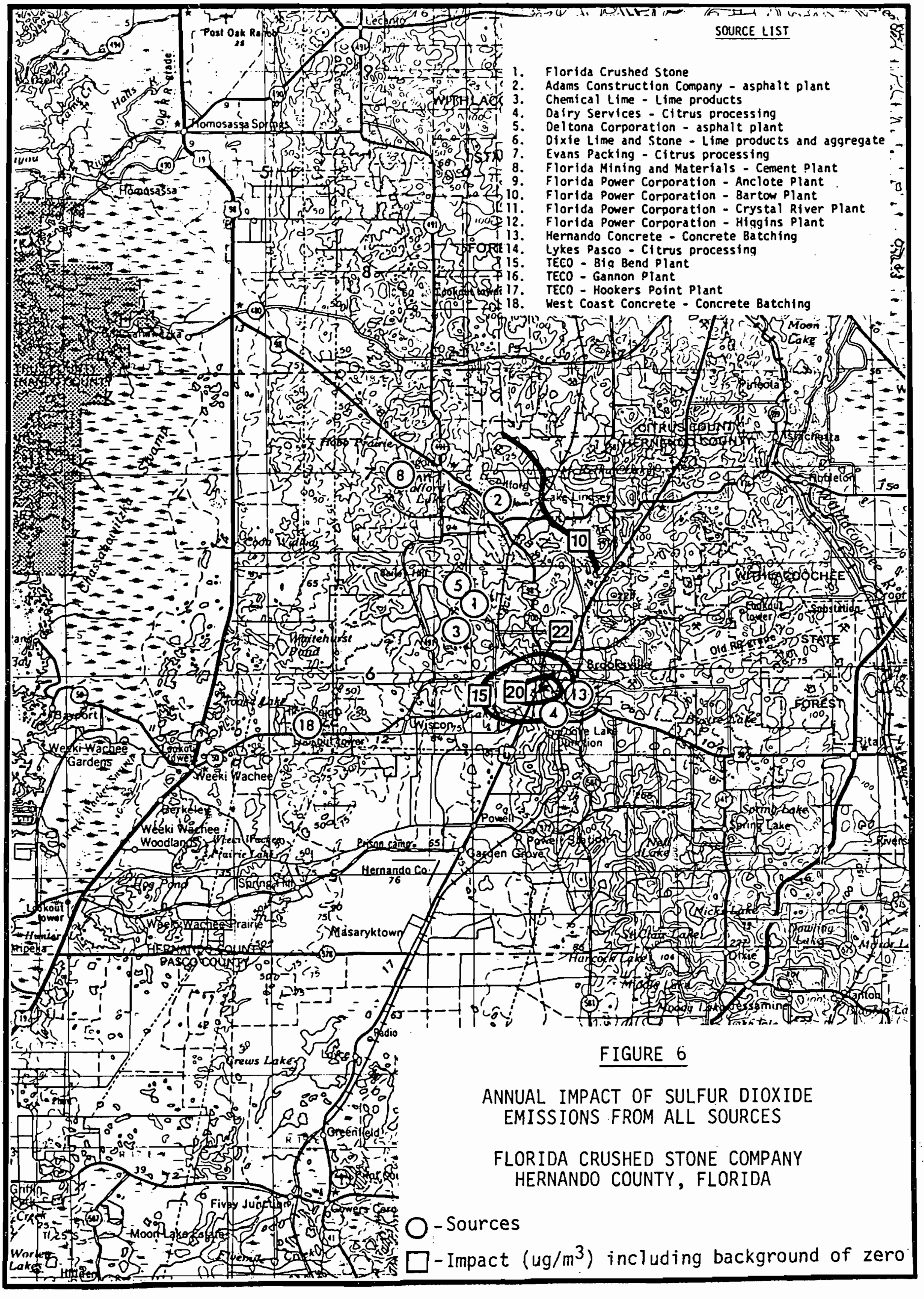


FIGURE 4

ANNUAL IMPACT OF SULFUR DIOXIDE EMISSIONS FROM NEW SOURCES

FLORIDA CRUSHED STONE COMPANY HERNANDO COUNTY, FLORIDA

BEST AVAILABLE COPY



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 6

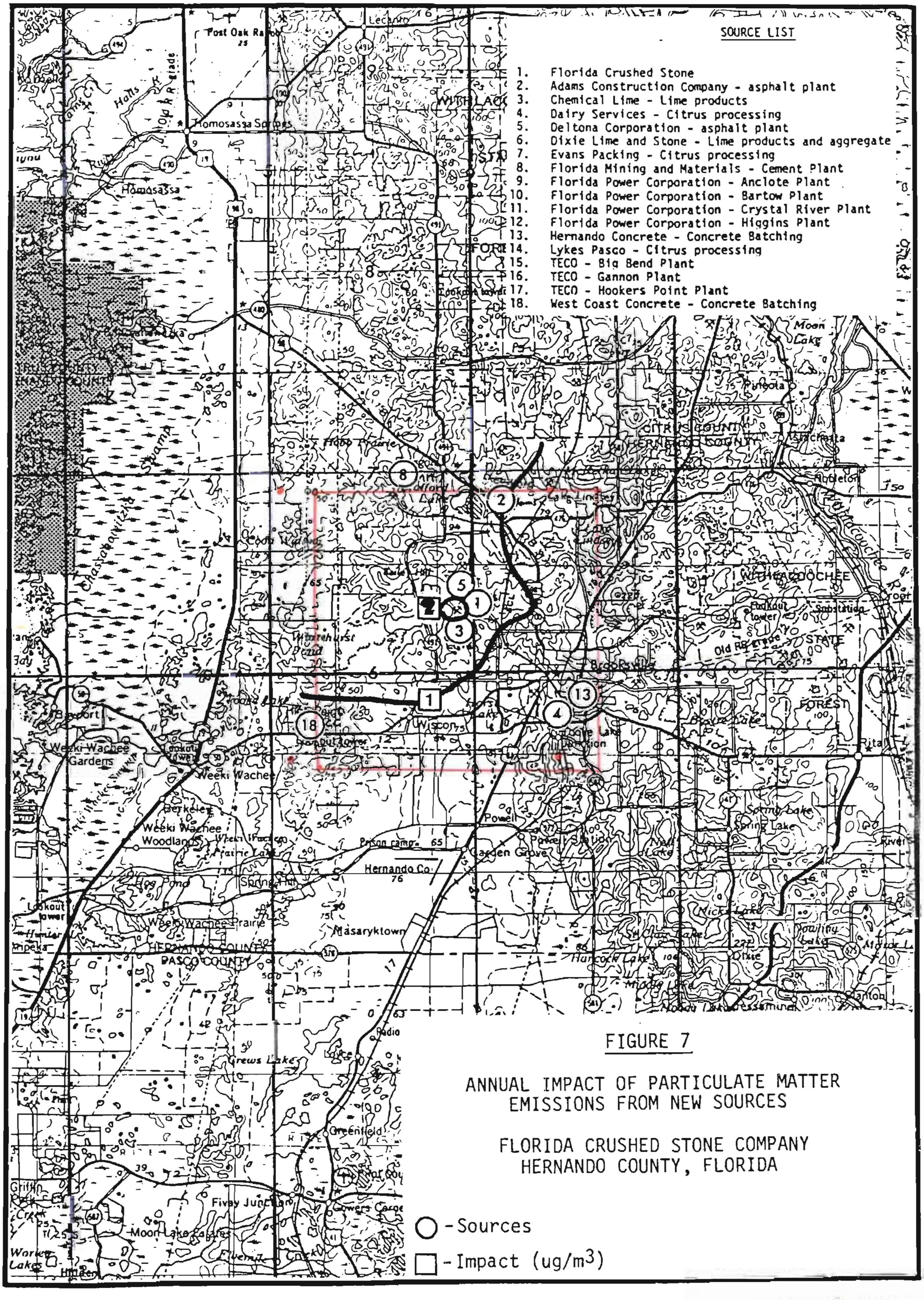
ANNUAL IMPACT OF SULFUR DIOXIDE
EMISSIONS FROM ALL SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources

□ - Impact (ug/m^3) including background of zero

Best Available Copy



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

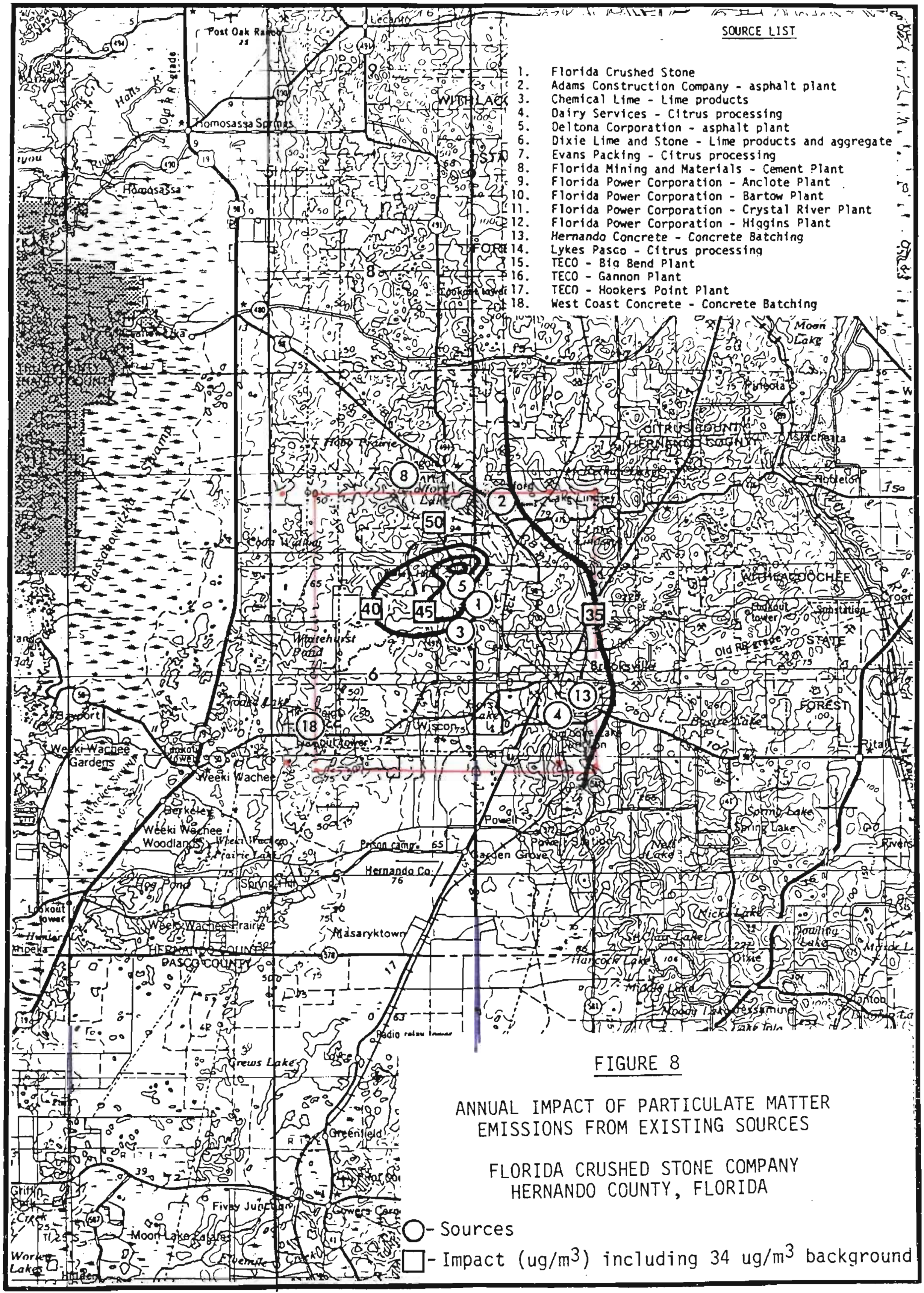
FIGURE 7

ANNUAL IMPACT OF PARTICULATE MATTER EMISSIONS FROM NEW SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ -Sources
□ -Impact (ug/m3)

Best Available Copy



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
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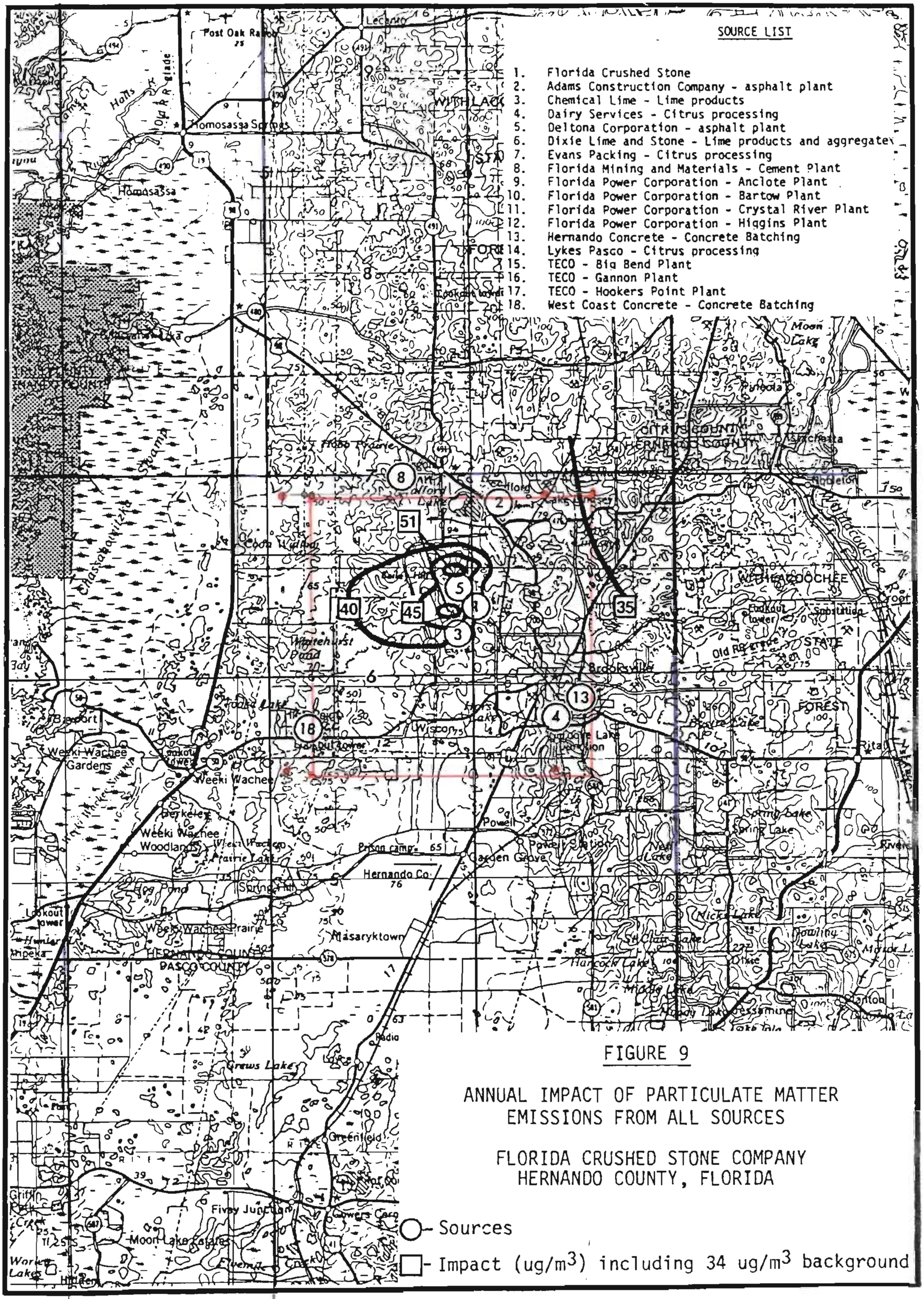
14. Lykes Pasco - Citrus processing
15. TECO - Big Bend Plant
16. TECO - Gannon Plant
17. TECO - Hookers Point Plant
18. West Coast Concrete - Concrete Batching

