

Florida Department of Environmental Protection

Memorandum

TO: Trina Vielhauer, Bureau of Air Regulation

THRU: Syed Arif, New Source Review Section SA 9/10

FROM: Bruce Mitchell, New Source Review Section

DATE: September 10, 2008

SUBJECT: Project No. 0570040-024-AC
Tampa Electric Company
H.L. Culbreath Bayside Power Station
Eight Simple Cycle Combustion Turbine Peaking Units

The Draft Air Construction Permit is for authorization to install eight simple cycle combustion turbine (SCCT) peaking units. The SCCT peaking units will burn only pipe-line quality natural gas and operate for only 3,500 hours per year. Two SCCT will be connected to a common electrical generator for a nominal output of 62 megawatts. Also, two emergency diesel engine/generator sets are included in the project and will burn only ultra low sulfur diesel fuel oil. The emergency generators are categorically exempt in accordance with Rule 62-210.300(3)(a)35.c., F.A.C.

Attachments

P.E. CERTIFICATION STATEMENT

PERMITTEE

Tampa Electric Company (TEC)
Post Office Box 111
Tampa, Florida 33601-0111

Bayside Station Simple Cycle Project
DEP File No. 0570040-024-AC
Hillsborough County

PROJECT DESCRIPTION

Project: The proposed project is to construct eight natural gas-fueled simple cycle combustion turbines (CT) with four associated electrical generators, and two black start emergency diesel engine/generator sets at the existing Bayside facility. Two CT will be coupled to each common generator having a nominal gross generation capacity of 62 megawatts (MW). The project will add 248 MW of generation capacity to the TEC Bayside Station.

There will be not be significant net emissions increases of nitrogen oxides (NO_x) and particulate matter (PM/PM₁₀) when considering the remaining contemporaneous decreases (available for netting) from the permanent shutdown of the coal-fueled Gannon Unit 6 at the same site. I reviewed emissions information supplied by the company and consulted records of the Florida Public Service Commission related to shut down dates in making this determination.

There will not be significant net emissions increases of carbon monoxide (CO) and volatile organic compounds (VOC) decreases because oxidation catalyst will be installed to control those emissions. The catalyst will also insure that hazardous air pollutants such as formaldehyde will be destroyed. There will not be significant net emissions increases of sulfur dioxide (SO₂) and sulfuric acid mist (SAM) due to the use of inherently clean natural gas. Therefore, the project is considered a minor modification to a major facility. The project is not subject to the rules for the Prevention of Significant Deterioration (PSD) at Section 62-212.400, Florida Administrative Code (F.A.C.). An air quality impact analysis was not required.

The CT will be subject to the NO_x and SO₂ emission limitations given in 40 Code of Federal Regulation (CFR) Part 60, Subpart KKKK - Standards of Performance for Stationary Combustion Turbines that Commence Construction after February 18, 2005. More stringent limitations and test requirements than required by Subpart KKKK alone have been included to insure SO₂ emissions will be less than the significant emissions rate and thus avoid PSD preconstruction review.

The application was reviewed and the permit package was drafted by Bruce Mitchell. I also relied upon additional consultation provided by Jeff Koerner, P.E. on the netting analysis and by Syed Arif, P.E. on the technical evaluation and permitting package.

I HEREBY CERTIFY that the air pollution control engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features). Note that less than the typical level of detail was required given the demonstration nature of the project. Per 403.061(18), F.S., my employer, the Florida DEP has the power and the duty to encourage and conduct studies, investigations, and research relating to pollution and its causes, effects, prevention, abatement, and control.



Alvaro A. Linero, P.E.
Registration Number: 26032
Date: September 10, 2008



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

September 10, 2008

Mr. David M. Lukcic
Tampa Electric Company
H.L. Culbreath Bayside Power Station
P.O. Box 111
Palatka, Florida 32178-0919

Re: Project No. 0570040-024-AC
Tampa Electric Company – H.L. Culbreath Bayside Power Station
Eight Simple Cycle Combustion Turbine Peaking Units

Dear Mr. Lukcic:

On March 20, 2008, you submitted an application requesting authorization to construct eight simple cycle combustion turbine (SCCT) peaking units, with four associated electrical generators, and two black start emergency diesel engine/generator sets at the existing H.L. Culbreath Bayside Power Station. This facility is located at 3602 Port Sutton Road in Tampa, Hillsborough County, Florida. Enclosed are the following documents:

- Technical Evaluation and Preliminary Determination;
- Draft Permit and Appendices;
- Written Notice of Intent to Issue Air Permit; and
- Public Notice of Intent to Issue Air Permit.

