

# UTILITIES COMMISSION

CITY OF NEW SMYRNA BEACH, FLORIDA  
ELECTRIC, WATER, POLLUTION CONTROL

Post Office Box 519-120 Sams Ave.  
New Smyrna Beach, Florida 32069  
(904) 427-1361

June 25, 1982



DER

JUN 28 1982

BAQM

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

Dear Mr. Fancy:

The Utilities Commission, City of New Smyrna Beach, Florida, is requesting permitting of two (2) additional gas diesel units at the Commission's Swoope Generating Station. Enclosed are four (4) sealed copies of the construction permit applications for this project. Also enclosed is our check #29321 for \$40.00 for the permit fees (\$20.00 for each application).

Please note in the PSD analysis, it assumes that the 70% capacity factor restriction on Swoope Unit No. 2 is to be eliminated.

Should you have any questions or comments concerning the applications, please call me on extension #104 or Mr. Ed Berrier, Manager of Generation.

Sincerely,

UTILITIES COMMISSION

P. A. Korelich, P.E.  
Chief Engineer

ac  
enclosures (4)

cc: E. Berrier, w/o enc.  
M. H. Dybevick, w/o enc.  
R. R. Hagen, w/o enc.

**UTILITIES COMMISSION  
CITY OF NEW SMYRNA BEACH, FLORIDA**

NEW SMYRNA BEACH, FL 32089

29321

63-524  
631



Southeast Bank  
of Volusia  
New Smyrna Beach, Florida 32069

June 24 1982

UTILITIES COMMISSION **40 DOLS 00 CTS**

DOLLARS \$ 40.00

PAY

TO THE ORDER OF

FLORIDA DEPARTMENT OF ENVIRONMENTAL  
REGULATION  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Fla. 32301

UTILITIES OPERATING ACCOUNT

CHAIRMAN

AUTH. SIG.

*[Handwritten Signature]*  
*[Handwritten Signature]*

⑈0029321⑈ ⑆063105243⑆ 731 800495⑈

DETACH AND RETAIN THIS STATEMENT

IF THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW,  
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH, FLORIDA UTILITIES OPERATING ACCOUNT

DATE	INVOICE NUMBER	DESCRIPTION	AMOUNT	DEDUCTIONS		NET AMOUNT
				PARTICULARS	AMOUNT	
6/24/82		For Application Fee - Construction Permit (for Swoope #3 and #4)				40.00

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

N<sup>o</sup> 33617

**RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE**

Received from Commissioner's Office, Utilities Commission Date June 24, 1982

Address P.O. Box 519, New Smyrna Beach, FL Dollars \$ 40.00

Applicant Name & Address Commissioner's Office

Source of Revenue \_\_\_\_\_

Revenue Code 1001 Application Number 57575

By Deborah J. Adams

DER

JUN 28 1982

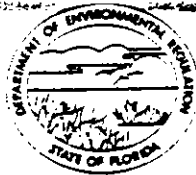
BAQM

PERMIT APPLICATIONS  
AND  
PSD ANALYSIS FOR NEW SMYRNA BEACH UTILITIES

SWOOPE UNIT #3 AND #4

CONTENTS

- I CONSTRUCTION PERMIT APPLICATION SWOOPE #3
- II CONSTRUCTION PERMIT APPLICATION SWOOPE #4
- III ATTACHMENTS
  - A--Reference to Permit Section II
  - B--Manufacturers letter-basis of emissions estimate
  - C--Flow diagram
  - D--Location map
  - E--Plot plan
  - F--PSD analysis
  - G--ISCLT computer model output



AC 64-57578

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
APPLICATION TO OPERATE/CONSTRUCT  
AIR POLLUTION SOURCES

DER

JUN 28 1982

BAQM

SOURCE TYPE: City Utility/Gas Diesel [] New<sup>1</sup> [ ] Existing<sup>1</sup>

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

COMPANY NAME: Utilities Commission, City of New Smyrna Beach COUNTY: Volusia

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) Swoope Unit 3 Gas Diesel

SOURCE LOCATION: Street 2495 N. Dixie Highway City New Smyrna Beach

UTM: East 505.8 North 3214.8

Latitude 29 ° 03 ' 47 "N Longitude 80 ° 56 ' 25 "W

APPLICANT NAME AND TITLE: Utilities Commission, City of New Smyrna Beach

APPLICANT ADDRESS: PO Box 519, New Smyrna Beach, FL 32069

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative\* of Utilities Commission, City of New Smyrna Beach, FL

I certify that the statements made in this application for a Construction Permit Application 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: *P. A. Korelich*  
P. A. Korelich, Chief Engineer  
Name and Title (Please Type)

Date: 6/24/82 Telephone No. 904-427-1361

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: *David A. Buff*  
David A. Buff, P.E.  
Name (Please Type)

(Affix Seal)

Environmental Science and Engineering, Inc.  
Company Name (Please Type)  
PO Box ESE, Gainesville, Florida 32602  
Mailing Address (Please Type)

Florida Registration No. 19011 Date: 6/22/82 Telephone No. (904) 372-3318

<sup>1</sup>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.

Installation and operation of diesel generating unit. Unit will be  
natural gas fired with 6 percent heat input from No. 2 oil as pilot  
fuel. Unit is rated at 2880 BHP with generating capacity of 2050 KW.

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

Start of Construction upon permit issuance Completion of Construction December 1982

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.)

Not Applicable

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

No previous DER permits have been issued for this unit.

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 8760;

if seasonal, describe: \_\_\_\_\_

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: Not Applicable

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

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

1. Total Process Input Rate (lbs/hr): Not Applicable
2. Product Weight (lbs/hr): Not Applicable

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission <sup>1</sup>		Allowed Emission <sup>2</sup> Rate per Ch. 17-2, F.A.C.	Allowable <sup>3</sup> Emission lbs/hr	Potential Emission <sup>4</sup>		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Nitrogen Oxides	57.1	250	NA	NA	57.1	250	B
Particulate	0.25	1	NA	NA	0.25	1	B
Sulfur Dioxide	0.42	2	NA	NA	0.42	2	B
Carbon Monoxide	8.9	39	NA	NA	8.9	39	B
Hydrocarbons	2.5	11	NA	NA	2.5	11	B

D. Control Devices: (See Section V, Item 4) Not Applicable

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles <sup>5</sup> Size Collected (in microns)	Basis for Efficiency (Sec. V, It <sup>5</sup> )

<sup>1</sup> See Section V, Item 2.

<sup>2</sup> 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)

<sup>3</sup> Calculated from operating rate and applicable standard

<sup>4</sup> Emission, if source operated without control (See Section V, Item 3)

<sup>5</sup> If Applicable

E. Fuels.

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas (ft <sup>3</sup> )	17,600	17,600	18.05
No. 2 Fuel Oil (gallons)	8.2	8.2	1.15

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

Fuel Analysis: Natural Gas/Pilot Fuel Oil  
 Percent Sulfur: Trace/0.2 Percent Ash: Ng/Ng  
 Density: NA/7.21 lbs/gal Typical Percent Nitrogen: Ng/0.2  
 Heat Capacity: 1026 Btu/ft<sup>3</sup>/19,430 BTU/lb NA/140,090 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 NA Maximum NA

G. Indicate liquid or solid wastes generated and method of disposal.  
All liquid and solid wastes will be disposed of in either a sanitary sewage system or sanitary landfill.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):  
 Stack Height: 20 ft Stack Diameter: 22 inches ft-  
 Gas Flow Rate: 21,200 ACFM Gas Exit Temperature: 700 °F.  
 Water Vapor Content: 5 % Velocity: 135 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

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) <sup>3</sup>	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: \_\_\_\_\_

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

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### SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight — show derivation. Not Applicable
- 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 B
- Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). See ATTACHMENT B
- 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.). Not Applicable
- 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). Not Applicable
- 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 C
- 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 D
- 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 E

- 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**

- 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? See Section IIIC

Contaminant	Rate or Concentration

- D. Describe the existing control and treatment technology (if any). See Part F

- |                           |                      |
|---------------------------|----------------------|
| 1. Control Device/System: | 4. Capital Costs:    |
| 2. Operating Principles:  | 6. Operating Costs:  |
| 3. Efficiency: *          | 8. Maintenance Cost: |
| 5. Useful Life:           |                      |
| 7. Energy:                |                      |
| 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. See Part F

- 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:

See Item 10

- 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:

The BACT proposed for NO<sub>x</sub> is natural gas firing with the ignition timing set as recommended by the manufacturer. Lower NO<sub>x</sub> emissions could be achieved by retarding the pilot fuel injection but this would be at the cost of decreasing fuel efficiency. Since air quality impacts are only 16 percent of the standard, optimum fuel efficiency is considered the best available control technology.

