Attachment 16

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

SKEC 307-82-02

October 3, 1983

Mr. Cleve Holladay
Florida Department of
Environmental Regulation
Northwest District Branch Office
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: Florida Crushed Stone Company
Annual Average Particulate Matter Impacts

Dear Cleve,

In response to our recent telephone conversation, I have evaluated the annual average particulate matter impacts of several of the sources included in the Florida Crushed Stone Air Quality Review. Specifically, I made a model run with the ISC-LT model to evaluate the annual average impact of (1) Florida Crushed Stone sources, (2) the baseline sources and (3) all sources. In evaluating the impact of baseline sources and all sources, I used permitted emission rates from all Florida Mining and Material sources, emission rates as set forth in my letter of August 1, 1983 for Chemical Lime Company sources and emission rates for all other sources that are consistent with emission rates that have been used in previous modeling. The model run was identical to those long-term runs reported in my August 1, 1983 letter, except that the grid system was moved to the north so that the maximum impact in the vicinity of Florida Mining and Materials could be evaluated.

The results of the modeling show the following impacts in the vicinity of Florida Crushed Stone:

1. **Florida Crushed Stone Sources** - 6 micrograms per cubic meter impact.

2. **Baseline Sources** - 50 micrograms per cubic meter, including 34 micrograms per cubic meter background.

3. **All Sources** - 51 micrograms per cubic meter, including 34 micrograms per cubic meter background.

The maximum impacts calculated in the vicinity of Florida Mining and Materials were:

1. Florida Crushed Stone Sources - 0.1 microgram per cubic meter.

2. Baseline Sources - 54 micrograms per cubic meter, including 34 micrograms per cubic meter background.

3. All Sources - 56 micrograms per cubic meter, including 34 micrograms per cubic meter background.

The results of this air quality modeling demonstrate that Florida Crushed Stone sources do not significantly impact the area around Florida Mining and Materials and further show that even with Florida Mining and Materials sources emitting at permitted emission rates, there is no violation of the annual particulate matter standard anywhere in the study area. A copy of the computer print-out from which this information was derived is attached.

If you have any questions regarding the information contained herein, please feel free to give me a call.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:ldh
Enclosures

cc: Mr. Richard Entorf
Mr. Larry Curtin

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

FLORIDA MINING AND MATERIALS CORP., Petitioner, vs. DEPARTMENT OF ENVIRONMENTAL REGULATION and FLORIDA CRUSHED STONE COMPANY, Respondents.	Case No. 83-1862 through 83-1878

RECOMMENDED ORDER

Florida Mining and Materials, Inc. having filed a Notice of Voluntary Dismissal of its petitions for hearing regarding seventeen proposed state permits for the Florida Crushed Stone Company cement plant,

IT IS RECOMMENDED THAT a Final Order of dismissal be entered by the Department of Environmental Regulation. The Division of Administrative Hearings will now close its files in Case Nos. 83-1862 through 83-1878.

Respectfully submitted and entered this 28th day of September, 1983, in Tallahassee, Florida.

Diane D. Tremor

DIANE D. TREMOR
Hearing Officer
Division of Administrative Hearings
The Oakland Building
2009 Apalachee Parkway
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Copies furnished:

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Victoria Tschinkel, Secretary
Department of Environmental Regulation
2600 Blair Stone Road
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John Radey, Esquire
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Tallahassee, Florida 32301

Filed with the Clerk of the Division of Administrative Hearings this 28th day of September, 1983.

Lawrence Curtin, Esquire
Holland and Knight
Post Office Box BW
Lakeland, Florida 33802

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

FLORIDA MINING AND MATERIALS, INC., Petitioner, v. STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION and FLORIDA CRUSHED STONE COMPANY, Respondent.	)	DOAH Case Nos.: 83-1862-1878

FINAL ORDER

On September 29, 1983, the Department received the Hearing Officer's Recommended Order to dismiss the petitions of Florida Mining and Materials Corporation. Having fully considered the Hearing Officer's recommendation and the Notice of Voluntary Dismissal filed by Florida Mining and Materials, I hereby adopt the Recommended Order in toto. Proposed permits AC27-61012, AC27-61013, AC27-61016, AC27-61017, AC27-61019, AC27-61020, AC27-61021, AC27-61026, AC27-61027, AC-61030, AC27-61032, AC27-61033, AC27-61037, AC27-61038, AC27-61040, AC27-61041, and AC27-61042 shall be issued as proposed by the Notice of Proposed Agency Action issued by the Department on May 19, 1983.

DONE AND ORDERED this 21 day of October, 1983.

Terry Cole for
VICTORIA J. TSCHINKEL
Secretary

State of Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301
(904)488-4805

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 (9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Edward A. Tillman — Clerk
10/24/83 — Date

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

FLORIDA ROCK INDUSTRIES, INC., Petitioner, vs. DEPARTMENT OF ENVIRONMENTAL REGULATION and FLORIDA CRUSHED STONE COMPANY, Respondent.	Case No. 83-1881

RECOMMENDED ORDER

The petitioner Florida Rock Industries, Inc. having filed a "Motion for Order Dismissing Proceedings" stating its desire to withdraw, without prejudice, its petition for formal administrative proceedings,

IT IS RECOMMENDED THAT a Final Order be entered dismissing, without prejudice, the petition in Case No. 83-1881.

The Division of Administrative Hearings will now close its files in Case No. 83-1881.

Respectfully submitted and entered this 28th day of September, 1983, in Tallahassee, Florida.

Diane D. Tremor

DIANE D. TREMOR
Hearing Officer
Division of Administrative Hearings
The Oakland Building
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Filed with the Clerk of the Division of Administrative Hearings this 29th day of September, 1983.

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BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

FLORIDA ROCK INDUSTRIES, INC., Petitioner, v. STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION and FLORIDA CRUSHED STONE COMPANY, Respondents.	)	DOAH Case No.: 83-1881

DER
OCT 26 1983
BAQM

FINAL ORDER

On September 29, 1983, the Department received the Hearing Officer's Recommended Order advising the dismissal of Florida Rock Industries, Inc.'s, petition. Having fully considered the Hearing Officer's recommendation and Florida Rock Industries' Motion for Order Dismissing Proceedings the Recommended Order is hereby granted in toto. Proposed permits AC27-61012, AC27-61013, AC27-61016, AC27-61017, AC27-61019, AC27-61020, AC27-61021, AC27-61026, AC27-61027, AC27-61030, AC27-61032, AC27-61033, AC27-61037, AC27-61038, AC27-61040, AC27-61041, and AC27-61042 shall be issued as proposed by the Notice of Proposed Agency Action issued by the Department on May 19, 1983.

DONE AND ORDERED this 21 day of October, 1983.

Tim Cole for
VICTORIA J. TSCHINKEL
Secretary

State of Florida Department
of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301
(904)488-4805

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 (9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Deborah A. Fittman 10/24/83
Clerk Date

TABLE 2

PROPOSED FLORIDA CRUSHED STONE CEMENT PLANT STACK AND FUGITIVE SOURCE PARAMETERS AND EMISSION RATES

Emissions Unit	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (K)	Emission Rate g/s PM	SO_2	NO_x
Cement Kiln[1]	97.60	4.88	13.71	381.0	6.24	9.36	45.23
Raw Materials Bin	30.50	.61	12.90	314.0	.10	--	--
PreMix Bins	38.10	.61	9.70	314.0	.08	--	--
Fly Ash Bin	38.10	.61	9.70	314.0	.08	--	--
Raw Meal Transfer	21.30	.30	12.90	355.0	.04	--	--
Blending Silo	73.20	1.10	13.72	355.0	.42	--	--
Kiln Feed	15.20	.61	9.70	366.0	.10	--	--
Clinker Silo	41.20	.46	14.39	366.0	.08	--	--
Clinker Silo	61.00	.46	14.39	366.0	.08	--	--
Cooler Discharge	8.80	.61	9.70	366.0	.10	--	--
Silo Discharges	15.20	.76	14.48	314.0	.23	--	--
Finish Mill	21.30	1.50	12.93	372.0	.81	--	--
Cement Silo Discharge	15.20	.46	14.39	344.0	.08	--	--
Cement Silos	61.00	.46	14.39	355.0	.30	--	--

Fugitive Sources	Release Height(m)	Area Width(m)	PM Emission Rate ($g/s/m^2$)
Deep Bucket Conveyor	15.0	45.0	0.000212
Iron Ore Storage	15.0	90.0	0.000029
Cement Distribution Sys.	10.0	20.0	0.000125

[1] Cement kiln and power plant share a common stack, total proposed emissions from which equal: PM, 10.9 g/s; SO_2, 121.6 g/s; NO_x, 161.2 g/s; and CO, 6.3 g/s.

Chassahowitzka Class I area is within 20 kilometers of the proposed site; therefore, an analysis of Class I impacts was also performed.

There are several sources besides the proposed FCS facility which could affect increment consumption in the area of the proposed site. These are Adams Construction Company, Florida Mining and Materials, and Florida Power Corporation-Crystal River. Modeling results shown in Table 4 predict that the power plant/cement plant facility proposed by FCS, in combination with other increment-affecting sources in the area, will not cause a violation of any Class I or Class II PSD increment. Since separate modeling runs for the cement plant sources alone were not done, the table contains values based on all cement plant and power plant sources. For both SO_2 and PM, the highest, second-highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the modeling.

As shown in the table, the predicted 24-hour SO_2 concentration in the Class I area consumes the highest percent of the PSD Class I increments. The modeling results show the highest, second-highest 24-hour SO_2 impact to be 3.2 micrograms per cubic meter at a point 21.5 kilometers northwest of the proposed power plant/cement plant kiln stack location in the southeastern corner of Chassahowitzka Class I PSD area. This 24-hour impact consumes about 64% of the available 24-hour Class I SO_2 increment. The predicted 24-hour PM concentration in the Class II area consumes the highest percent of the PSD Class II increments. The modeling results show the 24-hour PM impact to be 18 micrograms per cubic meter at a point 1.1 kilometers east of the proposed project. This impact is mainly due to fugitive emissions from the power plant/cement plant. This 24-hour impact consumes about 49% of the available 24-hour Class II PM increment.

D. AAQS Analysis

Given existing air quality in the area, the proposed FCS facility is not expected to cause or contribute to any violation of AAQS. The results of the AAQS analysis are contained in Table 5. The values contained in this table are based on emissions from all FCS cement and power plant sources.

