Golder Associates

AIR PERMIT APPLICATION AND PREVENTION OF SIGNIFICANT DETERIORATION ANALYSIS FOR THE OLEANDER POWER PROJECT, BREVARD COUNTY, FLORIDA

Prepared For:

Oleander Power Project, L.P.
250 West Pratt Street, 23rd Floor
Baltimore, Maryland 21201

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500

November 1998
9839514Y/F1/WP

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
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Golder Associates

November 23, 1998

Project No. 9839514

Administrator, New Source Review Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Attention: Mr. A.A. Linero, P.E.

RE: AIR PERMIT APPLICATION AND PREVENTION OF SIGNIFICANT DETERIORATION ANALYSIS
OLEANDER POWER PROJECT
BREVARD COUNTY, FLORIDA

Dear Mr. Linero:

On the behalf of the Oleander Power Project, L.P., Golder Associates Inc. is pleased to submit four copies of the Air Permit Application and Prevention of Significant Deterioration Analysis for the Oleander Power Project, Brevard County, Florida. Attached is also a check of $7,500 for processing the application.

Please note that Mr. Richard L. Wolfinger is the authorized representative and is Vice President of CP Oleander I, Inc. operating as General Partner of Oleander Power Project, L.P.

Please call Mr. Robert McCann or me at (352) 336-5600 if you have any questions regarding this submittal.

Sincerely,

GOLDER ASSOCIATES INC.

Robert C. McCann Jr. for

Kennard F. Kosky, P.E.
Principal Engineer

KFK/arz

Enclosures

cc: Richard L. Wolfinger
Richard A. Zwolak
Robert C. McCann, Jr.

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Department of
Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: Oleander Power Project, L.P.	
2. Site Name: Oleander Power Project	
3. Facility Identification Number: [x] Unknown	
4. Facility Location Information: Street Address or Other Locator: 527 Townsend Road City: Cocoa County: Brevard Zip Code: 32926	
5. Relocatable Facility? [ ] Yes [x] No	6. Existing Permitted Facility? [ ] Yes [x] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	November 24, 1998
2. Permit Number:	0090180-001-AC
3. PSD Number (if applicable):	PSD-FL-258
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

   Richard L. Wolfinger, Vice President

2. Owner/Authorized Representative or Responsible Official Mailing Address:

   Organization/Firm: Oleander Power Project, L.P.
   Street Address: 250 West Pratt St., 23rd Floor
   City: Baltimore State: MD Zip Code: 21201

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:

   Telephone: (470) 783-2889 Fax: (470) 783-3610

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

[signature] Nov. 19, 1998

Signature Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID		Description of Emissions Unit	Permit Type
Unit #	Unit ID		
1R	---	F Class Combustion Turbine	AC1A
2R	---	F Class Combustion Turbine	AC1A
3R	---	F Class Combustion Turbine	AC1A
4R	---	F Class Combustion Turbine	AC1A
5R	---	F Class Combustion Turbine	AC1A
6	---	Unregulated Emissions	AC1A

See individual Emissions Unit (EU) sections for more detailed descriptions.
Multiple EU IDs indicated with an asterisk (*). Regulated EU indicated with an "R".

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: ______________________________

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: ______________________________

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: ______________________________

Operation permit to be renewed: ______________________________

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: ______________________________

____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: ______________________________

Reason for revision: ______________________________

____

Category II: All Air Construction Permit Applications Subject to Processing Under Rule 62-210.300(2)(b),F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): ______________________

____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: ______________________

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g.; to address one or more newly constructed or modified emissions units.

Operation permit to be revised: ______________________

Reason for revision: ______________________

____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units.

This Application for Air Permit is submitted to obtain:

[x] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: ______________________

____

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): ______________________

____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[x] Attached - Amount: $ 7,500.00 [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations: Construction of 5 190-MW 'F' Class combustion turbines. See Attachment PSD-FCLASS.
2. Projected or Actual Date of Commencement of Construction : 1 Mar 2000
3. Projected Date of Completion of Construction : 1 Jan 2001

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14996
2. Professional Engineer Mailing Address: Organization/Firm: Golder Associates Inc. Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653-1500
3. Professional Engineer Telephone Numbers: Telephone: (352) 336-5600 Fax: (352) 336-6603

4. Professional Engineer's Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Kennard F. Kosky ____________________ 11/23/98 ____________________

Signature Date

(seal) KFK

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact: **Richard L. Wolfinger, Vice President**
2. Application Contact Mailing Address: Organization/Firm: **Oleander Power Project, L.P.** Street Address: **250 West Pratt St., 23rd Floor** City: **Baltimore** State: **MD** Zip Code: **21201**
3. Application Contact Telephone Numbers: Telephone: **(470) 783-2889** Fax: **(470) 783-3610**

Application Comment

See Attachment PSD-FCLASS

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates:
   Zone: 17 East (km): 520.1 North (km): 3137.6

2. Facility Latitude/Longitude:
   Latitude (DD/MM/SS): 28 / 21 / 58 Longitude: (DD/MM/SS): 80 / 47 / 41

3. Governmental Facility Code:	4. Facility Status Code:	5. Facility Major Group SIC Code:	6. Facility SIC(s):
0	C	49	4911

7. Facility Comment (limit to 500 characters):

Project consists of five 190-MW dual-fuel, 'F' class combustion turbines that will use dry low-nitrogen oxide combustion technology when firing natural gas and water injection when firing distillate fuel oil. Each CT will operate up to 3,390 hours per year.

Facility Contact

1. Name and Title of Facility Contact:
   Mr. Richard L. Wolfinger, Vice President

2. Facility Contact Mailing Address:
   Organization/Firm: Oleander Power Project, L.P.
   Street Address: 250 West Pratt St., 23rd Floor
   City: Baltimore State: MD Zip Code: 21201

3. Facility Contact Telephone Numbers:
   Telephone: (470) 783-2889 Fax: (470) 783-3610

Facility Regulatory Classifications

1. Small Business Stationary Source?
   [ ] Yes   [x] No   [ ] Unknown

2. Title V Source?
   [x] Yes   [ ] No

3. Synthetic Non-Title V Source?
   [ ] Yes   [x] No

4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?
   [x] Yes   [ ] No

5. Synthetic Minor Source of Pollutants Other than HAPs?
   [ ] Yes   [x] No

6. Major Source of Hazardous Air Pollutants (HAPs)?
   [x] Yes   [ ] No

7. Synthetic Minor Source of HAPs?
   [ ] Yes   [x] No

8. One or More Emissions Units Subject to NSPS?
   [x] Yes   [ ] No

9. One or More Emissions Units Subject to NESHAP?
   [ ] Yes   [x] No

10. Title V Source by EPA Designation?
   [ ] Yes   [x] No

11. Facility Regulatory Classifications Comment (limit to 200 characters):
   F Class CT is subject to NSPS Subpart GG. The tanks are subject to Subpart Kb.

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

62-212.400 F.A.C.
See Attachment PSD-FCLASS

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

Not applicable

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted		2. Pollutant Classification
PM	Particulate Matter - Total	A
VOC	Volatile Organic Compounds	A
SO2	Sulfur Dioxide	A
NOx	Nitrogen Oxides	A
CO	Carbon Monoxide	A
PM10	Particulate Matter - PM10	A

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location:
   [x] Attached, Document ID: PSD-FCLASS
   [ ] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
   [x] Attached, Document ID: PSD-FCLASS
   [ ] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
   [x] Attached, Document ID(s): PSD-FCLASS
   [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
   [ ] Attached, Document ID: ____________
   [x] Not Applicable [ ] Waiver Requested

5. Fugitive Emissions Identification:
   [ ] Attached, Document ID: ____________
   [x] Not Applicable [ ] Waiver Requested

6. Supplemental Information for Construction Permit Application:
   [x] Attached, Document ID: PSD-FCLASS
   [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities:
   [ ] Attached, Document ID: ____________
   [ ] Not Applicable

8. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID: ____________
   [ ] Equipment/Activities On site but Not Required to be Individually Listed
   [ ] Not Applicable

9. Alternative Methods of Operation:
   [ ] Attached, Document ID: ____________
   [ ] Not Applicable

10. Alternative Modes of Operation (Emissions Trading):
    [ ] Attached, Document ID: ____________
    [ ] Not Applicable

11. Identification of Additional Applicable Requirements: [ ] Attached, Document ID: ____________________ [ ] Not Applicable
12. Compliance Assurance Monitoring Plan: [ ] Attached, Document ID: ____________________ [ ] Not Applicable
13. Risk Management Plan Verification: [ ] Plan Submitted to Implementing Agency - Verification Attached Document ID: ____________________ [ ] Plan to be Submitted to Implementing Agency by Required Date [ ] Not Applicable
14. Compliance Report and Plan [ ] Attached, Document ID: ____________________ [ ] Not Applicable
15. Compliance Statement (Hard-copy Required) [ ] Attached, Document ID: ____________________ [ ] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): F Class Combustion Turbine		
2. Emissions Unit Identification Number: [ ] No Corresponding ID [X] Unknown		
3. Emissions Unit Status Code: C	4. Acid Rain Unit? [X] Yes [ ] No	5. Emissions Unit Major Group SIC Code: 49
6. Emissions Unit Comment (limit to 500 characters): This emission unit is an F Class combustion turbine operating in simple cycle mode. See Attachment PSD-FCLASS.		

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer:	Model Number: F Class
4. Generator Nameplate Rating:	189 MW
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	1,722	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): **Maximum heat input at ISO conditions and natural gas firing (LHV); maximum for oil firing is 1,919 MMBtu/hr (ISO-LHV).**		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/yr	3,390 hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

<u>Rule Applicability Analysis</u> (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment FClass-EU1-D for operational requirements
See Attachment PSD-FCLASS for permitting requirements

ATTACHMENT FCLASS-EU1-D

Applicable Requirements Listing

EMISSION UNIT ID: EU1

FDEP Rules:

Air Pollution Control-General Provisions:

62-204.800(7)(b)37. (State Only)	- NSPS Subpart GG
62-204.800(7)(c) (State Only)	- NSPS authority
62-204.800(7)(d)(State Only)	- NSPS General Provisions
62-204.800(12) (State Only)	- Acid Rain Program
62-204.800(13) (State Only)	- Allowances
62-204.800(14) (State Only)	- Acid Rain Program Monitoring
62-204.800(16) (State Only)	- Excess Emissions (Potentially applicable over term of permit)

Stationary Sources-General:

62-210.650	- Circumvention; EUs with control device
62-210.700(1)	- Excess Emissions;
62-210.700(4)	- Excess Emissions; poor maintenance
62-210.700(6)	- Excess Emissions; notification

Acid Rain:

62-214.300	- All Acid Rain Units (Applicability)
62-214.320(1)(a),(2)	- All Acid Rain Units (Application Shield)
62-214.330(1)(a)1.	- Compliance Options (if 214.430)
62-214.340	- Exemptions (new units, retired units)
62-214.350(2);(3);(6)	- All Acid Rain Units (Certification)
62-214.370	- All Acid Rain Units (Revisions; correction; potentially applicable if a need arises)
62-214.430	- All Acid Rain Units (Compliance Options-if required)

Stationary Sources-Emission Standards:

62-296.320(4)(b)(State Only)	- CTs/Diesel Units

Stationary Sources-Emission Monitoring (where stack test is required):

62-297.310(1)	- All Units (Test Runs-Mass Emission)
62-297.310(2)(b)	- All Units (Operating Rate; other than CTs;no CT)
62-297.310(3)	- All Units (Calculation of Emission)
62-297.310(4)(a)	- All Units (Applicable Test Procedures;Sampling time)
62-297.310(4)(b)	- All Units (Sample Volume)
62-297.310(4)(c)	- All Units (Required Flow Rate Range-PM/H2SO4/F)
62-297.310(4)(d)	- All Units (Calibration)
62-297.310(4)(e)	- All Units (EPA Method 5-only)

62-297.310(5)	- All Units (Determination of Process Variables)
62-297.310(6)(a)	- All Units (Permanent Test Facilities-general)
62-297.310(6)(c)	- All Units (Sampling Ports)
62-297.310(6)(d)	- All Units (Work Platforms)
62-297.310(6)(e)	- All Units (Access)
62-297.310(6)(f)	- All Units (Electrical Power)
62-297.310(6)(g)	- All Units (Equipment Support)
62-297.310(7)(a)1.	- Applies mainly to CTs/Diesels
62-297.310(7)(a)2.	- FFSG excess emissions
62-297.310(7)(a)3.	- Permit Renewal Test Required
62-297.310(7)(a)4.a	- Annual Test
62-297.310(7)(a)5.	- PM exemption if <400 hrs/yr
62-297.310(7)(a)6.	- PM FFSG semi annual test required if >200 hrs/yr
62-297.310(7)(a)7.	- PM quarterly monitoring if >100 hrs/yr
62-297.310(7)(a)9.	- FDEP Notification - 15 days
62-297.310(7)(c)	- Waiver of Compliance Tests (Fuel Sampling)
62-297.310(8)	- Test Reports

Federal Rules:

NSPS Subpart GG:

40 CFR 60.332(a)(1)	- NOx for Electric Utility CTs
40 CFR 60.332(a)(3)	- NOx for Electric Utility CTs
40 CFR 60.333	- SO2 limits
40 CFR 60.334	- Monitoring of Operations (Custom Monitoring for Gas)
40 CFR 60.335	- Test Methods

NSPS General Requirements:

40 CFR 60.7(a)(1)	- Notification of Construction
40 CFR 60.7(a)(2)	- Notification of Initial Start-Up
40 CFR 60.7(a)(3)	- Notification of Actual Start-Up
40 CFR 60.7(a)(4) Cycle)	- Notification and Recordkeeping (Physical/Operational
40 CFR 60.7(a)(5)	- Notification of CEM Demonstration
40 CFR 60.7(b) (startup/shutdown/malfunction)	- Notification and Recordkeeping
40 CFR 60.7(c) (startup/shutdown/malfunction)	- Notification and Recordkeeping
40 CFR 60.7(d) (startup/shutdown/malfunction)	- Notification and Recordkeeping
40 CFR 60.7(f)	- Notification and Recordkeeping (maintain records-2 yrs)
40 CFR 60.8(a)	- Performance Test Requirements
40 CFR 60.8(b)	- Performance Test Notification
40 CFR 60.8(c)	- Performance Tests (representative conditions)
40 CFR 60.8(e)	- Provide Stack Sampling Facilities
40 CFR 60.8(f)	- Test Runs

40 CFR 60.11(a)	- Compliance (ref. S. 60.8 or Subpart; other than opacity)
40 CFR 60.11(b)	- Compliance (opacity determined EPA Method 9)
40 CFR 60.11(c)	- Compliance (opacity; excludes
startup/shutdown/malfunction)	
40 CFR 60.11(d)	- Compliance (maintain air pollution control equip.)
40 CFR 60.11(e)(2)	- Compliance (opacity; ref. S. 60.8)
40 CFR 60.12	- Circumvention
40 CFR 60.13(a)	- Monitoring (Appendix B; Appendix F)
40 CFR 60.13(c)	- Monitoring (Opacity COMS)
40 CFR 60.13(d)(1)	- Monitoring (CEMS; span, drift, etc.)
40 CFR 60.13(d)(2)	- Monitoring (COMS; span, system check)
40 CFR 60.13(e)	- Monitoring (frequency of operation)
40 CFR 60.13(f)	- Monitoring (frequency of operation)
40 CFR 60.13(h)	- Monitoring (COMS; data requirements)

Acid Rain-Permits:

40 CFR 72.9(a)	- Permit Requirements
40 CFR 72.9(b)	- Monitoring Requirements
40 CFR 72.9(c)(1)	- SO2 Allowances-hold allowances
40 CFR 72.9(c)(2)	- SO2 Allowances-violation
40 CFR 72.9(c)(3)(iii)	- SO2 Allowances-Phase II Units (listed)
40 CFR 72.9(c)(4)	- SO2 Allowances-allowances held in ATS
40 CFR 72.9(c)(5)	- SO2 Allowances-no deduction for 72.9(c)(1)(i)
40 CFR 72.9(d)	- NOx Requirements
40 CFR 72.9(e)	- Excess Emission Requirements
40 CFR 72.9(f)	- Recordkeeping and Reporting
40 CFR 72.9(g)	- Liability
40 CFR 72.20(a)	- Designated Representative; required
40 CFR 72.20(b)	- Designated Representative; legally binding
40 CFR 72.20(c)	- Designated Representative; certification requirements
40 CFR 72.21	- Submissions
40 CFR 72.22	- Alternate Designated Representative
40 CFR 72.23	- Changing representatives; owners
40 CFR 72.24	- Certificate of representation
40 CFR 72.30(a)	- Requirements to Apply (operate)
40 CFR 72.30(b)(2)	- Requirements to Apply (Phase II-Complete)
40 CFR 72.30(c)	- Requirements to Apply (reapply before expiration)
40 CFR 72.30(d)	- Requirements to Apply (submittal requirements)
40 CFR 72.31	- Information Requirements; Acid Rain Applications
40 CFR 72.32	- Permit Application Shield
40 CFR 72.33(b)	- Dispatch System ID;unit/system ID
40 CFR 72.33(c)	- Dispatch System ID;ID requirements
40 CFR 72.33(d)	- Dispatch System ID;ID change
40 CFR 72.40(a)	- General; compliance plan
40 CFR 72.40(b)	- General; multi-unit compliance options
40 CFR 72.40(c)	- General; conditional approval

40 CFR 72.40(d)	- General; termination of compliance options
40 CFR 72.51	- Permit Shield
40 CFR 72.90	- Annual Compliance Certification
Allowances:	
40 CFR 73.33(a),(c)	- Authorized account representative
40 CFR 73.35(c)(1)	- Compliance: ID of allowances by serial number
Monitoring Part 75:	
40 CFR 75.4	- Compliance Dates;
40 CFR 75.5	- Prohibitions
40 CFR 75.10(a)(1)	- Primary Measurement; SO2;
40 CFR 75.10(a)(2)	- Primary Measurement; NOx;
40 CFR 75.10(a)(3)(iii)	- Primary Measurement; CO2; O2 monitor
40 CFR 75.10(b)	- Primary Measurement; Performance Requirements
40 CFR 75.10(c)	- Primary Measurement; Heat Input; Appendix F
40 CFR 75.10(e)	- Primary Measurement; Optional Backup Monitor
40 CFR 75.10(f)	- Primary Measurement; Minimum Measurement
40 CFR 75.10(g)	- Primary Measurement; Minimum Recording
40 CFR 75.11(d)	- SO2 Monitoring; Gas- and Oil-fired units
40 CFR 75.11(e)	- SO2 Monitoring; Gaseous firing
40 CFR 75.12(a)	- NOx Monitoring; Coal; Non-peaking oil/gas units
40 CFR 75.12(b)	- NOx Monitoring; Determination of NOx emission rate; Appendix F
40 CFR 75.13(b)	- CO2 Monitoring; Appendix G
40 CFR 75.13(c)	- CO2 Monitoring; Appendix F
40 CFR 75.14(c)	- Opacity Monitoring; Gas units; exemption
40 CFR 75.20(a)	- Initial Certification Approval Process; Loss of Certification
40 CFR 75.20(b)	- Recertification Procedures (if recertification necessary)
40 CFR 75.20(c)	- Certification Procedures (if recertification necessary)
40 CFR 75.20(d)	- Recertification Backup/portable monitor
40 CFR 75.20(f)	- Alternate Monitoring system
40 CFR 75.21(a)	- QA/QC; CEMS; Appendix B (Suspended 7/17/95-12/31/96)
40 CFR 75.21(c)	- QA/QC; Calibration Gases
40 CFR 75.21(d)	- QA/QC; Notification of RATA
40 CFR 75.21(e)	- QA/QC; Audits
40 CFR 75.21(f)	- QA/QC; CEMS (Effective 7/17/96-12/31/96)
40 CFR 75.22	- Reference Methods
40 CFR 75.24	- Out-of-Control Periods; CEMS
40 CFR 75.30(a)(3)	- General Missing Data Procedures; NOx
40 CFR 75.30(a)(4)	- General Missing Data Procedures; SO2
40 CFR 75.30(b)	- General Missing Data Procedures; certified backup monitor
40 CFR 75.30(c)	- General Missing Data Procedures; certified backup monitor

40 CFR 75.30(d)	- General Missing Data Procedures; SO2 (optional before 1/1/97)
40 CFR 75.30(e) stacks	- General Missing Data Procedures; bypass/multiple
40 CFR 75.31	- Initial Missing Data Procedures (new/re-certified CMS)
40 CFR 75.32	- Monitoring Data Availability for Missing Data
40 CFR 75.33	- Standard Missing Data Procedures
40 CFR 75.36	- Missing Data for Heat Input
40 CFR 75.40	- Alternate Monitoring Systems-General
40 CFR 75.41	- Alternate Monitoring Systems-Precision Criteria
40 CFR 75.42	- Alternate Monitoring Systems-Reliability Criteria
40 CFR 75.43	- Alternate Monitoring Systems-Accessability Criteria
40 CFR 75.44	- Alternate Monitoring Systems-Timeliness Criteria
40 CFR 75.45	- Alternate Monitoring Systems-Daily QA
40 CFR 75.46	- Alternate Monitoring Systems-Missing data
40 CFR 75.47	- Alternate Monitoring Systems-Criteria for Class
40 CFR 75.48	- Alternate Monitoring Systems-Petition
40 CFR 75.53	- Monitoring Plan ; revisions
40 CFR 75.54(a)	- Recordkeeping-general
40 CFR 75.54(b)	- Recordkeeping-operating parameter
40 CFR 75.54(c)	- Recordkeeping-SO2
40 CFR 75.54(d)	- Recordkeeping-NOx
40 CFR 75.54(e)	- Recordkeeping-CO2
40 CFR 75.54(f)	- Recordkeeping-Opacity
40 CFR 75.55(c)	- General Recordkeeping (Specific Situations)
40 CFR 75.55(e)	- General Recordkeeping (Specific Situations)
40 CFR 75.56	- Certification; QA/QC Provisions
40 CFR 75.60	- Reporting Requirements-General
40 CFR 75.61	- Reporting Requirements-Notification cert/recertification
40 CFR 75.62	- Reporting Requirements-Monitoring Plan
40 CFR 75.63	- Reporting Requirements-Certification/Recertification
40 CFR 75.64(a)	- Reporting Requirements-Quarterly reports; submission
40 CFR 75.64(b) statement	- Reporting Requirements-Quarterly reports; DR
40 CFR 75.64(c)	- Rep. Req.; Quarterly reports; Compliance Certification
40 CFR 75.64(d)	- Rep. Req.; Quarterly reports; Electronic format
40 CFR 75.66	- Petitions to the Administrator (if required)
Appendix A-1	- Installation and Measurement Locations
Appendix A-2.	- Equipment Specifications
Appendix A-3.	- Performance Specifications
Appendix A-4.	- Data Handling and Acquisition Systems
Appendix A-5.	- Calibration Gases
Appendix A-6.	- Certification Tests and Procedures
Appendix A-7.	- Calculations
Appendix B	- QA/QC Procedures
Appendix C-1.	- Missing Data; SO2/NOx for controlled sources
Appendix C-2.	- Missing Data; Load-Based Procedure; NOx & flow

Appendix D	- Optional SO2; Oil-/gas-fired units
Appendix F	- Conversion Procedures
Appendix H	- Traceability Protocol

Acid Rain Program-Excess Emissions (these are future requirements):

40 CFR 77.3	- Offset Plans (future)
40 CFR 77.5(b)	- Deductions of Allowances (future)
40 CFR 77.6	- Excess Emissions Penalties (SO2 and NOx;future)

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: See Att. PSD-FCLASS	
2. Emission Point Type Code: [x] 1 [ ] 2 [ ] 3 [ ] 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Exhausts through a single stack.	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [ ] R [x] V [ ] W	
6. Stack Height:	60 feet
7. Exit Diameter:	22 feet
8. Exit Temperature:	1,115 °F

9. Actual Volumetric Flow Rate:	2,565,050	acfm
10. Percent Water Vapor:	8.7	%
11. Maximum Dry Standard Flow Rate:	1,092,180	dscfm
12. Nonstack Emission Point Height:		feet
13. Emission Point UTM Coordinates: Zone: 17 East (km): 520.1 North (km): 3137.6		
14. Emission Point Comment (limit to 200 characters): **Stack parameters for ISO operating condition firing natural gas; for oil 1,109 degrees F and 2,610,318 ACFM.**		

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Distillate (No. 2) Fuel Oil**	
2. Source Classification Code (SCC): **20100101**	
3. SCC Units: **1,000 gallons used**	
4. Maximum Hourly Rate: **14.6**	5. Maximum Annual Rate: **29,125**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **0.05**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **132**	
10. Segment Comment (limit to 200 characters): **Million Btu per SCC Unit = 131.8 (rounded to 132). Based on 7.1 lb/gal; LHV of 18,560 Btu/lb, - ISO conditions, 2,000 hrs/yr operation.**	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):
   Natural Gas

2. Source Classification Code (SCC): 20100201

3. SCC Units: Million Cubic Feet

4. Maximum Hourly Rate: 1.81

5. Maximum Annual Rate: 6,145

6. Estimated Annual Activity Factor:

7. Maximum Percent Sulfur:

8. Maximum Percent Ash:

9. Million Btu per SCC Unit: 950

10. Segment Comment (limit to 200 characters):
    Based on 950 Btu/cf (LHV); ISO conditions and 3,390 hrs/yr operation.

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			EL
SO2			EL
NOx	026	028	EL
CO			EL
VOC			EL
PM10			EL

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PM

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 44 lb/hour 50.3 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 42 ppmvd	
4. Equivalent Allowable Emissions: 344 lb/hour	344 tons/year
5. Method of Compliance (limit to 60 characters): CEM - 30 Day Rolling Average	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions is at 15% O2-100% load. Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 ppmvd	
4. Equivalent Allowable Emissions: 64.9 lb/hour	109.9 tons/year
5. Method of Compliance (limit to 60 characters): CEM 30-Day Rolling Average	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units is at 15% O2-100% load. Gas firing; 32 degrees F; 100% load, 3,390 hrs/yr; see Attachment PSD-FCLASS; Section 2.0; Appendix A.	

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 44 lb/hr
4. Equivalent Allowable Emissions: 44 lb/hour 44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 9 lb/hr
4. Equivalent Allowable Emissions: 9 lb/hour 15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 103.8 lb/hour 107.6 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/yr
6. Emission Factor: See Comment Reference: Applicant
7. Emissions Method Code: [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Emission Factor: 1 grain S per 100 CF gas; 0.05% S oil. lb/hr based on oil firing, 100% load, 32 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing, ISO conditions.

Emissions Unit Information Section 1 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.05 % Sulfur Oil	
4. Equivalent Allowable Emissions: 103.8 lb/hour	103.8 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - 32 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: See Comment	
4. Equivalent Allowable Emissions: 5.5 lb/hour	9.3 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units: Pipeline Natural Gas. Gas firing, 1 gram/100 cf - 32 degrees F, 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOx
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 344 lb/hour 388 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: Reference: Applicant
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Lb/hr based on oil firing, 100% load, 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **CO**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **101.3** lb/hour **148.9** tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/yr
6. Emission Factor: Reference: **Applicant**
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **See Attachment PSD-FCLASS; Section 2.0; Appendix A.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Lb/hr based on oil firing; 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.**

Emissions Unit Information Section 1 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 30 ppmvd	
4. Equivalent Allowable Emissions: 101.3 lb/hour	101.3 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 20 ppmvd	
4. Equivalent Allowable Emissions: 70.1 lb/hour	118.8 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: VOC

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 15.4 lb/hour 20.9 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 8 ppmvd	
4. Equivalent Allowable Emissions: 15.4 lb/hour	15.4 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 25A; high and low load	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 4 ppmvd	
4. Equivalent Allowable Emissions: 8 lb/hour	13.6 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 25A; high and low load	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Additional Requested Allowable Emissions and Units: 100% load/100 ppmvd; 50% load. Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **44** lb/hour **50.3** tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/yr
6. Emission Factor: Reference: **Applicant**
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **See Attachment PSD-FCLASS; Section 2.0; Appendix A.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.**

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **44 lb/hr**	
4. Equivalent Allowable Emissions: **44** lb/hour	**44** tons/year
5. Method of Compliance (limit to 60 characters): **Annual stack test; EPA Methods 5 or 17; if < 400 hours**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.**	

B.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **9 lb/hr**	
4. Equivalent Allowable Emissions: **9** lb/hour	**15.3** tons/year
5. Method of Compliance (limit to 60 characters): **VE Test < 20% opacity**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.**	

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 2

1.	Visible Emissions Subtype: **VE20**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **Annual VE Test EPA Method 9**
5.	Visible Emissions Comment (limit to 200 characters):

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

1.	Visible Emissions Subtype: **VE99**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: **100** % Maximum Period of Excess Opacity Allowed: **6** min/hour
4.	Method of Compliance: **None**
5.	Visible Emissions Comment (limit to 200 characters): **FDEP Rule 62-210.700(1), Allowed for 2 hours (120 minutes) per 24 hours for start up, shutdown and malfunction.**

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

<u>Continuous Monitoring System</u> Continuous Monitor 1 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): NOx CEM proposed to meet requirements proposed in application and requirements of 40 CFR Part 75.	

<u>Continuous Monitoring System</u> Continuous Monitor 2 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): Parameter Code: WTF. Required by 40 CFR Part 60; subpart GG; 60.334.	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[x] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[x] C	[ ] E	[ ] Unknown
	SO_2	[x] C	[ ] E	[ ] Unknown
	NO_2	[x] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	lb/hour		tons/year
	SO_2	lb/hour		tons/year
	NO_2			tons/year
5.	PSD Comment (limit to 200 characters):			
	See Attachment PSD-FCLASS.			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1.	Process Flow Diagram [X] Attached, Document ID: PSD-FCLASS [ ] Not Applicable		[ ] Waiver Requested
2.	Fuel Analysis or Specification [X] Attached, Document ID: PSD-FCLASS [ ] Not Applicable		[ ] Waiver Requested
3.	Detailed Description of Control Equipment [X] Attached, Document ID: PSD-FCLASS [ ] Not Applicable		[ ] Waiver Requested
4.	Description of Stack Sampling Facilities [X] Attached, Document ID: PSD-FCLASS [ ] Not Applicable		[ ] Waiver Requested
5.	Compliance Test Report [ ] Attached, Document ID: ____ [ ] Previously Submitted, Date: ____		[X] Not Applicable
6.	Procedures for Startup and Shutdown [ ] Attached, Document ID: ____		[X] Not Applicable
7.	Operation and Maintenance Plan [ ] Attached, Document ID: ____		[X] Not Applicable
8.	Supplemental Information for Construction Permit Application [X] Attached, Document ID: PSD-FCLASS		[ ] Not Applicable
9.	Other Information Required by Rule or Statute [X] Attached, Document ID: PSD-FCLASS		[ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: ____________ [ ] Not Applicable	
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: ____________ [ ] Not Applicable	
12.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: ____________ [ ] Not Applicable	
13.	Compliance Assurance Monitoring Plan [ ] Attached, Document ID: ____________ [ ] Not Applicable	
14.	Acid Rain Permit Application (Hard Copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: ____________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: ____________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: ____________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: ____________ [ ] Not Applicable	

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[x] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[x] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): **F Class Combustion Turbine**		
2. Emissions Unit Identification Number: [ ] No Corresponding ID [X] Unknown		
3. Emissions Unit Status Code: **C**	4. Acid Rain Unit? [X] Yes [ ] No	5. Emissions Unit Major Group SIC Code: **49**
6. Emissions Unit Comment (limit to 500 characters): **This emission unit is an F Class combustion turbine operating in simple cycle mode. See Attachment PSD-FCLASS.**		

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): Dry Low NOx combustion - Natural gas firing
2. Control Device or Method Code: 25

B.

1. Description (limit to 200 characters): Water injection - distillate oil firing
2. Control Device or Method Code: 28

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer:	Model Number: F Class
4. Generator Nameplate Rating:	189 MW
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	1,722	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): **Maximum heat input at ISO conditions and natural gas firing (LHV); maximum for oil firing is 1,919 MMBtu/hr (ISO-LHV).**		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
	hours/day		days/week
	weeks/yr	3,390	hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment FClass-EU1-D for operational requirements
See Attachment PSD-FCLASS for permitting requirements

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: See Att. PSD-FCLASS			
2. Emission Point Type Code: [x] 1 [ ] 2 [ ] 3 [ ] 4			
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **Exhausts through a single stack.**			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [ ] R [x] V [ ] W			
6. Stack Height:	60	feet	
7. Exit Diameter:	22	feet	
8. Exit Temperature:	1,115	°F	

9. Actual Volumetric Flow Rate:	2,565,050	acfm
10. Percent Water Vapor:	8.7	%
11. Maximum Dry Standard Flow Rate:	1,092,180	dscfm
12. Nonstack Emission Point Height:		feet
13. Emission Point UTM Coordinates: Zone: 17 East (km): 520.1 North (km): 3137.6		
14. Emission Point Comment (limit to 200 characters): **Stack parameters for ISO operating condition firing natural gas; for oil 1,109 degrees F and 2,610,318 ACFM.**		

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):

   Distillate (No. 2) Fuel Oil

2. Source Classification Code (SCC):

   20100101

3. SCC Units:

   1,000 gallons used

4. Maximum Hourly Rate: **14.6**

5. Maximum Annual Rate: **29,125**

6. Estimated Annual Activity Factor:

7. Maximum Percent Sulfur: **0.05**

8. Maximum Percent Ash:

9. Million Btu per SCC Unit:

   132

10. Segment Comment (limit to 200 characters):

    Million Btu per SCC Unit = 131.8 (rounded to 132). Based on 7.1 lb/gal; LHV of 18,560 Btu/lb, - ISO conditions, 2,000 hrs/yr operation.

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Natural Gas	
2. Source Classification Code (SCC): 20100201	
3. SCC Units: Million Cubic Feet	
4. Maximum Hourly Rate: 1.81	5. Maximum Annual Rate: 6,145
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 950	
10. Segment Comment (limit to 200 characters): Based on 950 Btu/cf (LHV); ISO conditions and 3,390 hrs/yr operation.	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			EL
SO2			EL
NOx	026	028	EL
CO			EL
VOC			EL
PM10			EL

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PM
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 44 lb/hour 50.3 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: Reference: Applicant
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 44 lb/hr	
4. Equivalent Allowable Emissions: 44 lb/hour	44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 lb/hr	
4. Equivalent Allowable Emissions: 9 lb/hour	15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 103.8 lb/hour 107.6 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor: See Comment

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Emission Factor: 1 grain S per 100 CF gas; 0.05% S oil. lb/hr based on oil firing, 100% load, 32 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing, ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.05 % Sulfur Oil	
4. Equivalent Allowable Emissions: 103.8 lb/hour	103.8 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - 32 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: See Comment	
4. Equivalent Allowable Emissions: 5.5 lb/hour	9.3 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units: Pipeline Natural Gas. Gas firing, 1 gram/100 cf - 32 degrees F, 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOx
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 344 lb/hour 388 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: Reference: Applicant
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Lb/hr based on oil firing, 100% load, 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **CO**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **101.3** lb/hour **148.7** tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/yr
6. Emission Factor: Reference: **Applicant**
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **See Attachment PSD-FCLASS; Section 2.0; Appendix A.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Lb/hr based on oil firing; 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.**

Emissions Unit Information Section 2 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 42 ppmvd	
4. Equivalent Allowable Emissions: 344 lb/hour	344 tons/year
5. Method of Compliance (limit to 60 characters): CEM - 30 Day Rolling Average	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions is at 15% O2-100% load. Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 ppmvd	
4. Equivalent Allowable Emissions: 64.9 lb/hour	109.9 tons/year
5. Method of Compliance (limit to 60 characters): CEM 30-Day Rolling Average	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units is at 15% O2-100% load. Gas firing; 32 degrees F; 100% load, 3,390 hrs/yr; see Attachment PSD-FCLASS; Section 2.0; Appendix A.	

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 30 ppmvd	
4. Equivalent Allowable Emissions: 101.3 lb/hour	101.3 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 20 ppmvd	
4. Equivalent Allowable Emissions: 70.1 lb/hour	118.8 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: VOC

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 15.4 lb/hour 20.9 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): **F Class Combustion Turbine**		
2. Emissions Unit Identification Number: [ ] No Corresponding ID [X] Unknown		
3. Emissions Unit Status Code: **C**	4. Acid Rain Unit? [X] Yes [ ] No	5. Emissions Unit Major Group SIC Code: **49**
6. Emissions Unit Comment (limit to 500 characters): **This emission unit is an F Class combustion turbine operating in simple cycle mode. See Attachment PSD-FCLASS.**		

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): **Dry Low NOx combustion - Natural gas firing**
2. Control Device or Method Code: **25**

B.

1. Description (limit to 200 characters): **Water injection - distillate oil firing**
2. Control Device or Method Code: **28**

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer:	Model Number: F Class
4. Generator Nameplate Rating:	189 MW
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	1,722	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): **Maximum heat input at ISO conditions and natural gas firing (LHV); maximum for oil firing is 1,919 MMBtu/hr (ISO-LHV).**		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
	hours/day		days/week
	weeks/yr	3,390	hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

<u>Rule Applicability Analysis</u> (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment FClass-EU1-D for operational requirements
See Attachment PSD-FCLASS for permitting requirements

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: See Att. PSD-FCLASS
2. Emission Point Type Code: [x] 1 [ ] 2 [ ] 3 [ ] 4
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **Exhausts through a single stack.**
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [ ] R [x] V [ ] W
6. Stack Height: 60 feet
7. Exit Diameter: 22 feet
8. Exit Temperature: 1,115 °F

9. Actual Volumetric Flow Rate:	2,565,050 acfm
10. Percent Water Vapor:	8.7 %
11. Maximum Dry Standard Flow Rate:	1,092,180 dscfm
12. Nonstack Emission Point Height:	feet
13. Emission Point UTM Coordinates: Zone: 17 East (km): 520.1 North (km): 3137.6	
14. Emission Point Comment (limit to 200 characters): **Stack parameters for ISO operating condition firing natural gas; for oil 1,109 degrees F and 2,610,318 ACFM.**	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):

   Distillate (No. 2) Fuel Oil

2. Source Classification Code (SCC):

   20100101

3. SCC Units:

   1,000 gallons used

4. Maximum Hourly Rate: **14.6**

5. Maximum Annual Rate: **29,125**

6. Estimated Annual Activity Factor:

7. Maximum Percent Sulfur: **0.05**

8. Maximum Percent Ash:

9. Million Btu per SCC Unit:

   132

10. Segment Comment (limit to 200 characters):

    Million Btu per SCC Unit = 131.8 (rounded to 132). Based on 7.1 lb/gal; LHV of 18,560 Btu/lb, - ISO conditions, 2,000 hrs/yr operation.

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Natural Gas	
2. Source Classification Code (SCC): 20100201	
3. SCC Units: Million Cubic Feet	
4. Maximum Hourly Rate: 1.81	5. Maximum Annual Rate: 6,145
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 950	
10. Segment Comment (limit to 200 characters): Based on 950 Btu/cf (LHV); ISO conditions and 3,390 hrs/yr operation.	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			EL
SO2			EL
NOx	026	028	EL
CO			EL
VOC			EL
PM10			EL

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PM

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 44 lb/hour 50.3 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 3 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 44 lb/hr	
4. Equivalent Allowable Emissions: 44 lb/hour	44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 lb/hr	
4. Equivalent Allowable Emissions: 9 lb/hour	15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2		
2. Total Percent Efficiency of Control: %		
3. Potential Emissions:	103.8 lb/hour	107.6 tons/year
4. Synthetically Limited? [X] Yes [ ] No		
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr		
6. Emission Factor: See Comment Reference: Applicant		
7. Emissions Method Code: [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5		
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Emission Factor: 1 grain S per 100 CF gas; 0.05% S oil. lb/hr based on oil firing, 100% load, 32 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing, ISO conditions.		

Emissions Unit Information Section 3 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 0.05 % Sulfur Oil
4. Equivalent Allowable Emissions: 103.8 lb/hour 103.8 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - 32 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: See Comment
4. Equivalent Allowable Emissions: 5.5 lb/hour 9.3 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units: Pipeline Natural Gas. Gas firing, 1 gram/100 cf - 32 degrees F, 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOx

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 344 lb/hour 388 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, 100% load, 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **42 ppmvd**
4. Equivalent Allowable Emissions: **344** lb/hour **344** tons/year
5. Method of Compliance (limit to 60 characters): **CEM - 30 Day Rolling Average**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Requested Allowable Emissions is at 15% O2-100% load. Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.**

B.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **9 ppmvd**
4. Equivalent Allowable Emissions: **64.9** lb/hour **109.9** tons/year
5. Method of Compliance (limit to 60 characters): **CEM 30-Day Rolling Average**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Requested Allowable Emissions and Units is at 15% O2-100% load. Gas firing; 32 degrees F; 100% load, 3,390 hrs/yr; see Attachment PSD-FCLASS; Section 2.0; Appendix A.**

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: CO

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 101.3 lb/hour 148.7 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing; 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 3 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 30 ppmvd	
4. Equivalent Allowable Emissions: 101.3 lb/hour	101.3 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 20 ppmvd	
4. Equivalent Allowable Emissions: 70.1 lb/hour	118.8 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: VOC		
2. Total Percent Efficiency of Control: %		
3. Potential Emissions:	15.4 lb/hour	20.9 tons/year
4. Synthetically Limited? [x] Yes [ ] No		
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr		
6. Emission Factor: Reference: Applicant		
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5		
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Lb/hr based on oil firing, 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.		

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 8 ppmvd	
4. Equivalent Allowable Emissions: 15.4 lb/hour	15.4 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 25A; high and low load	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 4 ppmvd	
4. Equivalent Allowable Emissions: 8 lb/hour	13.6 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 25A; high and low load	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Additional Requested Allowable Emissions and Units: 100% load/100 ppmvd; 50% load. Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PM10

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 44 lb/hour 50.3 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 44 lb/hr
4. Equivalent Allowable Emissions: 44 lb/hour 44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 9 lb/hr
4. Equivalent Allowable Emissions: 9 lb/hour 15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 2

1.	Visible Emissions Subtype: VE20
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: Annual VE Test EPA Method 9
5.	Visible Emissions Comment (limit to 200 characters):

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

1.	Visible Emissions Subtype: VE99
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: 100 % Maximum Period of Excess Opacity Allowed: 6 min/hour
4.	Method of Compliance: None
5.	Visible Emissions Comment (limit to 200 characters): FDEP Rule 62-210.700(1), Allowed for 2 hours (120 minutes) per 24 hours for start up, shutdown and malfunction.

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Continuous Monitoring System Continuous Monitor 1 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): NOx CEM proposed to meet requirements proposed in application and requirements of 40 CFR Part 75.	

Continuous Monitoring System Continuous Monitor 2 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): Parameter Code: WTF. Required by 40 CFR Part 60; subpart GG; 60.334.	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

[x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[x] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[x] C	[ ] E	[ ] Unknown
	SO_2	[x] C	[ ] E	[ ] Unknown
	NO_2	[x] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	lb/hour		tons/year
	SO_2	lb/hour		tons/year
	NO_2			tons/year
5.	PSD Comment (limit to 200 characters):			
	See Attachment PSD-FCLASS.			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1.	Process Flow Diagram		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
2.	Fuel Analysis or Specification		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
3.	Detailed Description of Control Equipment		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
4.	Description of Stack Sampling Facilities		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
5.	Compliance Test Report		
	[ ] Attached, Document ID: ______	[x] Not Applicable	
	[ ] Previously Submitted, Date: ______		
6.	Procedures for Startup and Shutdown		
	[ ] Attached, Document ID: ______	[x] Not Applicable	
7.	Operation and Maintenance Plan		
	[ ] Attached, Document ID: ______	[x] Not Applicable	
8.	Supplemental Information for Construction Permit Application		
	[x] Attached, Document ID: PSD-FCLASS	[ ] Not Applicable	
9.	Other Information Required by Rule or Statute		
	[x] Attached, Document ID: PSD-FCLASS	[ ] Not Applicable	

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: ____________ [ ] Not Applicable	
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: ____________ [ ] Not Applicable	
12.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: ____________ [ ] Not Applicable	
13.	Compliance Assurance Monitoring Plan [ ] Attached, Document ID: ____________ [ ] Not Applicable	
14.	Acid Rain Permit Application (Hard Copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: ____________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: ____________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: ____________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: ____________ [ ] Not Applicable	

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[x] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[x] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
   F Class Combustion Turbine

2. Emissions Unit Identification Number: [ ] No Corresponding ID [X] Unknown

3. Emissions Unit Status Code: C	4. Acid Rain Unit? [X] Yes [ ] No	5. Emissions Unit Major Group SIC Code: 49

6. Emissions Unit Comment (limit to 500 characters):
   This emission unit is an F Class combustion turbine operating in simple cycle mode. See Attachment PSD-FCLASS.

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): Dry Low NOx combustion - Natural gas firing
2. Control Device or Method Code: 25

B.

1. Description (limit to 200 characters): Water injection - distillate oil firing
2. Control Device or Method Code: 28

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer:	Model Number: F Class
4. Generator Nameplate Rating:	189 MW
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	1,722	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): **Maximum heat input at ISO conditions and natural gas firing (LHV); maximum for oil firing is 1,919 MMBtu/hr (ISO-LHV).**		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/yr	3,390 hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment FClass-EU1-D for operational requirements
See Attachment PSD-FCLASS for permitting requirements

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 103.8 lb/hour 107.6 tons/year

4. Synthetically Limited? [X] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ____________ to ____________ tons/yr

6. Emission Factor: See Comment

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Emission Factor: 1 grain S per 100 CF gas; 0.05% S oil. lb/hr based on oil firing, 100% load, 32 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing, ISO conditions.

Emissions Unit Information Section 4 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.05 % Sulfur Oil	
4. Equivalent Allowable Emissions: 103.8 lb/hour	103.8 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - 32 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: See Comment	
4. Equivalent Allowable Emissions: 5.5 lb/hour	9.3 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units: Pipeline Natural Gas. Gas firing, 1 gram/100 cf - 32 degrees F, 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOx
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 344 lb/hour 388 tons/year
4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/yr
6. Emission Factor: Reference: Applicant
7. Emissions Method Code: [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **See Attachment PSD-FCLASS; Section 2.0; Appendix A.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Lb/hr based on oil firing, 100% load, 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.**

Emissions Unit Information Section 4 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
   OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:
   42 ppmvd

4. Equivalent Allowable Emissions: 344 lb/hour 344 tons/year

5. Method of Compliance (limit to 60 characters):
   CEM - 30 Day Rolling Average

6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):
   Requested Allowable Emissions is at 15% O2-100% load. Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:
   9 ppmvd

4. Equivalent Allowable Emissions: 64.9 lb/hour 109.9 tons/year

5. Method of Compliance (limit to 60 characters):
   CEM 30-Day Rolling Average

6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):
   Requested Allowable Emissions and Units is at 15% O2-100% load. Gas firing; 32 degrees F; 100% load, 3,390 hrs/yr; see Attachment PSD-FCLASS; Section 2.0; Appendix A.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: CO

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 101.3 lb/hour 148.7 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing; 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 4 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 30 ppmvd	
4. Equivalent Allowable Emissions: 101.3 lb/hour	101.3 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 20 ppmvd	
4. Equivalent Allowable Emissions: 70.1 lb/hour	118.8 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 10; high and low loads	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **VOC**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **15.4** lb/hour **20.9** tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: Reference: **Applicant**
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **See Attachment PSD-FCLASS; Section 2.0; Appendix A.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Lb/hr based on oil firing, 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.**

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 8 ppmvd	
4. Equivalent Allowable Emissions: 15.4 lb/hour	15.4 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 25A; high and low load	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 4 ppmvd	
4. Equivalent Allowable Emissions: 8 lb/hour	13.6 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 25A; high and low load	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Additional Requested Allowable Emissions and Units: 100% load/100 ppmvd; 50% load. Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM10**

2. Total Percent Efficiency of Control: %

3. Potential Emissions: **44** lb/hour **50.3** tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: **Applicant**

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 44 lb/hr
4. Equivalent Allowable Emissions: 44 lb/hour 44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 9 lb/hr
4. Equivalent Allowable Emissions: 9 lb/hour 15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 2

1.	Visible Emissions Subtype: **VE20**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **Annual VE Test EPA Method 9**
5.	Visible Emissions Comment (limit to 200 characters):

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

1.	Visible Emissions Subtype: **VE99**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: **100** % Maximum Period of Excess Opacity Allowed: **6** min/hour
4.	Method of Compliance: **None**
5.	Visible Emissions Comment (limit to 200 characters): **FDEP Rule 62-210.700(1), Allowed for 2 hours (120 minutes) per 24 hours for start up, shutdown and malfunction.**

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Continuous Monitoring System Continuous Monitor 1 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): NOx CEM proposed to meet requirements proposed in application and requirements of 40 CFR Part 75.	

Continuous Monitoring System Continuous Monitor 2 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): Parameter Code: WTF. Required by 40 CFR Part 60; subpart GG; 60.334.	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

[x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

[ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[x] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[x] C	[ ] E	[ ] Unknown
	SO_2	[x] C	[ ] E	[ ] Unknown
	NO_2	[x] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	lb/hour		tons/year
	SO_2	lb/hour		tons/year
	NO_2			tons/year
5.	PSD Comment (limit to 200 characters):			
	See Attachment PSD-FCLASS.			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1.	Process Flow Diagram		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
2.	Fuel Analysis or Specification		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
3.	Detailed Description of Control Equipment		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
4.	Description of Stack Sampling Facilities		
	[x] Attached, Document ID: PSD-FCLASS		
	[ ] Not Applicable	[ ] Waiver Requested	
5.	Compliance Test Report		
	[ ] Attached, Document ID: ______	[x] Not Applicable	
	[ ] Previously Submitted, Date: ______		
6.	Procedures for Startup and Shutdown		
	[ ] Attached, Document ID: ______	[x] Not Applicable	
7.	Operation and Maintenance Plan		
	[ ] Attached, Document ID: ______	[x] Not Applicable	
8.	Supplemental Information for Construction Permit Application		
	[x] Attached, Document ID: PSD-FCLASS	[ ] Not Applicable	
9.	Other Information Required by Rule or Statute		
	[x] Attached, Document ID: PSD-FCLASS	[ ] Not Applicable	

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation	
[ ] Attached, Document ID: ____________	[ ] Not Applicable
11. Alternative Modes of Operation (Emissions Trading)	
[ ] Attached, Document ID: ____________	[ ] Not Applicable
12. Identification of Additional Applicable Requirements	
[ ] Attached, Document ID: ____________	[ ] Not Applicable
13. Compliance Assurance Monitoring Plan	
[ ] Attached, Document ID: ____________	[ ] Not Applicable

14. Acid Rain Permit Application (Hard Copy Required)

[ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID: ____________

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID: ____________

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID: ____________

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID: ____________

[ ] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[x] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[x] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): F Class Combustion Turbine		
2. Emissions Unit Identification Number: [ ] No Corresponding ID [X] Unknown		
3. Emissions Unit Status Code: C	4. Acid Rain Unit? [X] Yes [ ] No	5. Emissions Unit Major Group SIC Code: 49
6. Emissions Unit Comment (limit to 500 characters): This emission unit is an F Class combustion turbine operating in simple cycle mode. See Attachment PSD-FCLASS.		

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): Dry Low NOx combustion - Natural gas firing	
2. Control Device or Method Code: 25	

B.

1. Description (limit to 200 characters): Water injection - distillate oil firing	
2. Control Device or Method Code: 28	

C.

1. Description (limit to 200 characters):	
2. Control Device or Method Code:	

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:		
2. Long-term Reserve Shutdown Date:		
3. Package Unit: Manufacturer:		Model Number: F Class
4. Generator Nameplate Rating:	189 MW	
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F	

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:		1,722 mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): **Maximum heat input at ISO conditions and natural gas firing (LHV); maximum for oil firing is 1,919 MMBtu/hr (ISO-LHV).**		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/yr	3,390 hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment FClass-EU1-D for operational requirements
See Attachment PSD-FCLASS for permitting requirements

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:
   See Att. PSD-FCLASS

2. Emission Point Type Code:
   [x] 1 [ ] 2 [ ] 3 [ ] 4

3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):
   Exhausts through a single stack.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code:
   [ ] D [ ] F [ ] H [ ] P
   [ ] R [x] V [ ] W

6. Stack Height: 60 feet

7. Exit Diameter: 22 feet

8. Exit Temperature: 1,115 °F

9. Actual Volumetric Flow Rate:	**2,565,050**	acfm
10. Percent Water Vapor:	**8.7**	%
11. Maximum Dry Standard Flow Rate:	**1,092,180**	dscfm
12. Nonstack Emission Point Height:		feet
13. Emission Point UTM Coordinates: Zone: **17** East (km): **520.1** North (km): **3137.6**		
14. Emission Point Comment (limit to 200 characters): **Stack parameters for ISO operating condition firing natural gas; for oil 1,109 degrees F and 2,610,318 ACFM.**		

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Distillate (No. 2) Fuel Oil**	
2. Source Classification Code (SCC): **20100101**	
3. SCC Units: **1,000 gallons used**	
4. Maximum Hourly Rate: **14.6**	5. Maximum Annual Rate: **29,125**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **0.05**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **132**	
10. Segment Comment (limit to 200 characters): **Million Btu per SCC Unit = 131.8 (rounded to 132). Based on 7.1 lb/gal; LHV of 18,560 Btu/lb, - ISO conditions, 2,000 hrs/yr operation.**	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Natural Gas	
2. Source Classification Code (SCC): 20100201	
3. SCC Units: Million Cubic Feet	
4. Maximum Hourly Rate: 1.81	5. Maximum Annual Rate: 6,145
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 950	
10. Segment Comment (limit to 200 characters): Based on 950 Btu/cf (LHV); ISO conditions and 3,390 hrs/yr operation.	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			EL
SO2			EL
NOx	026	028	EL
CO			EL
VOC			EL
PM10			EL

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PM

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 44 lb/hour 50.3 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 5 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 44 lb/hr	
4. Equivalent Allowable Emissions: 44 lb/hour	44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 lb/hr	
4. Equivalent Allowable Emissions: 9 lb/hour	15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2	
2. Total Percent Efficiency of Control: %	
3. Potential Emissions: 103.8 lb/hour	107.6 tons/year
4. Synthetically Limited? [x] Yes [ ] No	
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/yr	
6. Emission Factor: See Comment Reference: Applicant	
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5	
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Emission Factor: 1 grain S per 100 CF gas; 0.05% S oil. lb/hr based on oil firing, 100% load, 32 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing, ISO conditions.	

Emissions Unit Information Section 5 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.05 % Sulfur Oil	
4. Equivalent Allowable Emissions: 103.8 lb/hour	103.8 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - 32 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: See Comment	
4. Equivalent Allowable Emissions: 5.5 lb/hour	9.3 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Sampling	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units: Pipeline Natural Gas. Gas firing, 1 gram/100 cf - 32 degrees F, 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOx
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 344 lb/hour 388 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: Reference: Applicant
7. Emissions Method Code: [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): See Attachment PSD-FCLASS; Section 2.0; Appendix A.
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Lb/hr based on oil firing, 100% load, 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 5 of 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 42 ppmvd
4. Equivalent Allowable Emissions: 344 lb/hour 344 tons/year
5. Method of Compliance (limit to 60 characters): CEM - 30 Day Rolling Average
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions is at 15% O2-100% load. Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: OTHER
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 9 ppmvd
4. Equivalent Allowable Emissions: 64.9 lb/hour 109.9 tons/year
5. Method of Compliance (limit to 60 characters): CEM 30-Day Rolling Average
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units is at 15% O2-100% load. Gas firing; 32 degrees F; 100% load, 3,390 hrs/yr; see Attachment PSD-FCLASS; Section 2.0; Appendix A.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: CO

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 101.3 lb/hour 148.7 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing; 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 5 **of** 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
   OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:
   30 ppmvd

4. Equivalent Allowable Emissions: **101.3** lb/hour **101.3** tons/year

5. Method of Compliance (limit to 60 characters):
   EPA Method 10; high and low loads

6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):
   Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

B.

1. Basis for Allowable Emissions Code: **OTHER**

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:
   20 ppmvd

4. Equivalent Allowable Emissions: **70.1** lb/hour **118.8** tons/year

5. Method of Compliance (limit to 60 characters):
   EPA Method 10; high and low loads

6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):
   Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: VOC

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 15.4 lb/hour 20.9 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ____________ to ____________ tons/yr

6. Emission Factor:

   Reference: Applicant

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, 100% load; 59 degrees F. Tons/yr based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Emissions Unit Information Section 5 **of** 6

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **8 ppmvd**	
4. Equivalent Allowable Emissions: **15.4** lb/hour	**15.4** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 25A; high and low load**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Oil firing; 59 degrees F; 100% load; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.**	

B.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **4 ppmvd**	
4. Equivalent Allowable Emissions: **8** lb/hour	**13.6** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 25A; high and low load**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Additional Requested Allowable Emissions and Units: 100% load/100 ppmvd; 50% load. Gas firing; 32 degrees F; 100% load; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.**	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM10**

2. Total Percent Efficiency of Control: %

3. Potential Emissions: **44** lb/hour **50.3** tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ____________ to ____________ tons/yr

6. Emission Factor:

   Reference: **Applicant**

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Attachment PSD-FCLASS; Section 2.0; Appendix A.

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Lb/hr based on oil firing, all loads. Tons/year based on 1,390 hrs/yr gas firing and 2,000 hrs/yr oil firing; ISO conditions.

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 44 lb/hr	
4. Equivalent Allowable Emissions: 44 lb/hour	44 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Methods 5 or 17; if < 400 hours	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing - all loads; 2,000 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 lb/hr	
4. Equivalent Allowable Emissions: 9 lb/hour	15.3 tons/year
5. Method of Compliance (limit to 60 characters): VE Test < 20% opacity	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing - all loads; 3,390 hrs/yr. See Attachment PSD-FCLASS; Section 2.0; Appendix A.	

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 2

1.	Visible Emissions Subtype: VE20
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: Annual VE Test EPA Method 9
5.	Visible Emissions Comment (limit to 200 characters):

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

1.	Visible Emissions Subtype: VE99
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: 100 % Maximum Period of Excess Opacity Allowed: 6 min/hour
4.	Method of Compliance: None
5.	Visible Emissions Comment (limit to 200 characters): FDEP Rule 62-210.700(1), Allowed for 2 hours (120 minutes) per 24 hours for start up, shutdown and malfunction.