The Public Notice of Intent to Issue Air Permit is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact the Project Engineer, Bruce Mitchell, at 850/413-9198.

Sincerely,

Trina Vielhauer, Chief
Bureau of Air Regulation

Enclosures

TLV/al/bm

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

*In the Matter of an
Application for Air Permit by:*

Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601-0111

Project No. 0570040-024-AC
H.L. Culbreath Bayside Power Station
Eight Simple Cycle Combustion Turbine Peaking Units
Hillsborough County, Florida

Authorized Representative:
Mr. David M. Lukcic
Manager of Environmental Programs

Facility Location: Tampa Electric Company operates an existing electric utility, the H.L. Culbreath Bayside Power Station (Bayside), in Tampa, located at 3602 Port Sutton Road in Hillsborough County, Florida.

Project: The proposed project is to construct eight simple cycle combustion turbine (SCCT) peaking units, with four associated electrical generators, and two emergency diesel engine/generator sets at the existing Bayside facility. Details of the project are provided in the application and the enclosed Technical Evaluation and Preliminary Determination.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210 and 62-212 of the Florida Administrative Code (F.A.C.). The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above.

Notice of Intent to Issue Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of the proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S., or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Public Notice: Pursuant to Section 403.815, F.S., and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Permit (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Permitting Authority at above address or phone number. Pursuant to Rules 62-110.106(5) and (9), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within 7 days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of 14 days from the date of publication of the Public Notice. Written comments must be received by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 14-day period. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this Written Notice of Intent to Issue Air Permit. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the attached Public Notice or within 14 days of receipt of this Written Notice of Intent to Issue Air Permit, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



Trina Vielhauer, Chief
Bureau of Air Regulation

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

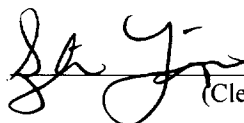
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Written Notice of Intent to Issue Air Permit package (including the Public Notice, the Technical Evaluation and Preliminary Determination, and the Draft Permit), was sent by electronic mail (or a link to these documents made available electronically on a publicly accessible server) with received receipt requested before the close of business on 9/10/08 to the persons listed below.

- Mr. David M. Lukcic, Tampa Electric Company (dmlukcic@tecoenergy.com)
- Mr. Byron T. Burrows, Tampa Electric Company (btburrows@tecoenergy.com)
- Mr. Thomas W. Davis, P.E., Environmental Consulting & Technology, Inc. (tdavis@ectinc.com)
- Mr. Jerry Campbell, Hillsborough County Environmental Protection Commission (campbell@epchc.org)
- Ms. Diana Lee, Hillsborough County Environmental Protection Commission, (Lee@epchc.org)
- Ms. Pwu-Sheng Liu, Hillsborough County Environmental Protection Commission. (LiuP@epchc.org)
- Ms. Kathleen Forney, U.S. EPA, Region 4 (forney.kathleen@epamail.epa.gov)
- Ms. Catherine Collins, Fish and Wildlife Service, (catherine_collins@fws.gov)

Clerk Stamp

FILED AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated agency clerk, receipt of which is hereby acknowledged.



(Clerk)

9/10/08
(Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection
Division of Air Resource Management, Bureau of Air Regulation
Project No. 0570040-024-AC
Tampa Electric Company – H.L. Culbreath Bayside Power Station
Hillsborough County, Florida

Applicant: The applicant for this project is the Tampa Electric Company. The applicant's authorized representative and mailing address is: Mr. David M. Lukcic, Manager of Environmental Programs, Tampa Electric Company, Post Office 111, Tampa, Florida 33601-0111.

Facility Location: Tampa Electric Company operates an existing electric utility, the H.L. Culbreath Bayside Power Station (Bayside), in Tampa, located at 3602 Port Sutton Road in Hillsborough County, Florida.

Project: The proposed project is to construct eight simple cycle combustion turbine (SCCT) peaking units, with four associated electrical generators, and two emergency diesel engine/generator sets at the existing Bayside facility. Two SCCT will be coupled to one common generator having a nominal gross generation capacity of 62 megawatts (MW). The project will add 248 MW worth of SCCT peaking power to the total Bayside gross generation capacity. For each SCCT, the applicant proposes to fire only pipeline-quality natural gas and operate in the simple cycle mode, with the hours of operation limited to 3,500 per SCCT per year. Excluding emergency conditions, the diesel engine/generator sets will only be operated for approximately 2 hours per week (100 hr/yr) each for routine testing and maintenance purposes and will fire only ultra low sulfur diesel fuel oil.