For both SO_2 and PM, the highest, second-highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the modeling. Based on the monitoring data, FCS has conservatively estimated the short-term PM background value as 112 micrograms per cubic meter and the long-term PM background value as 34 micrograms per cubic meter. The monitoring data show that both the short-term and long-term background SO_2 values can be assumed to be zero because values of zero were measured 97 percent of the time by the SO_2 monitor. For this project, no NO_2 or CO monitoring

TABLE 4

COMPARISON OF NEW SOURCE IMPACTS
WITH PSD INCREMENTS

Pollutant and Time Average	PSD Class I Increment	Predicted Concentration	Percent Increment Consumed	PSD Class II Increment	Predicted Concentration	Percent Increment Consumed
SO_2 (ug/m^3)						
3-hour	25.0	15.5	62	512	64	13
24-hour	5.0	3.2	64	91	13	14
Annual	2.0	0.1	5	20	4	20
PM (ug/m^3)						
24-hour	10.0	1.8	18	37	18	49
Annual	5.0	0.3	6	19	3	16

TABLE 5

COMPARISON OF PREDICTED IMPACTS WITH AMBIENT AIR QUALITY STANDARDS

Pollutant and Time Average	Existing Background[1]	FCS Impact	All Sources[2]	Florida AAQS
SO_2 (ug/m^3)				
3-hour	0	64	266	1300
24-hour	0	13	65	260
Annual	0	1	20	60
PM (ug/m^3)				
24-hour	112	18	146	150
Annual	34	6	56	60
NO_2 (ug/m^3)				
Annual	20	1	---[3]	100
CO (ug/m^3)				
8-hour	0	<1	---[3]	10,000
1-hour	0	<10	---[3]	40,000

1) Existing background as defined by FCS
2) Includes existing background. Maximum FCS impact does not necessarily occur at the same point and time as maximum ambient impact of all sources in the area.
3) Because of insignificant FCS impact, the maximum ambient impact of all sources in the area was not evaluated.

was required by the Department; however, the Department has estimated a background NO_2 value of 20 ug/m^3. This value is based upon data gathered elsewhere around the state.

The maximum predicted 24-hour PM impact which includes the background value, the impact of all new and existing sources, and the impact of the proposed FCS sources is 146 micrograms per cubic meter. This impact is predicted to occur 2.0 kilometers southwest of the proposed FCS site. The maximum predicted annual PM impact is 56 micrograms per cubic meter and is predicted to occur near the Florida Mining and Materials plant northwest of the site. The contribution by FCS sources to this impact is 0.1 microgram per cubic meter. The maximum predicted SO_2 impacts are all much less than AAQS as is the maximum predicted annual NO_2 impact. The maximum predicted CO impact was inferred from the SO_2 modeling and is insignificant.

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

The maximum ground-level concentrations predicted to occur as a result of emissions from the proposed FCS facility will be below all applicable AAQS including the secondary standards designed to protect public welfare related values. No soils or species of vegetation highly sensitive to these emissions are known to occur onsite, in the site vicinity, or in the Chassahowitzka Class I area.

A level-II visibility analysis for the power plant/cement plant facility predicts no adverse impact on the visibility in the Class I area.

The proposed facility will employ persons who are already a part of the west-central Florida work force. This project is not expected stimulate additional growth or shift the nature of the projected growth. Therefore, no significant secondary residential commercial or industrial growth which will adversely affect air quality in the area is expected.

F. GEP Stack Height Evaluation

Regulations published by EPA in the Federal Register of February 8, 1982, define GEP stack height as the maximum nearby building height plus 1.5 times the building height or width, whichever is less. The stack height proposed for the power plant/cement kiln and used in the modeling is 320 feet. This stack height is less than the GEP stack height of 375 feet calculated from the FCS plot layout and preliminary building dimensions for the cement plant silo and preheater.

VII. CONCLUSIONS

Based on the foregoing technical evaluation of the applications and additional information submitted by Florida Crushed Stone Company, the Department has made a preliminary determination that the construction can be approved and that compliance with all applicable state and federal air pollution regulations will be achieved provided certain conditions are met. The general and specific conditions are listed in the attached draft state permits.

VIII. LIST OF ATTACHMENTS

1. Application to Construct Air Pollution Sources (DER Form 17-1.122(16)), for each of 17 sources received on September 30, 1982, revised January 13 and February 16, 1983.
2. Application for State and Federal PSD Approval, Volume I, received September 30, 1982.
3. DER's incompleteness letter to FCS, dated October 29, 1982.
4. FCS's additional information, received on November 3 and 8, 1982.
5. DER's request for additional information, dated Feb. 1, 1983.
6. DER's comments on revised applications to FCS, dated February 14, 1983.
7. FCS's responses to DER, received on February 16, 18, and 25, 1983.
8. DER's additional comments to FCS, dated March 10, 1983.
9. DER's additional comments to FCS, dated March 18, 1983.
10. FCS'S response to DER, received on March 21, 1983.
11. FCS's response to DER, received on March 30, 1983.
12. DER's transmittal of U. S. Fish and Wildlife Service comments to FCS, dated March 30, 1983.
13. FCS's additional information, received on April 1 and 15, 1983.
14. DER's BACT determination for cement plant sources.
15. FCS's additional information, received on August 1, 1983.
16. FCS's additional information, received on October 3, 1983.

Attachment 15

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

SKEC 307-82-02

August 1, 1983

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

DER
AUG 0? 1983
BAQM

Subject: Florida Crushed Stone Company
Proposed Cement Plant/Power Plant
Hernando County, Florida
Revised Air Quality Review

Dear Mr. Fancy:

The Florida Crushed Stone Company has voluntarily reduced sulfur dioxide and particulate matter emissions from the cement plant/power plant complex proposed by the company in Hernando County. As a result of these reductions in emissions, revisions in the Air Quality Review were necessitated. These revisions show that the impact of sulfur dioxide and particulate matter emissions on the ambient air quality will be reduced. Copies of computer print-outs representing the revision to the Air Quality Review and tables and figures summarizing the results from these model runs were hand delivered to your office on July 21 and August 1, 1983. The purpose of this letter is to summarize the revisions that were made in the Air Quality Review and to summarize the results of that review.

Florida Crushed Stone has volunteered to reduce sulfur dioxide emissions and particulate matter emissions from the proposed 125 megawatt coal fired power plant. When both the cement plant and power plant are operating, Florida Crushed Stone is proposing a total sulfur dioxide emission rate of 965.0 pounds per hour; 915.0 pounds per hour from the power plant and 50.0 pounds per hour from the cement plant. The sulfur dioxide emission rate from the power plant is equivalent to 0.74 pounds of sulfur dioxide per million BTU heat input. This will be the lowest permitted sulfur dioxide emission rate from any new or existing coal fired power plant in the State of Florida. When the

power plant only is operating, Florida Crushed Stone is proposing a sulfur dioxide emission rate not to exceed 915 pounds per hour. This emission rate will be achieved by reducing sulfur dioxide emissions with limestone injection and, if necessary, reducing the electric power output from the plant.

Florida Crushed Stone is also proposing to reduce particulate matter emissions from the proposed power plant to 37.0 pounds per hour or 0.03 pounds of particulate matter per million BTU heat input with the plant operating at 125 megawatt. When the cement plant and power plant are operating, the total particulate matter emission rate will be 86.5 pounds per hour; 37.0 pounds per hour from the power plant and 49.5 pounds per hour from the cement plant.

The stack gas parameters used in the Air Quality Review are those transmitted to your office on March 29, 1983. The parameters used in the revised Air Quality Review, those resulting in the greatest ground-level impact, are those representing the combined operation of the cement plant and the power plant. Under these conditions, the stack gas flow rate is 542,460 actual cubic feet per minute at a temperature of 226°F. The stack height used in the modeling is 320 feet and in the stack diameter is 16.0 feet. The stack and stack gas parameters input to the model are:

Stack Height - 97.6 meters,
Stack Diameter - 4.88 meters,
Stack Gas Temperature - 381 degrees K, and
Stack Gas Velocity - 13.71 meters per second.

The limestone injection for sulfur dioxide emission reduction as proposed by Florida Crushed Stone will not significantly affect these stack gas parameters. There will be slight increases in both the stack gas flow rate and stack gas temperature, but the increases are within the limits accuracy for estimating the original stack gas flow rate and the stack gas temperature.

Florida Crushed Stone is proposing to introduce limestone at a rate of 2.3 tons per hour or at a calcium to sulfur mole ratio of 2 to 1. The introduction of this quantity of calcium carbonate will require 3.6 million BTU per hour to calcine the calcium carbonate. Assuming that 25 percent of the sulfur dioxide generated during the combustion of coal will be absorbed, 1.2 million BTU per hour will be recovered by the exothermic reaction by which sulfur dioxide combines with calcium oxide. This will leave a heat deficit of about 2.3 million BTU per hour or less than 0.2 percent of the total heat input

to the boiler. The additional coal burned to make up this deficit will result in an increase in the stack gas flow rate of about 0.2 percent or an increase in the stack gas velocity of approximately 0.02 meters per second.

The introduction of the limestone with the coal will also reduce the radiant heat transfer within the furnace cavity. There will, however, be an increased conductive heat transfer in the superheater section of the furnace. The net result will be a slight increase (2-4°F) in the flue gas temperature leaving the economizer section of the furnace. As with the increase in stack gas flow rate, this temperature increase in negligible and within the limits of error for estimating the original stack gas conditions.

Other changes in the Air Quality Review include a further reduction in particulate matter emissions from the Chemical Lime Company sources, increase in actual particulate matter emissions from one of the Florida Mining and Material sources and the inclusion of three fugitive dust sources within the proposed Florida Crushed Stone cement plant. The fugitive particulate matter sources associated with coal handling were included in this Air Quality Review just as they were in the previous review.

In correspondence transmitted to your office on March 18, 1983, it was stated that particulate matter emissions from the Chemical Lime Company sources would be reduced in order to reduce the maximum expected total suspended particulate matter levels resulting from all sources in the vicinity of the Florida Crushed Stone property. To further reduce this maximum expected total suspended particulate matter impact, the particulate matter emissions from the Chemical Lime Company sources are being further reduced to:

	Particulate Matter (lb/hr)		
Source	Permit	Allowable	Actual
Kiln	A027-55581	21.7	16.0
Hydrator	A027-25269	14.0	12.5
Dryer	A027-50400	33.3	14.5
Bagging	A027-17352	12.0	5.0

The Chemical Line Company will agree to permit modifications reflecting these emission rates if required by FDER.