FIGURE 8

ANNUAL IMPACT OF PARTICULATE MATTER EMISSIONS FROM EXISTING SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources
☐ - Impact (ug/m^3) including 34 ug/m^3 background



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 9

ANNUAL IMPACT OF PARTICULATE MATTER EMISSIONS FROM ALL SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○- Sources

□- Impact (ug/m^3) including 34 ug/m^3 background

ATTACHMENT 11

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-02

March 29, 1983

DER
MAR 30 1983
BAQM

Mr. Clair H. Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Subject: Florida Crushed Stone Company
Hernando County, Florida
Cement Plant-AC27-16016 and PSD-FL-090
Power Plant-PSD-FL-091

Dear Mr. Fancy:

The information contained herein is in response to your letter of March 18, 1983 to Mr. Richard Entorf of the Florida Crushed Stone Company. In that letter you raised some questions regarding gas flow rates and gas temperatures that were addressed in my letter of February 24, 1983 to Mr. Larry Curtin; a copy of which was sent to you. You also requested that information requested in your letter of March 10, 1983 addressing the air quality review prepared for the power plant siting application be submitted directly to you so that you could continue processing the State Air Pollution Source Construction Permit for the cement plant and the Federal PSD Permit Applications for the proposed cement plant and power plant.

<u>Cement Plant and Power Plant Gas Flow Diagrams</u>

1. The clinker cooler exhausts shown in the two attached flow diagrams are at two different temperatures; 1650 degrees F and 410 degrees F. The reason for these two temperatures is that the two gas streams are taken from the clinker cooler at different points. The 1650 degree gas stream is withdrawn from the clinker cooler near the feed end of the cooler where the 2200-2300 degree clinker has heated the cooling gas to this temperature. The 410 degree gas stream is withdrawn from the cooler near the discharge end of the cooler.

2. The response to Items 2 and 3 of your March 18, 1983 letter can be answered by referring to the revised flow diagrams attached hereto. Regarding your second

question, there was an error on the flow sheet showing the gas flow with the cement plant only operating. This has been corrected on the attached flow diagram. Regarding your third question, the revised flow diagrams show the input and output temperatures to each piece of equipment and show the material feed rate to each piece of equipment.

Air Quality Review

A copy of my letter dated March 18, 1983 to Mr. Larry Curtin, a copy of which was forwarded to you,addessed the matters relating to the air quality review addressed in your letter of March 11, 1983. Another copy of that letter is attached hereto.

If you have any other questions regarding any of the subject permit applications, we would appreciate it if you will relay the questions to us by telephone and follow the verbal request by letter. This method of correspondence will enable us to provide you with any additional information you might need as expeditiously as possible.

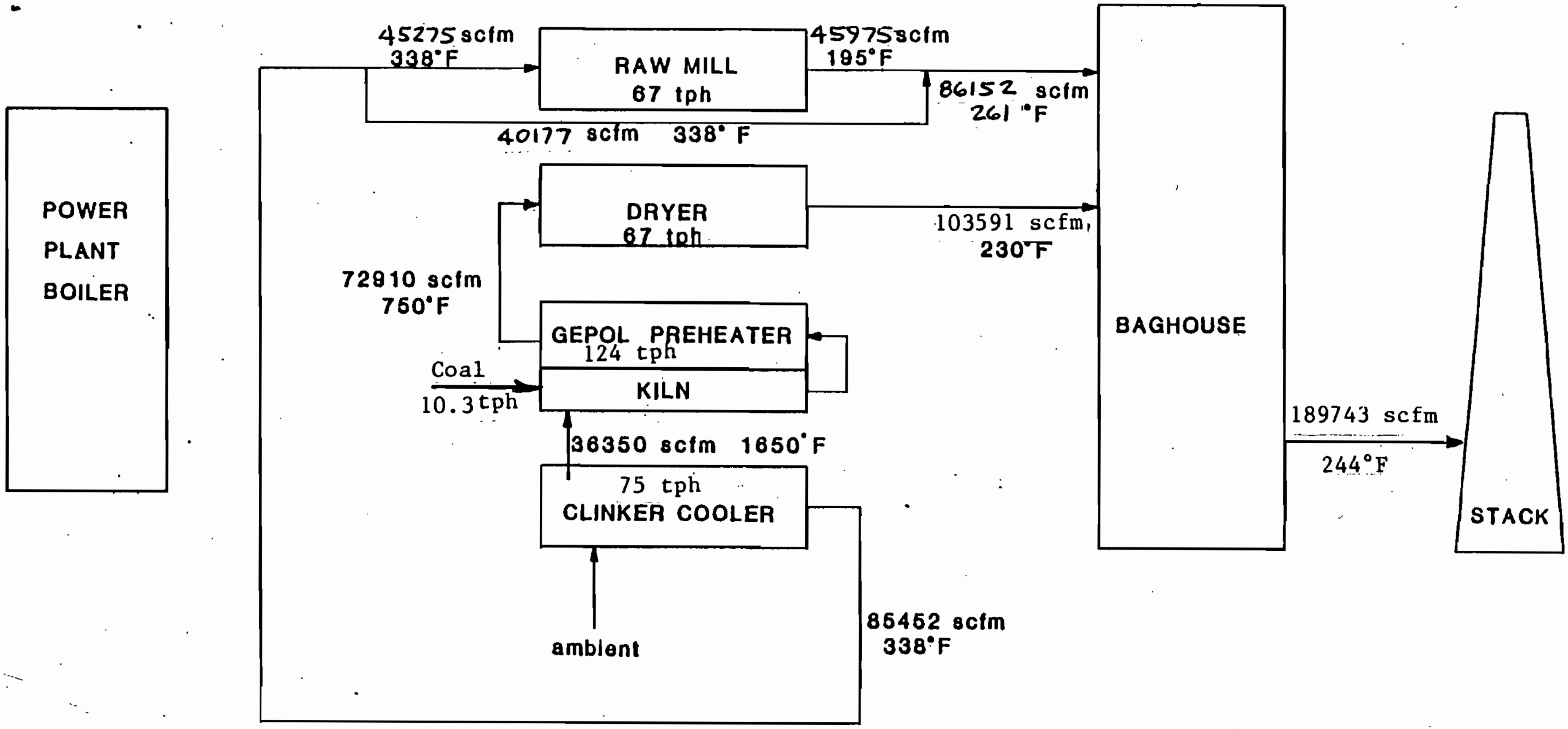
Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:sc
Attachments