\*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

A. Company Monitored Data Not Applicable

1. no sites TSP ( ) SO<sub>2</sub>\* 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. 1 Year(s) of data from 1 / 1 / 64 to 12 / 31 / 64  
 month day year month day year

2. Surface data obtained from (location) NA

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

4. Stability wind rose (STAR) data obtained from (location) Daytona (WBAN 12834)

C. Computer Models Used

- 1. Industrial Source Complex Long Term 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
<del>PM</del> NO <sub>x</sub>	<u>7.2</u> grams/sec
<del>SO<sub>2</sub></del>	_____ grams/sec

E. Emission Data Used in Modeling see Permit Application and ATTACHMENT F

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.

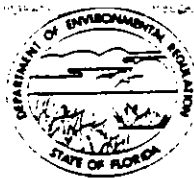
F. Attach all other information supportive to the PSD review. See ATTACHMENT F

\*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.

The installation of this unit will improve the reliability of the community electrical system without significant social, economic, or environmental impacts.

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.



AC 64-59580

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
APPLICATION TO OPERATE/CONSTRUCT  
AIR POLLUTION SOURCES

DER

JUN 28 1982

BAQM

SOURCE TYPE: City Utility/Gas Diesel  New<sup>1</sup>  Existing<sup>1</sup>

APPLICATION TYPE:  Construction  Operation  Modification

COMPANY NAME: Utilities Commission, City of New Smyrna Beach COUNTY: Volusia

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) Swoope Unit 4 Gas Diesel

SOURCE LOCATION: Street 2495 N. Dixie Highway City New Smyrna Beach

UTM: East 505.8 North 3214.8

Latitude 29 ° 03 ' 47 "N Longitude 80 ° 56 ' 25 "W

APPLICANT NAME AND TITLE: Utilities Commission, City of New Smyrna Beach

APPLICANT ADDRESS: PO Box 519, New Smyrna Beach, FL 32069

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Utilities Commission, City of New Smyrna Beach, FL

I am the undersigned owner or authorized representative\* of \_\_\_\_\_

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

\*Attach letter of authorization

Signed: [Signature]

P. A. Korelich, Chief Engineer

Name and Title (Please Type)

Date: 6/24/82 Telephone No. 904-427-1361

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: [Signature]

David A. Buff, P.E.

Name (Please Type)

Environmental Science and Engineering, Inc.

Company Name (Please Type)

PO Box ESE, Gainesville, Florida 32602

Mailing Address (Please Type)

Florida Registration No. 19011

Date: 6/22/82 Telephone No. (904)372-3318

(Affix Seal)

<sup>1</sup>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.

Installation and operation of diesel generating unit. Unit will be natural gas  
fired with 6 percent heat input from No. 2 oil as pilot fuel. Unit is rated  
at 3168 BHP with generating capacity of 2275 kw.

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

Start of Construction upon permit issuance Completion of Construction December 1982

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.)

Not Applicable

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

No previous DER permits have been issued for this unit

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 8760; if seasonal, describe: \_\_\_\_\_

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. See Attachment A



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

A. Raw Materials and Chemicals Used in your Process, if applicable: Not Applicable

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

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

- 1. Total Process Input Rate (lbs/hr): Not Applicable
- 2. Product Weight (lbs/hr): Not Applicable

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission <sup>1</sup>		Allowed Emission <sup>2</sup> Rate per Ch. 17-2, F.A.C.	Allowable <sup>3</sup> Emission lbs/hr	Potential Emission <sup>4</sup>		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Nitrogen Oxides	55.9	245	NA	NA	55.9	245	B
Particulate	0.28	1	NA	NA	0.28	1	B
Sulfur Dioxide	0.47	2	NA	NA	0.47	2	B
Carbon Monoxide	9.8	43	NA	NA	9.8	43	B
Hydrocarbons	3.5	15	NA	NA	3.5	15	B

D. Control Devices: (See Section V, Item 4) Not Applicable

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles <sup>5</sup> Size Collected (in microns)	Basis for Efficiency (Sec. V, It <sup>5</sup> )

<sup>1</sup> See Section V, Item 2.

<sup>2</sup> 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)

<sup>3</sup> Calculated from operating rate and applicable standard

<sup>4</sup> Emission, if source operated without control (See Section V, Item 3)

<sup>5</sup> If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas (ft <sup>3</sup> )	19,300	19,300	19.85
No. 2 Fuel Oil (gallons)	9.1	9.1	1.27

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

Fuel Analysis: Natural Gas/Pilot Fuel Oil

Percent Sulfur: Trace/0.2 Percent Ash: Neg/Neg

Density: NA/7.21 lbs/gal Typical Percent Nitrogen: Neg/0.2

Heat Capacity: 1026 Btu/ft<sup>3</sup>/19430 BTU/lb NA/140,090 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 NA Maximum NA

G. Indicate liquid or solid wastes generated and method of disposal.  
All liquid and solid wastes will be disposed of in either sanitary sewer system or sanitary land fill

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

Stack Height: 20 ft Stack Diameter: 22 inches **XX**  
 Gas Flow Rate: 23,320 ACFM Gas Exit Temperature: 700 °F.  
 Water Vapor Content: 5 % Velocity: 145 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

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) <sup>3</sup>	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: \_\_\_\_\_

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

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### SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight — show derivation. Not Applicable
- 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 B
- Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). See Attachment B
- 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.). Not Applicable
- 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). Not Applicable
- 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 C
- 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 D
- 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 E

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**

- 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?  
 Yes  No

Contaminant	See Section IIIC Rate or Concentration

- D. Describe the existing control and treatment technology (if any). See Part F

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. See Part F

- 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: See Item 10

- 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:

The BACT proposed for NOx is natural gas firing with the ignition timing set as recommended by the manufacturer. Lower NOx emissions could be achieved by retarding the pilot fuel injection, but at the cost of decreasing fuel efficiency. Since air quality impacts are only 16 percent of the standard optimum fuel efficiency is considered the best available control technology.

\*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

A. Company Monitored Data Not Applicable

1. \_\_\_\_\_ no sites \_\_\_\_\_ TSP \_\_\_\_\_ ( ) SO<sub>2</sub> \_\_\_\_\_ 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. 1 Year(s) of data from 1 / 1 / 64 to 12 / 31 / 64  
 month day year month day year

2. Surface data obtained from (location) NA

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

4. Stability wind rose (STAR) data obtained from (location) Daytona (WBAN 12834)

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

<del>XXXXXX</del> NOx	Emission Rate
<del>XXX</del>	<u>7.0</u> grams/sec
SO <sub>2</sub>	_____ grams/sec

E. Emission Data Used in Modeling see permit application and Attachment F

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. See Attachment F

\*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.

The installation of this unit will improve the reliability of the community electrical system without significant social, economic, or environmental impacts.

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.



ATTACHMENT A

(Reference to Permit Section II)

1. Volusia County is not a non-attainment area for any pollutant.
- 2&3. The existing plant is not a major source for any pollutant so PSD review does not apply to any pollutant that does not increase 250 TPY with this modification. PSD Section (Attachment F) Table F-1, shows that the proposed expansion is a major source for nitrogen dioxide, thus both BACT and PSD review apply for this pollutant.
4. On July 23, 1979, NSPS were proposed for internal combustion engines; these standards were to become effective for engines which commenced construction after January 23, 1982, and would be applicable to dual fuel engines with displacements greater than 560 cubic inches per cylinder. The two proposed units each have a displacement of 1037 cubic inches per cylinder and would be required to meet the standard. However, these standards have not yet been adopted by law.
5. NESHAPS regulations do not apply to this type of source.

**Colt Industries**



**Fairbanks Morse  
Engine Division**  
701 Lawton Avenue  
Beloit, Wisconsin 53511  
608/364-4411

(206608)1

June 11, 1982

Environmental Science & Engr, Inc.  
P. O. Box #ESE  
Gainesville, Florida 32602

Attention: Mr. Michael H. Dybevic

Subject: Two (2) 12 Cyl - 38TDD 8-1/8 OP Engines  
Relocated Gensets  
Exhaust Emissions Data

Dear Mr. Dybevic:

At the request of our customer, Mr. Ed Berrier - Plant Supt. at the New Smyrna Beach Generating Facility, we have been instructed to advise you directly as to the exhaust emissions relative to the two (2) units planned for this installation. The data is as follows:

Unit No. 1 - 12 Cyl 38TDD 8-1/8 OP - Turbo Blower Series  
Rated 2880 BHP @ 720 RPM - S/N 970348

Swoope #3

Mode	Diesel	Dual Fuel
NOx - GM/BHP-HR	10.0	9.0
CO - GM/BHP-HR	1.2	1.4
HC - GM/BHP-HR	.3	.4
* Particulate - GM/BHP-HR	.16	.04
* SO2 - GM/BHP-HR	1.0	.1
Smoke - Bosch Units	.8	.2

*based on 0.3% S →* (pointing to SO2 Dual Fuel value)

*non-methane* (pointing to HC Dual Fuel value)

Unit No. 2 - 12 Cyl - 38TDD 8-1/8 OP - Turbo Blower Series  
Rated 3168 BHP @ 720 RPM - S/N 873068

Swoope #4

Mode	Diesel	Dual Fuel
NOx - GM/BHP-HR	9.0	8.0
CO - GM/BHP-HR	1.2	1.4
HC - GM/BHP-HR	.3	1.2
* Particulate - GM/BHP-HR	.18	.04
* SO2 - GM/BHP-HR	1.0	.1
Smoke - Bosch Units	.9	.2

*based on 0.3% S →* (pointing to SO2 Dual Fuel value)

*this is total HC by mistake, Non-methane is ~0.5* (pointing to HC Dual Fuel value)

(conversion with  
E.C. Betker  
6/18/82)

Environmental Science & Engr, Inc.  
Gainesville, Florida 32602  
June 11, 1982  
Page 2

All Emission Values are for typical injection timings at each rating.  
These valves (\*) are calculated from smoke emissions and for .3% sulfur  
fuel.

