HOOKERS POINT STATION
INTERNAL COMBUSTION ENGINES
AIR CONSTRUCTION PERMIT APPLICATION

RECEIVED
JAN 23 2001
BUREAU OF AIR REGULATION

Prepared for:

TAMPA ELECTRIC

Prepared by:

ECT
Environmental Consulting & Technology, Inc.
3701 Northwest 98th Street
Gainesville, Florida 32606

ECT No. 001099-0100

January 2001

1.0 INTRODUCTION

Tampa Electric Company (TEC) operates six No. 6 oil-fired steam boilers (Units Nos. 1 through 6) at the Hookers Point Station located at 1700 Hemlock Street, Tampa, Hillsborough County, Florida. Operation of the existing steam boilers is currently authorized by Title V Final Permit No. 0570038-001-AV. Final Permit No. 0570038-001-AV was issued with an effective date of January 1, 1998 and expires on January 1, 2002.

To meet anticipated summer power demands, TEC proposes to install 30 Caterpillar XQ2000 Power Modules at the Hookers Point Station. Each Power Module consists of one Caterpillar 3516B 16-cylinder, 4-stroke cycle diesel internal combustion (IC) engine and one Caterpillar SR4B generator. The Caterpillar 3516B IC engine has a power output rating of 2,593 brake horsepower (bhp) at 100 percent load. The Caterpillar SR4B generator has a power output rating of 1,825 kilowatts (kW) at 100 percent load. The Caterpillar 3516B IC engines will be fired exclusively with low-sulfur (maximum of 0.05 weight percent sulfur) diesel fuel oil and will only operate at 100 percent load.

The existing Hookers Point Station is located in an area designated attainment for all criteria pollutants and is classified as a *major* facility. A modification to a major facility that has potential net emissions equal to or exceeding the significant emission rates indicated in Section 62-212.400, Table 212.400-2, Florida Administrative Code (F.A.C.), is subject to Prevention of Significant Deterioration (PSD) New Source Review (NSR) permitting requirements. The 30 Caterpillar XQ2000 Power Modules will be operated in conjunction with existing Hookers Point Units 1 through 6 such that total Hookers Point Station emissions will remain below the PSD significant emission rate thresholds for major modifications. TEC proposes to implement a facility-wide nitrogen oxides (NO_x) emissions cap of 682.4 tons per year to ensure that the new IC engines do not constitute a major modification for PSD NSR applicability purposes. Therefore, the IC Engine Project qualifies as a *minor* modification to a major facility and is not subject to the PSD NSR requirements

of Section 62-212.400, F.A.C. Attachment E provides a detailed PSD netting analysis for the IC Engine Project.

The proposed Hookers Point Station IC Engine Project will result in airborne emissions. Therefore, a permit is required prior to the beginning of facility modification, per Rule 62-212.300(1)(a), F.A.C. This report, including the required permit application forms and supporting documentation included in the attachments, constitutes TEC's application to construct and operate the proposed IC engines in accordance with the Florida Department of Environmental Protection (FDEP) permitting rules contained in Chapter 62-212, F.A.C.

Attachment A contains a completed FDEP Application for Air Permit—Title V Source; DEP Form 62-210.900(1). IC engine vendor technical specifications and a typical fuel analysis are provided in Attachments B and C, respectively. Attachment D provides IC engine vendor emissions data and emission rate calculations. The PSD netting analysis and proposed Hookers Point Station facility-wide NO_x emissions cap are provided in Attachment E.

ATTACHMENT A

APPLICATION FOR AIR PERMIT—TITLE V SOURCE

Department of
Environmental Protection
Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

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

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: **Tampa Electric Company**	
2. Site Name: **Hookers Point Station**	
3. Facility Identification Number: **0570038**	[ ]Unknown
4. Facility Location: Street Address or Other Locator: **1700 Hemlock Street** City: **Tampa** County: **Hillsborough** Zip Code: **33605-6660**	
5. Relocatable Facility? [ ] Yes [✔] No	6. Existing Permitted Facility? [✔] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: **Shannon K. Todd** **Engineer – Air Programs, Environmental Planning**	
2. Application Contact Mailing Address: Organization/Firm: **Tampa Electric Company** Street Address: **6499 U.S. Highway 41 North** City: **Apollo Beach** State: **FL** Zip Code: **3572-9200**	
3. Application Contact Telephone Numbers: Telephone: **(813)641 – 5125** Fax: **(813) 641-5081**	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	1-23-01
2. Permit Number:	0570038-003-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

[ ] Initial Title V air operation permit 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: _____

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

Current construction permit number: _____

Operation permit number to be revised: _____

[✔] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: **0570038-001-AV**

[ ] Title V air operation permit revision 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 number to be revised: _____

Reason for revision: _____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[✔] Air construction permit to construct or modify one or more emissions units.

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

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

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   Darryl Scott, General Manager

2. Application Contact Mailing Address:
   Organization/Firm: **Tampa Electric Company**
   Street Address: **1700 Hemlock Street**
   City: **Tampa** State: **FL** Zip Code: **33605-6660**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: **(813) 228-1111, Ext. 23-300** Fax: **(813) 228-1991**

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative(check here [ ], if so) or the responsible official (check here [✔], if so) 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.*

DHS — 1/22/01

Signature Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **Thomas W. Davis**
   Registration Number: **36777**

2. Professional Engineer Mailing Address:
   Organization/Firm: **Environmental Consulting & Technology, Inc.**
   Street Address: **3701 Northwest 98th Street**
   City: **Gainesville** State: **FL** Zip Code: **32606**

3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 332-0444** Fax: **(352) 332-6722**

4. Professional Engineer 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 [✔], 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.

Thomas M. Davis — Signature

1/17/01 — Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
008 – 037	IC Engine/Generator Set Nos. 1 - 30	N/A	N/A

Application Processing Fee

Check one: [ ] Attached - Amount: $_____ [✔] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

Project consists of the addition of thirty (30) Caterpillar XQ2000 Power Modules. Each Power Module consists of one Caterpillar 3516B 16-cylinder, 4-stroke cycle diesel internal combustion (IC) engine and one Caterpillar SR4B generator. The Caterpillar 3516B IC engine has a power output rating of 2,593 brake horsepower (bhp) at 100% load. The Caterpillar SR4B generator has a power output rating of 1,825 kilowatts (kW) at 100% load.

The Caterpillar 3516B IC engines will be fired exclusively with low sulfur (maximum of 0.05 weight % sulfur) diesel fuel oil and will only operate at 100% load. The 30 Caterpillar XQ2000 Power Modules will be operated in conjunction with existing Hookers Point Units 1 through 6 such that total Hookers Point Station emissions will remain below the PSD significant emission rate thresholds for major modifications.