The project is not subject to the rules for the Prevention of Significant Deterioration (PSD) at Rule 62-212.400, Florida Administrative Code (F.A.C.). There will be not be significant net emissions increases of nitrogen oxides (NO_x) and particulate matter (PM/PM₁₀) when considering the remaining contemporaneous decreases (available for netting) from the permanent shutdown of the coal-fueled Gannon Unit 6 at the same site.

There will not be significant net emissions increases of carbon monoxide (CO) and volatile organic compounds (VOC) because an oxidation catalyst will be installed to control those emissions. There will not be significant net emissions increases of sulfur dioxide (SO₂) and sulfuric acid mist (SAM) due to the use of inherently clean natural gas. Therefore, the project is considered a minor modification to a major facility. An air quality impact analysis was not required.

The SCCT will be subject to the allowable NO_x emission limitation given in Title 40, Code of Federal Regulations, Part 60 (40 CFR 60), Subpart KKKK - Standards of Performance for Stationary Combustion Turbines that Commence Construction after February 18, 2005 (Subpart KKKK). Even though 40 CFR 60, Subpart KKKK contains an allowable SO₂ emissions limitation of 0.060 lb SO₂/MMBtu/SCCT, the application reflected a potential mass emissions of 1.9 lb/hr/SCCT (0.0055 lb SO₂/MMBtu/SCCT), which is based on an allowable natural gas fuel sulfur restriction of 2 grains of sulfur per 100 standard cubic feet. This kept the project's potential SO₂ and SAM emissions below the significant levels of 40 and 7 tons per year, respectively, and allowed it to escape PSD preconstruction review for these pollutants. The fuel sulfur restriction will be used as a surrogate to minimize SO₂ and SAM emissions.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210 and 62-212 of the Florida Administrative Code (F.A.C.). The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida 32301. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

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(Public Notice to be Published in the Newspaper)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. In addition, electronic copies of these documents are available on the following web site:

www.dep.state.fl.us/air/eproducts/apds/default.asp.

Notice of Intent to Issue Air Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S., or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

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A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address and telephone number of the petitioner; the name address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial rights will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

(Public Notice to be Published in the Newspaper)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available for this proceeding.

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

Tampa Electric Company

H.L. Culbreath Bayside Power Station
Eight Simple Cycle Combustion Turbine-Generator Peaker Project

Hillsborough County

0570040-024-AC



Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
New Source Review Section

September 10, 2008

1. GENERAL PROJECT INFORMATION

▪ **Facility Description and Location**

Facility Description. The facility is an electricity utility, which is categorized under Standard Industrial Classification (SIC) Code No. 4911. The UTM coordinates are Zone 17, 360.00 km East and 3087.50 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS).

The regulated emissions units at the Bayside facility include the following: seven natural gas-fired combustion turbine (CT)/heat recovery steam generator (HRSG) combined-cycle (CC) units that operate in conjunction with the existing steam turbines of Gannon's Units 5 and 6; an existing 14 MW simple cycle gas turbine; and an eight million gallon distillate oil storage tank. The seven CT/HRSG CC units are each manufactured by General Electric (GE), Model PG7241 FA, and produce a nominal 169 megawatt (MW) of shaft-driven electricity; and the associated HRSG are unfired. They are grouped into two units designated as Units 1 and 2, which repowered Gannon's Units 5 and 6, respectively. Unit 1 includes three CT/HRSG CC units designated as CT-1A, CT-1B, and CT-1C, with a steam-electric nameplate rating of 239 MW. Unit 2 includes four CT/HRSG CC units designated as CT-2A, CT-2B, CT-2C, and CT-2D, with a steam-electric nameplate rating of 414 MW.

The combustion turbines only operate in combined-cycle mode (i.e., the HRSGs are not equipped with bypass stacks). The facility utilizes pipeline-quality natural gas as its primary fuel source with distillate fuel oil serving as a backup fuel. These emissions units are Acid Rain Units and are regulated under the Florida Electrical Power Plant Siting Act.