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Continuous Monitoring System Continuous Monitor 1 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): NOx CEM proposed to meet requirements proposed in application and requirements of 40 CFR Part 75.	

Continuous Monitoring System Continuous Monitor 2 of 2

1. Parameter Code: EM	2. Pollutant(s): NOx
3. CMS Requirement: [X] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Not yet determined Model Number: Serial Number:	
5. Installation Date: 01 Jan 2001	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): Parameter Code: WTF. Required by 40 CFR Part 60; subpart GG; 60.334.	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[x] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[x] C	[ ] E	[ ] Unknown
	SO_2	[x] C	[ ] E	[ ] Unknown
	NO_2	[x] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	lb/hour		tons/year
	SO_2	lb/hour		tons/year
	NO_2			tons/year
5.	PSD Comment (limit to 200 characters):			
	See Attachment PSD-FCLASS.			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1.	Process Flow Diagram [x] Attached, Document ID: PSD-FCLASS [ ] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification [x] Attached, Document ID: PSD-FCLASS [ ] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment [x] Attached, Document ID: PSD-FCLASS [ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities [x] Attached, Document ID: PSD-FCLASS [ ] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report [ ] Attached, Document ID: ____ [ ] Previously Submitted, Date: ____	[x] Not Applicable
6.	Procedures for Startup and Shutdown [ ] Attached, Document ID: ____	[x] Not Applicable
7.	Operation and Maintenance Plan [ ] Attached, Document ID: ____	[x] Not Applicable
8.	Supplemental Information for Construction Permit Application [x] Attached, Document ID: PSD-FCLASS	[ ] Not Applicable
9.	Other Information Required by Rule or Statute [x] Attached, Document ID: PSD-FCLASS	[ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation [ ] Attached, Document ID: ____________ [ ] Not Applicable	
11. Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: ____________ [ ] Not Applicable	
12. Identification of Additional Applicable Requirements [ ] Attached, Document ID: ____________ [ ] Not Applicable	
13. Compliance Assurance Monitoring Plan [ ] Attached, Document ID: ____________ [ ] Not Applicable	
14. Acid Rain Permit Application (Hard Copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: ____________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: ____________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: ____________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: ____________ [ ] Not Applicable	

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[ ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[x] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[x] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
   Unreg. Emissions Activities - 2 Tanks 2.8M gallons each

2. Emissions Unit Identification Number: [ ] No Corresponding ID [X] Unknown

3. Emissions Unit Status Code: C	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code: 49

6. Emissions Unit Comment (limit to 500 characters):
   This emission unit information section addresses two 2.8 million gallon tanks as unregulated emission units. NSPS Subpart Kb recordkeeping requirements are applicable; there is no emission limiting or work practice standards. See Attachment PSD-FCLASS.

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

B.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **No. 2 Distillate Oil/Diesel**	
2. Source Classification Code (SCC): **A2505030090**	
3. SCC Units: **1,000 gallons**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: **145,601**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters): **Annual rate combined for both tanks based on inputs to CTs; 18,560 Btu/lb (LHV); and 7.1 lb/gal at 59 deg. F.**	

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC			NS

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [ ] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[ ] C	[ ] E	[ ] Unknown
	SO_2	[ ] C	[ ] E	[ ] Unknown
	NO_2	[ ] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	lb/hour		tons/year
	SO_2	lb/hour		tons/year
	NO_2			tons/year
5.	PSD Comment (limit to 200 characters):			
	Not applicable			

ATTACHMENT PSD-FCLASS

1.0 INTRODUCTION

Oleander Power Project, L.P. proposes to license, construct, and operate a nominal 960-megawatt (MW) independent power production facility, referred to as the Oleander Power Project, in an unincorporated area of Brevard County, Florida (Figure 1-1). The site will be located on a 38-acre tract approximately 2 miles to the west of Cocoa and 30 miles to the east-southeast of Orlando, Florida. The Project consists of five 190-MW dual-fuel, proposed "F" class combustion turbines (CTs) that will use dry low-nitrogen oxide (NO_x) (DLN) combustion technology when operating on natural gas and water injection (for NO_x control and power augmentation) when operating on distillate fuel oil. The facility is designed for peaking service. The primary fuel for the combustion turbines will be natural gas with distillate fuel oil used as backup fuel. Fuel oil will contain a maximum sulfur content of 0.05 percent.

The permitting of the project in Florida requires an air construction permit and prevention of significant deterioration (PSD) review approval. To assist in performing the necessary licensing activities, Oleander Power Project, L.P. has contracted Golder Associates Inc. (Golder) to perform the necessary air quality assessments for determining the project's compliance with state and federal new source review (NSR) regulations, including PSD and nonattainment review requirements. The critical aspects of these assessments include the air quality impact analyses performed using an air dispersion model and the best available control technology (BACT) analyses performed to evaluate the selected emission control technology.

The proposed project will be a new air pollution source that will result in increases in air emissions in Brevard County. The U.S. Environmental Protection Agency (EPA) has implemented regulations requiring a PSD review for new or modified sources that increase air emissions above certain threshold amounts. Because the threshold amounts will be exceeded by the proposed project, the project is subject to PSD review. PSD regulations are promulgated under 40 Code of Federal Regulations (CFR) Part 52.21 and implemented through delegation to the Florida Department of Environmental Protection (DEP). Florida's PSD regulations are codified in Rules 62-212.400, F.A.C. These regulations incorporate the EPA PSD regulations.

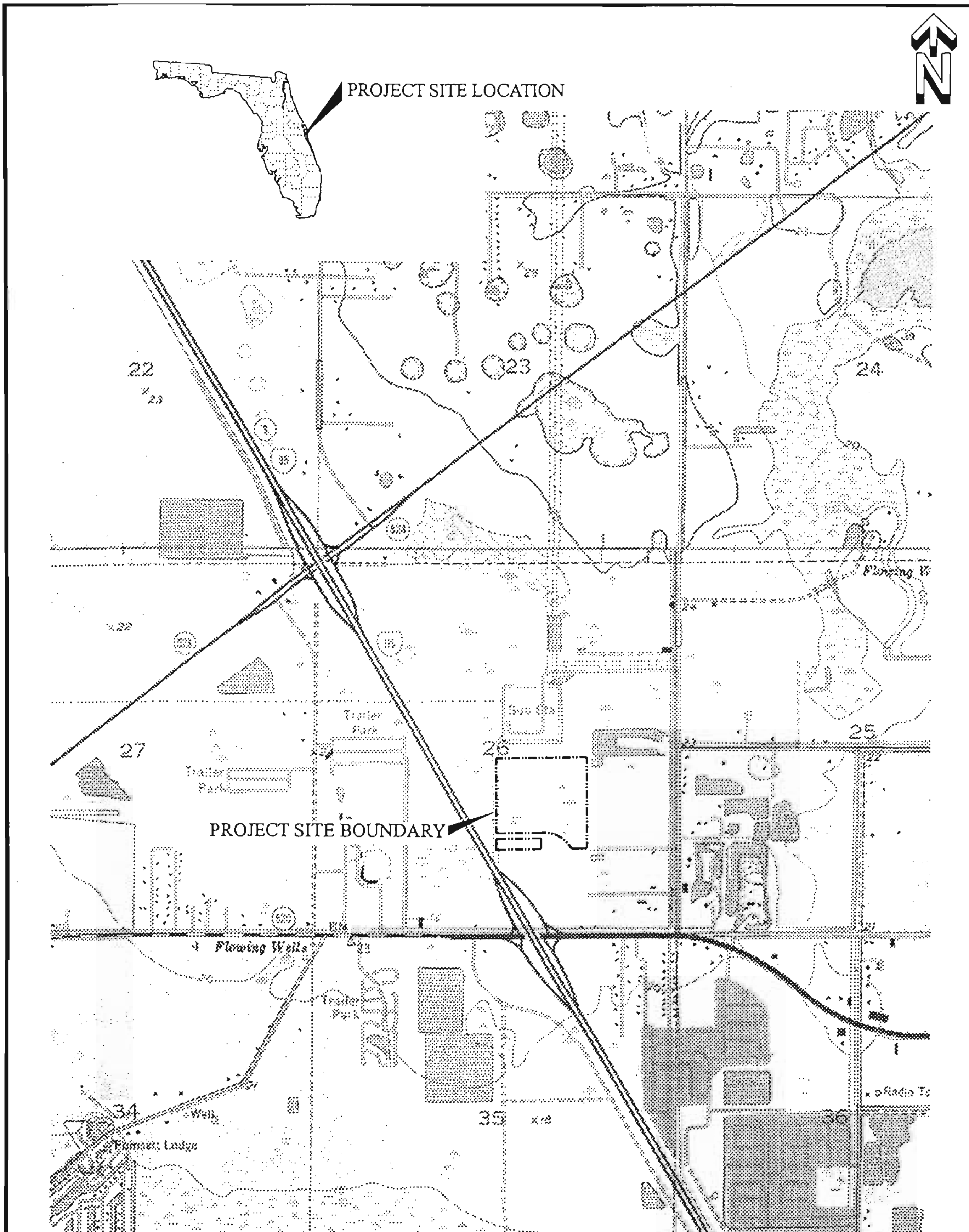
Based on the emissions from the proposed project, a PSD review is required for each of the following regulated pollutants:

- particulate matter (PM) as total suspended particulate matter (TSP),
- particulate matter with aerodynamic diameter of 10 microns or less (PM10),
- nitrogen dioxide (NO_2),
- sulfur dioxide (SO_2),
- carbon monoxide (CO), and
- volatile organic compounds (VOC).

Brevard County has been designated as an attainment or unclassifiable area for all criteria pollutants [i.e., attainment: ozone (O_3), PM10, SO_2, CO, and NO_2; unclassifiable: lead] and is classified as a PSD Class II area for PM10, SO_2, and NO_2; therefore, the PSD review will follow regulations pertaining to such designations.

The air permit application is divided into seven major sections.

- Section 2.0 presents a description of the facility, including air emissions and stack parameters.
- Section 3.0 provides a review of the PSD and nonattainment requirements applicable to the proposed project.
- Section 4.0 includes the control technology review with discussions on BACT.
- Section 5.0 discusses the ambient air monitoring analysis (pre-construction monitoring) required by PSD regulations.
- Section 6.0 presents a summary of the air modeling approach and results used in assessing compliance of the proposed project with ambient air quality standards (AAQS), PSD increments, and good engineering practice (GEP) stack height regulations.
- Section 7.0 provides the additional impact analyses for soils, vegetation, and visibility.



Golder Associates
TAMPA, FLORIDA

TITLE

Figure 1-1. Site Location and Boundary Map

Source: USGS, Lake Poinsett, Fl.,Photorevised 1970; Sharpes, Fl., Photorevised 1988.

CLIENT/PROJECT
OLEANDER POWER PROJECT, L.P.
OLEANDER POWER PROJECT

DRAWN	KT	DATE	11/9/98	JOB NO.	985-9514-800
CHECKED	RAZ	SCALE	1" = 2000'	REV. NO.	
REVIEWED	RAZ	FILE NO.	9859514.FH5	FIGURE NO.	1

2.0 PROJECT DESCRIPTION

2.1 SITE DESCRIPTION

The project site, shown in Figure 2-1, consists of 38 acres that is currently zoned for light industry which allows for the siting of an electric power plants. There is minimal industrial, commercial, and residential development within a 3-km radius of the site. The plant elevation will be approximately 25 feet above sea level. The terrain surrounding the site is flat.

Natural gas will be supplied by a lateral pipeline connected to the Florida Gas Transmission (FGT) natural gas pipeline located immediately to the west of the site. The site has access to transmission facilities from a 230 kV transmission line and electrical substation that is located to the north of the site. Water for the evaporative cooler, and NO_x control when firing oil, will be supplied by nearby groundwater or surface water sources, including reclaimed water and storm water, largely developed by the city of Cocoa. Potable water and additional fire protection supply water will be served from the potable water supply pipe near Townsend Road.

2.2 POWER PLANT

The proposed project will consist of five "F" class CTs and associated facilities. The annual capacity factor of the plant will be 39 percent which is equivalent to operating 3,390 hours/year at full load. Natural gas will be used as the primary fuel and fuel oil will be used as a backup fuel. Fuel oil usage will be limited to the equivalent of 2,000 hours/year at full load.

Plant performance with General Electric 7FA and Westinghouse 501F combustion turbines was developed for natural gas and oil; at 50, 75, and 100 percent load; and at 32°F, 59°F, and 95°F ambient dry bulb temperatures. Nominal part load percentages herein are relative to 100 percent load without evaporative cooling. Generic "F" class combustion turbine performance is based on a performance envelope and has been adjusted to reflect anticipated future performance improvements. In particular, the future "F" class combustion turbine performance assumes 7 percent higher power output and a 1 percent lower heat rate (see Appendix A).

The CTs will be capable of operating from 50 to 100 percent of base load. The efficiency of the CTs decreases at part load. As a result, the economic incentive is to dispatch the plant to keep the units operating as near base load as possible.

Natural gas will be transported to the site via pipeline and fuel oil will be trucked to the site. The distillate fuel oil, which will have a maximum sulfur content of 0.05 percent, will be stored onsite in two aboveground storage tanks, each sized to hold approximately 67,000 barrels (2.8 million gallons).

Air emissions control will consist of using state-of-the-art dry low-NO_x burners in the CTs when firing natural gas. The dry low-NO_x combustors for the proposed machines typically have premixed fuel zones plus a standard diffusion flame pilot burner for startup. Low NO_x levels are achieved by introducing fuel primarily to the pre-mix zones and reducing the amount of fuel being combusted from the pilot nozzle. Water injection will be used for NO_x control when firing distillate fuel oil. The SO_2 emissions will be controlled by the use of low-sulfur fuels. Good combustion practices and clean fuels will also minimize potential emissions of PM, CO, VOC, and other pollutants (e.g., trace metals). These engineering and environmental designs maximize control of air emissions while minimizing economic, environmental, and energy impacts (see Section 4.0 for the BACT evaluation).

2.3 PROPOSED SOURCE EMISSIONS AND STACK PARAMETERS

The estimated maximum hourly emissions and exhaust information representative of the proposed CT design operating at baseload conditions (100-percent load), 75-percent load and 50-percent load conditions are presented in Tables 2-1 through 2-6. The information is presented in these tables for one unit simple cycle operation based on natural gas combustion and fuel oil combustion. The data are presented for ambient temperatures of 32, 59, and 95°F. These temperatures represent the range of ambient temperatures that the CTs are most likely to experience.

The performance data sheets for the operating conditions are given in Appendix A.

The pollutant gaseous emission concentrations and PM_{10} emission rates assumed for the proposed "F" class CTs are as follows:

Pollutant	Natural Gas	Distillate Oil
NO_x, ppmvd @ 15% O_2	9	42
CO, ppmvd (ppmvd @ 15% O_2)	20 (16)	30 (20)
VOC as CH_4, ppmvd (ppmvd @ 15% SO_2)	4 (32)	8 (5.4)
SO_x as SO_2	Calculated Based on Fuel (1.0 grains S/100 SCF)	Calculated Based on Fuel (0.05% sulfur)
PM_{10} lb/hr (dry filterable)	9	44

The maximum short-term emission rates (lb/hr) generally occur at base load, 32°F operation, where the CT has the greatest output and greatest fuel consumption.

Based on an ambient temperature of 59°F, the emission rates used to calculate maximum potential annual emissions for the proposed facility for regulated air pollutants are presented in Table 2-7 for one and 5 CTs. To produce the maximum annual emissions, the CTs are assumed to operate at baseload for 3,390 hours (39 percent capacity factor) firing natural gas for 1,390 hours and fuel oil for 2,000 hours. The potential emissions are based on the 59°F ambient air condition since it represents a nominal average between the higher emission levels at the 32°F ambient condition (winter) and the infrequent 95°F ambient condition (summer).

Process flow diagrams of the facility operating at summer and winter base load conditions are presented in Figures 2-2 and 2-3, respectively for the "F" Class CT.

Based on a review of the emission rates for natural gas and fuel oil combustion, the highest emission rates for the regulated pollutants generally occur when firing fuel oil. Combustion of natural gas and fuel oil result in slightly different exhaust flow gas rates and stack exit temperatures; however, the differences are minor. As a result of the higher emissions when firing oil, the air modeling analyses were based on determining maximum ground-level impacts with fuel oil.

As discussed in Section 6.0, the air modeling analyses that addressed compliance with ambient standards were based on modeling the CTs for the operating load and ambient temperature which produced the maximum impacts from the load impact analysis that was performed. Although the highest emission rates occur with low ambient temperatures (i.e., 32°F) and baseload conditions, the lowest exhaust gas flow rates occur with an ambient temperature of 95°F and 50 percent operating load. Since this low exhaust flow condition can result in potentially higher impacts due to lower plume rise (i.e., due to lower exit velocity and temperature), the load analysis included modeling the CTs for the following four scenarios designed to determine the maximum impacts for the project:

- base operating load for the ambient temperature of 32°F;
- base operating load for the ambient temperature of 95°F;
- 50 percent operating load for the ambient temperature of 32°F; and
- 50 percent operating load for the ambient temperature of 95°F.

2.4 SITE LAYOUT, STRUCTURES, AND STACK SAMPLING FACILITIES

Plot plans of the proposed facility are presented in Figures 2-4 and 2-5. The dimensions of the buildings and structures are presented in Section 6.0. Stack sampling facilities will be constructed in accordance to Rule 62-297.310(6) F.A.C.

Table 2-1. Stack, Operating, and Emission Data for the Proposed "F" Class Combustion Turbine with Dry Low-NO_x Combustors firing Natural Gas-- Base Load for Simple Cycle Operation

Parameter		Operating and Emission Data[a] for Ambient Temperature 32°F	59°F	95°F
Stack Data (ft)				
Height		60	60	60
Diameter		22	22	22
Operating Data				
Temperature(°F)		1,109	1,115	1,138
Velocity (ft/sec)		113.9	112.5	107.6
Maximum Hourly Emission per Unit[b]				
SO_2	lb/hr	5.5	5.5	5.5
	Basis	1.0 grain S/100CF	1.0 grain S/100CF	1.0 grain S/100CF
PM/PM10	lb/hr	9.0	9.0	9.0
	Basis	Dry filterables	Dry filterables	Dry filterables
NO_x	lb/hr	64.9	62.6	58.7
	Basis	9 ppmvd at 15% O_2	9 ppmvd at 15% O_2	9 ppmvd at 15% O_2
CO	lb/hr	70.1	68.5	63.4
	Basis	16 ppmvd at 15% O_2 20 ppmvd	16 ppmvd at 15% O_2 20 ppmvd	16 ppmvd at 15% O_2 20 ppmvd
VOC (as methane)	lb/hr	8.0	7.8	7.3
	Basis	3.2 ppmvd at 15% O_2 4 ppmvd	3.2 ppmvd at 15% O_2 4 ppmvd	3.2 ppmvd at 15% O_2 4 ppmvd
Sulfuric Acid Mist	lb/hr	0.85	0.85	0.77
	Basis	10% SO_2	10% SO_2	10% SO_2

Note: ppmvd = parts per million volume dry; O_2 = oxygen; S = sulfur; CF = cubic feet

[a] Refer to Appendix A for detailed information.
[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

Table 2-2. Stack, Operating, and Emission Data for the Proposed "F" Class Combustion Turbine with Dry Low-NO_x Combustors firing Natural Gas-- 75 Percent Load for Simple Cycle Operation

Parameter		Operating and Emission Data[a] for Ambient Temperature 32°F	59°F	95°F
Stack Data (ft)				
Height		60	60	60
Diameter		22	22	22
Operating Data				
Temperature(°F)		1,173	1,186	1,190
Velocity (ft/sec)		98.4	95.5	91.4
Maximum Hourly Emission per Unit[b]				
SO_2	lb/hr	4.5	4.5	4.0
	Basis	1.0 grain S/ 100CF	1.0 grain S/ 100CF	1.0 grain S/ 100CF
PM/PM10	lb/hr	9.0	9.0	9.0
	Basis	Dry filterables	Dry filterables	Dry filterables
NO_x	lb/hr	53.9	50.9	48.2
	Basis	9 ppmvd at 15% O_2	9 ppmvd at 15% O_2	9 ppmvd at 15% O_2
CO	lb/hr	57.4	55.4	54.5
	Basis	15.8 ppmvd at 15% O_2 20 ppmvd	16.1 ppmvd at 15% O_2 20 ppmvd	16.7 ppmvd at 15% O_2 20 ppmvd
VOC (as methane)	lb/hr	6.6	6.3	6.2
	Basis	3.2 ppmvd at 15% O_2 4 ppmvd	3.2 ppmvd at 15% O_2 4 ppmvd	3.3 ppmvd at 15% O_2 4 ppmvd
Sulfuric Acid Mist	lb/hr	0.69	0.69	0.61
	Basis	10% SO_2	10% SO_2	10% SO_2

Note: ppmvd = parts per million volume dry; O_2 = oxygen; S = sulfur; CF = cubic feet

[a] Refer to Appendix A for detailed information.

[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

Table 2-3. Stack, Operating, and Emission Data for the Proposed "F" Class Combustion Turbine with Dry Low-NO_x Combustors firing Natural Gas-- 50 Percent Load for Simple Cycle Operation

Parameter		Operating and Emission Data[a] for Ambient Temperature 32°F	59°F	95°F
Stack Data (ft)				
Height		60	60	60
Diameter		22	22	22
Operating Data				
Temperature(°F)		1,043	1,059	1,087
Velocity (ft/sec)		82.1	80.1	77.3
Maximum Hourly Emission per Unit[b]				
SO_2	lb/hr	3.5	3.5	3.0
	Basis	1.0 grain S/ 100CF	1.0 grain S/ 100CF	1.0 grain S/ 100CF
PM/PM10	lb/hr	9.0	9.0	9.0
	Basis	Dry filterables	Dry filterables	Dry filterables
NO_x	lb/hr	48.8	46.3	43.5
	Basis	9 ppmvd at 15% O_2	9 ppmvd at 15% O_2	9 ppmvd at 15% O_2
CO	lb/hr	52.7	50.6	47.0
	Basis	16 ppmvd at 15% O_2 20 ppmvd	16.2 ppmvd at 15% O_2 20 ppmvd	16 ppmvd at 15% O_2 20 ppmvd
VOC (as methane)	lb/hr	6.0	5.8	5.4
	Basis	3.2 ppmvd at 15% O_2 4 ppmvd	3.2 ppmvd at 15% O_2 4 ppmvd	3.2 ppmvd at 15% O_2 4 ppmvd
Sulfuric Acid Mist	lb/hr	0.54	0.54	0.46
	Basis	10% SO_2	10% SO_2	10% SO_2

Note: ppmvd = parts per million volume dry; O_2 = oxygen; S = sulfur; CF = cubic feet

[a] Refer to Appendix A for detailed information.

[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

Table 2-4. Stack, Operating, and Emission Data for the Proposed "F" Class Combustion Turbine with Water Injection firing Distillate Fuel Oil-- Base Load for Simple Cycle Operation

		Operating and Emission Data[a] for Ambient Temperature		
Parameter		32°F	59°F	95°F
Stack Data (ft)				
Height		60	60	60
Diameter		22	22	22
Operating Data				
Temperature(°F)		1,114	1,109	1,123
Velocity (ft/sec)		112.7	114.4	111.4
Maximum Hourly Emission per Unit[b]				
SO_2	lb/hr	103.8	103.4	98.0
	Basis	0.05 % S	0.05 % S	0.05 % S
PM/PM10	lb/hr	44.0	44.0	44.0
	Basis	Dry filterables	Dry filterables	Dry filterables
NO_x	lb/hr	344.1	344.4	327.7
	Basis	42 ppmvd at 15% O_2	42 ppmvd at 15% O_2	42 ppmvd at 15% O_2
CO	lb/hr	99.5	101.3	96.1
	Basis	20 ppmvd at 15% O_2 30 ppmvd	20.3 ppmvd at 15% O_2 30 ppmvd	20.2 ppmvd at 15% O_2 30 ppmvd
VOC (as methane)	lb/hr	15.1	15.4	14.8
	Basis	5.3 ppmvd at 15% O_2 8 ppmvd	5.4 ppmvd at 15% O_2 8 ppmvd	5.4 ppmvd at 15% O_2 8 ppmvd
Sulfuric Acid Mist	lb/hr	15.9	15.8	15.0
	Basis	10% SO_2	10% SO_2	10% SO_2

Note: ppmvd = parts per million volume dry; O_2 = oxygen; S = sulfur; CF = cubic feet; ppmvw = parts per million volume wet

[a] Refer to Appendix A for detailed information.

[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

Table 2-5. Stack, Operating, and Emission Data for the Proposed "F" Class Combustion Turbine with Water Injection firing Distillate Fuel Oil-- 75 Percent Load for Simple Cycle Operation

Parameter		Operating and Emission Data[a] for Ambient Temperature		
		32°F	59°F	95°F
Stack Data (ft)				
Height		60	60	60
Diameter		22	22	22
Operating Data				
Temperature(°F)		1,166	1,179	1,190
Velocity (ft/sec)		100.6	97.5	93.3
Maximum Hourly Emission per Unit[b]				
SO_2	lb/hr	90.1	84.8	78.0
	Basis	0.05 % S	0.05 % S	0.05 % S
PM/PM10	lb/hr	44.0	44.0	44.0
	Basis	Dry filterables	Dry filterables	Dry filterables
NO_x	lb/hr	297.4	281.0	263.5
	Basis	42 ppmvd at 15% O_2	42 ppmvd at 15% O_2	42 ppmvd at 15% O_2
CO	lb/hr	85.7	82.4	78.8
	Basis	19.9 ppmvd at 15% O_2 30 ppmvd	20.2 ppmvd at 15% O_2 30 ppmvd	20.6 ppmvd at 15% O_2 30 ppmvd
VOC (as methane)	lb/hr	12.9	12.5	12.1
	Basis	5.2 ppmvd at 15% O_2 7.8 ppmvd	5.4 ppmvd at 15% O_2 8 ppmvd	5.5 ppmvd at 15% O_2 8 ppmvd
Sulfuric Acid Mist	lb/hr	13.8	13.0	11.9
	Basis	10% SO_2	10% SO_2	10% SO_2

Note: ppmvd = parts per million volume dry; O_2 = oxygen; S = sulfur; CF = cubic feet; ppmvw = parts per million volume wet

[a] Refer to Appendix A for detailed information.
[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

Table 2-6. Stack, Operating, and Emission Data for the Proposed "F" Class Combustion Turbine with Water Injection firing Distillate Fuel Oil-- 50 Percent Load for Simple Cycle Operation

		Operating and Emission Data[a] for Ambient Temperature		
Parameter		32°F	59°F	95°F
Stack Data (ft)				
Height		60	60	60
Diameter		22	22	22
Operating Data				
Temperature(°F)		998	1,014	1,043
Velocity (ft/sec)		83.2	81.2	78.4
Maximum Hourly Emission per Unit[b]				
SO_2	lb/hr	67.2	63.6	59.0
	Basis	0.05 % S	0.05 % S	0.05 % S
PM/PM10	lb/hr	44.0	44.0	44.0
	Basis	Dry filterables	Dry filterables	Dry filterables
NO_x	lb/hr	274.1	260.2	242.9
	Basis	42 ppmvd at 15% O_2	42 ppmvd at 15% O_2	42 ppmvd at 15% O_2
CO	lb/hr	79.3	76.5	71.2
	Basis	20 ppmvd at 15% O_2 30 ppmvd	20.3 ppmvd at 15% O_2 30 ppmvd	20.2 ppmvd at 15% O_2 30 ppmvd
VOC (as methane)	lb/hr	12.0	11.6	11.0
	Basis	5.3 ppmvd at 15% O_2 8 ppmvd	5.4 ppmvd at 15% O_2 8 ppmvd	5.4 ppmvd at 15% O_2 8 ppmvd
Sulfuric Acid Mist	lb/hr	10.3	9.7	9.0
	Basis	10% SO_2	10% SO_2	10% SO_2

Note: ppmvd = parts per million volume dry; O_2 = oxygen; S = sulfur; CF = cubic feet; ppmvw = parts per million volume wet

[a] Refer to Appendix A for detailed information.

[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

Table 2-7. Summary of Pollutant Emissions for the Proposed Oleander Power Project
Proposed "F" Class Combustion Turbines, Simple-Cycle Mode

		Pollutant Emissions Proposed "F" Class Combustion Turbine								
		32 °F			59 °F			95 °F		
Load (%)	Pollutant	ppmvd	lb/hr	TPY	ppmvd	lb/hr	TPY	ppmvd	lb/hr	TPY
ONE UNIT										
Natural gas										
100	NOx	9.0	64.9	109.9	9.0	62.6	106.2	9.0	58.7	99.4
	CO	16.0	70.1	118.8	16.2	68.5	116.1	16.0	63.4	107.4
	SO_2	0.5	5.5	9.3	0.5	5.5	9.0	0.5	5.0	8.5
	VOC	3.2	8.0	13.6	3.2	7.8	13.3	3.2	7.3	12.3
	PM/PM10	NA	9.0	15.3	NA	9.0	15.3	NA	9.0	15.3
75	NOx	9.0	53.9	91.3	9.0	50.9	86.3	9.0	48.2	81.8
	CO	15.8	57.4	97.3	16.1	55.4	93.9	16.7	54.5	92.3
	SO_2	0.5	4.5	7.6	0.5	4.5	7.6	0.5	4.0	7.0
	VOC	3.2	6.6	11.1	3.2	6.3	10.6	3.3	6.2	10.6
	PM/PM10	NA	9.0	15.3	NA	9.0	15.3	NA	9.0	15.3
50	NOx	9.0	48.8	82.7	9.0	46.3	78.4	9.0	43.5	73.8
	CO	16.0	52.7	89.3	16.2	50.6	85.7	16.0	47.0	79.7
	SO_2	0.5	3.5	5.9	0.5	3.5	5.9	0.5	3.0	5.1
	VOC	3.2	6.0	10.2	3.2	5.8	9.8	3.2	5.4	9.1
	PM/PM10	NA	9.0	15.3	NA	9.0	15.3	NA	9.0	15.3
Distillate Oil										
100	NOx	42.0	344.1	344.1	42.0	344.4	344.4	42.0	327.7	327.7
	CO	20.0	99.5	99.5	20.3	101.3	101.3	20.2	96.1	96.1
	SO_2	9.1	103.8	103.8	9.0	103.4	103.4	9.0	98.0	98.0
	VOC	5.3	15.1	15.1	5.4	15.4	15.4	5.4	14.8	14.8
	PM/PM10	NA	44.0	44.0	NA	44.0	44.0	NA	44.0	44.0
75	NOx	42.0	297.4	297.4	42.0	281.0	281.0	42.0	263.5	263.5
	CO	19.9	85.7	85.7	20.2	82.4	82.4	20.6	78.8	78.8
	SO_2	9.1	90.1	90.1	9.1	84.8	84.8	8.9	78.0	78.0
	VOC	5.2	12.9	12.9	5.4	12.5	12.5	5.5	12.1	12.1
	PM/PM10	NA	44.0	44.0	NA	44.0	44.0	NA	44.0	44.0
50	NOx	42.0	274.1	274.1	42.0	260.2	260.2	42.0	242.9	242.9
	CO	20.0	79.3	79.3	20.3	76.5	76.5	20.2	71.2	71.2
	SO_2	7.4	67.2	67.2	7.4	63.6	63.6	7.3	59.0	59.0
	VOC	5.3	12.0	12.0	5.4	11.6	11.6	5.4	11.0	11.0
	PM/PM10	NA	44.0	44.0	NA	44.0	44.0	NA	44.0	44.0
Maximum Emissions (Maximum oil/ balance gas) (2)										
	NOx			389.2			387.9			368.5
	CO			148.2			148.9			140.1
	SO_2			107.6			107.1			101.5
	VOC			20.7			20.9			19.8
	PM10 (1)			50.3			50.3			50.3
5 UNITS										
Maximum Emissions (Maximum oil/ balance gas) (2)										
	NOx			1,946			1,940			1,842
	CO			741			745			701
	SO_2			538			535			507
	VOC			103			104			99
	PM10 (1)			251			251			251

(1) Emission rates are ppmvd at 15 percent O PM/PM10 are dry filterables only.
(2) Assumed hours firing natural gas and oil are 1,390 and 2,000, respectively.

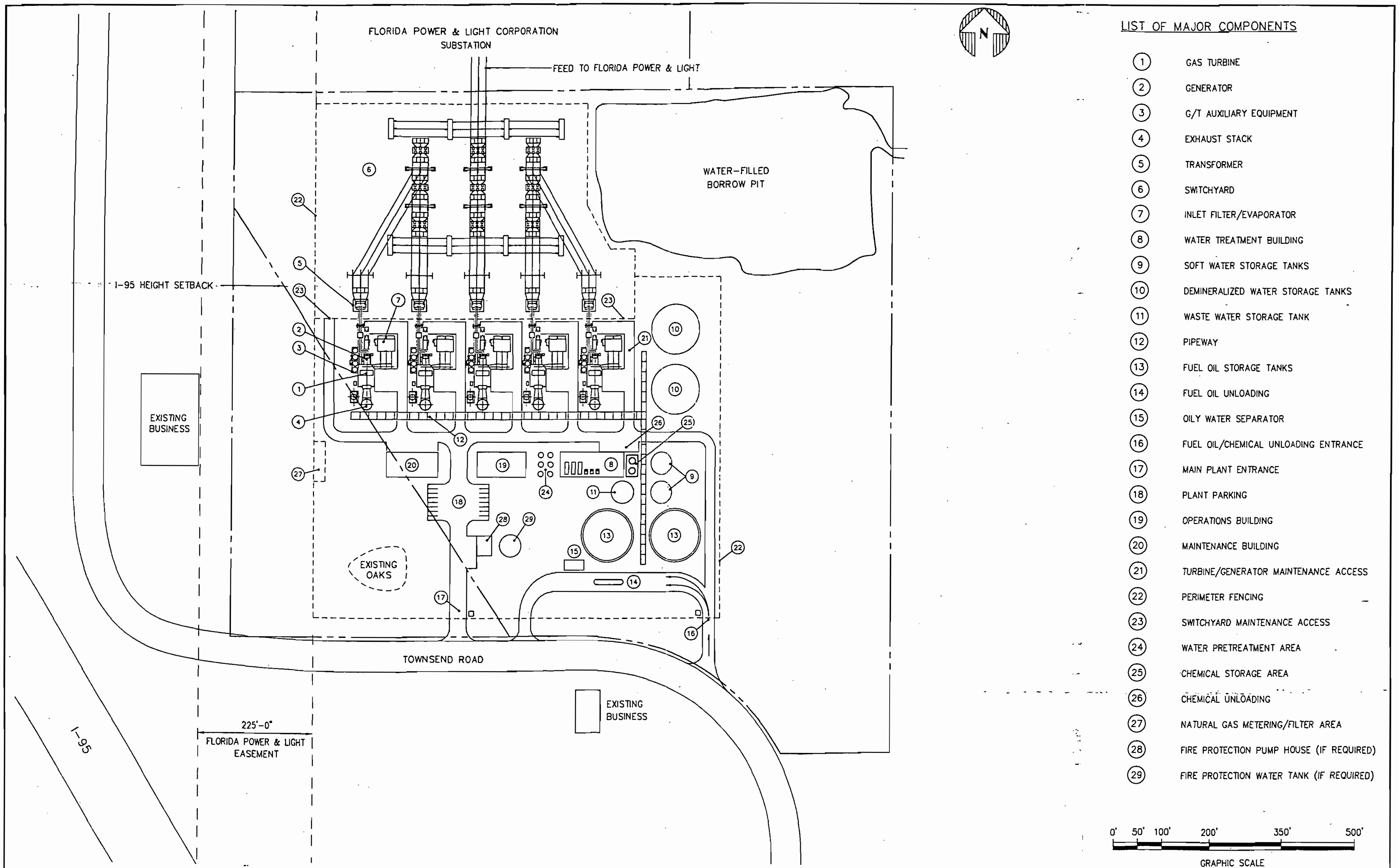


FIGURE 2-1. SITE PLAN FOR THE PROPOSED OLEANDER POWER PLANT

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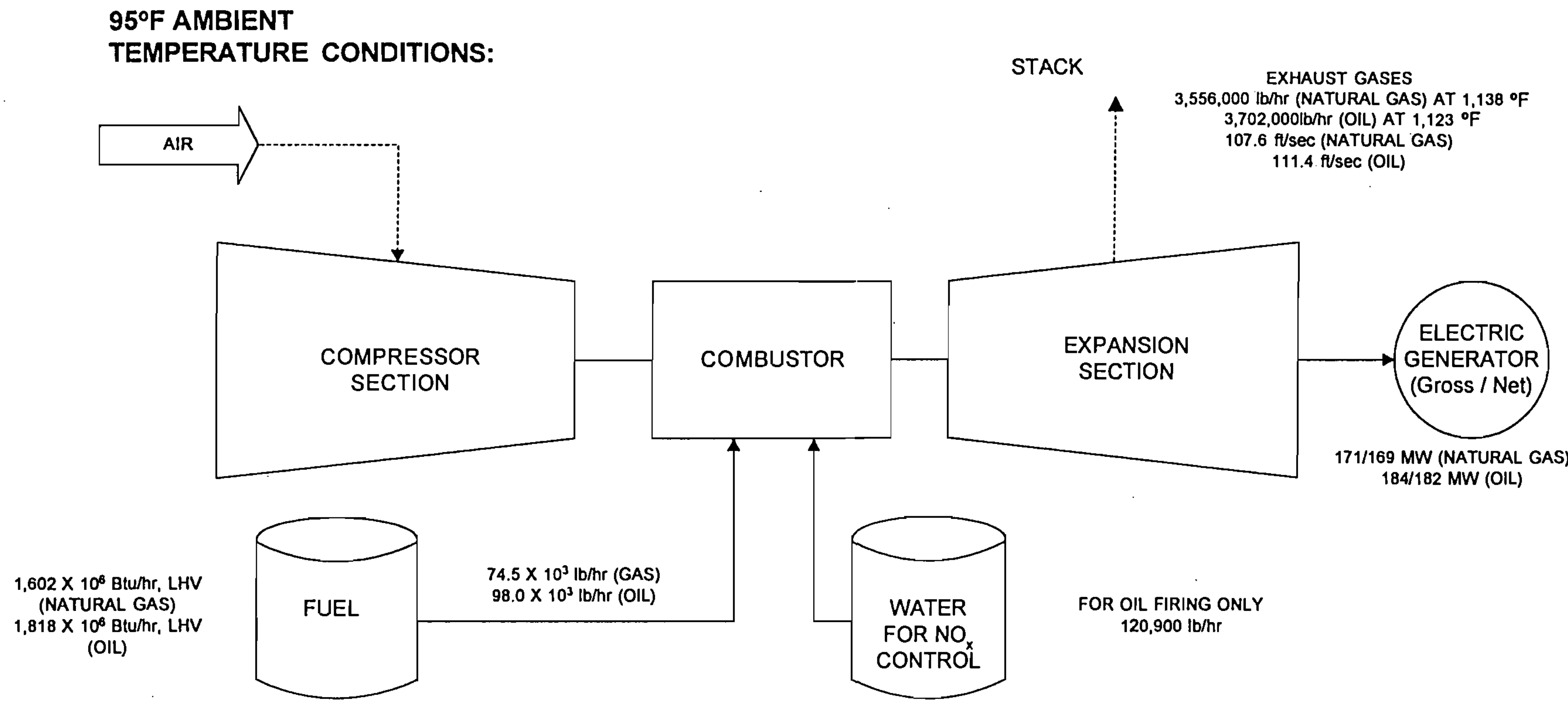

NOTE: SEE APPENDIX A FOR DESIGN INFORMATION AND STACK PARAMETERS FOR EACH FUEL.

Figure 2-2
Simplified Flow Diagram of Proposed "F" Class Combustion Turbine
Baseload, Summer Design Conditions
Proposed Oleander Power Project

Process Flow Legend	
Solid/Liquid	——→
Gas	- - - -→
Steam	·······→

Filename: TO-KAH/FIGURE.VSD
Date: 10/13/98

Golder Associates

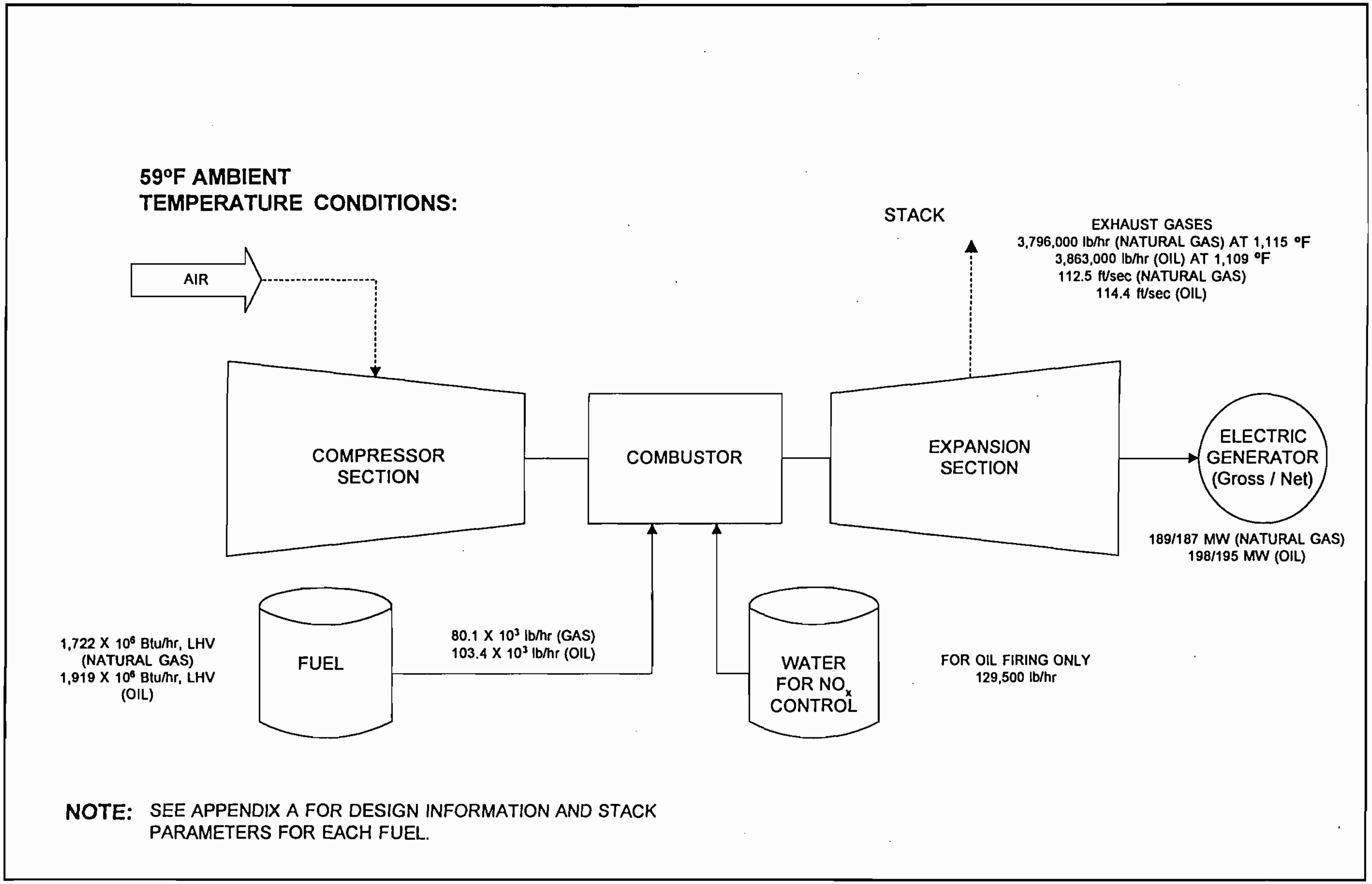

Figure 2-3
Simplified Flow Diagram of Proposed "F" Class Combustion Turbine
Baseload, Annual Design Conditions
Proposed Oleander Power Project

Process Flow Legend
Solid/Liquid ——▶
Gas ------▶
Steam ·······▶

Filename: TO-KAH/FIGURE.VSD
Date: 10/13/98

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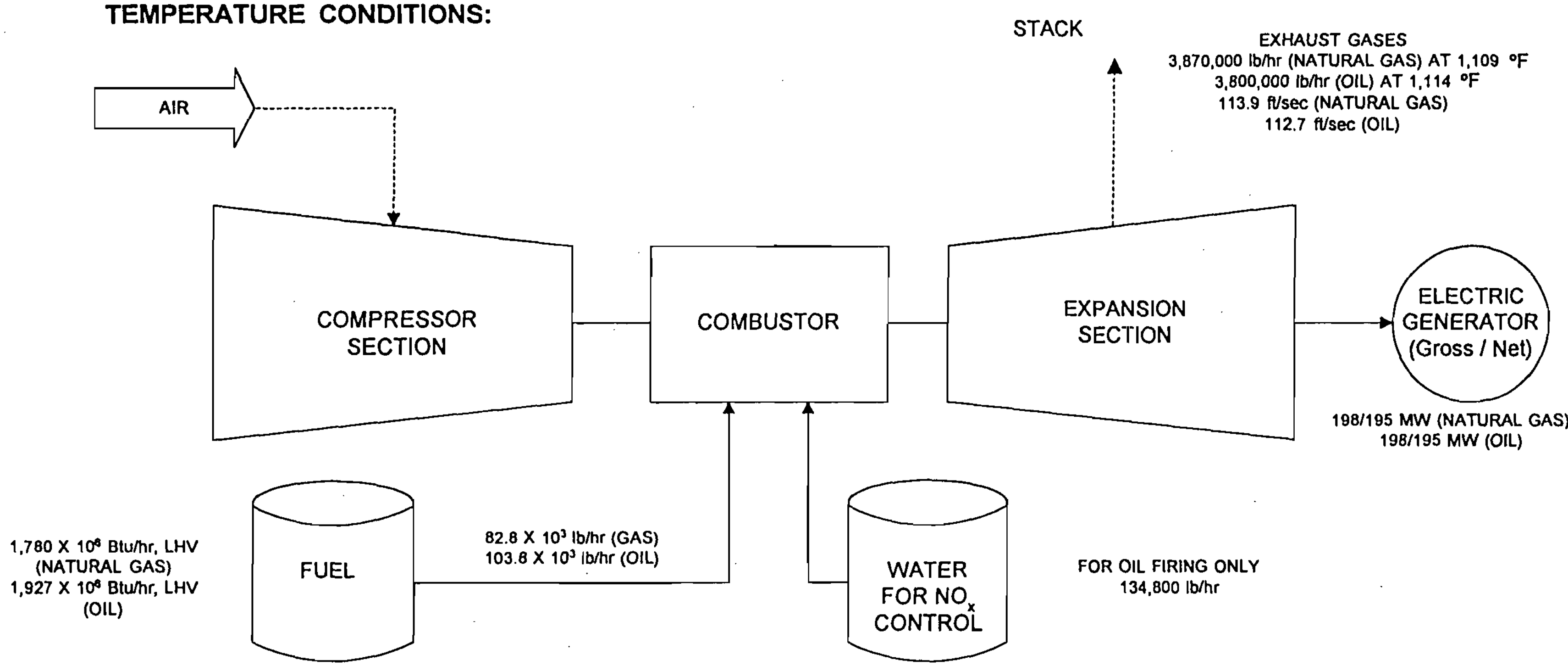
32°F AMBIENT TEMPERATURE CONDITIONS:



NOTE: SEE APPENDIX A FOR DESIGN INFORMATION AND STACK PARAMETERS FOR EACH FUEL.

Figure 2-4
Simplified Flow Diagram of Proposed "F" Class Combustion Turbine
Baseload, Winter Design Conditions
Proposed Oleander Power Project

Process Flow Legend
Solid/Liquid ———▶
Gas - - - - - -▶
Steam ··········▶

Filename: TO-KAH/FIGURE.VSD
Date: 10/13/98

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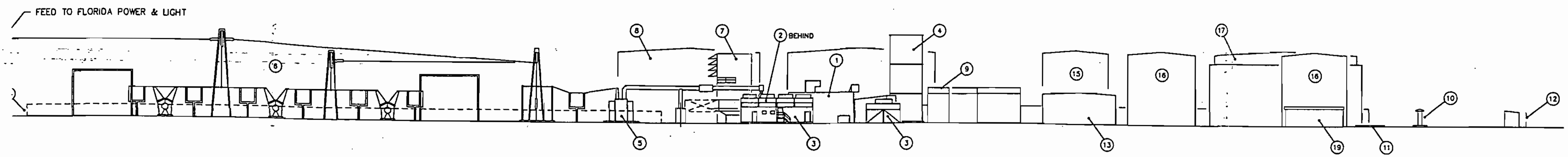
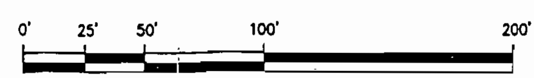


ELEVATION LOOKING EAST

LIST OF MAJOR COMPONENTS

1. GAS TURBINE
2. GENERATOR
3. G/T AUXILIARY EQUIPMENT
4. EXHAUST STACK
5. TRANSFORMER
6. SWITCHYARD
7. INLET FILTER/EVAPORATOR
8. DEMINERALIZED WATER STORAGE TANKS
9. PIPEWAY
10. FUEL OIL UNLOADING
11. OILY WATER SEPARATOR
12. MAIN PLANT ENTRANCE
13. MAINTENANCE BUILDING
14. PERIMETER FENCING
15. SOFT WATER STORAGE TANKS
16. WASTE WATER STORAGE TANK
17. FUEL OIL STORAGE TANKS
18. FIRE PROTECTION WATER TANK (IF REQUIRED)
19. FIRE PROTECTION PUMP HOUSE (IF REQUIRED)



GRAPHIC SCALE

FIGURE 2-5. SITE ELEVATION LOOKING EAST FOR THE PROPOSED OLEANDER POWER PLANT

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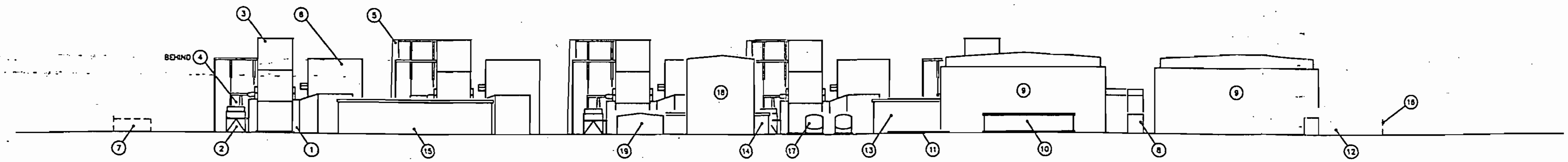

ELEVATION LOOKING NORTH

LIST OF MAJOR COMPONENTS

1	GAS TURBINE	6	INLET FILTER/EVAPORATOR	11	OILY WATER SEPARATOR	16	PERIMETER FENCING
2	G/T AUXILIARY EQUIPMENT	7	NATURAL GAS METERING/FILTER AREA	12	FUEL OIL UNLOADING ENTRANCE	17	WATER PRETREATMENT AREA
3	EXHAUST STACK	8	PIPEWAY	13	WATER TREATMENT BUILDING	18	FIRE PROTECTION WATER TANK (IF REQUIRED)
4	TRANSFORMER	9	FUEL OIL STORAGE TANKS	14	OPERATIONS BUILDING	19	FIRE PROTECTION PUMP HOUSE (IF REQUIRED)
5	SWITCHYARD	10	FUEL OIL UNLOADING	15	MAINTENANCE BUILDING		

0' 25' 50' 100' 200'

GRAPHIC SCALE

FIGURE 2-6. SITE ELEVATION LOOKING NORTH FOR THE PROPOSED OLEANDER POWER PLANT

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3.0 AIR QUALITY REVIEW REQUIREMENTS AND APPLICABILITY

The following discussion pertains to the federal and state air regulatory requirements and their applicability to the proposed Oleander Power Project. These regulations must be satisfied before the proposed project can begin operation.

3.1 NATIONAL AND STATE AAQS

The existing applicable national and Florida AAQS are presented in Table 3-1. Primary national AAQS were promulgated to protect the public health, and secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas of the country in violation of AAQS are designated as nonattainment areas, and new sources to be located in or near these areas may be subject to more stringent air permitting requirements.

3.2 PSD REQUIREMENTS

3.2.1 GENERAL REQUIREMENTS

Under federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. Florida's State Implementation Plan (SIP), which contains PSD regulations, has been approved by EPA; therefore, PSD approval authority has been granted to DEP.

A "major facility" is defined as any one of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more or any other stationary facility that has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment.

A "major modification" is defined under PSD regulations as a change at an existing major facility that increases emissions by greater than significant amounts. PSD significant emission rates are shown in Table 3-2.

EPA has promulgated as regulations certain increases above an air quality baseline concentration level of SO_2, PM10, and NO_2 concentrations that would constitute significant deterioration. The EPA class designations and allowable PSD increments are presented in Table 3-1. The State of Florida has adopted the EPA class designations and allowable PSD increments for SO_2, PM10, and NO_2 increments.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in 40 CFR 52.21, Prevention of Significant Deterioration of Air Quality. The State of Florida has adopted PSD regulations by reference [Rule 62-212.400 F.A.C.]. Major facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

1. Control technology review,
2. Source impact analysis,
3. Air quality analysis (monitoring),
4. Source information, and
5. Additional impact analyses.

In addition to these analyses, a new facility also must be reviewed with respect to GEP stack height regulations. Discussions concerning each of these requirements are presented in the following sections.

3.2.2 CONTROL TECHNOLOGY REVIEW

The control technology review requirements of the federal and state PSD regulations require that all applicable federal and state emission-limiting standards be met, and that BACT be applied to control emissions from the source (Rule 62-212.410, F.A.C.). The BACT requirements are applicable to all regulated pollutants for which the increase in emissions from the facility or modification exceeds the significant emission rate (see Table 3-2).

BACT is defined in 52.21 (b)(12) and Rule 62-210.200(40), F.A.C., as:

> An emissions limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the Act which would be emitted by any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of such pollutant. In no event shall application of best available control technology result in

> emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice, or operation and shall provide for compliance by means which achieve equivalent results.

BACT was promulgated within the framework of the PSD requirements in the 1977 amendments of the CAA [Public Law 95-95; Part C, Section 165(a)(4)]. The primary purpose of BACT is to optimize consumption of PSD air quality increments and thereby enlarge the potential for future economic growth without significantly degrading air quality (EPA, 1978; 1980). Guidelines for the evaluation of BACT can be found in EPA's *Guidelines for Determining Best Available Control Technology (BACT)* (EPA, 1978) and in the *PSD Workshop Manual* (EPA, 1980). These guidelines were promulgated by EPA to provide a consistent approach to BACT and to ensure that the impacts of alternative emission control systems are measured by the same set of parameters. In addition, through implementation of these guidelines, BACT in one area may not be identical to BACT in another area. According to EPA (1980), "BACT analyses for the same types of emissions unit and the same pollutants in different locations or situations may determine that different control strategies should be applied to the different sites, depending on site-specific factors. Therefore, BACT analyses must be conducted on a case-by-case basis."

The BACT requirements are intended to ensure that the control systems incorporated in the design of a proposed facility reflect the latest in control technologies used in a particular industry and take into consideration existing and future air quality in the vicinity of the proposed facility. BACT must, as a minimum, demonstrate compliance with new source performance standards (NSPS) for a source (if applicable). An evaluation of the air pollution control techniques and systems, including a cost-benefit analysis of alternative control technologies capable of achieving a higher degree of emission reduction than the proposed control technology, is required. The cost-benefit analysis requires the documentation of the materials, energy, and economic penalties associated with the proposed and alternative control systems, as well as the environmental benefits derived from these systems. A decision on BACT is to be based on sound judgment, balancing environmental benefits with energy, economic, and other impacts (EPA, 1978).

Historically, a "bottom-up" approach consistent with the BACT Guidelines and PSD Workshop Manual has been used. With this approach, an initial control level, which is usually NSPS, is evaluated against successively more stringent controls until a BACT level is selected. However, EPA developed a concern that the bottom-up approach was not providing the level of BACT decisions originally intended. As a result, in December 1987, the EPA Assistant Administrator for Air and Radiation mandated changes in the implementation of the PSD program, including the adoption of a new "top-down" approach to BACT decision making.

The top-down BACT approach essentially starts with the most stringent (or top) technology and emissions limit that have been applied elsewhere to the same or a similar source category. The applicant must next provide a basis for rejecting this technology in favor of the next most stringent technology or propose to use it. Rejection of control alternatives may be based on technical or economic infeasibility. Such decisions are made on the basis of physical differences (e.g., fuel type), locational differences (e.g., availability of water), or significant differences that may exist in the environmental, economic, or energy impacts. The differences between the proposed facility and the facility on which the control technique was applied previously must be justified. EPA has issued a draft guidance document on the top-down approach entitled *Top-Down Best Available Control Technology Guidance Document* (EPA, 1990).

3.2.3 SOURCE IMPACT ANALYSIS

A source impact analysis must be performed for a proposed major source subject to PSD review for each pollutant for which the increase in emissions exceeds the significant emission rate (Table 3-2). The PSD regulations specifically provide for the use of atmospheric dispersion models in performing impact analyses, estimating baseline and future air quality levels, and determining compliance with AAQS and allowable PSD increments. Designated EPA models normally must be used in performing the impact analysis. Specific applications for other than EPA-approved models require EPA's consultation and prior approval. Guidance for the use and application of dispersion models is presented in the EPA publication Guideline on Air Quality Models (Revised). The source impact analysis for criteria pollutants to address compliance with AAQS and PSD Class II increments may be limited to the new or modified source if the net increase in impacts as a result of the new or modified source is above significance levels, as presented in Table 3-1.

The EPA has proposed significant impact levels for Class I areas. The National Park Service (NPS) as the designated agency for oversight in air quality impacts to Class I areas has also recommended significant impact levels for PSD Class I areas. The levels are as follows:

Pollutant	Averaging Time	Proposed EPA PSD Class I Significant Impact Levels (μg/m³)	Recommended NPS PSD Class I Significance Level (μg/m³)[a]
SO_2	3-hour	1	0.48
	24-hour	0.2	0.07
	Annual	0.1	0.03
PM10	24-hour	0.3	0.27
	Annual	0.2	0.08
NO_2	Annual	0.1	0.03

[a] μg/m³ = micrograms per cubic meter.