2. Projected or Actual Date of Commencement of Construction: **March 1, 2001**

3. Projected Date of Completion of Construction: **May 1, 2001**

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: **17** East (km): **358.0** North (km): **3,091.0**			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): Longitude (DD/MM/SS):			
3. Governmental Facility Code: **0**	4. Facility Status Code: A	5. Facility Major Group SIC Code: **49**	6. Facility SIC(s): **4911**
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: **Darryl Scott, General Manager**
2. Application Contact Mailing Address: Organization/Firm: **Tampa Electric Company** Street Address: **1700 Hemlock Street** City: **Tampa** State: **FL** Zip Code: **33605-6660**
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: **(813) 228-1111, Ext. 23-300** Fax: **(813) 228-1991**

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[ ] Unknown
2. [✔] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [✔] Major Source of Hazardous Air Pollutants (HAPs)?	
5. [ ] Synthetic Minor Source of HAPs?	
6. [ ] One or More Emissions Units Subject to NSPS?	
7. [ ] One or More Emission Units Subject to NESHAP?	
8. [ ] Title V Source by EPA Designation?	
9. Facility Regulatory Classifications Comment (limit to 200 characters):	

List of Applicable Regulations

See Title V permit application	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
NOX	**A**	**N/A**	**682.4**	**ESCPSD**	
VOC	**A**	**N/A**	**N/A**	**N/A**	
CO	**A**	**N/A**	**N/A**	**N/A**	
PM	**A**	**N/A**	**N/A**	**N/A**	
PM10	**A**	**N/A**	**N/A**	**N/A**	
SO2	**A**	**N/A**	**N/A**	**N/A**	
H106 (HCl)	**A**	**N/A**	**N/A**	**N/A**	
H107 (HF)	**A**	**N/A**	**N/A**	**N/A**	
HAPS	**A**	**N/A**	**N/A**	**N/A**	

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [ ] Attached, Document ID: [ ] Not Applicable [✔] Waiver Requested
2. Facility Plot Plan: [ ] Attached, Document ID: [ ] Not Applicable [✔] Waiver Requested
3. Process Flow Diagram(s): [ ] Attached, Document ID: [ ] Not Applicable [✔] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID: [ ] Not Applicable [✔] Waiver Requested
5. Fugitive Emissions Identification: [ ] Attached, Document ID:_____ [ ] Not Applicable [✔] Waiver Requested
6. Supplemental Information for Construction Permit Application: [✔] Attached, Document ID: [ ] Not Applicable **See Attachments A through E.**
7. Supplemental Requirements Comment: **Items 1 through 5 previously submitted – see Hookers Point Station Title V permit application.**

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities:
   [ ] Attached, Document ID:_____ [ ] Not Applicable

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

10. Alternative Methods of Operation:
    [ ] Attached, Document ID:_____ [ ] Not Applicable

11. Alternative Modes of Operation (Emissions Trading):
    [✔] Attached, Document ID:_____ [ ] Not Applicable
    See Attachment E.

12. Identification of Additional Applicable Requirements:
    [ ] Attached, Document ID:_____ [ ] Not Applicable

13. Risk Management Plan Verification:
    [ ] Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID:_____) or previously submitted to DEP (Date and DEP Office:_____)
    [ ] Plan to be submitted to CEPPO (Date required:_____)
    [ ] Not Applicable

14. Compliance Report and Plan:
    [ ] Attached, Document ID:_____ [ ] Not Applicable

15. Compliance Certification (Hard-copy Required):
    [ ] Attached, Document ID:_____ [ ] Not Applicable

Items 8. through 10. and 12. through 15. above previously submitted – see Hookers Point Title V permit application.

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J 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.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (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).

[ ] 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.

2. Regulated or Unregulated Emissions Unit? (Check one)

[✔] 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. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Caterpillar XQ2000 Power Module comprised of one Caterpillar 3516B 16-cylinder, 4-stroke cycle diesel internal combustion (IC) engine and one Caterpillar SR4B generator. The Caterpillar 3516B IC engine has a power output rating of 2,593 brake horsepower (bhp) at 100% load. The Caterpillar SR4B generator has a power output rating of 1,825 kilowatts (kW) at 100% load. The IC engine will be fired exclusively with low sulfur diesel fuel oil.

4. Emissions Unit Identification Number:
ID: **IC Engine/Generator No. 1**
[✔] No ID
[ ] ID Unknown

5. Emissions Unit Status Code:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C		**49**	

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

   None

2. Control Device or Method Code(s): **N/A**

Emissions Unit Details

1. Package Unit:
   Manufacturer: **Caterpillar** Model Number: **XQ2000**
2. Generator Nameplate Rating: **1.825** MW
3. Incinerator Information:
   Dwell Temperature: °F
   Dwell Time: seconds
   Incinerator Afterburner Temperature: °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	**16.8** mmBtu/hr			
2. Maximum Incineration Rate:	lb/hr			tons/day
3. Maximum Process or Throughput Rate:				
4. Maximum Production Rate:				
5. Requested Maximum Operating Schedule:				
	24	hours/day	7	days/week
	52	weeks/year	**8,760**	hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):				

The 30 Caterpillar XQ2000 Power Modules will be operated in conjunction with existing Hookers Point Units 1 through 6 such that total Hookers Point Station emissions will remain below the PSD significant emission rate thresholds for major modifications. See Attachment E. for details.

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

N/A	

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

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? **ENG 1**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**		
5. Discharge Type Code: **V**	6. Stack Height: **13.5** feet	7. Exit Diameter: **0.67** feet
8. Exit Temperature: **808** °F	9. Actual Volumetric Flow Rate: **14,255** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone:	East (km):	North (km):
14. Emission Point Comment (limit to 200 characters):		

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
IC engine fired with diesel fuel oil.		
3. Source Classification Code (SCC): **20100102**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **0.1228**	5. Maximum Annual Rate: **1,075.73**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.05**	8. Maximum % Ash: **0.01**	9. Million Btu per SCC Unit: **137**
10. Segment Comment (limit to 200 characters):		