Also, in correspondence transmitted to your office on March 18, 1983, modeled particulate matter emission rates for the Florida Mining and Material sources were listed. In the revised Air Quality Review, the modeled emissions from the clinker silo (Source 10806) were increased from 1.7 to 5.0 pounds per hour. This provides a larger cushion between actual emissions and the emission rate used for modeling purposes

The fugitive particulate matter sources within the proposed Florida Crushed Stone cement plant that were incorporated in the revised Air Quality Review include emissions from the iron ore storage area, emissions from the deep bucket conveyor and emissions from the cement distribution system. Emissions from the iron ore storage were estimated to be controlled by 90 percent by wetting. The resulting emission factor, applied to the iron ore throughput of 10,060 tons per year was, 0.034 pounds of particulate matter per ton of iron ore. This resulted in a fugitive particulate matter emission rate from this source is 0.18 tons per year.

Emissions from the deep bucket conveyor were estimated to 0.005 pounds per tons of cement produced and emissions from the cement distribution system were estimated to be 0.003 pounds per tons of cement produced. At a production rate of 600,000 tons per year, the emissions from the deep bucket conveyor will be 1.5 tons of fugitive particulate matter per year and the emissions from the cement distribution system will be 0.9 tons of fugitive particulate matter per year.

The results of the revised Air Quality Review show that the proposed cement plant and the power plant can be constructed without threatening ambient air quality standards or Class I or Class II PSD increments. The modeling results to evaluate the impact on the Class I PSD area showed a maximum annual particulate matter impact of 0.1 microgram per cubic meter for Florida Crushed Stone sources and 0.8 micrograms per cubic meter for all new sources. This compares with a annual Class I PSD increment for particulate matter of 5 micrograms per cubic meter. For the 24-hour period, the maximum impact of particulate matter emissions from the Florida Crushed Stone sources will be 0.3 micrograms per cubic meter, while the maximum impact from all new sources will be 1.8 micrograms per cubic meter. These impacts compare with a Class I PSD increment for particulate matter of 10 micrograms per cubic meter.

For sulfur dioxide, the annual impact of emissions from the Florida Crushed Stone sources will be 0.3 micrograms per cubic meter and the maximum impact from all new sources will be 0.1 microgram per cubic meter. The reduction in maximum annual impacts when considering all sources is the result of emission reductions at the Florida Power Corporation Crystal River Plant and the Tampa Electric Company Big Bend Plant. The annual Class I PSD increment for sulfur dioxide is 2 micrograms per cubic meter. The maximum 24-hour impact of sulfur dioxide emissions from the Florida Crushed Stone plants will be 3.1 micrograms per cubic meter and the maximum impact from all new sources will be 3.3 micrograms per cubic meter. These compare with a 24-hour Class I PSD increment for sulfur dioxide of 5 micrograms per cubic meter.

For the 3-hour period, the maximum sulfur dioxide impact from Florida Crushed Stone sources will be 13.2 micrograms per cubic meter compared with a 3-hour Class I sulfur dioxide increment of 25 micrograms per cubic meter. The maximum impact of all new sources will be 15.3 micrograms per cubic meter. All of the Class I impact data are summarized in Table 1 which is attached hereto and which was hand delivered to your office on August 1, 1983.

The modeling results in the vicinity of the Florida Crushed Stone property show that the impacts of sulfur dioxide, particulate matter and nitrogen oxides are well below the Class II PSD increments for all time periods and further show that the maximum expected concentrations of these pollutants are well below applicable Air Quality Standards for all time periods. These data are summarized in Table 2 and Figures 2-12, all of which are attached and all of which were delivered to your office on August 1, 1983.

The short-term modeling results for sulfur dioxide show a maximum 3-hour impact of Florida Crushed Stone sources and a maximum impact of all new sources of 64 micrograms per cubic meter. These compare with a Class II sulfur dioxide PSD increment for the 3-hour period of 512 micrograms per cubic meter. The 3-hour modeling further shows a maximum impact of 256 micrograms per cubic meter for baseline sources and an impact of 266 micrograms for all sources; that is baseline sources plus new and proposed sources. These impacts compare with a 3-hour sulfur dioxide air quality standard of 1300 micrograms per cubic meter.

Sulfur dioxide modeling for the 24-hour period shows the maximum Florida Crushed Stone impact and the impact of all new sources to be 13 micrograms per cubic meter. This compares with a Class I PSD increment for sulfur dioxide for the 24-hour period of 91 micrograms per cubic meter. The 24-hour modeling for sulfur dioxide shows a

baseline source impact of 71 micrograms per cubic meter and an impact all sources (baseline plus new and proposed) of 65 micrograms per cubic meter. These impacts compare with a 24-hour quality standard for sulfur dioxide to 260 micrograms per cubic meter.

The annual modeling for sulfur dioxide impacts was conducted with the ISC-LT model. These modeling results shows a maximum impact from Florida Crushed Stone sources of 1 microgram per cubic meter and a maximum impact from all new sources of 4 micrograms per cubic meter. These impacts compare with the Class II PSD increment for sulfur dioxide of 20 micrograms per cubic meter. The annual modeling shows that the impact of baseline sources and the impact of all sources (baseline plus new and proposed sources) are both 20 micrograms per cubic meter. These impacts compare with an annual sulfur dioxide air quality standard of 60 micrograms per cubic meter.

The particulate matter modeling for the short-term period was conducted with the ISC-ST model. These modeling results show the maximum 24-hour impact of Florida Crushed Stone sources and from all new sources both to be 18 micrograms per cubic meter. The impacts compare with a Class II PSD standard for particulate matter of 37 micrograms per cubic meter. The impact of baseline particulate matter sources for the 24-hour period was calculated to be 149 micrograms per cubic meter while the impact of all sources (baseline plus new and existing sources) was calculated to 146 micrograms per cubic meter. The reduction between the baseline period and the current time period is a reflection of the reduction in particulate matter emissions from Chemical Lime sources. The 24-hour particulate matter air quality standard is 150 micrograms per cubic meter.

The annual particulate matter modeling was conducted with the ISC-LT model. These modeling results show a maximum impact off Florida Crushed Stone property of 2 micrograms per cubic meter for Florida Crushed Stone sources and a maximum impact of new sources of 3 micrograms per cubic meter. These impacts compare with a Class II PSD increment for particulate matter of 19 micrograms per cubic meter. The annual impact of baseline sources and all sources off, the Florida Crushed Stone property, was calculated to be 40 micrograms per cubic meter including a background concentration of 34 micrograms per cubic meter. These concentrations compare with an annual air quality standard for particulate matter of 60 micrograms per cubic meter.

The impact of nitrogen oxides emissions from the Florida Crushed Stone sources was evaluated with the IST-LT model and again found to be 1 microgram per cubic meter; just as in the information previously submitted to your office. This impact compares with an annual air quality standard for nitrogen oxides of 100 micrograms per cubic

meter. The impacts of carbon monoxide from the Florida Crushed Stone sources will be approximately 5 percent of the sulfur dioxide impacts, or impacts which are insignificant when compared with the carbon monoxide air quality standards.

The information hand delivered to your office on July 21, 1983 included the air quality modeling results that were used to evaluate the impacts of emissions on the Class I PSD area and the results used to evaluate the maximum short-term sulfur dioxide and particulate matter impacts in the vicinity of the Florida Crushed Stone property. The information delivered to your office on August 1, 1983 are modeling results used to evaluate the annual impacts of sulfur dioxide, particulate matter, nitrogen oxides emissions in the vicinity of the Florida Crushed Stone property and the modeling results used to evaluate the results of short-term particulate matter impacts in the vicinity of the Florida Crushed Stone property with reduced Chemical Lime emissions.

If there are any questions regarding any of this data, please contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

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

JBK:ldh
Enclosures

cc: Mr. Larry Curtin
Mr. Dick Entorf

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	0.3	<0.1	2.7	2.9	11.4	13.0
1974	0.3	0.1	2.7	2.8	11.2	15.3
1975	0.3	0.1	3.1	3.1	13.2	13.4
1978	0.3	<0.1	2.6	2.7	11.9	13.1
1979	0.3	0.1	2.9	3.3	10.2	13.6

	Particulate Matter Impact (ug/m^3)			
	Annual		24-Hour	
Year	FCS	All New	FCS	All New
1973	0.1	0.3	0.7	1.7
1974	0.1	0.3	0.6	1.8
1975	0.1	0.3	0.7	<1.8
1978	0.1	0.3	0.8	1.8
1979	0.1	0.3	0.8	<1.8

Model: ISC-ST
Met Data: Tampa/Tampa
Years - 1973, 74, 75, 78, 79 (1976 & 77 not available)
Data pre-processed with FDER Program.

TABLE 2

SUMMARY OF AIR QUALITY REVIEW

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

Pollutant	Maximum Impact in Hernando County (ug/m^3) FCS	All New Sources		Baseline Sources	All Sources	
SO_2[1]						
Annual[2]	1	4	(20)[3]	20	20	(60)
3-Hour	64	64	(512)	256	266	(1300)
24-Hour	13	13	(91)	71	65	(260)
Particulate Matter[4]						
Annual[2]	2	3	(19)	40[5]	40[5]	(60)
24-Hour	18	18	(37)	149[5]	146[5]	(150)
NOx[6]						
Annual	1	(100)	--	--	--	

(1) SO_2 background is zero for all time periods; see monitoring data in original application.

(2) Annual impact from ISC-LT model off FCS property.

(3) Numbers in parentheses are applicable standards.

(4) 24-Hour background is 112 ug/m^3 and annual background is 34 ug/m^3; see original application.

(5) Includes Background.

(6) Unchanged from revised application for power plant dated October, 1982.