Although these levels have not been officially promulgated as part of the PSD review process and may not be binding for states in performing PSD review, the proposed levels serve as a guideline in assessing a source's impact in a Class I area. The EPA action to incorporate Class I significant impact levels in the PSD process is part of implementing NSR provisions of the 1990 CAA Amendments. Because the process of developing the regulations will be lengthy, EPA believes that the proposed rules concerning the significant impact levels is appropriate in order to assist states in implementing the PSD permit process.

Various lengths of record for meteorological data can be used for impact analysis. A 5-year period can be used with corresponding evaluation of highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The term "highest, second-highest" (HSH) refers to the highest of the second-highest concentrations at all receptors (i.e., the highest concentration at each receptor is discarded). The second-highest concentration is significant because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If fewer than 5 years of meteorological data are used in the modeling analysis, the highest concentration at each receptor normally must be used for comparison to air quality standards.

The term "baseline concentration" evolves from federal and state PSD regulations and refers to a concentration level corresponding to a specified baseline date and certain additional baseline sources. By definition, in the PSD regulations as amended August 7, 1980, baseline concentration means the ambient concentration level that exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and includes:

1. The actual emissions representative of facilities in existence on the applicable baseline date; and
2. The allowable emissions of major stationary facilities that commenced construction before January 6, 1975, for SO_2 and PM(TSP) concentrations, or February 8, 1988, for NO_2 concentrations, but that were not in operation by the applicable baseline date.

The following emissions are not included in the baseline concentration and therefore affect PSD increment consumption:

1. Actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO_2 and PM(TSP) concentrations, and after February 8, 1988, for NO_2 concentrations; and
2. Actual emission increases and decreases at any stationary facility occurring after the baseline date.

In reference to the baseline concentration, the term "baseline date" actually includes three different dates:

1. The major facility baseline date, which is January 6, 1975, in the cases of SO_2 and PM(TSP), and February 8, 1988, in the case of NO_2.

2. The minor facility baseline date, which is the earliest date after the trigger date on which a major stationary facility or major modification subject to PSD regulations submits a complete PSD application.
3. The trigger date, which is August 7, 1977, for SO_2 and PM(TSP), and February 8, 1988, for NO_2.

The minor source baseline date for SO_2 and PM(TSP) has been set as December 27, 1977, for the entire State of Florida (Rule 62-275.700(1)(a), F.A.C.). The minor source baseline for NO_2 has been set as March 28, 1988 (Rule 62-275.700(3)(a), F.A.C). It should be noted that references to PM(TSP) are also applicable to PM10.

3.2.4 AIR QUALITY MONITORING REQUIREMENTS

In accordance with requirements of 40 CFR 52.21(m) and Rule 62-212.400(5)(f), F.A.C,, any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility or major modification. For a new major facility, the affected pollutants are those that the facility potentially would emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate (see Table 3-2).

Ambient air monitoring for a period of up to 1 year generally is appropriate to satisfy the PSD monitoring requirements. A minimum of 4 months of data is required. Existing data from the vicinity of the proposed source may be used if the data meet certain quality assurance requirements; otherwise, additional data may need to be gathered. Guidance in designing a PSD monitoring network is provided in EPA's *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA, 1987a).

The regulations include an exemption that excludes or limits the pollutants for which an air quality analysis must be conducted. This exemption states that Florida DEP may exempt a proposed major stationary facility or major modification from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause, in any area, air quality impacts less than the *de minimis* levels presented in Table 3-2 (Rule 62-212.400-3, F.A.C.).

3.2.5 SOURCE INFORMATION/GOOD ENGINEERING PRACTICE STACK HEIGHT

Source information must be provided to adequately describe the proposed project. The general type of information required for this project is presented in Section 2.0.

The 1977 CAA Amendments require that the degree of emission limitation required for control of any pollutant not be affected by a stack height that exceeds GEP or any other dispersion technique. On July 8, 1985, EPA promulgated final stack height regulations (EPA, 1985a). Identical regulations have been adopted by Florida DEP (Rule 62-210.550, F.A.C.). GEP stack height is defined as the highest of:

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

   $$Hg = H + 1.5L$$

   where: Hg = GEP stack height,
   H = Height of the structure or nearby structure, and
   L = Lesser dimension (height or projected width) of nearby structure(s); or
3. A height demonstrated by a fluid model or field study.

"Nearby" is defined as a distance up to five times the lesser of the height or width dimensions of a structure or terrain feature, but not greater than 0.8 km. Although GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height, the actual stack height may be greater.

The stack height regulations also allow increased GEP stack height beyond that resulting from the above formula in cases where plume impaction occurs. Plume impaction is defined as concentrations measured or predicted to occur when the plume interacts with elevated terrain. Elevated terrain is defined as terrain that exceeds the height calculated by the GEP stack height formula.

3.2.6 ADDITIONAL IMPACT ANALYSIS

In addition to air quality impact analyses, federal and State of Florida PSD regulations require analyses of the impairment to visibility and the impacts on soils and vegetation that would occur as a result of the proposed source [40 CFR 52.21(o); Rule 62-212.400(5)(e), F.A.C.]. These analyses are to be conducted primarily for PSD Class I areas. Impacts as a result of general commercial, residential, industrial, and other growth associated with the source also must be addressed. These analyses are required for each pollutant emitted in significant amounts (Table 3-2).

3.3 NONATTAINMENT RULES

Based on the current nonattainment provisions (Rule 62-212.500, F.A.C.), all major new facilities and modifications to existing major facilities located in a nonattainment area must undergo nonattainment review. A new major facility is required to undergo this review if the proposed pieces of equipment have the potential to emit 100 TPY or more of the nonattainment pollutant. A major modification at a major facility is required to undergo review if it results in a significant net emission increase of 40 TPY or more of the nonattainment pollutant or if the modification is major (i.e., 100 TPY or more).
For major facilities or major modifications that locate in an attainment or unclassifiable area, the nonattainment review procedures apply if the source or modification is located within the area of influence of a nonattainment area. The area of influence is defined as an area that is outside the boundary of a nonattainment area but within the locus of all points that are 50 km outside the boundary of the nonattainment area. Based on Rule 62-2.500(2)(c)2.a., F.A.C., all VOC sources that are located within an area of influence are exempt from the provisions of NSR for nonattainment areas. Sources that emit other nonattainment pollutants and are located within the area of influence are subject to nonattainment review unless the maximum allowable emissions from the proposed source do not have a significant impact within the nonattainment area.

3.4 EMISSION STANDARDS

3.4.1 NEW SOURCE PERFORMANCE STANDARDS

The NSPS are a set of national emission standards that apply to specific categories of new sources. As stated in the CAA Amendments of 1977, these standards "shall reflect the degree of emission limitation and the percentage reduction achievable through application of the best technological system of continuous emission reduction the Administrator determines has been adequately demonstrated."

The proposed project will be subject to one or more NSPS. The CTs will be subject to 40 CFR Part 60, Subpart GG, and each fuel oil storage tank (2.8 million gallon capacity) will be subject to 40 CFR Part 60, Subpart Kb.

3.4.1.1 Combustion Turbine

The CTs will be subject to emission limitations covered under Subpart GG, which limits NO_x and SO_2 emissions from all stationary combustion turbines with a heat input at peak load equal to 10.7 gigajoules per hour (10 MMBtu/hr), based on the lower heating value of the fuel fired.

NO_x emissions are limited to 75 ppmvd corrected to 15 percent oxygen and heat rate while sulfur dioxide emissions are limited to using a fuel with a sulfur content of 0.8 percent. In addition to emission limitations, there are requirements for notification, record keeping, reporting, performance testing and monitoring. These are summarized below:

40 CFR 60.7 Notification and Record Keeping

(a)(1) Notification of the date of construction - 30 days after such date.

(a)(2) Notification of the date of initial start-up - no more than 60 days or less than 30 days prior to date.

(a)(3) Notification of actual date of initial start-up - within 15 days after such date.

(a)(5) Notification of date which demonstrates CEM - not less than 30 days prior to date.

60.7 (b) Maintain records of the start-up, shutdown, and malfunction quarterly.

(c) Excess emissions reports - by the 30th day following end of quarter. (required even if no excess emissions occur)

(d) Maintain file of all measurements for two years.

60.8 Performance Tests

(a) must be performed within 60 days after achieving maximum production rate but no later than 180 days after initial start-up.

(d) Notification of Performance tests at least 30 days prior to them occurring.

40 CFR Subpart GG

60.334 Monitoring of Operations

(a) continuous monitoring system required for water-to-fuel ratio to meet NSPS; system must be accurate within ± 5 percent.

(b) Monitor sulfur and nitrogen content of fuel.

Oil - (1): each occasion that fuel is transferred to bulk storage tank.

Gas - (2): daily monitoring required

3.4.1.2 Fuel Oil Storage Tank

The applicable NSPS is 40 CFR Part 60, Subpart Kb--Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after July 23, 1984). The storage tank will contain distillate fuel oil, a volatile organic liquid as defined in Subpart Kb. There are no emission limiting or control requirements under Subpart Kb for the use of distillate fuel oil. The facility, however, must perform record keeping of the type of organic liquid in the tank.

3.4.2 FLORIDA RULES

The Florida DEP regulations for new stationary sources are covered in the F.A.C. The Florida DEP has adopted the EPA NSPS by reference in Rule 62-204.800(7); subsection (b)38 for stationary gas turbines and (b)15 for volatile organic liquid storage vessels. Therefore, the project is required to meet the same emissions, performance testings, monitoring, reporting, and record keeping as those described in Section 3.4.1. DEP has authority for implementing NSPS requirements in Florida.

3.4.3 FLORIDA AIR PERMITTING REQUIREMENTS

The Florida DEP regulations require any new source to obtain an air permit prior to construction. Major new sources must meet the appropriate PSD and nonattainment requirements as discussed previously. Required permits and approvals for air pollution sources include NSR for nonattainment areas, PSD, NSPS, National Emission Standards for Hazardous Air Pollutants (NESHAP), Permit to Construct, and Permit to Operate. The requirements for construction permits and approvals are contained in Rules 62-4.030, 62-4.050, 62-4.052, 62-4.210, and 62-210.300(1), F.A.C. Specific emission standards are set forth in Chapter 62-296, F.A.C.

3.4.4 HAZARDOUS POLLUTANT REVIEW

The Florida DEP has promulgated guidelines (DEP, 1995) to determine whether any emission of a potentially hazardous or toxic pollutant can pose a possible health risk to the public. Maximum concentrations for all regulated pollutants for which an ambient standard does not exist and all nonregulated hazardous pollutants are to be compared to ambient reference concentrations (ARCs) for each applicable pollutant. If the maximum predicted concentration for any hazardous pollutant is less than the corresponding ARC for each applicable averaging time, that emission is considered not to pose a significant health risk. However, the ARCs are not environmental standards but, rather, evaluation tools to determine if an apparent threat to the public health may exist.

3.4.5 LOCAL AIR REGULATIONS

Brevard County has implemented air regulations that restrict the visible emissions (smoke), SO_2 emissions, and ambient air concentrations of SO_2 and PM (Brevard County Ordinance No. 97-49). For visible emissions (Brevard County Codes Section 62-2254), emissions of any contaminant from existing sources should not be discharged to the atmosphere for a period or periods of 3 minutes or more in any one hour with a shade designated as no. 2 on the Ringelmann chart or comparable opacity reading, excluding water vapor. In addition, SO_2 emissions (Section 62-2258) shall not exceed 2,000 and 500 ppmvd from existing and any source, respectively.

Ambient particulate matter concentrations shall not exceed 200 mg/m^3 during any 24-hour period (Section 62-2255). SO_2 concentrations shall not exceed 0.40 ppm (1,046 μg/m^3), 0.18 ppm (470 μg/m^3), and 0.05 ppm (130 μg/m^3) for the 1-hour, 24-hour, and annual averaging periods, respectively, in specified land use zoning (Section 62-2258).

3.5 SOURCE APPLICABILITY

3.5.1 AREA CLASSIFICATION

The project site is located in Brevard County, which has been designated by EPA and DEP as an attainment area for all criteria pollutants. Brevard County and surrounding counties are designated as

PSD Class II areas for SO_2, PM(TSP), and NO_2. The nearest Class I areas to the site are the Everglades National Park and Chassahowitzka National Wilderness Area. Both PSD Class I areas are more than 200 km (120 miles) from the site.

3.5.2 PSD REVIEW

3.5.2.1 Pollutant Applicability

The proposed project is considered to be a major facility because the emissions of several regulated pollutants are estimated to exceed 250 TPY; therefore, PSD review is required for any pollutant for which the emissions are considered major or exceed the PSD significant emission rates. As shown in Table 3-3, potential emissions from the proposed project will be major for PM(TSP), PM10, SO_2, NO_x, CO, and VOC. Because the proposed project impacts for these pollutants are predicted to be below the significant impact levels, a modeling analysis incorporating the impacts from other sources is not required. (Note: EPA has promulgated changes to the PSD Rules to eliminate hazardous air pollutants (HAPs) from PSD review. The pollutants vinyl chloride, mercury, asbestos, and beryllium are no longer evaluated in PSD review.)

As part of the PSD review, a PSD Class I increment analysis is required if the proposed project's impacts are greater than the proposed EPA Class I significant impact levels. The nearest Class I areas to the plant site is about 180 km from the site. Based on the discussions with the Florida DEP, a PSD Class I increment-consumption analysis is not required.

3.5.2.2 Emission Standards

The applicable NSPS for the CTs is 40 CFR Part 60, Subpart GG. The proposed emissions for the turbines will be well below the specified limits (see Section 4.0). Each fuel oil storage tank will have a maximum storage capacity of 2.8 million gallons of No. 2 fuel oil. Since the storage tank has a capacity greater than 40 cubic meters (m^3) [approximately 10,568 gallons], the applicable NSPS is 40 CFR Part 60, Subpart Kb. The storage tank will contain distillate fuel oil, a volatile organic liquid as defined in Subpart Kb, with a true vapor pressure of 0.022 pound per square inch (psi) at 100 F. Because the fuel oil is expected to have a maximum true vapor pressure of less than 3.5 kilopascals (kPa) or 0.51 psi, only the minor monitoring of operating requirements specified in 40 CFR 60 116b(a) and (b) will apply.

3.5.2.3 Ambient Monitoring

Based on the estimated pollutant emissions from the proposed plant (see Table 3-4), a pre-construction ambient monitoring analysis is required for PM10, SO_2 , NO_2, CO, and O_3 (based on VOC emissions). If the net increase in impact of other pollutants is less than the applicable *de minimis* monitoring concentration (100 TPY in the case of VOC), then an exemption from the pre-construction ambient monitoring requirement may be obtained [52.21(i)(8)]. In addition, if an acceptable ambient monitoring method for the pollutant has not been established by EPA, monitoring is not required.

If pre-construction monitoring data are required to be submitted, data collected at or near the project site can be submitted, based on existing air quality data or the collection of onsite data.

As shown in Table 3-4, the proposed plant's impacts are predicted to be below the applicable *de minimis* monitoring concentration levels for all pollutants except VOC. Therefore, pre-construction monitoring is not required to be submitted for this project, except for O_3.

3.5.2.4 GEP Stack Height Impact Analysis

The GEP stack height regulations allow any stack to be at least 65 m [213 feet (ft)] high. The CT stacks for the project will be 60 ft. This stack height does not exceed the GEP stack height. However, as discussed in Section 6.0, Air Quality Modeling Approach, since the stack height is less than GEP, building downwash effects must be considered in the modeling analysis. As a result, the potential for downwash of the CTs' emissions caused by nearby structures are included in the modeling analysis.

3.5.3 NONATTAINMENT REVIEW

The project site is located in Brevard County, which is classified as an attainment area for all criteria pollutants. Therefore, nonattainment requirements are not applicable.

3.5.4 OTHER CLEAN AIR ACT REQUIREMENTS

The 1990 CAA Amendments established a program to reduce potential precursors of acidic deposition. The Acid Rain Program was delineated in Title IV of the CAA Amendments and required EPA to develop the program. EPA's final regulations were promulgated on January 11, 1993, and included permit provisions (40 CFR Part 72), allowance system (Part 73), continuous emission monitoring (Part 75), excess emission procedures (Part 77), and appeal procedures (Part 78).

EPA's Acid Rain Program applies to all existing and new utility units except those serving a generator less than 25 MW, existing simple cycle CTs, and certain non-utility facilities; units which fall under the program are referred to as affected units. The EPA regulations would be applicable to the proposed project for the purposes for obtaining a permit and allowances, as well as emission monitoring. New units are required to obtain permits under the program by submitting a complete application 24 months before the later of January 1, 2000, or the date on which the unit begins serving an electric generator (greater than 25 MW).

The permit would provide SO_2 and NO_x emission limitations and the requirement to hold emission allowances. Emission limitations established in the Acid Rain Program are presumed to be less stringent than BACT or lowest achievable emission rate (LAER) for new units. An allowance is a market-based financial instrument that is equivalent to 1 ton of SO_2 emissions. Allowances can be sold, purchased, or traded. For the proposed project, SO_2 allowances will be obtained from the market.

Continuous emission monitoring (CEM) for SO_2 and NO_x is required for gas-fired and oil-fired affected units. When an SO_2 CEM is selected to monitor SO_2 mass emissions, a flow monitor is also required. Alternately, SO_2 emissions may be determined using procedures established in Appendix D, 40 CFR Part 75 (flow proportional oil sampling or manual daily oil sampling). CO_2 emissions must also be determined either through a CEM (e.g., as a diluent for NO_X monitoring) or calculation. Alternate procedures, test methods, and quality assurance/quality control (QA/QC) procedures for CEM are specified (Part 75 Appendices A through I). The CEM requirements including QA/QC procedures are, in general, more stringent than those specified in the NSPS for Subpart GG. New units are required to meet the requirements by the later of January 1, 1995, or not later than 90 days after the unit commences commercial operation.

3.5.5 LOCAL AIR REGULATIONS

The proposed project will comply will all air emission and air quality regulations established by Brevard County.

Table 3-1. National and State AAQS, Allowable PSD Increments, and Significant Impact Levels

		AAQS ($\mu g/m^3$)			PSD Increments ($\mu g/m^3$)		
Pollutant	Averaging Time	Primary Standard	Secondary Standard	Florida	Class I	Class II	Significant Impact Levels ($\mu g/m^3$) [b]
Particulate Matter[c] (PM10)	Annual Arithmetic Mean	50	50	50	4	17	1
	24-Hour Maximum	150	150	150	8	30	5
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	1
	24-Hour Maximum	365	NA	260	5	91	5
	3-Hour Maximum	NA	1,300	1,300	25	512	25
Carbon Monoxide	8-Hour Maximum	10,000	10,000	10,000	NA	NA	500
	1-Hour Maximum	40,000	40,000	40,000	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	1
Ozone[c]	8-Hour Maximum[d]	157	157	157	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	1.5	NA	NA	NA

Note: Particulate matter (PM10) = particulate matter with aerodynamic diameter less than or equal to 10 micrometers.
NA = Not applicable, i.e., no standard exists.

[a] Short-term maximum concentrations are not to be exceeded more than once per year.

[b] Maximum concentrations are not to be exceeded.

[c] On July 18, 1997, EPA promulgated revised AAQS for particulate matter and ozone. For particulate matter, PM2.5 standards were introduced with a 24-hour standard of 65 g/m^3 (3-year average of 98th percentile) and an annual standard of 15 g/m^3 (3-year average at community monitors). Implementation of these standards are many years away.

[d] 0.08 ppm; achieved when 3-year average of 99th percentile is 0.08 ppm or less. FDEP has not yet adopted these standards.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978.
40 CFR 50; 40 CFR 52.21.
Chapter 62-272, F.A.C.

Table 3-2. PSD Significant Emission Rates and *De Minimis* Monitoring Concentrations

Pollutant	Regulated Under	Significant Emission Rate (TPY)	*De Minimis* Monitoring Concentration[a] (μg/m3)
Sulfur Dioxide	NAAQS, NSPS	40	13, 24-hour
Particulate Matter [PM(TSP)]	NSPS	25	10, 24-hour
Particulate Matter (PM10)	NAAQS	15	10, 24-hour
Nitrogen Dioxide	NAAQS, NSPS	40	14, annual
Carbon Monoxide	NAAQS, NSPS	100	575, 8-hour
Volatile Organic Compounds (Ozone)	NAAQS, NSPS	40	100 TPY[b]
Lead	NAAQS	0.6	0.1, 3-month
Sulfuric Acid Mist	NSPS	7	NM
Total Fluorides	NSPS	3	0.25, 24-hour
Total Reduced Sulfur	NSPS	10	10, 1-hour
Reduced Sulfur Compounds	NSPS	10	10, 1-hour
Hydrogen Sulfide	NSPS	10	0.2, 1-hour
Mercury	NESHAP	0.1	0.25, 24-hour
MWC Organics	NSPS	$3.5x10^{-6}$	NM
MWC Metals	NSPS	15	NM
MWC Acid Gases	NSPS	40	NM
MSW Landfill Gases	NSPS	50	NM

Note: Ambient monitoring requirements for any pollutant may be exempted if the impact of the increase in emissions is below *de minimis* monitoring concentrations.

NAAQS = National Ambient Air Quality Standards.
NM = No ambient measurement method established; therefore, no *de minimis* concentration has been established.
NSPS = New Source Performance Standards.
NESHAP = National Emission Standards for Hazardous Air Pollutants.
g/m^3 = micrograms per cubic meter.
MWC = Municipal waste combustor
MSW = Municipal solid waste

[a] Short-term concentrations are not to be exceeded.
[b] No *de minimis* concentration; an increase in VOC emissions of 100 TPY or more will require monitoring analysis for ozone.
[c] Any emission rate of these pollutants.

Sources: 40 CFR 52.21.
Rule 62-212.400

Table 3-3. Maximum Emissions Due to the Proposed Oleander Power Project Compared to the PSD Significant Emission Rates

Pollutant	Pollutant Emissions (TPY)		PSD Review
	Potential Emissions from Proposed Facility[a]	Significant Emission Rate	
Sulfur Dioxide	535	40	Yes
Particulate Matter [PM(TSP)]	251	25	Yes
Particulate Matter (PM10)	251	15	Yes
Nitrogen Dioxide	1,940	40	Yes
Carbon Monoxide	745	100	Yes
Volatile Organic Compounds	104	40	Yes
Lead	NEG	0.6	No
Sulfuric Acid Mist	82.0	7	Yes
Total Fluorides	NEG	3	No
Total Reduced Sulfur	NEG	10	No
Reduced Sulfur Compounds	NEG	10	No
Hydrogen Sulfide	NEG	10	No
Mercury	NEG	0.1	No
MWC Organics (as 2,3,7,8-TCDD)	$8.8x10^{-8}$	$3.5x10^{-6}$	No
MWC Metals (as Be, Cd)	NEG	15	No
MWC Acid Gaser (as HCl)	23	40	No

Note: NEG = Negligible.

[a] Based on emissions from operating at baseload at 59°F; firing natural gas and distillate fuel oil for 1,390 and 2,000 hours per year per turbine for a total of five CTs, respectively (Refer to Table 2-7).

Table 3-4. Predicted Net Increase in Impacts Due To the Proposed Oleander Power Project Compared to PSD *De Minimis* Monitoring Concentrations

	Concentration (µg/m3)	
Pollutant	Predicted Increase in Impacts[a]	*De Minimis* Monitoring Concentration
Sulfur Dioxide	1.1	13, 24-hour
Particulate Matter (PM10)	0.8	10, 24-hour
Nitrogen Dioxide	0.3	14, annual
Carbon Monoxide	3.0	575, 8-hour
Volatile Organic Compounds	104 TPY	100 TPY

Note: NA = not applicable.
NM = no ambient measurement method.
TPY = tons per year.

[a] See Section 6.0 for air dispersion modeling results.

4.0 CONTROL TECHNOLOGY REVIEW

4.1 APPLICABILITY

The PSD regulations require new major stationary sources to undergo a control technology review for each pollutant that may potentially be emitted above significant amounts. The control technology review requirements of the PSD regulations are applicable to emissions of NO_x, SO_2, CO, VOC, and PM/PM10 (see Section 3.0). The maximum potential annual emissions of these pollutants from the proposed "F" Class CTs are summarized below (see Table 2-7):

Pollutant Emissions (TPY)

Pollutant	5 "F" Class CTs[a]
NO_x	1,940
SO_2	535
CO	745
VOC	104
PM/PM10	251

[a] Maximum emissions based on firing natural gas for 1,390 hours and distillate fuel oil for 2,000 hours at base load conditions and 59°F.

This section presents the applicable NSPS and the proposed BACT for these pollutants. The approach to the BACT analysis is based on the regulatory definitions of BACT, as well as EPA's current policy guidelines requiring a top-down approach. A BACT determination requires an analysis of the economic, environmental, and energy impacts of the proposed and alternative control technologies [see 40 CFR 52.21(b)(12); and Rule 62-212.200(40), and Rule 62-214.410, F.A.C.]. The analysis must, by definition, be specific to the project (i.e., case-by-case).

4.2 NEW SOURCE PERFORMANCE STANDARDS

The applicable NSPS for CTs are codified in 40 CFR 60, Subpart GG and summarized in Appendix B. The applicable NSPS emission limit for NO_x is 75 parts per million by volume dry (ppmvd) corrected for heat rate and 15 percent oxygen. For the CTs being considered for the project, the NSPS emission limit NO_x with the NSPS heat rate correction is 104.7 parts per million (ppm) on and 111.7 ppm on gas (corrected to 15 percent oxygen at a fuel-bound nitrogen content of 0.015 percent. The proposed NO_x emission limits for the project will be much lower than the NSPS.

4.3 BEST AVAILABLE CONTROL TECHNOLOGY

4.3.1 PROPOSED BACT

In recent permitting actions, FDEP has established BACT for heavy-duty industrial gas turbines. These decisions have included the use of advanced dry low-NO_x combustors for limiting NO_x and CO emissions and clean fuels (natural gas and distillate oil) for control of other emissions, including SO_2. The BACT proposed for the "F" Class CTs is consistent with these FDEP permits. The proposed project will have two modes of operation (see Section 2.3) for which a BACT analysis has been performed. The results of the analysis have concluded the following controls as BACT for the project.

1. Natural Gas Fired. The "F" Class CT will utilize state-of-the-art dry low-NO_x combustion technology which will achieve gas turbine exhaust NO_x levels of no greater than 9 ppmvd corrected to 15 percent O_2. CO emissions will be limited to 20 ppmvd at base load.
2. Fuel Oil Fired. The "F" Class CT will utilize water injection to achieve gas turbine exhaust NO_x levels of no greater than 42 ppmvd corrected to 15 percent O_2. CO emissions will be limited to 30 ppmvd at base load.

4.3.2 NITROGEN OXIDES

4.3.2.1 Introduction

The BACT analysis was performed for the following alternatives:

1. Advanced dry low-NO_x combustors at an emission rate of 9 ppmvd corrected to 15 percent O_2 when firing gas and 42 ppmvd (corrected) when firing oil.
2. Selective catalytic reduction (SCR) and advanced dry low-NO_x combustors at an emission rate of approximately 3.5 ppmvd corrected to 15 percent O_2 when firing natural gas and 16.8 ppmvd when firing oil.

Appendix B presents a discussion of NO_x control technologies and their feasibility for the project.

Dry low-NO_x combustor technology has recently been offered and installed by manufacturers to reduce NO_x emissions by inhibiting thermal NO_x formation through premixing fuel and air prior to combustion and providing staged combustion to reduce flame temperatures. NO_x emissions from 25 ppmvd (corrected to 15-percent O_2) and less has been offered by manufacturers for advanced combustion turbines. Advanced in this context is the larger (over 150 MW) and more efficient (higher initial firing temperatures and lower heat rate) combustion turbines. This technology is truly pollution prevention since NO_x emissions are inhibited from forming.

SCR is a post-combustion process where NO_x in the gas stream is reacted with ammonia in the presence of a catalyst to form nitrogen and water. The reaction occurs typically between 600°F and 750°F, which has limited SCR application to combined cycle units where such temperatures occur in the HRSG. Exhausts from simple cycle operation up to 1,200°F, thus limiting SCR application for this mode of operation. With the higher cost ceramic catalyst, temperatures up to 1,050°F are possible. Such SCR systems are referred to as "hot" SCR. To accommodate "hot" SCR in the "F" Class gas turbine, some gas cooling would be required to maintain temperatures below 1,050°F. In-duct cooling using about 110,000 acfm of ambient air would maintain temperatures at below 1,050°F with turbine flow of about 2,600,000 acfm and up to 1,200°F . This could be accomplished with an electric powered fan rated at about 200 kW. While such modifications are theoretically possible, such gas cooling and its effectiveness has not been demonstrated on a "F" Class simple cycle gas turbine. SCR has been primarily installed and operated on combined cycle facilities using catalysts with temperature ranges from 600-750°F and generally achieving 9 ppmvd (corrected to 15-percent O_2) or less while burning only natural gas.

Applications of SCR with oil firing are limited. Where oil firing has been attempted, catalyst poisoning and ammonium salt formation has occurred. Ammonium salts (ammonium sulfate and ammonium bisulfate) are formed by the reaction of sulfur oxides in the gas stream and ammonia. These salts are highly acidic, and special precautions in materials and ammonia injection rates must be implemented to minimize their formation. Ammonia injected in the SCR system that does not react with NO_x is emitted directly and referred to as ammonia slip. In general, SCR manufacturers guarantee ammonia slip to be no more than 10 ppmvd; however, permitted limits in some applications have exceeded 25 ppmvd.

While SCR is technically feasible for the project, SCR has not been applied to a simple cycle advanced combustion turbine of the size proposed for this project or to the amount of oil firing that may occur.

The recent permitting trend for advanced combustion turbines, even with combined cycle configuration, is the use of dry low-NO_x combustors. Indeed, most of the recent Florida projects have been permitted with this technology, including five projects in Florida (Florida Power & Light Martin Units 3 and 4; Central Florida Cogeneration Project; Hardee Unit 3 Project, and City of Tallahassee Project), and FPL Fort Myers Repowering Project.

As discussed in Section 2.1, the proposed CTs will be fired primarily with natural gas. Distillate oil will be used as backup fuel not to exceed 2,000 hours per year. Table 4-1 presents a summary of emissions with dry low-NO_x combustors and with dry low-NO_x combustors and SCR assuming 80 percent operating capacity at an ambient temperature of 59°F. The NO_x removed using SCR would be 232 TPY when firing oil and natural gas. The NO_x removed when firing oil is based on 2,000 hours per year. The NO_x removed when firing natural gas is based on 1,390 hours of operation.

4.3.2.2 Proposed BACT and Rationale

The proposed BACT for the project is advanced dry low-NO_x combustion technology. The proposed NO_x emissions level using this technology is 9 ppmvd (corrected to 15 percent oxygen) when firing natural gas under base load conditions. NO_x from oil firing will be controlled using water injection (42 ppmvd corrected to 15 percent oxygen). This combination of control technologies is proposed for the following reasons:

1. SCR was rejected based on technical, economic, environmental, and energy grounds. Table 4-2 summarizes these considerations which favor the dry low-NO_x pollution prevention technology.
2. The estimated incremental cost of SCR is approximately $11,000 per ton of NO_x removed and is similar to cost for other projects that have rejected SCR as being unreasonable. This is even more apparent if additional pollutant emissions due to SCR are considered.
3. Additional environmental impacts would result from SCR operation, including emissions of ammonia; from secondary emissions (to replace the lost generation); and from the generation of hazardous waste (i.e., spent catalyst replacement). While NO_x emissions would be reduced by

about 279 TPY per unit with SCR, the net emissions reduction would not be as great. There are three additional factors that must be considered:

a. Ammonia slip would occur, and it may be as high as 39.1 TPY per unit.

b. Additional particulate matter may be formed through the reaction of ammonia and sulfur oxides forming ammonium salts. As much as 33.2 TPY per unit additional particulate matter may be formed.

c. SCR will require energy for system operation and reduce the efficiency of the combustion turbine. This lost energy would have to be replaced since the proposed project would be an efficient peaking power plant while operating. Any peaking power plants replacing this lost energy would be lower on the dispatch list and inevitably more polluting. Conservatively, this lost energy would result in the emissions of an additional 32.8 TPY of criteria pollutants. Additional emissions of carbon dioxide would also result.

d. The "net" cost effectiveness cold be a high as $21,000 per ton of pollutant removed.

4. The energy impacts of SCR will reduce potential electrical power generation by more than 4.2 million kilowatt hours (kWh) per year. This amount of energy is sufficient to provide the monthly electrical needs of 950 residential customers.

5. The proposed BACT (i.e., dry low-NO_x combustion) provides the most cost effective control alternative, is pollution preventing and results in low environmental impacts (less than the significant impact levels). Dry low-NO_x combustion at the proposed emissions levels has been adopted previously in BACT determinations. Indeed, compared to conventional CTs, the proposed BACT will result in 10 percent less NO_x emission from the same amount of generation.

The analyses of economic, environmental, and energy impacts follow.

4.3.2.3 Impacts Analysis

<u>Economic</u>--The total capital costs of SCR for the proposed plant are $2,641,600. The total annualized cost of applying SCR with dry low-NO_x combustion is $2,378,500. Appendix B contains the detailed cost estimates for the capital and annualized costs. The incremental cost effectiveness of adding SCR

to the dry low-NO_x combustors and water injection (for oil firing) is estimated at $11,344 per ton of NO_x removed.

<u>Environmental</u>--The maximum predicted NO_x impacts using the dry low-NO_x technology are all considerably below the NO_2 PSD Class II increment of 25 $\mu g/m^3$, annual average, and the AAQS of 100 $\mu g/m^3$, annual average. Indeed, the maximum annual impact for the project is 0.30 $\mu g/m^3$, which is about 31 percent of the significant impact level. While additional controls beyond dry low-NO_x combustors (i.e., SCR and SCR with water injection) would reduce emissions, the effect will not be significant and much less than 1 percent of the PSD increment and the AAQS for the project.

The use of dry low-NO_x combustor technology is truly "pollution prevention". In contrast, use of SCR on the proposed project will cause emissions of ammonia and ammonium salts, such as ammonium sulfate and bisulfate. Ammonia emissions associated with SCR are expected to be up to 10 ppm based on reported experience; previous permit conditions have specified this level. Indeed, ammonia emissions could be as high as 39.1 TPY/ per unit for the project. Potential emissions of ammonium sulfate and bisulfate will increase emissions of PM10; up to 33.2 TPY/per unit could be emitted.

The electrical energy required to run the SCR system and the back pressure from the turbine will reduce the available power from the project. This power, which would otherwise be available to the electrical system, will have to be replaced by other less efficient units. The replacement power will cause air pollutant emissions that would not have occurred without SCR. These "secondary" emissions, coupled with potential emissions of ammonia and ammonium salts, are presented in Table 4-3. This table shows the emissions balance for the project with and without SCR. As shown, the net reduction in emissions with SCR when all criteria pollutants are considered will be 127.9 TPY. In addition to criteria pollutants, additional secondary emissions of carbon dioxide would be emitted and were included in Table 4-3. As noted from this table, the emissions including CO_2 would be greater with SCR than that proposed using dry low-NO_x combustion technology.

The replacement of the SCR catalyst will create additional economic and environmental impacts since certain catalysts contain materials that are listed as hazardous chemical wastes under Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261). In addition, SCR will require the construction and maintenance of storage vessels of anhydrous or aqueous ammonia for use in the reaction. Ammonia has potential health effects, and the construction of ammonia storage facilities triggers the application of at least three major standards: Clean Air Act (section 112), Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000, and OSHA 29 CFR 1910.119.

Energy--Significant energy penalties occur with SCR. With SCR, the output of the CT may be reduced by about 0.50 percent over that of advanced low-NO_x combustors. This penalty is the result of the SCR pressure drop, which would be about 2.5 inches of water and would amount to about 3,251,000 kWh per year in potential lost generation. The energy required by the SCR equipment would be about 949,200 kWh per yr. Taken together, the total lost generation and energy requirements of SCR of 4,200,210 kWh per year could supply the monthly electrical needs of about 950 residential customers. To replace this lost energy, an additional 50×10^{10} British thermal units per year (Btu/yr) or about 41 million cubic feet per year (ft^3/yr) of natural gas would be required.

Technology Comparison--The proposed project will use an advanced heavy-duty industrial gas turbine with advanced dry low-NO_x combustors. This type of machine advances the state-of-the-art for CTs by being more efficient and less polluting than previous CTs. Integral to the machine's design is dry low-NO_x combustors that prevent the formation of air pollutants within the combustion process, thereby eliminating the need for add-on controls that can have detrimental effects on the environment. An analogy of this technology is a more efficient automotive engine that gives better mileage and reduces pollutant formation without the need of a catalytic converter.

An advanced gas turbine is unique from an engineering perspective in two ways. First, the advanced machine is larger and has higher initial firing (i.e., combustion) temperatures than conventional turbines. This results in a larger, more thermally efficient machine. For example, the electrical generating capability of the proposed "F" class advanced machine is about 195 MW compared to the 70 MW to 120 MW conventional machines. The higher initial firing temperature (i.e., 2,600 F) results in about 20 percent more electrical energy produced for the same amount of fossil fuel used in conventional machines. This has the added advantage of producing lower air pollutant emissions (e.g., NO_x, PM, and CO) for each MW generated. While the increased firing temperature increases the thermal NO_x generated, this NO_x increase is controlled through combustor design.

The second unique attribute of the advanced machine is the use of dry low-NO_x combustors that will reduce NO_x emissions to 9 ppmvd when firing natural gas. Thermal NO_x formation is inhibited by using staged combustion techniques where the natural gas and combustion air are premixed prior to ignition. This level of control will result in NO_x emissions of about 0.04 lb/10^6 Btu, which is less than half of the emissions generated from conventional fossil fuel-fired steam generators.

Since the purpose of the project is to produce electrical energy, and CT technology is rapidly advancing, it is appropriate to compare the proposed emissions on an equivalent generation basis to that of a conventional CT. The heat rate of the "F" class machines will be about 9,170 Btu/kWh (LHV, 59°F, natural gas). In contrast, the heat rate for a new conventional CT is about 11,000 Btu/kWh. Therefore, the amount of total NO_x from the advanced CT will be more than 10-percent lower than a conventional turbine for the same amount of generation.

Also, the amount of NO_x control achieved by the dry low-NO_x combustor on an advanced CT is considerably higher than that achieved by a conventional CT. Because of the higher firing initial temperatures, the advanced CT results in greater NO_x emission formation. Since the advanced machine has higher firing temperatures, the NO_x emissions without the use of dry low-NO_x combustion technology are much higher than a conventional CT (greater than 180 ppmvd vs. 150 ppmvd). This results in an overall greater NO_x reduction on the advanced CT.

4.3.3 CARBON MONOXIDE

4.3.3.1 Introduction

Emissions of CO are dependent upon the combustion design, which is a result of the manufacturer's operating specifications, including the air-to-fuel ratio, staging of combustion, and the amount of water injected (i.e., for oil firing). The CTs proposed for the project have designs to optimize combustion efficiency and minimize CO as well as NO_x emissions.

For the project, the following alternatives were evaluated as BACT:

1. Combustion controls at 16 ppmvd at 15% O_2 (20 ppmvd) when firing natural gas (at baseload) and 20 ppmvd at 15% O_2 (30 ppmvd) when firing oil (at baseload); and

2. Oxidation catalyst at 75% removal; maximum annual CO emissions are 37 TPY per unit.

4.3.3.2 Proposed BACT and Rationale

Combustion design is proposed as BACT, as there are adverse technical and economic consequences of using catalytic oxidation on CTs. The proposed BACT emission rates for CO will not exceed 20 ppmvd when firing natural gas and 30 ppmvd when firing distillate oil at baseload conditions. Catalytic oxidation is considered unreasonable for the following reasons:

1. Catalytic oxidation will not produce measurable reduction in the air quality impacts;
2. The economic impacts are significant (i.e., the capital cost is about $1.8 million per unit, with an analyzed cost of $704,000 per year per unit; and
3. Recent projects in Florida have been authorized with BACT emission limits of 25 ppmvd on gas and 90 ppmvd on oil.

Combustion design is proposed as BACT as a result of the technical and economic consequences of using catalytic oxidation on CTs. Catalytic oxidation is considered unreasonable since it will not produce a measurable reduction in the air quality impacts. Indeed, recent BACT decisions for similar advanced CTs have set limits in the 30 ppmvd range and higher. Even the Northeast States for Coordinated Air Use Management (NESCAUM) has recognized a BACT level of 50 ppmvd for CO emissions. The cost of an oxidation catalyst would be significant and not be cost effective given the maximum proposed emission limits.

4.3.3.3 Impact Analysis

Economic--The estimated annualized cost of a CO oxidation catalyst is $704,000 per unit, resulting in a cost effectiveness of greater than $6,300 per ton of CO removed. The cost effectiveness is based on 1,390 hours per year on natural gas and 2,000 hours per year of operation on oil. No costs are associated with combustion techniques since they are inherent in the design.

Environmental--The air quality impacts of both oxidation catalyst control and combustion design control techniques are below the significant impact levels for CO. Therefore, no significant environmental benefit would be realized by the installation of a CO catalyst. Moreover, the air quality impacts at the proposed CT emission rate are predicted to be much less than the PSD significant impact levels. The maximum CO impacts are less than 0.1 percent of the applicable ambient air quality standards. There would also be no secondary benefits, such as reductions in acidic deposition, to reducing CO.

<u>Energy</u>--An energy penalty would result from the pressure drop across the catalyst bed. A pressure drop of about 2 inches water gauge would be expected. At a catalyst back pressure of about 2 inches, an energy penalty of about 1,322,100 kWh/yr would result at 100 percent load. This energy penalty is sufficient to supply the electrical needs of about 110 residential customers for a year. To replace this lost energy, about 1.3 x 10^{10} Btu/yr or about 13 million ft^3/yr of natural gas would be required.

4.3.4 VOLATILE ORGANIC COMPOUNDS

VOCs will be emitted by the CT as a result of incomplete combustion. The proposed BACT for VOC emissions will be the use of combustion technology and the use of clean fuels so that emissions will not exceed 4.0 ppmvd when firing natural gas and 7.0 ppmvw when firing distillate oil. These emission levels are similar to the BACT emission levels established for other similar sources. Combustion controls and the use of clean fuels have been overwhelmingly approved as BACT for CTs. The environmental effect of further reducing emissions would not be significant.

4.3.5 PM/PM10, SO_2 AND OTHER REGULATED AND NONREGULATED POLLUTANT EMISSIONS

The PM/PM10 emissions from the CTs are a result of incomplete combustion and trace elements in the fuel. Beryllium and inorganic arsenic (As) would be included in the PM/PM10 emissions. The design of the CT ensures that particulate emissions will be minimized by combustion controls and the use of clean fuels. A review of EPA's BACT/LAER Clearinghouse Documents did not reveal any post-combustion particulate control technologies being used on gas- or oil-fired CTs.

The maximum particulate emissions from the CT will be lower in concentration than that normally specified for fabric filter designs {i.e., the grain loading associated with the maximum particulate emissions [about 9.8 pounds per hour (lb/hr) when firing natural gas]} is less than 0.01 grain per standard cubic foot (gr/scf), which is a typical design specification for a baghouse. This further demonstrates that no further particulate controls are necessary for the proposed project.

There are no technically feasible methods for controlling the emissions of these pollutants from CTs, other than the inherent quality of the fuel. Clean fuels, natural gas and distillate oil represent BACT for these pollutants. The use of natural gas and very low sulfur (0.05%) fuel oil will limit emissions of SO_2.

For the nonregulated pollutants, none of the control technologies evaluated for other pollutants (i.e., SCR) would reduce such emissions; thus, natural gas and distillate oil represent BACT because of their inherently low contaminant content.

Table 4-1. NO_x Emission Estimates (TPY) of BACT Alternative Technologies (per Unit)

Alternative BACT Control Technologies	Operating Mode[a]		
	Oil	Gas	Total
NO$_x$ Emission (TPY)			
Dry Low-NO_x (DLN) only	344	44	388
DLN with SCR[b]	138	18	156
Reduction	(206)	(26)	(232)
Basis of Emissions (ppmvd)			
DLN only	42	9	
DLN with SCR	16.8	3.6	
Hours of Operation	2,000	1,390	3,390

Note: DLN = Dry low-NO_x.
SCR = selective catalytic reduction.
TPY = tons per year.

[a] Emission rates were based on a "F" class combustion turbine operating at 100-percent capacity and firing natural gas for 1,390 hours and distillate fuel oil for 2,000 hours. Emission data are based on an ambient temperature of 59°F at maximum emission rates.

[b] Based on primary emissions with SCR; no account is made for additional emissions (secondary) due to lost energy from heat rate penalty and electrical usage for SCR operation (see Table 4-3).

Table 4-2. Comparison of Alternative BACT Control Technologies for NO_x (per Unit)

	Alternative BACT Control Technologies	
	DLN Only	SCR
Technical Feasibility	Feasible	Feasible for gas
Economic Impact[a]		
Capital Costs	included	$7,507,200
Annualized Costs	included	$2,641,600
Cost Effectiveness		
NO_x Removed (per ton of NO_x)	NA	$11,344
NO_x Removed (per ton of total pollutants)	NA	$20,654
Environmental Impact[b]		
Total NO_x (TPY)	388	156
NO_x Reduction (TPY)	NA	(233)
Ammonia Emissions (TPY)	0	39.1
PM Emissions (TPY)	0	33.2
Secondary Emissions (TPY)	0	32.8
Net Emission Reduction (TPY)	NA	(127.9)
Energy Impacts[c]		
Energy Use (kWh/yr)	0	4,200,210
Energy Use (mmBtu/yr) at 10,000 Btu/kWh	0	50,400
Energy Use (mmcf/yr) at 1,000 Btu/cf for natural gas	0	41

[a] See Appendix B for detailed development of capital costs (including recurring costs) and annualized costs.

[b] See emission data presented in Table 4-3.

[c] Energy impacts are estimated due to the lost energy from heat rate penalty and electrical usage for the SCR operation at 3,390 hours per year. Lost energy is based on 0.5 percent of 192 MW. SCR electrical usage is based on 0.080 MWh per SCR system and 0.20 MWh for cooling fan.

Table 4-3. Maximum Potential Incremental Emissions (TPY) with Selective Catalytic Reduction

	Incremental Emissions (TPY) of Project with SCR		
Pollutants	Primary	Secondary[a]	Total
Particulate	33.2[b]	0.96	34.2
Sulfur Dioxide	--	12.7	12.7
Nitrogen Oxides	(233)[c]	17.6	(215.4)
Carbon Monoxide	--	1.21	1.21
Volatile Organic Compounds	--	0.30	0.3
Ammonia	39.1[d]	0	39.1
Total	(160.7)	32.8	(127.9)
Carbon Dioxide[e]	--	4,330	4,330

Note: Btu/kWh = British thermal units per kilowatt-hour
CT = combustion turbine
MW = megawatt
% = percent
SCR = selective catalytic reduction
TPY = tons per year
-- = no differences in the project's emissions with SCR and without SCR

[a] Lost energy from heat rate penalty and electrical usage for 3,390 hours per year operation (0.5% of 192 MW per CT plus 0.080 MWh for SCR system and 0.2 MWh for dilution fan). Assumes baseloaded oil-fired unit would replace lost energy. EPA emission factors based on oil-fired peaking turbines used were (lb/10^6 Btu): PM = 0.038; SO_2 = 0.505; NO_x = 0.698, CO = 0.048, and VOC = 0.017. Example calculation for PM is ((0.5% x 192 + 0.28) MW x 12,000 Btu/kWh x 1,000 kW/MW x 3,390 hr/yr x 0.038 lb pm/10^6 Btu ÷ 2,000 lb/ton = 0.96 TPY.

[b] Assume 5% SO_2 conversion in catalyst and SO_3 and the SO_3 formed in the combustion process reacts with ammonia to form ammonium sulfate; 107.6 TPY SO_2 x 0.05 = 5.38 TPY SO_2; 5.38 TPY SO_2 x 98 MW of H_2SO_4 ÷ 64 MW SO_2 = 8.2 TPY H_2SO_4; 16.4 TPY H_2SO_4 from combustion of oil and gas for total H_2SO_4 = 24.6 TPY SO_3 x 132 (MW of ammonia salt) ÷ 98 (MW of H_2SO_4) = 33.2 TPY.

[c] Based on the maximum difference between the project's emissions with SCR and without SCR (see Table 4-1).

[d] 10 ppm ammonia slip (ideal gas law): 2,591,756 acfm x (10 ppm ÷ 10^6) x 17 x 2,116.8 ÷ 1,545 ÷ (460 + 1,111) x 60 x 3,390 ÷ 2,000 = 39.1 TPY (flow average of gas and oil).

[e] Reflects differential emissions due to lost energy efficiency with SCR (i.e., calculated from total heat input lost; 1.24 MW times 12,000 Btu/kWh; CO_2 calculated based on 85.7% carbon in fuel oil and 18,300 Btu/lb for 0.5% sulfur oil).

5.0 AMBIENT MONITORING ANALYSIS

The CAA requires that an air quality analysis be conducted for each criteria and noncriteria pollutant subject to regulation under the act before a major stationary source is constructed. Criteria pollutants are those pollutants for which AAQS have been established. Noncriteria pollutants are those pollutants that may be regulated by emission standards, but no AAQS have been established. This analysis may be performed by the use of modeling and/or by monitoring the air quality.

A major source may waive the ambient monitoring analysis requirement if it can be demonstrated that the proposed source's maximum air quality impacts will not exceed the PSD *de minimis* concentration levels. The maximum impacts of the proposed source are compared with the PSD *de minimis* concentrations in Table 3-4. As can be seen from Table 3-4, the proposed plant's maximum air quality impacts will be well below the *de minimis* concentrations for all applicable pollutants, except VOCs. Since the predicted air quality impacts due to the proposed project are higher than the *de minimis* monitoring concentration levels (VOC emission level for O_3), the project must provide preconstruction ambient monitoring data. Since O_3 is a regional pollutant, O_3 monitoring data collected in Brevard County can be used to satisfy this requirement for the project. At present, there are two ambient monitoring stations in Brevard County which measure O_3 concentrations: one in Cocoa Beach in north Brevard County; the other in Palm Bay in south Brevard County. Both stations are operated by the Florida DEP and measure concentrations according to EPA procedures.

During 1996, the maximum 1-hour average ozone concentrations measured in Cocoa Beach and Palm Bay were 0.093 and 0.091 ppm, respectively. During 1997 (as reported by the Florida DEP through September), the maximum 1-hour average ozone concentrations measured in Cocoa Beach and Palm Bay were 0.097 and 0.090 ppm, respectively. These maximum concentrations are less than the 0.12 ppm AAQS. These O_3 monitoring data are proposed as part of this construction permit application to satisfy the preconstruction monitoring requirement for the project.

6.0 AIR QUALITY IMPACT ANALYSIS

6.1 SIGNIFICANT IMPACT ANALYSIS APPROACH

The general modeling approach in this case followed EPA and Florida DEP modeling guidelines for determining compliance with AAQS and PSD increments. For all applicable pollutants that have emission increases that will exceed the PSD significant emission rate due to a proposed project, a significant impact analysis is performed to determine whether the project alone will result in predicted impacts that will exceed the EPA significant impact levels at any off-plant property areas in the vicinity of the plant.

If the project's impacts are above the significant impact levels, then a more detailed air modeling analysis that includes background sources is performed. Current Florida DEP policies stipulate that the highest annual average and highest short-term (i.e., 24 hours or less) concentrations are to be compared to the applicable significant impact levels. Based on the screening modeling analysis results, additional modeling refinements with a denser receptor grid are performed, as necessary, to obtain the maximum concentration. Modeling refinements are performed with a receptor grid spacing of 100 meters (m) or less.

For this project, the significant impacts levels were estimated in the vicinity of the plant following Florida DEP policies.

Generally, if a new project also is within 150 km of a PSD Class I area, then a significant impact analysis is also performed for the PSD Class I area. Currently, the National Park Service (NPS) has recommended significant impact levels for PSD Class I areas. The recommended levels have not been promulgated as rules. EPA also has proposed PSD Class I significant impact levels that have not been finalized as of this report.

Based on comments provided by the Florida DEP, a PSD Class I modeling analysis was not required because the project is more than 150 km from the nearest Class I area.

6.2 PRECONSTRUCTION MONITORING ANALYSIS APPROACH

The general modeling approach in this case followed EPA and Florida DEP modeling guidelines for evaluating a project's impacts relative to the *de minimis* monitoring levels to determine the need to submit continuous monitoring data prior to construction. For all applicable pollutants that have emission increases that will exceed the PSD significant emission rate due to a proposed project, a *de minimis* impact analysis is performed to determine whether the project alone will result in predicted impacts that will exceed the EPA *de minimis* levels at any off-plant property areas in the vicinity of the plant. Current Florida DEP policies stipulate that the highest annual average and highest short-term concentrations are to be compared to the applicable *de minimis* monitoring levels.

A proposed major stationary facility or major modification may be exempt from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause, in any area, air quality impacts less than the *de minimis* levels.

For this project, the project's impacts, except for VOC emissions (used for O_3 impact evaluation), were estimated in the vicinity of the plant for comparison to *de minimis* levels following Florida DEP policies. As presented in Section 5.0, since the estimated project's VOC emissions are higher than the *de minimis* VOC emission level, the project must provide preconstruction ambient monitoring data. For this project, O_3 monitoring data collected in Brevard County are proposed as part of this construction permit application to satisfy the preconstruction monitoring requirement.

6.3 AIR MODELING ANALYSIS APPROACH

6.3.1 GENERAL PROCEDURES

As stated in the previous sections, for each pollutant which is emitted above the significant emission rate, air modeling analyses are required to determine if the project's impacts are predicted to be greater than the significant impact levels and *de minimis* monitoring levels. These analyses consider the project's impacts alone. Air quality impacts are predicted using 5 years of meteorological data and selecting the highest annual and the highest short-term concentrations for comparison are compared to the significant impact levels and *de minimis* levels.

If the project's impacts are greater than the significant impact levels, the air modeling analyses must consider other nearby sources and background concentrations, and predict concentration for comparison to ambient standards. In general, when 5 years of meteorological data are used in the analysis, the highest annual and the highest, second-highest (HSH) short-term concentrations are compared to the applicable AAQS and allowable PSD increments. The HSH concentration is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor,
2. Identifying the second-highest concentration at each receptor, and
3. Selecting the highest concentration among these second-highest concentrations.

This approach is consistent with air quality standards and allowable PSD increments, which permit a short-term average concentration to be exceeded once per year at each receptor.

To develop the maximum short-term concentrations for the proposed project, the modeling approach was divided into screening and refined phases to reduce the computation time required to perform the modeling analysis. For this study, the only difference between the two modeling phases is the density of the receptor grid spacing employed when predicting concentrations. Concentrations are predicted for the screening phase using a coarse receptor grid and a 5-year meteorological data record.

Refinements of the maximum predicted concentrations are typically performed for the receptors of the screening receptor grid at which the highest and/or HSH concentrations occurred over the 5-year period. Generally, if the maximum concentration from other years in the screening analysis are within 10 percent of the overall maximum concentration, then those other concentrations are refined as well. Typically, if the highest and HSH concentrations are in different locations, concentrations in both areas are refined.

Modeling refinements are performed for short-term averaging times by using a denser receptor grid, centered on the screening receptor at which the maximum concentration was predicted. The angular spacing between radials is 2 degrees and the radial distance interval between receptors is 100 m. Annual modeling refinements employ an angular spacing between radials of 2 degrees and a distance interval from 100 to 300 m, depending on the concentration gradient in the vicinity of the screening receptor to be refined. If the maximum screening concentration is located on the plant property boundary, additional plant boundary receptors are input, spaced at a 2 degree angular interval and centered on the screening receptor. The domain of the refinement grid will extend to all adjacent screening receptors. The air dispersion model is then executed with the refined grid for the entire year of meteorology during which the screening concentration occurred.

This approach is used to ensure that a valid highest concentration is obtained. A more detailed description of the model, along with the emission inventory, meteorological data, and screening receptor grids are presented in the following sections.

6.3.2 MODEL SELECTION

The Industrial Source Complex Short-term (ISCST3, Version 97363) dispersion model (EPA, 1997) was used to evaluate the pollutant impacts due to the proposed CTs. This model is maintained by the EPA on its Internet website, Support Center for Regulatory Air Models (SCRAM), within the Technical Transfer Network (TTN). A listing of ISCST3 model features is presented in Table 6-1. The ISCST3 model is designed to calculate hourly concentrations based on hourly meteorological data (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The ISCST3 model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights. These areas are referred to as simple terrain. The model can also be applied in areas where the terrain exceeds the stack heights. These areas are referred to as complex terrain.

In this analysis, the EPA regulatory default options were used to predict all maximum impacts. The ISCST3 model can run in the rural or urban land use mode which affects stability dispersion coefficients, wind speed profiles, and mixing heights. Land use can be characterized based on a scheme recommended by EPA (Auer, 1978). If more than 50 percent land use within a 3-km radius around a project is classified as industrial or commercial, or high-density residential, then the urban option should be selected. Otherwise, the rural option is appropriate. Based on the land-use within a 3-km radius of the proposed plant site (see Figure 1-1), the rural dispersion coefficients were used in the modeling analysis.

The ISCST3 model was used to provide maximum concentrations for the annual and 24-, 8-, 3-, and 1-hour averaging times. A generic emission rate of 10 grams per second (g/s) was used as emissions for the proposed source. Maximum pollutant-specific air impacts were determined by multiplying the maximum pollutant-specific emission rate in pounds per hour (lb/hr) to the maximum predicted generic impact divided by 79.365 lb/hr (10 g/s).

6.3.3 METEOROLOGICAL DATA

Meteorological data used in the ISCST3 model to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at the Orlando International Airport in Orlando, Florida, and at Ruskin, Florida, respectively. The 5-year period of meteorological data was from 1987 through 1991. The NWS station at Orlando is located approximately 48 km (30 miles) to the west of the proposed plant site while the NWS station at Ruskin is located approximately 180 km (110 miles) west-southwest of the proposed plant site. The surface meteorological data from Orlando are assumed to be representative of the project site because both the project site and the weather station are located in similar topographical areas and are situated in central Florida to experience similar weather conditions, such as frontal passages.

6.3.4 EMISSION INVENTORY

A summary of the criteria pollutant emission rates, physical stack and stack operating parameters for the proposed CTs used in the air modeling analysis is presented in Tables 2-1 through 2-6. The emission and stack operating parameters presented for 32°F and 95°F ambient temperatures for both natural gas and distillate fuel oil were used in the modeling to determine the maximum air quality impacts for a range of possible operating conditions.