Segment Description and Rate: Segment ____ of ____

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

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 – NOX			**EL**

Pollutant Detail Information Page 1 of 1

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **NOX**	2. Total Percent Efficiency of Control:	
3. Potential Emissions: **52.7** lb/hour **230.8** tons/year		4. Synthetically Limited? [✔]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year		
6. Emission Factor: **9.22 g/hp-hr** Reference: **Caterpillar data**		7. Emissions Method Code: **5**
8. Calculation of Emissions (limit to 600 characters): **See Attachment D.**		
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **The 30 Caterpillar XQ2000 Power Modules will be operated in conjunction with existing Hookers Point Units 1 through 6 such that total Hookers Point Station emissions will remain below the PSD significant emission rate thresholds for major modifications. See Attachment E. for details.**		

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **52.7 lb/hr**	4. Equivalent Allowable Emissions: **52.7** lb/hour **230.8** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Reference Method 7E**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **The 30 Caterpillar XQ2000 Power Modules will be operated in conjunction with existing Hookers Point Units 1 through 6 such that total Hookers Point Station emissions will remain below the PSD significant emission rate thresholds for major modifications. See Attachment E. for details.**	

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: [✔] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
5. Method of Compliance: **EPA Reference Method 9**	
6. Visible Emissions Comment (limit to 200 characters): **Rule 62-296.320(4)(b), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

2. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [✔] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: **100** % Maximum Period of Excess Opacity Allowed: **60** min/hour	
7. Method of Compliance: **EPA Reference Method 9**	
8. Visible Emissions Comment (limit to 200 characters): **Excess emissions resulting from startup, shutdown, or malfunction not-to-exceed 2 hours in any 24 hour period unless authorized by FDEP for a longer duration. Rule 62-210.700(1), F.A.C.**	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
6. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

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

Supplemental Requirements

1. Process Flow Diagram [ ] Attached, Document ID:_____ [✔] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [✔] Attached, Document ID:_____ [ ] Not Applicable [✔] Waiver Requested **Attachment B**
3. Detailed Description of Control Equipment [ ] Attached, Document ID: _____ [✔] Not Applicable [ ] Waiver Requested
4. Description of Stack Sampling Facilities **To be provided** [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
5. Compliance Test Report [ ] Attached, Document ID:_____ [ ] Previously submitted, Date:_____ [✔] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:_____ [✔] Not Applicable [ ] Waiver Requested
7. Operation and Maintenance Plan [ ] Attached, Document ID:_____ [✔] Not Applicable [ ] Waiver Requested
8. Supplemental Information for Construction Permit Application [✔] Attached, Document ID:_____ [ ] Not Applicable **Attachments A – E.**
9. Other Information Required by Rule or Statute [ ] Attached, Document ID:_____ [✔] Not Applicable
10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[ ] Attached, Document ID:_____ [ ] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[✔] Attached, Document ID:_____ [ ] Not Applicable
Attachment E

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:_____ [ ] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:_____ [ ] Not Applicable

15. Acid Rain Part 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:_____

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:_____

[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:_____

[ ] Not Applicable

Items 11 and 13 – 15 previously submitted, see Hookers Point Station Title V permit application.

NOTE:

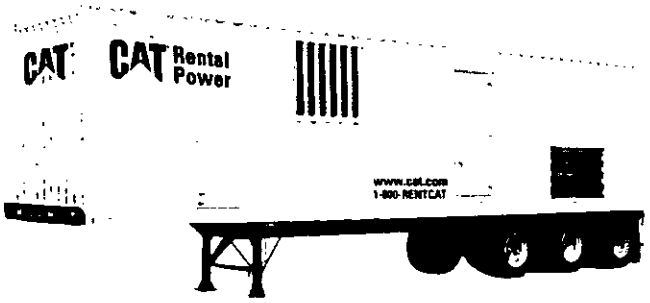
EMISSION UNITS 008 THROUGH 037 ARE IDENTICAL UNITS.

SECTION III. EMISSIONS UNIT INFORMATION PROVIDED FOR EU 008 (IC ENGINE/GENERATOR NO. 1) IS ALSO APPLICABLE TO EU 009 (IC ENGINE/GENERATOR NO. 2) THROUGH EU 037 (IC ENGINE/GENERATOR NO. 30).

EMISSIONS UNIT INFORMATION SECTIONS 2 THROUGH 7 ARE IDENTICAL TO SECTION 1, WITH THE EXCEPTION OF IDENTIFICATION NUMBERS.

ATTACHMENT B

CATERPILLAR XQ2000 POWER MODULE TECHNICAL SPECIFICATIONS



XQ2000 SOUND ATTENUATED POWER MODULE

60 Hz

FEATURES

EMISSIONS

EPA and CARB Emissions Certified for non-road mobile applications.

CAT® DIESEL GENERATOR SETS

Factory designed, certified prototype tested with torsional analysis. Production tested and delivered to you in a package that is ready to be connected to your fuel and power lines. Electric Power Design Pro computer sizing available. Supported 100% by your Caterpillar dealer with warranty on parts and labor. Extended warranty available in some areas. The generator set was designed and manufactured in an ISO 9001 compliant facility. Generator set and components meet or exceed the following specifications: AS1359, AS2789, ABGSM TM3, BS4999, DIN6271, DIN6280, EGSA101P, JEM1359, IEC 34/1, ISO3046/1, ISO8528, NEMA MG1-22.

CATERPILLAR® SR4B GENERATOR

Single bearing, wye connected, static regulated, brushless permanent magnet excited generator designed to match the performance and output characteristics of the Caterpillar diesel engine that drives it.

RELIABLE, FUEL EFFICIENT DIESEL

The compact, four-stroke-cycle diesel engine combines durability with minimum weight while providing dependability and economy. The fuel system operates on a variety of fuels.

CATERPILLAR® COOLING SYSTEM

Sized compatible to rating with energy efficient fan and core.

CATERPILLAR® SWITCHGEAR

Single unit or optional paralleling components. Circuit breakers, bus bars, and connection panel ready to connect.

EXCLUSIVE CATERPILLAR® VOLTAGE REGULATOR

Three-phase sensing and adjustable Volts-per-Hertz regulation give precise control, excellent block loading, and constant voltage in the normal operating range.

SOUND ATTENUATED ISO CONTAINER

For ease of transportation and protection. Meets 70 dBA at 50 ft or below per SAE J1074 measurement procedure.