Since the existing facility is a synthetic minor source of hazardous air pollutants (HAP) and this project is less than the 10 and 25 tons per year (TPY) HAP thresholds, no case-by-case maximum achievable control technology (MACT) determination is required. This facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM), PM with an aerodynamic diameter equal to or less than 10 microns (PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO) or volatile organic compounds (VOC), exceeds 100 tons per year (TPY). This facility is within an industry included in the list of the 28 Major Facility Categories as defined in Rule 62-2120.200, Florida Administrative Code (F.A.C.). Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). This facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment for all pollutants.

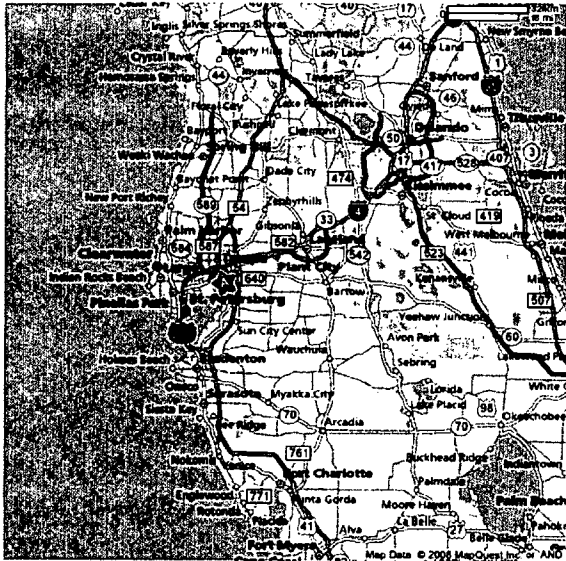
Applicant Name and Address:

Tampa Electric Company (TEC)
H.L. Culbreath Bayside Power Station
3602 Port Sutton Road
Tampa, Florida 33619

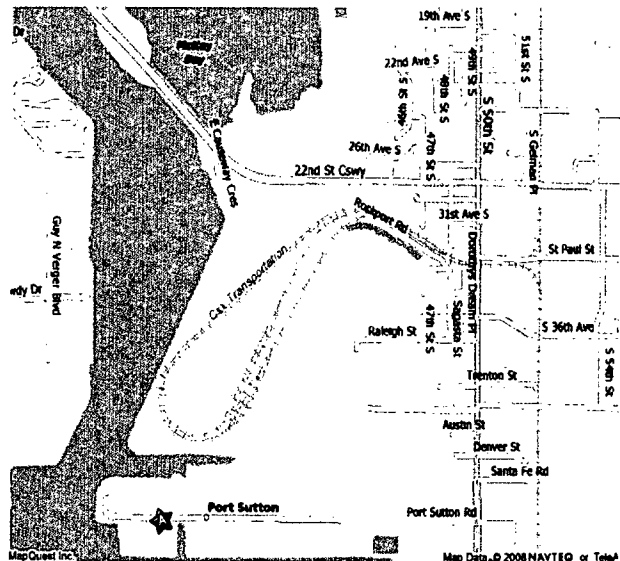
Authorized Representative: David M. Lukcic – Manager of Environmental Programs

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

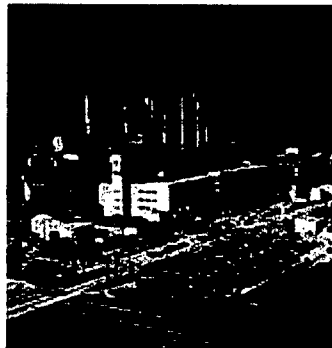
Facility Location. This existing facility is located at 3602 Port Sutton Road, Tampa, Hillsborough County. The UTM Coordinates are Zone 17, 360.00 km East and 3087.50 km North, and the map coordinates are Latitude 27° 54' 18" and Longitude 82° 25' 21".