cc: Mr. Richard C. Entorf
Mr. Larry Curtin



POWER PLANT NOT OPERATING/CEMENT PLANT OPERATING

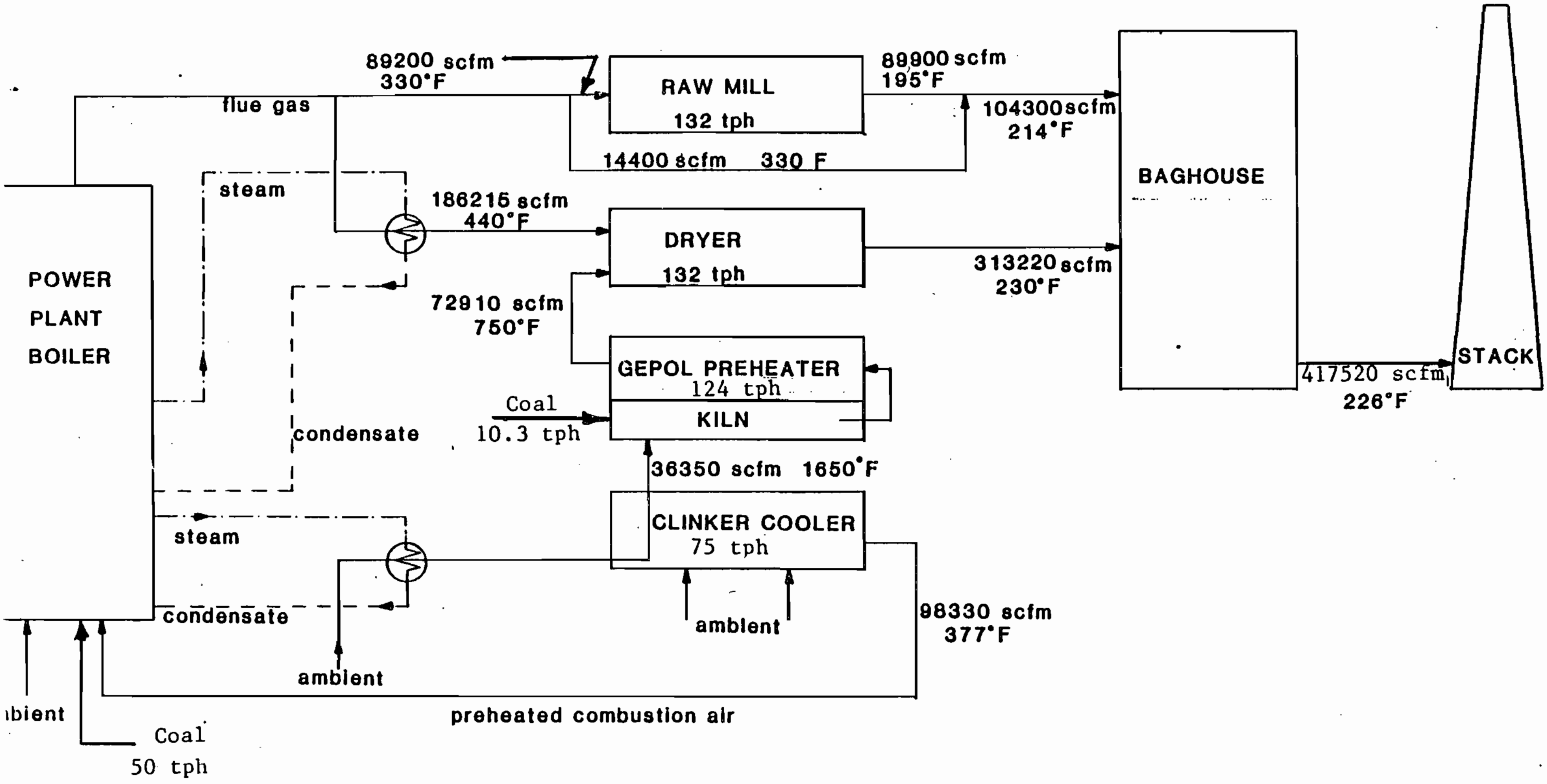
Florida Crushed Stone Company

P.O. Box 317

Leesburg, Fla. 32748

3-23-83

3-29-83



POWER PLANT OPERATING/CEMENT PLANT OPERATING

3-23-83
3-29-83

ATTACHMENT 12

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 30, 1983

Richard Entorf
Senior Vice-President
Florida Crushed Stone Company
P. O. Box 317
Leesburg, Florida 32748

Dear Mr. Entorf:

RE: Cement Plant/Power Plant, Brooksville, Florida
PSD-FL-090 and FL-091

The department has received the attached letter from the Fish and Wildlife Service of the U. S. Department of the Interior containing comments regarding your PSD permit applications, PSD-FL-090 and FL-091. While these comments do not affect any completeness determination by the department, we are obligated by 40 CFR 52.21 to consider any comments the federal land manager makes before issuing your permits. We would advise you to contact the Fish and Wildlife Service to obtain information about the flora, fauna and soils in the Chassahowitzka Class I area and to find out what they would like you to do in reference to the cumulative effects analysis they mention in paragraph three of their letter.

Sincerely,

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

CHF/CH/ks

Enclosure

cc: Robert E. Putz, U.S. Fish and Wildlife Service
Dan Williams, DER Southwest District

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

DER
MAR 21 1983
BAQM
MAR 16 1983

Ms. Patty Adams
Bureau of Air Quality Management
State of Florida
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Ms. Adams:

We have reviewed the PSD permit applications for Florida Crushed Stone Co. (PSD-FL-090 for the power plant and PSD-FL-091 for the cement plant) and for Regency Square Properties (PSD-FL-092). The projects concerned in these applications have the potential to affect our Class I areas at Chassahowitzka and Okefenokee National Wildlife Refuges, respectively. We have the following comments to make regarding these applications.

The applications are not complete with respect to analysis of effects of the pollutants on the Class I area involved. The applications fail to include a survey of the flora, fauna and soils of the area, a list of species sensitive to the pollutant and the location of these species, locations of soils sensitive to acidification, and a comparison of the sensitivity thresholds with the predicted concentrations. The literature contains numerous studies of the effects of the pollutants involved at concentrations below the National Ambient Air Quality Standards (NAAQS) on sensitive species which may occur in Class I areas. Therefore, an application which bases its prediction of no adverse impact on air quality related values solely on the fact that modeled concentrations fall below NAAQS does not include sufficient evidence of no adverse impact. Guidance for adverse impact determinations under Section 165(d)(2)(C)(ii) and (iii) was provided in the Federal Register on July 12, 1982 (47 FR 133:30226-30227) by the Assistant Secretary for Fish and Wildlife and Parks, who is the Federal Land Manager for Class I areas under the jurisdiction of the U.S. Fish and Wildlife Service and the National Park Service. This Federal Register notice indicates what constitutes an acceptable analysis, whether or not NAAQS is exceeded.

We would also like to recommend that Florida Crushed Stone Co. include a cummulative effects analysis and that Regency Square Properties include an analysis of the effects of the ozone precursor produced.

We appreciate this opportunity to provide comments on these applications.