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Engine	Air cleaner, with service indicator Batteries Filters; fuel, LH with service indicators; lubricating oil Insulated muffler Jacket water heater Pump, fuel priming — LH Radiator Service meter Standard eight-gauge instrument panel Sump pump Governor Electronic ADEM II	
Generator	SR4B brushless, 480 volt, PM excited three-phase with digital voltage regulator, space heater	
Containerized Module	Air intake louvers Bus bar access door Fuel tank — 4730 L (1250 Gal) UL listed Fuel/water separator 110 VAC/24 VDC lighting Sound attenuated (75 dBA @ 50 ft) ISO hi cube container Lockable doors Stainless steel hardware and hinges Vertical radiator and exhaust discharge plenum	
Cooling	Standard cooling provides 110° ambient at prime rating	
Switchgear	Floorstanding switchgear with EMCP II components Automatic start/stop with cooldown timer Battery charger, heavy duty 20A Protection: 32, 59 Circuit breaker, electrically operated Connection terminals, 3-phase and neutral Automatic paralleling Auxiliary power connections for jacket water heater, battery charger, space heaters	Meters: power factor, KW, PF, W/WHM, synchroscope, KVAR Protection: 27, 40, 810, 81U CIM, CCM, remote annunciation Plug and peak shave utility conversion panel

SPECIFICATIONS

CAT SR4B GENERATOR

Type ..... Static regulated brushless PM excited
Construction ..... Single bearing, close coupled
Three-phase ..... Wye connected — 6 lead
Insulation ..... Class H — 2 extra dips and bakes on random wound units
Enclosure ..... Drip proof
Alignment ..... Pilot shaft
Overspeed capability 130%
Voltage regulator ..... 3-phase sensing with Volts-per-Hertz
Voltage regulation ..... Less than ± 0.5%
Voltage gain ..... Adjustable to compensate for engine speed droop and line loss
Wave form ..... Less than 5% deviation
TIF ..... Less than 50
THD ..... Less than 3%

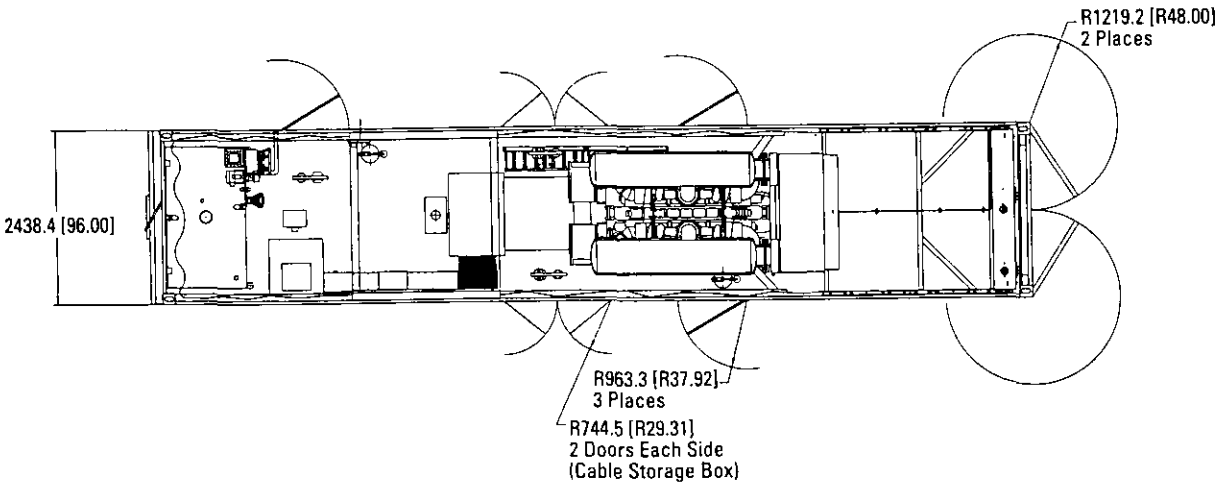
CAT® 3516B ENGINE

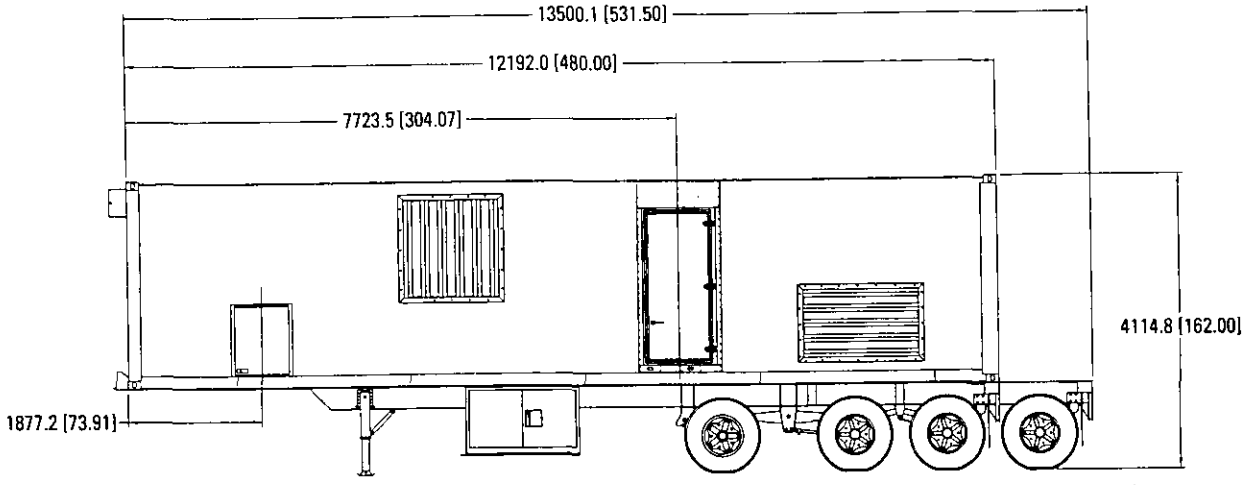
V-16, 4-stroke-cycle diesel
Bore — mm (in) 170 (6.7)
Stroke — mm (in) 190 (7.5)
Displacement — L (cu in) 69.0 (4210)
Aspiration ..... Turbocharged-Aftercooled

TECHNICAL DATA

		Standby	Prime
Power Rating 60 Hz	ekW	2000	1825
Engine and Container Information Engine Model Container size Container dimensions	 m (ft)	 3516B 12 (40) see below	
Fuel Capacity Hours of Operation at 60% Load Factor 4732 L (1250 Gal) Standard 12 m (40 ft)	hours	8	9
Approximate Weight (Dry) — Container with Generator Set and Switchgear Including Container With Undercarriage	 kg (lb) kg (lb)	 32 660 (72,000) 40 370 (89,000)	

Container Dimensions





The power module must have support under the center when set on the ground.