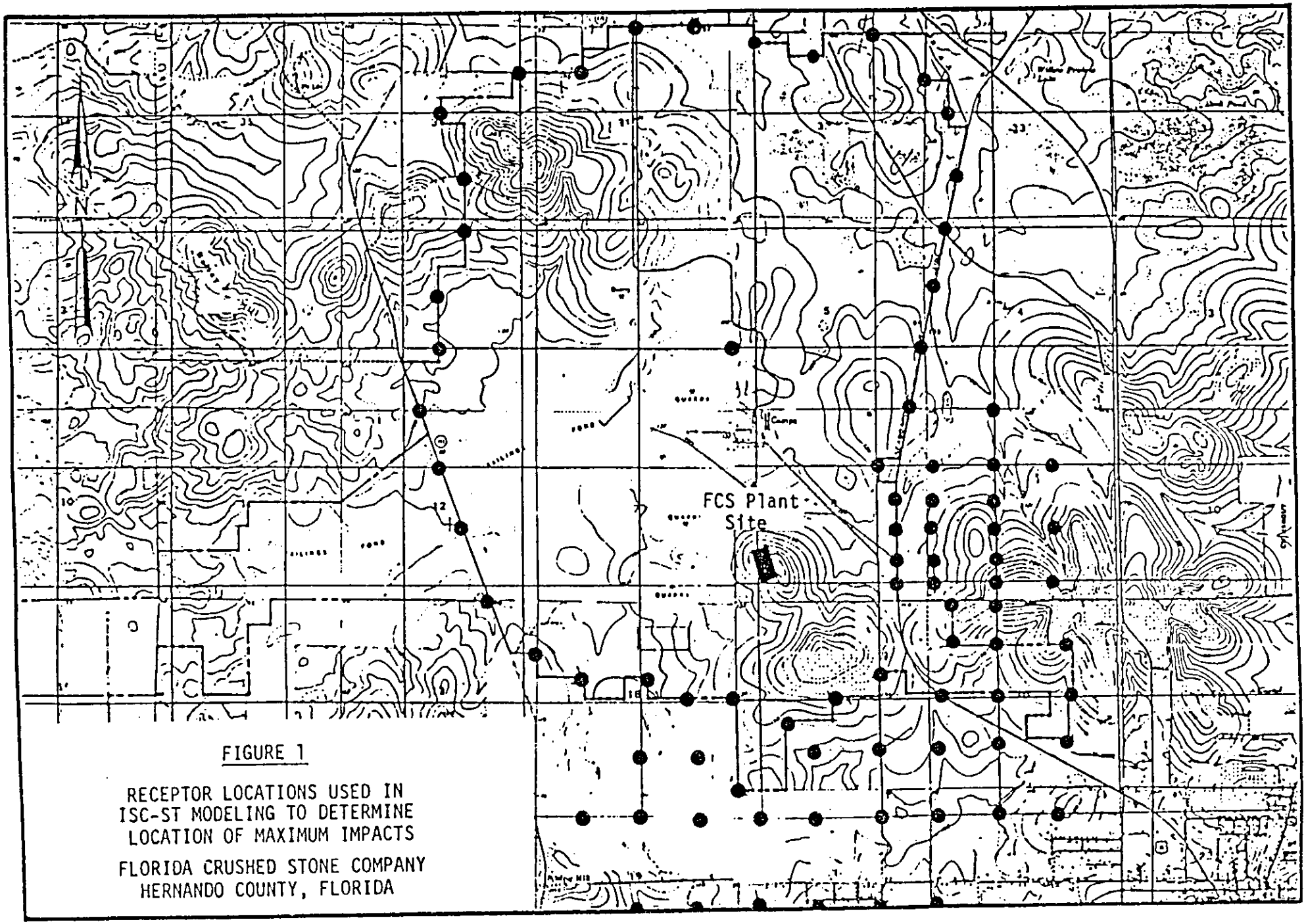


FIGURE 1

RECEPTOR LOCATIONS USED IN
ISC-ST MODELING TO DETERMINE
LOCATION OF MAXIMUM IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

Sources	Sulfur Dioxide Impact (ug/m3)	Receptor
24-Hour		
FCS	13	1
All New	13	2
Baseline	71	3
All Sources	65	4
3-Hour		
FCS	64	4
All New	64	4
Baseline	256	5
All Sources	266	5

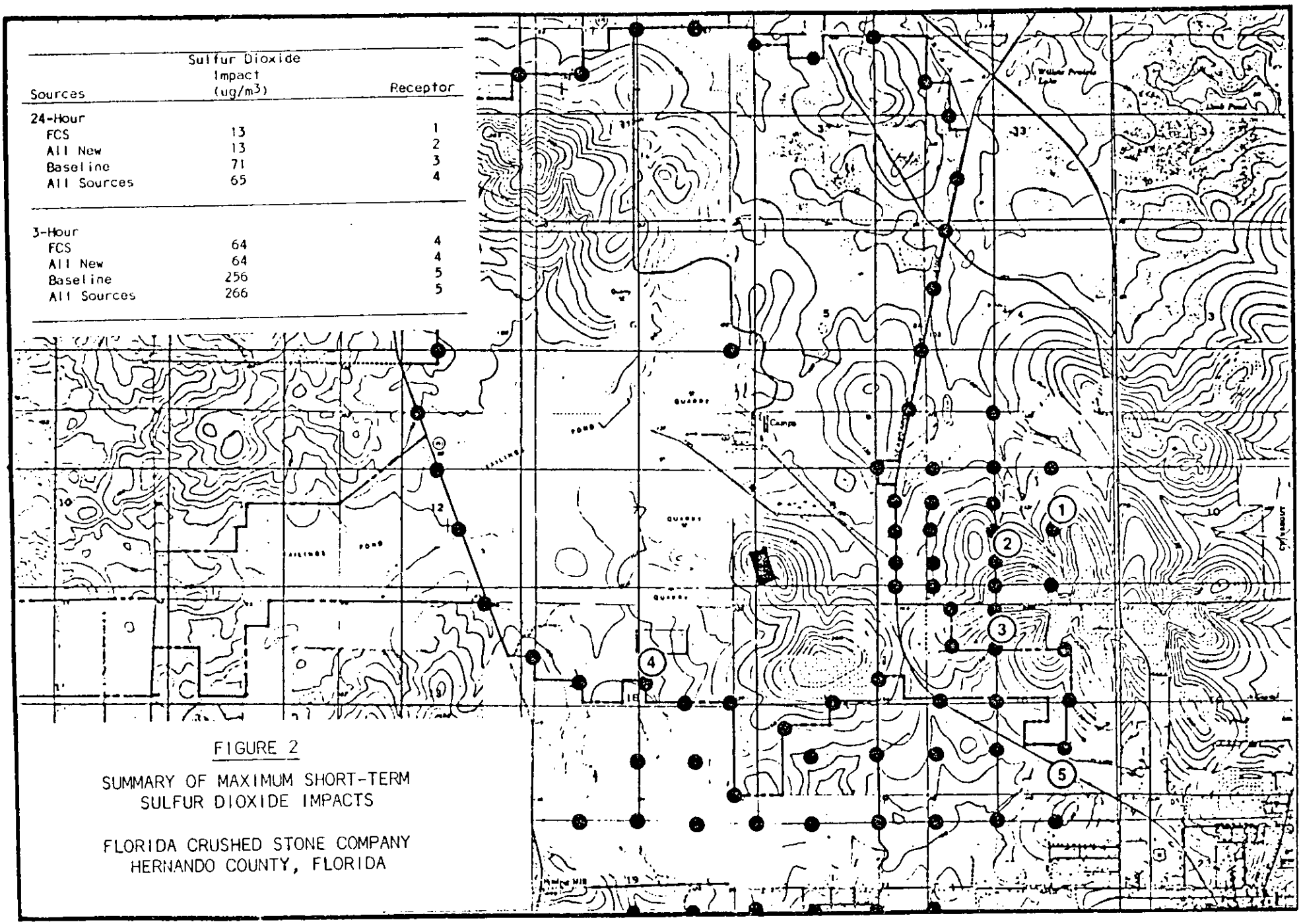


FIGURE 2

SUMMARY OF MAXIMUM SHORT-TERM
SULFUR DIOXIDE IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

Sources	Particulate Matter Impact (ug/m^3)	Receptor
24-Hour		
FCS	18	1
New Sources	17	1
New Sources	18	1
Baseline	149*	2
All Sources	144*	3
All Sources	146*	2

* Includes 112 ug/m^3 background.