**TAMPA, FLORIDA
CITY LOCATION OF THE FACILITY**



**3602 PORT SUTTON ROAD
FACILITY LOCATION**



**TAMPA ELECTRIC COMPANY
H.L. CULBREATH BAYSIDE POWER STATION**

When the F.J. Gannon Power Station (Gannon) was repowered, it was renamed the H.L. Culbreath Bayside Power Station (Bayside). Gannon's existing coal-fired Units 1-6 were shut down and replaced with Bayside's Units 1 and 2. Unit 6 was retired on September 30, 2003. Bayside Unit 1 went into commercial service in May 2003 and Bayside Unit 2 went into commercial service in January 2004. The repowering facility provides approximately 1,800 megawatts (MW) of natural gas-fueled electric energy. The repowering project integrated seven new combustion turbines and associated heat recovery steam generators with two of the facility's existing steam generators. Repowering with natural gas has reduced the facility's NO_x and SO₂ emissions by approximately 99% and PM emissions by more than 93% from 1998 levels.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

▪ **Project Description**

The proposed project is to construct and operate eight simple cycle combustion turbine (SCCT) peaking units, with four associated electrical generators, and two emergency diesel engine/generator sets at the existing Bayside facility. Two SCCT peaking units will be coupled to one common generator having a nominal gross generation capacity of 62 MW. The project will add a total Bayside gross generation capacity of 248 MW worth of SCCT peaking power.

ARMS ID	Proposed Emissions Unit (EU) Description
031	Unit 3: (3A & 3B) One Pratt & Whitney Power Systems (PWPS) FT8-3@ SwiftPac® aeroderivative CT/generator peaking unit
032	Unit 4: (4A & 4B) One PWPS FT8-3@ SwiftPac® aeroderivative CT/generator peaking unit
033	Unit 5: (5A & 5B) One PWPS FT8-3@ SwiftPac® aeroderivative CT/generator peaking unit.
034	Unit 6: (6A & 6B) One PWPS FT8-3@ SwiftPac® aeroderivative CT/generator peaking unit

This project will also authorize the construction of the following emission units which will be exempt from construction permitting requirements but certain new source performance standards may still apply. These emission units will be included in the Title V Air Operating Permit:

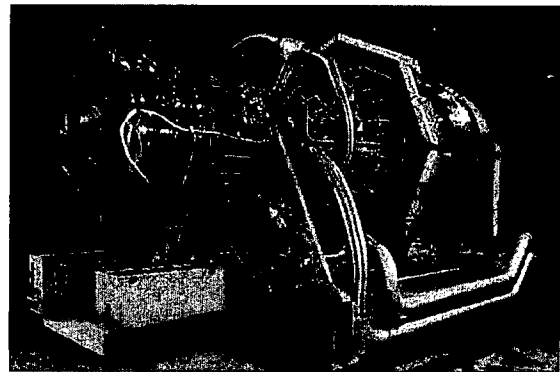
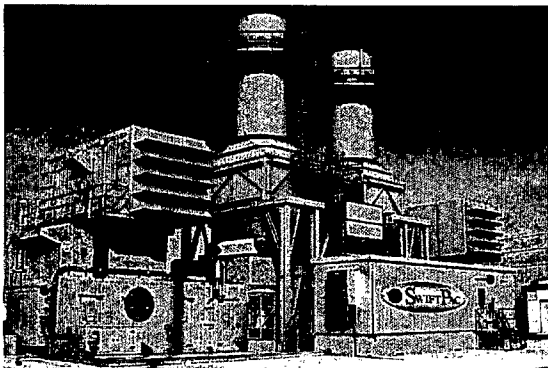
ARMS ID	Proposed Emissions Unit Description
035 & 036	Two 800 kilowatts (kW) emergency diesel engine/generator sets firing only ultra low sulfur diesel (ULSD) fuel oil and entitled to a categorical exemption of Rule 62-210.300(3)(a)35.d., F.A.C.

The basis for exemption from construction permitting requirements is as follows:

The two emergency diesel engine/generator sets will combust no more than 32,000 gallons per year of ULSD. These emission units are categorically exempt in accordance with Rule 62-210.300(3)(a)35.d., F.A.C. The emergency diesel engine generator is subject to the manufacturer's certification requirements of compliance under Title 40, Code of Federal Regulations, Part 60 (40 CFR 60), Subpart IIII.

For each SCCT, the applicant proposes to fire only pipeline-quality natural gas and operate in the simple cycle mode, with the hours of operation limited to 3,500 per SCCT per year. Excluding emergency conditions, each diesel engine/generator set will only be operated for approximately 2 hours per week (100 hr/yr) for routine testing and maintenance purposes and will fire only ULSD fuel oil.