Dimensions		
Length	13500.1 mm	531.50 in
Width	2438.4 mm	96.00 in
Height	4114.8 mm	162.00 in

STANDARD CONTROLS

12 m (40 ft) CONTAINERS 480V/60 Hz

Floorstanding switchgear includes the following functions and features:

ELECTRONIC MODULAR CONTROL PANEL (EMCP II) COMPONENTS

GENERATOR SET CONTROL (GSC)

Monitoring

Sequentially rotating, backlit LCD display of engine hours, engine rpm, DC battery voltage, oil pressure, and water temperature. Includes pushbutton to hold display on any single parameter.

Protection

Shutdowns:

Overspeed, overcrank, high water temperature, low oil pressure, and emergency stop. With LED indicator for each condition.

Alarms:

Low coolant level

AC Metering

Three-phase volts (L-L), amperes and frequency with phase select pushbutton, on backlit LCD. Metering accuracy is 0.5%.

Control

Automatic starting with field adjustable cycle crank, failure to start (overcrank), and cooldown timer.

Programming and Diagnostics

Includes field programmable set-points for engine control and monitoring variables and self diagnosis of EMCP II system component and wiring failures.

ALARM MODULE

Flashing LED warnings for: low coolant temperature, high coolant temperature (pre-alarm), low oil pressure (pre-alarm), engine control switch not in automatic, and low DC voltage. Includes alarm horn and acknowledge pushbutton.

ENGINE CONTROL SWITCH

Snap action rotary switch, four-position — off/reset, automatic, manual, stop/cooldown. Off/reset for engine shutdown and resetting faults, automatic for remote starting by customer contact closure, manual for local starting and manual paralleling, stop/cooldown for manual operation cooldown.

ALARM ACKNOWLEDGE/LAMP TEST SWITCH

Three-position, spring return to center switch for alarm acknowledge and lamp test of all discrete indicating lamps. Lamp test shall also sound the alarm horn.

ANNUNCIATION CIRCUITS

Upon receipt of an alarm or shutdown condition, the horn shall sound and an LED shall flash. Upon acknowledgement from alarm acknowledge/lamp test switch, the horn shall be silenced and the lamp steadied. LED shall be extinguished when ECS is placed in the off/reset position if the alarm condition has been corrected. Circuits are recurring such that the LED shall flash and the horn sound, should another fault occur even prior to correction of the initial fault.

EMERGENCY STOP PUSHBUTTON

Mushroom head, twist to reset, causes engine shutdown and tripping of the generator circuit breaker. Prevents engine starting when depressed.

MANUAL PARALLELING

Controls consisting of reverse power relay, synchronizing lights, and switch. Reverse power condition causes tripping of the generator circuit breaker, immediate engine shutdown, flashing of indicating lamp, and sounding of alarm horn.

CIRCUIT BREAKER

Fixed mounted, three-pole, manually operated, molded case circuit breaker with solid state trip unit for overload (time overcurrent) and fault (instantaneous) protection. Includes DC shunt trip coil activated on any generator set monitored fault. Circuit breaker is sized for full load capacity of the generator set at 0.8 power factor.

LOAD SHARE GOVERNOR

Electronic load sharing governor with speed adjust potentiometer, idle/rated switch, and isochronous/droop switch.

VOLTAGE REGULATOR

Standard Caterpillar generator-mounted digital voltage regulator with voltage adjust rheostat mounted in the floorstanding switchgear.

STANDARD CONTROLS (Continued)

CURRENT TRANSFORMERS (3)

Five-ampere secondary with shorting terminal strips

POTENTIAL TRANSFORMERS (3)

120 VAC secondary with primary and secondary fuse protection, two connected to the generator side of the circuit breaker, one connected to the load side of the circuit breaker.

BUS BARS

Three-phase plus fully rated neutral bus bars with NEMA standard hole pattern for connection of customer load cables and generator cables. Bus bars are sized for full load capacity of the generator set at 0.8 power factor. Also includes ground bus, connected to the generator frame ground and container frame with holes for connection of field ground cable. Bus bars are accessible from outside of the power module via hinged, lockable cable access door.

ACCESSORY POWER

3500 Power Modules

Three 230 VAC (50 Hz units) or 120 VAC (60 Hz units) shore power connections for jacket water heaters, generator space heater, and battery charger.

BATTERY CHARGER

24 VDC/20A battery charger with float/equalize modes and charging ammeter.

ATTACHMENT C

FUEL ANALYSIS

EXHIBIT A

Low Sulfur No. 2 Oil

Parameters	Specification Minimum	Specification Maximum	ASTM Test Method
Heat Content, Btu/Gal	137,000		D-240
Sulfur, % Weight	–	0.05	D-1552
Viscosity, SUS @ 100°F	32.6	40.5	D-445/2161
Ash, % Weight	–	0.01	D-482
Water & Sediment, % Wt.	–	0.05	D-2709
Flash Point, °F	100	–	D-93
API Gravity @ 60°F	20	–	D-97
Specific Gravity @ 60°F	–	0.876	D-287
Vanadium, PPM	–	0.5	D-3605-91
Sodium, PPM	–	1.0	D-3605-91
Lead, PPM	–	1.0	D-3605-91

Latest ASTM or equivalent revisions shall apply in reference to the above ASTM or equivalent Test Method.

ATTACHMENT D

VENDOR EMISSIONS DATA AND EMISSION RATE CALCULATIONS

CATERPILLAR DIESEL GENERATOR SET PERFORMANCE DATA

MODEL: 3516B RATED: 1825 KW PRIME 1800 RPM
A/C TEMPERATURE 140 F
YEAR 2000 EPA CERTIFIED

-GGPE1- TMI - ENGINE AND COMP PERF DATE: 12/07/00
)9 - PACKAGE SET PERFORMANCE TIME: 08:38:15
3516B DI TA SC DRY MANF TURBO QTY 4 PARALLEL ADEM GOV
)M4501-02 PGS PRIME 60 HERTZ EXH STK DIA 8.0 IN
3W 1825.0 W/F EKW 1880.0 W/O F EKW W/F BHP 2628 W/O F BHP @ 1800 RPM
A/C TEMP: DEG F 140
INFO CODE 05 - EMISSIONS DATA * * * * * RATED SPEED * * * * STANDARD TIMING
"NOT TO EXCEED DATA"

GEN PWR EKW	% LOAD	ENG PWR BHP	NOX (AS NO2) * * * * * * * * *	CO LB/HR	TOTAL HC * * * * * * * * *	PART MATTER	O2 (DRY) IN EXH (VOL) %	SMOKE OPAC %	BOSCH SMOKE NO.
1825.0	100	2593.0	52.69	.97	.97	.480	11.00	1.4	1.28
1368.8	75	1957.7	29.36	1.09	.96	.490	12.00	1.7	1.28
912.5	50	1327.6	17.66	1.37	.76	.430	12.70	2.5	1.28
456.3	25	703.6	9.48	1.44	.53	.300	14.00	2.1	1.28

EMISSIONS DATA MEASUREMENT IS CONSISTENT WITH THOSE DESCRIBED IN EPA CFR 40 PART 86 SUBPART D AND ISO 8178-1 FOR MEASURING HC, CO, PM AND NOX.