Six modeling scenarios per fuel type were considered:

1. base operating load for the ambient temperature of 32°F;
2. base operating load for the ambient temperature of 95°F;
3. 75 percent operating load for the ambient temperature of 32°F;
4. 75 percent operating load for the ambient temperature of 95°F;
5. 50 percent operating load for the ambient temperature of 32°F; and
6. 50 percent operating load for the ambient temperature of 95°F.

The proposed CTs will have a stack height of 60 feet and an inner stack diameter of 22 ft.

6.3.5 RECEPTOR LOCATIONS

For predicting maximum concentrations in the vicinity of the plant, a polar receptor grid comprised of 578 grid receptors was used. These receptors included 36 receptors located on radials extending out from the proposed CTs' stack locations. Along each radial, receptors were located at the plant property and distances of 0.1, 0.2, 0.3, 0.5, 0.7, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 7.0, 10.0, 12.0, and 15.0 km from the center of the proposed CT stack locations. However, concentrations were predicted only at receptors located off plant property that would be considered ambient air locations. As a result, because the proposed plant property extends out for a minimum distance of about 80 to 90 m in several directions to more than 200 m for other directions, there were directions for which receptors were not modeled at certain distances (e.g., 200 m) which would not be considered ambient air locations.

Modeling refinements were performed, as needed, by employing a polar receptor grid with a maximum spacing of 100 m along each radial and an angular spacing between radials of 2 degrees.

Since the terrain surrounding the proposed plant site varies little from the stack base elevation of 25 ft above MSL, the terrain was assumed to be flat and receptor elevations were set equal to the stack base elevation.

6.3.6 BUILDING DOWNWASH EFFECTS

The only significant structures in the vicinity of the proposed CT stacks are the proposed CT air filter inlets, CT structure, fuel oil storage tank, and demineralizer water tanks. The height and widths of these structures are as follows:

Structure	Height (ft)	Width (ft)	Length (ft)
CT air inlet	47	24	36
CT structure	22	30	42
Fuel oil tanks	50	100 (diameter)	Not applicable
Demin. water tank	50	100 (diameter)	Not applicable

Building dimensions for the project's structures were entered into the EPA's Building Profile Input Program (BPIP, Version 95086) for the purpose of obtaining direction-specific building heights and widths for all downwash-affected sources. The direction-specific building dimensions were then input to the ISCST3 model as the building height and width for each of 36 ten-degree wind sectors. A summary of the direction-specific building dimensions used in the modeling is presented in Appendix C.

6.4 AIR MODELING RESULTS

The modeling analysis results for the proposed CT alone in the vicinity of the plant are summarized in Tables 6-2 through 6-5. The maximum pollutant concentrations predicted in the screening analysis for a single "F" Class CT and five "F" Class CTs firing natural gas are presented in Tables 6-2 and 6-3, respectively. Similarly, the maximum pollutant concentrations predicted for one and five CTs firing distillate fuel oil are presented in Tables 6-4 and 6-5, respectively. A summary of the maximum pollutant concentrations predicted in the refined analysis for the Project is given in Table 6-6.

As shown in Table 6-6, the maximum predicted PM, SO_2, NO_x, and CO impacts due to the proposed CTs are all below the significant impact levels. Because the proposed source will not have a significant impact upon the air quality in the vicinity of the plant site, more detailed modeling analyses for determining compliance with the AAQS and PSD Class II increments are not required.

The maximum predicted PM, SO_2, NO_x, and CO impacts due to the proposed CTs are also below the *de minimis* monitoring levels. Because the proposed source will not have predicted impacts greater than *de minimis* levels, preconstruction monitoring data are not required to be submitted as part of the PSD review.

A summary of the model results for each year is presented in Appendix D. An example of the model input file is also provided in Appendix D.

Table 6-1. Major Features of the ISCST3 Model

ISCST3 Model Features
• Polar or Cartesian coordinate systems for receptor locations
• Rural or one of three urban options which affect wind speed profile exponent, dispersion rates, and mixing height calculations
• Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1972, and 1975; Bowers, et al., 1979).
• Procedures suggested by Huber and Snyder (1976); Huber (1977); and Schulman and Scire (1980) for evaluating building wake effects
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
• Separation of multiple emission sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume, area, and open pit sources
• Capability to calculate dry and wet deposition, including both gaseous and particulate precipitation scavenging for wet deposition
• Variation of wind speed with height (wind speed-profile exponent law)
• Concentration estimates for 1-hour to annual average times
• Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm for ISCST3; a built-in algorithm for predicting concentrations in complex terrain
• Consideration of time-dependent exponential decay of pollutants
• The method of Pasquill (1976) to account for buoyancy-induced dispersion
• A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
• Procedure for calm-wind processing including setting wind speeds less than 1 m/s to 1 m/s.

Note: ISCST3 = Industrial Source Complex Short-Term.
Source: EPA, 1995.

Table 6-2. Maximum Predicted Pollutant Concentrations For One Simple-Cycle Combustion Turbine- Screening Analysis
Class F Combustion Turbine, Natural Gas- Fired

	Maximum Emission Rates (lb/hr) by Operating Load and Air Temperature							Maximum Predicted Concentrations (ug/m^3) by Operating Load and Air Temperature (1)					
	Base Load		75% Load		50% Load		Averaging	Base Load		75% Load		50% Load	
Pollutant	32 °F	95 °F	32 °F	95 °F	32 °F	95 °F	Time	32 °F	95 °F	32 °F	95 °F	32 °F	95 °F
Generic (10 g/s)	79.37	79.37	79.37	79.37	79.37	79.37	Annual	0.012	0.012	0.013	0.015	0.017	0.018
							24-Hour	0.167	0.175	0.189	0.201	0.233	0.243
							8-Hour	0.441	0.462	0.497	0.529	0.602	0.626
							3-Hour	0.799	0.840	1.122	1.141	1.260	1.271
							1-Hour	1.757	1.889	2.071	2.265	2.679	2.917
SO_2	1.1	1.0	0.9	0.8	0.7	0.6	Annual	0.00017	0.00016	0.00015	0.00015	0.00015	0.00013
							24-Hour	0.0023	0.0024	0.0021	0.0020	0.0021	0.0018
							3-Hour	0.011	0.012	0.013	0.012	0.011	0.010
NO_x	64.9	58.7	53.9	48.2	48.8	43.5	Annual	0.010	0.009	0.009	0.009	0.011	0.010
PM10	9.0	9.0	9.0	9.0	9.0	9.0	Annual	0.0014	0.0014	0.0015	0.0016	0.0019	0.0020
							24-Hour	0.019	0.020	0.021	0.023	0.026	0.028
CO	70.1	63.4	57.4	54.5	52.7	47.0	8-Hour	0.4	0.4	0.4	0.4	0.4	0.4
							1-Hour	1.6	1.5	1.5	1.6	1.8	1.7

(1) Concentrations are based on highest predicted concentrations using five years of meteorological for 1987 to 1991 of surface and upper air data from the National Weather Service stations in Orlando and Ruskin, respectively.

Pollutant concentrations were based on a modeled or generic concentration predicted using a modeled emission rate of 79.37 lb/hr (10 g/s).
Specific pollutant concentrations were estimated by multiplying the modeled concentration (at 10 g/s) by the ratio of the specific pollutant emission rate to the modeled emission rate of 10 g/s.

Table 6-3. Maximum Pollutant Concentrations Predicted for 5 Simple-Cycle Combustion Turbines (Natural Gas-Fired) Compared to EPA Significant Impact and Deminimis Monitoring Levels- Screening Analysis

Pollutant	Averaging Time	Maximum Predicted Concentrations (ug/m^3) by Operating Load and Air Temperature (1)						EPA Significant Impact Levels (ug/m^3)	EPA Deminimis Levels (ug/m^3)
		Base Load		75% Load		50% Load			
		32 °F	95 °F	32 °F	95 °F	32 °F	95 °F		
SO_2	Annual	0.00085	0.00078	0.00076	0.00073	0.00075	0.00067	1	NA
	24-Hour	0.0116	0.0121	0.0107	0.0102	0.0103	0.0092	5	13
	3-Hour	0.055	0.058	0.064	0.058	0.056	0.048	25	NA
NO_x	Annual	0.050	0.046	0.046	0.044	0.053	0.049	1	14
PM10	Annual	0.0070	0.0070	0.0076	0.0082	0.0097	0.0101	1	NA
	24-Hour	0.095	0.099	0.107	0.114	0.132	0.138	5	10
CO	8-Hour	1.9	1.8	1.8	1.8	2.0	1.9	500	575
	1-Hour	7.8	7.5	7.5	7.8	8.9	8.6	2,000	NA

(1) Concentrations are based on highest predicted concentrations using five years of meteorological for 1987 to 1991 of surface and upper air data from the National Weather Service stations in Orlando and Ruskin, respectively.

Table 6-4. Maximum Predicted Pollutant Concentrations For One Simple-Cycle Combustion Turbine- Screening Analysis
Class F Combustion Turbine, Distillate Fuel Oil- Fired

	Maximum Emission Rates (lb/hr) by Operating Load and Air Temperature							Maximum Predicted Concentrations (ug/m^3) by Operating Load and Air Temperature (1)					
	Base Load		75% Load		50% Load		Averaging	Base Load		75% Load		50% Load	
Pollutant	32 °F	95 °F	32 °F	95 °F	32 °F	95 °F	Time	32 °F	95 °F	32 °F	95 °F	32 °F	95 °F
Generic	79.37	79.37	79.37	79.37	79.37	79.37	Annual	0.012	0.012	0.013	0.014	0.017	0.018
(10 g/s)							24-Hour	0.168	0.170	0.185	0.198	0.233	0.244
							8-Hour	0.445	0.449	0.488	0.519	0.603	0.626
							3-Hour	0.807	0.814	1.117	1.135	1.261	1.272
							1-Hour	1.759	1.767	2.034	2.194	2.681	2.793
SO_2	103.8	98	90.1	78	67.2	59	Annual	0.016	0.015	0.015	0.014	0.015	0.013
							24-Hour	0.22	0.22	0.21	0.19	0.20	0.18
							3-Hour	1.1	1.1	1.3	1.1	1.1	0.9
NO_x	344.1	327.7	297.4	263.5	274.1	242.9	Annual	0.053	0.051	0.049	0.047	0.059	0.055
PM10	44	44	44	44	44	44	Annual	0.0068	0.0068	0.0073	0.0079	0.0095	0.0099
							24-Hour	0.093	0.094	0.103	0.110	0.129	0.135
CO	99.5	96.1	85.7	78.8	79.3	71.2	8-Hour	0.56	0.54	0.53	0.52	0.60	0.56
							1-Hour	2.2	2.1	2.2	2.2	2.7	2.5

(1) Concentrations are based on highest predicted concentrations using five years of meteorological for 1987 to 1991 of surface and upper air data from the National Weather Service stations in Orlando and Ruskin, respectively.

Pollutant concentrations were based on a modeled or generic concentration predicted using a modeled emission rate of 79.37 lb/hr (10 g/s).
Specific pollutant concentrations were estimated by multiplying the modeled concentration (at 10 g/s) by the ratio of the specific pollutant emission rate to the modeled emission rate of 10 g/s.

Table 6-5. Maximum Pollutant Concentrations Predicted for 5 Simple-Cycle Combustion Turbines (Distillate Fuel Oil-Fired) Compared to EPA Significant Impact and Deminimis Monitoring Levels- Screening Analysis

Pollutant	Averaging Time	Maximum Predicted Concentrations (ug/m^3) by Operating Load and Air Temperature (1)						EPA Significant Impact Levels (ug/m^3)	EPA Deminimis Levels (ug/m^3)
		Base Load		75% Load		50% Load			
		32 °F	95 °F	32 °F	95 °F	32 °F	95 °F		
SO_2	Annual	0.081	0.076	0.075	0.070	0.073	0.067	1	NA
	24-Hour	1.10	1.11	1.05	0.97	0.99	0.91	5	13
	3-Hour	5.3	5.3	6.3	5.6	5.3	4.7	25	NA
NO_x	Annual	0.267	0.255	0.247	0.235	0.297	0.274	1	14
PM10	Annual	0.0342	0.0342	0.0366	0.0393	0.0476	0.0496	1	NA
	24-Hour	0.467	0.471	0.513	0.548	0.647	0.675	5	10
CO	8-Hour	2.79	2.72	2.63	2.58	3.01	2.81	500	575
	1-Hour	11.0	10.7	11.0	10.9	13.4	12.5	2,000	NA

(1) Concentrations are based on highest predicted concentrations using five years of meteorological for 1987 to 1991 of surface and upper air data from the National Weather Service stations in Orlando and Ruskin, respectively.

Table 6-6. Summary of Maximum Pollutant Concentrations Predicted for 5 Simple-Cycle Combustion Turbines Compared to EPA Significant Impact and Deminimis Monitoring Levels- Refined Analysis

Pollutant	Averaging Time	Maximum Predicted Concentrations (ug/m^3) Natural Gas-Fired	Oil-Fired	EPA Significant Impact Levels (ug/m^3)	EPA Deminimis Levels (ug/m^3)
SO_2	Annual	0.00085 (1)	0.081 (1)	1	NA
	24-Hour	0.012 (2)	1.1 (2)	5	13
	3-Hour	0.064 (3)	6.8 (3)(6)	25	NA
NO_x	Annual	0.053 (4)	0.30 (4)(6)	1	14
PM10	Annual	0.010 (5)	0.050 (5)	1	NA
	24-Hour	0.14 (5)	0.81 (5)(6)	5	10
CO	8-Hour	2.0 (4)	3.0 (4)	500	575
	1-Hour	8.9 (4)	13.4 (5)	2,000	NA

(1) Based on operating conditions at base load and ambient temperature of 32 °F.
(2) Based on operating conditions at base load and ambient temperature of 95 °F.
(3) Based on operating conditions at 75 percent load and ambient temperature of 32 °F.
(4) Based on operating conditions at 50 percent load and ambient temperature of 32 °F.
(5) Based on operating conditions at 50 percent load and ambient temperature of 95 °F.
(6) Refined concentration

7.0 ADDITIONAL IMPACT ANALYSIS

7.1 IMPACTS DUE TO DIRECT GROWTH

The proposed Oleander Power Plant Project is being constructed to meet current electric demands. Additional growth as a direct result of the additional electric power provided by the project is not expected. The project will be constructed and operated with minimum labor and associated facilities and is not expected to significantly affect growth in the area. As a result, air pollution impacts from additional growth are not anticipated.

7.2 IMPACT ON SOILS, VEGETATION AND WILDLIFE

Because the proposed project's impacts on the local air quality are predicted to be less than the significant impact levels for PSD Class II areas, the project's impacts on soils, vegetation, and wildlife are also not expected to be significant.

7.3 IMPACTS UPON PSD CLASS I AREAS

The proposed project is located more than 150 km from any PSD Class I area. The nearest Class I area to the project site is the Chassahowitzka NWA, located about 180 km from the project. Based on discussions with the Florida DEP, an air quality impact evaluation would not required for this project since the project's impacts are not expected to be significant at the distances of the Class I areas. Because the proposed CTs will be fired primarily with natural gas, a clean fuel, it is expected that the project's impacts for SO_2, NO_2, and PM10 will be minimal and not significantly affect or impair visibility or soils and vegetation at the Class I areas.

APPENDIX A

EXPECTED PERFORMANCE AND EMISSION INFORMATION ON "F" CLASS COMBUSTION TURBINE

(Note: SO_2 based on 0.2 gr/100 cf of H_2S. Actual total sulfur based on 1 gr/100 cf to account for odorant (mercaptans) in pipeline gas.)

Oleander Power Project
Brevard County, Florida

			"F" Class GT Gas – Fired Base Load			"F" Class GT Oil – Fired Base Load		
No. of Gas Turbines:	5							
Per Unit (unless otherwise noted)		Units						
Ambient Conditions								
Atmospheric Pressure	25 ft. ASL	psia	14.68	14.68	14.68	14.68	14.68	14.68
Ambient Dry Bulb		°F	32	59	95	32	59	95
Ambient Relative Humidity		percent	80	60	45	80	60	45
Case/Run Identification								
Fuel		– – –	Natural Gas	Natural Gas	Natural Gas	Distillate Oil	Distillate Oil	Distillate Oil
NO_X Control Technology		– – –	Dry Low NO_X	Dry Low NO_X	Dry Low NO_X	Water Injection	Water Injection	Water Injection
Nominal Load		percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Maximum Operation (on stated fuel)		hours/year	3,390	3,390	3,390	2,000	2,000	2,000
Performance Summary – Per Unit (GTPro Runs)								
Gas Turbine Gross		kw	197,692	189,331	171,113	197,695	197,701	184,144
Parasitic Power		kw	2,529	2,462	2,317	2,529	2,529	2,421
Net Power		kw	195,163	186,869	168,797	195,166	195,171	181,722
Net Heat Rate		Btu/kwh (LHV)	9,121	9,214	9,489	9,875	9,831	10,005
Fuel Use		MMBtu/hr (LHV)	1,780	1,722	1,602	1,927	1,919	1,818
GT Exhaust (stack)		klb/hr	3,870	3,796	3,556	3,800	3,863	3,702
GT Exhaust (stack)		°F	1,109	1,115	1,138	1,114	1,109	1,123
Evap. Cooler Evaporation		klb/hr	0.0	5.4	12.2	0.0	5.3	12.2
Water Injection (oil – fired runs only)		klb/hr	0.0	0.0	0.0	134.8	129.5	120.9
Load (relative to base on specified fuel)		percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Performance Summary – All Units								
Net Power		kw	975,813	934,345	843,984	975,829	975,856	908,612
Net Heat Rate		Btu/kwh (LHV)	9,121	9,214	9,489	9,875	9,831	10,005
Plant Fuel Use		MMBtu/hr (LHV)	8,900	8,609	8,009	9,637	9,593	9,091
Exhaust Analysis (GTPro Runs)								
Nitrogen & Argon		pct volume (wet)	75.6%	75.1%	73.8%	72.0%	71.8%	70.6%
Oxygen		pct volume (wet)	12.4%	12.4%	12.1%	10.6%	10.7%	10.5%
Carbon Dioxide		pct volume (wet)	3.9%	3.8%	3.7%	5.7%	5.6%	5.5%
Water		pct volume (wet)	8.1%	8.7%	10.4%	11.8%	11.9%	13.3%
Total		pct volume (wet)	100.0%	100.0%	100.0%	100.1%	100.0%	99.9%
Calculated Parameters								
Exhaust (Stack)								
Molecular Weight		– – –	28.42	28.35	28.16	28.3	28.24	28.06
Gas Constant, R	1,543.32 Ru	(ft•lb)/(lbm•°R)	54.30	54.43	54.80	54.53	54.65	55.00
Specific Volume		ft3/lb	40.28	40.54	41.41	40.59	40.55	41.17
Volumetric Flow		acfm	2,598,416	2,565,050	2,453,908	2,570,379	2,610,318	2,540,376
Stack Diameter	22.00 assumed	ft	22.00	22.00	22.00	22.00	22.00	22.00
Velocity	116.7 target	ft/sec	113.9	112.5	107.6	112.7	114.4	111.4
Exhaust – Other Bases	Mol. Wt.							
Nitrogen & Argon	28.161	pct weight (wet)	74.9%	74.6%	73.8%	71.6%	71.6%	70.9%
Oxygen	31.999	pct weight (wet)	14.0%	14.0%	13.7%	12.0%	12.1%	12.0%
Carbon Dioxide	44.010	pct weight (wet)	6.0%	5.9%	5.8%	8.9%	8.7%	8.6%
Water	18.015	pct weight (wet)	5.1%	5.5%	6.7%	7.5%	7.6%	8.5%
Total		pct weight (wet)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Nitrogen & Argon		pct volume (dry)	82.3%	82.3%	82.3%	81.5%	81.5%	81.5%
Oxygen		pct volume (dry)	13.5%	13.6%	13.5%	12.0%	12.1%	12.1%
Carbon Dioxide		pct volume (dry)	4.2%	4.2%	4.2%	6.5%	6.3%	6.3%
Water		pct volume (dry)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total		pct volume (dry)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Miscellaneous Emission – Related Parameters								
Fuel Heating Value		Btu/lb (LHV)	21,508	21,508	21,508	18,560	18,560	18,560
Fuel (per unit)		lb/hr	82,762	80,054	74,472	103,842	103,377	97,959
Water:Fuel Ratio		lb water/lb fuel	0.00	0.00	0.00	1.30	1.25	1.23
SO_X as SO_2	0.000013 0.001000	lb SO_2/lb fuel	0.000013	0.000013	0.000013	0.001000	0.001000	0.001000
SO_X as SO_2		lb/hr	1.1	1.1	1.0	103.8	103.4	98.0
O_2 Correction (dry vol)	15.0% Basis	– – –	0.7987	0.8077	0.7985	0.6650	0.6760	0.6744
Assumed Emission Guarantees (except SO_X) – Per Unit								
NO_X as NO_2		ppmvd @ 15% O_2	9.0	9.0	9.0	42.0	42.0	42.0
CO		ppmvd @ 15% O_2	16.0	16.2	16.0	20.0	20.3	20.2
SO_X as SO_2		ppmvd @ 15% O_2	0.1	0.1	0.1	9.1	9.0	9.0
TUHC as CH_4		ppmvd @ 15% O_2	NA	NA	NA	NA	NA	NA
VOC as CH_4		ppmvd @ 15% O_2	3.2	3.2	3.2	5.3	5.4	5.4
Particulate (PM10) – – Dry Filterables ONLY		lb/hr	9.0	9.0	9.0	44.0	44.0	44.0
Ammonia Slip	NA	ppmvd @ 15% O_2	NA	NA	NA	NA	NA	NA
Calculated Emission Rates – Per Unit								
NO_X as NO_2	46.0055	lb/hr	64.9	62.7	58.7	344.1	344.4	327.7
CO	28.0106	lb/hr	70.1	68.5	63.4	99.5	101.3	96.1
SO_X as SO_2	64.0828	lb/hr	1.1	1.1	1.0	103.8	103.4	98.0
TUHC as CH_4	16.0430	lb/hr	NA	NA	NA	NA	NA	NA
VOC as CH_4	16.0430	lb/hr	8.0	7.8	7.3	15.1	15.4	14.8
Particulate (PM10) – – Dry Filterables ONLY		lb/hr	9.0	9.0	9.0	44.0	44.0	44.0
Ammonia Slip	17.0300	lb/hr	NA	NA	NA	NA	NA	NA
Annualized Emission Rates – Per Unit								
NO_X as NO_2		tons/year	109.9	106.2	99.4	344.1	344.4	327.7
CO		tons/year	118.8	116.1	107.4	99.5	101.3	96.1
SO_X as SO_2		tons/year	1.9	1.8	1.7	103.8	103.4	98.0
TUHC as CH_4		tons/year	NA	NA	NA	NA	NA	NA
VOC as CH_4		tons/year	13.6	13.3	12.3	15.1	15.4	14.8
Particulate (PM10) – – Dry Filterables ONLY		tons/year	15.3	15.3	15.3	44.0	44.0	44.0
Ammonia Slip		tons/year	NA	NA	NA	NA	NA	NA

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			"F" Class GT Gas – Fired 75% Load			"F" Class GT Oil – Fired 75% Load		
No. of Gas Turbines:	5							
Per Unit (unless otherwise noted)		Units						
Ambient Conditions								
Atmospheric Pressure	25 ft. ASL	psia	14.68	14.68	14.68	14.68	14.68	14.68
Ambient Dry Bulb		°F	32	59	95	32	59	95
Ambient Relative Humidity		percent	80	60	45	80	60	45
Case/Run Identification								
Fuel		– – –	Natural Gas	Natural Gas	Natural Gas	Distillate Oil	Distillate Oil	Distillate Oil
NO_X Control Technology		– – –	Dry Low NO_X	Dry Low NO_X	Dry Low NO_X	Water Injection	Water Injection	Water Injection
Nominal Load		percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Maximum Operation (on stated fuel)		hours/year	3,390	3,390	3,390	2,000	2,000	2,000
Performance Summary – Per Unit (GTPro Runs)								
Gas Turbine Gross		kw	152,824	138,912	121,192	160,923	146,847	129,051
Parasitic Power		kw	2,170	2,059	1,917	2,234	2,122	1,981
Net Power		kw	150,654	136,853	119,275	158,688	144,725	127,070
Net Heat Rate		Btu/kwh (LHV)	9,942	10,266	10,738	10,541	10,880	11,388
Fuel Use		MMBtu/hr (LHV)	1,498	1,405	1,281	1,673	1,575	1,447
GT Exhaust (stack)		klb/hr	3,213	3,084	2,924	3,284	3,151	2,977
GT Exhaust (stack)		°F	1,173	1,186	1,190	1,166	1,179	1,190
Evap. Cooler Evaporation		klb/hr	0.0	0.0	0.0	0.0	0.0	0.0
Water Injection (oil – fired runs only)		klb/hr	0.0	0.0	0.0	110.2	105.9	100.6
Load (relative to base on specified fuel)		percent	77.3%	73.4%	70.8%	81.4%	74.3%	70.1%
Performance Summary – All Units								
Net Power		kw	753,269	684,265	596,375	793,442	723,625	635,350
Net Heat Rate		Btu/kwh (LHV)	9,942	10,266	10,738	10,541	10,880	11,388
Plant Fuel Use		MMBtu/hr (LHV)	7,489	7,025	6,404	8,363	7,873	7,235
Exhaust Analysis (GTPro Runs)								
Nitrogen & Argon		pct volume (wet)	75.6%	75.1%	73.8%	72.0%	71.8%	70.6%
Oxygen		pct volume (wet)	12.4%	12.4%	12.1%	10.6%	10.7%	10.5%
Carbon Dioxide		pct volume (wet)	3.9%	3.8%	3.7%	5.7%	5.6%	5.5%
Water		pct volume (wet)	8.1%	8.7%	10.4%	11.8%	11.9%	13.3%
Total		pct volume (wet)	100.0%	100.0%	100.0%	100.1%	100.0%	99.9%
Calculated Parameters								
Exhaust (Stack)								
Molecular Weight		– – –	28.42	28.35	28.16	28.3	28.24	28.06
Gas Constant, R	1,543.32 Ru	(ft•lb)/(lbm•°R)	54.30	54.43	54.80	54.53	54.85	55.00
Specific Volume		ft3/lb	41.93	42.37	42.76	41.93	42.36	42.91
Volumetric Flow		acfm	2,245,341	2,177,507	2,083,903	2,294,891	2,224,495	2,129,050
Stack Diameter	22.00 assumed	ft	22.00	22.00	22.00	22.00	22.00	22.00
Velocity	116.7 target	ft/sec	98.4	95.5	91.4	100.8	97.5	93.3
Exhaust – Other Bases	Mol. Wt.							
Nitrogen & Argon	28.161	pct *weight* (wet)	74.9%	74.6%	73.8%	71.6%	71.6%	70.9%
Oxygen	31.999	pct weight (wet)	14.0%	14.0%	13.7%	12.0%	12.1%	12.0%
Carbon Dioxide	44.010	pct weight (wet)	6.0%	5.9%	5.8%	8.9%	8.7%	8.6%
Water	18.015	pct weight (wet)	5.1%	5.5%	6.7%	7.5%	7.6%	8.5%
Total		pct weight (wet)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Nitrogen & Argon		pct volume (dry)	82.3%	82.3%	82.3%	81.5%	81.5%	81.5%
Oxygen		pct volume (dry)	13.5%	13.6%	13.5%	12.0%	12.1%	12.1%
Carbon Dioxide		pct volume (dry)	4.2%	4.2%	4.2%	6.5%	6.3%	6.3%
Water		pct volume (dry)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total		pct volume (dry)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Miscellaneous Emission – Related Parameters								
Fuel Heating Value		Btu/lb (LHV)	21,508	21,508	21,508	18,560	18,560	18,560
Fuel (per unit)		lb/hr	69,636	65,323	59,546	90,122	84,840	77,967
Water:Fuel Ratio		lb water/lb fuel	0.00	0.00	0.00	1.22	1.25	1.29
SO_X as SO_2	0.000013 0.001000	lb SO_2/lb fuel	0.000013	0.000013	0.000013	0.001000	0.001000	0.001000
SO_X as SO_2		lb/hr	0.9	0.9	0.8	90.1	84.8	78.0
O_2 Correction (dry vol)	15.0% Basis	– – –	0.7987	0.8077	0.7985	0.6650	0.6760	0.6744
Assumed Emission Guarantees (except SO_X) – Per Unit								
NO_X as NO_2		ppmvd @ 15% O_2	9.0	9.0	9.0	42.0	42.0	42.0
CO		ppmvd @ 15% O_2	15.8	16.1	16.7	19.9	20.2	20.6
SO_X as SO_2		ppmvd @ 15% O_2	0.1	0.1	0.1	9.1	9.1	8.9
TUHC as CH_4		ppmvd @ 15% O_2	NA	NA	NA	NA	NA	NA
VOC as CH_4		ppmvd @ 15% O_2	3.2	3.2	3.3	5.2	5.4	5.5
Particulate (PM10) – – Dry Filterables ONLY		lb/hr	9.0	9.0	9.0	44.0	44.0	44.0
Ammonia Slip	NA	ppmvd @ 15% O_2	NA	NA	NA	NA	NA	NA
Calculated Emission Rates – Per Unit								
NO_X as NO_2	46.0055	lb/hr	53.9	50.9	48.2	297.4	281.0	263.5
CO	28.0106	lb/hr	57.4	55.4	54.5	85.7	82.4	78.8
SO_X as SO_2	64.0828	lb/hr	0.9	0.9	0.8	90.1	84.8	78.0
TUHC as CH_4	16.0430	lb/hr	NA	NA	NA	NA	NA	NA
VOC as CH_4	16.0430	lb/hr	6.6	6.3	6.2	12.9	12.5	12.1
Particulate (PM10) – – Dry Filterables ONLY		lb/hr	9.0	9.0	9.0	44.0	44.0	44.0
Ammonia Slip	17.0300	lb/hr	NA	NA	NA	NA	NA	NA
Annualized Emission Rates – Per Unit								
NO_X as NO_2		tons/year	91.3	86.3	81.8	297.4	281.0	263.5
CO		tons/year	97.3	93.9	92.3	85.7	82.4	78.8
SO_X as SO_2		tons/year	1.6	1.5	1.4	90.1	84.8	78.0
TUHC as CH_4		tons/year	NA	NA	NA	NA	NA	NA
VOC as CH_4		tons/year	11.1	10.8	10.6	12.9	12.5	12.1
Particulate (PM10) – – Dry Filterables ONLY		tons/year	15.3	15.3	15.3	44.0	44.0	44.0
Ammonia Slip		tons/year	NA	NA	NA	NA	NA	NA

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No. of Gas Turbines: 5 Per Unit (unless otherwise noted)	Units	"F" Class GT Gas – Fired 50% Load			"F" Class GT Oil – Fired 50% Load		
Ambient Conditions							
Atmospheric Pressure — 25 ft. ASL	psia	14.68	14.68	14.68	14.68	14.68	14.68
Ambient Dry Bulb	°F	32	59	95	32	59	95
Ambient Relative Humidity	percent	80	60	45	80	60	45
Case/Run Identification							
Fuel	---	Natural Gas	Natural Gas	Natural Gas	Distillate Oil	Distillate Oil	Distillate Oil
NO_X Control Technology	---	Dry Low NO_X	Dry Low NO_X	Dry Low NO_X	Water Injection	Water Injection	Water Injection
Nominal Load	percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Maximum Operation (on stated fuel)	hours/year	3,390	3,390	3,390	2,000	2,000	2,000
Performance Summary – Per Unit (GTPro Runs)							
Gas Turbine Gross	kw	101,890	92,617	80,806	106,530	97,212	85,356
Parasitic Power	kw	1,762	1,688	1,594	1,800	1,714	1,631
Net Power	kw	100,127	90,929	79,212	104,731	95,498	83,725
Net Heat Rate	Btu/kwh (LHV)	11,185	11,624	12,323	11,905	12,368	13,088
Fuel Use	MMBtu/hr (LHV)	1,120	1,057	976	1,247	1,181	1,096
GT Exhaust (stack)	klb/hr	2,910	2,804	2,638	3,027	2,918	2,743
GT Exhaust (stack)	°F	1,043	1,059	1,087	998	1,014	1,043
Evap. Cooler Evaporation	klb/hr	0.0	0.0	0.0	0.0	0.0	0.0
Water Injection (oil – fired runs only)	klb/hr	0.0	0.0	0.0	99.5	96.3	91.0
Load (relative to base on specified fuel)	percent	51.5%	48.9%	47.2%	53.9%	49.2%	46.4%
Performance Summary – All Units							
Net Power	kw	500,637	454,643	396,061	523,653	477,488	418,627
Net Heat Rate	Btu/kwh (LHV)	11,185	11,624	12,323	11,905	12,368	13,088
Plant Fuel Use	MMBtu/hr (LHV)	5,600	5,285	4,880	6,234	5,906	5,479
Exhaust Analysis (GTPro Runs)							
Nitrogen & Argon	pct volume (wet)	75.6%	75.1%	73.8%	72.0%	71.8%	70.6%
Oxygen	pct volume (wet)	12.4%	12.4%	12.1%	10.6%	10.7%	10.5%
Carbon Dioxide	pct volume (wet)	3.9%	3.8%	3.7%	5.7%	5.6%	5.5%
Water	pct volume (wet)	8.1%	8.7%	10.4%	11.8%	11.9%	13.3%
Total	pct volume (wet)	100.0%	100.0%	100.0%	100.1%	100.0%	99.9%
Calculated Parameters							
Exhaust (Stack)							
Molecular Weight	---	28.42	28.35	28.16	28.3	28.24	28.06
Gas Constant, R — 1,543.32 Ru	(ft•lb)/(lbm•°R)	54.30	54.43	54.80	54.53	54.65	55.00
Specific Volume	ft3/lb	38.59	39.10	40.09	37.60	38.09	39.09
Volumetric Flow	acfm	1,871,807	1,827,482	1,762,201	1,896,815	1,852,422	1,787,365
Stack Diameter — 22.00 assumed	ft	22.00	22.00	22.00	22.00	22.00	22.00
Velocity — 116.7 target	ft/sec	82.1	80.1	77.3	83.2	81.2	78.4
Exhaust – Other Bases — Mol. Wt.							
Nitrogen & Argon — 28.161	pct weight (wet)	74.9%	74.6%	73.8%	71.6%	71.6%	70.9%
Oxygen — 31.999	pct weight (wet)	14.0%	14.0%	13.7%	12.0%	12.1%	12.0%
Carbon Dioxide — 44.010	pct weight (wet)	6.0%	5.9%	5.8%	8.9%	8.7%	8.6%
Water — 18.015	pct weight (wet)	5.1%	5.5%	6.7%	7.5%	7.6%	8.5%
Total	pct weight (wet)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Nitrogen & Argon	pct volume (dry)	82.3%	82.3%	82.3%	81.5%	81.5%	81.5%
Oxygen	pct volume (dry)	13.5%	13.6%	13.5%	12.0%	12.1%	12.1%
Carbon Dioxide	pct volume (dry)	4.2%	4.2%	4.2%	6.5%	6.3%	6.3%
Water	pct volume (dry)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	pct volume (dry)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Miscellaneous Emission – Related Parameters							
Fuel Heating Value	Btu/lb (LHV)	21,508	21,508	21,508	18,560	18,560	18,560
Fuel (per unit)	lb/hr	52,070	49,141	45,383	67,176	63,638	59,040
Water:Fuel Ratio	lb water/lb fuel	0.00	0.00	0.00	1.48	1.51	1.54
SO_X as SO_2 — 0.000013 0.001000	lb SO_2/lb fuel	0.000013	0.000013	0.000013	0.001000	0.001000	0.001000
SO_X as SO_2	lb/hr	0.7	0.7	0.6	67.2	63.6	59.0
O_2 Correction (dry vol) — 15.0% Basis	---	0.7987	0.8077	0.7985	0.6650	0.6760	0.6744
Assumed Emission Guarantees (except SO_X) – Per Unit							
NO_X as NO_2	ppmvd @ 15% O_2	9.0	9.0	9.0	42.0	42.0	42.0
CO	ppmvd @ 15% O_2	16.0	16.2	16.0	20.0	20.3	20.2
SO_X as SO_2	ppmvd @ 15% O_2	0.1	0.1	0.1	7.4	7.4	7.3
TUHC as CH_4	ppmvd @ 15% O_2	NA	NA	NA	NA	NA	NA
VOC as CH_4	ppmvd @ 15% O_2	3.2	3.2	3.2	5.3	5.4	5.4
Particulate (PM10) – – Dry Filterables ONLY	lb/hr	9.0	9.0	9.0	44.0	44.0	44.0
Ammonia Slip — NA	ppmvd @ 15% O_2	NA	NA	NA	NA	NA	NA
Calculated Emission Rates – Per Unit							
NO_X as NO_2 — 46.0055	lb/hr	48.8	46.3	43.5	274.1	260.2	242.9
CO — 28.0106	lb/hr	52.7	50.6	47.0	79.3	76.5	71.2
SO_X as SO_2 — 64.0828	lb/hr	0.7	0.7	0.6	67.2	63.6	59.0
TUHC as CH_4 — 16.0430	lb/hr	NA	NA	NA	NA	NA	NA
VOC as CH_4 — 16.0430	lb/hr	6.0	5.8	5.4	12.0	11.6	11.0
Particulate (PM10) – – Dry Filterables ONLY	lb/hr	9.0	9.0	9.0	44.0	44.0	44.0
Ammonia Slip — 17.0300	lb/hr	NA	NA	NA	NA	NA	NA
Annualized Emission Rates – Per Unit							
NO_X as NO_2	tons/year	82.7	78.5	73.8	274.1	260.2	242.9
CO	tons/year	89.3	85.7	79.7	79.3	76.5	71.2
SO_X as SO_2	tons/year	1.2	1.1	1.0	67.2	63.6	59.0
TUHC as CH_4	tons/year	NA	NA	NA	NA	NA	NA
VOC as CH_4	tons/year	10.2	9.8	9.1	12.0	11.6	11.0
Particulate (PM10) – – Dry Filterables ONLY	tons/year	15.3	15.3	15.3	44.0	44.0	44.0
Ammonia Slip	tons/year	NA	NA	NA	NA	NA	NA

APPENDIX B

BEST AVAILABLE CONTROL TECHNOLOGY FOR THE PROPOSED COMBUSTION TURBINES

B.1 NEW SOURCE PERFORMANCE STANDARDS

The NSPS regulations (40 CFR, Subpart GG) applicable to gas turbines apply to:

1. Electric utility stationary gas turbines with a heat input at peak load of greater than 100 x 10^6 Btu/hr [40 CFR 60.332 (b)];
2. Stationary gas turbines with a heat input at peak load between 10 and 100 x 10^6 Btu/hr [40 CFR 60.332 (c)]; or
3. Stationary gas turbines with a manufacturer's rate base load at ISO conditions of 30 MW or less [40 CFR 60.332 (d)].

The electric utility stationary gas turbine provisions apply to stationary gas turbines constructed for the purpose of supplying more than one-third of their potential electric output capacity for sale to any utility power distribution system [40 CFR 60.331 (q)]. The requirements for electric utility stationary gas turbines are applicable to the proposed "F" Class project and are the most stringent provision of the NSPS. These requirements are summarized in Table B-1 and were considered in the BACT analysis.

As noted from Table B-1, the NSPS NO_x emission limit can be adjusted upward to allow for fuel-bound nitrogen (FBN). For a fuel-bound nitrogen concentration of 0.015 percent or less, no increase in the NSPS is provided; for a fuel-bound nitrogen concentration of 0.03 percent, the NSPS is increased by 0.0012 percent or 12 parts per million (ppm).

B.2 BEST AVAILABLE CONTROL TECHNOLOGY

B.2.1 NITROGEN OXIDES

Advanced dry low-NO_x combustion alone has increasingly been approved by regulatory agencies as BACT and is technically feasible for the proposed project. Available information suggests that SCR with dry low-NO_x combustor technology or with wet injection is also technically feasible. For the "F" Class Project, advanced dry low-NO_x combustor technology is equivalent to the SCR technology and has several important advantages.

B.2.1.1 Identification of NO_x Control Technologies

NO_x emissions from combustion of fossil fuels consist of thermal NO_x and fuel-bound NO_x. Thermal NO_x is formed from the reaction of oxygen and nitrogen in the combustion air at combustion temperatures. Formation of thermal NO_x depends on the flame temperature, residence time, combustion pressure, and air-to-fuel ratios in the primary combustion zone. The design and operation of the combustion chamber dictates these conditions. Fuel-bound NO_x is created by the oxidation of volatilized nitrogen in the fuel. Nitrogen content in the fuel is the primary factor in its formation.

Table B-2 presents a listing of the lowest achievable emission rates/best available control technology (LAER/BACT) decisions made by state environmental agencies and EPA regional offices for gas turbines. This table was developed from the information obtained from BACT/LAER Information System (BLIS) database maintained at EPA's National Computer Center located at Research Triangle Park, North Carolina, (e.g., the California Air Control Board, the South Coast Air Quality Management District, the New Jersey Department of Environmental Protection, and the Rhode Island Department of Environmental Management).

Historically, the most stringent NO_x controls for CTs established as LAER/BACT by state agencies were selective catalytic reduction (SCR) with wet injection and wet injection alone. When SCR has been employed, wet injection is used initially to reduce NO_x emissions. However, advanced dry low-NO_x technology has only recently been developed and made available for gas turbines. SCR is a post-combustion control, while advanced dry low-NO_x combustors minimize the formation of NO_x in the combustion process.

SCR has been installed or permitted in over 100 projects. The majority of these projects (more than 90 percent) are cogeneration facilities with capacities of 50 MW or less. About 80 percent of the projects have been in California. Of these 109 projects that have either installed SCR or have been permitted with SCR, about 40 percent have been in the Southern California NO_2 nonattainment area where SCR was required not as BACT but as LAER, a more stringent requirement. LAER is distinctly different from BACT in that there is no consideration of economic, energy, or environmental impacts; if a control technology has previously been installed, it must be required as LAER. LAER is defined as follows:

> Lowest achievable emission rate means, for any source, the more stringent rate of emissions based on the following: (i) The most stringent emissions limitation which is contained in the implementation plan of any State of such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or (ii) The most stringent emissions limitation which is achieved in practice by such class or category of stationary source. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new

modified stationary source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance (40 CFR 51, Appendix S.II, A.18).

As noted previously, there are distinct regulatory and policy differences between LAER and BACT. BACT involves an evaluation of the economic, environmental, and energy impacts of alternative control technologies. In contrast, LAER only considers the technical aspects of control.

All the projects in California have natural gas as the primary fuel; only 15 of the SCR applications have distillate fuel as backup. The remaining projects with SCR (i.e., about 25 projects) are located in the eastern United States: Vermont, Massachusetts, Connecticut, New Jersey, New York, Rhode Island, and Virginia. A majority of these projects are cogenerators or independent power producers. The size of these projects ranges from 22 MW to 450 MW, with nearly 90 percent less than 100 MW in size.

Reported and permitted NO_x removal efficiencies of SCR range from 40 to 80 percent of NO_x in the exhaust gas stream. The most common emission limiting standards associated with SCR are approximately 9 ppm for natural gas firing. However, a few facilities have reported emission limits of about 4.5 ppm. These emission limits were clearly determined to be LAER on CTs using water injection with uncontrolled NO_x levels below 42 ppm.

The installation of SCR has primarily been on combined cycle units where the catalyst is located in the HRSG at the proper temperature range. SCR has been installed on two simple cycle projects in California on machines significantly smaller (less than 25 MW) than the "F" Class proposed. With smaller turbines, the exhaust as temperature is lower making possible the installation of high temperature catalysts. Exhaust temperatures from the "F" Class CTs will approach 1,200°F and monitoring and control systems will be required to prevent catalyst damage. The high temperature catalyst are more than 2 times more costly than conventional base metal catalysts that are installed in HRSG. While manufacturers guarantee the high temperature catalysts for 3 years, operating experience at temperatures above 1,000°F is limited. Continuous exposure at these elevated temperatures suggest a more limited life of the SCR system.

Wet injection historically has been the primary method of reducing NO_x emissions from CTs. Indeed, this method of control was first mandated by the NSPS to reduce NO_x levels to 75 parts per million by volume, dry (ppmvd) (corrected to 15 percent O_2 and heat rate). Development of improved wet injection combustors reduced NO_x concentrations to 25 ppmvd (corrected to

15 percent O_2) when burning natural gas. More recently, however, CT manufacturers have developed dry low-NO_x combustors that can reduce NO_x concentrations to 25 ppmvd (corrected to 15 percent O_2) or less when firing natural gas.

In Florida, all of the most recent PSD permits and BACT determinations for gas turbines have required either wet injection or dry low-NO_x technology for NO_x control. The emission limits included in these permits and BACT determinations are primarily in the range of 15 ppmvd to 25 ppmvd (corrected to 15 percent O_2, dry conditions) for future operations on natural-gas firing. The most recent permit was issued at 9 ppmvd @ 15% O_2 for the FPL Fort Myers Repowering Project, a gas-only combined cycle facility.

B.2.1.2 Technology Description and Feasibility

Wet Injection--The injection of water or steam in the combustion zone of CTs reduces the flame temperature with a corresponding decrease of NO_x emissions. The amount of NO_x reduction possible depends on the combustor design and the water-to-fuel ratio employed. An increase in the water-to-fuel ratio will cause a concomitant decrease in NO_x emissions until flame instability occurs. At this point, operation of the CT becomes inefficient and unreliable, and significant increases in products of incomplete combustion will occur (i.e., CO and VOC emissions).

Dry Low-NO_x Combustor--In the past several years, CT manufacturers have offered and installed machines with dry low-NO_x combustors. These combustors, which are offered on conventional machines manufactured by Westinghouse, GE, Kraftwork Union, and ABB, can achieve NO_x concentrations of 25 ppmvd or less when firing natural gas. Westinghouse and GE have offered dry low-NO_x combustors on advanced heavy-duty industrial machines. Thermal NO_x formation is inhibited by using combustion techniques where the natural gas and combustion air are premixed before ignition. For the CT being considered for the project, the combustion chamber design includes the use of dry low-NO_x combustor technology. The NO_x emission level when firing natural gas at baseload conditions is 9 ppmvd (corrected to 9 percent O_2), a level which is available for the project.

Selective Catalytic Reduction (SCR)--SCR uses ammonia (NH_3) to react with NO_x in the gas stream in the presence of a catalyst. NH_3, which is diluted with air to about 5 percent by volume, is introduced into the gas stream at reaction temperatures between 600°F and 750°F. The reactions are as follows:

$$4NH_3 + 4NO + O_2 = 4N_2 + 6H_2O$$
$$4NH_3 + 2NO_2 + O_2 = 3N_2 + 6H_2O$$

SCR operating experience, as applied to gas turbines, consists primarily of baseload natural-gas-fired installations either of cogeneration or combined cycle configuration; no simple cycle facilities have SCR. Exhaust gas temperatures of simple cycle CTs generally are in the range of 1,000°F, which exceeds the optimum range for SCR with base metal catalysts. All current SCR applications have the catalyst placed in the HRSG to achieve proper reaction conditions. This allows a relatively constant temperature for the reaction of NH_3 and NO_x on the catalyst surface.

The use of SCR has been limited to facilities that burn natural gas or small amounts of fuel oil since SCR catalysts are contaminated by sulfur-containing fuels (i.e., fuel oil). For most fuel-oil-burning facilities, catalyst operation is discontinued, or the exhaust bypasses the SCR system. While the operating experience with SCR has not been extensive, certain cost, technical, and environmental considerations have surfaced for units firing both natural gas and oil while using SCR.

Ammonium salts (ammonium sulfate and bisulfate) are formed by the reaction of NH_3 and sulfur combustion products. Ammonium bisulfate can be corrosive and could cause damage to the surfaces that follow the catalyst, as well as to the stack. Corrosion protection for these areas would be required with concomitant cost and technical requirements. Ammonium sulfate is emitted as particulate matter. While the formation of ammonium salts is primarily associated with oil firing, sulfur combustion products from natural gas also could form small amounts of ammonium salts.

Zeolite and specially designed high temperature catalysts, which are reported to be capable of operating in temperature ranges up to 1,050°F, have become available commercially only recently. Their application with SCR primarily has been limited to internal combustion engines. Optimum performance of an SCR system using a zeolite catalyst is reported to range from about 800°F to 900°F. At temperatures of 1,050°F and above, the high-temperature catalyst will be irreparably damaged. Application of an SCR system using a zeolite catalyst would be feasible for the project; however, use in simple cycle operation will require monitoring to assure the temperature limits are not exceeded. If temperatures are exceeded then exhaust gas cooling would be required.

<u>**NO_xOUT Process**</u>--The NO_xOUT process originated from the initial research by the Electric Power Research Institute (EPRI) in 1976 on the use of urea to reduce NO_x. EPRI licensed the proprietary process to Fuel Tech, Inc., for commercialization. In the NO_xOUT process, aqueous urea is injected into the flue gas stream ideally within a temperature range of 1,600°F to 1,900°F. In the presence of oxygen, the following reaction results:

$$CO(NH_2)_2 + 2NO + \frac{1}{2} O_2 \rightarrow 2N_2 + CO_2 + 2H_2O$$

The amount of urea required is most cost-effective when the treatment rate is 0.5 to 2 moles of urea per mole of NO_x. In addition to the original EPRI urea patents, Fuel Tech claims to have a number of proprietary catalysts capable of expanding the effective temperature range of the reaction to between 1,600°F and 1,950°F. Advantages of the system are as follows:

1. Low capital and operating costs as a result of use of urea injection, and
2. The proprietary catalysts used are nontoxic and nonhazardous, thus eliminating potential disposal problems.

Disadvantages of the system are as follows:

1. Formation of ammonia from excess urea treatment rates and/or improper use of reagent catalysts, and
2. Sulfur trioxide (SO_3), if present, will react with ammonia created from the urea to form ammonium bisulfate, potentially plugging the cold end equipment downstream.

Commercial application of the NO_xOUT system is limited to three reported cases:

1. Trial demonstration on a 62.5-ton-per-hour (TPH) stoker-fired wood waste boiler with 60 to 65 percent NO_x reduction,
2. A 600 x 10^6 Btu CO boiler with 60 to 70 percent NO_x reduction, and
3. A 75-MW pulverized coal-fired unit with 65 percent NO_x reduction.

The NO_xOUT system has not been demonstrated on any combustion turbine/HRSG unit.

The NO_xOUT process is not technically feasible for the proposed project because of the high application temperature of 1,600°F to 1,950°F. The maximum exhaust gas temperature of the "F" Class CT is about 1,150°F. Raising the exhaust temperature the required amount essentially would require installation of a heater. This would be economically prohibitive and would result in an increase in fuel consumption, an increase in the volume of gases that must be treated by the control system, and an increase in uncontrolled air emissions, including NO_x.

Thermal DeNO$_x$--Thermal DeNO$_x$ is Exxon Research and Engineering Company's patented process for NO_x reduction. The process is a high temperature selective noncatalytic reduction (SNCR) of NO_x using ammonia as the reducing agent. Thermal DeNO$_x$ requires the exhaust gas temperature to be above 1,800°F. However, use of ammonia plus hydrogen lowers the temperature requirement to about 1,000°F. For some applications, this must be achieved by additional firing in the exhaust stream before ammonia injection.

The only known commercial applications of Thermal DeNO$_x$ are on heavy industrial boilers, large furnaces, and incinerators that consistently produce exhaust gas temperatures above 1,800°F. There are no known applications on or experience with CTs. Temperatures of 1,800°F require alloy materials constructed with very large piping and components since the exhaust gas volume would be increased by several times. As with the NO$_x$OUT process, high capital, operating, and maintenance costs are expected because of material requirements, an additional duct burner system, and fuel consumption. Uncontrolled emissions would increase because of the additional fuel burning.

Thus, the Thermal DeNO$_x$ process will not be considered for the proposed project since its high application temperature makes it technically infeasible. The maximum exhaust gas temperature of a combustion turbine is typically about 1,000°F; the cost to raise the exhaust gas to such a high temperature is prohibitively expensive.

Nonselective Catalytic Reduction--Certain manufacturers, such as Engelhard, market a nonselective catalytic reduction system (NSCR) for NO_x control on reciprocating engines. The NSCR process requires a low oxygen content in the exhaust gas stream and high temperature (700°F to 1,400°F) in order to be effective. CTs have the required temperature but also have high oxygen levels (greater than 12 percent) and, therefore, cannot use the NSCR process. As a result, NSCR is not a technically feasible add-on NO_x control device for CTs.

Technology Determination--A technical evaluation of available post-combustion gas controls (i.e., NO$_x$OUT, Thermal DeNO$_x$, and NSCR) indicates that these processes have not been applied to

CT/HRSG and are technically infeasible for the project because of process constraints (e.g., temperature).

For the BACT analysis, dry low-NO_x combustion technology is technically feasible and SCR in combination with combustion controls is a potentially feasible alternative that can achieve a maximum degree of emission reduction. The advanced dry low-NO_x combustor alone can achieve 9 ppm (corrected) and the SCR with dry low-NO_x combustor is capable of achieving a NO_x emission level of 3.6 ppm when firing natural gas (corrected to 15 percent O_2 dry conditions). When firing oil, the emissions with SCR and wet injection would be about 16.8 ppm (corrected), whereas emissions with wet injection alone would be 42 ppm (corrected). The SCR has a NO_x removal rate of 60 percent based on an associated ammonia slip (i.e., to 10 ppm).

B.2.1.3 SCR Cost Estimates

Tables B-3 and B-4 present the total capital and annualized cost for SCR, respectively. The costs were developed using EPA Cost Control Manual (EPA, 1990 & 1993). A vendor estimate was obtained for the SCR system and is contained in this appendix. Standard EPA recommended cost factors were used. For simple cycle operation, a capital recovery period of 20 years was used. However, since the SCR system would be subjected to temperatures exceeding 1,000°F where considerable wear can take place resulting in lower life of equipment.

B.2.2 CARBON MONOXIDE

B.2.2.1 Identification of CO Control Technologies

CO emissions are a result of incomplete or partial combustion of fossil fuel. Combustion design and catalytic oxidation are the control alternatives that are viable for the project. Table B-5 presents a listing of LAER/BACT decisions for CO emissions from combustion turbines. Combustion design is the more common control technique used in CTs. Sufficient time, temperature, and turbulence is required within the combustion zone to maximize combustion efficiency and minimize the emissions of CO. Combustion efficiency is dependent upon combustor design. For the CTs being evaluated, CO emissions will not exceed 20 ppmvd, corrected to dry conditions when firing natural gas under full load conditions and 30 ppmvd when firing distillate oil.

Catalytic oxidation is a post-combustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10 ppm range (corrected to dry conditions).

B.2.2.2 Technology Description

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst, such as platinum. Combustion of CO starts at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required.

For CTs, the oxidation catalyst can be located directly after the CT. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency. The existing oxidation catalyst applications primarily have been limited to smaller cogeneration facilities burning natural gas. Oxidation catalysts have not been used on fuel-oil-fired CTs or combined cycle facilities. The use of sulfur-containing fuels in an oxidation catalyst system would result in an increase of SO_3 emissions and concomitant corrosive effects to the stack. In addition, trace metals in the fuel could result in catalyst poisoning during prolonged periods of operation.

Since the units likely will require numerous startups, variations in exhaust conditions will influence catalyst life and performance. Very little technical data exist to demonstrate the effect of such cycling.

The lack of demonstrated operation with oil firing suggests rejection of catalytic oxidation as a technically feasible alternative. However, the advent of a second generation catalyst suggests that an oxidation catalyst could be used although none have been placed in actual operation.

B.2.2.3 Oxidation Catalyst Costs

Tables B-6 and B-7 present the capital and annualized cost for an oxidation catalyst. The maximum CO impacts are less than 0.1 percent of the applicable ambient air quality standards. There would also be no secondary benefits, such as acidic deposition, to reducing CO.

Table B-1. Federal NSPS for Electric Utility Stationary Gas Turbines

Pollutant	Emission Limitation[a]
Nitrogen Oxides[b]	0.0075 percent by volume (75 ppm) at 15 percent O_2 on a dry basis adjusted for heat rate and fuel nitrogen

[a] Applicable to electric utility gas turbines with a heat input at peak load of greater than 100 x 10^6 Btu/hr.

[b] Standard is multiplied by 14.4/Y; where Y is the manufacturer's rated heat rate in kilojoules per watt at rated load or actual measured heat rate based on the lower heating value of fuel measured at actual peak load; Y cannot be greater than 14.4. Standard is adjusted upward (additive) by the percent of nitrogen in the fuel:

Fuel-Bound Nitrogen (percent by weight)	Allowed Increase NO_x Percent by Volume
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04(N)
$0.1 < N \leq 0.25$	0.004+0.0067(N-0.1)
$N > 0.25$	0.005

where: N = the nitrogen content of the fuel (percent by weight).

Source: 40 CFR 60 Subpart GG.