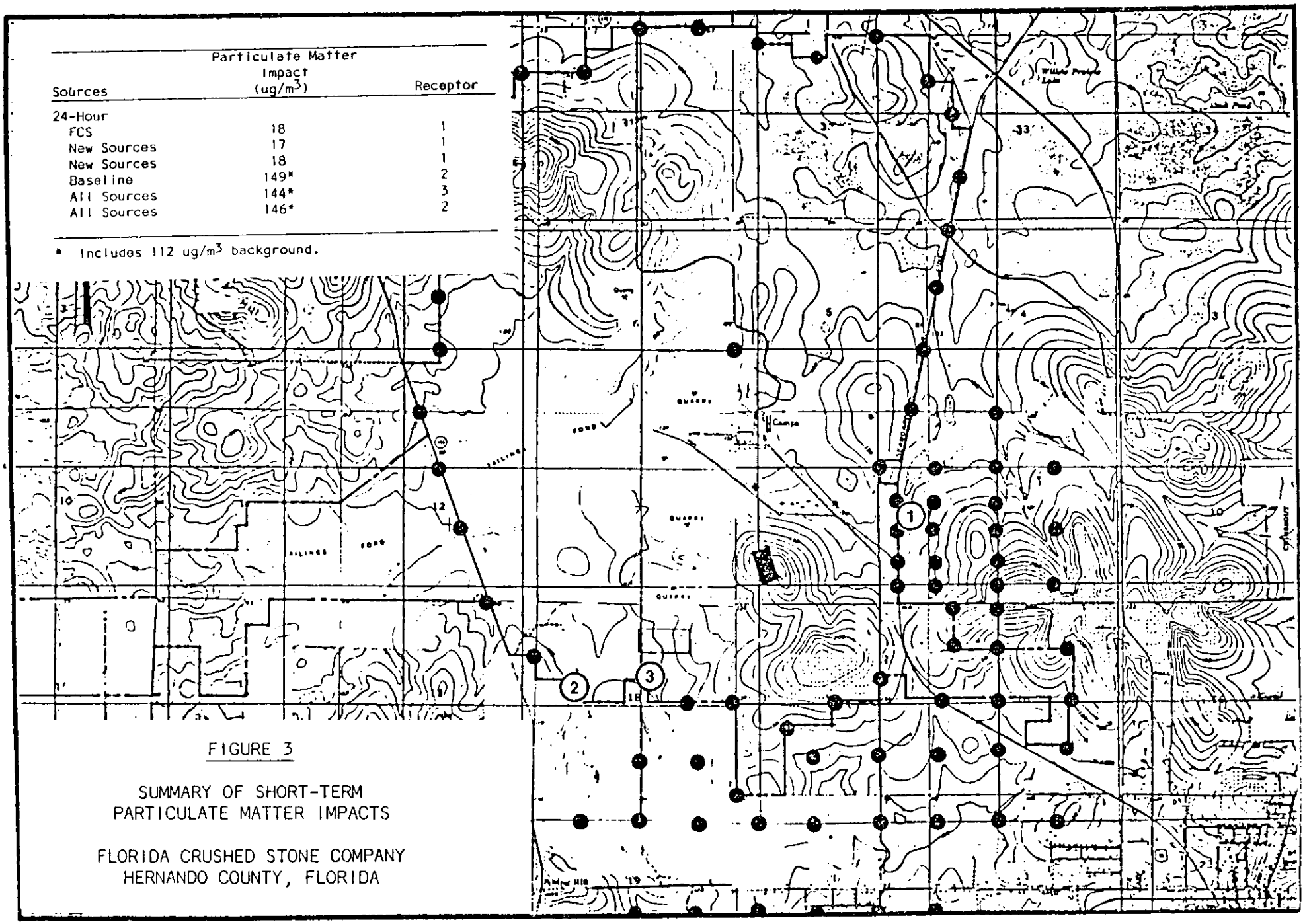


FIGURE 3

SUMMARY OF SHORT-TERM
PARTICULATE MATTER IMPACTS

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

7/28/83

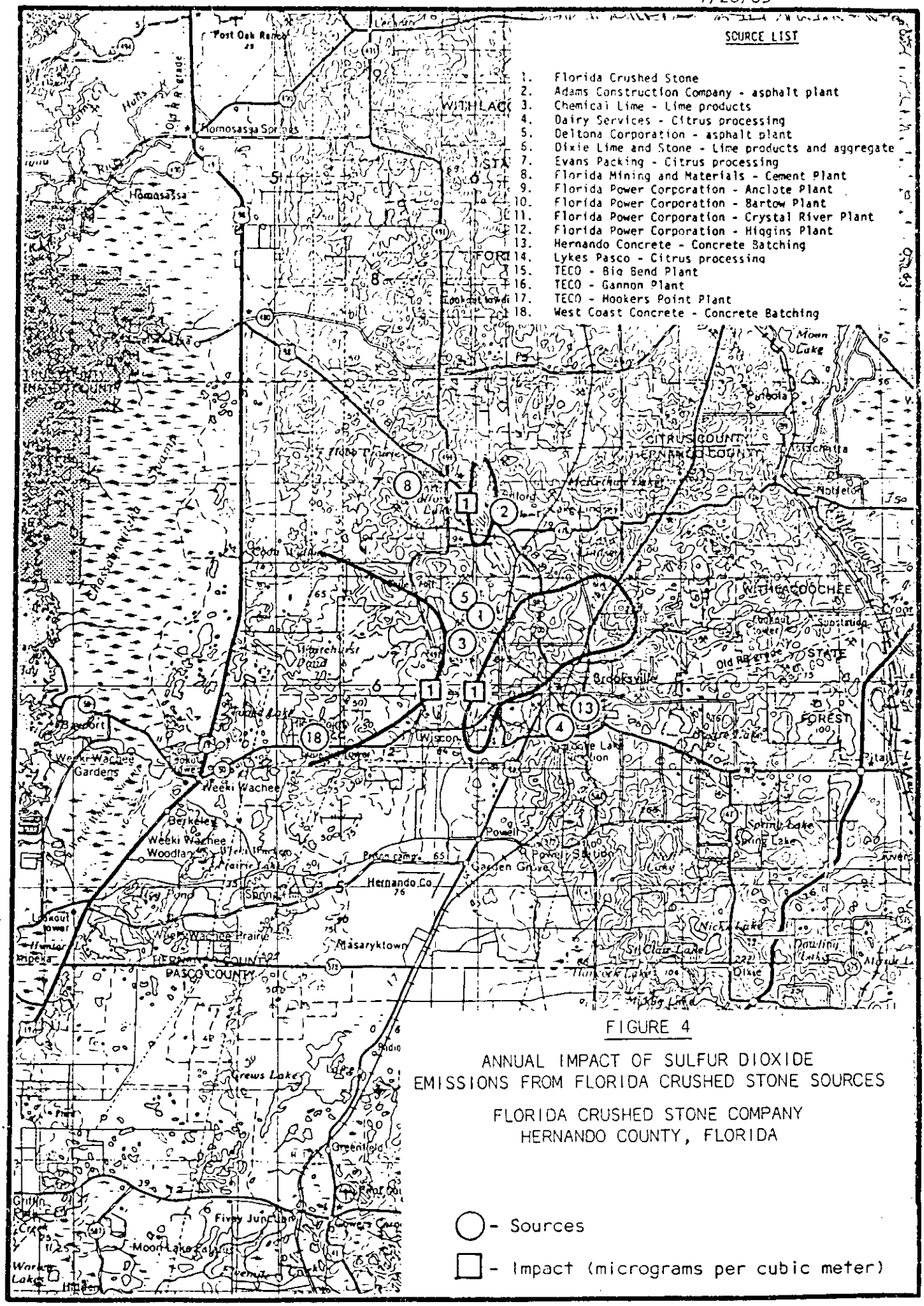


FIGURE 4

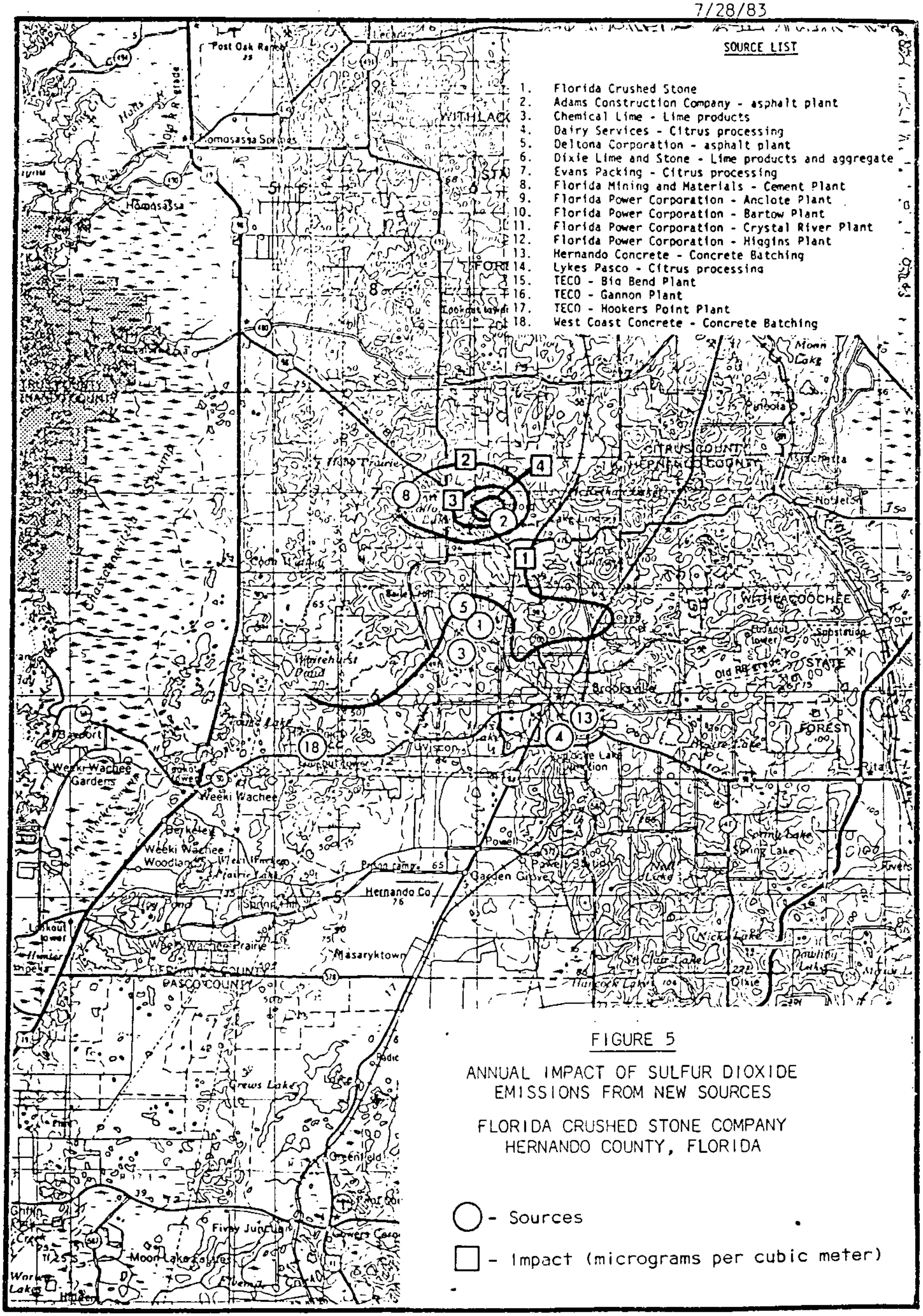
ANNUAL IMPACT OF SULFUR DIOXIDE EMISSIONS FROM FLORIDA CRUSHED STONE SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources

□ - Impact (micrograms per cubic meter)

7/28/83



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

ANNUAL IMPACT OF SULFUR DIOXIDE EMISSIONS FROM NEW SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources

□ - Impact (micrograms per cubic meter)