Should any additional information be required with respect to the foregoing,  
please feel free to contact the writer at your convenience.

Very truly yours,

COLT INDUSTRIES OPERATING CORP  
FAIRBANKS MORSE ENGINE DIVISION



E. L. Betker  
Contract Administrator

ELB:flb

cc: Al Belvedere - Beloit  
Ed Berrier - New Smyrna Beach, Fla.  
H. Dahlman - Beloit  
H. Keinschrodt - Daytona Beach, Fla.  
W. Marx - Houston Sales



# SGS Control Services Inc.

Redwood Petroleum and Petrochemical division

825 Wynkoop Road  
PO Box 5351  
Tampa, Florida 33675  
Tel (813) 247 3984  
TWX (810) 876-2927

to accompany Certificate No  
**Analysis Certificate**

Vessel Shore Tank No. 18  
Receiver \*Belcher Oil Company, Port Canaveral, Florida  
Cargo No.2 Fuel Oil

June 7, 1982

TO WHOM IT MAY CONCERN  
Corrected Certificate

## ENGINEERING

JUN 24 1982

UTILITIES COMMISSION  
NEW SMYRNA BEACH, FL

File No. 37434

Sample Marked Shore Tank No. 18 (Top, Middle and Bottom) (6-4-82)  
Lab Reference No. LP-2070-82  
Sample Description No. 6 Fuel Oil  
Submitted By SGS Control Services Inc.

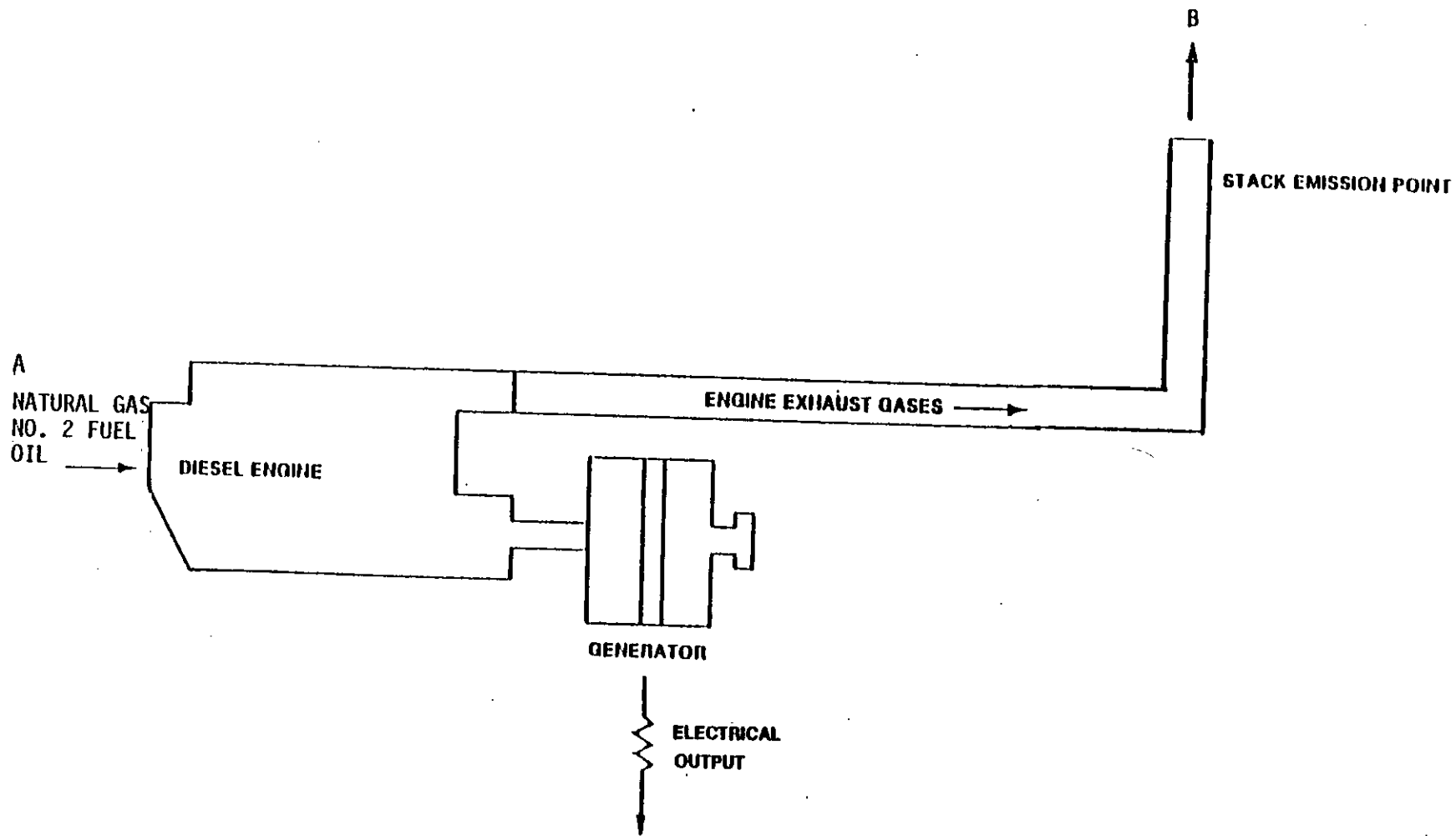
In accordance with your instructions per Mr. Dick Reed, we proceeded to Belcher Oil Company, Port Canaveral, Florida on June 4, 1982 for the purpose of drawing a top, middle and bottom sample from Shore Tank No. 18. A portion of this sample was submitted to our Tampa laboratory for analytical findings. We now report to you as follows:

TEST	METHOD	RESULT
GRAVITY, A.P.I. @ 60°F	ASTM D-287	36.8
FLASH, °F (PMCC)	ASTM D-93	150
SEDIMENT & WATER, VOL. %	ASTM D-96	Trace
S.U.S. VISCOSITY, @ 100°F	ASTM D-445	33.5
POUR POINT, °F	ASTM D-97	Below 0°F
SULFUR, WT. %	ASTM D-1552	0.12
RAMSBOTTOM CARBON RES., WT. % (10% BOTTOM)	ASTM D-524	0.14
CETANE INDEX	ASTM D-976	45.4
DISTILLATION, °F	ASTM D-86 I.B.P.	356
	5%	388
	10%	404
	20%	422
	90%	570
	END POINT	634
	% RECOVERY	98.5
	% LOSS	1.5
TRACE METALS	A.A. CALICUM, ppm	None Detected
	LEAD, ppm	0.3
	POTASSIUM, ppm	0.1
	SODIUM, ppm	0.1
	VANADIUM, ppm	0.2