Table B-2. Summary of BACT Determinations for NOx.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Mead Coated Board, Inc.	AL	Mar-1997	Combined Cycle Turbine (25 Mw)	568 MMBTU/HR	25.0 PPMVD@ 15% O2 (GAS)	dry low nox combustor design firing gas and dry low nox combustor with water injection firing oil	0	BACT-PSD
Formosa Plastics Corporation, Baton Rouge Plant	LA	Mar-1997	Turbine/Hsrg, Gas Cogeneration	450 MM BTU/HR	9.0 PPMV	dry low nox burner	0	BACT-PSD
Southwestern Public Service Company	NM	Feb-1997	Combustion Turbine, Natural Gas	100 MW	0.0 SEE FACILITY NOTES	dry low nox combustion	0	BACT-PSD
Southern Natural Gas Company	MS	Dec-1996	Turbine, Natural Gas-Fired	9160 HORSEPOWER	110.0 PPMV @ 15% O2, DRY	proper turbine design and operation	0	BACT-PSD
Southern Natural Gas Company-Selma	AL	Dec-1996	916O Hp Ge Ms3002G Natural Gas Fired Turbine	0	53.0 LB/HR		0	BACT-PSD
Southwestern Public Service Co	NM	Nov-1996	Combustion Turbine, Natural Gas	100 MW	15.0 PPM; SEE FAC. NOTES	dry low nox combustion	0	BACT-PSD
Blue Mountain Power, Lp	PA	Jul-1996	Combustion Turbine With Heat Recovery Boiler	153 MW	4.0 PPM @ 15% O2	dry lnb with scr water injection in place when firing oil. oil firing limits set to 8.4 ppm @15% o2	84	LAER
General Electric Gas Turbines	SC	Apr-1996	I.C. Turbine	2700 MMBTU/HR	885.3 LB/HR	good combustion practices to minimize emissions	0	BACT-PSD
Carolina Power & Light	NC	Apr-1996	Combustion Turbine, 4 Each	1908 MMBTU/HR	512.3 LB/HR	water injection; fuel spec: 0.04% n fuel oil	0	BACT-PSD
Carolina Power & Light	NC	Apr-1996	Combustion Turbine, 4 Each	1908 MMBTU/HR	158.0 LB/HR	water injection	0	BACT-PSD
Mid-Georgia Cogen.	GA	Apr-1996	Combustion Turbine (2), Natural Gas	116 MW	9.0 PPMVD	dry low nox burner with scr	0	BACT-PSD
Mid-Georgia Cogen.	GA	Apr-1996	Combustion Turbine (2), Fuel Oil	116 MW	20.0 PPMVD	water injection with scr	0	BACT-PSD
Georgia Gulf Corporation	LA	Mar-1996	Generator, Natural Gas Fired Turbine	1123 MM BTU/HR	25.0 PPMV-CORR. TO 15%O2	control nox using steam injection	0	BACT-PSD
Seminole Hardee Unit 3	FL	Jan-1996	Combined Cycle Combustion Turbine	140 MW	15.0 PPM @ 15% O2	dry lnb staged combustion	0	BACT-PSD
Key West City Electric System	FL	Sep-1995	Turbine, Existing Ct Relocation To A New Plant	23 MW	75.0 PPM @ 15% O2	water injection	0	BACT-PSD
Union Carbide Corporation	LA	Sep-1995	Generator, Gas Turbine	1313 MM BTU/HR	25.0 PPMV CORR. TO 15% O2	dry low nox combustor	0	BACT-PSD
Brooklyn Navy Yard Cogeneration Partners L.P.	NY	Jun-1995	Turbine, Natural Gas Fired	240 MW	3.5 PPM @ 15% O2	scr	0	LAER
Brooklyn Navy Yard Cogeneration Partners L.P.	NY	Jun-1995	Turbine, Oil Fired	240 MW	10.0 PPM @ 15% O2	scr	0	LAER
Panda-Kathleen, L.P.	FL	Jun-1995	Combined Cycle Combustion Turbine (Total 115Mw)	75 MW	15.0 PPM @ 15% O2	dry low nox burner	0	BACT-PSD
Proctor And Gamble Paper Products Co (Charmin)	PA	May-1995	Turbine, Natural Gas	580 MMBTU/HR	55.0 PPM @ 15% O2	steam injection	75	RACT
Pilgrim Energy Center	NY	Apr-1995	(2) Westinghouse W501D5 Turbines (Ep #S 00001&2)	1400 MMBTU/HR	4.5 PPM, 23.8 LB/HR	steam injection followed by scr	0	BACT
Lederle Laboratories	NY	Apr-1995	(2) Gas Turbines (Ep #S 00101&102)	110 MMBTU/HR	42.0 PPM, 18 LB/HR	steam injection	0	BACT-PSD
Gainesville Regional Utilities	FL	Apr-1995	Simple Cycle Combustion Turbine, Gas/No 2 Oil B-Up	74 MW	15.0 PPM AT 15% OXYGEN	dry low nox burners	0	BACT-PSD
Gainesville Regional Utilities	FL	Apr-1995	Oil Fired Combustion Turbine	74 MW	42.0 PPM AT 15% OXYGEN	water injection	0	BACT-PSD
Formosa Plastics Corporation, Louisiana	LA	Mar-1995	Turbine/Hrsg, Gas Cogeneration	450 MM BTU/HR	9.0 PPMV	dry low nox burner/combustion design and control	0	LAER
Lsp-Cottage Grove, L.P.	MN	Mar-1995	Combustion Turbine/Generator	1970 MMBTU/HR	4.5 PPM @ 15% O2 GAS	selective catalytic reduction (scr)	70	BACT-PSD
Marathon Oil Co. - Indian Basin N.G. Plan	NM	Jan-1995	Turbines, Natural Gas (2)	5500 HP	7.4 LBS/HR	lean-premixed combustion technology. dry/low nox	66	BACT-PSD
Kamine/Besicorp Syracuse Lp	NY	Dec-1994	Siemens V84.3 Gas Turbine (Ep #00001)	650 MMBTU/HR	25.0 PPM	water injection	70	BACT
Indeck-Oswego Energy Center	NY	Oct-1994	Ge Frame 6 Gas Turbine	533 LB/MMBTU	42.0 PPM, 75.00 LB/HR	steam injection	53	BACT
Fulton Cogen Plant	NY	Sep-1994	Ge Lm5000 Gas Turbine	500 MMBTU/HR	38.0 PPM, 65 LB/HR	water injection	59	BACT
Fulton Cogen Plant	NY	Sep-1994	Stack Emissions (Gas Turbine And Duct Burner)	610 MMBTU/HR (TOTAL)	38.0 PPM, 69.5 LB/HR	water injection	53	BACT
Carolina Power And Light	SC	Aug-1994	Stationary Gas Turbine	1520 MMBTU/H	25.0 PPMDV @ 15% O2	water injection	30	BACT-PSD
Carolina Power And Light	SC	Aug-1994	Stationary Gas Turbine	1520 MMBTU/H	62.0 PPMDV @ 15% O2	water injection	30	BACT-PSD
Brush Cogeneration Partnership	CO	Jul-1994	Turbine	350 MMBTU/H	25.0 PPM @ 15% O2	dry low nox burner	74	BACT-PSD
Colorado Power Partnership	CO	Jul-1994	Turbines, 2 Nat Gas & 2 Duct Burners	365 MMBTU/H EACH TURBINE	42.0 PPM @ 15% O2	water injection	66	BACT-PSD
Muddy River L.P.	NV	Jun-1994	Combustion Turbine, Diesel & Natural Gas	140 MEGAWATT	303.0 LB/HR	low nox burner	0	BACT-PSD
Csw Nevada, Inc.	NV	Jun-1994	Combustion Turbine, Diesel & Natural Gas	140 MEGAWATT	273.0 LB/HR	dry low nox combustor	0	BACT-PSD
Portland General Electric Co.	OR	May-1994	Turbines, Natural Gas (2)	1720 MMBTU	4.5 PPM @ 15% O2	scr	82	BACT-PSD
Georgia Power Company, Robins Turbine Project	GA	May-1994	Turbine, Combustion, Natural Gas	80 MW	25.0 PPM	water injection, fuel spec: natural gas	0	BACT-PSD
West Campus Cogeneration Company	TX	May-1994	Gas Turbines	75 MW (TOTAL POWER)	200.0 TPY	internal combustion controls	0	BACT-PSD
Fleetwood Cogeneration Associates	PA	Apr-1994	Ng Turbine (Ge Lm6000) With Waste Heat Boiler	360 MMBTU/HR	21.0 LB/HR	scr with low nox combustors	47	BACT-OTHER
Hermiston Generating Co.	OR	Apr-1994	Turbines, Natural Gas (2)	1696 MMBTU	4.5 PPM @ 15% O2	scr	82	BACT-PSD
Florida Power Corporation Polk County Site	FL	Feb-1994	Turbine, Natural Gas (2)	1510 MMBTU/H	12.0 PPMVD @15 % O2	dry low nox combustor	0	BACT-PSD
Florida Power Corporation Polk County Site	FL	Feb-1994	Turbine, Fuel Oil (2)	1730 MMBTU/H	42.0 PPMVD @ 15 %O2	water injection	0	BACT-PSD
Teco Polk Power Station	FL	Feb-1994	Turbine, Syngas (Coal Gasification)	1755 MMBTU/H	25.0 PPMVD @ 15 % O2	dry low nox combustor	0	BACT-PSD
Teco Polk Power Station	FL	Feb-1994	Turbine, Fuel Oil	1765 MMBTU/H	42.0 PPMVD @ 15 % O2	wet injection	0	BACT-PSD

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RE DISCPOLR BASE95C      125.        50
RE DISCPOLR BASE95C      157.        60
RE DISCPOLR BASE95C      161.        70
RE DISCPOLR BASE95C      154.        80
RE DISCPOLR BASE95C      151.        90
RE DISCPOLR BASE95C      154.       100
RE DISCPOLR BASE95C      161.       110
RE DISCPOLR BASE95C      175.       120
RE DISCPOLR BASE95C      197.       130
RE DISCPOLR BASE95C      172.       140
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RE DISCPOLR BASE95C      134.       170
RE DISCPOLR BASE95C      132.       180
RE DISCPOLR BASE95C      134.       190
RE DISCPOLR BASE95C      140.       200
RE DISCPOLR BASE95C      152.       210
RE DISCPOLR BASE95C      159.       220
RE DISCPOLR BASE95C      134.       230
RE DISCPOLR BASE95C      118.       240
RE DISCPOLR BASE95C      109.       250
RE DISCPOLR BASE95C      104.       260
RE DISCPOLR BASE95C      102.       270
RE DISCPOLR BASE95C      104.       280
RE DISCPOLR BASE95C      109.       290
RE DISCPOLR BASE95C      118.       300
RE DISCPOLR BASE95C      134.       310
RE DISCPOLR BASE95C      159.       320
RE DISCPOLR BASE95C      205.       330
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Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
International Paper	LA	Feb-1994	Turbine/Hrsg, Gas Cogen	338 MM BTU/HR TURBINE	25.0 PPMV 15% O2 TURBINE	dry low nox combustor/combustion control	0	BACT
Kamine/Besicorp Carthage L.P.	NY	Jan-1994	Ge Frame 6 Gas Turbine	491 BTU/HR	42.0 PPM, 76.6 LB/HR	steam injection	63	BACT
Kamine/Besicorp Carthage L.P.	NY	Jan-1994	Stack (Gas Turbine & Duct Burner) **See Note #3**	540 LB/MMBTU	42.0 PPM, 87.4 LB/HR	no controls	0	BACT-OTHER
Orange Cogeneration Lp	FL	Dec-1993	Turbine, Natural Gas, 2	368 MMBTU/H	15.0 PPM @ 15% O2	dry low nox combustor	0	BACT-PSD
Project Orange Associates	NY	Dec-1993	Ge Lm-5000 Gas Turbine	550 MMBTU/HR	25.0 PPM, 47 LB/HR	steam injection, fuel spec; natural gas only	80	BACT
Project Orange Associates	NY	Dec-1993	Stack (Turbine And Duct Burner)	715 MMBTU/HR	26.0 PPM, 69 LB/HR	no controls for nox on stack *see turbine nox data	0	BACT-OTHER
Williams Field Services Co. - El Cedro Compressor	NM	Oct-1993	Turbine, Gas-Fired	11257 HP	42.0 PPM @ 15% O2	solonox combustor, dry low nox technology	66	BACT-PSD
Florida Gas Transmission	FL	Sep-1993	Turbine, Gas	132 MMBTU/H	25.0 PPM @ 15% O2	dry low nox combustor	0	BACT-PSD
Patowmack Power Partners, Limited Partnership	VA	Sep-1993	Turbine, Combustion, Siemens Model V84.2, 3	10 X109 SCF/YR NAT GAS	131.0 LB/HR(GAS); 339 OIL	dry low nox combustor; design, water injection	0	BACT-PSD
Florida Gas Transmission Company	AL	Aug-1993	Turbine, Natural Gas	12600 BHP	0.6 GM/HP HR	air-to-fuel ratio control, dry low nox combustion	71	BACT-PSD
Lockport Cogen Facility	NY	Jul-1993	(6) Ge Frame 6 Turbines (Ep #S 00001-00006)	424 MMBTU/HR	42.0 PPM	steam injection	78	BACT
Anitec Cogen Plant	NY	Jul-1993	Ge Lm5000 Combined Cycle Gas Turbine Ep #00001	451 MMBTU/HR	25.0 PPM, 41 LB/HR	no controls	0	BACT-OTHER
Bank Of America Los Angeles Data Center	CA	Jun-1993	Turbine, Diesel & Generator (See Notes)	0	163.0 PPM @ 15% O2	fuel spec: low nox diesel fuel (see notes)	0	BACT-OTHER
Newark Bay Cogeneration Partnership, L.P.	NJ	Jun-1993	Turbines, Combustion, Natural Gas-Fired (2)	617 MMBTU/HR (EACH)	8.3 PPMDV	scr	0	BACT-PSD
Newark Bay Cogeneration Partnership, L.P.	NJ	Jun-1993	Turbines, Combustion, Kerosene-Fired (2)	640 MMBTU/H (EACH)	16 0 PPMDV	scr	0	BACT-PSD
Tiger Bay Lp	FL	May-1993	Turbine, Gas	1615 MMBTU/H	15.0 PPM @ 15% O2	dry low nox combustor	0	BACT-PSD
Tiger Bay Lp	FL	May-1993	Turbine, Oil	1650 MMBTU/H	42.0 PPM @ 15% O2	water injection	0	BACT-PSD
Indeck Energy Company	NY	May-1993	Ge Frame 6 Gas Turbine Ep #00001	491 MMBTU/HR	32.0 PPM	steam injection	58	BACT
Phoenix Power Partners	CO	May-1993	Turbine (Natural Gas)	311 MMBTU/HR	22.0 PPM @ 15% O2	dry low nox combustion	0	BACT-OTHER
Lilco Shoreham	NY	May-1993	(3) Ge Frame 7 Turbines (Ep #S 00007-9)	850 MMBTU/HR	55.0 PPM +FBN & HEAT RATE	water injection	30	BACT
Trigen Mitchel Field	NY	Apr-1993	Ge Frame 8 Gas Turbine	425 MMBTU/HR	80 0 PPM, 90 LB/HR	steam injection	20	BACT
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Natural Gas	869 MMBTU/H	15.0 PPM @ 15% O2	dry low nox combustor	0	BACT-PSD
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Fuel Oil	928 MMBTU/H	42.0 PPM @ 15% O2	water injection	0	BACT-PSD
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Natural Gas	367 MMBTU/H	15.0 PPM @ 15% O2	dry low nox combustor	0	BACT-PSD
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Fuel Oil	371 MMBTU/H	42.0 PPM @ 15% O2	water injection	0	BACT-PSD
East Kentucky Power Cooperative	KY	Mar-1993	Turbines (5), #2 Fuel Oil And Nat. Gas Fired	1492 MMBTU/H (EACH)	42.0 PPM @ 15% O2 (OIL)	water injection	46	SEE NOTES
International Paper Co. Riverdale Mill	AL	Jan-1993	Turbine, Stationary (Gas-Fired) With Duct Burner	40 MW	0.1 LB/MMBTU (GAS)	steam injection into the turbine	0	BACT-PSD
Oklahoma Municipal Power Authority	OK	Dec-1992	Turbine, Combustion	58 MW	65.0 PPM @ 15% O2	combustion controls	63	BACT-OTHER
Oklahoma Municipal Power Authority	OK	Dec-1992	Turbine, Combustion	58 MW	25.0 PPM @ 15% O2	combustion controls	83	BACT-OTHER
Auburndale Power Partners, Lp	FL	Dec-1992	Turbine,Gas	1214 MMBTU/H	15.0 PPMVD @ 15 % O2	dry low nox combustor	0	BACT-PSD
Auburndale Power Partners, Lp	FL	Dec-1992	Turbine, Oil	1170 MMBTU/H	42 0 PPMVD @ 15 % 02	steam injection	0	BACT-PSD
Sithe/Independence Power Partners	NY	Nov-1992	Turbines, Combustion (4) (Natural Gas) (1012 Mw)	2133 MMBTU/HR (EACH)	4.5 PPM	scr and dry low nox	0	BACT-OTHER
Kamine/Besicorp Beaver Falls Cogeneration Facility	NY	Nov-1992	Turbine, Combustion (Nat. Gas & Oil Fuel) (79Mw)	650 MMBTU/HR	9.0 PPM	dry low nox or scr	0	BACT-OTHER
Kamine/Besicorp Beaver Falls Cogeneration Facility	NY	Nov-1992	Turbine, Combustion (Nat. Gas & Oil Fuel) (79Mw)	650 MMBTU/HR	55.0 PPM	dry low nox or scr	0	BACT-OTHER
Kamine/Besicorp Corning L.P.	NY	Nov-1992	Turbine, Combustion (79 Mw)	653 MMBTU/HR	9.0 PPM	dry low nox or scr	0	BACT-OTHER
Grays Ferry Co. Generation Partnership	PA	Nov-1992	Turbine (Natural Gas & Oil)	1150 MMBTU	9 0 PPMVD (NAT. GAS)*	dry low nox burner, combustion control	0	BACT-OTHER
Goal Line, Lp Icefloe	CA	Nov-1992	Turbine, Combustion (Natural Gas) (42.4 Mw)	386 MMBTU/HR	5.0 PPMVD @ 15% OXYGEN	water injection & scr w/ automatic ammonia inject.	88	BACT-OTHER
Bear Island Paper Company, L.P.	VA	Oct-1992	Turbine, Combustion Gas	474 X10(6) BTU/HR N. GAS	9.0 PPM	selective catalytic reduction (scr)	75	BACT-PSD
Bear Island Paper Company, L.P.	VA	Oct-1992	Turbine, Combustion Gas	488 X10(6) BTU/HR #2 OIL	15.0 PPM	scr	81	BACT-PSD
Bear Island Paper Company, L.P.	VA	Oct-1992	Turbine, Combustion Gas (Total)	0	69.7 TPY	scr	0	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbine Facility, Gas	1331 X10(7) SCF/Y NAT GAS	245.0 TOTAL TPY	selective catalytic reduction (scr) w/ water injec	80	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbine Facility, Gas	7 X10(7) GPY FUEL OIL	245.0 TOTAL TPY	selective catalytic reduction (scr)	60	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbines (2) [Each With A Sf]	2 X10(9) BTU/HR N GAS	9.0 PPMDV/UNIT @ 15% 02	scr with water injection	80	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbines (2) [Each With A Sf]	1 X10(9) BTU/H #2 OIL	66.0 LBS/HR/UNIT	water injection and scr	80	BACT-PSD
Kamine South Glens Falls Cogen Co	NY	Sep-1992	Ge Frame 6 Gas Turbine	498 MMBTU/HR	42.0 PPM, 76.6 LB/HR	water injection	50	BACT
Pasny/Holtsville Combined Cycle Plant	NY	Sep-1992	Turbine, Combustion Gas (150 Mw)	1146 MMBTU/HR (GAS)*	9.0 PPM	dry low nox	0	BACT-OTHER
Pasny/Holtsville Combined Cycle Plant	NY	Sep-1992	Turbine, Combustion Gas (150 Mw)	1146 MMBTU/HR (GAS)*	42.0 PPM	water injector	0	BACT-OTHER
Wepcu, Paris Site	WI	Aug-1992	Turbines, Combustion (4)	0	25.0 PPM @ 15% O2	good combustion practices	0	BACT-PSD
Wepcu, Paris Site	WI	Aug-1992	Turbines, Combustion (4)	0	65.0 PPM @ 15% O2	good combustion practices	0	BACT-PSD

Table B-2. Summary of BACT Determinations for NOx.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Florida Power Corporation	FL	Aug-1992	Turbine, Oil	1029 MMBTU/H	42.0 PPMVD @ 15 % O2	wet injection	0	BACT-PSD
Florida Power Corporation	FL	Aug-1992	Turbine, Oil	1866 MMBTU/H	42.0 PPMVD @ 15 % O2	wet injection	0	BACT-PSD
Cng Transmission	OH	Aug-1992	Turbine (Natural Gas) (3)	5500 HP (EACH)	1.6 G/HP-HR*	low nox combustion	0	BACT-OTHER
Saranac Energy Company	NY	Jul-1992	Turbines, Combustion (2) (Natural Gas)	1123 MMBTU/HR (EACH)	9.0 PPM	scr	0	BACT-OTHER
Hartwell Energy Limited Partnership	GA	Jul-1992	Turbine, Gas Fired (2 Each)	1817 M BTU/HR	25.0 PPM @ 15% O2	maximum water injection	0	BACT-PSD
Hartwell Energy Limited Partnership	GA	Jul-1992	Turbine, Oil Fired (2 Each)	1840 M BTU/HR	25.0 PPMVD, FUEL N AFLOW	maximum water injection	0	BACT-PSD
Maui Electric Company, Ltd./Maalaea Generating Sta	HI	Jul-1992	Turbine, Combined-Cycle Combustion	28 MW	42.3 LB/HR	water injection	69	BACT-OTHER
Indeck-Yerkes Energy Services	NY	Jun-1992	Ge Frame 6 Gas Turbine (Ep #00001)	432 MMBTU/HR	42.0 PPM, 74 LB/HR	steam injection	35	BACT
Selkirk Cogeneration Partners, L.P.	NY	Jun-1992	Combustion Turbines (2) (252 Mw)	1173 MMBTU/HR (EACH)	9.0 PPM GAS	steam injection and scr	0	BACT-OTHER
Selkirk Cogeneration Partners, L.P.	NY	Jun-1992	Combustion Turbine (79 Mw)	1173 MMBTU/HR	25.0 PPM GAS	steam injection	0	BACT-OTHER
Narragansett Electric/New England Power Co.	RI	Apr-1992	Turbine, Gas And Duct Burner	1360 MMBTU/H EACH	9.0 PPM @ 15% O2, GAS	scr	0	BACT-PSD
Kentucky Utilities Company	KY	Mar-1992	Turbine, #2 Fuel Oil/Natural Gas (8)	1500 MM BTU/HR (EACH)	42.0 PPM @ 15% O2, N. GAS	water injection	0	BACT-PSD
Bermuda Hundred Energy Limited Partnership	VA	Mar-1992	Turbine, Combustion	1175 MMBTU/H NAT. GAS	9.0 PPM @ 15% O2	scr, steam injection	91	BACT-PSD
Bermuda Hundred Energy Limited Partnership	VA	Mar-1992	Turbine, Combustion	1117 MMBTU/H NO2 FUEL OIL	15.0 PPM @ 15% O2	scr, steam inj.	91	BACT-PSD
Bermuda Hundred Energy Limited Partnership	VA	Mar-1992	Turbine, Combustion, 2	0	191.1 T/YR/UNIT		0	BACT-PSD
Thermo Industries, Ltd.	CO	Feb-1992	Turbine, Gas Fired, 5 Each	246 MMBTU/H	25.0 PPM @ 15% O2	dry low nox tech.	0	BACT-PSD
Savannah Electric And Power Co.	GA	Feb-1992	Turbines, 8	1032 MMBTU/H, NAT GAS	25.0 PPM @ 15% O2	max water injection	0	BACT-PSD
Savannah Electric And Power Co.	GA	Feb-1992	Turbines, 8	972 MMBTU/H, #2 OIL	0.0 SEE NOTES	max water injection	0	BACT-PSD
Hawaii Electric Light Co., Inc.	HI	Feb-1992	Turbine, Fuel Oil #2	20 MW	42.3 LB/HR	combustor water injector, water injection	70	BACT-PSD
Kamine/Besicorp Natural Dam Lp	NY	Dec-1991	Ge Frame 6 Gas Turbine	500 MMBTU/HR	42.0 PPM, 60.1 LB/HR	steam injection	35	BACT
Duke Power Co. Lincoln Combustion Turbine Station	NC	Dec-1991	Turbine, Combustion	1247 MM BTU/HR	287.0 LB/HR	multinozzle combustor, maximum water injection	0	BACT-PSD
Duke Power Co. Lincoln Combustion Turbine Station	NC	Dec-1991	Turbine, Combustion	1313 MM BTU/HR	119.0 LB/HR	multinozzle combustor, maximum water injection	0	BACT-PSD
Maui Electric Company, Ltd.	HI	Dec-1991	Turbine, Fuel Oil #2	28 MW	42.0 PPM	water injection	71	BACT-PSD
Kalamazoo Power Limited	MI	Dec-1991	Turbine, Gas-Fired, 2, W/ Waste Heat Boilers	1606 MMBTU/H	15.0 PPMV	dry low nox turbines	0	BACT-PSD
Lake Cogen Limited	FL	Nov-1991	Turbine, Gas, 2 Each	42 MW	25.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Lake Cogen Limited	FL	Nov-1991	Turbine, Oil, 2 Each	42 MW	42.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Orlando Utilities Commission	FL	Nov-1991	Turbine, Gas, 4 Each	35 MW	42.0 PPM @ 15% O2	wet injection	70	BACT-PSD
Orlando Utilities Commission	FL	Nov-1991	Turbine, Oil, 4 Each	35 MW	65.0 PPM @ 15% O2	wet injection	0	BACT-PSD
Southern California Gas	CA	Oct-1991	Turbine, Gas-Fired	48 MMBTU/H	8.0 PPMVD @ 15% O2	high temperature selective catalytic reduction	93	BACT-PSD
Southern California Gas	CA	Oct-1991	Turbine, Gas Fired, Solar Model H	5500 HP	8.0 PPM @ 15% O2	high temp select. cat. reduction	93	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Gas, Solar Centaur H	5500 HP	84.9 PPM @ 15% O2	lean burn	0	NSPS
El Paso Natural Gas	AZ	Oct-1991	Turbine, Gas, Solar Centaur H	5500 HP	42.0 PPM @ 15% O2	dry low nox combustor	51	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Gas, Solar Centaur H	5500 HP	85.1 PPM @ 15% O2	fuel spec: lean fuel mix	0	NSPS
El Paso Natural Gas	AZ	Oct-1991	Turbine, Gas, Solar Centaur H	5500 HP	42.0 PPM @ 15% O2	dry low nox combustor	51	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Nat. Gas Transm., Ge Frame 3	12000 HP	225.0 PPM @ 15% O2	lean burn	0	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Nat. Gas Transm., Ge Frame 3	12000 HP	42.0 PPM @ 15% O2	dry low nox combustor	80	BACT-PSD
Florida Power Generation	FL	Oct-1991	Turbine, Oil, 6 Each	93 MW	42.0 PPM @ 15% O2	wet injection	0	BACT-PSD
Carolina Power And Light Co.	SC	Sep-1991	Turbine, I.C.	60 MW	292.0 LB/H	water injection	50	BACT-PSD
Enron Louisiana Energy Company	LA	Aug-1991	Turbine, Gas, 2	39 MMBTU/H	40.0 PPM @ 15% O2	h2o inject 0.67 lb/lb	71	BACT-PSD
Algonquin Gas Transmission Co.	RI	Jul-1991	Turbine, Gas, 2	49 MMBTU/H	100.0 PPM @ 15% O2	low nox combustion	0	BACT-OTHER
Charles Larsen Power Plant	FL	Jul-1991	Turbine, Gas, 1 Each	80 MW	25.0 PPM @ 15% O2	wet injection	0	BACT-PSD
Charles Larsen Power Plant	FL	Jul-1991	Turbine, Oil, 1 Each	60 MW	42.0 PPM @ 15% O2	wet injection	0	BACT-PSD
Sumas Energy Inc.	WA	Jun-1991	Turbine, Natural Gas	88 MW	6.0 PPM @ 15% O2	scr	90	BACT-PSD
Saguaro Power Company	NV	Jun-1991	Combustion Turbine Generator	35 MW	16.9 PPH (WINTER)	selective catalytic reduction (scr)	80	BACT-PSD
Florida Power And Light	FL	Jun-1991	Turbine, Gas, 4 Each	400 MW	25.0 PPM @ 15% O2	low nox combustors	0	BACT-PSD
Florida Power And Light	FL	Jun-1991	Turbine, Oil, 2 Each	400 MW	65.0 PPM @ 15% O2	low nox combustors	0	BACT-PSD
Florida Power And Light	FL	Jun-1991	Turbine, Cg, 4 Each	400 MW	42.0 PPM @ 15% O2	low nox combustors	0	BACT-PSD
Granite Road Limited	CA	May-1991	Turbine, Gas, Electric Generation	461 MMBTU/H*	3.5 PPMVD @ 15% O2	scr, steam injection	97	BACT-PSD
Northern Consolidated Power	PA	May-1991	Turbines, Gas, 2	35 KW EACH	25.0 PPM @ 15% O2	steam injection/+scr in 1997	85	OTHER

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Lakewood Cogeneration, L.P.	NJ	Apr-1991	Turbines (Natural Gas) (2)	1190 MMBTU/HR (EACH)	0.0 LB/MMBTU	scr, dry low nox burner	64	BACT-OTHER
Lakewood Cogeneration, L.P.	NJ	Apr-1991	Turbines (#2 Fuel Oil) (2)	1190 MMBTU/HR (EACH)	0.1 LB/MMBTU	scr and water injection	0	BACT-OTHER
Cimarron Chemical	CO	Mar-1991	Turbine #1, Ge Frame 6	33 MW	25.0 PPM @ 15% O2	water injection	0	OTHER
Cimarron Chemical	CO	Mar-1991	Turbine #2, Ge Frame 6	33 MW	9.0 PPM @ 15% O2	scr	0	OTHER
Seminole Fertilizer Corporation	FL	Mar-1991	Turbine, Gas	26 MW	9.0 PPM @ 15% O2	scr	0	BACT-PSD
Florida Power And Light	FL	Mar-1991	Turbine, Gas, 4 Each	240 MW	42.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Florida Power And Light	FL	Mar-1991	Turbine, Oil, 4 Each	0	65.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Commonwealth Atlantic Ltd Partnership	VA	Mar-1991	Turbine, Nat Gas & #2 Oil	1533 MMBTU/H EACH	25.0 PPM @ 15% O2	h2o injection & low nox combustion	0	BACT-PSD
Commonwealth Atlantic Ltd Partnership	VA	Mar-1991	Turbine, Nat Gas & #2 Oil	1400 MMBTU/H	42.0 PPMVD + 400 FBN ALL.	h2o injection, annual stack testing	0	BACT-PSD
Sumas Energy Inc	WA	Dec-1990	Turbine, Gas-Fired	67 MW	9.0 PPM @ 15% O2	selective catalytic reduction (scr)	90	BACT-PSD
Sargent Canyon Cogeneration Company	CA	Nov-1990	Turbine, Gas W/ Heat Recovery Steam Generator	43 MW	240.0 LB/D	turbine dry low nox combust sys w/ scr cntrl sys	0	BACT-PSD
Salinas River Cogeneration Company	CA	Nov-1990	Turbine,Gas, W/ Heat Recovery Steam Generator	43 MW	240.0 LB/D	turbine dry low nox combust sys w/ scr cntrl sys	0	BACT-PSD
Newark Bay Cogeneration Partnership	NJ	Nov-1990	Turbine, Natural Gas Fired	585 MMBTU/HR	0.0 LB/MMBTU	steam injection and scr	94	BACT-PSD
Newark Bay Cogeneration Partnership	NJ	Nov-1990	Turbine, Kerosene Fired	585 MMBTU/HR	0.1 LB/MMBTU	steam injection and scr	94	BACT-PSD
March Point Cogeneration Co	WA	Oct-1990	Turbine, Gas-Fired	80 MW	25.0 PPM @ 15% O2	massive steam injection	80	BACT-PSD
Las Vegas Cogeneration Ltd. Partnership	NV	Oct-1990	Turbine, Combustion Cogeneration	397 MMBTU/H	10.0 PPM @ 15% O2	h2o injection/scr	0	BACT-PSD
Wi Electric Power Co.	WI	Oct-1990	Turbines, Combustion, Simple Cycle, 4	75 MW EACH	25.0 PPM @ 15% O2, GAS	h2o injection	0	BACT-PSD
Wi Electric Power Co.	WI	Oct-1990	Turbines, Combustion, Simple Cycle, 4	75 MW EACH	65.0 PPM @ 15% O2, OIL	h2o injection	0	BACT-PSD
Chem Process Incorporated	LA	Sep-1990	Turbine, Natural Gas	219 MMBTU/H	55.0 PPM @ 15% O2	low nox burners	0	OTHER
Commonwealth Gas Pipeline Corporation	VA	Sep-1990	Turbines, Gas Fired, Single Cycle, 5	14 MMBTU/H EACH	0.0	equipment design & operation	0	BACT-PSD
Delmarva Power	DE	Sep-1990	Turbine, Combustion	100 MW	0.1 LB/MMBTU	low nox burner	0	BACT-PSD
Tbg Cogen Cogeneration Plant	NY	Aug-1990	Ge Lm2500 Gas Turbine	215 MMBTU/HR	75.0 PPM + FBN CORRECTION	water injection	60	BACT
Vermont Marble Company	VT	Jul-1990	Turbines, Combustion, Dual Fuel Fired, 2	50 MMBTU/H EACH	42.0 PPM @ 15% O2	h2o injection, gas fuel	0	BACT-PSD
Vermont Marble Company	VT	Jul-1990	Turbines, Combustion, Dual Fuel Fired, 2	50 MMBTU/H EACH	60.0 PPM @ 15% O2	h2o injection, oil fuel	0	BACT-PSD
Doswell Limited Partnership	VA	May-1990	Turbine, Combustion	1261 MMBTU/H	9.0 PPM @ 15% O2	dry combustor to 25 ppm scr to 9 ppm using nat gas	0	OTHER
Doswell Limited Partnership	VA	May-1990	Turbine, Combustion	1261 MMBTU/H	65.0 PPM @ 15% O2	steam injection & fuel spec: use of #2 oil	0	OTHER
Kalaeloa Partners, L.P.	HI	Mar-1990	Turbine, Lsfo, 2	1800 MMBTU/H, TOTAL	483.0 LB/H	steam injection at 1.3 to 1 steam to fuel ratio	77	BACT-PSD
Oneida Cogeneration Facility	NY	Feb-1990	Turbine, Ge Frame 6	417 MMBTU/H	32.0 PPM GAS	combustion control	0	OTHER
Pedricktown Cogeneration Limited Partnership	NJ	Feb-1990	Turbine, Natural Gas Fired	1000 MMBTU/HR	0.0 LB/MMBTU	steam injection and scr	93	BACT-PSD
Fulton Cogeneration Associates	NY	Jan-1990	Turbine, Ge Lm5000, Gas Fired	500 MMBTU/H	36.0 PPM GAS FIRING	h2o injection	0	BACT-PSD
Amoco Research Center	IL	Jan-1990	Turbine, Nat Gas Fired	96 MMBTU/H	49.0 PPM @ 15% O2	water injection	0	BACT-PSD
O'Brian California Cogen II, Limited	CA	Jan-1990	Turbine, Gas Generator Set W/Duct Burner	50 MW	350.4 LB/D	scr, dry type	0	LAER
Arrowhead Cogeneration Co.	VT	Dec-1989	Turbine, Combustion & Burner, Cogen., 3	282 MMBTU/H, GAS	9.0 PPMVD AT ISO COND &	scr, water injection	60	OTHER
Richmond Power Enterprise Partnership	VA	Dec-1989	Turbine, Gas Fired, 2	1164 MMBTU/H	8.2 PPM @ 15% O2 NAT GAS	scr, steam injection	0	LAER
Sc Electric And Gas Company - Hagood Station	SC	Dec-1989	Internal Combustion Turbine	110 MEGAWATTS	308.0 LBS/HR	water injection	0	BACT-PSD
Peabody Municipal Light Plant	MA	Nov-1989	Turbine, 38 Mw Natural Fas Fired	412 MMBTU/HR	25.0 PPM @ 15% O2	water injection	0	BACT-OTHER
Peabody Municipal Light Plant	MA	Nov-1989	Turbine, 38 Mw Oil Fired	412 MMBTU/HR	40.0 PPM @ 15% O2	water injection	0	BACT-OTHER
Jmc Selkirk, Inc.	NY	Nov-1989	Turbine, Ge Frame 7, Gas Fired	80 MW	25.0 PPM GAS FIRING	steam injection	0	BACT-PSD
Oxy Ngl, Inc.	LA	Nov-1989	Turbine, Centaur Gas, 4	29 MMBTU/H	21.6 LB/H	combustion design	0	BACT-PSD
Oxy Ngl, Inc.	LA	Nov-1989	Turbine, Solar Gas	14 MMBTU/H	3.7 LB/H	combustion design	0	BACT-PSD
Oxy Ngl, Inc.	LA	Nov-1989	Turbine, Solar Gas	29 MMBTU/H	21.6 LB/H	combustion design	0	BACT-PSD
Pacific Gas Transmission	OR	Nov-1989	Turbine, Nat. Gas	14600 HP	42.0 PPM @ 15% O2	low nox burners	75	BACT-PSD
Badger Creek Limited	CA	Oct-1989	Turbine, Gas Cogeneration	458 MMBTU/H	0.0 LB/MMBTU	scr, steam injection	0	BACT-PSD
Shell Offshore, Inc.	AL	Oct-1989	Turbine, Gas Fired	5000 HP	42.0 PPM	h2o injection	85	BACT-PSD
Capitol District Energy Center	CT	Oct-1989	Engine, Gas Turbine	739 MMBTU/H	42.0 PPM @ 15% O2, GAS	steam injection	0	BACT-PSD
University Of Michigan	MI	Oct-1989	Turbine, Gas, 2 Ea	4 MW	114.8 PPMV, OIL FIRED	h2o injection ratio, w/f=0.3 f.o., 0.5 gas	53	BACT-PSD
Arco Alaska, Inc.	AK	Oct-1989	Turbines, Gas Fired, 3	5400 HP/TURBINE	125.0 PPM @ 15% O2	dry control	0	BACT-PSD
The Dexter Corp.	CT	Sep-1989	Turbine, Nat Gas & #2 Fuel Oil Fired	555 MMBTU/H NAT GAS	42.0 PPM @ 15% O2 GAS	steam injection	0	BACT-PSD
Kingsburg Energy Systems	CA	Sep-1989	Turbine, Natural Gas Fired, Duct Burner	35 MW	6.0 PPM @ 15% O2	scr, steam injection	90	BACT-PSD

Table B-2. Summary of BACT Determinations for NOx.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
City Of Anaheim Gas Turbine Project	CA	Sep-1989	Turbine, Gas, Ge Pgim 5000	442 MMBTU/H	90.0 LB/D	scr, steam injection, co reactor	70	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #6 Frame	499 MMBTU/H GAS	83.0 LB/H	h2o injection	0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #6 Frame	509 MMBTU/H OIL	134.0 LB/H	h2o injection	0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #7 Frame	1047 MMBTU/H GAS	173.0 LB/H	h2o injection	0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #7 Frame	1060 MMBTU/H OIL	277.0 LB/H	h2o injection	0	BACT-PSD
Mobil E & P U.S., Inc.	CA	Sep-1989	Turbine, Gas Fired, 3 Ea	3 MW	2.1 LB/H	scr, catalyst/ammonia injection	0	BACT-PSD
Kamine Syracuse Cogeneration Co.	NY	Sep-1989	Turbine, Gas Fired	79 MW	36.0 PPM, NAT GAS	water injection	0	OTHER
Syracuse University	NY	Sep-1989	Turbine, Gas Fired	79 MW	25.0 PPM, GAS	steam injection	0	OTHER
Megan-Racine Associates, Inc	NY	Aug-1989	Ge Lm5000-N Combined Cycle Gas Turbine	401 LB/MMBTU	42.0 PPMDV @ 15% O2	water injection	60	BACT
Union Oil Co. Of California	AK	Aug-1989	Turbine, Glm Solar Saturn, 4 Ea	1300 MMBTU/H	115.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, H&H Solar Saturn, 4 Ea	1300 MMBTU/H	115.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Elect. Generator, 4 Ea	1100 MMBTU/H	115.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Shipping, Solar Saturn	1100 MMBTU/H	115.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Centaur West	4400 MMBTU/H	130.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Saturn, Bingham	4400 MMBTU/H	130.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Centaur East	4400 MMBTU/H	130.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Centaur, 2 Ea	4400 MMBTU/H	130.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Saturn, #1	1300 MMBTU/H	115.0 PPM @ 15% O2		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Booster,Solar Saturn	1300 MMBTU/H	115.0 PPM @ 15% O2		0	BACT-PSD
Cimarron Chemical Inc.	CO	Aug-1989	Turbine, 2 Ea	271 MMBTU/H	85.0 PPM @ 15% O2	steam	0	BACT-PSD
Unocal	CA	Jul-1989	Turbine, Gas (See Notes)	0	9.0 PPM @ 15% O2	selective catalytic reduction (scr), water injecin	80	BACT-OTHER
Pratt & Whitney, Utc	CT	Jul-1989	Engine, Gas Turbine	238 MMBTU/H	0.8 LB/MMBTU		0	BACT-PSD
Hawaii Electric Light Co., Inc.	HI	Jun-1989	Turbine, Oil Fired	18 MW	34.8 LB/H	water injection	89	BACT-PSD
Pratt & Whitney, Utc	CT	Jun-1989	Engine, Test Turbine	240 MMBTU/H	0.3 LB/MMBTU GAS FIRING		0	BACT-PSD
Tropicana Products, Inc.	FL	May-1989	Turbine, Gas	45 MW	42.0 PPM @ 15% O2	steam injection	0	BACT-PSD
Empire Energy - Niagara Cogeneration Co.	NY	May-1989	Turbine, Gr Frame 6, 3 Ea	416 MMBTU/H	42.0 PPM GAS FIRING	steam injection	0	BACT-PSD
Megan-Racine Associates, Inc.	NY	Mar-1989	Turbine, Lm5000	430 MMBTU/H	42.0 PPM GAS	h2o injection	0	BACT-PSD
Mojave Cogeneration Co., L.P.	CA	Mar-1989	Turbine, Gas	0	10.0 PPM @ 15% O2,DRY,	scr, steam injection	0	BACT-PSD
Indec/Oswego Hill Cogeneration	NY	Feb-1989	Turbine, Gas, Ge Frame 6	40 MW	42.0 PPM @ 15% O2, GAS	h2o injection	0	BACT-PSD
Pawtucket Power	RI	Jan-1989	Turbine/Duct Burner	533 MMBTU/H	9.0 PPM @ 15% O2, GAS	scr	0	BACT-PSD
L & J Energy System Cogeneration	NY	Jan-1989	Turbine, Gas, Ge Lm 5000	40 MW	42.0 PPM @ 15% O2, GAS	steam injection	0	BACT-PSD
Mojave Cogeneration Co.	CA	Jan-1989	Turbine, Gas	490 MMBTU/H	0.0 LB/MMBTU, GAS	fuel spec: oil firing limited to 11 h/d	0	BACT-PSD
Ocean State Power	RI	Dec-1988	Turbine, Gas, Ge Frame 7, 4 Ea	1059 MMBTU/H	9.0 PPM @ 15% O2	scr, h2o injection	0	BACT-PSD
Champion International	AL	Nov-1988	Turbine, Gas, Stationary	35 MW	42.0 PPM @ 15% O2	steam injection	70	BACT-PSD
Indeck - Yerks Energy Services, Inc.	NY	Nov-1988	Turbine, Gas, Ge Frame 6	40 MW	42.0 PPM @ 15% O2, GAS	steam injection	0	BACT-PSD
Texaco-Yokum Cogeneration Project	CA	Nov-1988	Turbine, Gas Fired, 2 Ea	25 MW	190.0 LB/D		0	BACT-PSD
Long Island Lighting Co.	NY	Nov-1988	Turbine, Ge Frame 7, 3 Ea	75 MW	55.0 PPM	water injection	0	BACT-PSD
Amtrak	PA	Oct-1988	Turbine, 2 Ea	20 MW	42.0 PPM @ 15% O2	h2o injection	0	BACT-PSD
Mobil Exploration & Producing Us, Inc.	CA	Sep-1988	Turbine & Burner, Duct	3 MW	91.0 LB/D	scr, catalyst/ammonia injection, h2o injection	85	BACT-PSD
Mobil Oil	CA	Sep-1988	Turbine, 2 Ea, W/Duct Burner	81 MMBTU/H	90.7 LB/D	molecular sieve type catalyst, h2o injection	0	BACT-PSD
Orlando Utilities Commission	FL	Sep-1988	Turbine, 2 Ea	35 MW	42.0 PPM @ 15% O2, GAS	steam injection	70	BACT-PSD
Kamine South Glens Falls	NY	Sep-1988	Turbine, Gas Fired, Ge Frame 6	40 MW	42.0 PPM, GAS	steam injection	0	BACT-PSD
Delmarva Power	DE	Aug-1988	Turbine, Combustion, 2 Ea	100 MW	42.0 PPM	low nox burner, water injection	0	BACT-PSD
Smud/Campbell Soup Co.	CA	Aug-1988	Turbine, Ge Frame 7	80 MW	1734.0 LB/D	steam/h2o injection	0	BACT-PSD
O'Brien Cogeneration	CT	Aug-1988	Turbine, Gas Fired	500 MMBTU/H	39.0 PPM @ 15% O2 GAS	water injection	0	BACT-PSD
O'Brien Cogeneration	CT	Aug-1988	Turbine, Gas Fired	500 MMBTU/H	39.0 PPM @ 15% O2 GAS	water injection	0	BACT-PSD
Continental Energy Assoc.	PA	Jul-1988	Turbine, Nat Gas	785 MMBTU/H	75.0 PPM @ 15% O2 DRY	steam injection	0	BACT-PSD
Marathon Oil Co.	NM	Jul-1988	Turbine, Ge, Gas Fired, 2 Ea	6000 HP	153.0 T/YR EA		0	NSPS
Kamine Carthage	NY	Jul-1988	Turbine, Gas Fired, Ge Frame 6	40 MW	42.0 PPM, GAS	steam injection	0	BACT-PSD

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Trigen	NY	Jul-1988	Turbine, Gas Fired, Ge Frame 6	40 MW	60.0 PPM, GAS	steam injection	0	BACT-PSD
Ada Cogeneration	MI	Jun-1988	Turbine	245 MMBTU/H	42.0 PPM @ 15% O2, 1H	h2o injection	59	BACT-PSD
Cd-1	CT	May-1988	Turbine, Allison, 2 Ea	110 MMBTU/H GAS FIRED	36.0 PPM @ 15% O2 GAS	water injection	0	BACT-PSD
Merck Sharp & Pohme	PA	May-1988	Turbine	310 MMBTU/H	42.0 PPM @ 15% O2	steam injection	0	BACT-PSD
Virginia Power	VA	Apr-1988	Turbine, Ge,2 Ea	1875 MMBTU/H	42.0 PPM	steam injection w/maximization (nsps subpart gg)	0	LAER
Tbg/Grumman	NY	Mar-1988	Turbine, Gas, 2 Ea	16 MW	75.0 PPM + NSPS CORREC	h2o injection, combustion controls	79	BACT-PSD
Exxon Co., Usa	AL	Mar-1988	Turbine	3120 KW	0.0 PPM	combustion modification	0	BACT-PSD
Exxon Co., Usa	AL	Mar-1988	Turbine	3120 KW	0.0 PPM	combustion modification	0	BACT-PSD
Exxon Co., Usa	AL	Mar-1988	Turbine	3120 KW	0.0 PPM	combustion modification	0	BACT-PSD
Combined Energy Resources	CA	Feb-1988	Engine, Gas Turbine	2 KW	199.0 LB/H	scr, water injection	81	OTHER
Texas Gas Transmission Corp.	KY	Feb-1988	Turbine, Gas	14300 HP	0.0 % BY VOLUME		0	BACT-PSD
Great Lakes Gas Transmission	MI	Feb-1988	Turbine, #1	12500 HP	0.0 SEE NOTES		0	BACT-PSD
Great Lakes Gas Transmission	MI	Feb-1988	Turbine, #2	12500 HP	0.0 SEE NOTES		0	BACT-PSD
Great Lakes Gas Transmission	MI	Feb-1988	Turbine, #3	4000 HP	0.0 SEE NOTES		0	BACT-PSD
Midland Cogeneration Venture	MI	Feb-1988	Turbine, 12 Total	984 MMBTU/H	42.0 PPM @ 15% O2	steam injection	0	BACT-PSD
Midway-Sunset Cogeneration Co.	CA	Jan-1988	Turbine, Ge Frame 7, 3 Ea	75 MW	85.0 LB/H EA, NAT GAS, NO	h2o injection, "quiet combustor"	0	BACT-PSD
Midway-Sunset Cogeneration Co.	CA	Jan-1988	Turbine, Ge Frame 7, 3 Ea	75 MW	140.0 LB/H EA, OIL FIRING,	h2o injection, "quiet combustor"	0	BACT-PSD
Midway-Sunset Cogeneration Co.	CA	Jan-1988	Turbine, Ge Frame 7, 3 Ea	75 MW	243.0 LB/H TOTAL, NOTE 4	h2o injection, "quiet combustor"	0	BACT-PSD
Adm	IL	Jan-1988	Turbine, Gas, 2 Total	34 MW	0.3 LB STEAM/LB FUEL	steam injection, design	0	BACT-PSD
Thermopower & Electric	CO	Jan-1988	Turbine, Gas, 3 Ea	271 MMBTU/H	100.0 PPMV	steam injection	45	BACT-PSD
Cogeneration Resource, Inc.	CA	Nov-1987	Turbine, Dual Fuel, 5 Ea	1 MW	0.1 LB/MMBTU	scr, ammonia reducing agent	92	BACT-PSD
Exxon Co., Usa	CA	Nov-1987	Turbine, Gas, W/Duct Burner	49 MW	18.3 LB/H	low nox burner, scr, steam injection	90	BACT-PSD
Southeast Paper Corp.	GA	Oct-1987	Turbine, Combustion	545 MMBTU/H	100.0 PPM	steam injection	0	BACT-PSD
Chevron Usa, Inc.	CA	Sep-1987	Turbine & Duct Burner, 2 Of Each	99 MW TOTAL	1500.0 LB/D	scr, steam injection	0	BACT-PSD
Downtown Cogeneration Assoc.	CT	Aug-1987	Turbine, Gas W/Duct Burner	72 MMBTU/H	42.0 PPM @ 15% O2 GAS	water injection	0	BACT-PSD
Bef Energy	CA	Jul-1987	Turbine, Generator	887 MMBTU/H	9.0 PPM AT 15% 02	scr, steam injection	80	BACT-PSD
Aes Placerita, Inc.	CA	Jul-1987	Turbine & Recovery Boiler	530 MMBTU/H	340.0 LB/D	scr, steam injection	0	BACT-PSD
Aes Placerita, Inc.	CA	Jul-1987	Turbine, Gas	530 MMBTU/H	289.0 LB/D	scr, steam injection	0	BACT-PSD
Power Development Co.	CA	Jun-1987	Turbine, Gas	49 MMBTU/H	36.0 LB/D	scr, h2o injection	0	BACT-PSD
Simpson Paper Co.	CA	Jun-1987	Turbine, Gas	50 MW	233.0 LB/D	scr, steam injection	0	OTHER
San Joaquin Cogen Limited	CA	Jun-1987	Generator, Gas Turbine	49 MW	250.0 LB/D	scr, h2o injection	76	BACT-PSD
Cogen Technologies	NJ	Jun-1987	Turbine, Gas, Ge Frame 6, 3 Ea	40 MW	9.6 PPMVD AT 15% O2	scr, h2o injection	95	OTHER
Trunkline Lng	LA	May-1987	Turbine,Gas, 2 Ea	147102 SCF/H	59.0 LB/H		0	OTHER
Pacific Gas Transmission Co.	OR	May-1987	Turbine, Gas	14000 HP	154.0 PPM	combustion control	0	BACT-PSD
Alaska Electrical Generation & Transmission	AK	Mar-1987	Turbine, Nat Gas Fired	80 MW	75.0 PPMVD AT 15% O2	h2o injection	0	BACT-PSD
U.S. Borax & Chemical Corp.	CA	Feb-1987	Turbine, Gas	45 MW	40.0 LB/H	scr, water/steam injection	0	BACT-PSD
Sierra Ltd.	CA	Feb-1987	Turbine, Gas, Ge Lm2500, 2 Total	11 MMCF/D	4.0 LB/H EA	scr, co catalytic converter, steam injection	96	OTHER
California Institute Of Technology	CA	Jan-1987	Turbine/Generator	4 MW	72.0 LB/D	scr, h2o injection	80	BACT-PSD
Midway - Sunset Project	CA	Jan-1987	Turbine, Gas, 3	973 MMBTU/H	113.4 LB/H EA	h2o injection	73	BACT-PSD
City Of Santa Clara	CA	Jan-1987	Turbine, Gas	0	42.0 PPMVD AT 15% O2	water injection	0	BACT-PSD
O'Brien Energy Systems/Merchants Refrigeration Cog	CA	Dec-1986	Turbine, Gas Fired	360 MMBTU/H	30.3 LB/H	duct burner, h2o injection & scr	0	OTHER
California Dept. Of Corrections	CA	Dec-1986	Turbine, Gas, Csc-4500, 2 Net	5 MW	38.0 PPMV AT 15% O2	h2o injection at rate 1lb h2o to 1lb fuel	0	OTHER
Double 'C' Limited	CA	Nov-1986	Turbine, Gas, 2 Ea	25 MW	194.0 LB/D, TOTAL	h2o injection & scr	96	BACT-PSD
Kern Front Limited	CA	Nov-1986	Turbine, Gas, 2 Ea	25 MW	194.0 LB/D, TOTAL	h2o injection & scr	96	BACT-PSD
Arco Alaska Kuparuk Central Prod. Fac. #3	AK	Nov-1986	Turbine, Gas Fired, Comp, 3	14900 HP	115.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Arco Alaska Kuparuk Central Prod. Fac. #3	AK	Nov-1986	Turbine, Gas Fired, Inject, 6	4900 HP	115.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Arco Alaska Kuparuk Central Prod. Fac. #3	AK	Nov-1986	Turbine, Gas Fired, Pwr Gen	33400 HP	100.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Arco Alaska Lisburne Development Project	AK	Oct-1986	Turbine, Gas Fired, Refrig., 3	5000 HP	115.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Arco Alaska Lisburne Development Project	AK	Oct-1986	Turbine, Gas Fired, Pwr Gen, 4	12000 HP	115.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD

Table B-2. Summary of BACT Determinations for NOx.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Arco Alaska Lisburne Development Project	AK	Oct-1986	Turbine, Gas Fired, Inject, 2	35000 HP	100.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Amoco Production Co.	TX	Sep-1986	Engine, Turbine	25000 HP	342.0 T/YR		0	BACT-PSD
Pg & E, Station T	CA	Aug-1986	Turbine, Gas, Ge Lm5000	396 MMBTU/H	25.0 PPM AT 15% O2	steam injection at steam/fuel ratio = 1.7/1	75	BACT-PSD
Carolina Cogeneration Co., Inc.	NC	Jul-1986	Turbine, Gas, Peat Fired	418 MMBTU/H	125.0 PPMV	scr	71	BACT-PSD
Wichita Falls Energy Investments, Inc.	TX	Jun-1986	Turbine, Gas, 3 Ea	20 MW	684.0 T/YR	steam injection	0	BACT-PSD
Formosa Plastic Corp.	TX	May-1986	Turbine, Gas, Ge Ms 6001	38 MW	640.0 T/YR	steam injection	0	BACT-PSD
Marathon Oil Co., Steelhead Platform	AK	May-1986	Turbine, Gas Fired, Pwr Gen, 3	4454 HP	115.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Marathon Oil Co., Steelhead Platform	AK	May-1986	Turbine, Gas Fired, Compressor, 3	5278 HP	115.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Kern Energy Corp.	CA	Apr-1986	Turbine, Gas	9 MMCF/D	8.3 LB/H	scr w/nh3 reducing agent & combustor steam inj.	87	BACT-PSD
Southeast Energy, Inc.	CA	Apr-1986	Turbine, Gas	8 MMCF/D	8.3 LB/H	scr w/nh3 reducing agent & combustor steam inj.	87	BACT-PSD
Moran Power, Inc.	CA	Apr-1986	Turbine, Gas	8 MMCF/D	8.3 LB/H	scr w/nh3 reducing agent & combustor steam inj.	87	BACT-PSD
Monarch Cogeneration	CA	Apr-1986	Turbine & Generator, Steam	92 MMBTU/H	192.5 LB/D	scr	0	BACT-PSD
Monarch Cogeneration	CA	Apr-1986	Turbine & Generator, Steam	92 MMBTU/H	192.5 LB/D	scr	0	BACT-PSD
Babcock & Wilcox, Lauhoff Grain	IL	Mar-1986	Turbine	223 MMBTU/H	0.8 LB/MMBTU	fuel spec: fuel/operation	0	BACT-PSD
Western Power System, Inc.	CA	Mar-1986	Turbine, Gas Fired, Ge Lm2500	27 MW	9.0 PPMVD AT 15% O2	h2o injection & scr	80	OTHER
Aes Placerita, Inc.	CA	Mar-1986	Turbine & Recovery Boiler	519 MMBTU/H	629.0 LB/D	scr, h2o injection	0	BACT-PSD
Union Oil Co.	CA	Mar-1986	Turbine, Gas & Duct Burner	434 MMBTU/H	2.5 PPM AT 15% O2	scr, steam injection	45	BACT-PSD
Shell Ca Production, Inc.	CA	Feb-1986	Turbine, Gas Fired, Ge Lm 2500	20 MW	42.0 PPM AT 15% O2 DRY	h2o injection	0	BACT-PSD
Chevron Usa, Inc.	CA	Feb-1986	Turbine, Gas, 8 Ea	47 MMBTU/H	19.0 PPMVD AT 3% O2	low nox burner, scr, h2o injection	90	OTHER
Ols Energy	CA	Jan-1986	Turbine, Gas, Ge Lm2500	256 MMBTU/H	9.0 PPMVD AT 15% O2	h2o injection & scr	0	OTHER
Union Cogeneration	CA	Jan-1986	Turbine, Gas W/Duct Burner, 3 Ea	16 MW	25.0 PPMV AT 15% O2	h2o injection & scr	0	OTHER
Pacific Thermonetics, Inc.	CA	Dec-1985	Turbine, Gas, Frame 7, 2 Ea	1015 MMBTU/H	25.0 PPMV AT 15%, NAT. GA	quiet combustor, fuel spec: natural gas, firing limited to 330 h/yr of fuel oil firing	0	BACT-PSD
Energy Reserve, Inc.	CA	Oct-1985.	Turbine, Gas Fired	323 MMBTU/H	185.4 LB/D	scr, water injection	93	BACT-PSD
American Cogeneration Technology	CA	Sep-1985	Turbine, Gas, 2 Ea, W/Waste Heat Rec. Boiler	220 MMBTU/H	17.0 PPMV AT 15% O2	h2o injection & scr	60	OTHER
Arco Alaska King Salmon Platform	AK	Sep-1985	Turbine, Gas Fired, Compressor	3950 HP	125.0 PPMVD AT 15% O2	dry controls	0	BACT-PSD
Gilroy Energy Co.	CA	Aug-1985	Turbine, Gas, 2	60 MW	25.0 PPMDV AT 15% O2	steam injection, quiet combustor	0	BACT-PSD
Sunlaw/Industrial Park 2	CA	Jun-1985	Turbine, Gas W/#2 Fuel Oil Backup, 2 Ea, Ge Frame	412 MMBTU/H	9.0 PPMVD AT 15% O2	scr, steam injection	80	OTHER
Proctor & Gamble	CA	Jun-1985	Turbine, Gas	217 MMBTU/H	75.0 PPM AT 15% O2, OIL	h2o injection	0	OTHER
Applied Energy Services	LA	May-1985	Turbine/Generator, Steam, Waste Heat	1413 MMBTU/H	414.0 LB/H	steam injection	0	BACT-PSD
Shell California Production Co.	CA	Apr-1985	Turbine, Gas Fired, 2 Ea	22 MW	42.0 PPM AT 15% O2	h2o injection	0	BACT-PSD
Conoco Milne Point	AK	Apr-1985	Turbine, Gas Fired, Total	50000 HP	100.0 PPMVD AT 15% O2		0	BACT-PSD
Willamette Industries	CA	Apr-1985	Turbine, Gas, Ge Lm-2500-33	230 MMBTU/H	15.0 PPMVD AT 15% O2	h2o injection & scr	92	OTHER
Greenleaf Power Co.	CA	Apr-1985	Turbine, Gas, Ge Lm-5000	36 MW	42.0 PPMV AT 15% O2	h2o injection	0	OTHER
Northern California Power	CA	Apr-1985	Turbine-Generator, Ge Frame 5, 2 Ea	26 MW	75.0 PPM, SEE NOTE	h2o injection	0	OTHER
Getty Oil Co.	CA	Mar-1985	Engine, Gas Turbine, 6 Ea	4 MW	7.6 LB/H	h2o injection at 0.8 lb h2o/lb fuel	0	BACT-PSD
Alaska Electrical Generation & Transmission	AK	Mar-1985	Turbine, Gas Fired, Pwr Gen	38 MW	75.0 PPM AT 15% O2	h2o injection	0	BACT-PSD
Champion International Corp.	TX	Mar-1985	Turbine, Gas, 2	1342 MMBTU/H	720.3 T/YR		0	BACT-PSD
Arco Alaska, Inc.	AK	Jan-1985	Turbine, Gas	10 MHP TOTAL	100.0 PPM AT 15% O2, DRY	low nox burners	0	BACT-PSD
Ciba-Geigy Corp.	NJ	Jan-1985	Turbine, Gas W/#2 Oil Backup	4000 HP	11.1 LB/H	h2o injection	55	OTHER
American Cogeneration Co.	CA	Dec-1984	Turbine, Gas/Crude Oil Fired, 5 Ea	1 MW	0.1 LB/MMBTU	scr w/ammonia reducing agent	92	BACT-PSD
Witco Chemical Corp.	CA	Dec-1984	Turbine	350 MMBTU/H	0.2 LB/MMBTU OIL		0	BACT-PSD
Ibm Cogeneration Project	CA	Dec-1984	Turbine, Gas	49 MW	25.0 PPM AT 15% O2	scr, h2o injection	0	LAER
Frito-Lay	CA	Nov-1984	Turbine, Gas Fired	6 MW	13.7 LB/H	h2o/steam injection	0	BACT-PSD
Vulcan Chemicals Co.	LA	Oct-1984	Turbine/Boiler, Nat Gas/Waste Heat, #3-84	196 MMBTU/H	224.7 LB/H	steam injection	0	BACT-PSD
Vulcan Chemicals Co.	LA	Oct-1984	Turbine/Boiler, Nat Gas/Waste Heat, #3-84	196 MMBTU/H	94.0 PPMV	steam injection	0	BACT-PSD
Vulcan Chemicals Co.	LA	Oct-1984	Turbine/Boiler, Nat Gas/Waste Heat, #4-84	196 MMBTU/H	224.7 LB/H	steam injection	0	BACT-PSD
Vulcan Chemicals Co.	LA	Oct-1984	Turbine/Boiler, Nat Gas/Waste Heat, #4-84	196 MMBTU/H	94.0 PPMV	steam injection	0	BACT-PSD
Sohio Alaska Petroleum Corp.	AK	Oct-1984	Turbine, Gas	1000 HP, NOTE #1	100.0 PPM AT 15% O2, DRY	low nox burners	0	BACT-PSD