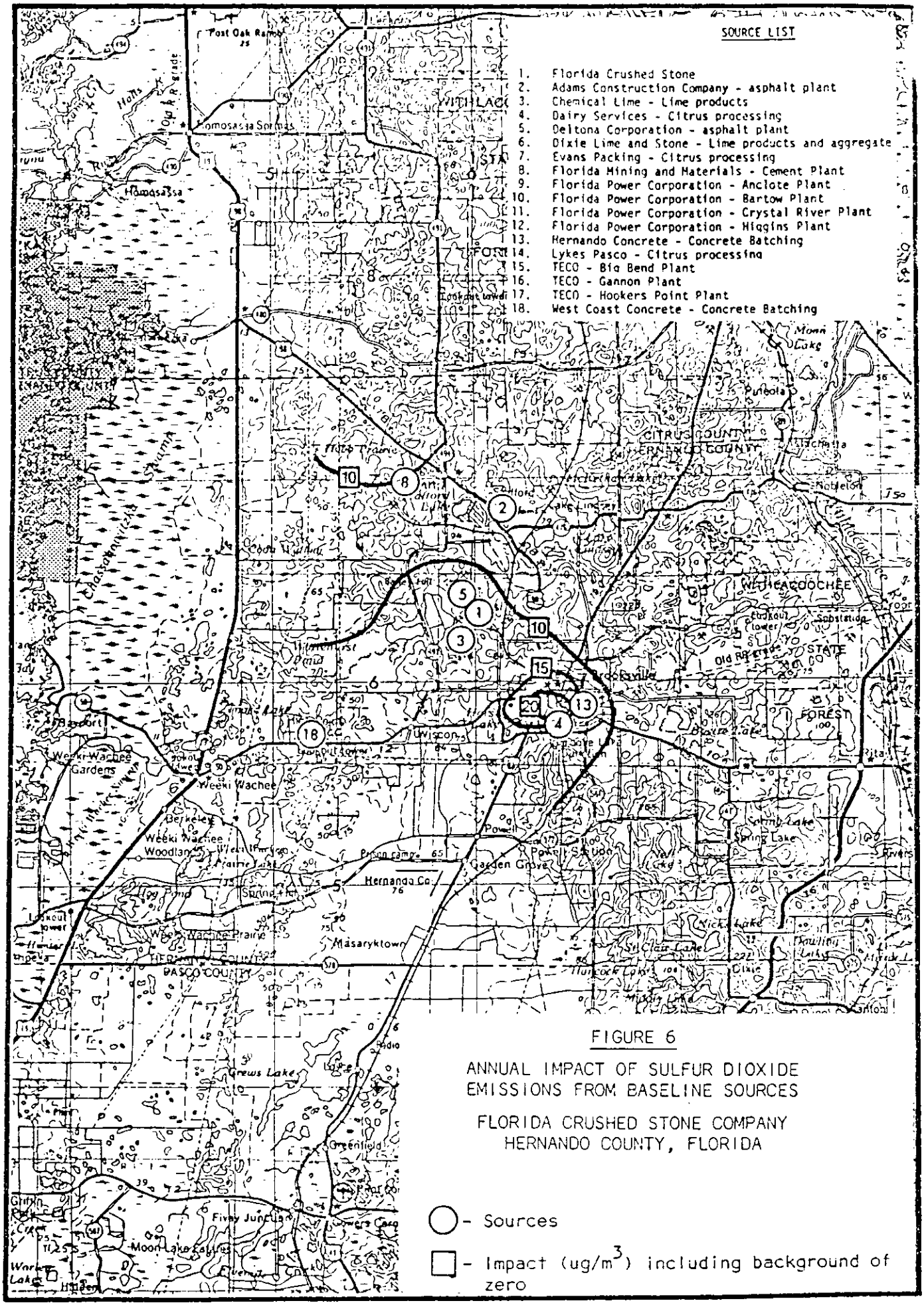


FIGURE 6

ANNUAL IMPACT OF SULFUR DIOXIDE EMISSIONS FROM BASELINE SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources

□ - Impact (ug/m^3) including background of zero

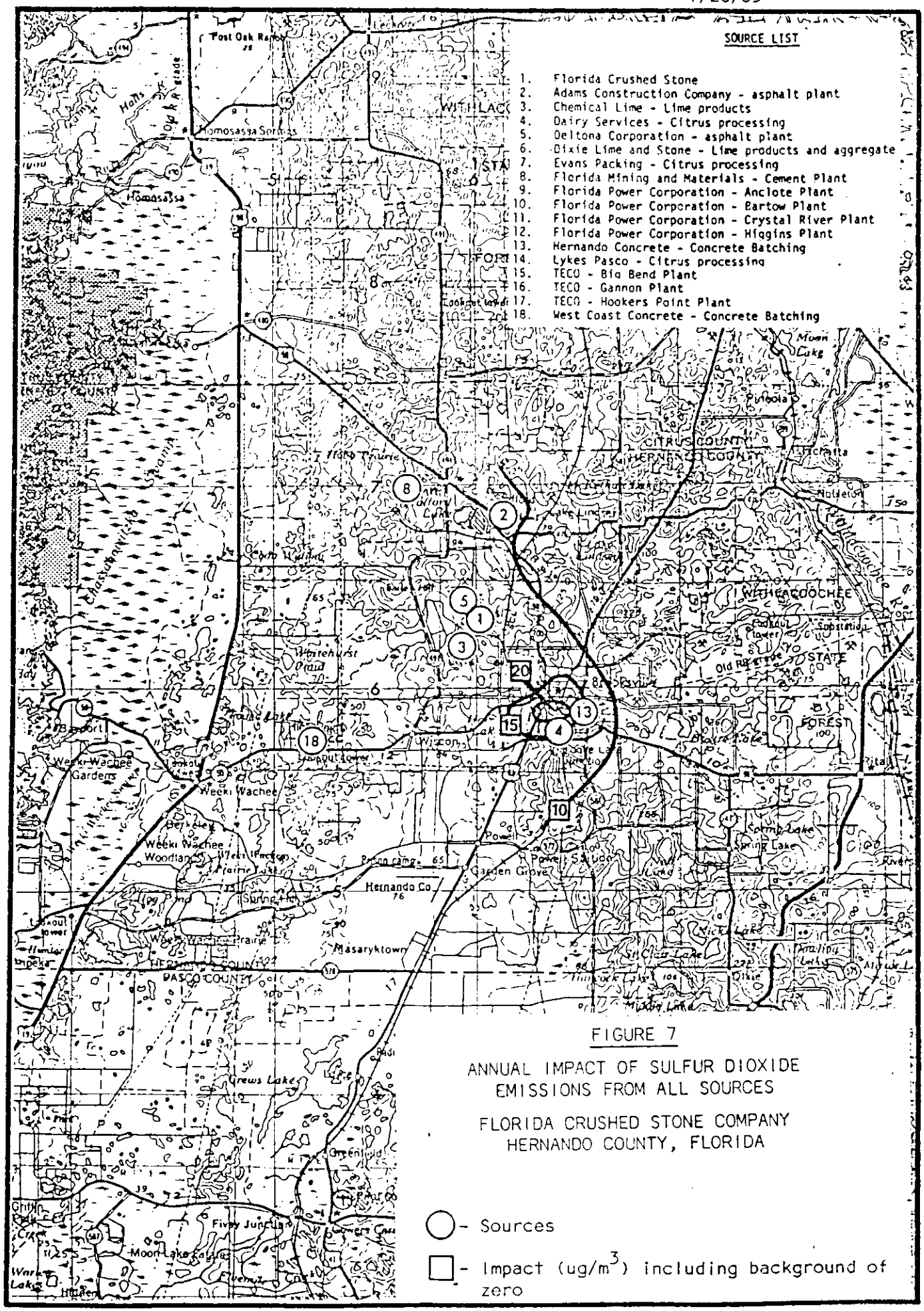


FIGURE 7

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

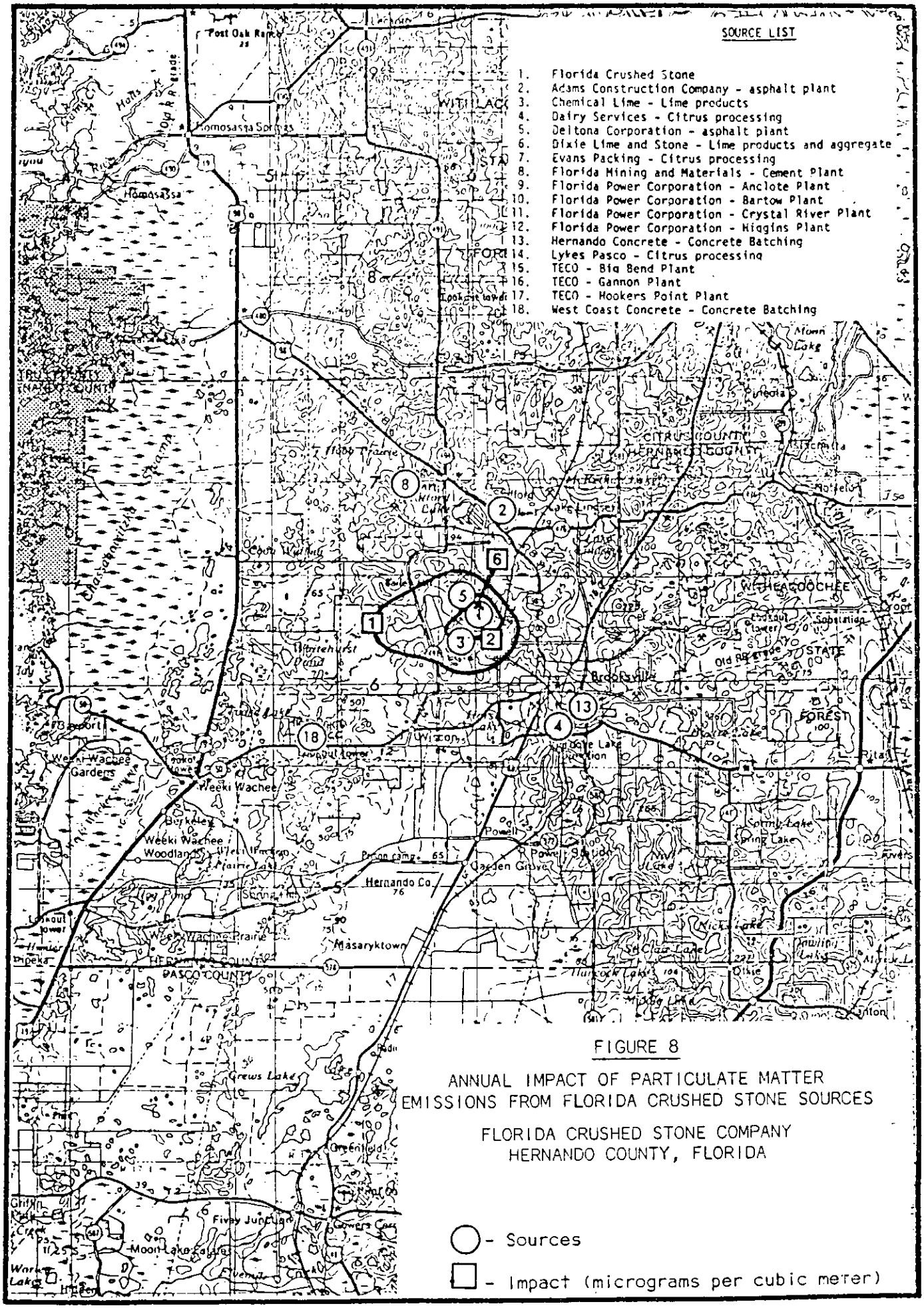
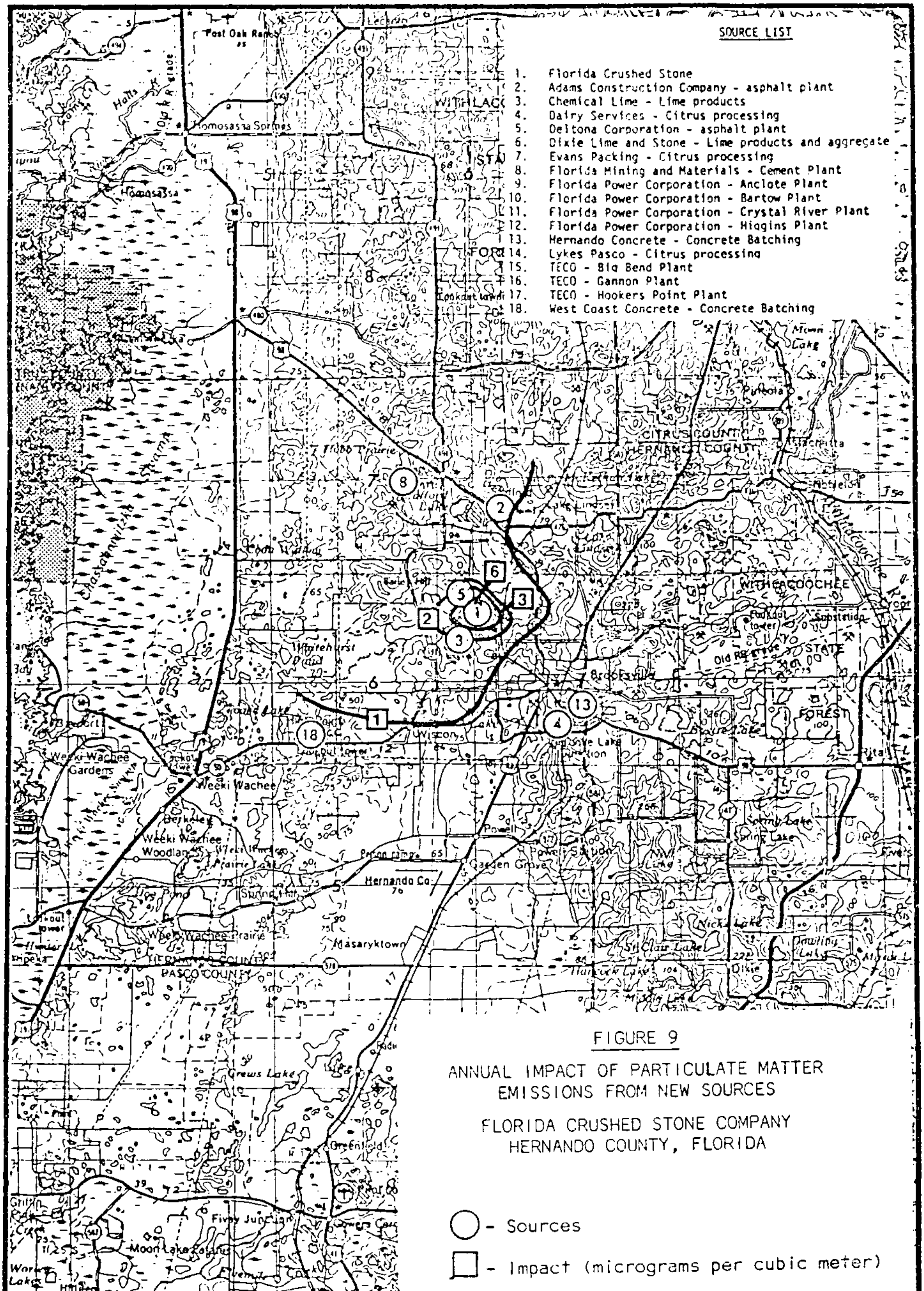