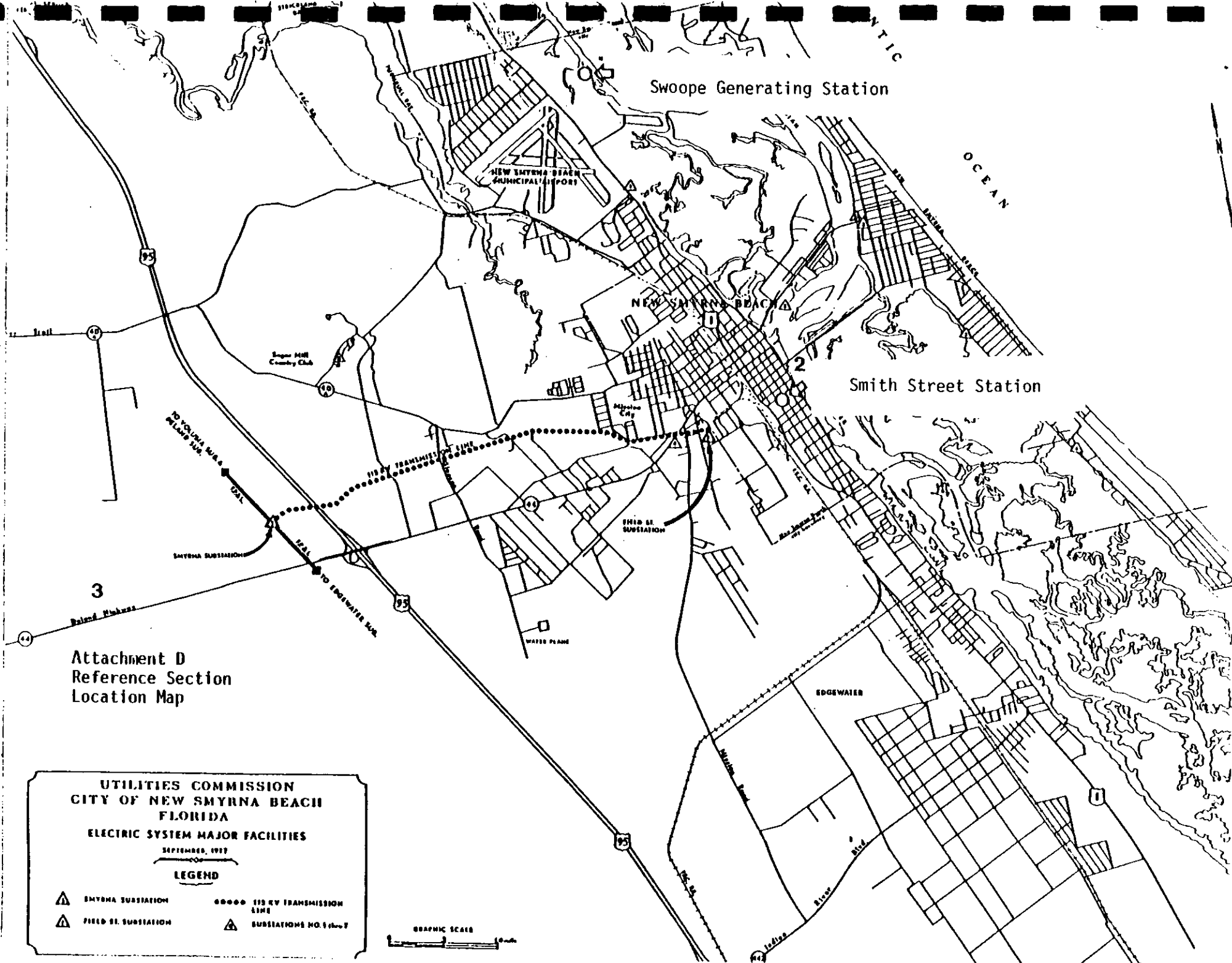
SGS CONTROL SERVICES INC.

R. S. Sothgen  
Operations Department

RSS/sl



Attachment C: Reference Section V 6  
FLOW DIAGRAM



Attachment D  
Reference Section  
Location Map

**UTILITIES COMMISSION  
CITY OF NEW SMYRNA BEACH  
FLORIDA**

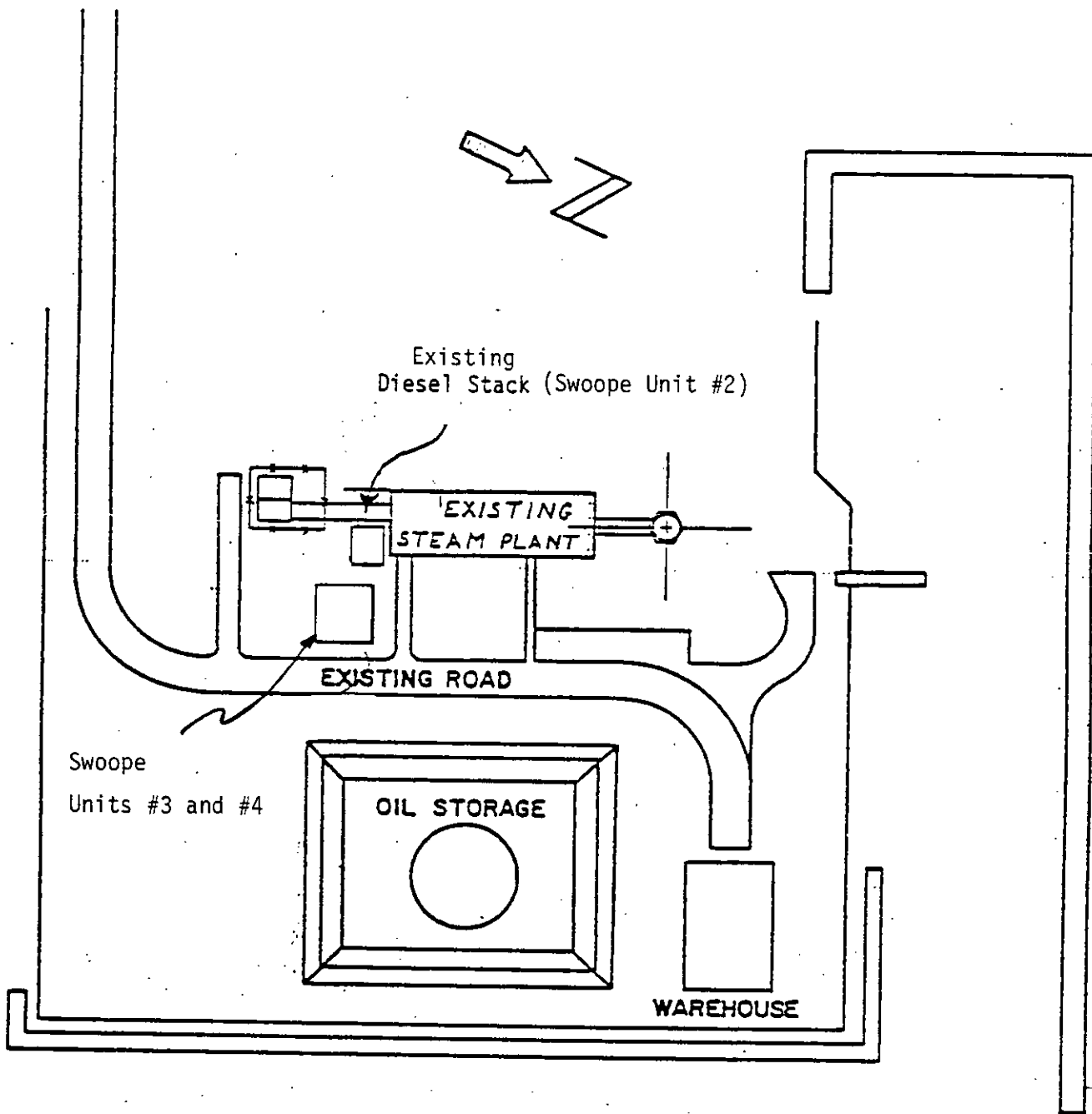
**ELECTRIC SYSTEM MAJOR FACILITIES**

SEPTEMBER, 1977

**LEGEND**

<p>▲ SMYRNA SUBSTATION</p> <p>▲ FIELD ST. SUBSTATION</p>	<p>●●●●● 115 KV TRANSMISSION LINE</p> <p>▲ SUBSTATIONS NO. 1 thru 7</p>
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Attachment E  
 Reference Section V 7  
 Utility Plot Plan

UTILITIES COMMISSION CITY OF NEW SMYRNA BEACH, FL.		
Swoope Generating Station- Plot Plan		
REV.	DATE	REVISIONS
DWN. RLW	SCALE SHOWN	REV. 0
CKD.	DATE 3-3-81	SAA-109
APP.		

ATTACHMENT F  
PSD ANALYSIS

The Swoope Generating Station currently consists of a  $116 \times 10^6$  Btu/hr steam generator (Swoope #1) and a 910 KW gas diesel generator (Swoope #2), which is limited by permit condition to a 70 percent capacity factor. Neither of these sources are in a category listed in 40 CFR 52.21 or FAC 17-2, and Table F-1 shows that current emission levels of all pollutants are below 250 TPY. The current configuration is therefore not a major source.

The proposed modification is an addition of two more gas diesel units, and an increase to 100 percent capacity factor for Swoope #2. Table F-1 shows that the change would be a major source for NOx only, and requires PSD review for this pollutant. The source description and control technology review components of the PSD review are contained in the accompanying construction permit application. This attachment describes the air quality impact analysis and its results.

Both state and federal regulations contain only annual average standards for NOx, so modeling was performed with the EPA approved ISC long term model. One year (1964) of surface observations from Daytona International Airport were summarized in STAR format and input to the model. The stack parameters are shown in Table F-2. A rectangular grid with 100 meter spacing was used, and all sources were assumed to emit at maximum allowable rates 24 hours a day, every day of the year. The attached computer output contains the results of two model runs. The first run modeled the impacts of the entire plant, the second run modeled the impacts of the two new units (Swoope #3 and #4) and the increased emissions due to the increased capacity factor for Swoope #2.