THIS ENGINE'S EXHAUST EMISSIONS ARE IN COMPLIANCE WITH THE FOLLOWING US EPA AND CALIFORNIA NONROAD REGULATIONS

EXHAUST EMISSIONS LIMITS
G/HP-HR

HC	CO	NOX	PM
1.0	8.5	6.9	.40

WET EXHAUST MASS	26433 LB/HR
WET EXHAUST FLOW (808 DEG F STACK TEMP)	14267 CFM
WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)...	5534 STD CFM
DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)...	5092 STD CFM
FUEL FLOW RATE	122.8 GAL/HR

POTENTIAL EMISSION INVENTORY WORKSHEET

Tampa Electric Company, Hookers Point IC Engine Project

ENG 1-30

EMISSION SOURCE TYPE

HEAVY DUTY OIL-FIRED ENGINES - CRITERIA POLLUTANTS

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	4-Cycle Rich Burn Engine
Emission Control Method(s)/ID No.(s):	None
Emission Point Description:	1.825 MW Engine/Generator, Caterpillar Model 3516B Power Module

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = Engine Power Output (hp) x Pollutant Emission Factor (lb/hp-hr)

Emission (ton/yr) = Engine Power Output (hp) x Pollutant Emission Factor (lb/hp-hr) x Operating Period (hrs/yr) x (1 ton/ 2,000 lb)

Source: ECT, 2000.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours:	24	Hrs/Day	7	Days/Wk	
Operating Hours:	8,760	Hrs/Yr			
Fuel Usage:	122.8	gal/hr	1,075,728	gal/yr	
Engine Heat Input:	16.8	10^6 Btu/hr (LHV)	Power Output:	1,825	kW
Engine Power Output:	2,593	HP	Fuel Oil Sulfur Content:	0.05	weight %
Oil Heat Content:	137,000	Btu/gal (LHV)	Heat Rate:	9,218	Btu/kW-hr
Number of Engines:	30	Oil Consumed:	0.1228	10^3 gal/hr	1,075.73 10^3 gal/yr

Criteria Pollutant	Pollutant Emission Factors		Potential Emission Rates (Per Engine)		Potential Emission Rates (All Engines)	
	(g/hp-hr)	(lb/hp-hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
NO_x	9.22	0.02032	52.7	230.78	1,580.7	6,923.5
CO	0.17	0.00037	1.0	4.25	29.1	127.5
THC	0.17	0.00037	1.0	4.25	29.1	127.5
SO_2	0.18	0.00040	1.0	4.59	31.5	137.8
PM/PM_{10}	0.08	0.00019	0.5	2.10	14.4	63.1

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours	Actual hours will be limited to avoid PSD review.
Fuel Usage Data	Caterpillar, 2000.
Engine Power Output	Caterpillar, 2000.
Fuel Oil Sulfur Content	TEC, 2000.
Emission Factors (except SO_2)	Caterpilar (100% load), 2000.
Emission Factor, SO_2	Table 3.4-1, AP-42, EPA, October 1996.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	T.Davis	Date:	Jan-01
Data Entered by:	T.Davis	Date:	Jan-01
Reviewed by:	S. Todd	Date:	Jan-01

ATTACHMENT E

PSD NETTING ANALYSIS AND HOOKERS POINT EMISSIONS CAP

ECT
Environmental Consulting & Technology, Inc.

ATTACHMENT E

PSD NETTING ANALYSIS AND HOOKERS POINT STATION EMISSIONS CAP

The procedures for determining applicability of the Prevention of Significant Deterioration (PSD) new source review (NSR) permitting program to modifications planned at existing major Florida facilities are specified in Rule 62-212.400(2)(d)4., Florida Administrative Code (F.A.C.). Because the existing Hookers Point Station is a major facility (i.e., has potential emissions of 250 tons per year [tpy] or more of an air pollutant subject to regulation under Chapter 403, Florida Statutes) that would be subject to PSD preconstruction review if it were itself a proposed new facility (i.e., has potential emissions of 250 tpy or more of a pollutant regulated under the Clean Air Act and is located in an attainment area), modifications to the Hookers Point Station that result in a *significant net emissions increase* of any pollutant regulated under the Clean Air Act are subject to PSD NSR.

The term *significant net emission increase* is defined by Rule 62-212.400(2)(e), F.A.C. For each regulated pollutant, the net emission increase for a modification project is equal to the sum of the increases in emissions associated with the proposed project plus all facility-wide creditable, contemporaneous emission increases minus all facility-wide creditable, contemporaneous emission decreases. If this net emissions increase is equal to or greater than the applicable Table 212.400-2, F.A.C. Regulated Pollutants—Significant Emission Rates, then the net emission increase is considered to be *significant* and the modification will be subject to PSD NSR for that particular regulated pollutant.

In accordance with Rule 62-212.400(2)(e)3., F.A.C., the *contemporaneous* period for a modification project begins five years prior to the date of submittal of a complete permit application and ends when the new or modified emission units are estimated to begin operation.

In accordance with Rule 62-212.400(2)(e)4., F.A.C., contemporaneous emission increases and decreases are *creditable* if the following prove to be true:

- The emission increase or decrease will affect PSD increment consumption (i.e., will consume or expand the available increment).
- The emission increase or decrease was not previously considered in the issuance of a PSD NSR permit (to avoid *double counting*).
- The Florida Department of Environmental Protection (FDEP) has not relied on the emission increase or decrease in attainment or reasonable further progress demonstrations.

Contemporaneous emission increases and decreases are based on *actual* emission rates. The term *actual emissions* is defined by Rule 62-210.200(12), F.A.C. For new emission units, actual emissions are equal to potential emissions. For changes to existing emission units, actual emissions are generally the actual average emission rates, in tpy, for the two-year period preceding the change and which are representative of normal operations. The Department may allow the use of a different time period if it is determined that the other time period is more representative of the normal operation of an emissions unit.