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Sohio Alaska Petroleum Corp.	AK	Oct-1984	Turbine, Gas	1000 HP, NOTE #2	125.0 PPM AT 15% O2, DRY	low nox burners	0	BACT-PSD
Anchorage Municipal Light & Power	AK	Oct-1984	Turbine	82 MW	75.0 PPM AT 15% O2, DRY	wet controls	0	BACT-PSD
Basf Wyandotte Co.	LA	Sep-1984	Turbine, Nat Gas, #1-84	395 MMBTU/H	330.0 LB/H	combustor design	0	BACT-PSD
Northern California Power Agency	CA	Sep-1984	Turbine, Nat Gas, 2	26 MW	42.0 PPMD AT 15% O2	h2o injection	0	BACT-PSD
Northern California Power Agency	CA	Sep-1984	Turbine, 2, Fuel Oil	26 MW	62.0 PPMD AT 15% O2	h2o injection	0	BACT-PSD
Air Products & Chemicals, Inc.	LA	Jul-1984	Turbine/Boiler, Nat Gas/Waste Heat	203 MMBTU/H	172.0 LB/H	combustor design	0	BACT-PSD
Air Products & Chemicals, Inc.	LA	Jul-1984	Turbine/Boiler, Nat Gas/Waste Heat	203 MMBTU/H	217.0 PPM	combustor design	0	BACT-PSD
Explorer Pipeline Co.	TX	Jun-1984	Turbine, Gas	1100 HP	15.1 T/YR		0	OTHER
Texas Gulf Chemicals Co.	TX	Jun-1984	Turbine, Gas	78 MW	1368.0 T/YR	steam injection	0	NSPS
Texas Petro Chemicals Corp.	TX	Jun-1984	Turbine, Gas, 2 Ea	92 MW	1047.0 T/YR	steam injection	0	NSPS
Getty Oil Co.	CA	May-1984	Turbine, Gas	5000 HP	182.0 LB/D	h2o injection, 0.8-1	60	LAER
Calcogen	CA	Apr-1984	Turbine, Gas	21 MW	42.0 PPM AT 15% O2	water injection	76	BACT-PSD
U.S. Borax & Chemical Corp.	CA	Apr-1984	Turbine, Gas	3855 GAL/H	230.0 LB/H	water injection	70	BACT-PSD
Kissimmee Utilities	FL	Mar-1984	Turbine, Gas	400 MMBTU/H	79.0 PPM GAS FIRED	water injection	40	BACT-PSD
University Co-Generation Ltd., 1983-I	CA	Mar-1984	Turbine, Gas & Boiler, Waste Heat Fired	39 MW	199.0 LB/D	h2o injection, scr	97	OTHER
Amco Chemicals Corp.	TX	Mar-1984	Turbine, Gas	415 MMBTU/H	95.0 PPM	steam injection	37	BACT-PSD
Simpson Cogeneration Project	CA	Jan-1984	Turbine, W/Diesel Standby, Nat Gas Fired	3 MMBTU/H	3264.0 LB/D	see note #1	0	LAER
Tosco Corp.	CA	Dec-1983	Turbine, Gas, 2 Ea	500 MMBTU/H	45.0 PPM AT 15% O2	steam injection	0	OTHER
Dow Chemical, Usa	LA	Nov-1983	Turbine, #Gt-300 & Gt-400, 2 Ea	100 MW	1194.0 LB/H	combustion control	0	NSPS
Champlin Petroleum Co.	WY	Nov-1983	Turbine, 2 Ea	886 HP	150.0 PPM	design	0	BACT-PSD
Cardinal Cogen	CA	Jun-1983	Turbine, Gas	464 MMBTU/H	42.0 PPM AT 15% O2	steam injection	0	BACT-PSD
Southern Calif. Edison Co.	CA	Apr-1983	Turbine, Gas, 20	65 MW EA	44.5 PPM	water injection	0	BACT-PSD
Trunkline Lng Co.	LA	Apr-1983	Turbine, Gas, 2	105 MMBTU/H	79.0 LB/H	combustion control, o2 & co monitor	0	NSPS
Kiln-Gas R & D Inc.	IL	Apr-1983	Turbine, Coal Gas Fired	0	75.0 PPM	purification of product gas	0	NSPS
Petro-Tex Chemical Corp.	TX	Dec-1982	Turbine, Gas	982 MSCFH	237.9 LB/H	h2o injection	0	NSPS
Liquid Energy Corp.	TX	Nov-1982	Compressor, Turbine Engine, 2 Ea	3200 HP	1.8 G/HP-H		0	BACT-PSD
Simpson Lee Paper Co.	CA	Sep-1982	Turbine, Gas & Boiler, Waste Heat	33 MW	92.0 LB/H ANNUAL AV	h2o injection, continious emis monitor	0	BACT-PSD
Puget Sound Power & Light	WA	Aug-1982	Turbine, Gas, 2	100 MW EA	480.0 LB/H	water injection	0	BACT-PSD
Chugach Electric Association, Unit #4	AK	Aug-1982	Turbine, Gas	26 MW	130.0 LB/H	water injection	0	BACT-PSD
Texas Eastern Transmission Co.	PA	Jul-1982	Turbine, Gas	18500 HP	150.0 PPM	fuel spec: natural gas	0	BACT-PSD
Ibm Corp.	CA	Jun-1982	Turbine	4100 GAL/H	142.0 LB/H	h2o injection - 0.94 lb h2o/lb fuel	80	BACT-PSD
Ibm Corp.	NY	May-1982	Turbine, Gas, 2 Ea	3 MW	0.0	combustion controls	0	BACT-PSD
Algonquin Gas Transmission Co.	CT	Mar-1982	Engine, Turbine Compression	40 BHP	0.0 % BY VOL	manufacturer's guarantee	0	BACT-PSD
Crown Zellerbach, Inc.	CA	Mar-1982	Turbine, Gas	32 MW	42.0 PPM NO2 AT 15% O2	water/steam injection	0	BACT-PSD
Plains Elect. Gen & Trans	NM	Dec-1981	Generator, Turbine, Nat Gas Fired	729 MMBTU/H	270.0 LB/H	h2o injection (water/fuel = 0.5)	43	BACT-PSD
Plains Elect. Gen & Trans	NM	Dec-1981	Generator, Turbine, Oil Standby Fuel	722 MMBTU/H	280.0 LB/H	h2o injection (water/fuel = 0.5)	67	NSPS
Southern Ca Edison Coalwater Station	CA	Dec-1981	Turbine, Gas	100 MW	140.0 LB/H 3H AV	water injection	0	OTHER
Merck & Co., Keko Division	CA	Nov-1981	Turbine, 3	7 MW EA	20.0 LB/H PER TURBINE	water injection	70	BACT-PSD
Fort Howard Paper Co.	OK	Oct-1981	Turbine	400 MMBTU/H	0.3 LB/MMBTU #2 OIL	normal operation	0	BACT-PSD
Fort Howard Paper Co.	OK	Oct-1981	Turbine	400 MMBTU/H	0.2 LB/MMBTU N. GAS	water injection	0	BACT-PSD
Mobil Oil Exploration	AL	Oct-1981	Generator, Turbine, Gas Fired	6 MW	175.0 PPM BY VOL		0	BACT-PSD
Phillips Petroleum Co.	TX	Oct-1981	Turbine, 2	3000 HP EA	0.1 LB/MMBTU GAS	o2 monitoring	0	BACT-PSD
Prudhoe Bay Consortium	AK	Sep-1981	Turbine	303 MHP	150.0 PPM	dry control	0	BACT-PSD
Dow Chemical Co.	LA	Aug-1981	Turbine, Nat Gas Fired, 2 Ea	1203 MMBTU/H	0.4 LB/MMBTU	steam injection	85	NSPS
Gulf States Utility	LA	Jul-1981	Turbine	1390 MMBTU/H	0.3 LB/MMBTU OIL	steam injection	60	NSPS
Gulf States Utility	LA	Jul-1981	Turbine	1361 MMBTU/H	0.3 LB/MMBTU	steam injection	0	NSPS
Vulcan Materials Co.	KS	Jul-1981	Turbine, Simple-Cycle, Nat Gas	39 MW	0.0 SEE NOTE	steam injection	0	BACT-PSD
Longview Refin.	TX	May-1981	Turbine, 3	6275 HP	1.3 G/HP-H		0	BACT-PSD
Odesse Natural Corp.	TX	Mar-1981	Turbine	7660 HP	1.3 G/HP-H	air/fuel ratio	0	BACT-PSD

Table B-2. Summary of BACT Determinations for NOx.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Northern Alaskan Pipeline	AK	Feb-1981	Turbine, Mainline Compressor	0	150.0 PPM	dry control	0	BACT-PSD
Northern Alaskan Pipeline	AK	Feb-1981	Turbine, Refrigerant Compressor	0	150.0 PPM	dry control	0	BACT-PSD
Northern Alaskan Pipeline	AK	Feb-1981	Turbine, Electric Generator	0	150.0 PPM	dry control	0	BACT-PSD
Gulf States Utility	LA	Jan-1981	Turbine, Combustion, 2	1336 MMBTU/H	334.0 LB/H	steam/water injection	0	NSPS
Gulf States Utility	LA	Jan-1981	Turbine, Combustion, 2	1336 MMBTU/H	362.0 LB/H	steam/water injection	0	NSPS
Florida Power	FL	Jan-1981	Turbine Peaking Units, 4 Ea	63 MW	250.0 LB/H	water injection	0	NSPS
Empire Dist. Elect. Co.	MO	Jan-1981	Turbine, Combustion, Simple-Cyc, Oil Fired, #2	1056 MMBTU/H (MAX)	230.0 PPMV, 15% O2, (ISO)-	design	0	BACT-PSD
Gulf States Utility	LA	Dec-1980	Turbine	1396 MMBTU/H	0.3 LB/MMBTU OIL	water/steam injection	60	NSPS
Prudhoe Bay Consortium	AK	Dec-1980	Turbine, Gas, 10	16 MHP EA	150.0 PPM	dry control	0	BACT-PSD
Nevada Pwr Co., Clark Station Unit #8	NV	Sep-1980	Generator, Combustion Turbine	74 MW	0.3 LB/MMBTU	water injection	0	NSPS
Texaco, Inc.	LA	Aug-1980	Compressor, Turbine, Gas Fired	3300 HP	9.4 LB/H		0	NSPS
Texaco, Inc.	LA	Aug-1980	Turbine, Gas Fired, Compression	3500 HP	1.8 G/HP-H		0	BACT-PSD
Diamond Shamrock Corp.	TX	Jun-1980	Turbine, Gas, 3	960 MMBTU/H EA	403.0 LB/H EA	water injection	0	NSPS
Proctor & Gamble Paper Products Co.	CA	Apr-1980	Turbine, Gas	19 MW	0.3 LB/MMBTU FUEL OIL	water injection	0	BACT-PSD
Proctor & Gamble Paper Products Co.	TX	Feb-1980	Turbine, Gas, 2	350 MMBTU/H EA	118.8 LB/H	water injection	0	BACT-PSD
Phillips Petroleum Co.	TX	Jan-1980	Engine, Turbine Compressor	3000 HP EA	1.8 G/HP-H	normal operation	0	BACT-PSD
Nevada Pwr Co., Clark Station Unit #7	NV	Oct-1979	Generator, Gas Turbine	74 MW	0.3 LB/MMBTU	water injection	0	BACT-PSD

Table B-3. Capital Cost for Selective Catalytic Reduction for Frame "F" Simple Cycle Combustion Turbine

Cost Component	Costs	Basis of Cost Component
Direct Capital Costs		
SCR Associated Equipment	$940,000	Vendor Based Estimate
Ammonia Storage Tank	$134,225	$35 per 1,000 lb mass flow developed from vendor quotes
Flue Gas Cooling	$260,000	Vendor Based Estimate (110,000 acfm)
Instrumentation	$94,000	10% of SCR Associated Equipment
Taxes	$198,984	6% of SCR Associated Equipment and Catalyst
Freight	$165,820	5% of SCR Associated Equipment and Catalyst
Total Direct Capital Costs (TDCC)	$1,793,029	
Direct Installation Costs		
Foundation and supports	$333,555	8% of TDCC and RCC;OAQPS Cost Control Manual
Handling & Erection	$583,720	14% of TDCC and RCC;OAQPS Cost Control Manual
Electrical	$166,777	4% of TDCC and RCC;OAQPS Cost Control Manual
Piping	$83,389	2% of TDCC and RCC;OAQPS Cost Control Manual
Insulation for ductwork	$41,694	1% of TDCC and RCC;OAQPS Cost Control Manual
Painting	$41,694	1% of TDCC and RCC;OAQPS Cost Control Manual
Site Preparation	$5,000	Engineering Estimate
Buildings	$15,000	Engineering Estimate
Total Direct Installation Costs (TDIC)	$1,270,829	
Recurring Capital Costs (RCC)	$2,376,402	Catalyst; Vendor Based Estimate
TOTAL CAPITAL COSTS (TCC)	$5,440,261	Sum of TDCC, TDIC and RCC
Indirect Costs		
Engineering	$544,026	10% of Total Capital Costs; OAQPS Cost Control Manual
PSM/RMP Plan	$25,000	Engineering Estimate
Construction and Field Expense	$272,013	5% of Total Capital Costs; OAQPS Cost Control Manual
Contractor Fees	$544,026	10% of Total Capital Costs; OAQPS Cost Control Manual
Start-up	$108,805	2% of Total Capital Costs; OAQPS Cost Control Manual
Performance Tests	$54,403	1% of Total Capital Costs; OAQPS Cost Control Manual
Allowance for Funds Used During Construction (AFUDC)	$355,487	2.5% of Total Capital Costs; borrowed at a rate of 8.5% for 9 months.
Contingencies	$163,208	3% of Total Capital Costs; OAQPS Cost Control Manual
TOTAL INDIRECT CAPITAL COST (TInCC)	$2,066,968	
TOTAL DIRECT, INDIRECT and RECURRING CAPITAL COSTS (TDIRCC)	$7,507,229	Sum of TCC and TInCC

Table B-4. Annualized Cost for Selective Catalytic Reduction for Frame "F" Simple Cycle Operation

Cost Component	Costs	Basis of Cost Component
Direct Annual Costs		
Operating Personnel	$24,960	24 hours/week at $20/hr
Supervision	$3,744	15% of Operating Personnel;OAQPS Cost Control Manual
Maintenance - Labor	$13,104	0.5 hr per shift, $24/hr; OAQPS Cost Manual
- Materials	$13,104	100% of maintenance labor; OAQPS Cost Manual
Ammonia	$101,428	$300 per ton NH3 Aqueous
PSM/RMP Update	$5,000	Engineering Estimate
Inventory Cost	$93,044	Capital Recovery (11.74%) for 1/3 catalyst
Catalyst Disposal Cost	$35,793	$28/1,000 lb/hr mass flow over 3 years; developed from vendor quotes
Contingency	$8,705	3% of Direct Annual Costs
Total Direct Annual Costs (TDAC)	$298,883	
Energy Costs		
Electrical	$47,460	80kW/h for SCR; 200 kW/h for cooling fan@ $0.05/kWh times Capacity Factor
Heat Rate Penalty	$162,551	0.5% of MW output; EPA, 1993 (Page 6-20)
MW Loss Penalty	$230,160	3 days lost energy costs @ $0.05 kWh each three period
Fuel Escalation	$13,205	Escalation of fuel over inflation; 3% of energy costs
Contingency	$13,601	3% of Energy Costs
Total Energy Costs (TEC)	$466,977	
Indirect Annual Costs		
Overhead	$17,222	60% of Operating/Supervision Labor and Ammonia
Property Taxes, Insurance, Admin.	$300,289	4% of Total Capital Costs
Annualized Total Direct Capital	$602,665	11.75% Capital Recovery Factor of 10% over 20 years times sum of TDCC, TDIC, and TInC
Annualized Total Direct Recurring	$955,587	40.21% Capital Recovery Factor of 10% over 3 years times RCC
Total Indirect Annual Costs (TIAC)	$1,875,763	
TOTAL ANNUALIZED COSTS	$2,641,623	Sum of TDAC, TEC and TIAC
COST EFFECTIVENESS	$11,344	

Table B-5. Summary of BACT Determinations for CO.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Mead Coated Board, Inc.	AL	Mar-1997	Combined Cycle Turbine (25 Mw)	568 MMBTU/HR	28.0 PPMVD@15% O2 (GAS)	proper design and good combustion practices	0	BACT-PSD
Formosa Plastics Corporation, Baton Rouge Plant	LA	Mar-1997	Turbine/Hsrg, Gas Cogeneration	450 MM BTU/HR	70.0 LB/HR	combustion design and construction.	0	BACT-PSD
Southwestern Public Service Company/Cunningham Sta	NM	Feb-1997	Combustion Turbine, Natural Gas	100 MW	0.0 SEE FACILITY NOTES	good combustion practices	0	BACT-PSD
Southwestern Public Service Co/Cunningham Station	NM	Nov-1996	Combustion Turbine, Natural Gas	100 MW	0 0 SEE P2	good combustion practices	0	BACT-PSD
Blue Mountain Power, Lp	PA	Jul-1996	Combustion Turbine With Heat Recovery Boiler	153 MW	3.1 PPM @ 15% O2	oxidation catalyst 16 ppm @ 15% o2 when firing no. 2 oil. at 75% ng limit set to 22.1 ppm	80	OTHER
Portside Energy Corp.	IN	May-1996	Turbine, Natural Gas-Fired	63 MEGAWATT	40.0 LBS/HR	good combustion and emissions not to exceed 40 ppmvd at 15% oxygen.	0	BACT-PSD
Portside Energy Corp.	IN	May-1996	Turbine, Natural Gas-Fired	63 MEGAWATT	12.0 LBS/HR	good combustion and emissions not to exceed 10 ppmvd at 15% oxygen.	0	BACT-PSD
General Electric Gas Turbines	SC	Apr-1996	I.C. Turbine	2700 MMBTU/HR	27169.0 LB/HR	good combustion practices to minimize emissions	0	BACT-PSD
Carolina Power & Light	NC	Apr-1996	Combustion Turbine, 4 Each	1908 MMBTU/HR	81.0 LB/HR	combustion control	0	BACT-PSD
Carolina Power & Light	NC	Apr-1996	Combustion Turbine, 4 Each	1906 MMBTU/HR	80.0 LB/HR	combustion control	0	BACT-PSD
South Mississippi Electric Power Assoc.	MS	Apr-1996	Combustion Turbine, Combined Cycle	1299 MMBTU/HR NAT GAS	26.3 PPM @ 15% O2, GAS	good combustion controls	0	BACT-PSD
Mid-Georgia Cogen.	GA	Apr-1996	Combustion Turbine (2), Natural Gas	116 MW	10.0 PPMVD	complete combustion	0	BACT-PSD
Mid-Georgia Cogen.	GA	Apr-1996	Combustion Turbine (2), Fuel Oil	116 MW	30 0 PPMVD	complete combustion	0	BACT-PSD
Georgia Gulf Corporation	LA	Mar-1996	Generator, Natural Gas Fired Turbine	1123 MM BTU/HR	972.4 TPY CAP FOR 3 TURB.	good combustion practice and proper operation	0	BACT-PSD
Seminole Hardee Unit 3	FL	Jan-1996	Combined Cycle Combustion Turbine	140 MW	20 0 PPM (NAT. GAS)	dry lnb good combustion	0	BACT-PSD
Key West City Electric System	FL	Sep-1995	Turbine, Existing Ct Relocation To A New Plant	23 MW	20.0 PPM @ 15% O2 FULL LD	good combustion	0	BACT-PSD
Union Carbide Corporation	LA	Sep-1995	Generator, Gas Turbine	1313 MM BTU/HR	198.6 LB/HR	no add-on control good combustion practice	0	BACT-PSD
Brooklyn Navy Yard Cogeneration Partners L.P.	NY	Jun-1995	Turbine, Natural Gas Fired	240 MW	4.0 PPM @ 15% O2		0	LAER
Brooklyn Navy Yard Cogeneration Partners L.P.	NY	Jun-1995	Turbine, Oil Fired	240 MW	5.0 PPM @ 15% O2		0	LAER
Panda-Kathleen, L.P.	FL	Jun-1995	Combined Cycle Combustion Turbine (Total 115Mw)	75 MW	25.0 PPM @ 15% O2	combustion controls standard only applies if ge ct is selected, the abb ct was less than significant emis. incr for co	0	BACT-PSD
Milagro, Williams Field Service	NM	May-1995	Turbine/Cogen, Natural Gas (2)	900 MMCF/DAY	27.6 PPM @ 15% O2		0	BACT-PSD
Pilgrim Energy Center	NY	Apr-1995	(2) Westinghouse W501D5 Turbines (Ep #S 00001&2)	1400 MMBTU/HR	10.0 PPM, 29.0 LB/HR		0	BACT-OTHER
Lederle Laboratories	NY	Apr-1995	(2) Gas Turbines (Ep #S 00101&102)	110 MMBTU/HR	48.0 PPM, 12.6 LB/HR		0	BACT-OTHER
Baltimore Gas & Electric - Perryman Plant	MD	Mar-1995	Turbine, 140 Mw Natural Gas Fired Electric	140 MW	20.0 PPM @ 15% O2	good combustion practices	0	BACT-PSD
Formosa Plastics Corporation, Louisiana	LA	Mar-1995	Turbine/Hrsg, Gas Cogeneration	450 MM BTU/HR	25.6 LB/HR	proper operation	0	BACT-PSD
Marathon Oil Co. - Indian Basin N.G. Plan	NM	Jan-1995	Turbines, Natural Gas (2)	5500 HP	13.2 LBS/HR	lean-prembxed combustion technology.	86	BACT-PSD
Kamine/Besicorp Syracuse Lp	NY	Dec-1994	Siemens V84.3 Gas Turbine (Ep #00001)	650 MMBTU/HR	9.5 PPM	no controls	0	BACT-OTHER
Indeck-Oswego Energy Center	NY	Oct-1994	Ge Frame 6 Gas Turbine	533 LB/MMBTU	10.0 PPM, 10.00 LB/HR	no controls	0	BACT-OTHER
Fulton Cogen Plant	NY	Sep-1994	Ge Lm5000 Gas Turbine	500 MMBTU/HR	107.0 PPM, 120 LB/HR	no controls	0	BACT-OTHER
Fulton Cogen Plant	NY	Sep-1994	Stack Emissions (Gas Turbine And Duct Burner)	610 MMBTU/HR (TOTAL)	156.0 PPM, 175.0 LB/HR	no controls	0	BACT-OTHER
Carolina Power And Light	SC	Aug-1994	Stationary Gas Turbine	1520 MMBTU/H	702 0 LB/H	proper operation to achieve good combustion	0	BACT-PSD
Carolina Power And Light	SC	Aug-1994	Stationary Gas Turbine	1520 MMBTU/H	414.0 LB/H	proper operation to achieve good combustion	0,	BACT-PSD
Colorado Power Partnership	CO	Jul-1994	Turbines, 2 Nat Gas & 2 Duct Burners	385 MMBTU/H EACH TURBINE	22.4 PPM @ 15% O2		0	BACT-PSD
Muddy River L.P.	NV	Jun-1994	Combustion Turbine, Diesel & Natural Gas	140 MEGAWATT	77.0 LB/HR	fuel spec: natural gas	0	BACT-PSD
Csw Nevada, Inc.	NV	Jun-1994	Combustion Turbine, Diesel & Natural Gas	140 MEGAWATT	83.0 LB/HR	fuel spec: natural gas	0	BACT-PSD
Portland General Electric Co.	OR	May-1994	Turbines, Natural Gas (2)	1720 MMBTU	15.0 PPM @ 15% O2	good combustion practices	0	BACT-PSD
West Campus Cogeneration Company	TX	May-1994	Gas Turbines	75 MW (TOTAL POWER)	300.0 TPY	internal combustion controls	0	BACT
Hermiston Generating Co.	OR	Apr-1994	Turbines, Natural Gas (2)	1696 MMBTU	15 0 PPM @ 15% O2	good combustion practices	0	BACT-PSD
Florida Power Corporation Polk County Site	FL	Feb-1994	Turbine, Natural Gas (2)	1510 MMBTU/H	25.0 PPMVD	good combustion practices	0	BACT-PSD
Florida Power Corporation Polk County Site	FL	Feb-1994	Turbine, Fuel Oil (2)	1730 MMBTU/H	30.0 PPMVD	good combustion practices	0	BACT-PSD
Teco Polk Power Station	FL	Feb-1994	Turbine, Syngas (Coal Gasification)	1755 MMBTU/H	25.0 PPMVD	good combustion	0	BACT-PSD
Teco Polk Power Station	FL	Feb-1994	Turbine, Fuel Oil	1765 MMBTU/H	40 0 PPMVD	good combustion	0	BACT-PSD
International Paper	LA	Feb-1994	Turbine/Hrsg, Gas Cogen	338 MM BTU/HR TURBINE	165.9 LB/HR	combustion control	0	BACT

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Kamine/Besicorp Carthage L.P.	NY	Jan-1994	Ge Frame 6 Gas Turbine	491 BTU/HR	10.0 PPM, 11.0 LB/HR	no controls	0	BACT-OTHER
Kamine/Besicorp Carthage L.P.	NY	Jan-1994	Stack (Gas Turbine & Duct Burner) **See Note #3**	540 LB/MMBTU	23.0 PPM, 28.3 LB/HR	no controls	0	BACT-OTHER
Orange Cogeneration Lp	FL	Dec-1993	Turbine, Natural Gas, 2	368 MMBTU/H	30.0 PPMVD	good combustion	0	BACT-PSD
Project Orange Associates	NY	Dec-1993	Ge Lm-5000 Gas Turbine	550 MMBTU/HR	92.0 LB/HR TEMP > 20F	no controls	0	BACT-OTHER
Project Orange Associates	NY	Dec-1993	Stack (Turbine And Duct Burner)	715 MMBTU/HR	106.4 LB/HR TEMP > 20F	oxidation catalyst	80	BACT
Williams Field Services Co. - El Cedro Compressor	NM	Oct-1993	Turbine, Gas-Fired	11257 HP	50.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Patowmack Power Partners, Limited Partnership	VA	Sep-1993	Turbine, Combustion, Siemens Model V84.2, 3	10 X109 SCF/YR NAT GAS	26.0 LB/HR	good combustion operating practices	0	BACT-PSD
Florida Gas Transmission Company	AL	Aug-1993	Turbine, Natural Gas	12600 BHP	0.4 GM/HP HR	air-to-fuel ratio control, dry combustion controls	0	BACT-PSD
Lockport Cogen Facility	NY	Jul-1993	(6) Ge Frame 6 Turbines (Ep #S 00001-00006)	424 MMBTU/HR	10.0 PPM	no controls	0	BACT-OTHER
Anitec Cogen Plant	NY	Jul-1993	Ge Lm5000 Combined Cycle Gas Turbine Ep #00001	451 MMBTU/HR	36.0 PPM, 33 LB/HR	baffle chamber	80	SEE NOTE #4
Newark Bay Cogeneration Partnership, L.P.	NJ	Jun-1993	Turbines, Combustion, Natural Gas-Fired (2)	617 MMBTU/HR (EACH)	1.8 PPMDV	oxidation catalyst	0	OTHER
Newark Bay Cogeneration Partnership, L.P.	NJ	Jun-1993	Turbines, Combustion, Kerosene-Fired (2)	640 MMBTU/H (EACH)	2.6 PPMDV	oxidation catalyst	0	OTHER
Psi Energy, Inc. Wabash River Station	IN	May-1993	Combined Cycle Syngas Turbine	1775 MMBTU/HR	15.0 LESS THAN PPM	operation practices and good combustion, combined cycle syngas turbine	0	BACT-PSD
Tiger Bay Lp	FL	May-1993	Turbine, Gas	1615 MMBTU/H	49.0 LB/H	good combustion practices	0	BACT-PSD
Tiger Bay Lp	FL	May-1993	Turbine, Oil	1850 MMBTU/H	98.4 LB/H	good combustion practices	0	BACT-PSD
Indeck Energy Company	NY	May-1993	Ge Frame 6 Gas Turbine Ep #00001	491 MMBTU/HR	40.0 PPM	no controls	0	BACT-OTHER
Lilco Shoreham	NY	May-1993	(3) Ge Frame 7 Turbines (Ep #S 00007-9)	850 MMBTU/HR	10.0 PPM, 19.7 LB/HR	no controls	0	BACT-OTHER
Trigen Mitchel Field	NY	Apr-1993	Ge Frame 6 Gas Turbine	425 MMBTU/HR	10.0 PPM, 10.0 LB/HR	no controls	0	BACT-OTHER
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Natural Gas	669 MMBTU/H	54.0 LB/H	good combustion practices	0	BACT-PSD
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Fuel Oil	928 MMBTU/H	65.0 LB/H	good combustion practices	0	BACT-PSD
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Natural Gas	367 MMBTU/H	40.0 LB/H	good combustion practices	0	BACT-PSD
Kissimmee Utility Authority	FL	Apr-1993	Turbine, Fuel Oil	371 MMBTU/H	76.0 LB/H	good combustion practices	0	BACT-PSD
East Kentucky Power Cooperative	KY	Mar-1993	Turbines (5), #2 Fuel Oil And Nat. Gas Fired	1492 MMBTU/H (EACH)	75.0 LBS/H (EACH)	proper combustion techniques	0	BACT-OTHER
International Paper Co. Riverdale Mill	AL	Jan-1993	Turbine, Stationary (Gas-Fired) With Duct Burner	40 MW	22.1 LB/HR	design	0	BACT-PSD
Auburndale Power Partners, Lp	FL	Dec-1992	Turbine,Gas	1214 MMBTU/H	15.0 PPMVD	good combustion practices	0	BACT-PSD
Auburndale Power Partners, Lp	FL	Dec-1992	Turbine, Oil	1170 MMBTU/H	25.0 PPMVD	good combustion practices	0	BACT-PSD
Sithe/Independence Power Partners	NY	Nov-1992	Turbines, Combustion (4) (Natural Gas) (1012 Mw)	2133 MMBTU/HR (EACH)	13.0 PPM	combustion controls	0	BACT-OTHER
Kamine/Besicorp Beaver Falls Cogeneration Facility	NY	Nov-1992	Turbine, Combustion (Nat. Gas & Oil Fuel) (79Mw)	650 MMBTU/HR	9.5 PPM	combustion controls	0	BACT-OTHER
Grays Ferry Co. Generation Partnership	PA	Nov-1992	Turbine (Natural Gas & Oil)	1150 MMBTU	0.0 LB/MMBTU (GAS)*	combustion	0	BACT-OTHER
Bear Island Paper Company, L.P.	VA	Oct-1992	Turbine, Combustion Gas	474 X10(6) BTU/HR N. GAS	11.0 LBS/HR	good combustion	0	BACT-PSD
Bear Island Paper Company, L.P.	VA	Oct-1992	Turbine, Combustion Gas	468 X10(6) BTU/HR #2 OIL	11.0 LBS/HR	good combustion	0	BACT-PSD
Bear Island Paper Company, L.P.	VA	Oct-1992	Turbine, Combustion Gas (Total)	0	48.2 TPY	good combustion	0	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbine Facility, Gas	1331 X10(7) SCF/Y NAT GAS	249.9 TOTAL TPY	good combustion practices	0	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbine Facility, Gas	7 X10(7) GPY FUEL OIL	249.9 TOTAL TPY	good combustion practices	0	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbines (2) [Each With A Sf]	2 X10(9) BTU/HR N GAS	57.0 LBS/HR/UNIT	good combustion practices	0	BACT-PSD
Gordonsville Energy L.P.	VA	Sep-1992	Turbines (2) [Each With A Sf]	1 X10(9) BTU/H #2 OIL	68.0 LBS/HR/UNIT	good combustion practices	0	BACT-PSD
Nevada Power Company, Harry Allen Peaking Plant	NV	Sep-1992	Combustion Turbine Electric Power Generation	600 MW (8 UNITS 75 EACH)	152.5 TPY (EACH TURBINE)	precision control for the low nox combustor	0	BACT-PSD
Kamine South Glens Falls Cogen Co	NY	Sep-1992	Ge Frame 6 Gas Turbine	498 MMBTU/HR	9.0 PPM, 11.0 LB/HR	no controls	0	BACT-OTHER
Northern States Power Company	SD	Sep-1992	Turbine, Simple Cycle, 4 Each	129 MW	50.0 PPM FOR GAS	good combustion techniques	0	BACT-PSD
Pasny/Holtsville Combined Cycle Plant	NY	Sep-1992	Turbine, Combustion Gas (150 Mw)	1146 MMBTU/HR (GAS)*	8.5 PPM	combustion control	0	BACT-OTHER
Wepcu, Paris Site	WI	Aug-1992	Turbines, Combustion (4)	0	25.0 LBS/HR (SEE NOTES)		0	BACT-PSD
Florida Power Corporation	FL	Aug-1992	Turbine, Oil	1029 MMBTU/H	54.0 LB/H	good combustion practices	0	BACT-PSD
Florida Power Corporation	FL	Aug-1992	Turbine, Oil	1866 MMBTU/H	79.0 LB/H	good combustion practices	0	BACT-PSD
Cng Transmission	OH	Aug-1992	Turbine (Natural Gas) (3)	5500 HP (EACH)	0.0 G/HP-HR	fuel spec: use of natural gas	0	OTHER
Saranac Energy Company	NY	Jul-1992	Turbines, Combustion (2) (Natural Gas)	1123 MMBTU/HR (EACH)	3.0 PPM	oxidation catalyst	0	BACT-OTHER
Hartwell Energy Limited Partnership	GA	Jul-1992	Turbine, Gas Fired (2 Each)	1817 M BTU/HR	25.0 PPMVD @ FULL LOAD	fuel spec: clean burning fuels	0	BACT-PSD
Hartwell Energy Limited Partnership	GA	Jul-1992	Turbine, Oil Fired (2 Each)	1840 M BTU/HR	25.0 PPMVD @ FULL LOAD	fuel spec: clean burning fuels	0	BACT-PSD
Maui Electric Company, Ltd./Maalaea Generating Sta	HI	Jul-1992	Turbine, Combined-Cycle Combustion	28 MW	26.9 LB/HR	combustion technology/design	0	BACT-OTHER

Table B-5. Summary of BACT Determinations for CO.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Indeck-Yerkes Energy Services	NY	Jun-1992	Ge Frame 6 Gas Turbine (Ep #00001)	432 MMBTU/HR	10.0 PPM, 10 LB/HR	no controls	0	BACT-OTHER
Selkirk Cogeneration Partners, L.P.	NY	Jun-1992	Combustion Turbines (2) (252 Mw)	1173 MMBTU/HR (EACH)	10.0 PPM	combustion controls	0	BACT-OTHER
Selkirk Cogeneration Partners, L.P.	NY	Jun-1992	Combustion Turbine (79 Mw)	1173 MMBTU/HR	25.0 PPM	combustion control	0	BACT-OTHER
Narragansett Electric/New England Power Co.	RI	Apr-1992	Turbine, Gas And Duct Burner	1360 MMBTU/H EACH	11.0 PPM @ 15% O2, GAS		0	BACT-PSD
Kentucky Utilities Company	KY	Mar-1992	Turbine, #2 Fuel Oil/Natural Gas (6)	1500 MM BTU/HR (EACH)	75.0 LB/HR (EACH)	combustion control	0	BACT-PSD
Bermuda Hundred Energy Limited Partnership	VA	Mar-1992	Turbine, Combustion	1175 MMBTU/H NAT. GAS	62.0 LB/H/UNIT	furnace design	91	BACT-PSD
Bermuda Hundred Energy Limited Partnership	VA	Mar-1992	Turbine, Combustion	1117 MMBTU/H NO2 FUEL OIL	62.0 LB/H/UNIT	furnace design	91	BACT-PSD
Bermuda Hundred Energy Limited Partnership	VA	Mar-1992	Turbine, Combustion, 2	0	229.3 T/YR/UNIT		0	BACT-PSD
Thermo Industries, Ltd.	CO	Feb-1992	Turbine, Gas Fired, 5 Each	246 MMBTU/H	25.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Savannah Electric And Power Co.	GA	Feb-1992	Turbines, 8	1032 MMBTU/H, NAT GAS	9.0 PPM @ 15% O2	fuel spec: low sulfur fuel oil	0	BACT-PSD
Savannah Electric And Power Co.	GA	Feb-1992	Turbines, 8	972 MMBTU/H, #2 OIL	9.0 PPM @ 15% O2	fuel spec: low sulfur fuel oil	0	BACT-PSD
Hawaii Electric Light Co., Inc.	HI	Feb-1992	Turbine, Fuel Oil #2	20 MW	26.8 LB/HR @ 100% PEAKLO	combustion design	0	BACT-PSD
Hawaii Electric Light Co., Inc.	HI	Feb-1992	Turbine, Fuel Oil #2	20 MW	56.4 LB/H @ 75-<100% PKLD	combustion design	0	BACT-PSD
Hawaii Electric Light Co., Inc.	HI	Feb-1992	Turbine, Fuel Oil #2	20 MW	181.0 LB/H @ 50-<75% PKLD	combustion design	0	BACT-PSD
Hawaii Electric Light Co., Inc.	HI	Feb-1992	Turbine, Fuel Oil #2	20 MW	475.6 LB/H @ 25-<50% PKLD	combustion design	0	BACT-PSD
Kamine/Besicorp Natural Dam Lp	NY	Dec-1991	Ge Frame 6 Gas Turbine	500 MMBTU/HR	0.0 LB/MMBTU, 10 LB/HR	no controls	0	BACT-OTHER
Duke Power Co. Lincoln Combustion Turbine Station	NC	Dec-1991	Turbine, Combustion	1247 MM BTU/HR	60.0 LB/HR	combustion control	0	BACT-PSD
Duke Power Co. Lincoln Combustion Turbine Station	NC	Dec-1991	Turbine, Combustion	1313 MM BTU/HR	59.0 LB/HR	combustion control	0	BACT-PSD
Maui Electric Company, Ltd.	HI	Dec-1991	Turbine, Fuel Oil #2	28 MW	0.0 SEE NOTES	good combustion practices	0	BACT-PSD
Kalamazoo Power Limited	MI	Dec-1991	Turbine, Gas-Fired, 2, W/ Waste Heat Boilers	1606 MMBTU/H	20.0 PPMV	dry low nox turbines	0	BACT-PSD
Lake Cogen Limited	FL	Nov-1991	Turbine, Gas, 2 Each	42 MW	42.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Lake Cogen Limited	FL	Nov-1991	Turbine, Oil, 2 Each	42 MW	78.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Orlando Utilities Commission	FL	Nov-1991	Turbine, Gas, 4 Each	35 MW	10.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Orlando Utilities Commission	FL	Nov-1991	Turbine, Oil, 4 Each	35 MW	10.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Southern California Gas	CA	Oct-1991	Turbine, Gas-Fired	48 MMBTU/H	7.7 PPM @ 15% O2	high temperature oxidation catalyst	80	BACT-PSD
Southern California Gas	CA	Oct-1991	Turbine, Gas Fired, Solar Model H	5500 HP	7.7 PPM @ 15% O2	high temp oxidation catalyst	80	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Gas, Solar Centaur H	5500 HP	10.5 PPM @ 15% O2	fuel spec: lean fuel mix	0	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Gas, Solar Centaur H	5500 HP	10.5 PPM @ 15% O2	fuel spec: lean fuel mix	0	BACT-PSD
El Paso Natural Gas	AZ	Oct-1991	Turbine, Nat. Gas Transm., Ge Frame 3	12000 HP	60.0 PPM @ 15% O2	lean burn	0	BACT-PSD
Florida Power Generation	FL	Oct-1991	Turbine, Oil, 6 Each	93 MW	54.0 LB/H	combustion control	0	BACT-PSD
Carolina Power And Light Co.	SC	Sep-1991	Turbine, I.C.	80 MW	60.0 LB/H		0	BACT-PSD
Enron Louisiana Energy Company	LA	Aug-1991	Turbine, Gas, 2	39 MMBTU/H	60.0 PPM @ 15% O2	base case, no additional controls	0	BACT-PSD
Algonquin Gas Transmission Co.	RI	Jul-1991	Turbine, Gas, 2	49 MMBTU/H	0.1 LB/MMBTU	good combustion practices	0	BACT-OTHER
Charles Larsen Power Plant	FL	Jul-1991	Turbine, Gas, 1 Each	80 MW	25.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Charles Larsen Power Plant	FL	Jul-1991	Turbine, Oil, 1 Each	80 MW	25.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Sumas Energy Inc.	WA	Jun-1991	Turbine, Natural Gas	88 MW	6.0 PPM @ 15% O2	co catalyst	80	BACT-PSD
Saguaro Power Company	NV	Jun-1991	Combustion Turbine Generator	35 MW	9.0 PPH	converter (catalytic)	90	BACT-PSD
Florida Power And Light	FL	Jun-1991	Turbine, Gas, 4 Each	400 MW	30.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Florida Power And Light	FL	Jun-1991	Turbine, Oil, 2 Each	400 MW	33.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Florida Power And Light	FL	Jun-1991	Turbine, Cg, 4 Each	400 MW	33.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Northern Consolidated Power	PA	May-1991	Turbines, Gas, 2	35 KW EACH	110.0 T/YR	oxidation catalyst	90	OTHER
Lakewood Cogeneration, L.P.	NJ	Apr-1991	Turbines (Natural Gas) (2)	1190 MMBTU/HR (EACH)	0.0 LB/MMBTU	turbine design	0	BACT-OTHER
Lakewood Cogeneration, L.P.	NJ	Apr-1991	Turbines (#2 Fuel Oil) (2)	1190 MMBTU/HR (EACH)	0.1 LB/MMBTU	turbine design	0	BACT-OTHER
Cimarron Chemical	CO	Mar-1991	Turbine #2, Ge Frame 6	33 MW	250.0 T/YR, LESS THAN	co catalyst	0	OTHER
Florida Power And Light	FL	Mar-1991	Turbine, Gas, 4 Each	240 MW	30.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Florida Power And Light	FL	Mar-1991	Turbine, Oil, 4 Each	0	33.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Commonwealth Atlantic Ltd Partnership	VA	Mar-1991	Turbine, Nat Gas & #2 Oil	1533 MMBTU/H EACH	30.0 PPM @ 15% O2	combustion controls, annual stack testing	0	BACT-PSD
Commonwealth Atlantic Ltd Partnership	VA	Mar-1991	Turbine, Nat Gas & #2 Oil	1400 MMBTU/H	30.0 PPM @ 15% O2	combustion control, annual stack testing	0	BACT-PSD
Sumas Energy Inc	WA	Dec-1990	Turbine, Gas-Fired	67 MW	15.0 PPM @ 15% O2	co catalyst	80	BACT-PSD

Table B-5. Summary of BACT Determinations for CO.

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Newark Bay Cogeneration Partnership	NJ	Nov-1990	Turbine, Natural Gas Fired	585 MMBTU/HR	0.0 LB/MMBTU	catalytic oxidation	80	BACT-PSD
Newark Bay Cogeneration Partnership	NJ	Nov-1990	Turbine, Kerosene Fired	585 MMBTU/HR	0.1 LB/MMBTU	catalytic oxidation	83	BACT-PSD
March Point Cogeneration Co	WA	Oct-1990	Turbine, Gas-Fired	80 MW	37.0 PPM @ 15% O2	good combustion	0	BACT-PSD
Wi Electric Power Co.	WI	Oct-1990	Turbines, Combustion, Simple Cycle, 4	75 MW EACH	0.0 SEE NOTE	good combustion	0	BACT-PSD
Commonwealth Gas Pipeline Corporation	VA	Sep-1990	Turbines, Gas Fired, Single Cycle, 5	14 MMBTU/H EACH	0.0	equipment design & operation	0	BACT-PSD
Delmarva Power	DE	Sep-1990	Turbine, Combustion	100 MW	15.0 PPM @ 15% O2	combustion efficiency	0	OTHER
Formosa Plastics Corporation	LA	Sep-1990	Turbine, Gas-Fired, 2	587 MMBTU/H	70.0 LB/H	combustion control	0	BACT-PSD
Tbg Cogen Cogeneration Plant	NY	Aug-1990	Ge Lm2500 Gas Turbine	215 MMBTU/HR	0.2 LB/MMBTU	catalytic oxidizer	80	BACT
Vermont Marble Company	VT	Jul-1990	Turbines, Combustion, Dual Fuel Fired, 2	50 MMBTU/H EACH	36.0 PPM @ 15% O2	proper design & oper. of cts, gas fuel	0	BACT-PSD
Vermont Marble Company	VT	Jul-1990	Turbines, Combustion, Dual Fuel Fired, 2	50 MMBTU/H EACH	83.0 PPM @ 15% O2	proper design & oper. of cts, oil fuel	0	BACT-PSD
Doswell Limited Partnership	VA	May-1990	Turbine, Combustion	1261 MMBTU/H	25.0 LB/H	combustor design & operation	0	OTHER
Kalaeloa Partners, L.P.	HI	Mar-1990	Turbine, Lsfo, 2	1800 MMBTU/H, TOTAL	0.0 SEE NOTES		0	BACT-PSD
Oneida Cogeneration Facility	NY	Feb-1990	Turbine, Ge Frame 6	417 MMBTU/H	40.0 PPM	combustion control	0	OTHER
Fulton Cogeneration Associates	NY	Jan-1990	Turbine, Ge Lm5000, Gas Fired	500 MMBTU/H	0.0 LB/MMBTU, SEE NOTE	combustion control	0	BACT-PSD
Arrowhead Cogeneration Co.	VT	Dec-1989	Turbine, Combustion & Burner, Cogen., 3	282 MMBTU/H, GAS	50.0 PPMVD AT ISO COND &	design & good combustion techniques	0	OTHER
Sc Electric And Gas Company - Hagood Station	SC	Dec-1989	Internal Combustion Turbine	110 MEGAWATTS	23.0 LBS/HR	good combustion practices	0	BACT-PSD
Peabody Municipal Light Plant	MA	Nov-1989	Turbine, 38 Mw Natural Fas Fired	412 MMBTU/HR	40.0 PPM @ 15% O2	good combustion practices	0	BACT-OTHER
Jmc Selkirk, Inc.	NY	Nov-1989	Turbine, Ge Frame 7, Gas Fired	80 MW	25.0 PPM	combustion control	0	BACT-PSO
Oxy Ngl, Inc.	LA	Nov-1989	Turbine, Centaur Gas, 4	29 MMBTU/H	3.8 LB/H	combustion design	0	BACT-PSD
Oxy Ngl, Inc.	LA	Nov-1989	Turbine, Solar Gas	14 MMBTU/H	4.8 LB/H		0	BACT-PSD
Oxy Ngl, Inc.	LA	Nov-1989	Turbine, Solar Gas	29 MMBTU/H	3.8 LB/H		0	BACT-PSD
Capitol District Energy Center	CT	Oct-1989	Engine, Gas Turbine	739 MMBTU/H	0.1 LB/MMBTU GAS FIRING		0	BACT-PSD
Arco Alaska, Inc.	AK	Oct-1989	Turbines, Gas Fired, 3	5400 HP/TURBINE	109.0 LB/MMSCF	not required under bact	0	BACT-PSD
The Dexter Corp.	CT	Sep-1989	Turbine, Nat Gas & #2 Fuel Oil Fired	555 MMBTU/H NAT GAS	0.1 LB/MMBTU GAS FIRING		0	BACT-PSD
Virginia Power	VA	Sep-1989	Turbine, Gas	1308 MMBTU/H	26.5 LB/H/UNIT NAT GAS FI		0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #6 Frame	499 MMBTU/H GAS	10.8 LB/H	combustion control	0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #6 Frame	509 MMBTU/H OIL	10.9 LB/H	combustion control	0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #7 Frame	1047 MMBTU/H GAS	23.1 LB/H	combustion control	0	BACT-PSD
Panda-Rosemary Corp.	NC	Sep-1989	Turbine, Combustion, #7 Frame	1060 MMBTU/H OIL	23.0 LB/H	combustion control	0	BACT-PSD
Kamine Syracuse Cogeneration Co.	NY	Sep-1989	Turbine, Gas Fired	79 MW	0.0 LB/MMBTU	combustion control	0	OTHER
Syracuse University	NY	Sep-1989	Turbine, Gas Fired	79 MW	0.2 LB/MMBTU, SEE NOTE	catalytic oxidation	0	OTHER
Megan-Racine Associates, Inc	NY	Aug-1989	Ge Lm5000-N Combined Cycle Gas Turbine	401 LB/MMBTU	0.0 LB/MMBTU, 11 LB/HR	no controls	0	BACT-OTHER
Union Oil Co. Of California	AK	Aug-1989	Turbine, Gtm Solar Saturn, 4 Ea	1300 MMBTU/H	350.0 LB/MMSCF FUEL, AVG		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, H&H Solar Saturn, 4 Ea	1300 MMBTU/H	350.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Elect. Generator, 4 Ea	1100 MMBTU/H	350.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Shipping, Solar Saturn	1100 MMBTU/H	350.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Centaur West	4400 MMBTU/H	109.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Saturn, Bingham	4400 MMBTU/H	109.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Centaur East	4400 MMBTU/H	109.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Centaur, 2 Ea	4400 MMBTU/H	109.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Solar Saturn, #1	1300 MMBTU/H	350.0 LB/MMSCF FUEL		0	BACT-PSD
Union Oil Co. Of California	AK	Aug-1989	Turbine, Booster,Solar Saturn	1300 MMBTU/H	350.0 LB/MMSCF FUEL		0	BACT-PSD
Unocal	CA	Jul-1989	Turbine, Gas (See Notes)	0	10.0 PPM @ 15% O2	oxidation catalyst	75	BACT-OTHER
Pratt & Whitney, Utc	CT	Jul-1989	Engine, Gas Turbine	238 MMBTU/H	0.0 LB/MMBTU		0	BACT-PSD
Pratt & Whitney, Utc	CT	Jun-1989	Engine, Test Turbine	240 MMBTU/H	0.1 LB/MMBTU GAS FIRING		0	BACT-PSO
Tropicana Products, Inc.	FL	May-1989	Turbine, Gas	45 MW	10.0 PPM @ 15% O2		0	BACT-PSD
Empire Energy - Niagara Cogeneration Co.	NY	May-1989	Turbine, Gr Frame 6, 3 Ea	416 MMBTU/H	0.0 LB/MMBTU	combustion control	0	BACT-PSD
Megan-Racine Associates, Inc.	NY	Mar-1989	Turbine, Lm5000	430 MMBTU/H	0.0 LB/MMBTU OIL	combustion control	0	OTHER
Indec/Oswego Hill Cogeneration	NY	Feb-1989	Turbine, Gas, Ge Frame 6	40 MW	0.0 LB/MMBTU	combustion control	0	BACT-PSD