Both state and federal regulations require pre-construction monitoring unless the impacts of the modification are below certain de minimis levels. For NOx, the de minimis level is  $14 \text{ ug/m}^3$ , annual average. The maximum impact of the proposed modification is  $11 \text{ ug/m}^3$ , and therefore the project may be exempted from the PSD pre-construction monitoring requirement.

The state and federal air quality standard for NOx is  $100 \text{ ug/m}^3$ . The highest predicted annual average impact due to the Swoope Generating Station is  $16 \text{ ug/m}^3$ . The only other major point source of NOx within 40 km is the New Smyrna Beach Smith Street station (see Attachment D). Since the Smith Street station also consists of gas diesels, and the maximum impacts of the Swoope Generating Station were small relative to the standard and occurred within 800 meters of the plant, no other sources were modeled for interaction. The nearest NOx monitoring data available are from a gas bubbler station located 1.5 miles north of the FPL Sanford power plant, about 25 miles southwest of the Swoope Station, (site code 10-4600-001-J-02). In 1980, the annual average NOx concentration at this site was  $22.5 \text{ ug/m}^3$ . Even if this value was used directly as a background concentration, the projected impacts of the Swoope Generating Station are low enough to provide reasonable assurance that air quality standards will not be exceeded.



Table F-1. Annual Emissions From Swoope Generating Station

	Particulate Matter	Sulfur Dioxide	Carbon Monoxide	Nitrogen Oxides	Hydrocarbons
<u>Current</u>					
Swoope #1 (steam)*	27	1	5	140	8
Swoope #2 (diesel)*	<u>0.1</u>	<u>0.3</u>	<u>12</u>	<u>94</u>	<u>37</u>
Total	27	1	17	234	45
<u>Projected</u>					
Swoope #1 (steam)*	27	1	5	140	8
Swoope #2 (diesel)* (at 100% capacity factor)	0.2	0.4	17	134	53
Swoope #3 (diesel)+	1	2	39	250	11
Swoope #4 (diesel)+	<u>1</u>	<u>2</u>	<u>43</u>	<u>245</u>	<u>15</u>
Total	29	5	104	769	87
Net Increase	2	4	87	535	42

\*based on Swoope #2 permit application (AC64-43484) and revisions in June 26, 1981, letter to C. M. Collins FDER ST. Johns River District from K. F. Kosky, ESE, Inc.

+based on manufacturers letter, Attachment B.

Note: Swoope #2 hydrocarbons reported as total HC, Swoope #3 and #4 reported as non-methane.

Table F-2. Modeling Parameters - Swoope Generating Station

Source	NOx Emission Rate (g/s)	Stack Height (m)	Gas Temperature (k)	Exist Velocity (m/s)	Diameter (m)
Swoope #1	4.04	38.1	644	9.5	1.38
Swoope #2	3.84	6.1	589	43.9	0.36
Swoope #3	7.2	6.1	644	41.2	0.56
Swoope #4	7.0	6.1	644	44.2	0.56

- ISCLT INPUT DATA -

*and new only*

NUMBER OF SOURCES = 3/2  
 NUMBER OF X AXIS GRID SYSTEM POINTS = 21  
 NUMBER OF Y AXIS GRID SYSTEM POINTS = 21  
 NUMBER OF SPECIAL POINTS = 0  
 NUMBER OF SEASONS = 1  
 NUMBER OF WIND SPEED CLASSES = 6  
 NUMBER OF STABILITY CLASSES = 5  
 NUMBER OF WIND DIRECTION CLASSES = 16  
 FILE NUMBER OF DATA FILE USED FOR REPORTS = 1  
 THE PROGRAM IS RUN IN RURAL MODE  
 CONCENTRATION (DEPOSITION) UNITS CONVERSION FACTOR = 0.1000000E+07  
 ACCELERATION OF GRAVITY (METERS/SEC\*\*2) = 9.800  
 HEIGHT OF MEASUREMENT OF WIND SPEED (METERS) = 7.000  
 ENTRAINMENT PARAMETER FOR UNSTABLE CONDITIONS = 0.600  
 ENTRAINMENT PARAMETER FOR STABLE CONDITIONS = 0.600  
 CORRECTION ANGLE FOR GRID SYSTEM VERSUS DIRECTION DATA NORTH (DEGREES) = 0.000  
 DECAY COEFFICIENT = 0.0000000E+00  
 PROGRAM OPTION SWITCHES = 1, 1, 1, 0, 0, 3, 2, 2, 3, 0, 0, 0, 0, -1, -1, 0, 0, 1, 1, 0,

ALL SOURCES ARE USED TO FORM SOURCE COMBINATION 1  
 DISTANCE X AXIS GRID SYSTEM POINTS (METERS) =  
 -1000.00, -900.00, -800.00, -700.00, -600.00, -500.00,  
 -400.00, -300.00, -200.00, -100.00, 0.00, 100.00, 200.00, 300.00, 400.00, 500.00,  
 600.00, 700.00, 800.00, 900.00, 1000.00,  
 DISTANCE Y AXIS GRID SYSTEM POINTS (METERS) =  
 -1000.00, -900.00, -800.00, -700.00, -600.00, -500.00,  
 -400.00, -300.00, -200.00, -100.00, 0.00, 100.00, 200.00, 300.00, 400.00, 500.00,  
 600.00, 700.00, 800.00, 900.00, 1000.00,

- AMBIENT AIR TEMPERATURE (DEGREES KELVIN) -

	STABILITY CATEGORY 1	STABILITY CATEGORY 2	STABILITY CATEGORY 3	STABILITY CATEGORY 4	STABILITY CATEGORY 5	STABILITY CATEGORY 6
SEASON 1	300.0000	300.0000	300.0000	295.0000	289.0000	

- MIXING LAYER HEIGHT (METERS) -

SEASON 1

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 10	.218400E+04	.218400E+04	.218400E+04	.218400E+04	.218400E+04	.218400E+04
STABILITY CATEGORY 20	.145600E+04	.145600E+04	.145600E+04	.145600E+04	.145600E+04	.145600E+04
STABILITY CATEGORY 30	.145600E+04	.145600E+04	.145600E+04	.145600E+04	.145600E+04	.145600E+04
STABILITY CATEGORY 40	.145600E+04	.145600E+04	.145600E+04	.145600E+04	.145600E+04	.145600E+04
STABILITY CATEGORY 50	.100000E+05	.100000E+05	.100000E+05	.100000E+05	.100000E+05	.100000E+05

19

- ISCLT INPUT DATA (CONT.) -  
*and new only*

- FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY -

SEASON 1

STABILITY CATEGORY 1

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00004700	0.00011400	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00004700	0.00011400	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00016100	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00020800	0.00011400	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00014100	0.00034200	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00023400	0.00056900	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00014100	0.00034200	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00004700	0.00011400	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000

SEASON 1

STABILITY CATEGORY 2

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (0.7500MPS)	WIND SPEED CATEGORY 2 (2.5000MPS)	WIND SPEED CATEGORY 3 (4.3000MPS)	WIND SPEED CATEGORY 4 (6.8000MPS)	WIND SPEED CATEGORY 5 (9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00110700	0.00113800	0.00102500	0.00000000	0.00000000	0.00000000
22.500	0.00025700	0.00034200	0.00045500	0.00000000	0.00000000	0.00000000
45.000	0.00014300	0.00045500	0.00102500	0.00000000	0.00000000	0.00000000
67.500	0.00032900	0.00056900	0.00250500	0.00000000	0.00000000	0.00000000
90.000	0.00087300	0.00182100	0.00318000	0.00000000	0.00000000	0.00000000
112.500	0.00066400	0.00068300	0.00091100	0.00000000	0.00000000	0.00000000
135.000	0.00007200	0.00022800	0.00045500	0.00000000	0.00000000	0.00000000
157.500	0.00051500	0.00068300	0.00022800	0.00000000	0.00000000	0.00000000
180.000	0.00092200	0.00182500	0.00045500	0.00000000	0.00000000	0.00000000
202.500	0.00003600	0.00011400	0.00068300	0.00000000	0.00000000	0.00000000
225.000	0.00066400	0.00068300	0.00102500	0.00000000	0.00000000	0.00000000
247.500	0.00103600	0.00091100	0.00136600	0.00000000	0.00000000	0.00000000
270.000	0.00062200	0.00102500	0.00113800	0.00000000	0.00000000	0.00000000
292.500	0.00043700	0.00091100	0.00034200	0.00000000	0.00000000	0.00000000
315.000	0.00122100	0.00142500	0.00045500	0.00000000	0.00000000	0.00000000
337.500	0.00043700	0.00091100	0.00034200	0.00000000	0.00000000	0.00000000