Sincerely,

Robert E

Associate Director

ATTACHMENT 13

FCS

FLORIDA CRUSHED STONE COMPANY

April 1, 1983

DER
APR 04 1983
BAQM

Mr. Bob King
Engineer
Florida Dept. of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Mr. King:

This letter is in response to your telephone request today. Our cement plant equipment supplier and process engineer, Polysius Corporation, tested three different samples of our limestone fines raw material in 1982. Each of the three samples had an SO_3 content of .05%.

Our specific calculations of expected SO_2 emissions from the cement kiln are:

Raw Material

.05% SO_3 x 75 TPH clinker x 1.55 raw feed to clinker ratio x 2000 #/ton x 90% of raw feed

= 105#/HR SO_3 x $\frac{64}{80}$

= 84 #/HR SO_2

Fuel

0.75% S x 10.3 TPH coal x 2000#/ton

= 155#/HR S x 2

= 310#/HR SO_2

Total

84#/HR from raw materials
310#/HR from fuel
394#/HR Total

394#/HR at 80% absorbtion = 80#/HR SO_2 emmissions

POST OFFICE BOX 300 / LEESBURG, FLORIDA 32748 / PHONE (904) 787-0608

Mr. Bob King
Page two

I trust this is all the information you need on this subject.

Regards,

RC Entorf

Richard C. Entorf
Senior Vice President

RCE:se

cc: John Koogler
Skip Haskell

SK SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 307-82-02

April 14, 1983

Mr. Cleve Holladay
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

DER
APR 15 1983
BAQM

Subject: Florida Crushed Stone Company
Cement Plant/Power Plant
Hernando County, Florida
PSD-FL-090 and FL-091

Dear Cleve:

The attached computer print-outs confirm the information I relayed to you by telephone regarding the impact of fugitive particulate matter emissions from coal handling activities at the proposed Florida Crushed Stone cement plant/power plant in Hernando County, Florida. In addition to the computer print-outs I have summarized the calculations for fugitive particulate matter emission rates from the various activities associated with coal handling and have summarized the results of the air quality modeling. I have also addressed fugitive particulate matter emissions from existing and proposed automobile and truck traffic on the Florida Crushed Stone property. Presently, approximately 600 trucks per day (250 days per year) make round trips to the existing Florida Crushed Stone lime, limerock and limestone plants. Approximately two-thirds of the three-mile round trip is traveled on an unpaved road. Although the addition of the cement plant and power plant will increase both truck and automobile traffic on Florida Crushed Stone property, the paving of the main access road will result in a net reduction in traffic generated fugitive particulate matter emissions.

The fugitive particulate matter emissions from coal handling were calculated using emission factors forwarded to you at an earlier date under cover of a letter from Mr. Larry Curtin of Holland & Knight. The coal handling rates used in conjunction with the emission factors, for the various activities considered, are summarized in the attached material. In all cases, it was assumed that the material handling rates would be uniformly distributed throughout a 24-hour period since particulate matter concentrations are calculated for a 24-hour period and since there is no way of knowing which hours during a 24-hour period some of the randomly scheduled activities might occur.

In addition to calculating the fugitive particulate matter emission rates, a particle size distribution was assigned to the particles so that particle deposition could be accounted for in the air quality modeling. The size distribution information and the input parameters necessary for the ISC-ST modeling are also included in the attached material.

The impacts of fugitive particulate matter emissions from the six activities associated with coal handling were evaluated using the ISC-ST model. The input to the model included source information for the six activities; meteorological data from Tampa for calendar years 1973, 1974, 1975, 1978 and 1979; and receptors which defined the boundary of the Florida Crushed Stone property. Since the fugitive emitting sources are located at or near ground level, receptors were placed only at the boundary of the Florida Crushed Stone property. No receptors were placed beyond the property line for this initial evaluation.

The results of the ISC-ST modeling are summarized in the attached table. Aside from 24-hour periods when several hours of calm existed, the summary shows the maximum impact of fugitive particulate matter emissions to be 21 micrograms per cubic meter, 24-hour average. The next impact is 19 micrograms per cubic meter, 24-hour average. These impacts occurred on day 230, 1974 and day 190, 1975, respectively.

Based on previous air quality modeling submitted to your office it was determined that the maximum impact of all point sources (new and existing) occurred with meteorology from day 341, 1973. The impact occurring under these meteorological conditions was 32 micrograms per cubic meter, 24-hour average. From the same previously submitted air quality modeling data, the maximum new source particulate matter impact in the vicinity of the Florida Crushed Stone property was determined to be 7 micrograms per cubic meter, 24-hour average.

If the maximum new point source particulate matter impact of 7 micrograms per cubic meter is combined with the maximum fugitive particulate matter impact of 21 micrograms per cubic meter, the resulting impact will be 28 micrograms per cubic meter, 24-hour average. This addition of impacts assumes that the maximum impacts from both types of sources occurred at the same receptor and under the same meteorological conditions. Neither of these conditions occurred. Even with the severe assumptions; however, the resulting impact is less than 37 micrograms per cubic meter; the allowable 24-hour particulate matter impact for new sources in a Class I PSD Area.

To evaluate the impact of all sources (new, existing and fugitive), emission rates from new and existing point sources and the fugitive sources associated with coal handling were input to the ISC-ST model. The receptor sets input to the model were such that the maximum impact could be located to within 0.1 kilometers. The meteorological data input to the model were for day 341, 1973-the day resulting in the maximum 24-hour particulate matter impact from point sources; and days 230, 1975 and 190, ~~1978-~~ 1975 the meteorological conditions resulting in the two highest fugitive particulate matter impacts. The results from these model runs are summarized in the attached figure and include a background particulate matter concentration for the 24-hour period of 112 micrograms per cubic meter.

The maximum impact calculated was 148 micrograms per cubic meter, 24-hour average. This concentration compares with a 24-hour particulate matter air quality standard of 150 micrograms per cubic meter, not to be exceeded more than once per year.

Actions proposed by Florida Crushed Stone will greatly reduce fugitive particulate matter emissions resulting from truck traffic on Florida Crushed Stone property. The attached calculation sheets show that under present conditions, the fugitive particulate matter emission rate resulting from truck traffic on Florida Crushed Stone property is 1,549 tons per year. After the main access road is paved, as proposed by Florida Crushed Stone, the fugitive particulate matter emissions generated by present truck traffic will be 658 tons per year. There will, however, be an increase in fugitive particulate matter emissions resulting from additional truck and automobile traffic generated by the cement plant and the power plant. This traffic will increase fugitive particulate matter emissions by approximately 61 tons per year. When combined with emissions from existing truck traffic (under paved road conditions) of 658 tons per year, the resulting traffic generated fugitive particulate matter emission rate will be 719 tons per year.

Subtracting the expected fugitive particulate matter emissions under paved road conditions, with the power plant and cement plant constructed, from traffic generated fugitive particulate matter emissions under present conditions results in a net reduction in fugitive particulate matter emissions of approximately 830 tons per year. This reduction in fugitive particulate matter emissions was assessed with the ISC-ST model using meteorological conditions representative of day 190, 1975. The road system was simulated by 28 volume sources as suggested in the ISC-ST users manual and particle size data were input to account for particle deposition. The model results showed a negative particulate matter impact in the order of 100-200 micrograms per cubic meter, 24-hour average, at the Florida Crushed Stone property line. Without pursuing this matter further, it is apparent that the reduction in fugitive particulate matter emissions resulting from the road paving will more than offset the impact of increased emissions resulting from coal handling.