FIGURE 8

ANNUAL IMPACT OF PARTICULATE MATTER EMISSIONS FROM FLORIDA CRUSHED STONE SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

7/28/83



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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 NEW SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources

□ - Impact (micrograms per cubic meter)

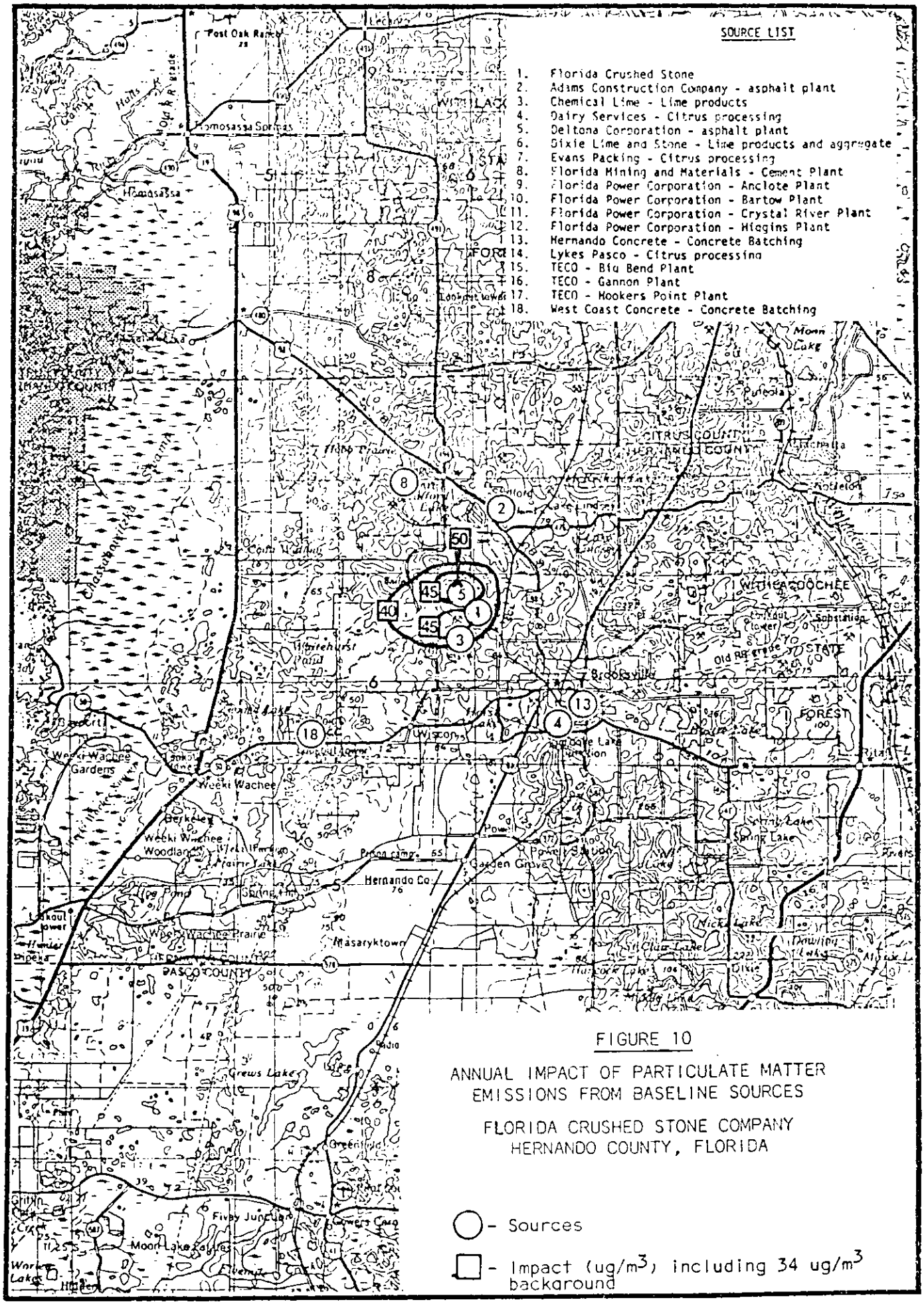

FIGURE 10

ANNUAL IMPACT OF PARTICULATE MATTER EMISSIONS FROM BASELINE SOURCES

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

○ - Sources

□ - Impact (ug/m^3) including 34 ug/m^3 background

7/28/83

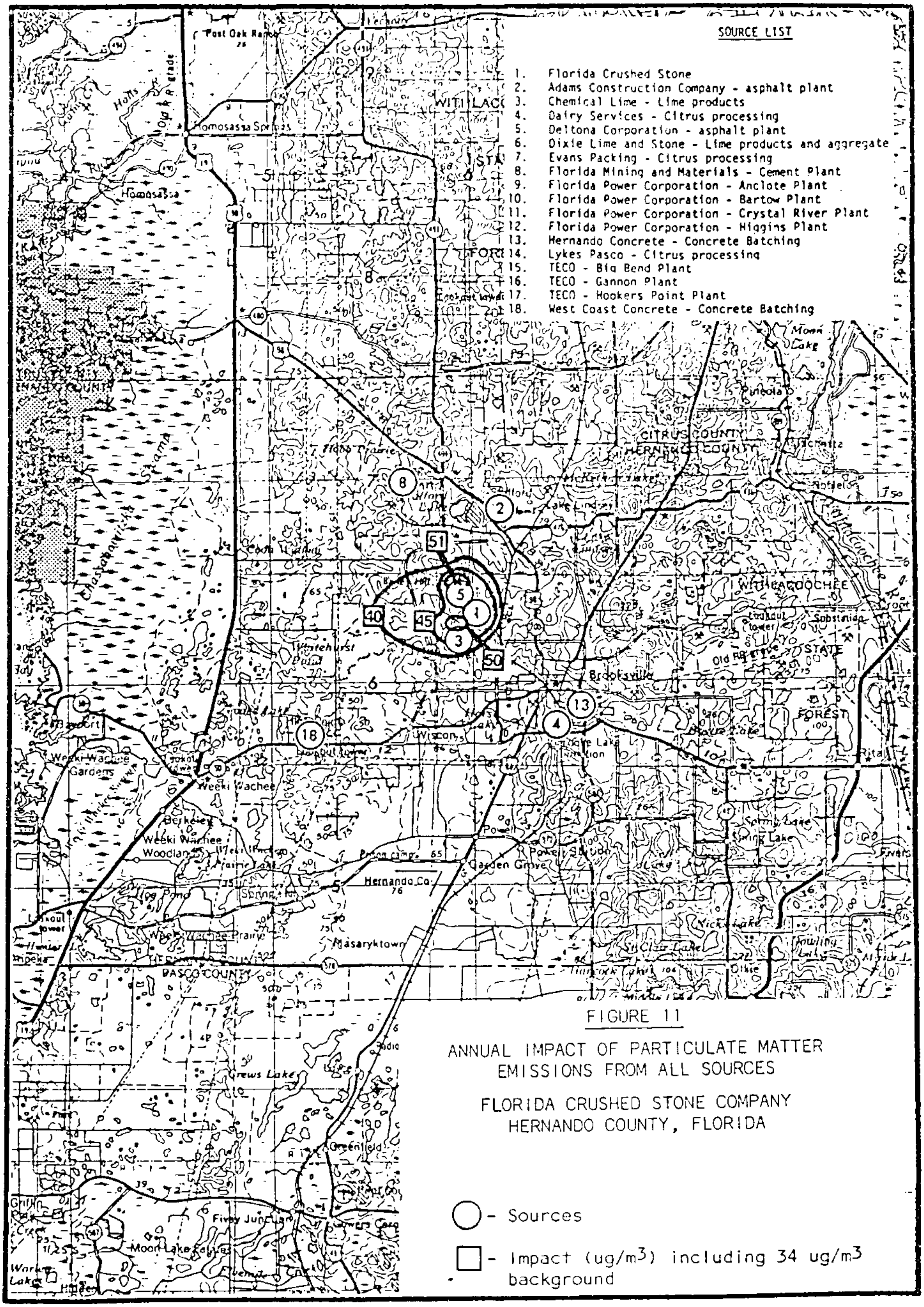

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FIGURE 11

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

7/28/83

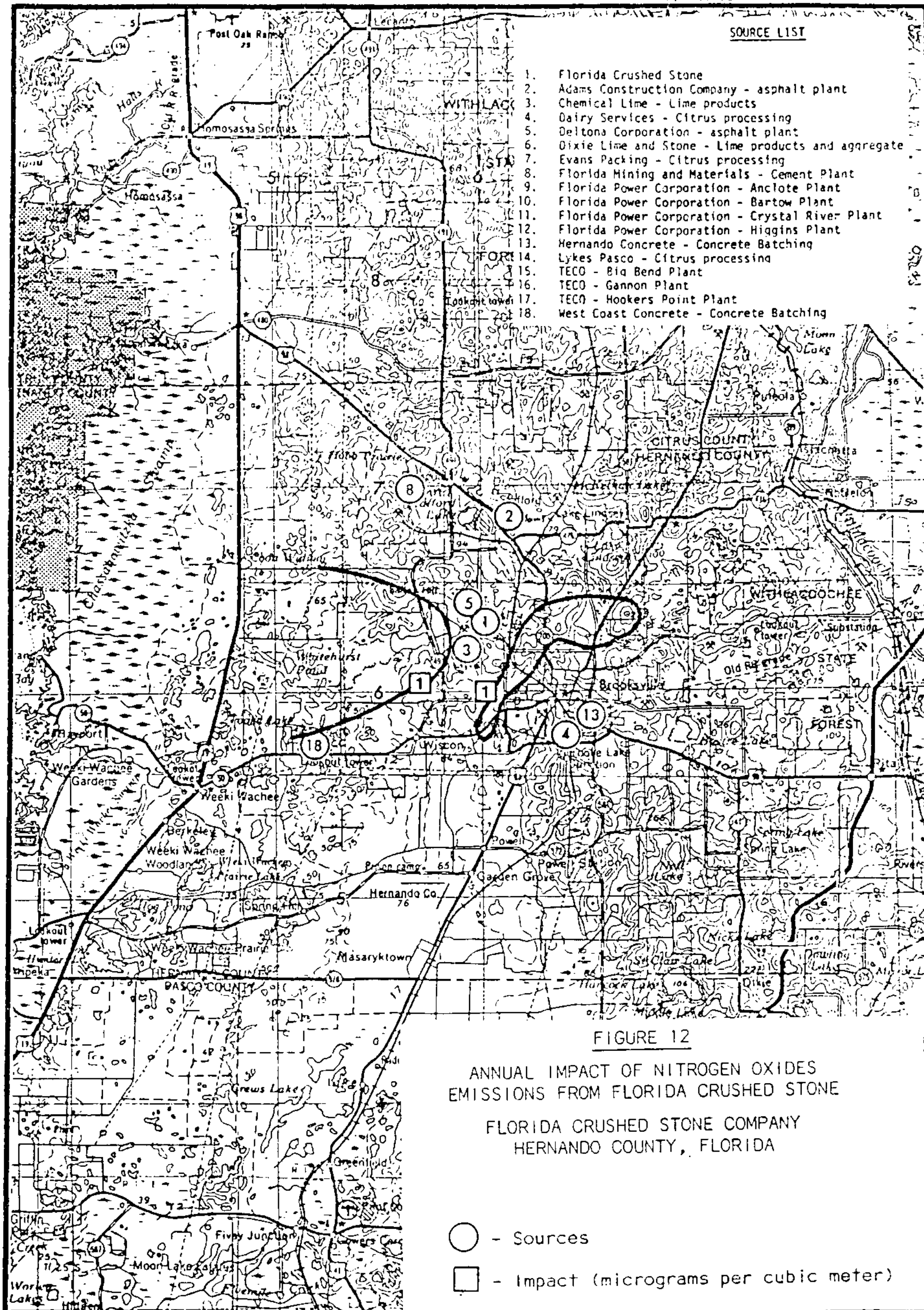

FIGURE 12

ANNUAL IMPACT OF NITROGEN OXIDES EMISSIONS FROM FLORIDA CRUSHED STONE

FLORIDA CRUSHED STONE COMPANY
HERNANDO COUNTY, FLORIDA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4AW-AM

SEP 27 1983

DER
OCT 04 1983
BAQM

Mr. Clair H. Fancy, P.E.
Deputy Bureau Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: Florida Crushed Stone - PSD-FL-090 and PSD-FL-091

Dear Mr. Fancy:

This office has completed its review of the above-referenced PSD application and preliminary determination for the Florida Crushed Stone (FCS) facility in Brooksville, Florida. Our comments are as follows:

1. Information submitted by FCS regarding process flow, processing equipment and control devices for the cement plant is confusing and conflicting. The flow diagrams sent to us by the DER in August conflict with the equipment list sent in the same submittal. There have been several changes in the process made by FCS. FCS should submit an up-to-date process flow diagram and equipment list.

2. Changes to baghouse specifications in Table A2-1 of the application have apparently been marked with a felt-tip pen and then copied, resulting in illegible copies. DER should insure that these specifications are adequate to meet BACT.

3. Thoughout the application and review, the power plant and cement plant are treated as two separate new PSD sources. They should, instead, be treated as a single modification to an existing source. If any PSD requirements were avoided because of the way the sources were categorized, they should be required.

4. In the February 16, 1983, letter from Dr. Koogler, an assumption is made that if a gas stream passes through two or more particulate-producing emission units, the final emission rate will be the same as that of the highest emitter when operating alone. No justification is given

for this assumption, except that, "there will be some deposition of particles within individual processing units." While it may be the case that the emission rate will be less than the sum of all the individual rates, there is no reason to expect the rate to be no higher than the single highest rate.

5. For the BACT analysis for particulate matter, the selected level of control is assumed to be NSPS in all cases where NSPS applies. There is no calculation of the expected emission rate from the selected control devices. Rather, the emission rate (NSPS) is the starting point for the calculations, with control efficiency being the final calculated value. No alternative emission rates are evaluated. Since all the large sources are vented to the same baghouse, DER should consider requiring the applicant to justify why economy of scale does not allow a lower BACT level. Also, even with the control devices selected, the BACT emission rate should be calculated from what is achievable with that control device.

6. According to our calculations, the grain loading at the outlet of the main baghouse would be 0.02 gr/acf (0.031 gr/scf), based upon an allowable emission rate of 86.5 lb/hr. The text of the application states that all fabric filters in the plant are designed to operate with outlet concentrations between 0.012 and 0.015 gr/acf. The fabric filter specifications sheet shows 0.01 gr/scf, which converts to approximately 0.008 gr/acf, or about 28 lb/hr. Why is the allowable rate so much higher than the predicted rate?

7. Only four months of pre-construction monitoring data were collected for TSP and SO_2. EPA requires a full year unless it can be shown that less than a full year is acceptable based on modeling or historical data showing that the time of year monitored is the expected maximum period. Normally four months for TSP is acceptable provided monitoring is done on an every other day basis which is equivalent to monitoring for a full year. For SO_2, since peaks occur both in the summer and winter, EPA has always required a full year of monitoring unless historical data showed a significantly higher monitoring value in one season.