62

- ISCLT INPUT DATA (CONT.) -

- FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY -

SEASON 1

STABILITY CATEGORY 3

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 ( 0.7500MPS)	WIND SPEED CATEGORY 2 ( 2.5000MPS)	WIND SPEED CATEGORY 3 ( 4.3000MPS)	WIND SPEED CATEGORY 4 ( 6.8000MPS)	WIND SPEED CATEGORY 5 ( 9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00067800	0.00170800	0.00339100	0.00148000	0.00045500	0.00000000
22.500	0.00013200	0.00056900	0.00421199	0.00227700	0.00011400	0.00000000
45.000	0.00027300	0.00056900	0.00455400	0.00227700	0.00011400	0.00000000
67.500	0.00007900	0.00034200	0.00762799	0.00466799	0.00034200	0.00000000
90.000	0.00029100	0.00125200	0.01229499	0.00853799	0.00000000	0.00000000
112.500	0.00015900	0.00068300	0.00557799	0.00318800	0.00034200	0.00000000
135.000	0.00032600	0.00079700	0.00182100	0.00034200	0.00000000	0.00000000
157.500	0.00010600	0.00045500	0.00193500	0.00034200	0.00000000	0.00000000
180.000	0.00053700	0.00170800	0.00318800	0.00045500	0.00000000	0.00000000
202.500	0.00015900	0.00068300	0.00296000	0.00056900	0.00022800	0.00000000
225.000	0.00059000	0.00193500	0.00421199	0.00102500	0.00000000	0.00000000
247.500	0.00055600	0.00239100	0.00432600	0.00011400	0.00000000	0.00000000
270.000	0.00123100	0.00227700	0.00261800	0.00136600	0.00000000	0.00000000
292.500	0.00090500	0.00148000	0.00204900	0.00011400	0.00011400	0.00000000
315.000	0.00037000	0.00159400	0.00125200	0.00022800	0.00000000	0.00000000
337.500	0.00021200	0.00091100	0.00227700	0.00022800	0.00000000	0.00000000

SEASON 1

STABILITY CATEGORY 4

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 ( 0.7500MPS)	WIND SPEED CATEGORY 2 ( 2.5000MPS)	WIND SPEED CATEGORY 3 ( 4.3000MPS)	WIND SPEED CATEGORY 4 ( 6.8000MPS)	WIND SPEED CATEGORY 5 ( 9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00122200	0.00387100	0.01411698	0.03403896	0.01206699	0.00113800
22.500	0.00040300	0.00125200	0.00751399	0.01445798	0.00170800	0.00022800
45.000	0.00023500	0.00091100	0.00648899	0.01092899	0.00113800	0.00022800
67.500	0.00047000	0.00182100	0.01001799	0.01718998	0.00125200	0.00011400
90.000	0.00055100	0.00250500	0.002014998	0.02834697	0.00159400	0.00022800
112.500	0.00035600	0.00193500	0.01343399	0.02128898	0.00216300	0.00011400
135.000	0.00053700	0.00239100	0.01126999	0.01992899	0.00227700	0.00000000
157.500	0.00034300	0.00182100	0.00922099	0.00637499	0.00125200	0.00022800
180.000	0.00076000	0.00432600	0.01434398	0.01354699	0.00296000	0.00079700
202.500	0.00055700	0.00148000	0.00853799	0.01104299	0.00296000	0.00079700
225.000	0.00084600	0.00284600	0.00546399	0.00751399	0.00250500	0.00056900
247.500	0.00081300	0.00364300	0.00455400	0.00999399	0.00102500	0.00045500
270.000	0.00055100	0.00250500	0.00523699	0.01115699	0.00200999	0.00239100
292.500	0.00037000	0.00204900	0.00489499	0.00375799	0.00273200	0.00068300
315.000	0.00112700	0.00387100	0.00694399	0.00671699	0.00068300	0.00034200
337.500	0.00132000	0.00261800	0.00922099	0.00648899	0.00113800	0.00068300

63

- ISCLT INPUT DATA (CONT.) -

- FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY -

SEASON 1

STABILITY CATEGORY 5

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 ( 0.7500MPS)	WIND SPEED CATEGORY 2 ( 2.5000MPS)	WIND SPEED CATEGORY 3 ( 4.3000MPS)	WIND SPEED CATEGORY 4 ( 6.8000MPS)	WIND SPEED CATEGORY 5 ( 9.5000MPS)	WIND SPEED CATEGORY 6 (12.5000MPS)
0.000	0.00694999	0.00842399	0.00591999	0.00000000	0.00000000	0.00000000
22.500	0.00428799	0.00523699	0.00432600	0.00000000	0.00000000	0.00000000
45.000	0.00372700	0.00546399	0.00182100	0.00000000	0.00000000	0.00000000
67.500	0.00357400	0.00478099	0.00432600	0.00000000	0.00000000	0.00000000
90.000	0.00888199	0.01183999	0.01001799	0.00000000	0.00000000	0.00000000
112.500	0.00430499	0.00705799	0.00705799	0.00000000	0.00000000	0.00000000
135.000	0.01647199	0.01559698	0.00375700	0.00000000	0.00000000	0.00000000
157.500	0.00815999	0.01172599	0.00364300	0.00000000	0.00000000	0.00000000
180.000	0.01391298	0.02402097	0.00660299	0.00000000	0.00000000	0.00000000
202.500	0.00745999	0.01858699	0.00296000	0.00000000	0.00000000	0.00000000
225.000	0.00954299	0.01218099	0.00296000	0.00000000	0.00000000	0.00000000
247.500	0.01129099	0.01377498	0.00318800	0.00000000	0.00000000	0.00000000
270.000	0.01047599	0.01024599	0.00352900	0.00000000	0.00000000	0.00000000
292.500	0.00750399	0.00853799	0.00148000	0.00000000	0.00000000	0.00000000
315.000	0.01033499	0.01422998	0.00557799	0.00000000	0.00000000	0.00000000
337.500	0.00776299	0.00944899	0.00535099	0.00000000	0.00000000	0.00000000

- VERTICAL POTENTIAL TEMPERATURE GRADIENT (DEGREES KELVIN/METER) -

STABILITY CATEGORY	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 10	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY 20	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY 30	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY 40	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000	0.000000E+000
STABILITY CATEGORY 50	0.200000E-010	0.200000E-010	0.200000E-010	0.200000E-010	0.200000E-010	0.200000E-010

- WIND PROFILE POWER LAW EXPONENTS -

STABILITY CATEGORY	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY 10	0.100000E+000	0.100000E+000	0.100000E+000	0.100000E+000	0.100000E+000	0.100000E+000
STABILITY CATEGORY 20	0.150000E+000	0.150000E+000	0.150000E+000	0.150000E+000	0.150000E+000	0.150000E+000
STABILITY CATEGORY 30	0.200000E+000	0.200000E+000	0.200000E+000	0.200000E+000	0.200000E+000	0.200000E+000
STABILITY CATEGORY 40	0.250000E+000	0.250000E+000	0.250000E+000	0.250000E+000	0.250000E+000	0.250000E+000
STABILITY CATEGORY 50	0.300000E+000	0.300000E+000	0.300000E+000	0.300000E+000	0.300000E+000	0.300000E+000



- SOURCE INPUT DATA -

U T SOURCE SOURCE X Y EMISSION BASE /  
 A A NUMBER TYPE COORDINATE COORDINATE HEIGHT ELFV- /  
 R P (M) (M) (M) ATION /  
 D E (M) /

- SOURCE DETAILS DEPENDING ON TYPE -

X 1 STACK 0.00 0.00 38.10 0.00 GAS EXIT TEMP (DEG K)= 644.00, GAS EXIT VEL. (M/SEC)= 5.50,  
*Swoope#1 Steam unit* STACK DIAMETER (M)= 1.380, HEIGHT OF ASSO. BLDG. (M)= 1.00, WIDTH OF  
 ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0  
 - SOURCE STRENGTHS ( GRAMS PER SEC ) -  
 SEASON 1 SEASON 2 SEASON 3 SEASON 4  
 4.04000E+00

WARNING - DISTANCE BETWEEN SOURCE 1 AND POINT X,Y= 0.00, 0.00 IS LESS THAN PERMITTED  
 X 2 STACK 0.00 0.00 6.10 0.00 GAS EXIT TEMP (DEG K)= 589.00, GAS EXIT VEL. (M/SEC)= 43.90,  
*Swoope#2 Existing Diesel* STACK DIAMETER (M)= 0.360, HEIGHT OF ASSO. BLDG. (M)= 1.00, WIDTH OF  
 ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0  
 - SOURCE STRENGTHS ( GRAMS PER SEC ) -  
 SEASON 1 SEASON 2 SEASON 3 SEASON 4  
 3.84000E+00