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Pawtucket Power	RI	Jan-1989	Turbine/Duct Burner	533 MMBTU/H	23.0 PPM @ 15% O2, GAS		0	BACT-PSD
Ocean State Power	RI	Dec-1988	Turbine, Gas, Ge Frame 7, 4 Ea	1059 MMBTU/H	25.0 PPM @ 15% O2		0	BACT-PSD
Champion International	AL	Nov-1988	Turbine, Gas, Stationary	35 MW	9.0 LB/H		0	BACT-PSD
Texaco-Yokum Cogeneration Project	CA	Nov-1988	Turbine, Gas Fired, 2 Ea	25 MW	133.0 LB/D		0	BACT-PSD
Long Island Lighting Co.	NY	Nov-1988	Turbine, Ge Frame 7, 3 Ea	75 MW	10.0 PPM	combustion control	0	OTHER
Amtrak	PA	Oct-1988	Turbine, 2 Ea	20 MW	30.8 LB/H		0	OTHER
Orlando Utilities Commission	FL	Sep-1988	Turbine, 2 Ea	35 MW	10.0 PPM @ 15% O2	combustion control	0	BACT-PSD
Kamine South Glens Falls	NY	Sep-1988	Turbine, Gas Fired, Ge Frame 6	40 MW	0.0 LB/MMBTU	combustion control	0	BACT-PSD
Delmarva Power	DE	Aug-1988	Turbine, Combustion, 2 Ea	100 MW	15.0 PPM	good combustion practices	0	BACT-PSD
Kamine Carthage	NY	Jul-1988	Turbine, Gas Fired, Ge Frame 6	40 MW	0.0 LB/MMBTU	combustion control	0	BACT-PSD
Trigen	NY	Jul-1988	Turbine, Gas Fired, Ge Frame 6	40 MW	0.0 LB/MMBTU	combustion control	0	BACT-PSD
Hopewell Cogeneration Limited Partnership	VA	Jul-1988	Turbine, Nat Gas Fired, 3 Ea	1030 MMBTU/H	25.2 LB/H	steam injection	0	BACT-PSD
Hopewell Cogeneration Limited Partnership	VA	Jul-1988	Turbine, Oil Fired, 3 Ea	1029 MMBTU/H	25.5 LB/H		0	BACT-PSD
Ada Cogeneration	MI	Jun-1988	Turbine	245 MMBTU/H	0.1 LB/MMBTU NAT GAS	h2o injection	0	BACT-PSD
Ccf-1	CT	May-1988	Turbine, Allison, 2 Ea	110 MMBTU/H GAS FIRED	0.8 LB/MMBTU GAS FIRING		0	BACT-PSD
Virginia Power	VA	Apr-1988	Turbine, Ge,2 Ea	1875 MMBTU/H	140.0 LB/H	equipment design	0	LAER
Tbg/Grumman	NY	Mar-1988	Turbine, Gas, 2 Ea	16 MW	0.2 LB/MMBTU	co catalyst	80	BACT-PSD
Exxon Co., Usa	AL	Mar-1988	Turbine	3120 KW	5.0 LB/H	combustion modification	0	BACT-PSD
Exxon Co., Usa	AL	Mar-1988	Turbine	3120 KW	5.0 LB/H	combustion modification	0	BACT-PSD
Exxon Co., Usa	AL	Mar-1988	Turbine	3120 KW	5.0 LB/H	combustion modification	0	BACT-PSD
Great Lakes Gas Transmission	MI	Feb-1988	Turbine, #1	12500 HP	0.0 SEE NOTES		0	BACT-PSD
Great Lakes Gas Transmission	MI	Feb-1988	Turbine, #2	12500 HP	0.0 SEE NOTES		0	BACT-PSD
Great Lakes Gas Transmission	MI	Feb-1988	Turbine, #3	4000 HP	0.0 SEE NOTES		0	BACT-PSD
Midland Cogeneration Venture	MI	Feb-1988	Turbine, 12 Total	984 MMBTU/H	26.0 LB/H	turbine design	0	BACT-PSD
Midway-Sunset Cogeneration Co.	CA	Jan-1988	Turbine, Ge Frame 7, 3 Ea	75 MW	94.0 LB/H EA, NOTE 1	good combustion practices	0	BACT-PSD
Exxon Co., Usa	CA	Nov-1987	Turbine, Gas, W/Duct Burner	49 MW	17.0 LB/H	good combustion practices	0	OTHER
Downtown Cogeneration Assoc.	CT	Aug-1987	Turbine, Gas W/Duct Burner	72 MMBTU/H	0.3 LB/MMBTU OIL FIRING		0	BACT-PSD
Simpson Paper Co.	CA	Jun-1987	Turbine, Gas	50 MW	1302.0 LB/D	combustion controls	0	OTHER
San Joaquin Cogen Limited	CA	Jun-1987	Generator, Gas Turbine	49 MW	1326.0 LB/D	combustion controls	0	BACT-PSD
Cogen Technologies	NJ	Jun-1987	Turbine, Gas, Ge Frame 6, 3 Ea	40 MW	50.0 PPMVD AT 15% O2		0	OTHER
Pacific Gas Transmission Co.	OR	May-1987	Turbine, Gas	14000 HP	6.0 LB/H		0	BACT-PSD
Alaska Electrical Generation & Transmission	AK	Mar-1987	Turbine, Nat Gas Fired	80 MW	109.0 LB/SCF FUEL		0	BACT-PSD
Sycamore Cogeneration Co.	CA	Mar-1987	Turbine, Gas Fired, 4 Ea	75 MW	10.0 PPMV AT 15% O2, 3 H	co oxidizing catalyst, combustion control	0	BACT-PSD
U.S. Borax & Chemical Corp.	CA	Feb-1987	Turbine, Gas	45 MW	23.0 LB/H	good combustion practices	0	BACT-PSD
Arco Alaska Kuparuk Central Prod. Fac. #3	AK	Nov-1986	Turbine, Gas Fired, All	0	109.0 LB/SCF FUEL		0	BACT-PSD
Arco Alaska Lisburne Development Project	AK	Oct-1986	Turbine, Gas Fired, All	0	109.0 LB/SCF FUEL		0	BACT-PSD
Amoco Production Co.	TX	Sep-1986	Engine, Turbine	25000 HP	305.0 T/YR		0	BACT-PSD
Carolina Cogeneration Co., Inc.	NC	Jul-1986	Turbine, Gas, Peat Fired	416 MMBTU/H	34.8 LB/H	proper operation	0	BACT-PSD
Wichita Falls Energy Investments, Inc.	TX	Jun-1986	Turbine, Gas, 3 Ea	20 MW	420.0 T/YR		0	BACT-PSD
Formosa Plastic Corp.	TX	May-1986	Turbine, Gas, Ge Ms 6001	38 MW	32.4 T/YR		0	BACT-PSD
Marathon Oil Co., Steelhead Platform	AK	May-1986	Turbine, Gas Fired, Pwr Gen, 3	4454 HP	109.0 LB/MMSCF FUEL		0	BACT-PSD
Marathon Oil Co., Steelhead Platform	AK	May-1986	Turbine, Gas Fired, Compressor, 3	5278 HP	247.0 LB/MMSCF FUEL		0	BACT-PSD
Babcock & Wilcox, Lauhoff Grain	IL	Mar-1986	Turbine	223 MMBTU/H	200.0 PPM	fuel spec: fuel/operation	0	BACT-PSD
Aes Placerita, Inc.	CA	Mar-1986	Turbine & Recovery Boiler	519 MMBTU/H	103.0 LB/D	oxidation catalyst	80	BACT-PSD
Shell Ca Production, Inc.	CA	Feb-1986	Turbine, Gas Fired, Ge Lm 2500	20 MW	41.0 PPM AT 15% O2 DRY		0	BACT-PSD
Chevron Usa, Inc.	CA	Feb-1986	Turbine, Gas, 8 Ea	47 MMBTU/H	32.3 LB/H TOTAL	fuel spec: pipeline gas as fuel, proper operation	0	OTHER
Union Cogeneration	CA	Jan-1986	Turbine, Gas W/Duct Burner, 3 Ea	16 MW	39.0 LB/H	oxdizing catalyst	80	OTHER
Arco Alaska King Salmon Platform	AK	Sep-1985	Turbine, Gas Fired, Compressor	3950 HP	60.0 PPMV		0	BACT-PSD
Sunlaw/Industrial Park 2	CA	Jun-1985	Turbine, Gas W/#2 Fuel Oil Backup, 2 Ea, Ge Frame	412 MMBTU/H	10.0 PPMVD AT 15% O2	mfg guarantee on co emissions	0	OTHER

Facility Name	State	Permit Issue Date	Unit/Process Description	Capacity (size)	NOx Emmission Limit	Control Method	Efficiency (%)	Type
Proctor & Gamble	CA	Jun-1985	Turbine, Gas	217 MMBTU/H	32.0 LB/H GAS FIRED		0	OTHER
Applied Energy Services	LA	May-1985	Turbine/Generator, Steam, Waste Heat	1413 MMBTU/H	29.0 LB/H		0	BACT-PSD
Shell California Production Co.	CA	Apr-1985	Turbine, Gas Fired, 2 Ea	22 MW	10.0 PPMV AT 15% O2	good combustion practices	0	BACT-PSD
Conoco Milne Point	AK	Apr-1985	Turbine, Gas Fired, Total	50000 HP	109.0 LB/SCF FUEL		0	BACT-PSD
Greenleaf Power Co.	CA	Apr-1985	Turbine, Gas, Ge Lm-5000	36 MW	20.4 LB/H	good engineering practices	0	OTHER
Getty Oil Co.	CA	Mar-1985	Engine, Gas Turbine, 8 Ea	4 MW	4.5 LB/H		0	BACT-PSD
Champion International Corp.	TX	Mar-1985	Turbine, Gas, 2	1342 MMBTU/H	70.1 T/YR		0	BACT-PSD
Ciba-Geigy Corp.	NJ	Jan-1985	Turbine, Gas W/#2 Oil Backup	4000 HP	9.4 LB/H		0	OTHER
Vulcan Chemicals Co.	LA	Oct-1984	Turbine/Boiler, Nat Gas/Waste Heat, #3-84	196 MMBTU/H	30.6 LB/H		0	BACT-PSD
Vulcan Chemicals Co.	LA	Oct-1984	Turbine/Boiler, Nat Gas/Waste Heat, #4-84	196 MMBTU/H	30.6 LB/H		0	BACT-PSD
Sohio Alaska Petroleum Corp.	AK	Oct-1984	Turbine, Gas	127 MHP TOTAL	109.0 LB/MMSCF FUEL		0	BACT-PSD
Explorer Pipeline Co.	TX	Jun-1984	Turbine, Gas	1100 HP	40.0 T/YR		0	BACT-PSD
Texas Gulf Chemicals Co.	TX	Jun-1984	Turbine, Gas	78 MW	93.8 T/YR		0	BACT-PSD
Texas Petro Chemicals Corp.	TX	Jun-1984	Turbine, Gas, 2 Ea	92 MW	66.8 T/YR		0	BACT-PSD
U.S. Borax & Chemical Corp.	CA	Apr-1984	Turbine, Gas	3855 GAL/H	72.0 LB/H		0	BACT-PSD
Dow Chemical, Usa	LA	Nov-1983	Turbine, #Gt-300 & Gt-400, 2 Ea	100 MW	66.0 LB/H		0	BACT-PSD
Champlin Petroleum Co.	WY	Nov-1983	Turbine, 2 Ea	886 HP	2.0 G/HP-H	design	0	BACT-PSD
Getty Oil, Kern River Cogeneration Project	CA	Nov-1983	Turbine, Gas Fired, 4 Ea	825 MMBTU/H	9.0 PPM	good combustion practices	0	BACT-PSD
Southern Calif. Edison Co.	CA	Apr-1983	Turbine, Gas, 20	65 MW EA	17.0 LB/H/TURBINE	good combustion practices	0	BACT-PSD
Kiln-Gas R & D Inc.	IL	Apr-1983	Turbine, Coal Gas Fired	0	290.0 LB/H	equipment design	0	BACT-PSD
Petro-Tex Chemical Corp.	TX	Dec-1982	Turbine, Gas	982 MSCFH	15.3 LB/H		0	OTHER
Simpson Lee Paper Co.	CA	Sep-1982	Turbine, Gas & Boiler, Waste Heat	33 MW	43.0 LB/H 1 H AVG	good combustion practices	0	BACT-PSD
Puget Sound Power & Light	WA	Aug-1982	Turbine, Gas, 2	100 MW EA	185.0 LB/H		0	BACT-PSD
Southern Ca Edison Coalwater Station	CA	Dec-1981	Turbine, Gas	100 MW	77.0 LB/H 3H AV	I & m program, co monitors	0	OTHER
Fort Howard Paper Co.	OK	Oct-1981	Turbine	400 MMBTU/H	0.7 LB/MMBTU N. GAS	normal operation	0	BACT-PSD
Fort Howard Paper Co.	OK	Oct-1981	Turbine	400 MMBTU/H	0.8 LB/MMBTU #2 OIL	normal operation	0	BACT-PSD
Phillips Petroleum Co.	TX	Oct-1981	Turbine, 2	3000 HP EA	0.0 LB/MMBTU GAS	o2 monitoring	0	BACT-PSD
Prudhoe Bay Consortium	AK	Sep-1981	Turbine	303 MHP	1.1 LB/MMSCF FUEL	good combustion practices	0	BACT-PSD
Dow Chemical Co.	LA	Aug-1981	Turbine, Nat Gas Fired, 2 Ea	1203 MMBTU/H	0.1 LB/MMBTU	good combustion practices	0	BACT-PSD
Gulf States Utility	LA	Jul-1981	Turbine	1390 MMBTU/H	0.1 LB/MMBTU OIL	good combustion practices	0	BACT-PSD
Gulf States Utility	LA	Jul-1981	Turbine	1361 MMBTU/H	0.1 LB/MMBTU	good combustion practices	0	BACT-PSD
Longview Refin.	TX	May-1981	Turbine, 3	6275 HP	0.5 G/HP-H	good combustion practices	0	NSPS
Odessa Natural Corp.	TX	Mar-1981	Turbine	7660 HP	0.5 G/HP-H	air/fuel ratio	0	BACT-PSD
Gulf States Utility	LA	Jan-1981	Turbine, Combustion, 2	1336 MMBTU/H	125.0 LB/H	combustion controls	0	BACT-PSD
Gulf States Utility	LA	Jan-1981	Turbine, Combustion, 2	1336 MMBTU/H	218.0 LB/H	combustion controls	0	BACT-PSD
Florida Power	FL	Jan-1981	Turbine Peaking Units, 4 Ea	63 MW	86.0 LB/H	controlled combustion	0	BACT-PSD
Empire Dist. Elect. Co.	MO	Jan-1981	Turbine, Combustion, Simple-Cyc, Oil Fired, #2	1056 MMBTU/H (MAX)	56.0 LB/H		0	BACT-PSD
Gulf States Utility	LA	Dec-1980	Turbine	1396 MMBTU/H	0.2 LB/MMBTU OIL	efficient design	0	BACT-PSD
Prudhoe Bay Consortium	AK	Dec-1980	Turbine, Gas, 10	16 MHP EA	109.0 LB/MMSCF FUEL	montgomery good combustion practices	0	BACT-PSD
Diamond Shamrock Corp.	TX	Jun-1980	Turbine, Gas, 3	960 MMBTU/H EA	108.1 LB/H EA	good combustion practices	0	BACT-PSD
Nevada Pwr Co., Clark Station Unit #7	NV	Oct-1979	Generator, Gas Turbine	74 MW	0.1 LB/MMBTU		0	BACT-PSD
Mountain Fuel Supply	WY	Aug-1978	Turbine, Gas, 2 Ea	768 HP	0.0 % V AT 0% O2, WET BA	design	0	BACT-PSD

Table B-6. Direct and Indirect Capital Costs for CO Catalyst for Frame "F" Simple Cycle Operation

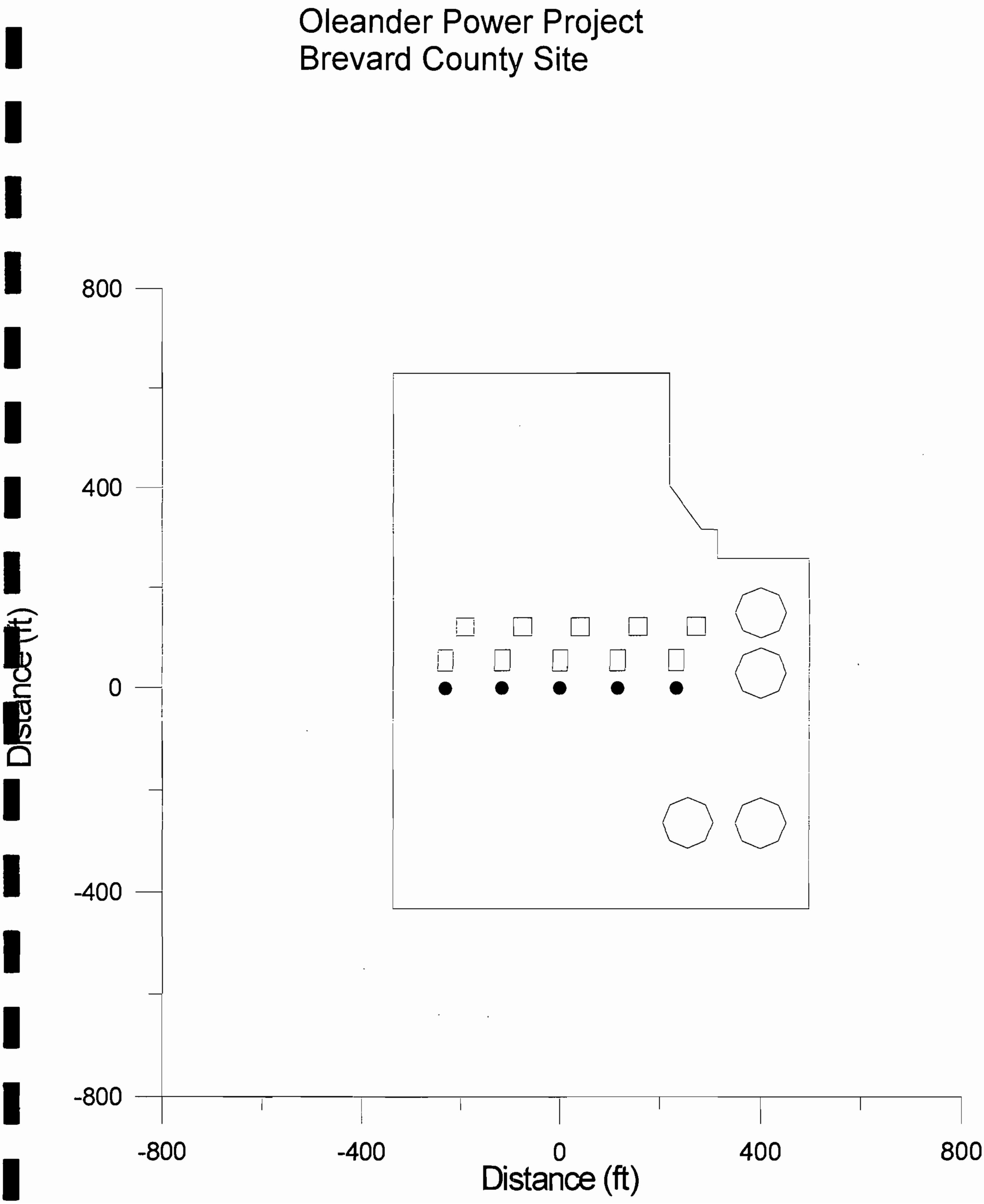
Cost Component	Costs	Basis of Cost Component
Direct Capital Costs		
CO Associated Equipment	$235,000	Vendor Quote
Instrumentation	$23,500	10% of SCR Associated Equipment
Sales Tax	$14,100	6% of SCR Associated Equipment/Catalyst
Freight	$46,759	5% of SCR Associated Equipment/Catalyst
Total Direct Capital Costs (TDCC)	$319,359	
Direct Installation Costs		
Foundation and supports	$81,564	8% of TDCC and RCC;OAQPS Cost Control Manual
Handling & Erection	$142,737	14% of TDCC and RCC;OAQPS Cost Control Manual
Electrical	$40,782	4% of TDCC and RCC;OAQPS Cost Control Manual
Piping	$20,391	2% of TDCC and RCC;OAQPS Cost Control Manual
Insulation for ductwork	$10,195	1% of TDCC and RCC;OAQPS Cost Control Manual
Painting	$10,195	1% of TDCC and RCC;OAQPS Cost Control Manual
Site Preparation	$5,000	Engineering Estimate
Buildings	$0	
Total Direct Installation Costs (TDIC)	$310,865	
Recurring Capital Costs (RCC)	$700,190	Catalyst; Vendor Based Estimate
TOTAL CAPITAL COSTS	$1,330,414	Sum of TDCC, TDIC and RCC
Indirect Costs		
Engineering	$133,041	10% of Total Capital Costs; OAQPS Cost Control Manual
Construction and Field Expense	$66,521	5% of Total Capital Costs; OAQPS Cost Control Manual
Contractor Fees	$133,041	10% of Total Capital Costs; OAQPS Cost Control Manual
Start-up	$26,608	2% of Total Capital Costs; OAQPS Cost Control Manual
Performance Tests	$13,304	1% of Total Capital Costs; OAQPS Cost Control Manual
Allowance for Funds Used During Construction	$86,934	2.5% of Total Capital Costs; borrowed at a rate of 8.5% for 9 months.
Contingencies	$39,912	3% of Total Capital Costs; OAQPS Cost Control Manual
OTAL INDIRECT CAPITAL COST (TInCC)	$499,363	
AL DIRECT, INDIRECT and RECURRING CAPITAL COSTS (TDIRCC)	$1,829,777	Sum of TCC and TInCC

Table B-7. Annualized Cost for CO Catalyst for Frame "F" Simple Cycle Operation

Cost Component	Cost	Basis of Cost Estimate
Direct Annual Costs		
Operating Personnel	$6,240	8 hours/week at $20/hr
Supervision	$936	15% of Operating Personnel;OAQPS Cost Control Manual
Maintenance - Labor	$4,368	0.5 hr per shift, $24/hr; OAQPS Cost Manual
- Materials	$4,368	100% of maintenance labor; OAQPS Cost Manual
Inventory Cost	$27,401	Capital Recovery (11.74%) for 1/3 catalyst
Catalyst Disposal Cost	$35,793	$28/1,000 lb/hr mass flow over 3 years; developed from vendor quotes
Contingency	$2,373	3% of direct costs
Total Direct Annual Costs (TDAC)	$81,479	
Energy Costs		
Heat Rate Penalty	$66,105	0.2% of MW output; EPA, 1993 (Page 6-20)
MW Loss Penalty	$46,800	2 days replacement energy costs @ $0.01 kWh each three period
Fuel Escalation	$3,387	Escalation of fuel over inflation; 3% of energy costs
Contingency	$11,629	10% of energy costs
Total Energy Costs (TEC)	$127,921	
Indirect Annual Costs		
Overhead	$6,926	60% of Operating/Supervision Labor and Ammonia
Property Taxes, insurance, admin.	$73,191	4% of Total Capital Costs
Annualized Total Direct Capital	$132,681	11.75% Capital Recovery Factor of 10% over 20 years times sum of TDCC, TDIC and TInCC
Annualized Total Direct Recurring	$281,557	40.21% Capital Recovery Factor of 10% over 3 years times RCC
Total Indirect Annual Costs (TIAC)	$494,355	
TOTAL ANNUALIZED COSTS	$703,756	Sum of TDAC, TEC and TIAC
COST EFFECTIVENESS	$6,302	

APPENDIX C

BUILDING DOWNWASH INFORMATION FROM BPIP


Oleander Power Project
Brevard County Site
800
400
0
-400
-800
Distance (ft)
-800
-400
0
400
800
Distance (ft)

```
[redacted]PIP data for Oleander Power Project, Brevard Co. Site'
'ST'
[redacted]EET' 0.3048
[redacted]TMN' 0.
14
'N.Demin WTk'  1 0.0
[redacted]50.
[redacted]0 200
364.6 185.4
[redacted]0 150
[redacted]4.6 114.6
400 100
[redacted]35.4 114.6
[redacted]0 150
[redacted]35.4 185.4
'S.Demin WTk'  1 0.0
[redacted]50.
[redacted]0 80
364.6 65.4
[redacted]0 30
[redacted]4.6 -5.4
400 -20
435.4 -5.4
[redacted]0 30
[redacted]5.4 65.4
'W.FO Tk'  1 0.0
[redacted]50.
[redacted]6 -214
220.6 -228.6
[redacted]06 -264
[redacted]0.6 -299.4
[redacted]6 -314
291.4 -299.4
[redacted]6 -264
[redacted]1.4 -228.6
'E.FO Tk'  1 0.0
[redacted]50.
[redacted]0 -214
364.6 -228.6
350 -264
[redacted]4.6 -299.4
[redacted]0 -314
435.4 -299.4
[redacted]0 -264
[redacted]5.4 -228.6
'InlFilt1'  1 0.0
[redacted]47.
[redacted]10 104
-210 140
-174 140
[redacted]74 104
[redacted]nlFilt2'  1 0.0
4 47.
[redacted]4 104
[redacted]4 140
-58 140
[redacted]58 104
[redacted]nlFilt3'  1 0.0
4 47.
22 104
[redacted]
```

```
2 140
58 140
3 104
nlFilt4'  1 0.0
4 47.
138 104
38 140
74 140
174 104
nlFilt5'  1 0.0
 47.
254 104
54 140
90 140
290 104
'TURB1'     1 0.0
 22.
247 34
-247 76
217 76
217 34
'TURB2'     1 0.0
4 22.
131 34
131 76
-101 76
101 34
URB3'     1 0.0
4 22.
15 34
15 76
15 76
15 34
URB4'     1 0.0
 22.
101 34
01 76
31 76
131 34
TURB5'     1 0.0
 22.
217 34
217 76
7 76
7 34
5
CT1'  0.0  60.   -232    0
CT2'  0.0  60.   -116    0
'CT3'  0.0  60.      0    0
'CT4'  0.0  60.    116    0
CT5'  0.0  60.    232    0
```

BPIP (Dated: 95086)

DATE : 11/19/98
TIME : 09:23:45
BPIP data for Oleander Power Project, Brevard Co. Site

============================
BPIP PROCESSING INFORMATION:
============================

The ST flag has been set for processing for an ISCST2 run.

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to 0.00 degrees with respect to True North.

BPIP data for Oleander Power Project, Brevard Co. Site

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
CT1	18.29	0.00	35.81	65.00
CT2	18.29	0.00	35.81	65.00
CT3	18.29	0.00	35.81	65.00
CT4	18.29	0.00	38.10	65.00
CT5	18.29	0.00	38.10	65.00

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

BPIP (Dated: 95086)

DATE : 11/19/98
TIME : 09:23:45

BPIP data for Oleander Power Project, Brevard Co. Site

BPIP output is in meters

```
SO BUILDHGT CT1        6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT CT1        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT CT1        0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDHGT CT1       14.33   14.33   14.33   14.33   14.33   14.33
SO BUILDHGT CT1        6.71    6.71    0.00    0.00    0.00    0.00
SO BUILDHGT CT1        0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID CT1       11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID CT1        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID CT1        0.00   15.23   14.32   12.97   11.23    9.14
SO BUILDWID CT1       12.71   14.06   14.99   15.46   15.46   14.99
SO BUILDWID CT1       15.16   14.19    0.00    0.00    0.00    0.00
SO BUILDWID CT1        0.00   15.23   14.32   12.97   11.23    9.14

SO BUILDHGT CT2        6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT CT2        0.00    0.00    0.00    6.71    6.71    6.71
SO BUILDHGT CT2       14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT CT2       14.33   14.33   14.33   14.33   14.33   14.33
SO BUILDHGT CT2        6.71    6.71    0.00    0.00    0.00    0.00
SO BUILDHGT CT2        0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID CT2       11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID CT2        0.00    0.00    0.00   14.19   15.16   15.66
SO BUILDWID CT2       15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID CT2       12.71   14.06   14.99   15.46   15.46   14.99
SO BUILDWID CT2       15.16   14.19    0.00    0.00    0.00    0.00
SO BUILDWID CT2        0.00   15.23   14.32   12.97   11.23    9.14

SO BUILDHGT CT3        6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT CT3        0.00    0.00    0.00    6.71    6.71   14.33
SO BUILDHGT CT3       14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT CT3       14.33   14.33   14.33   14.33   14.33   14.33
SO BUILDHGT CT3        6.71    6.71    0.00    0.00    0.00    0.00
SO BUILDHGT CT3        0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID CT3       11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID CT3        0.00    0.00    0.00   14.19   15.16   14.99
SO BUILDWID CT3       15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID CT3       12.71   14.06   14.99   15.46   15.46   14.99
SO BUILDWID CT3       15.16   14.19    0.00    0.00    0.00    0.00
SO BUILDWID CT3        0.00   15.23   14.32   12.97   11.23    9.14

SO BUILDHGT CT4        6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT CT4        0.00    0.00    0.00    6.71    6.71   14.33
SO BUILDHGT CT4       14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT CT4       14.33   14.33   14.33   14.33   15.24   15.24
SO BUILDHGT CT4       15.24   15.24   15.24    0.00    0.00    0.00
SO BUILDHGT CT4        0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID CT4       11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID CT4        0.00    0.00    0.00   14.19   15.16   14.99
SO BUILDWID CT4       15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID CT4       12.71   14.06   14.99   15.46   58.42   61.15
SO BUILDWID CT4       28.64   30.02   30.48    0.00    0.00    0.00
SO BUILDWID CT4        0.00   15.23   14.32   12.97   11.23    9.14
```

```
SO BUILDHGT CT5         15.24    6.71   15.24   15.24   15.24    0.00
SO BUILDHGT CT5          0.00    0.00    0.00   15.24    6.71   14.33
SO BUILDHGT CT5         14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT CT5         14.33   14.33   15.24   15.24   15.24   15.24
SO BUILDHGT CT5         15.24   15.24   15.24   15.24    0.00    0.00
SO BUILDHGT CT5          0.00   15.24   15.24   15.24   15.24   15.24
SO BUILDWID CT5         30.02   12.97   47.77   53.91   58.42    0.00
SO BUILDWID CT5          0.00    0.00    0.00   66.04   15.16   14.99
SO BUILDWID CT5         15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID CT5         12.71   14.06   29.48   30.40   30.40   29.48
SO BUILDWID CT5         28.64   30.02   30.48   30.02    0.00    0.00
SO BUILDWID CT5          0.00   64.02   67.49   28.64   30.02   30.48
```

BPIP (Dated: 95086)

DATE : 11/19/98
TIME : 09:23:45
BPIP data for Oleander Power Project, Brevard Co. Site

============================
BPIP PROCESSING INFORMATION:
============================

The ST flag has been set for processing for an ISCST2 run.

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to 0.00 degrees with respect to True North.

==============
INPUT SUMMARY:
==============

Number of buildings to be processed : 14

N.Demin has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
N.Demin	1	1	50.00	8		
			15.24 meters			
					400.00	200.00 FEET
					121.92	60.96 meters
					364.60	185.40 FEET
					111.13	56.51 meters
					350.00	150.00 FEET
					106.68	45.72 meters
					364.60	114.60 FEET
					111.13	34.93 meters
					400.00	100.00 FEET
					121.92	30.48 meters
					435.40	114.60 FEET
					132.71	34.93 meters
					450.00	150.00 FEET
					137.16	45.72 meters
					435.40	185.40 FEET
					132.71	56.51 meters

S.Demin has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
.Demin	1	5	50.00	8		
			15.24 meters			
					400.00	80.00 FEET
					121.92	24.38 meters
					364.60	65.40 FEET
					111.13	19.93 meters
					350.00	30.00 FEET
					106.68	9.14 meters
					364.60	-5.40 FEET
					111.13	-1.65 meters
					400.00	-20.00 FEET
					121.92	-6.10 meters
					435.40	-5.40 FEET
					132.71	-1.65 meters
					450.00	30.00 FEET
					137.16	9.14 meters
					435.40	65.40 FEET
					132.71	19.93 meters

.FO Tk has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
.FO Tk	1	9	50.00	8		
			15.24 meters			
					256.00	-214.00 FEET
					78.03	-65.23 meters
					220.60	-228.60 FEET
					67.24	-69.68 meters
					206.00	-264.00 FEET
					62.79	-80.47 meters
					220.60	-299.40 FEET
					67.24	-91.26 meters
					256.00	-314.00 FEET
					78.03	-95.71 meters
					291.40	-299.40 FEET
					88.82	-91.26 meters
					306.00	-264.00 FEET
					93.27	-80.47 meters
					291.40	-228.60 FEET
					88.82	-69.68 meters

E.FO Tk has 1 tier(s) with a base elevation of 0.00 FEET
(0.00) meters

BUILDING NAME	TIER NUMBER	BLDG-TIER NUMBER	TIER HEIGHT	NO. OF CORNERS	CORNER X	COORDINATES Y
E.FO Tk	1	13	50.00	8		
			15.24 meters			
					400.00	-214.00 FEET
					121.92	-65.23 meters
					364.60	-228.60 FEET

```
                                             111.13      -69.68 meters
                                             350.00     -264.00 FEET
                                             106.68      -80.47 meters
                                             364.60     -299.40 FEET
                                             111.13      -91.26 meters
                                             400.00     -314.00 FEET
                                             121.92      -95.71 meters
                                             435.40     -299.40 FEET
                                             132.71      -91.26 meters
                                             450.00     -264.00 FEET
                                             137.16      -80.47 meters
                                             435.40     -228.60 FEET
                                             132.71      -69.68 meters

InlFilt1 has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER    NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X            Y

InlFilt1    1       17     47.00     4
                           14.33 meters
                                            -210.00       104.00 FEET
                                             -64.01        31.70 meters
                                            -210.00       140.00 FEET
                                             -64.01        42.67 meters
                                            -174.00       140.00 FEET
                                             -53.04        42.67 meters
                                            -174.00       104.00 FEET
                                             -53.04        31.70 meters

InlFilt2 has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER    NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X            Y

InlFilt2    1       21     47.00     4
                           14.33 meters
                                             -94.00       104.00 FEET
                                             -28.65        31.70 meters
                                             -94.00       140.00 FEET
                                             -28.65        42.67 meters
                                             -58.00       140.00 FEET
                                             -17.68        42.67 meters
                                             -58.00       104.00 FEET
                                             -17.68        31.70 meters

InlFilt3 has 1 tier(s) with a base elevation of     0.00 FEET
                                            (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER    NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS        X            Y

InlFilt3    1       25     47.00     4
                           14.33 meters
                                              22.00       104.00 FEET
```

```
                                                     6.71        31.70 meters
                                                    22.00       140.00 FEET
                                                     6.71        42.67 meters
                                                    58.00       140.00 FEET
                                                    17.68        42.67 meters
                                                    58.00       104.00 FEET
                                                    17.68        31.70 meters


InlFilt4 has 1 tier(s) with a base elevation of      0.00 FEET
                                                  (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER    NO. OF       CORNER   COORDINATES
  NAME   NUMBER  NUMBER  HEIGHT  CORNERS          X            Y

InlFilt4    1       29     47.00     4
                          14.33 meters
                                                   138.00       104.00 FEET
                                                    42.06        31.70 meters
                                                   138.00       140.00 FEET
                                                    42.06        42.67 meters
                                                   174.00       140.00 FEET
                                                    53.04        42.67 meters
                                                   174.00       104.00 FEET
                                                    53.04        31.70 meters


InlFilt5 has 1 tier(s) with a base elevation of      0.00 FEET
                                                  (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER    NO. OF       CORNER   COORDINATES
  NAME   NUMBER  NUMBER  HEIGHT  CORNERS          X            Y

InlFilt5    1       33     47.00     4
                          14.33 meters
                                                   254.00       104.00 FEET
                                                    77.42        31.70 meters
                                                   254.00       140.00 FEET
                                                    77.42        42.67 meters
                                                   290.00       140.00 FEET
                                                    88.39        42.67 meters
                                                   290.00       104.00 FEET
                                                    88.39        31.70 meters


TURB1    has 1 tier(s) with a base elevation of      0.00 FEET
                                                  (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER    NO. OF       CORNER   COORDINATES
  NAME   NUMBER  NUMBER  HEIGHT  CORNERS          X            Y

TURB1       1       37     22.00     4
                           6.71 meters
                                                  -247.00        34.00 FEET
                                                   -75.29        10.36 meters
                                                  -247.00        76.00 FEET
                                                   -75.29        23.16 meters
                                                  -217.00        76.00 FEET
                                                   -66.14        23.16 meters
                                                  -217.00        34.00 FEET
```

```
                                                 -66.14       10.36 meters

URB2     has 1 tier(s) with a base elevation of     0.00 FEET
                                                 (     0.00) meters

UILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
 NAME   NUMBER  NUMBER  HEIGHT  CORNERS        X           Y

URB2      1       41     22.00     4
                          6.71 meters
                                                -131.00       34.00 FEET
                                                 -39.93       10.36 meters
                                                -131.00       76.00 FEET
                                                 -39.93       23.16 meters
                                                -101.00       76.00 FEET
                                                 -30.78       23.16 meters
                                                -101.00       34.00 FEET
                                                 -30.78       10.36 meters

TURB3    has 1 tier(s) with a base elevation of     0.00 FEET
                                                 (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
 NAME   NUMBER  NUMBER  HEIGHT  CORNERS        X           Y

TURB3     1       45     22.00     4
                          6.71 meters
                                                 -15.00       34.00 FEET
                                                  -4.57       10.36 meters
                                                 -15.00       76.00 FEET
                                                  -4.57       23.16 meters
                                                  15.00       76.00 FEET
                                                   4.57       23.16 meters
                                                  15.00       34.00 FEET
                                                   4.57       10.36 meters

TURB4    has 1 tier(s) with a base elevation of     0.00 FEET
                                                 (     0.00) meters

BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
 NAME   NUMBER  NUMBER  HEIGHT  CORNERS        X           Y

TURB4     1       49     22.00     4
                          6.71 meters
                                                 101.00       34.00 FEET
                                                  30.78       10.36 meters
                                                 101.00       76.00 FEET
                                                  30.78       23.16 meters
                                                 131.00       76.00 FEET
                                                  39.93       23.16 meters
                                                 131.00       34.00 FEET
                                                  39.93       10.36 meters

TURB5    has 1 tier(s) with a base elevation of     0.00 FEET
                                                 (     0.00) meters
```

```
BUILDING  TIER  BLDG-TIER  TIER   NO. OF      CORNER   COORDINATES
  NAME   NUMBER   NUMBER  HEIGHT  CORNERS       X           Y

URB5       1       53     22.00     4
                          6.71 meters
                                             217.00       34.00 FEET
                                              66.14       10.36 meters
                                             217.00       76.00 FEET
                                              66.14       23.16 meters
                                             247.00       76.00 FEET
                                              75.29       23.16 meters
                                             247.00       34.00 FEET
                                              75.29       10.36 meters

Number of stacks to be processed :    5

                  STACK           STACK   COORDINATES
 STACK NAME     BASE  HEIGHT          X            Y

                             (      -70.71        0.00) meters
                             (      -35.36        0.00) meters
                             (        0.00        0.00) meters
                             (       35.36        0.00) meters
                             (       70.71        0.00) meters

  No stacks have been detected as being atop any structures.


                    Overall GEP Summary Table
                        (Units: meters)

StkNo:  1  Stk Name:CT1      Stk Ht:  18.29 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:  14.33  PBW:   14.34              *Eqn1 Ht:   35.81
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  202.50
  Bldg-Tier nos. contributing to GEP:  17

StkNo:  2  Stk Name:CT2      Stk Ht:  18.29 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:  14.33  PBW:   14.34              *Eqn1 Ht:   35.81
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  202.50
  Bldg-Tier nos. contributing to GEP:  21

StkNo:  3  Stk Name:CT3      Stk Ht:  18.29 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:  14.33  PBW:   14.34              *Eqn1 Ht:   35.81
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  202.50
  Bldg-Tier nos. contributing to GEP:  25

StkNo:  4  Stk Name:CT4      Stk Ht:  18.29 Prelim. GEP Stk.Ht:   65.00
           GEP:  BH:  15.24  PBW:   29.76              *Eqn1 Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  1  Direction occurred:  257.50
  Bldg-Tier nos. contributing to GEP:   5
```

```
StkNo:  5  Stk Name:CT5      Stk Ht:  18.29 Prelim. GEP Stk.Ht:   65.00
         GEP:  BH:  15.24  PBW:   28.20            *Eqn1 Ht:   38.10
       *adjusted for a Stack-Building elevation difference of     0.00
No. of Tiers affecting Stk:  1  Direction occurred:  247.50
 Bldg-Tier nos. contributing to GEP:   5
```

Summary By Direction Table
(Units: meters)

```
Dominate stand alone tiers:

Drtcn:  10.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  2  Stk Name:CT2                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  4  Stk Name:CT4                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 13  Bld Name:TURB4     TierNo:  1
StkNo:  5  Stk Name:CT5                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:  15.24  PBW:  30.02  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo:  3  Bld Name:W.FO Tk   TierNo:  1

Drtcn:  20.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  2  Stk Name:CT2                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of     0.00
           BldNo: 12  Bld Name:TURB3     TierNo:  1
```

```
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:  38.10
   Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 13  Bld Name:TURB4     TierNo:  1
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:  38.10
   Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 14  Bld Name:TURB5     TierNo:  1

Drtcn:  30.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:  35.81
   Single tier MAX:  BH:   6.71  PBW:  14.32  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:  35.81
   Single tier MAX:  BH:   6.71  PBW:  14.32  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:  35.81
   Single tier MAX:  BH:   6.71  PBW:  14.32  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:  38.10
   Single tier MAX:  BH:   6.71  PBW:  14.32  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 13  Bld Name:TURB4     TierNo:  1
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:  38.10
   Single tier MAX:  BH:   6.71  PBW:  14.32  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo: 14  Bld Name:TURB5     TierNo:  1

Drtcn:  40.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:  35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:  35.81
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo:  5  Bld Name:InlFilt1  TierNo:  1
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:  35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:  35.81
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:  35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:  35.81
       *adjusted for a Stack-Building elevation difference of    0.00
            BldNo:  7  Bld Name:InlFilt3  TierNo:  1
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:  38.10
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:  35.81
       *adjusted for a Stack-Building elevation difference of    0.00
```

```
              BldNo:  8  Bld Name:InlFilt4  TierNo:  1
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:    38.10
    Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:    35.81
        *adjusted for a Stack-Building elevation difference of      0.00
              BldNo:  9  Bld Name:InlFilt5  TierNo:  1

Drtcn:  50.00

StkNo:  1  Stk Name:CT1                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:    38.10
    No single tier affects this stack for this direction.
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:    38.10
    No single tier affects this stack for this direction.

Drtcn:  60.00

StkNo:  1  Stk Name:CT1                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:    38.10
    No single tier affects this stack for this direction.
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:    38.10
    No single tier affects this stack for this direction.

Drtcn:  70.00

StkNo:  1  Stk Name:CT1                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                               Stack Ht:    18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:    35.81
    No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:    38.10
    No single tier affects this stack for this direction.
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:    38.10
    No single tier affects this stack for this direction.
```

```
Drtcn:  80.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
   No single tier affects this stack for this direction.
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
   No single tier affects this stack for this direction.

Drtcn:  90.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
   No single tier affects this stack for this direction.
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
   No single tier affects this stack for this direction.

Drtcn: 100.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
```

```
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 13  Bld Name:TURB4     TierNo:  1

Drtcn: 110.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
    Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
    Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 13  Bld Name:TURB4     TierNo:  1

Drtcn: 120.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  15.66  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  5  Bld Name:InlFilt1  TierNo:  1
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  7  Bld Name:InlFilt3  TierNo:  1

Drtcn: 130.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No single tier affects this stack for this direction.
```

StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 5 Bld Name:InlFilt1 TierNo: 1
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 5 Bld Name:InlFilt1 TierNo: 1
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 7 Bld Name:InlFilt3 TierNo: 1
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 8 Bld Name:InlFilt4 TierNo: 1

Drtcn: 140.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 6.71 PBW: 15.23 *Wake Effect Ht: 16.76
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 10 Bld Name:TURB1 TierNo: 1
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 5 Bld Name:InlFilt1 TierNo: 1
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 6 Bld Name:InlFilt2 TierNo: 1
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 7 Bld Name:InlFilt3 TierNo: 1
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
Single tier MAX: BH: 14.33 PBW: 15.46 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 8 Bld Name:InlFilt4 TierNo: 1

Drtcn: 150.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 6.71 PBW: 14.32 *Wake Effect Ht: 16.76
*adjusted for a Stack-Building elevation difference of 0.00
BldNo: 10 Bld Name:TURB1 TierNo: 1
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
Single tier MAX: BH: 14.33 PBW: 14.99 *Wake Effect Ht: 35.81
*adjusted for a Stack-Building elevation difference of 0.00

```
            BldNo:  5  Bld Name:InlFilt1  TierNo:  1
StkNo:  3  Stk Name:CT3                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  4  Stk Name:CT4                              Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  7  Bld Name:InlFilt3  TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  8  Bld Name:InlFilt4  TierNo:  1

[redacted]rtcn: 160.00

StkNo:  1  Stk Name:CT1                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo: 10  Bld Name:TURB1     TierNo:  1
[redacted]tkNo:  2  Stk Name:CT2                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  5  Bld Name:InlFilt1  TierNo:  1
StkNo:  3  Stk Name:CT3                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  6  Bld Name:InlFilt2  TierNo:  1
[redacted]tkNo:  4  Stk Name:CT4                              Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  7  Bld Name:InlFilt3  TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo:  8  Bld Name:InlFilt4  TierNo:  1

Drtcn: 170.00

[redacted]tkNo:  1  Stk Name:CT1                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  2  Stk Name:CT2                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
         *adjusted for a Stack-Building elevation difference of     0.00
            BldNo: 11  Bld Name:TURB2     TierNo:  1
[redacted]tkNo:  3  Stk Name:CT3                              Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
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       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  4  Stk Name:CT4                               Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 13  Bld Name:TURB4     TierNo:  1
StkNo:  5  Stk Name:CT5                               Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 14  Bld Name:TURB5     TierNo:  1

Drtcn: 180.00

StkNo:  1  Stk Name:CT1                               Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 10  Bld Name:TURB1     TierNo:  1
StkNo:  2  Stk Name:CT2                               Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  3  Stk Name:CT3                               Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  4  Stk Name:CT4                               Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 13  Bld Name:TURB4     TierNo:  1
StkNo:  5  Stk Name:CT5                               Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
   Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:  16.76
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo: 14  Bld Name:TURB5     TierNo:  1

Drtcn: 190.00

StkNo:  1  Stk Name:CT1                               Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  12.71  *Wake Effect Ht:  33.39
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  5  Bld Name:InlFilt1  TierNo:  1
StkNo:  2  Stk Name:CT2                               Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  12.71  *Wake Effect Ht:  33.39
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  3  Stk Name:CT3                               Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  12.71  *Wake Effect Ht:  33.39
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  7  Bld Name:InlFilt3  TierNo:  1
StkNo:  4  Stk Name:CT4                               Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
```

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  Single tier MAX:  BH:  14.33  PBW:  12.71  *Wake Effect Ht:   33.39
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  8  Bld Name:InlFilt4  TierNo:  1
kNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  14.33  PBW:  12.71  *Wake Effect Ht:   33.39
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  9  Bld Name:InlFilt5  TierNo:  1

tcn: 200.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  5  Bld Name:InlFilt1  TierNo:  1
kNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  7  Bld Name:InlFilt3  TierNo:  1
kNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  8  Bld Name:InlFilt4  TierNo:  1
StkNo:  5  Stk Name:CT5                            Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  14.33  PBW:  14.06  *Wake Effect Ht:   35.42
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  9  Bld Name:InlFilt5  TierNo:  1

tcn: 210.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  5  Bld Name:InlFilt1  TierNo:  1
kNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  7  Bld Name:InlFilt3  TierNo:  1
kNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  8  Bld Name:InlFilt4  TierNo:  1
StkNo:  5  Stk Name:CT5                            Stack Ht:   18.29
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              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   Single tier MAX:  BH:  15.24  PBW:  29.48  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  1  Bld Name:N.Demin   TierNo:  1

Drtcn: 220.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  5  Bld Name:InlFilt1  TierNo:  1
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  7  Bld Name:InlFilt3  TierNo:  1
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  9  Bld Name:InlFilt5  TierNo:  1
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   Single tier MAX:  BH:  15.24  PBW:  30.40  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  1  Bld Name:N.Demin   TierNo:  1

Drtcn: 230.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  6  Bld Name:InlFilt2  TierNo:  1
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  7  Bld Name:InlFilt3  TierNo:  1
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  8  Bld Name:InlFilt4  TierNo:  1
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
   Single tier MAX:  BH:  14.33  PBW:  15.46  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  9  Bld Name:InlFilt5  TierNo:  1
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   Single tier MAX:  BH:  15.24  PBW:  30.40  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
             BldNo:  1  Bld Name:N.Demin   TierNo:  1
```

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rtcn: 240.00

No:  1  Stk Name:CT1                                Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  6  Bld Name:InlFilt2  TierNo:  1
tkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  7  Bld Name:InlFilt3  TierNo:  1
No:  3  Stk Name:CT3                                Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  8  Bld Name:InlFilt4  TierNo:  1
tkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  14.33  PBW:  14.99  *Wake Effect Ht:   35.81
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  9  Bld Name:InlFilt5  TierNo:  1
No:  5  Stk Name:CT5                                Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  29.48  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  2  Bld Name:S.Demin   TierNo:  1

tcn: 250.00

No:  1  Stk Name:CT1                                Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 11  Bld Name:TURB2     TierNo:  1
No:  2  Stk Name:CT2                                Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 12  Bld Name:TURB3     TierNo:  1
No:  3  Stk Name:CT3                                Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:   6.71  PBW:  15.16  *Wake Effect Ht:   16.76
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 13  Bld Name:TURB4     TierNo:  1
No:  4  Stk Name:CT4                                Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  28.64  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  2  Bld Name:S.Demin   TierNo:  1
No:  5  Stk Name:CT5                                Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  28.64  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  2  Bld Name:S.Demin   TierNo:  1

n: 260.00

tkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
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              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo: 11  Bld Name:TURB2      TierNo:  1
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo: 12  Bld Name:TURB3      TierNo:  1
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  Single tier MAX:  BH:   6.71  PBW:  14.19  *Wake Effect Ht:   16.76
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo: 13  Bld Name:TURB4      TierNo:  1
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  30.02  *Wake Effect Ht:   38.10
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo:  2  Bld Name:S.Demin    TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  30.02  *Wake Effect Ht:   38.10
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo:  2  Bld Name:S.Demin    TierNo:  1

Drtcn: 270.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  30.48  *Wake Effect Ht:   38.10
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo:  2  Bld Name:S.Demin    TierNo:  1
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Single tier MAX:  BH:  15.24  PBW:  30.48  *Wake Effect Ht:   38.10
      *adjusted for a Stack-Building elevation difference of     0.00
             BldNo:  2  Bld Name:S.Demin    TierNo:  1

Drtcn: 280.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  No single tier affects this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  No single tier affects this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
  No single tier affects this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
```

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            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
 Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 10  Bld Name:TURB1     TierNo:  1
kNo:  2  Stk Name:CT2                             Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
[redacted]ingle tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 11  Bld Name:TURB2     TierNo:  1
[redacted]o:  3  Stk Name:CT3                             Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
 Single tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 12  Bld Name:TURB3     TierNo:  1
[redacted]o:  4  Stk Name:CT4                             Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
[redacted]ingle tier MAX:  BH:   6.71  PBW:  12.97  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 13  Bld Name:TURB4     TierNo:  1
[redacted]o:  5  Stk Name:CT5                             Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Single tier MAX:  BH:  15.24  PBW:  28.64  *Wake Effect Ht:   38.10
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  3  Bld Name:W.FO Tk   TierNo:  1

tcn: 350.00

[redacted]o:  1  Stk Name:CT1                             Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
 Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 10  Bld Name:TURB1     TierNo:  1
:kNo:  2  Stk Name:CT2                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
[redacted]ingle tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 11  Bld Name:TURB2     TierNo:  1
[redacted]o:  3  Stk Name:CT3                             Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
 Single tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 12  Bld Name:TURB3     TierNo:  1
:kNo:  4  Stk Name:CT4                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
[redacted]ingle tier MAX:  BH:   6.71  PBW:  11.23  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 13  Bld Name:TURB4     TierNo:  1
[redacted]o:  5  Stk Name:CT5                             Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Single tier MAX:  BH:  15.24  PBW:  30.02  *Wake Effect Ht:   38.10
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo:  3  Bld Name:W.FO Tk   TierNo:  1

[redacted]n: 360.00

:kNo:  1  Stk Name:CT1                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
[redacted]ingle tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:   16.76
     *adjusted for a Stack-Building elevation difference of    0.00
           BldNo: 10  Bld Name:TURB1     TierNo:  1
```

```
StkNo:  2  Stk Name:CT2                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:   16.76
         *adjusted for a Stack-Building elevation difference of    0.00
              BldNo: 11  Bld Name:TURB2     TierNo:  1
StkNo:  3  Stk Name:CT3                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:   16.76
         *adjusted for a Stack-Building elevation difference of    0.00
              BldNo: 12  Bld Name:TURB3     TierNo:  1
StkNo:  4  Stk Name:CT4                               Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    Single tier MAX:  BH:   6.71  PBW:   9.14  *Wake Effect Ht:   16.76
         *adjusted for a Stack-Building elevation difference of    0.00
              BldNo: 13  Bld Name:TURB4     TierNo:  1
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    Single tier MAX:  BH:  15.24  PBW:  30.48  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
              BldNo:  3  Bld Name:W.FO Tk   TierNo:  1


Dominate combined buildings:

Drtcn:  10.00

StkNo:  1  Stk Name:CT1                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                               Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  73.24  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   9  13

Drtcn:  20.00

StkNo:  1  Stk Name:CT1                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                               Stack Ht:    18.29
              GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                               Stack Ht:    18.29
              GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                               Stack Ht:    18.29
```

```
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   No combined tiers affect this stack for this direction

Drtcn:  30.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
   No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  47.77  *Wake Effect Ht:   38.10
      *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

Drtcn:  40.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
   No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  53.91  *Wake Effect Ht:   38.10
      *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

Drtcn:  50.00

StkNo:  1  Stk Name:CT1                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                            Stack Ht:   18.29
            GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
   No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                            Stack Ht:   18.29
            GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
   No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                            Stack Ht:   18.29
```

```
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  58.42  *Wake Effect Ht:   38.10
        *adjusted for a Stack-Building elevation difference of    0.00
No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

rtcn:  60.00

StkNo:  1  Stk Name:CT1                                Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
tkNo:  4  Stk Name:CT4                                 Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
tkNo:  5  Stk Name:CT5                                 Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction

rtcn:  70.00

tkNo:  1  Stk Name:CT1                                 Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                                Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction

Drtcn:  80.00

tkNo:  1  Stk Name:CT1                                 Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
tkNo:  2  Stk Name:CT2                                 Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
tkNo:  3  Stk Name:CT3                                 Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
tkNo:  4  Stk Name:CT4                                 Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                                Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction
```

```
Drtcn:  90.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction

Drtcn: 100.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  66.04  *Wake Effect Ht:   38.10
        *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

Drtcn: 110.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction

Drtcn: 120.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
```

GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction.
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction

Drtcn: 130.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction.
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction

Drtcn: 140.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction.
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction

Drtcn: 150.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29

```
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction

Drtcn: 160.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction

Drtcn: 170.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction

Drtcn: 180.00

StkNo:  1  Stk Name:CT1                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                             Stack Ht:   18.29
              GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                             Stack Ht:   18.29
              GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                             Stack Ht:   18.29
```

GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction

Drtcn: 190.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction.
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction

Drtcn: 200.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction.
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction

Drtcn: 210.00

StkNo: 1 Stk Name:CT1 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 2 Stk Name:CT2 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 3 Stk Name:CT3 Stack Ht: 18.29
GEP: BH: 14.33 PBW: 14.34 *Equation 1 Ht: 35.81
No combined tiers affect this stack for this direction.
StkNo: 4 Stk Name:CT4 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 29.76 *Equation 1 Ht: 38.10
No combined tiers affect this stack for this direction.
StkNo: 5 Stk Name:CT5 Stack Ht: 18.29
GEP: BH: 15.24 PBW: 28.20 *Equation 1 Ht: 38.10
Combined tier MAX: BH: 15.24 PBW: 47.77 *Wake Effect Ht: 38.10
*adjusted for a Stack-Building elevation difference of 0.00
No. of Tiers affecting Stk: 2
Bldg-Tier nos. contributing to MAX: 1 5

```
Drtcn: 220.00

StkNo:  1  Stk Name:CT1                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                 Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                                 Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  53.91  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

Drtcn: 230.00

StkNo:  1  Stk Name:CT1                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                 Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  58.42  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5
StkNo:  5  Stk Name:CT5                                 Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  58.42  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

Drtcn: 240.00

StkNo:  1  Stk Name:CT1                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                 Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                 Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  61.15  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
```

```
No. of Tiers affecting Stk:  2
 Bldg-Tier nos. contributing to MAX:   1   5
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  61.15  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
No. of Tiers affecting Stk:  2
 Bldg-Tier nos. contributing to MAX:   1   5

Drtcn: 250.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  63.01  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
No. of Tiers affecting Stk:  2
 Bldg-Tier nos. contributing to MAX:   1   5
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  63.01  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
No. of Tiers affecting Stk:  2
 Bldg-Tier nos. contributing to MAX:   1   5

Drtcn: 260.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  66.04  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
No. of Tiers affecting Stk:  2
 Bldg-Tier nos. contributing to MAX:   1   5
StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
 Combined tier MAX:  BH:  15.24  PBW:  66.04  *Wake Effect Ht:   38.10
       *adjusted for a Stack-Building elevation difference of    0.00
No. of Tiers affecting Stk:  2
 Bldg-Tier nos. contributing to MAX:   1   5

Drtcn: 270.00

StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
```

```
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  67.06  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5
 StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  67.06  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

 Drtcn: 280.00

 StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
 StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  66.04  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   1   5

 Drtcn: 290.00

 StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
 StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction
```

```
Drtcn: 300.00

StkNo:  1  Stk Name:CT1                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                  Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                                  Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction

Drtcn: 310.00

StkNo:  1  Stk Name:CT1                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                  Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                                  Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction

Drtcn: 320.00

StkNo:  1  Stk Name:CT1                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                                  Stack Ht:   18.29
               GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
    No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                                  Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
    No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                                  Stack Ht:   18.29
               GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  64.02  *Wake Effect Ht:   38.10
        *adjusted for a Stack-Building elevation difference of     0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   9  13

Drtcn: 330.00

StkNo:  1  Stk Name:CT1                                  Stack Ht:   18.29
```

```
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
 StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   Combined tier MAX:  BH:  15.24  PBW:  67.49  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
   Bldg-Tier nos. contributing to MAX:    9  13

 Drtcn: 340.00

 StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
 StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   Combined tier MAX:  BH:  15.24  PBW:  69.89  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
   Bldg-Tier nos. contributing to MAX:    9  13

 Drtcn: 350.00

 StkNo:  1  Stk Name:CT1                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  2  Stk Name:CT2                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  3  Stk Name:CT3                              Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34   *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
 StkNo:  4  Stk Name:CT4                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76   *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
 StkNo:  5  Stk Name:CT5                              Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20   *Equation 1 Ht:   38.10
   Combined tier MAX:  BH:  15.24  PBW:  73.24  *Wake Effect Ht:   38.10
         *adjusted for a Stack-Building elevation difference of    0.00
  No. of Tiers affecting Stk:  2
   Bldg-Tier nos. contributing to MAX:    9  13
```