If you have any questions regarding this information, please feel free to give me a call.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:sc
Attachments

cc: Mr. Richard C. Entorf
Mr. Larry Curtin

CALCULATION OF COAL HANDLING FUGITIVE PARTICULATE MATTER EMISSIONS

UNLOADING FROM TRAIN

65 cars x 100 tons/car = 6500 tons max for 1 day

$\times$ 0.06 lb P.M./ton* $\times$ 1/24 $\frac{day}{hr}$ $\times$ 0.126 $\frac{g/sec}{lb/hr}$

= 2.04 gr/sec

LOADING ONTO COAL PILE (FROM TRAIN CAR DUMP AREA)

Activity 7 days/week ; 469,000 tons coal/year

469,000 tons/yr $\times$ 1/365 $\frac{yr}{day}$ = 1285 tons/day

$\times$ 0.008 lb PM/ton* $\times$ 1/24 $\times$ 0.126

= 0.05 gr/sec or 0.8×10^{-5} gr/sec/m^2 over 80×80 meter area

TRANSFER TO COAL BIN

Long-term daily average transfer rate will equal the coal consumption rate in the power plant + cement plant; or 60 tons/hour

60 tons/hour $\times$ 0.02 lb PM/ton* $\times$ 0.126

= 0.15 gr/sec

VEHICLE TRAFFIC AROUND PILE

Assume 1285 tons/day

$\times$ 0.027 lb P.M./ton* $\times$ 1/24 $\times$ 0.126

= 0.18 gr/sec or 2.8×10^{-5} gr/sec/m^2 over 80×80 meter area

LOADOUT FROM PILE

60 tons/hr (same as transfer to coal bin)

$\times$ 0.007 lb P.M./ton* $\times$ 0.126

= 0.05 g/sec

WIND EROSION

Assume 1285 tons/day

$\times$ 0.001 lb/ton* $\times$ 1/24 $\times$ 0.126

= 0.01 gr/sec or 0.2×10^{-5} gr/sec/m^2 over 80×80 meter area

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* Emission Factors previously submitted to FDER

SOURCE INPUT DATA TO ISC-ST FOR FUGITIVE P.M. EMISSIONS FROM COAL HANDLING

Source	Emission Rate (g/sec or g/sec/m²)	Location		Ht (m)	Point Source			Area Source
		X (km)	Y (km)		Temp (°K)	Vel (m/s)	Dia (m)	Dimension (m)
Unloading	2.04	360.22	3162.54	15	314	1.0	1.0	–
Loadout	0.05	360.14	3162.54	10	314	1.0	1.0	–
Coal Bin	0.15	360.01	3162.57	15	314	1.0	1.0	–
Load to Pile	0.8×10^{-5}	360.14	3162.51	10	–	–	–	80
Traffic	2.8×10^{-5}	360.14	3162.51	10	–	–	–	80
Wind	0.2×10^{-5}	360.14	3162.51	10	–	–	–	80

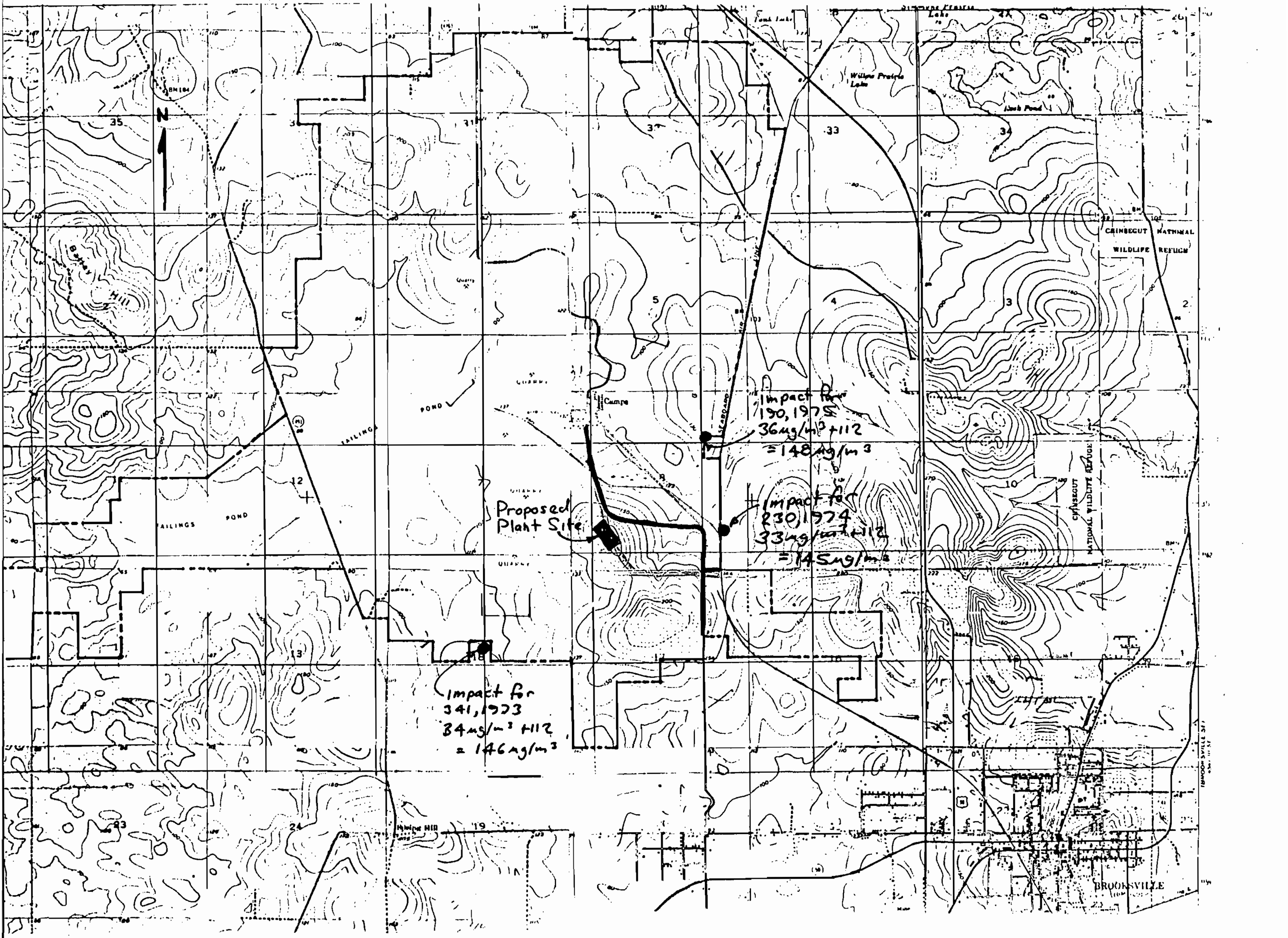
SIZE DISTRIBUTION
DATA FOR COAL PILE
FUGITIVE P.M. EMISSIONS

ASSUME ALL PARTICLES < 75 μm

Size Range (μm)	Fraction in Range	Settling Vel (m/sec)	Reflection Coeff.
75-38	0.817	0.150	0.37
37-19	0.163	0.038	0.65
18-10	0.018	0.009	0.78
<10	0.002	0.002	0.87

SUMMARY OF ISC-ST MODELING RESULTS TO ASSESS IMPACT OF COAL HANDLING FUGITIVE P.M. EMISSIONS – 5 YEARS OF TAMPA MET DATA

YEAR	24-HR IMPACT (μg/m³)	DAY	COMMENT
1973	14.5	210	
1974	20.7	230	one hour of calm affecting receptor – USE
	13.9	045	
1975	21.2	350	14 hours of calm
	19.1	190	no calms – USE
1978	13.1	136	
1979	16.6	275	C hours of calm
	16.2	080	6 hours of calm
	15.1	069	3 hours of calm