WARNING - DISTANCE BETWEEN SOURCE 2 AND POINT X,Y= 0.00, 0.00 IS LESS THAN PERMITTED  
 X 3 STACK 0.00 0.00 6.10 0.00 GAS EXIT TEMP (DEG K)= 644.00, GAS EXIT VEL. (M/SEC)= 42.70,  
*Swoope#3 (#4 Proposed Combined)* STACK DIAMETER (M)= 0.560, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF  
 ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0  
 - SOURCE STRENGTHS ( GRAMS PER SEC ) -  
 SEASON 1 SEASON 2 SEASON 3 SEASON 4  
 1.42400E+01

WARNING - DISTANCE BETWEEN SOURCE 3 AND POINT X,Y= 0.00, 0.00 IS LESS THAN PERMITTED



\*\* ANNUAL GROUND LEVEL CONCENTRATION ( MICROGRAMS PER CUBIC METER ) FROM ALL SOURCES COMBINED \*\*

- GRID SYSTEM RECEPTORS -  
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE , METERS )	-1000.000	-900.000	-800.000	-700.000	-600.000	-500.000	-400.000	-300.000	-200.000
	- CONCENTRATION -								
1000.000	6.125322	6.127700	6.094093	6.019985	5.903982	5.750503	5.766286	7.027227	8.411560
900.000	6.356190	6.562686	6.538740	6.464639	6.336689	6.156047	5.932664	6.858409	8.332816
800.000	6.608039	6.840491	7.033495	6.959665	6.801756	6.533855	6.225493	6.464143	8.059186
700.000	6.885277	7.149355	7.366058	7.504187	7.254660	6.901388	6.483676	6.876775	7.490542
600.000	7.194715	7.498895	7.734884	7.816087	7.742961	7.266974	6.676906	6.682804	6.995673
500.000	7.546048	7.900994	8.133423	8.204315	8.057222	7.643398	6.811241	5.924693	5.378316
400.000	8.055733	8.369009	8.642580	8.730305	8.529869	7.936595	6.917276	5.617219	4.515312
300.000	9.278226	9.495520	9.558521	9.481441	9.293653	8.578476	7.194072	5.255514	3.547310
200.000	10.560844	10.957678	11.205563	11.196426	10.786316	9.825712	8.124858	5.543178	3.633205
100.000	11.878965	12.509329	13.024607	13.297129	13.123604	12.206591	10.177889	6.963959	3.244543
0.000	13.175007	14.069468	14.932831	15.609529	<u>15.906578</u>	15.455215	13.776771	10.179537	6.265190
-100.000	11.479237	12.059605	12.524664	12.754679	12.562798	11.683037	9.802814	6.831932	4.040810
-200.000	9.757004	10.048000	10.185202	10.073137	9.595356	8.657013	7.427299	6.427242	3.128496
-300.000	8.083979	8.146931	8.041805	7.836459	7.696771	7.169133	6.144471	4.714012	2.265896
-400.000	6.523219	6.666589	6.814183	6.816475	6.600318	6.095775	5.297407	5.407205	5.670554
-500.000	5.780070	5.952070	6.020259	5.953754	5.715382	5.282607	5.591874	5.971330	6.611378
-600.000	5.209709	5.329631	5.329631	5.225793	4.994627	5.364688	5.777692	6.268412	7.558514
-700.000	4.695052	4.736332	4.715121	4.609434	4.974573	5.372901	5.816212	6.325062	8.071970
-800.000	4.234854	4.235273	4.180302	4.530062	4.907113	5.299863	5.730793	6.542064	8.245063
-900.000	3.826123	3.797574	4.095892	4.421498	4.775195	5.156284	5.559735	6.678347	8.187111
-1000.000	3.464766	3.718670	3.994530	4.292553	4.612313	4.952946	5.426483	6.658692	7.985911

- GRID SYSTEM RECEPTORS -  
- X AXIS (DISTANCE, METERS) -

Y AXIS (DISTANCE , METERS )	-100.000	0.000	100.000	200.000	300.000	400.000	500.000	600.000	700.000
	- CONCENTRATION -								
1000.000	9.869898	11.351654	9.954981	8.567457	7.239342	6.018775	5.742302	5.614089	5.464635
900.000	9.972619	11.668583	10.092953	8.553875	7.136763	6.168166	6.034616	5.897986	5.755775
800.000	9.866144	11.811023	10.036242	8.363705	6.886061	6.375821	6.270579	6.173037	6.035849
700.000	9.439884	11.630123	9.681034	7.935769	6.610131	6.508605	6.455699	6.400480	6.311414
600.000	8.565241	10.960843	8.907347	7.227982	6.529403	6.538840	6.592488	6.618515	6.517968
500.000	7.140826	9.615231	7.623003	6.270267	6.236110	6.458998	6.697357	6.717663	6.708593
400.000	5.176346	7.472694	5.840555	5.353290	5.737908	6.315817	6.580545	6.805205	6.911712
300.000	2.920495	4.577614	3.767562	4.166435	5.157791	5.825749	6.482625	6.943979	7.170019
200.000	1.152906	1.858342	2.132963	3.036510	4.179140	5.506003	6.523929	7.435996	7.924319
100.000	0.494475	0.328586	0.983206	2.076785	3.765391	5.492901	6.600879	7.165367	7.334088
0.000	2.162560	0.090000	0.761915	2.792976	4.605332	6.317080	7.206998	7.624152	7.644293
-100.000	1.276458	0.950945	0.429746	1.256586	2.570521	4.214346	5.350666	6.860357	6.360042
-200.000	2.493481	4.143908	1.475534	2.429195	3.112972	3.619851	4.631170	4.720282	5.232251
-300.000	4.745513	7.685394	3.847863	3.085576	4.915764	4.951458	4.882779	4.720389	4.483781
-400.000	7.364384	10.736700	6.724648	4.526872	5.582440	6.444578	6.076029	5.616029	5.195409
-500.000	9.127689	12.263588	8.742476	5.948792	6.041091	6.552313	7.098126	6.459358	5.985495
-600.000	9.371342	12.724897	9.761302	7.320951	6.290923	6.561130	6.875613	7.103106	6.468737

96



\*\* ANNUAL GROUND LEVEL CONCENTRATION ( MICROGRAMS PER CUBIC METER ) FROM ALL SOURCES COMBINED (CONT.) \*\*

- GRID SYSTEM RECEPTORS -  
 - X AXIS (DISTANCE, METERS) -  
 - CONCENTRATION -

Y AXIS (DISTANCE , METERS )	-100.000	0.000	100.000	200.000	300.000	400.000	500.000	600.000	700.000
-700.000	10.237406	12.561590	10.150810	7.966827	6.318871	6.453076	6.639539	6.804550	6.912998
-800.000	10.124470	12.666780	10.116732	8.277956	6.653737	6.250275	6.361072	6.465375	6.500518
-900.000	9.796532	11.413338	9.836887	8.301712	6.892848	5.985910	6.046538	6.089931	6.108262
-1000.000	9.359263	10.721052	9.428007	8.147799	6.925193	5.804323	5.689330	5.724257	5.742361

- GRID SYSTEM RECEPTORS -  
 - X AXIS (DISTANCE, METERS) -  
 - CONCENTRATION -

Y AXIS (DISTANCE , METERS )	800.000	900.000	1000.000
1000.000	5.351303	5.214439	5.075349
900.000	5.608502	5.455925	5.299848
800.000	5.877198	5.704020	5.534438
700.000	6.143172	5.961765	5.778400
600.000	6.404109	6.229158	6.031364
500.000	6.640710	6.506221	6.294152
400.000	6.897082	6.788972	6.539887
300.000	7.162132	6.893804	6.608261
200.000	7.142980	6.943727	6.671797
100.000	7.251471	7.024717	6.727612
0.000	7.453820	7.152027	6.803570
-100.000	6.403279	6.289964	6.090511
-200.000	5.441939	5.474588	5.400136
-300.000	4.611043	4.736916	4.743624
-400.000	4.785154	4.395904	4.144448
-500.000	5.360918	4.879007	4.419462
-600.000	5.864269	5.293977	4.790988
-700.000	6.231319	5.628532	5.102954
-800.000	6.485319	5.881890	5.350441
-900.000	6.090072	6.059633	5.535496
-1000.000	5.738415	5.711648	5.664222



- SOURCE INPUT DATA -

C T SOURCE SOURCE X Y EMISSION BASE /  
 A A NUMBER TYPE COORDINATE COORDINATE HEIGHT ELEV- /  
 R P (M) (M) (M) ATION /  
 D E (M) /