```
Drtcn: 360.00

StkNo:  1  Stk Name:CT1                               Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  2  Stk Name:CT2                               Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  3  Stk Name:CT3                               Stack Ht:   18.29
                GEP:  BH:  14.33  PBW:  14.34  *Equation 1 Ht:   35.81
     No combined tiers affect this stack for this direction.
StkNo:  4  Stk Name:CT4                               Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  29.76  *Equation 1 Ht:   38.10
     No combined tiers affect this stack for this direction.
StkNo:  5  Stk Name:CT5                               Stack Ht:   18.29
                GEP:  BH:  15.24  PBW:  28.20  *Equation 1 Ht:   38.10
  Combined tier MAX:  BH:  15.24  PBW:  74.37  *Wake Effect Ht:   38.10
        *adjusted for a Stack-Building elevation difference of    0.00
 No. of Tiers affecting Stk:  2
  Bldg-Tier nos. contributing to MAX:   9  13
```

APPENDIX D

DETAILED SUMMARY OF ISCST MODEL RESULTS

ISCBOB3 RELEASE 98056

ISCST3 OUTPUT FILE NUMBER 1 :BREVNG.087
ISCST3 OUTPUT FILE NUMBER 2 :BREVNG.088
ISCST3 OUTPUT FILE NUMBER 3 :BREVNG.089
ISCST3 OUTPUT FILE NUMBER 4 :BREVNG.090
ISCST3 OUTPUT FILE NUMBER 5 :BREVNG.091
First title for last output file is: 1987 OLEANDER POWER PROJECT, BREVARD CO SITE 11/18/98
Second title for last output file is: NATURAL GAS PARAMETERS

AVERAGING TIME	YEAR	CONC (ug/m3)	DIR (deg) or X (m)	DIST (m) or Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: BASE95					
Annual					
	1987	0.01139	240.	15000.	87123124
	1988	0.01239	240.	15000.	88123124
	1989	0.01103	230.	300.	89123124
	1990	0.01213	240.	15000.	90123124
	1991	0.00945	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.15844	160.	15000.	87101424
	1988	0.14145	240.	15000.	88052924
	1989	0.12991	120.	15000.	89122524
	1990	0.15466	230.	2000.	90082024
	1991	0.17482	300.	20000.	91021924
HIGH 8-Hour					
	1987	0.35436	360.	20000.	87072924
	1988	0.36690	160.	20000.	88121808
	1989	0.34683	290.	20000.	89101724
	1990	0.46177	180.	20000.	90122508
	1991	0.45072	300.	20000.	91021924
HIGH 3-Hour					
	1987	0.74980	180.	20000.	87110703
	1988	0.83999	250.	25000.	88010124
	1989	0.68824	320.	7000.	89061715
	1990	0.71111	300.	20000.	90090821
	1991	0.81591	360.	20000.	91032806
HIGH 1-Hour					
	1987	1.85195	160.	1500.	87082013
	1988	1.83458	40.	1500.	88080913
	1989	1.86885	240.	1500.	89072614
	1990	1.77432	260.	1500.	90082913
	1991	1.88930	200.	1500.	91070713
SOURCE GROUP ID: BASE32					
Annual					
	1987	0.01086	240.	15000.	87123124
	1988	0.01231	240.	300.	88123124
	1989	0.01098	230.	300.	89123124
	1990	0.01165	240.	15000.	90123124
	1991	0.00890	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.13444	160.	20000.	87101424
	1988	0.13651	240.	15000.	88052924
	1989	0.12530	320.	7000.	89061724
	1990	0.15322	230.	2000.	90082024
	1991	0.16683	300.	20000.	91021924
HIGH 8-Hour					
	1987	0.33847	360.	20000.	87072924

	1988	0.35044	160.	20000.	88121808
	1989	0.33003	290.	20000.	89101724
	1990	0.44136	180.	20000.	90122508
	1991	0.43059	300.	20000.	91021924
HIGH 3-Hour					
	1987	0.71789	180.	20000.	87110703
	1988	0.79886	250.	25000.	88010124
	1989	0.68352	320.	7000.	89061715
	1990	0.68034	300.	20000.	90090821
	1991	0.77725	360.	20000.	91032806
HIGH 1-Hour					
	1987	1.69431	140.	1500.	87080714
	1988	1.69446	60.	2000.	88041413
	1989	1.73042	130.	1500.	89062714
	1990	1.75705	160.	1500.	90080512
	1991	1.68344	240.	2000.	91041113
SOURCE GROUP ID:	LD7595				
Annual					
	1987	0.01342	240.	15000.	87123124
	1988	0.01453	240.	15000.	88123124
	1989	0.01233	360.	10000.	89123124
	1990	0.01403	240.	15000.	90123124
	1991	0.01174	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.18046	160.	15000.	87101424
	1988	0.16605	300.	2000.	88061824
	1989	0.14953	320.	20000.	89010824
	1990	0.17639	180.	20000.	90122524
	1991	0.20142	300.	20000.	91021924
HIGH 8-Hour					
	1987	0.42788	250.	1500.	87071016
	1988	0.43523	300.	2000.	88061816
	1989	0.40324	290.	20000.	89101724
	1990	0.52851	180.	20000.	90122508
	1991	0.51736	300.	20000.	91021924
HIGH 3-Hour					
	1987	1.14101	250.	1500.	87071015
	1988	0.97768	250.	25000.	88010124
	1989	0.74726	90.	20000.	89112103
	1990	0.81268	300.	20000.	90090821
	1991	0.94464	360.	20000.	91032806
HIGH 1-Hour					
	1987	2.26492	30.	1500.	87083013
	1988	2.19580	120.	1500.	88080712
	1989	2.23414	270.	1500.	89070713
	1990	2.20020	160.	1500.	90071012
	1991	2.15056	90.	1500.	91062513
SOURCE GROUP ID:	LD7532				
Annual					
	1987	0.01261	240.	15000.	87123124
	1988	0.01348	240.	15000.	88123124
	1989	0.01139	360.	10000.	89123124
	1990	0.01310	240.	15000.	90123124
	1991	0.01059	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.16991	160.	15000.	87101424
	1988	0.16405	300.	2000.	88061824
	1989	0.13995	120.	15000.	89122524
	1990	0.16580	180.	20000.	90122524
	1991	0.18870	300.	20000.	91021924

HIGH 8-Hour					
	1987	0.42085	250.	1500.	87071016
	1988	0.43016	300.	2000.	88061816
	1989	0.37617	290.	20000.	89101724
	1990	0.49680	180.	20000.	90122508
	1991	0.48557	300.	20000.	91021924
HIGH 3-Hour					
	1987	1.12226	250.	1500.	87071015
	1988	0.91168	250.	25000.	88010124
	1989	0.70241	90.	20000.	89112103
	1990	0.76427	300.	20000.	90090821
	1991	0.88306	360.	20000.	91032806
HIGH 1-Hour					
	1987	2.07052	180.	1500.	87050512
	1988	2.03964	280.	1500.	88071213
	1989	2.00798	200.	1500.	89070314
	1990	1.79984	260.	1500.	90082913
	1991	2.05058	360.	1500.	91050114
SOURCE GROUP ID:	LD5095				
Annual					
	1987	0.01656	240.	15000.	87123124
	1988	0.01783	240.	15000.	88123124
	1989	0.01535	360.	10000.	89123124
	1990	0.01764	240.	15000.	90123124
	1991	0.01490	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.20466	160.	15000.	87101424
	1988	0.18607	240.	15000.	88052924
	1989	0.18478	320.	20000.	89010824
	1990	0.21021	230.	2000.	90041624
	1991	0.24333	300.	15000.	91021924
HIGH 8-Hour					
	1987	0.48152	360.	20000.	87072924
	1988	0.49946	160.	20000.	88121808
	1989	0.49055	290.	20000.	89101724
	1990	0.62594	180.	20000.	90122508
	1991	0.62101	300.	15000.	91021924
HIGH 3-Hour					
	1987	1.21247	250.	1500.	87071015
	1988	1.20375	250.	20000.	88010124
	1989	0.95553	250.	1500.	89082815
	1990	1.27147	160.	1500.	90052315
	1991	1.18953	140.	2000.	91052915
HIGH 1-Hour					
	1987	2.71228	60.	1500.	87050711
	1988	2.73225	330.	1500.	88081812
	1989	2.79264	250.	1500.	89082813
	1990	2.78098	250.	1500.	90083113
	1991	2.91714	360.	192.	91051617
SOURCE GROUP ID:	LD5032				
Annual					
	1987	0.01595	240.	15000.	87123124
	1988	0.01712	240.	15000.	88123124
	1989	0.01473	360.	10000.	89123124
	1990	0.01665	240.	15000.	90123124
	1991	0.01421	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.20595	160.	15000.	87101424
	1988	0.18058	240.	15000.	88052924
	1989	0.17630	320.	20000.	89010824

	1990	0.20576	230.	2000.	90041624
	1991	0.23266	300.	15000.	91021924
HIGH 8-Hour					
	1987	0.46941	360.	20000.	87072924
	1988	0.48027	160.	20000.	88121808
	1989	0.47011	290.	20000.	89101724
	1990	0.60239	180.	20000.	90122508
	1991	0.59438	300.	15000.	91021924
HIGH 3-Hour					
	1987	1.19525	250.	1500.	87071015
	1988	1.14922	250.	20000.	88010124
	1989	0.87480	290.	1500.	89091512
	1990	1.25962	160.	1500.	90052315
	1991	1.18048	140.	2000.	91052915
HIGH 1-Hour					
	1987	2.45201	330.	1500.	87061111
	1988	2.64704	130.	1500.	88060212
	1989	2.62441	290.	1500.	89091512
	1990	2.67947	60.	1500.	90082212
	1991	2.59673	320.	1500.	91050113

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

ISCBOB3 RELEASE 98056

ISCST3 OUTPUT FILE NUMBER 1 :BREVFO.087
ISCST3 OUTPUT FILE NUMBER 2 :BREVFO.088
ISCST3 OUTPUT FILE NUMBER 3 :BREVFO.089
ISCST3 OUTPUT FILE NUMBER 4 :BREVFO.090
ISCST3 OUTPUT FILE NUMBER 5 :BREVFO.091
First title for last output file is: 1987 OLEANDER POWER PROJECT, BREVARD CO SITE 11/18/98
Second title for last output file is: FUEL OIL PARAMETERS

AVERAGING TIME	YEAR	CONC (ug/m3)	DIR (deg) or X (m)	DIST (m) or Y (m)	PERIOD ENDING (YYMMDDHH)
SOURCE GROUP ID: BASE95					
Annual					
	1987	0.01103	240.	15000.	87123124
	1988	0.01233	240.	300.	88123124
	1989	0.01100	230.	300.	89123124
	1990	0.01184	240.	15000.	90123124
	1991	0.00903	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.13671	160.	20000.	87101424
	1988	0.13833	240.	15000.	88052924
	1989	0.12631	120.	15000.	89122524
	1990	0.15376	230.	2000.	90082024
	1991	0.16980	300.	20000.	91021924
HIGH 8-Hour					
	1987	0.34437	360.	20000.	87072924
	1988	0.35659	160.	20000.	88121808
	1989	0.33626	290.	20000.	89101724
	1990	0.44899	180.	20000.	90122508
	1991	0.43808	300.	20000.	91021924
HIGH 3-Hour					
	1987	0.72979	180.	20000.	87110703
	1988	0.81414	250.	25000.	88010124
	1989	0.68521	320.	7000.	89061715
	1990	0.69177	300.	20000.	90090821
	1991	0.79162	360.	20000.	91032806
HIGH 1-Hour					
	1987	1.69941	140.	1500.	87080714
	1988	1.69920	60.	2000.	88041413
	1989	1.73540	130.	1500.	89062714
	1990	1.76672	260.	1500.	90082913
	1991	1.75262	140.	1500.	91061312
SOURCE GROUP ID: BASE32					
Annual					
	1987	0.01096	240.	15000.	87123124
	1988	0.01232	240.	300.	88123124
	1989	0.01099	230.	300.	89123124
	1990	0.01177	240.	15000.	90123124
	1991	0.00897	360.	10000.	91123124
HIGH 24-Hour					
	1987	0.13559	160.	20000.	87101424
	1988	0.13743	240.	15000.	88052924
	1989	0.12563	320.	7000.	89061724
	1990	0.15350	230.	2000.	90082024
	1991	0.16833	300.	20000.	91021924
HIGH 8-Hour					
	1987	0.34146	360.	20000.	87072924

	1988	0.35353	160.	20000.	88121808
	1989	0.33318	290.	20000.	89101724
	1990	0.44520	180.	20000.	90122508
	1991	0.43437	300.	20000.	91021924
HIGH 3-Hour					
	1987	0.72389	180.	20000.	87110703
	1988	0.80656	250.	25000.	88010124
	1989	0.68437	320.	7000.	89061715
	1990	0.68613	300.	20000.	90090821
	1991	0.78451	360.	20000.	91032806
IGH 1-Hour					
	1987	1.69686	140.	1500.	87080714
	1988	1.69687	60.	2000.	88041413
	1989	1.73291	130.	1500.	89062714
	1990	1.75941	160.	1500.	90080512
	1991	1.68584	240.	2000.	91041113
OURCE GROUP ID:	LD7595				
nnual					
	1987	0.01306	240.	15000.	87123124
	1988	0.01416	240.	15000.	88123124
	1989	0.01211	360.	10000.	89123124
	1990	0.01370	240.	15000.	90123124
	1991	0.01139	360.	10000.	91123124
IGH 24-Hour					
	1987	0.17725	160.	15000.	87101424
	1988	0.16542	300.	2000.	88061824
	1989	0.14623	320.	20000.	89010824
	1990	0.17318	180.	20000.	90122524
	1991	0.19754	300.	20000.	91021924
IGH 8-Hour					
	1987	0.42563	250.	1500.	87071016
	1988	0.43364	300.	2000.	88061816
	1989	0.39496	290.	20000.	89101724
	1990	0.51892	180.	20000.	90122508
	1991	0.50768	300.	20000.	91021924
HIGH 3-Hour					
	1987	1.13502	250.	1500.	87071015
	1988	0.95755	250.	25000.	88010124
	1989	0.73366	90.	20000.	89112103
	1990	0.79793	300.	20000.	90090821
	1991	0.92588	360.	20000.	91032806
HIGH 1-Hour					
	1987	2.08615	180.	1500.	87050512
	1988	2.16103	320.	1500.	88051713
	1989	2.17064	290.	1500.	89081812
	1990	2.19361	160.	1500.	90071012
	1991	2.14449	90.	1500.	91062513
OURCE GROUP ID:	LD7532				
Annual					
	1987	0.01237	240.	15000.	87123124
	1988	0.01320	240.	15000.	88123124
	1989	0.01119	360.	10000.	89123124
	1990	0.01286	240.	15000.	90123124
	1991	0.01016	360.	10000.	91123124
IGH 24-Hour					
	1987	0.16693	160.	15000.	87101424
	1988	0.16351	300.	2000.	88061824
	1989	0.13734	120.	15000.	89122524
	1990	0.16279	180.	20000.	90122524
	1991	0.18510	300.	20000.	91021924

HIGH 8-Hour

1987	0.41903	250.	1500.	87071016
1988	0.42881	300.	2000.	88061816
1989	0.36854	290.	20000.	89101724
1990	0.48776	180.	20000.	90122508
1991	0.47654	300.	20000.	91021924

HIGH 3-Hour

1987	1.11742	250.	1500.	87071015
1988	0.89305	250.	25000.	88010124
1989	0.69497	320.	7000.	89061715
1990	0.75051	300.	20000.	90090821
1991	0.86564	360.	20000.	91032806

HIGH 1-Hour

1987	2.00445	240.	1500.	87071013
1988	2.03370	280.	1500.	88071213
1989	1.89203	130.	1500.	89041614
1990	1.79264	260.	1500.	90082913
1991	1.97695	270.	1500.	91050314

SOURCE GROUP ID: LD5095

Annual

1987	0.01660	240.	15000.	87123124
1988	0.01790	240.	15000.	88123124
1989	0.01537	360.	10000.	89123124
1990	0.01768	240.	15000.	90123124
1991	0.01492	360.	10000.	91123124

HIGH 24-Hour

1987	0.20477	160.	15000.	87101424
1988	0.18781	240.	15000.	88052924
1989	0.18497	320.	20000.	89010824
1990	0.21038	230.	2000.	90041624
1991	0.24356	300.	15000.	91021924

HIGH 8-Hour

1987	0.48434	360.	20000.	87072924
1988	0.49932	160.	20000.	88121808
1989	0.49120	290.	20000.	89101724
1990	0.62590	180.	20000.	90122508
1991	0.62163	300.	15000.	91021924

HIGH 3-Hour

1987	1.21331	250.	1500.	87071015
1988	1.20465	250.	20000.	88010124
1989	0.95603	250.	1500.	89082815
1990	1.27196	160.	1500.	90052315
1991	1.18993	140.	2000.	91052915

HIGH 1-Hour

1987	2.71288	60.	1500.	87050711
1988	2.73297	330.	1500.	88081812
1989	2.79346	250.	1500.	89082813
1990	2.78179	250.	1500.	90083113
1991	2.73902	340.	1500.	91061513

SOURCE GROUP ID: LD5032

Annual

1987	0.01600	240.	15000.	87123124
1988	0.01718	240.	15000.	88123124
1989	0.01477	360.	10000.	89123124
1990	0.01671	240.	15000.	90123124
1991	0.01425	360.	10000.	91123124

HIGH 24-Hour

1987	0.20646	160.	15000.	87101424
1988	0.18112	240.	15000.	88052924
1989	0.17692	320.	20000.	89010824

	1990	0.20616	230.	2000.	90041624
	1991	0.23344	300.	15000.	91021924
HIGH 8-Hour					
	1987	0.47110	360.	20000.	87072924
	1988	0.48105	160.	20000.	88121808
	1989	0.47185	290.	20000.	89101724
	1990	0.60349	180.	20000.	90122508
	1991	0.59637	300.	15000.	91021924
HIGH 3-Hour					
	1987	1.19701	250.	1500.	87071015
	1988	1.15287	250.	20000.	88010124
	1989	0.87532	290.	1500.	89091512
	1990	1.26068	160.	1500.	90052315
	1991	1.18139	140.	2000.	91052915
HIGH 1-Hour					
	1987	2.45354	330.	1500.	87061111
	1988	2.64867	130.	1500.	88060212
	1989	2.62597	290.	1500.	89091512
	1990	2.68116	60.	1500.	90082212
	1991	2.59831	320.	1500.	91050113

All receptor computations reported with respect to a user-specified origin

GRID	0.00	0.00
DISCRETE	0.00	0.00

```
[redacted] STARTING
CO TITLEONE 1987 OLEANDER POWER PROJECT, BREVARD CO SITE              11/18/98
[redacted] TITLETWO NATURAL GAS PARAMETERS
[redacted] MODELOPT DFAULT CONC   RURAL NOCMPL
CO AVERTIME  PERIOD 24 8 3 1
CO POLLUTID OTHER
[redacted] DCAYCOEF     .000000
[redacted] RUNORNOT RUN
CO FINISHED

[redacted] STARTING

** Source Location Cards:
[redacted]          SRCID SRCTYP        XS              YS              ZS
[redacted] MODELING ORIGIN CT 3 STACK LOCATION
** LOCATION IS USED FOR POLAR DISCRETE RECEPTORS.
[redacted]  CT STACK NUMBER CODE
[redacted] ------------------------
**  A -  CT 1
[redacted]  B -  CT 2
[redacted]  C -  CT 3
[redacted]  D -  CT 4
**  E -  CT 5
[redacted] Source Location Cards:
[redacted]          SRCID SRCTYP      XS        YS        ZS
**   UTM                          (m)       (m)       (m)
[redacted] LOCATION  BASE95A  POINT  -70.71    0.0       0.0
[redacted] LOCATION  BASE95B  POINT  -35.36    0.0       0.0
SO LOCATION  BASE95C  POINT    0.00    0.0       0.0
[redacted] LOCATION  BASE95D  POINT   35.36    0.0       0.0
[redacted] LOCATION  BASE95E  POINT   70.71    0.0       0.0
[redacted] LOCATION  BASE32A  POINT  -70.71    0.0       0.0
SO LOCATION  BASE32B  POINT  -35.36    0.0       0.0
[redacted] LOCATION  BASE32C  POINT    0.00    0.0       0.0
[redacted] LOCATION  BASE32D  POINT   35.36    0.0       0.0
SO LOCATION  BASE32E  POINT   70.71    0.0       0.0
[redacted] LOCATION  LD7595A  POINT  -70.71    0.0       0.0
[redacted] LOCATION  LD7595B  POINT  -35.36    0.0       0.0
SO LOCATION  LD7595C  POINT    0.00    0.0       0.0
SO LOCATION  LD7595D  POINT   35.36    0.0       0.0
[redacted] LOCATION  LD7595E  POINT   70.71    0.0       0.0
[redacted] LOCATION  LD7532A  POINT  -70.71    0.0       0.0
SO LOCATION  LD7532B  POINT  -35.36    0.0       0.0
[redacted] LOCATION  LD7532C  POINT    0.00    0.0       0.0
[redacted] LOCATION  LD7532D  POINT   35.36    0.0       0.0
SO LOCATION  LD7532E  POINT   70.71    0.0       0.0
[redacted] LOCATION  LD5095A  POINT  -70.71    0.0       0.0
[redacted] LOCATION  LD5095B  POINT  -35.36    0.0       0.0
SO LOCATION  LD5095C  POINT    0.00    0.0       0.0
SO LOCATION  LD5095D  POINT   35.36    0.0       0.0
[redacted] LOCATION  LD5095E  POINT   70.71    0.0       0.0
[redacted] LOCATION  LD5032A  POINT  -70.71    0.0       0.0
SO LOCATION  LD5032B  POINT  -35.36    0.0       0.0
[redacted] LOCATION  LD5032C  POINT    0.00    0.0       0.0
[redacted] LOCATION  LD5032D  POINT   35.36    0.0       0.0
SO LOCATION  LD5032E  POINT   70.71    0.0       0.0
** Source Parameter Cards:
[redacted] POINT:   SRCID             QS      HS        TS        VS        DS
[redacted]                          (g/s)    (m)       (K)      (m/s)      (m)
SO SRCPARAM   BASE95A     2.0   18.3      887.6     32.80     6.71
[redacted]
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[redacted]SRCPARAM   BASE95B     2.0   18.3     887.6     32.80     6.71
SO SRCPARAM   BASE95C     2.0   18.3     887.6     32.80     6.71
[redacted]SRCPARAM   BASE95D     2.0   18.3     887.6     32.80     6.71
[redacted]SRCPARAM   BASE95E     2.0   18.3     887.6     32.80     6.71
SO SRCPARAM   BASE32A     2.0   18.3     871.5     34.72     6.71
SO SRCPARAM   BASE32B     2.0   18.3     871.5     34.72     6.71
[redacted]SRCPARAM   BASE32C     2.0   18.3     871.5     34.72     6.71
[redacted]SRCPARAM   BASE32D     2.0   18.3     871.5     34.72     6.71
SO SRCPARAM   BASE32E     2.0   18.3     871.5     34.72     6.71
[redacted]SRCPARAM   LD7595A     2.0   18.3     916.5     27.86     6.71
[redacted]SRCPARAM   LD7595B     2.0   18.3     916.5     27.86     6.71
SO SRCPARAM   LD7595C     2.0   18.3     916.5     27.86     6.71
SO SRCPARAM   LD7595D     2.0   18.3     916.5     27.86     6.71
[redacted]SRCPARAM   LD7595E     2.0   18.3     916.5     27.86     6.71
SO SRCPARAM   LD7532A     2.0   18.3     907.0     29.99     6.71
SO SRCPARAM   LD7532B     2.0   18.3     907.0     29.99     6.71
[redacted]SRCPARAM   LD7532C     2.0   18.3     907.0     29.99     6.71
[redacted]SRCPARAM   LD7532D     2.0   18.3     907.0     29.99     6.71
SO SRCPARAM   LD7532E     2.0   18.3     907.0     29.99     6.71
[redacted]SRCPARAM   LD5095A     2.0   18.3     859.3     23.56     6.71
[redacted]SRCPARAM   LD5095B     2.0   18.3     859.3     23.56     6.71
SO SRCPARAM   LD5095C     2.0   18.3     859.3     23.56     6.71
SO SRCPARAM   LD5095D     2.0   18.3     859.3     23.56     6.71
[redacted]SRCPARAM   LD5095E     2.0   18.3     859.3     23.56     6.71
[redacted]SRCPARAM   LD5032A     2.0   18.3     834.8     25.02     6.71
SO SRCPARAM   LD5032B     2.0   18.3     834.8     25.02     6.71
[redacted]SRCPARAM   LD5032C     2.0   18.3     834.8     25.02     6.71
[redacted]SRCPARAM   LD5032D     2.0   18.3     834.8     25.02     6.71
SO SRCPARAM   LD5032E     2.0   18.3     834.8     25.02     6.71

[redacted]BUILDHGT BASE32A-BASE95A     6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT BASE32A-BASE95A     0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT BASE32A-BASE95A     0.00    6.71    6.71    6.71    6.71    6.71
[redacted]BUILDHGT BASE32A-BASE95A    14.33   14.33   14.33   14.33   14.33   14.33
[redacted]BUILDHGT BASE32A-BASE95A     6.71    6.71    0.00    0.00    0.00    0.00
SO BUILDHGT BASE32A-BASE95A     0.00    6.71    6.71    6.71    6.71    6.71
[redacted]BUILDWID BASE32A-BASE95A    11.23   12.97   14.32   15.46    0.00    0.00
[redacted]BUILDWID BASE32A-BASE95A     0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID BASE32A-BASE95A     0.00   15.23   14.32   12.97   11.23    9.14
SO BUILDWID BASE32A-BASE95A    12.71   14.06   14.99   15.46   15.46   14.99
[redacted]BUILDWID BASE32A-BASE95A    15.16   14.19    0.00    0.00    0.00    0.00
SO BUILDWID BASE32A-BASE95A     0.00   15.23   14.32   12.97   11.23    9.14
SO BUILDHGT LD5032A-LD7595A     6.71    6.71    6.71   14.33    0.00    0.00
[redacted]BUILDHGT LD5032A-LD7595A     0.00    0.00    0.00    0.00    0.00    0.00
[redacted]BUILDHGT LD5032A-LD7595A     0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDHGT LD5032A-LD7595A    14.33   14.33   14.33   14.33   14.33   14.33
[redacted]BUILDHGT LD5032A-LD7595A     6.71    6.71    0.00    0.00    0.00    0.00
[redacted]BUILDHGT LD5032A-LD7595A     0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID LD5032A-LD7595A    11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID LD5032A-LD7595A     0.00    0.00    0.00    0.00    0.00    0.00
[redacted]BUILDWID LD5032A-LD7595A     0.00   15.23   14.32   12.97   11.23    9.14
[redacted]BUILDWID LD5032A-LD7595A    12.71   14.06   14.99   15.46   15.46   14.99
SO BUILDWID LD5032A-LD7595A    15.16   14.19    0.00    0.00    0.00    0.00
[redacted]BUILDWID LD5032A-LD7595A     0.00   15.23   14.32   12.97   11.23    9.14


SO BUILDHGT BASE32B-BASE95B     6.71    6.71    6.71   14.33    0.00    0.00
[redacted]BUILDHGT BASE32B-BASE95B     0.00    0.00    0.00    6.71    6.71    6.71
SO BUILDHGT BASE32B-BASE95B    14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT BASE32B-BASE95B    14.33   14.33   14.33   14.33   14.33   14.33
[redacted]
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[redacted] BUILDHGT BASE32B-BASE95B    6.71   6.71   0.00   0.00   0.00   0.00
SO BUILDHGT BASE32B-BASE95B    0.00   6.71   6.71   6.71   6.71   6.71
[redacted] BUILDWID BASE32B-BASE95B   11.23  12.97  14.32  15.46   0.00   0.00
[redacted] BUILDWID BASE32B-BASE95B    0.00   0.00   0.00  14.19  15.16  15.66
SO BUILDWID BASE32B-BASE95B   15.46  15.46  14.99  14.06  11.23   9.14
SO BUILDWID BASE32B-BASE95B   12.71  14.06  14.99  15.46  15.46  14.99
[redacted] BUILDWID BASE32B-BASE95B   15.16  14.19   0.00   0.00   0.00   0.00
[redacted] BUILDWID BASE32B-BASE95B    0.00  15.23  14.32  12.97  11.23   9.14
SO BUILDHGT LD5032B-LD7595B    6.71   6.71   6.71  14.33   0.00   0.00
[redacted] BUILDHGT LD5032B-LD7595B    0.00   0.00   0.00   6.71   6.71   6.71
[redacted] BUILDHGT LD5032B-LD7595B   14.33  14.33  14.33  14.33   6.71   6.71
SO BUILDHGT LD5032B-LD7595B   14.33  14.33  14.33  14.33  14.33  14.33
[redacted] BUILDHGT LD5032B-LD7595B    6.71   6.71   0.00   0.00   0.00   0.00
[redacted] BUILDHGT LD5032B-LD7595B    0.00   6.71   6.71   6.71   6.71   6.71
[redacted] BUILDWID LD5032B-LD7595B   11.23  12.97  14.32  15.46   0.00   0.00
SO BUILDWID LD5032B-LD7595B    0.00   0.00   0.00  14.19  15.16  15.66
[redacted] BUILDWID LD5032B-LD7595B   15.46  15.46  14.99  14.06  11.23   9.14
[redacted] BUILDWID LD5032B-LD7595B   12.71  14.06  14.99  15.46  15.46  14.99
SO BUILDWID LD5032B-LD7595B   15.16  14.19   0.00   0.00   0.00   0.00
[redacted] BUILDWID LD5032B-LD7595B    0.00  15.23  14.32  12.97  11.23   9.14

SO BUILDHGT BASE32C-BASE95C    6.71   6.71   6.71  14.33   0.00   0.00
[redacted] BUILDHGT BASE32C-BASE95C    0.00   0.00   0.00   6.71   6.71  14.33
[redacted] BUILDHGT BASE32C-BASE95C   14.33  14.33  14.33  14.33   6.71   6.71
SO BUILDHGT BASE32C-BASE95C   14.33  14.33  14.33  14.33  14.33  14.33
[redacted] BUILDHGT BASE32C-BASE95C    6.71   6.71   0.00   0.00   0.00   0.00
[redacted] BUILDHGT BASE32C-BASE95C    0.00   6.71   6.71   6.71   6.71   6.71
SO BUILDWID BASE32C-BASE95C   11.23  12.97  14.32  15.46   0.00   0.00
[redacted] BUILDWID BASE32C-BASE95C    0.00   0.00   0.00  14.19  15.16  14.99
[redacted] BUILDWID BASE32C-BASE95C   15.46  15.46  14.99  14.06  11.23   9.14
[redacted] BUILDWID BASE32C-BASE95C   12.71  14.06  14.99  15.46  15.46  14.99
SO BUILDWID BASE32C-BASE95C   15.16  14.19   0.00   0.00   0.00   0.00
[redacted] BUILDWID BASE32C-BASE95C    0.00  15.23  14.32  12.97  11.23   9.14
[redacted] BUILDHGT LD5032C-LD7595C    6.71   6.71   6.71  14.33   0.00   0.00
SO BUILDHGT LD5032C-LD7595C    0.00   0.00   0.00   6.71   6.71  14.33
[redacted] BUILDHGT LD5032C-LD7595C   14.33  14.33  14.33  14.33   6.71   6.71
[redacted] BUILDHGT LD5032C-LD7595C   14.33  14.33  14.33  14.33  14.33  14.33
SO BUILDHGT LD5032C-LD7595C    6.71   6.71   0.00   0.00   0.00   0.00
[redacted] BUILDHGT LD5032C-LD7595C    0.00   6.71   6.71   6.71   6.71   6.71
[redacted] BUILDWID LD5032C-LD7595C   11.23  12.97  14.32  15.46   0.00   0.00
[redacted] BUILDWID LD5032C-LD7595C    0.00   0.00   0.00  14.19  15.16  14.99
SO BUILDWID LD5032C-LD7595C   15.46  15.46  14.99  14.06  11.23   9.14
[redacted] BUILDWID LD5032C-LD7595C   12.71  14.06  14.99  15.46  15.46  14.99
[redacted] BUILDWID LD5032C-LD7595C   15.16  14.19   0.00   0.00   0.00   0.00
SO BUILDWID LD5032C-LD7595C    0.00  15.23  14.32  12.97  11.23   9.14

SO BUILDHGT BASE32D-BASE95D    6.71   6.71   6.71  14.33   0.00   0.00
SO BUILDHGT BASE32D-BASE95D    0.00   0.00   0.00   6.71   6.71  14.33
[redacted] BUILDHGT BASE32D-BASE95D   14.33  14.33  14.33  14.33   6.71   6.71
[redacted] BUILDHGT BASE32D-BASE95D   14.33  14.33  14.33  14.33  15.24  15.24
SO BUILDHGT BASE32D-BASE95D   15.24  15.24  15.24   0.00   0.00   0.00
[redacted] BUILDHGT BASE32D-BASE95D    0.00   6.71   6.71   6.71   6.71   6.71
[redacted] BUILDWID BASE32D-BASE95D   11.23  12.97  14.32  15.46   0.00   0.00
SO BUILDWID BASE32D-BASE95D    0.00   0.00   0.00  14.19  15.16  14.99
[redacted] BUILDWID BASE32D-BASE95D   15.46  15.46  14.99  14.06  11.23   9.14
[redacted] BUILDWID BASE32D-BASE95D   12.71  14.06  14.99  15.46  58.42  61.15
[redacted] BUILDWID BASE32D-BASE95D   28.64  30.02  30.48   0.00   0.00   0.00
SO BUILDWID BASE32D-BASE95D    0.00  15.23  14.32  12.97  11.23   9.14
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[redacted] BUILDHGT LD5032D-LD7595D    6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT LD5032D-LD7595D    0.00    0.00    0.00    6.71    6.71   14.33
[redacted] BUILDHGT LD5032D-LD7595D   14.33   14.33   14.33   14.33    6.71    6.71
[redacted] BUILDHGT LD5032D-LD7595D   14.33   14.33   14.33   14.33   15.24   15.24
SO BUILDHGT LD5032D-LD7595D   15.24   15.24   15.24    0.00    0.00    0.00
SO BUILDHGT LD5032D-LD7595D    0.00    6.71    6.71    6.71    6.71    6.71
[redacted] BUILDWID LD5032D-LD7595D   11.23   12.97   14.32   15.46    0.00    0.00
[redacted] BUILDWID LD5032D-LD7595D    0.00    0.00    0.00   14.19   15.16   14.99
SO BUILDWID LD5032D-LD7595D   15.46   15.46   14.99   14.06   11.23    9.14
[redacted] BUILDWID LD5032D-LD7595D   12.71   14.06   14.99   15.46   58.42   61.15
[redacted] BUILDWID LD5032D-LD7595D   28.64   30.02   30.48    0.00    0.00    0.00
SO BUILDWID LD5032D-LD7595D    0.00   15.23   14.32   12.97   11.23    9.14

[redacted] BUILDHGT BASE32E-BASE95E   15.24    6.71   15.24   15.24   15.24    0.00
SO BUILDHGT BASE32E-BASE95E    0.00    0.00    0.00   15.24    6.71   14.33
[redacted] BUILDHGT BASE32E-BASE95E   14.33   14.33   14.33   14.33    6.71    6.71
[redacted] BUILDHGT BASE32E-BASE95E   14.33   14.33   15.24   15.24   15.24   15.24
SO BUILDHGT BASE32E-BASE95E   15.24   15.24   15.24   15.24    0.00    0.00
[redacted] BUILDHGT BASE32E-BASE95E    0.00   15.24   15.24   15.24   15.24   15.24
[redacted] BUILDWID BASE32E-BASE95E   30.02   12.97   47.77   53.91   58.42    0.00
SO BUILDWID BASE32E-BASE95E    0.00    0.00    0.00   66.04   15.16   14.99
[redacted] BUILDWID BASE32E-BASE95E   15.46   15.46   14.99   14.06   11.23    9.14
[redacted] BUILDWID BASE32E-BASE95E   12.71   14.06   29.48   30.40   30.40   29.48
[redacted] BUILDWID BASE32E-BASE95E   28.64   30.02   30.48   30.02    0.00    0.00
SO BUILDWID BASE32E-BASE95E    0.00   64.02   67.49   28.64   30.02   30.48
[redacted] BUILDHGT LD5032E-LD7595E   15.24    6.71   15.24   15.24   15.24    0.00
[redacted] BUILDHGT LD5032E-LD7595E    0.00    0.00    0.00   15.24    6.71   14.33
SO BUILDHGT LD5032E-LD7595E   14.33   14.33   14.33   14.33    6.71    6.71
[redacted] BUILDHGT LD5032E-LD7595E   14.33   14.33   15.24   15.24   15.24   15.24
[redacted] BUILDHGT LD5032E-LD7595E   15.24   15.24   15.24   15.24    0.00    0.00
[redacted] BUILDHGT LD5032E-LD7595E    0.00   15.24   15.24   15.24   15.24   15.24
SO BUILDWID LD5032E-LD7595E   30.02   12.97   47.77   53.91   58.42    0.00
[redacted] BUILDWID LD5032E-LD7595E    0.00    0.00    0.00   66.04   15.16   14.99
[redacted] BUILDWID LD5032E-LD7595E   15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID LD5032E-LD7595E   12.71   14.06   29.48   30.40   30.40   29.48
[redacted] BUILDWID LD5032E-LD7595E   28.64   30.02   30.48   30.02    0.00    0.00
[redacted] BUILDWID LD5032E-LD7595E    0.00   64.02   67.49   28.64   30.02   30.48

[redacted] EMISUNIT    .100000E+07 (GRAMS/SEC)          (MICROGRAMS/CUBIC-METER)
[redacted] SRCGROUP BASE95  BASE95A BASE95B BASE95C BASE95D BASE95E
SO SRCGROUP BASE32  BASE32A BASE32B BASE32C BASE32D BASE32E
[redacted] SRCGROUP LD7595  LD7595A LD7595B LD7595C LD7595D LD7595E
[redacted] SRCGROUP LD7532  LD7532A LD7532B LD7532C LD7532D LD7532E
SO SRCGROUP LD5095  LD5095A LD5095B LD5095C LD5095D LD5095E
[redacted] SRCGROUP LD5032  LD5032A LD5032B LD5032C LD5032D LD5032E
[redacted] FINISHED

[redacted] STARTING
[redacted] GRIDPOLR POL STA
[redacted] GRIDPOLR POL ORIG  0.0   0.0
RE GRIDPOLR POL DIST  300  500 700 1000 1500 2000 2500 3000 4000 5000 7000 10000
[redacted] GRIDPOLR POL DIST  15000 20000 25000 30000
[redacted] GRIDPOLR POL GDIR  36  10.00  10.00
RE GRIDPOLR POL END
[redacted] DISCPOLR BASE95C      195.        10
[redacted] DISCPOLR BASE95C      194.        20
[redacted] DISCPOLR BASE95C      138.        30
RE DISCPOLR BASE95C      130.        40

[redacted]
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   DISCPOLR BASE95C       125.         50
RE DISCPOLR BASE95C       157.         60
RE DISCPOLR BASE95C       161.         70
   DISCPOLR BASE95C       154.         80
RE DISCPOLR BASE95C       151.         90
RE DISCPOLR BASE95C       154.        100
   DISCPOLR BASE95C       161.        110
   DISCPOLR BASE95C       175.        120
RE DISCPOLR BASE95C       197.        130
   DISCPOLR BASE95C       172.        140
   DISCPOLR BASE95C       152.        150
RE DISCPOLR BASE95C       140.        160
RE DISCPOLR BASE95C       134.        170
   DISCPOLR BASE95C       132.        180
RE DISCPOLR BASE95C       134.        190
RE DISCPOLR BASE95C       140.        200
   DISCPOLR BASE95C       152.        210
   DISCPOLR BASE95C       159.        220
RE DISCPOLR BASE95C       134.        230
RE DISCPOLR BASE95C       118.        240
   DISCPOLR BASE95C       109.        250
RE DISCPOLR BASE95C       104.        260
RE DISCPOLR BASE95C       102.        270
   DISCPOLR BASE95C       104.        280
   DISCPOLR BASE95C       109.        290
RE DISCPOLR BASE95C       118.        300
   DISCPOLR BASE95C       134.        310
   DISCPOLR BASE95C       159.        320
RE DISCPOLR BASE95C       205.        330
RE DISCPOLR BASE95C       204.        340
   DISCPOLR BASE95C       195.        350
RE DISCPOLR BASE95C       192.        360
RE FINISHED

   STARTING
ME INPUTFIL S:\MET\ORLPRL87.BIN                         UNFORM
   ANEMHGHT   10.100 METERS
   SURFDATA  12815  1987            FTMYERS
ME UAIRDATA  12842  1987            RUSKIN
ME WINDCATS    1.54     3.09     5.14     8.23    10.80
   FINISHED


   STARTING
   RECTABLE ALLAVE FIRST SECOND
OU FINISHED
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C[redacted] STARTING
CO TITLEONE 1987 OLEANDER POWER PROJECT, BREVARD CO SITE               11/18/98
C[redacted] TITLETWO FUEL OIL PARAMETERS
C[redacted] MODELOPT DFAULT CONC   RURAL NOCMPL
CO AVERTIME  PERIOD 24 8 3 1
CO POLLUTID OTHER
C[redacted] DCAYCOEF     .000000
C[redacted] RUNORNOT RUN
CO FINISHED

S[redacted] STARTING

** Source Location Cards:
*[redacted]         SRCID SRCTYP        XS             YS             ZS
** MODELING ORIGIN CT 3 STACK LOCATION
** LOCATION IS USED FOR POLAR DISCRETE RECEPTORS.
*[redacted] CT STACK NUMBER CODE
*[redacted]-----------------------
**  A -  CT 1
*[redacted] B -  CT 2
*[redacted] C -  CT 3
**  D -  CT 4
**  E -  CT 5
*[redacted] Source Location Cards:
*[redacted]         SRCID SRCTYP      XS        YS        ZS
**   UTM                          (m)       (m)       (m)
S[redacted] LOCATION  BASE95A  POINT  -70.71    0.0       0.0
S[redacted] LOCATION  BASE95B  POINT  -35.36    0.0       0.0
SO LOCATION  BASE95C  POINT    0.00    0.0       0.0
SO LOCATION  BASE95D  POINT   35.36    0.0       0.0
S[redacted] LOCATION  BASE95E  POINT   70.71    0.0       0.0
SO LOCATION  BASE32A  POINT  -70.71    0.0       0.0
SO LOCATION  BASE32B  POINT  -35.36    0.0       0.0
S[redacted] LOCATION  BASE32C  POINT    0.00    0.0       0.0
S[redacted] LOCATION  BASE32D  POINT   35.36    0.0       0.0
SO LOCATION  BASE32E  POINT   70.71    0.0       0.0
S[redacted] LOCATION  LD7595A  POINT  -70.71    0.0       0.0
S[redacted] LOCATION  LD7595B  POINT  -35.36    0.0       0.0
SO LOCATION  LD7595C  POINT    0.00    0.0       0.0
SO LOCATION  LD7595D  POINT   35.36    0.0       0.0
S[redacted] LOCATION  LD7595E  POINT   70.71    0.0       0.0
SO LOCATION  LD7532A  POINT  -70.71    0.0       0.0
SO LOCATION  LD7532B  POINT  -35.36    0.0       0.0
S[redacted] LOCATION  LD7532C  POINT    0.00    0.0       0.0
S[redacted] LOCATION  LD7532D  POINT   35.36    0.0       0.0
SO LOCATION  LD7532E  POINT   70.71    0.0       0.0
SO LOCATION  LD5095A  POINT  -70.71    0.0       0.0
S[redacted] LOCATION  LD5095B  POINT  -35.36    0.0       0.0
SO LOCATION  LD5095C  POINT    0.00    0.0       0.0
SO LOCATION  LD5095D  POINT   35.36    0.0       0.0
S[redacted] LOCATION  LD5095E  POINT   70.71    0.0       0.0
S[redacted] LOCATION  LD5032A  POINT  -70.71    0.0       0.0
SO LOCATION  LD5032B  POINT  -35.36    0.0       0.0
S[redacted] LOCATION  LD5032C  POINT    0.00    0.0       0.0
S[redacted] LOCATION  LD5032D  POINT   35.36    0.0       0.0
SO LOCATION  LD5032E  POINT   70.71    0.0       0.0
** Source Parameter Cards:
*[redacted] POINT:   SRCID                QS      HS        TS         VS        DS
*[redacted]                              (g/s)   (m)       (K)       (m/s)      (m)
SO SRCPARAM   BASE95A      2.0   18.3      879.3      33.95      6.71

[redacted]
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[redacted] SRCPARAM   BASE95B    2.0   18.3    879.3   33.95   6.71
SO SRCPARAM   BASE95C    2.0   18.3    879.3   33.95   6.71
[redacted] SRCPARAM   BASE95D    2.0   18.3    879.3   33.95   6.71
[redacted] SRCPARAM   BASE95E    2.0   18.3    879.3   33.95   6.71
[redacted] SRCPARAM   BASE32A    2.0   18.3    874.3   34.35   6.71
SO SRCPARAM   BASE32B    2.0   18.3    874.3   34.35   6.71
[redacted] SRCPARAM   BASE32C    2.0   18.3    874.3   34.35   6.71
[redacted] SRCPARAM   BASE32D    2.0   18.3    874.3   34.35   6.71
SO SRCPARAM   BASE32E    2.0   18.3    874.3   34.35   6.71
[redacted] SRCPARAM   LD7595A    2.0   18.3    916.5   28.44   6.71
[redacted] SRCPARAM   LD7595B    2.0   18.3    916.5   28.44   6.71
SO SRCPARAM   LD7595C    2.0   18.3    916.5   28.44   6.71
[redacted] SRCPARAM   LD7595D    2.0   18.3    916.5   28.44   6.71
[redacted] SRCPARAM   LD7595E    2.0   18.3    916.5   28.44   6.71
[redacted] SRCPARAM   LD7532A    2.0   18.3    903.2   30.66   6.71
SO SRCPARAM   LD7532B    2.0   18.3    903.2   30.66   6.71
[redacted] SRCPARAM   LD7532C    2.0   18.3    903.2   30.66   6.71
[redacted] SRCPARAM   LD7532D    2.0   18.3    903.2   30.66   6.71
SO SRCPARAM   LD7532E    2.0   18.3    903.2   30.66   6.71
[redacted] SRCPARAM   LD5095A    2.0   18.3    834.8   23.90   6.71
[redacted] SRCPARAM   LD5095B    2.0   18.3    834.8   23.90   6.71
SO SRCPARAM   LD5095C    2.0   18.3    834.8   23.90   6.71
SO SRCPARAM   LD5095D    2.0   18.3    834.8   23.90   6.71
[redacted] SRCPARAM   LD5095E    2.0   18.3    834.8   23.90   6.71
[redacted] SRCPARAM   LD5032A    2.0   18.3    809.8   25.36   6.71
SO SRCPARAM   LD5032B    2.0   18.3    809.8   25.36   6.71
[redacted] SRCPARAM   LD5032C    2.0   18.3    809.8   25.36   6.71
[redacted] SRCPARAM   LD5032D    2.0   18.3    809.8   25.36   6.71
SO SRCPARAM   LD5032E    2.0   18.3    809.8   25.36   6.71

[redacted] BUILDHGT BASE32A-BASE95A    6.71    6.71    6.71   14.33    0.00    0.00
[redacted] BUILDHGT BASE32A-BASE95A    0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT BASE32A-BASE95A    0.00    6.71    6.71    6.71    6.71    6.71
[redacted] BUILDHGT BASE32A-BASE95A   14.33   14.33   14.33   14.33   14.33   14.33
[redacted] BUILDHGT BASE32A-BASE95A    6.71    6.71    0.00    0.00    0.00    0.00
SO BUILDHGT BASE32A-BASE95A    0.00    6.71    6.71    6.71    6.71    6.71
[redacted] BUILDWID BASE32A-BASE95A   11.23   12.97   14.32   15.46    0.00    0.00
[redacted] BUILDWID BASE32A-BASE95A    0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID BASE32A-BASE95A    0.00   15.23   14.32   12.97   11.23    9.14
[redacted] BUILDWID BASE32A-BASE95A   12.71   14.06   14.99   15.46   15.46   14.99
[redacted] BUILDWID BASE32A-BASE95A   15.16   14.19    0.00    0.00    0.00    0.00
[redacted] BUILDWID BASE32A-BASE95A    0.00   15.23   14.32   12.97   11.23    9.14
SO BUILDHGT LD5032A-LD7595A    6.71    6.71    6.71   14.33    0.00    0.00
[redacted] BUILDHGT LD5032A-LD7595A    0.00    0.00    0.00    0.00    0.00    0.00
[redacted] BUILDHGT LD5032A-LD7595A    0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDHGT LD5032A-LD7595A   14.33   14.33   14.33   14.33   14.33   14.33
[redacted] BUILDHGT LD5032A-LD7595A    6.71    6.71    0.00    0.00    0.00    0.00
[redacted] BUILDHGT LD5032A-LD7595A    0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID LD5032A-LD7595A   11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID LD5032A-LD7595A    0.00    0.00    0.00    0.00    0.00    0.00
[redacted] BUILDWID LD5032A-LD7595A    0.00   15.23   14.32   12.97   11.23    9.14
[redacted] BUILDWID LD5032A-LD7595A   12.71   14.06   14.99   15.46   15.46   14.99
SO BUILDWID LD5032A-LD7595A   15.16   14.19    0.00    0.00    0.00    0.00
[redacted] BUILDWID LD5032A-LD7595A    0.00   15.23   14.32   12.97   11.23    9.14
[redacted]

[redacted] BUILDHGT BASE32B-BASE95B    6.71    6.71    6.71   14.33    0.00    0.00
[redacted] BUILDHGT BASE32B-BASE95B    0.00    0.00    0.00    6.71    6.71    6.71
[redacted] BUILDHGT BASE32B-BASE95B   14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT BASE32B-BASE95B   14.33   14.33   14.33   14.33   14.33   14.33
[redacted]
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S[redacted] BUILDHGT	BASE32B-BASE95B	6.71	6.71	0.00	0.00	0.00	0.00
SO BUILDHGT	BASE32B-BASE95B	0.00	6.71	6.71	6.71	6.71	6.71
SO BUILDWID	BASE32B-BASE95B	11.23	12.97	14.32	15.46	0.00	0.00
S[redacted] BUILDWID	BASE32B-BASE95B	0.00	0.00	0.00	14.19	15.16	15.66
SO BUILDWID	BASE32B-BASE95B	15.46	15.46	14.99	14.06	11.23	9.14
SO BUILDWID	BASE32B-BASE95B	12.71	14.06	14.99	15.46	15.46	14.99
S[redacted] BUILDWID	BASE32B-BASE95B	15.16	14.19	0.00	0.00	0.00	0.00
S[redacted] BUILDWID	BASE32B-BASE95B	0.00	15.23	14.32	12.97	11.23	9.14
SO BUILDHGT	LD5032B-LD7595B	6.71	6.71	6.71	14.33	0.00	0.00
S[redacted] BUILDHGT	LD5032B-LD7595B	0.00	0.00	0.00	6.71	6.71	6.71
S[redacted] BUILDHGT	LD5032B-LD7595B	14.33	14.33	14.33	14.33	6.71	6.71
SO BUILDHGT	LD5032B-LD7595B	14.33	14.33	14.33	14.33	14.33	14.33
SO BUILDHGT	LD5032B-LD7595B	6.71	6.71	0.00	0.00	0.00	0.00
S[redacted] BUILDHGT	LD5032B-LD7595B	0.00	6.71	6.71	6.71	6.71	6.71
SO BUILDWID	LD5032B-LD7595B	11.23	12.97	14.32	15.46	0.00	0.00
SO BUILDWID	LD5032B-LD7595B	0.00	0.00	0.00	14.19	15.16	15.66
S[redacted] BUILDWID	LD5032B-LD7595B	15.46	15.46	14.99	14.06	11.23	9.14
S[redacted] BUILDWID	LD5032B-LD7595B	12.71	14.06	14.99	15.46	15.46	14.99
SO BUILDWID	LD5032B-LD7595B	15.16	14.19	0.00	0.00	0.00	0.00
S[redacted] BUILDWID	LD5032B-LD7595B	0.00	15.23	14.32	12.97	11.23	9.14

[redacted]

SO BUILDHGT	BASE32C-BASE95C	6.71	6.71	6.71	14.33	0.00	0.00
S[redacted] BUILDHGT	BASE32C-BASE95C	0.00	0.00	0.00	6.71	6.71	14.33
SO BUILDHGT	BASE32C-BASE95C	14.33	14.33	14.33	14.33	6.71	6.71
SO BUILDHGT	BASE32C-BASE95C	14.33	14.33	14.33	14.33	14.33	14.33
S[redacted] BUILDHGT	BASE32C-BASE95C	6.71	6.71	0.00	0.00	0.00	0.00
S[redacted] BUILDHGT	BASE32C-BASE95C	0.00	6.71	6.71	6.71	6.71	6.71
SO BUILDWID	BASE32C-BASE95C	11.23	12.97	14.32	15.46	0.00	0.00
SO BUILDWID	BASE32C-BASE95C	0.00	0.00	0.00	14.19	15.16	14.99
S[redacted] BUILDWID	BASE32C-BASE95C	15.46	15.46	14.99	14.06	11.23	9.14
SO BUILDWID	BASE32C-BASE95C	12.71	14.06	14.99	15.46	15.46	14.99
SO BUILDWID	BASE32C-BASE95C	15.16	14.19	0.00	0.00	0.00	0.00
S[redacted] BUILDWID	BASE32C-BASE95C	0.00	15.23	14.32	12.97	11.23	9.14
S[redacted] BUILDHGT	LD5032C-LD7595C	6.71	6.71	6.71	14.33	0.00	0.00
SO BUILDHGT	LD5032C-LD7595C	0.00	0.00	0.00	6.71	6.71	14.33
S[redacted] BUILDHGT	LD5032C-LD7595C	14.33	14.33	14.33	14.33	6.71	6.71
S[redacted] BUILDHGT	LD5032C-LD7595C	14.33	14.33	14.33	14.33	14.33	14.33
SO BUILDHGT	LD5032C-LD7595C	6.71	6.71	0.00	0.00	0.00	0.00
SO BUILDHGT	LD5032C-LD7595C	0.00	6.71	6.71	6.71	6.71	6.71
S[redacted] BUILDWID	LD5032C-LD7595C	11.23	12.97	14.32	15.46	0.00	0.00
SO BUILDWID	LD5032C-LD7595C	0.00	0.00	0.00	14.19	15.16	14.99
SO BUILDWID	LD5032C-LD7595C	15.46	15.46	14.99	14.06	11.23	9.14
S[redacted] BUILDWID	LD5032C-LD7595C	12.71	14.06	14.99	15.46	15.46	14.99
S[redacted] BUILDWID	LD5032C-LD7595C	15.16	14.19	0.00	0.00	0.00	0.00
SO BUILDWID	LD5032C-LD7595C	0.00	15.23	14.32	12.97	11.23	9.14

[redacted]

SO BUILDHGT	BASE32D-BASE95D	6.71	6.71	6.71	14.33	0.00	0.00
SO BUILDHGT	BASE32D-BASE95D	0.00	0.00	0.00	6.71	6.71	14.33
S[redacted] BUILDHGT	BASE32D-BASE95D	14.33	14.33	14.33	14.33	6.71	6.71
SO BUILDHGT	BASE32D-BASE95D	14.33	14.33	14.33	14.33	15.24	15.24
SO BUILDHGT	BASE32D-BASE95D	15.24	15.24	15.24	0.00	0.00	0.00
S[redacted] BUILDHGT	BASE32D-BASE95D	0.00	6.71	6.71	6.71	6.71	6.71
S[redacted] BUILDWID	BASE32D-BASE95D	11.23	12.97	14.32	15.46	0.00	0.00
SO BUILDWID	BASE32D-BASE95D	0.00	0.00	0.00	14.19	15.16	14.99
SO BUILDWID	BASE32D-BASE95D	15.46	15.46	14.99	14.06	11.23	9.14
S[redacted] BUILDWID	BASE32D-BASE95D	12.71	14.06	14.99	15.46	58.42	61.15
SO BUILDWID	BASE32D-BASE95D	28.64	30.02	30.48	0.00	0.00	0.00
SO BUILDWID	BASE32D-BASE95D	0.00	15.23	14.32	12.97	11.23	9.14

[redacted]

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SO BUILDHGT LD5032D-LD7595D     6.71    6.71    6.71   14.33    0.00    0.00
SO BUILDHGT LD5032D-LD7595D     0.00    0.00    0.00    6.71    6.71   14.33
SO BUILDHGT LD5032D-LD7595D    14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT LD5032D-LD7595D    14.33   14.33   14.33   14.33   15.24   15.24
SO BUILDHGT LD5032D-LD7595D    15.24   15.24   15.24    0.00    0.00    0.00
SO BUILDHGT LD5032D-LD7595D     0.00    6.71    6.71    6.71    6.71    6.71
SO BUILDWID LD5032D-LD7595D    11.23   12.97   14.32   15.46    0.00    0.00
SO BUILDWID LD5032D-LD7595D     0.00    0.00    0.00   14.19   15.16   14.99
SO BUILDWID LD5032D-LD7595D    15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID LD5032D-LD7595D    12.71   14.06   14.99   15.46   58.42   61.15
SO BUILDWID LD5032D-LD7595D    28.64   30.02   30.48    0.00    0.00    0.00
SO BUILDWID LD5032D-LD7595D     0.00   15.23   14.32   12.97   11.23    9.14


SO BUILDHGT BASE32E-BASE95E    15.24    6.71   15.24   15.24   15.24    0.00
SO BUILDHGT BASE32E-BASE95E     0.00    0.00    0.00   15.24    6.71   14.33
SO BUILDHGT BASE32E-BASE95E    14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT BASE32E-BASE95E    14.33   14.33   15.24   15.24   15.24   15.24
SO BUILDHGT BASE32E-BASE95E    15.24   15.24   15.24   15.24    0.00    0.00
SO BUILDHGT BASE32E-BASE95E     0.00   15.24   15.24   15.24   15.24   15.24
SO BUILDWID BASE32E-BASE95E    30.02   12.97   47.77   53.91   58.42    0.00
SO BUILDWID BASE32E-BASE95E     0.00    0.00    0.00   66.04   15.16   14.99
SO BUILDWID BASE32E-BASE95E    15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID BASE32E-BASE95E    12.71   14.06   29.48   30.40   30.40   29.48
SO BUILDWID BASE32E-BASE95E    28.64   30.02   30.48   30.02    0.00    0.00
SO BUILDWID BASE32E-BASE95E     0.00   64.02   67.49   28.64   30.02   30.48
SO BUILDHGT LD5032E-LD7595E    15.24    6.71   15.24   15.24   15.24    0.00
SO BUILDHGT LD5032E-LD7595E     0.00    0.00    0.00   15.24    6.71   14.33
SO BUILDHGT LD5032E-LD7595E    14.33   14.33   14.33   14.33    6.71    6.71
SO BUILDHGT LD5032E-LD7595E    14.33   14.33   15.24   15.24   15.24   15.24
SO BUILDHGT LD5032E-LD7595E    15.24   15.24   15.24   15.24    0.00    0.00
SO BUILDHGT LD5032E-LD7595E     0.00   15.24   15.24   15.24   15.24   15.24
SO BUILDWID LD5032E-LD7595E    30.02   12.97   47.77   53.91   58.42    0.00
SO BUILDWID LD5032E-LD7595E     0.00    0.00    0.00   66.04   15.16   14.99
SO BUILDWID LD5032E-LD7595E    15.46   15.46   14.99   14.06   11.23    9.14
SO BUILDWID LD5032E-LD7595E    12.71   14.06   29.48   30.40   30.40   29.48
SO BUILDWID LD5032E-LD7595E    28.64   30.02   30.48   30.02    0.00    0.00
SO BUILDWID LD5032E-LD7595E     0.00   64.02   67.49   28.64   30.02   30.48


SO EMISUNIT    .100000E+07 (GRAMS/SEC)         (MICROGRAMS/CUBIC-METER)
SO SRCGROUP BASE95   BASE95A BASE95B BASE95C BASE95D BASE95E
SO SRCGROUP BASE32   BASE32A BASE32B BASE32C BASE32D BASE32E
SO SRCGROUP LD7595   LD7595A LD7595B LD7595C LD7595D LD7595E
SO SRCGROUP LD7532   LD7532A LD7532B LD7532C LD7532D LD7532E
SO SRCGROUP LD5095   LD5095A LD5095B LD5095C LD5095D LD5095E
SO SRCGROUP LD5032   LD5032A LD5032B LD5032C LD5032D LD5032E
SO FINISHED

RE STARTING
RE GRIDPOLR POL STA
RE GRIDPOLR POL ORIG  0.0   0.0
RE GRIDPOLR POL DIST  300  500 700 1000 1500 2000 2500 3000 4000 5000 7000 10000
RE GRIDPOLR POL DIST  15000 20000 25000 30000
RE GRIDPOLR POL GDIR  36  10.00  10.00
RE GRIDPOLR POL END
RE DISCPOLR BASE95C      195.        10
RE DISCPOLR BASE95C      194.        20
RE DISCPOLR BASE95C      138.        30
RE DISCPOLR BASE95C      130.        40
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