N
Proposed Plant Site
Impact for 190, 1975 36ug/m³ +112 = 148ug/m³
Impact for 230, 1974 33ug/m³ +112 = 145ug/m³
Impact for 341, 1973 34ug/m³ +112 = 146ug/m³
Willow Prairie Lake
Duck Pond
CHINSEGUT NATIONAL WILDLIFE REFUGE
Bailey Hill
TAILINGS POND
QUARRY
Camps
SEABOARD AIR LINE
BROOKSVILLE
35
31
33
34
5
4
3
2
12
10
13
18
1
23
24
19

TRAFFIC GENERATED
FUGITIVE P.M. EMISSIONS

PRESENT

600 trucks/day
250 days/year
21 tons avg wt.
Round-trip travel – 3.0 miles (2 miles unpaved; 1 mile paved)

Assume:
Silt Content = 8% (paved & unpaved)
Speed = 20 mph
Dust on paved road surface = 9000 lb/mile
Number of dry days = 258 (Tampa)

Emission Factors & Rates:(1)

Paved Road

$$E = 0.45 \left(\frac{8}{10}\right)\left(\frac{9000}{5000}\right)\left(\frac{21}{3}\right)^{0.8}$$
$$= 3.07 \text{ lb/VMT}$$

$$R = 3.07 \times 600 \text{ truck/day} \times 250 \text{ day/yr} \times 1 \text{ mile} \times 1/2000 \text{ ton/lb}$$

$$= 230 \text{ tons/year}$$

Unpaved Road

$$E = 5.9 \left(\frac{8}{12}\right)\left(\frac{20}{30}\right)\left(\frac{21}{3}\right)^{0.8}\left(\frac{258}{365}\right)$$
$$= 8.79 \text{ lb/VMT}$$

$$R = 8.79 \times 600 \times 250 \times 2 \text{ miles} \times 1/2000$$
$$= 1319 \text{ tons/year}$$

Total Present = 230 + 1319
= 1549 tpy

(1) See attached Mid-West Research Institute reference

PROPOSED

1. From Existing traffic – Same traffic load as for "present" conditions

Assume:

Travel 2.75 miles on paved road
Travel 0.25 miles on unpaved road
Silt = 8% (paved & unpaved)
Speed = 20 mph
Dust on paved road surface = 7000 lb/mile
Number of dry days = 258

Emissions (1):

Paved Road

$$R = 0.45\left(\frac{8}{10}\right)\left(\frac{2000}{5000}\right)\left(\frac{21}{3}\right)^{0.8} \times 600 \times 250 \times 2.75 \text{ miles} \times 1/2000$$

$$= 493 \text{ tons/yr}$$

Unpaved Road

$$R = 5.9\left(\frac{8}{12}\right)\left(\frac{20}{30}\right)\left(\frac{21}{3}\right)^{0.8}\left(\frac{258}{365}\right) \times 600 \times 250 \times 0.25 \text{ miles} \times 1/2000$$

$$= 165 \text{ tons/yr}$$

2. Proposed Traffic

Assume:

Truck traffic = 41,600 miles/yr over 250 days
Auto traffic = 50,000 miles/year over 350 days
All traffic travels 2 miles on paved road.
Truck wt = 21 tons
Auto wt = 2.5 tons
Dust on road surface = 7000 lb/mile
Silt = 8%

Emissions (1):

Truck

$$R = 0.45\left(\frac{8}{10}\right)\left(\frac{7000}{5000}\right)\left(\frac{21}{3}\right)^{0.8} \times 41,600 \times 1/2000$$

$$= 50 \text{ tons/yr}$$

Auto

$$R = 0.45\left(\frac{8}{10}\right)\left(\frac{2000}{5000}\right)\left(\frac{2.5}{3}\right)^{0.8} \times 50,000 \times 1/2000$$

$$= 11 \text{ tons/year}$$

J. Total Proposed Emissions

Exist Truck	=	493 + 165
Proposed Truck	=	50
Proposed Auto	=	11
		719 tons/year

NET CHANGE

Present	-	1549 tpy
Proposed	-	719 tpy
Change		(830 tpy)

reduction in traffic generated fugitive P.M. emissions due to road paving.

EPA-600/2-78-050
March 1978

FUGITIVE EMISSIONS FROM INTEGRATED IRON AND STEEL PLANTS

by

Russel Bohn, Thomas Cuscino Jr.,
and Chatten Cowherd Jr.

Midwest Research Institute
425 Volker Boulevard
Kansas City, Missouri 64110

Contract No. 68-02-2120
ROAP 21AUY-060
Program Element No. 1AB015

EPA Project Officer: Robert V. Hendriks

Industrial Environmental Research Laboratory
Office of Energy, Minerals and Industry
Research Triangle Park, N.C. 27711

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Research and Development
Washington, D.C. 20460

OPEN DUST SOURCE: Vehicular Traffic on Paved Roads
QA RATING: B for Normal Urban Traffic
C for Industrial Plant Traffic*

$$EF = \underbrace{0.45}\ \underbrace{\left(\frac{s}{10}\right)\left(\frac{L}{5000}\right)}\underbrace{\left(\frac{W}{3}\right)^{0.8}} \quad \text{lb/veh-mi}$$

Determined by profiling of emissions from traffic (mostly light-duty) on arterial roadways with values for s and L assumed.

Assumed by analogy to experimentally determined factor for unpaved roads.

*Tests of industrial plant traffic yielded higher than predicted emissions, presumably due to resuspension of dust from vehicle underbodies.

Determined by profiling of emissions from light-duty vehicles on roadway which was artificially loaded with known quantities of gravel fines and pulverized topsoil.

where: EF = suspended particulate emissions (lb/veh-mi)
s = silt content of road surface material (%)
S = average vehicle speed (mph)
W = average vehicle weight (tons)
L = surface dust loading on traveled portion of road (lb/mile)

Figure 3-5. Predictive emission factor equation for vehicular traffic on paved roads.

OPEN DUST SOURCE: Vehicular Traffic on Unpaved Roads
QA RATING: B for Dry Conditions
C for Annual Average Conditions

$$EF = 5.9\ \underbrace{\underbrace{\left(\frac{s}{12}\right)\left(\frac{S}{30}\right)}_{\text{Determined by profiling of emissions from light-duty vehicles on gravel and dirt roads under dry conditions.}}\left(\frac{W}{3}\right)^{0.8}}_{\text{Determined by profiling of emissions from medium- and heavy-duty vehicles on gravel and dirt roads under dry conditions.}}\ \underbrace{\left(\frac{d}{365}\right)}_{\text{Estimated factor to account for mitigating effects of precipitation over period of one year.}}\ \text{lb/veh-mi}$$

where: EF = suspended particulate emissions (lb/veh-mi)
s = silt content of road surface material (%)
S = average vehicle speed (mph)
W = average vehicle weight (tons)
d = dry days per year

Figure 3-4. Predictive emission factor equation for vehicular traffic on unpaved roads.

ATTACHMENT 14

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) DETERMINATION
Florida Crushed Stone Company
Hernando County
(Amended April 6, 1982)

(This amended BACT determination supersedes the determination dated January 12, 1983. The applicant added one additional baghouse to Table 1 and reduced the expected amount of pollutants to be discharged in the kiln exhaust gases.)