8. For establishing the background air quality, Larry George and Cleve Holladay outlined a procedure over the telephone which Lew Nagler accepted. DER would establish the meteorological conditions on days of highest monitored values, and add the modelled results for those days to the average of the monitored values for those days to establish total air quality. We have not yet received that analysis.

9. In the August 1, 1983, letter from Dr. Koogler to Clair Fancy, the applicant agrees to lower SO_2 and particulate emissions. The SO_2 emissions from the boiler are to be lowered by using limestone injection, but no calculations are presented to show that the SO_2 limit can be met. The letter states that, if necessary, the electric power output would be reduced to meet the SO_2 emission limit, but this brings up questions of enforceability. For the lower particulate limit there is no indication how the limit will be met.

10. In the same August 1, 1983, letter, the applicant agrees to reduce actual hourly emissions from the existing Chemical Lime Company plant. These reductions apparently are necessary in order to meet the 24 hour NAAQS for TSP. However, no explanation is given for how those emissions will be reduced.

11. Existing sources not under the control of FCS were modelled at actual emission rates, rather than allowable. Region IV policy is to model all sources at allowable emission rates to assure maintenance of NAAQS.

12. Increased emissions from the lime plant and limestone mine, which will be part of the overall plant modification, must be addressed; for example, materials handling of lime and limestone, and increased production of limestone to supply the boiler and cement plant.

13. Beryllium, mercury, and sulfuric acid mist emissions from the boiler were not addressed and should be.

14. The original application assumes a 74% absorption of SO_2 emissions in the kiln, with no justification for that figure. (Based upon information in AP-42, 74% is a reasonable assumption. However, recent compliance testing of the Lonestar/Pennsuco facility in Hialeah showed only a 50% reduction). When the applicant was made aware that the raw materials in the kiln also emitted SO_2, the assumed absorption rate was adjusted to 80%, so that the calculated emission rate from the kiln remained at the original estimate of 80 lb/hr. Again, no justification was given. The limit in the DER draft permit is 74.3 lb/hr, which is based upon an emission factor for external combustion sources from AP-42 and a 75% assumed absorption efficiency. In Dr. Koogler's August 1, 1983, letter a 50 lb/hr limit is proposed with no explanation of how the limit will be met. The estimate of uncontrolled emissions which FCS used seems to be the most accurate, considering the sources of the estimates, and is put at 394 lb/hr. Using this value for uncontrolled emissons and a 75% control efficiency (from AP-42) would give an emission rate of 98.5 lb/hr. Using a 50% control efficiency would give an emission rate of 197 lb/hr. We see no reason to expect the emission rate to be less than 98.5 lb/hr.

15. According to a summary sheet enclosed with the July 29, 1983, letter from DER, the SO_2 increment was expanded due to a 2173 g/s reduction in emissions from the FPC Crystal River Plant, Units 1 and 2. This should be explained.

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18. DER should present their rationale for modeling obvious volume sources as point sources (i.e., rail off loading).

Please address all of the above comments prior to submitting or issuing a final determination. Since there has been considerable outside interest expressed concerning the issuance of the PSD permit for Florida Crushed Stone, this approach may expedite the review process and subsequent issuance of the permit.

If you have any questions concerning this matter, please feel free to contact Wayne J. Aronson at 404/881-7654.

Sincerely yours,

Richard A. Schutt for

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

Ask on hearing

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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345 COURTLAND STREET
ATLANTA, GEORGIA 30365

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N/A

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OK

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Air and Waste Management Division

30 day hearing notice

Hearing ~~Code~~ comments taken is addressed just as written comments.

tape recording or written record