For emission decreases, the old level of actual or allowable emissions (whichever is lower) must be greater than the new level of actual emissions. The actual emission decrease must also take place on or before the date that emissions from the modification project first occur and must be federally enforceable on and after the date the Department issues a construction permit for the modification project.

For the proposed internal combustion (IC) engine project, the contemporaneous period is projected to begin in January 1996 and end in May 2001. Creditable emission decreases that will occur within this contemporaneous period consist of the actual emissions associated with the reduced operations of existing Units 1 through 6. Creditable emission increases consist of those associated with the 30 new IC engines. TEC proposes to establish a facility-wide emissions cap for the Hookers

Point Station such that total station emissions (i.e., existing Units 1 through 6 and the 30 new IC engines) will remain below the PSD significant emission rate thresholds for major modifications.

Summaries of historical actual emission rates for existing Units 1 through 6 are provided in Tables 1 through 6. Total facility-wide emissions for the Hookers Point Station required to avoid PSD review are summarized in Table 7. Potential emission rates for the 30 new IC engines were previously provided in Attachment D. Contemporaneous creditable emission decreases were determined based on the actual emissions data (i.e., Annual Operating Reports [AORs]) previously submitted to FDEP for the Hookers Point Station.

The emissions data provided in Attachment D and Table 7 demonstrate that nitrogen oxide (NO_x) is the constraining pollutant with respect to PSD applicability (i.e., the IC engine emission factor for NO_x in units of grams per horsepower-hour is approximately 50 times higher than the remaining PSD pollutants). TEC proposes to limit total Hookers Point Station annual NO_x emissions to 682.4 tpy to ensure that operation of the 30 new IC engines, together with existing Units 1 through 6, does not result in a significant emission rate increase. The proposed Hookers Point Station NO_x cap of 682.4 tpy is based on the 1998/1999 historical average of 642.5 tpy for Units 1 through 6 plus 39.9 tpy. The new IC engines will only operate at 100 percent load when in use. Initial compliance testing will confirm the IC engine NO_x emission rate in units of pounds per hour (lb/hr) at 100 percent load. TEC proposes to implement the Hookers Point Station NO_x cap on a rolling 12-month annual average using the Part 75 continuous emission monitoring systems (CEMS) for Units 1 through 6 and run time meters for the 30 new IC engines.

Table 1. Hookers Point Station
IC Engine Netting Analysis - Unit 1 Historical Emissions

	Unit 1 (tpy)						
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg
No. 1,2 Oil (10^3 gal)		9.0	6.0	8.0	9.0	8.0	8.5
Wt % S		0.25	0.16	0.40	0.40	0.30	0.40
No. 6 Oil (10^3 gal)		2,555.0	1,291.0	1,893.0	1,520.0	1,814.8	1,706.5
Wt % S		0.90	1.01	0.91	0.94	0.94	0.93
Waste Oil (10^3 gal)		0.0	0.0	5.3	19.0	6.1	12.2
Wt % S		0.00	0.00	1.72	1.50	0.81	1.61
NO_x AOR	98.0	86.2	65.0	59.0	39.0	69.4	49.0
CO AOR	7.0	6.0	3.0	5.0	3.8	5.0	4.4
SO_2 (AP-42)		180.7	102.4	136.2	114.7	133.5	125.4
SO_2 (AOR)	212.0	189.2	140.0	198.0	95.0	166.8	146.5
H_2SO_4 AP-42	9.4	8.0	4.6	6.1	5.1	6.6	5.6
PM_{10} AOR	22.0	19.0	8.0	26.0	12.0	17.4	19.0
PM AOR	22.0	19.0	8.0	26.0	12.0	17.4	19.0
Pb AOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC AOR	1.0	1.0	0.5	1.0	0.6	0.8	0.8

Sources: ECT, 2000.
TEC, 2000.

Table 2. Hookers Point Station
IC Engine Netting Analysis - Unit 2 Historical Emissions

	Unit 2 (tpy)						
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg
No. 1,2 Oil (10^3 gal)		0.0	0.0	0.0	0.0	0.0	0.0
Wt % S		0.00	0.00	0.00	0.00	0.00	0.00
No. 6 Oil (10^3 gal)		2,207.0	1,250.0	1,488.0	1,450.0	1,598.8	1,469.0
Wt % S		0.90	1.01	0.91	0.94	0.94	0.93
Waste Oil (10^3 gal)		0.0	0.0	5.3	19.0	6.1	12.2
Wt % S		0.00	0.00	1.72	1.50	0.81	1.61
NO_x AOR	67.0	74.0	67.0	43.0	32.0	56.6	37.5
CO AOR	5.0	5.0	3.0	4.0	3.6	4.1	3.8
SO_2 (AP-42)		155.9	99.1	107.0	109.2	117.8	108.1
SO_2 (AOR)	146.0	163.0	144.0	178.0	76.0	141.4	127.0
H_2SO_4 AP-42	6.5	6.9	4.4	4.8	4.9	5.5	4.8
PM_{10} AOR	17.0	18.0	9.0	15.0	9.0	13.6	12.0
PM AOR	17.0	18.0	9.0	15.0	9.0	13.6	12.0
Pb AOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC AOR	1.0	1.0	0.5	1.0	0.6	0.8	0.8

Sources: ECT, 2000.
TEC, 2000.

Table 3. Hookers Point Station
IC Engine Netting Analysis - Unit 3 Historical Emissions

	Unit 3 (tpy)						
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg
No. 1,2 Oil (10^3 gal)		0.0	0.0	0.0	0.0	0.0	0.0
Wt % S		0.00	0.00	0.00	0.00	0.00	0.00
No. 6 Oil (10^3 gal)		2,703.0	1,958.0	2,377.0	2,720.0	2,439.5	2,548.5
Wt % S		0.90	1.01	0.91	0.94	0.94	0.93
Waste Oil (10^3 gal)		0.0	0.0	5.3	19.0	6.1	12.2
Wt % S		0.00	0.00	1.72	1.50	0.81	1.61
NO_x AOR	61.0	91.0	82.0	80.0	163.0	95.4	121.5
CO AOR	5.0	7.0	5.0	6.0	6.8	6.0	6.4
SO_2 (AP-42)		191.0	155.2	170.5	202.9	179.9	186.7
SO_2 (AOR)	132.0	200.0	168.0	190.0	330.0	204.0	260.0
H_2SO_4 AP-42	5.9	8.5	6.9	7.6	9.0	7.6	8.3
PM_{10} AOR	18.0	26.0	99.0	38.0	44.0	45.0	41.0
PM AOR	18.0	26.0	99.0	38.0	44.0	45.0	41.0
Pb AOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC AOR	1.0	1.0	0.7	1.0	1.0	0.9	1.0

Sources: ECT, 2000.
TEC, 2000.