The applicant plans to construct a Portland cement production facility two miles northwest of Brooksville, Florida. The manufacturing processes will use the latest innovations in dry cement technology and recirculation of hot exhaust gas streams to conserve energy. Baghouses will be used to limit the amount of particulate matter discharged into the atmosphere. The facility is designed to produce 600,000 tons of Portland cement per year. The operating schedule will be between 7620 and 8760 hours per year.

The maximum heat input to the cement kiln is 248 million Btu per hour and the design production rate is 75 tons of clinker per hour. The cement kiln when fired at maximum heat input will consume 10.3 tons of coal per hour and 9.25 tons per hour at the average firing rate. The coal used will have a sulfur content of 0.75 percent and a heating value of approximately 12,000 Btu per pound. The hot exhaust gases from the cement kiln are cooled in the kiln feed preheater and a rotary dryer before discharging through a baghouse into the atmosphere. Clinker from the kiln is reduced in temperature in a clinker cooler. The heated air discharge from the clinker cooler is used as pre-heated combustion air for the kiln and the power plant boiler.

The power plant boiler is designed to produce steam in excess of the cement plant requirements. The excess steam will be used to produce up to 125 megawatts of electrical power. The power plant will be reviewed by the Electrical Power Plant Siting Section as set forth in Chapter 17-17 of the Florida Administrative Code. This information is included in this determination because one large baghouse will control particulate emissions from gas streams ducted from both the power plant and portions of the cement plant.

The movement of raw materials, recycled materials, and product will be through enclosed transfer systems. All gas streams from the various transfer systems will vent through a baghouse into the ambient air. Table 1 lists the various point sources.

TABLE 1

BAGHOUSE INVENTORY

AC-27 Permit	SOURCE	LB.PM/HR	TPY	IDENT.**
61021	Kiln Feed	0.8	2.9	H-15***
61019	Cement Kiln*			
51019	Raw Materials Bin	0.8	3.0	D-18
61012	Pre Mix Bins	0.6	2.3	D-12
61013	Fly Ash Bin	0.6	2.4	D-23
61017	Raw Meal Transfer	0.3	1.0	F-14
61020	Blending Silo	3.3	12.7	G-12
61030	Clinker Silo	0.6	2.4	L-06
61032	Clinker Silo	0.6	2.4	L-08
61027	Cooler Discharge	0.8	2.9	L-16
61033	Silo Discharges	1.8	6.9	M-08
61037	Finish Mill	6.4	24.5	N-13
61038	Cement Silo Discharge	0.6	2.4	Q-17
61040	Cement Silo	0.6	2.4	Q-15A
61042	Cement Silo	0.6	2.4	Q-15C
61041	Cement Silo	0.6	2.4	Q-15B
61026	Coal Handling	0.8	2.9	S-04
	Particulate Totals	19.8	75.9	

* The cement kiln exhaust gases discharge into the ambient air through the power plant baghouse.

Pollutant	Amended	Previous	Amended
Particulates	49.5 lb/hr	50 lb/hr	189 TPY
SO_2	80 lb/hr	100 lb/hr	305 TPY
NO_x	416 lb/hr	422 lb/hr	1585 TPY

** Plant equipment number
*** Baghouse source added

A Portland cement plant in one of the major facilities listed in Table 500-1 of 17-2.500, FAC, Prevention of Significant Deterioration (PSD). A BACT determination is required for each pollutant exceeding the significant emission rates in Table 500-2, which in this case are particulates, sulfur dioxide and nitrogen oxides. This facility is also subject to New Source Performance Standards (NSPS), 40 CFR 60.60, Subpart F.

BACT Determination Requested by the applicant:

Pollutant	Emission Limit
Particulates (kiln)	0.3 lbs/ton of dry kiln feed
Particultes (cooler)	0.1 lbs/ton of dry kiln feed
Sulfur dioxide (kiln)	Coal containing 0.75% sulfur
Nitrogen Oxides (kiln)	1.7 lbs/million Btu heat input
Nitrogen Oxides (rotary dryer)	0.2 lbs/million Btu heat input

Fabric filter baghouses will be used to limit particulate emissions from all other sources. Particulate matter discharged to the atmosphere will be in the range between 0.012 and 0.015 grains per actual cubic feet. (Table 1)

Date of Receipt of a BACT Application:

October 1, 1982

Date of Publication in the Florida Administrative Weekly:

October 15, 1982

Review Group Members:

Comments were obtained from the New Source Review Engineering Section, the Air Modeling Section, and the DER Southwest District Office.

BACT Determined by DER:

Source	Pollutant Emission Limit
Kiln	0.30 pound particulate matter per ton of feed (dry basis).
Kiln	Visible emissions not to exceed 10 percent opacity.
Kiln	0.60 pound SO_2 per ton of feed (dry basis). Fossil fuels must be the only fuels fired.
Kiln	2.9 pounds NO_x per ton of feed (dry basis).
Clinker Cooler	0.10 pound particulate matter per ton of kiln feed (dry basis).
Clinker Cooler	Visible emissions not to exceed 10 percent opacity.
Dryer	Visible emissions not to exceed 10 percent opacity.
Raw Mill	Visible emissions not to exceed 10 percent opacity.

BACT for the sources (except the cement kiln) as listed in Table 1 is that visible emissions must not exceed 5 percent opacity.

Compliance with the particulate emission limitations will be in accordance with the EPA Reference Methods in Appendix A, 40 CFR 60, as set forth in Subsection 60.64 of the NSPS for Portland Cement Plants, 40 CFR 60.60.

Compliance with opacity standards will be determined by conducting observations in accordance with DER Method 9 (17-2.700(6)(a)9. FAC).

Compliance with the SO_2 and NO_x emission limitations will be in accordance with 40 CFR 60, Appendix A; Method 6 and 7.

The performance test for the cement kiln must be conducted with dryer feed shut off. The performance test for the clinker cooler must be conducted with the feed to the raw mill shut off. Since the kiln and clinker cooler have one common control device, their emission rates may be combined. The power plant boiler must be down during these performance tests.

BACT Determination Rationale

The NSPS visible emission limitation for the clinker cooler, dryer and raw mill exhaust gases is less than 10 percent opacity, and the cement kiln exhaust gases must not exceed 20 percent opacity. Exhaust gases from all four sources pass through a common baghouse and only one VE limitation would be practical. The visible emission BACT for these four sources and the baghouse was determined to be the 10 percent.

BACT for particulate emissions was determined to be equivalent to NSPS for Portland Cement Plants, 40 CFR 60.60, Subpart F.

BACT for SO_2 emissions from the cement kiln was determined to be equal to 25 percent of the rate calculated from the emission factor in AP-42, Table 1.1-2. The 75 percent reduction in SO_2 emissions is due to the alkaline nature and affinity for SO_2 of the material being processed.

BACT for the sources listed in Table 1, other than the cement kiln, is that the exhaust gases must not exhibit greater than 5 percent opacity. The department feels the 5 percent opacity determined as BACT, which is more stringent than the NSPS standard, is attainable with a baghouse.

BACT for NO_x emissions from the cement kiln was determined to be equal to 360 pounds per hour. This rate was obtained from the EPA-BACT clearinghouse report.

This BACT determination was based upon the firing of coal. The firing of non-fossil fuels is not allowed.

Details of the Analysis May be Obtained by Contacting:

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

Recommended By:

____
C. H. Fancy, Deputy Chief, BAQM

Date: ________________________

Approved:

____
Victoria J. Tschinkel, Secretary

Date: ________________________