- SOURCE DETAILS DEPENDING ON TYPE -

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 X 1 STACK 0.00 0.00 6.10 0.00 GAS EXIT TEMP (DEG K)= 589.00, GAS EXIT VEL. (M/SEC)= 43.90,  
*Swoope #2 Existing Diesel* STACK DIAMETER (M)= 0.360, HEIGHT OF ASSO. PLDG. (M)= 0.00, WIDTH OF  
*Emission rate corresponds to* ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0  
*Increase above 70% capacity factor limitation.* - SOURCE STRENGTHS (GRAMS PER SEC ) -  
 SEASON 1 SEASON 2 SEASON 3 SEASON 4  
 1.15000E+00  
 WARNING - DISTANCE BETWEEN SOURCE 1 AND POINT X,Y= 0.00, 0.00 IS LESS THAN PERMITTED  
 X 2 STACK 0.00 0.00 6.10 0.00 GAS EXIT TEMP (DEG K)= 694.00, GAS EXIT VEL. (M/SEC)= 42.70,  
*Swoope #3 & #4 Combined* STACK DIAMETER (M)= 0.560, HEIGHT OF ASSO. BLDG. (M)= 0.00, WIDTH OF  
 ASSO. BLDG. (M)= 0.00, WAKE EFFECTS FLAG = 0  
 - SOURCE STRENGTHS (GRAMS PER SEC ) -  
 SEASON 1 SEASON 2 SEASON 3 SEASON 4  
 1.42400E+01  
 WARNING - DISTANCE BETWEEN SOURCE 2 AND POINT X,Y= 0.00, 0.00 IS LESS THAN PERMITTED

\*\* ANNUAL GROUND LEVEL CONCENTRATION ( MICROGRAMS PER CUBIC METER ) FROM ALL SOURCES COMBINED \*\*

Y AXIS (DISTANCE , METERS )	-1000.000	-900.000	-800.000	-700.000	-600.000	-500.000	-400.000	-300.000	-200.000
	- GRID SYSTEM RECEPTORS -								
	- X AXIS (DISTANCE, METERS) -								
	- CONCENTRATION -								
1000.000	4.520756	4.530603	4.511012	4.458233	4.371409	4.254956	4.263452	5.180281	6.206468
900.000	4.710518	4.858240	4.843405	4.787318	4.686647	4.544641	4.369836	5.071120	6.152467
800.000	4.914803	5.079499	5.210071	5.147761	5.016402	4.796514	4.548201	4.699167	5.817804
700.000	5.136922	5.321885	5.464080	5.538367	5.320856	5.018771	4.668899	4.348303	5.300343
600.000	5.382028	5.593119	5.741446	5.755008	5.635359	5.215117	4.713485	4.232643	4.523201
500.000	5.658475	5.903630	6.037080	6.023872	5.819725	5.394122	4.680183	3.961777	3.533201
400.000	6.051797	6.265864	6.419033	6.399251	6.124184	5.521543	4.598712	3.564828	1.762926
300.000	6.950764	7.094189	7.094568	6.957702	6.661875	5.923663	4.682642	3.135205	1.262312
200.000	7.907308	8.164433	8.276503	8.153919	7.686349	6.776796	5.296220	3.207801	1.309849
100.000	8.886095	9.308157	9.599226	9.646774	9.284388	8.294069	6.462439	3.851166	1.837849
0.000	9.853601	10.469259	11.008928	<u>11.332335</u>	11.268307	10.526871	8.779190	5.721337	3.732776
-100.000	8.584108	8.971802	9.231838	9.260172	8.906273	7.978684	6.299791	3.949928	2.376096
-200.000	7.298388	7.480745	7.520294	7.341415	6.861167	6.030926	4.925282	3.290251	1.714400
-300.000	6.050619	6.076718	5.962884	5.757898	5.557244	5.038174	4.145288	3.009354	2.599359
-400.000	4.887339	4.903474	5.065331	5.019750	4.790734	4.332579	3.663387	3.024520	3.700642
-500.000	4.329359	4.449526	4.481150	4.399299	4.177841	3.807566	3.968241	4.176242	4.569763
-600.000	3.899849	3.967222	3.972616	3.875276	3.678033	3.921675	4.191241	4.519220	5.395178
-700.000	3.511554	3.539032	3.516667	3.428170	3.690674	3.973131	4.192094	4.652943	5.806690
-800.000	3.163233	3.161773	3.117146	3.380041	3.661081	3.950712	4.268748	4.863049	6.102528
-900.000	2.852649	2.830565	3.058518	3.306043	3.573822	3.861777	4.166894	4.994776	6.110509
-1000.000	2.576872	2.772741	2.984722	3.212920	3.457094	3.716992	4.076013	4.995079	5.986277

Y AXIS (DISTANCE , METERS )	-100.000	0.000	100.000	200.000	300.000	400.000	500.000	600.000	700.000
	- GRID SYSTEM RECEPTORS -								
	- X AXIS (DISTANCE, METERS) -								
	- CONCENTRATION -								
1000.000	7.280466	8.376677	7.351406	6.337106	5.367568	4.477124	4.267008	4.163865	4.058664
900.000	7.297355	8.543684	7.396438	6.285521	5.269374	4.575168	4.472225	4.366213	4.255118
800.000	7.116248	8.526773	7.254468	6.074090	5.046179	4.691741	4.620716	4.554072	4.453084
700.000	6.659750	8.203991	6.842833	5.658136	4.784166	4.728436	4.713701	4.694532	4.642042
600.000	5.816922	7.452812	6.081230	5.018644	4.611780	4.664504	4.754748	4.718985	4.768805
500.000	4.588627	6.178086	4.942447	4.205564	4.257614	4.502133	4.762873	4.831600	4.872447
400.000	3.064259	4.409218	3.522186	3.386473	3.754132	4.292001	4.572902	4.826157	4.979405
300.000	1.528748	2.354199	2.049510	2.423868	3.224925	3.798440	4.397372	4.859668	5.129473
200.000	0.637218	0.984886	1.189432	1.626314	2.418074	3.453972	4.350292	4.895594	5.142117
100.000	0.288929	0.184037	0.610358	1.128199	2.062204	3.402621	4.393205	4.987955	5.352642
0.000	1.303775	1.500082	0.449373	1.675433	2.608347	4.020135	4.913198	5.376213	5.825286
-100.000	0.813881	0.575565	0.254399	0.684745	1.414449	2.620183	3.591733	4.327263	4.561974
-200.000	1.385271	2.350932	0.738085	1.250501	1.774751	2.247648	2.668141	3.318553	3.737797
-300.000	2.628058	4.129972	2.088264	2.113570	3.013345	3.196094	3.288659	3.285767	3.195413
-400.000	4.635748	6.712242	4.171715	3.186645	3.602041	4.341627	4.176023	3.717235	3.733903
-500.000	6.169956	8.386244	5.842155	4.011753	4.109992	4.547927	5.119266	4.411565	4.272900
-600.000	7.162424	9.317750	6.867885	5.074983	4.432704	4.667587	4.990087	5.199549	4.736642



\*\* ANNUAL GROUND LEVEL CONCENTRATION ( MICROGRAMS PER CUBIC METER ) FROM ALL SOURCES COMBINED (CONT.) \*\*

- GRID SYSTEM RECEPTORS -  
 - X AXIS (DISTANCE, METERS) -  
 - CONCENTRATION -

Y AXIS (DISTANCE , METERS )	-100.000	0.000	100.000	200.000	300.000	400.000	500.000	600.000	700.000
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-700.000	7.445539	9.141445	7.348537	5.749539	4.562780	4.676843	4.841251	4.990833	5.092170
-800.000	7.481155	8.919882	7.450238	6.079086	4.880642	4.587487	4.679839	4.768476	4.800737
-900.000	7.385363	8.512440	7.316545	6.160236	5.104819	4.427017	4.472134	4.595086	4.517828
-1000.000	7.012383	8.032454	7.049086	6.079269	5.154711	4.307981	4.217338	4.239990	4.249018

- GRID SYSTEM RECEPTORS -  
 - X AXIS (DISTANCE, METERS) -  
 - CONCENTRATION -

Y AXIS (DISTANCE , METERS )	800.000	900.000	1000.000
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1000.000	3.949165	3.835467	3.719000
900.000	4.137527	4.013654	3.890831
800.000	4.331511	4.199357	4.067876
700.000	4.522067	4.388280	4.249101
600.000	4.702225	4.580199	4.434093
500.000	4.856625	4.775698	4.623975
400.000	5.022134	4.973322	4.802281
300.000	5.156453	5.050423	4.862032
200.000	5.187934	5.095057	4.919748
100.000	5.264184	5.170549	4.973930
0.000	5.467811	5.288986	5.047168
-100.000	4.672099	4.633645	4.505657
-200.000	3.953654	4.018964	3.983482
-300.000	3.340763	3.466486	3.487743
-400.000	3.476663	3.212633	3.035532
-500.000	3.918939	3.578633	3.242239
-600.000	4.309852	3.894997	3.522620
-700.000	4.594871	4.149644	3.757112
-800.000	4.790774	4.340483	3.940945
-900.000	4.506586	4.471251	4.075399
-1000.000	4.239617	4.211085	4.165322