Table 4. Hookers Point Station
IC Engine Netting Analysis - Unit 4 Historical Emissions

	Unit 4 (tpy)						
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg
No. 1,2 Oil (10^3 gal)		12.0	12.0	15.0	10.0	12.3	12.5
Wt % S		0.25	0.16	0.40	0.01	0.21	0.21
No. 6 Oil (10^3 gal)		3,228.0	2,969.0	2,822.0	3,325.0	3,086.0	3,073.5
Wt % S		0.90	1.01	0.91	0.94	0.94	0.93
Waste Oil (10^3 gal)		0.0	0.0	5.3	19.0	6.1	12.2
Wt % S		0.00	0.00	1.72	1.50	0.81	1.61
NO_x AOR	71.0	109.1	115.0	106.0	196.0	119.4	151.0
CO AOR	5.0	8.0	7.0	7.0	8.3	7.1	7.7
SO_2 (AP-42)		228.3	235.5	202.8	247.6	228.6	225.2
SO_2 (AOR)	153.0	241.1	237.0	243.0	404.0	255.6	323.5
H_2SO_4 AP-42	6.8	10.2	10.5	9.0	11.0	9.5	10.0
PM_{10} AOR	16.0	24.0	21.0	27.0	48.0	27.2	37.5
PM AOR	16.0	24.0	21.0	27.0	48.0	27.2	37.5
Pb AOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC AOR	1.0	1.0	1.0	1.0	1.3	1.1	1.1

Sources: ECT, 2000.
TEC, 2000.

Table 5. Hookers Point Station
IC Engine Netting Analysis - Unit 5 Historical Emissions

	Unit 5 (tpy)						
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg
No. 1,2 Oil (10^3 gal)		12.0	9.0	6.1	9.0	9.0	7.6
Wt % S		0.25	0.16	0.40	0.40	0.30	0.40
No. 6 Oil (10^3 gal)		1,709.0	4,278.0	4,172.0	5,431.0	3,897.5	4,801.5
Wt % S		0.90	1.01	0.91	0.94	0.94	0.93
Waste Oil (10^3 gal)		0.0	0.0	5.3	19.0	6.1	12.2
Wt % S		0.00	0.00	1.72	1.50	0.81	1.61
NO_x AOR	28.0	57.2	121.0	182.0	198.0	117.2	190.0
CO AOR	2.0	4.0	11.0	10.0	13.6	8.1	11.8
SO_2 (AP-42)		121.0	339.3	298.9	403.3	290.6	351.1
SO_2 (AOR)	61.0	127.2	260.0	247.0	464.0	231.8	355.5
H_2SO_4 AP-42	2.7	5.4	15.1	13.3	17.9	10.9	15.6
PM_{10} AOR	6.0	12.0	35.0	58.0	51.0	32.4	54.5
PM AOR	6.0	12.0	35.0	58.0	51.0	32.4	54.5
Pb AOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC AOR	0.0	1.0	1.6	2.0	2.1	1.3	2.0

Sources: ECT, 2000.
TEC, 2000.

Table 6. Hookers Point Station
IC Engine Netting Analysis - Unit 6 Historical Emissions

	Unit 6 (tpy)						
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg
No. 1,2 Oil (10^3 gal)		0.0	0.0	0.0	0.0	0.0	0.0
Wt % S		0.00	0.00	0.00	0.00	0.00	0.00
No. 6 Oil (10^3 gal)		545.0	2,746.0	2,684.0	5,325.0	2,825.0	4,004.5
Wt % S		0.90	1.01	0.91	0.94	0.94	0.93
Waste Oil (10^3 gal)		0.0	0.0	5.3	19.0	6.1	12.2
Wt % S		0.00	0.00	1.72	1.50	0.81	1.61
NO_x AOR	80.0	18.0	63.0	60.0	127.0	69.6	93.5
CO AOR	6.0	1.4	7.0	7.0	13.3	6.9	10.2
SO_2 (AP-42)		38.5	217.7	192.4	395.2	211.0	293.8
SO_2 (AOR)	175.0	40.0	208.0	204.0	421.0	209.6	312.5
H_2SO_4 AP-42	7.8	1.7	9.7	8.6	17.6	9.1	13.1
PM_{10} AOR	18.0	4.0	27.0	16.0	41.0	21.2	28.5
PM AOR	18.0	4.0	27.0	16.0	41.0	21.2	28.5
Pb AOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VOC AOR	1.0	0.2	1.0	1.0	2.0	1.0	1.5

Sources: ECT, 2000.
TEC, 2000.

Table 7. Hookers Point Station
IC Engine Netting Analysis - Units 1- 6 Historical Emissions

	Units 1- 6 (tpy)							PSD Thresholds (tpy)	Hookers Pt Bubble (tpy)
	1995	1996	1997	1998	1999	95-99, 5 Yr Avg	98,99 Avg		
No. 1,2 Oil (10^3 gal)		33.0	27.0	29.1	28.0	29.3	28.6		
Wt % S									
No. 6 Oil (10^3 gal)		12,947.0	14,492.0	15,436.0	19,771.0	15,661.5	17,603.5		
Wt % S									
Waste Oil (10^3 gal)		0.0	0.0	31.8	114.0	36.5	72.9		
Wt % S									
NO_x AOR	405.0	435.4	513.0	530.0	755.0	527.7	642.5	39.9	682.4
CO AOR	30.0	31.5	36.1	39.0	49.5	37.2	44.2	99.9	144.1
SO_2 (AP-42)		915.4	1,149.3	1,107.9	1,472.9	1,161.4	1,290.4	39.9	1,330.3
SO_2 (AOR)	879.0	960.4	1,157.0	1,260.0	1,790.0	1,209.3	1,525.0	39.9	1,564.9
H_2SO_4 AP-42	39.1	40.7	51.1	49.3	65.5	49.1	57.4	6.9	64.3
PM_{10} AOR	97.0	103.0	199.0	180.0	205.0	156.8	192.5	14.9	207.4
PM AOR	97.0	103.0	199.0	180.0	205.0	156.8	192.5	24.9	217.4
Pb AOR	0.00	0.00	0.00	0.00	0.04	0.01	0.02	0.59	0.61
VOC AOR	5.0	5.2	5.3	7.0	7.5	6.0	7.3	39.9	47.2

Sources: ECT, 2000.
TEC, 2000.