Project Details. Four PWPS FT8-3@ SwiftPac® aeroderivative SCCT/generator (SwiftPac) peaking units are intended to be installed at the existing Bayside facility. Each SwiftPac peaking unit consists of two gas turbines coupled to one common generator. Each generator is derived from the JT8D aircraft engine and a separate power turbine. Each SCCT is expected to have an approximate maximum heat input of 342.7 million British thermal units per hour (MMBtu/hr) based upon natural gas firing [higher heating value (HHV), 100% load with evaporative cooling, 59° F ambient temperature, and 52° F CT compressor inlet temperature per SCCT]. The images below represent the approximate appearance of such units, with the table indicating the advertised specifications.



TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Performance Specifications While Firing Natural Gas with Water Injection	Also available with dry low NO _x (DLN) combustors and/or inlet fogging. The SwiftPac consists of three primary units: the gas turbine unit, the generator unit, and the electric/control unit. The SwiftPac SCCT and generator units consist of two opposed gas turbines directly connected through a diaphragm coupled to a single double-ended electric generator.
Output (kilowatts (kW)): 61,196 Heat rate (BTU/kW-hr): 9,266 Efficiency (%): 37 Exhaust flow (lb/sec): 402 Exhaust temp (°F): 895 NOx emissions (ppmvd @ 15% O ₂): 25	

▪ **Facility Regulatory Categories**

Title I, Part C, Clean Air Act (CAA): The facility will be located in an area that is designated as “attainment”, “maintenance”, or “unclassifiable” for each pollutant subject to a National Ambient Air Quality Standard. The facility is one of the 28 Prevention of Significant Deterioration (PSD) Major Facility Categories with the lower PSD applicability threshold of 100 tons per year (TPY). Potential emissions of at least one regulated pollutant exceed 100 TPY, therefore the facility is classified as a “Major Stationary Source” of air pollution with respect to Rule 62-212.400, F.A.C., PSD of Air Quality.

Title I, Section 111, CAA: These units (EU 031, EU 032, EU 033 and EU 034) will be subject to 40 CFR 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines for Which Construction is Commenced After February 18, 2005).

Title I, Section 111, CAA: EU 035 and EU 036 (Emergency Diesel Engines) will be subject to the manufacturer’s certification requirements of compliance under 40 CFR 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines).

Title I, Section 112, CAA: The facility is not a “Major Source” of HAP. EU 031, EU 032, EU 033 and EU 034 will not be subject to 40 CFR 63, Subpart YYYY (National Emissions Standard for Hazardous Air Pollutants for Stationary Combustion Gas Turbines). This standard is only applicable to emission units at a facility that is a major source of HAP.

Title IV, CAA: These units (EU 031, EU 032, EU 033 and EU 034) will be subject to the Acid Rain provisions of the Clean Air Act.

Title V, CAA: The facility is a Title V or “Major Source of Air Pollution” in accordance with Chapter 62-213, F.A.C., because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as CO, NO_x, PM/PM₁₀, SO₂, and VOC.

▪ **Processing Schedule**

March 20, 2008	Received permit application.
April 18, 2008	Request for Additional Information (RAI) letter issued.
June 10, 2008	Reminder letter of RAI letter response due.
July 17, 2008	Received request for extension of time to respond to the April 18 th RAI.
August 11, 2008	Received response to RAI letter.
August 21, 2008	Received supplementary information. Application complete.

2. APPLICABLE REGULATIONS

▪ State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The F.S. authorize the Department of Environmental Protection (DEP) to establish rules and regulations regarding air quality as part of the F.A.C. This project is subject to the applicable rules and regulations defined in the following Chapters of the F.A.C.

<u>Chapter</u>	<u>Description</u>
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements and Federal Regulations Adopted by Reference
62-210	Permits Required, Categorical Exemptions, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
62-212	PSD Review
62-213	Title V Air Operation Permits for Major Sources of Air Pollution
62-214	Requirements For Sources Subject To The Federal Acid Rain Program
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures

▪ Federal Regulations

This project is also subject to the applicable federal provisions regarding air quality as established by the Environmental Protection Agency (EPA) in the following sections of the CFR.

<u>CFR</u>	<u>Description</u>
40 CFR 60	Subpart A - General Provisions for New Source Performance Standards (NSPS) Sources NSPS Subpart KKKK – Standards of Performance for Stationary Combustion Turbines NSPS Subpart IIII – Standards of Performance for Stationary Compression Ignition Engines Applicable Appendices E and F

▪ General PSD Applicability

The Department regulates major air pollution sources in accordance with Florida's PSD program, as approved by the EPA in Florida's State Implementation Plan and defined in Rule 62-212.400, F.A.C. A PSD review is required in areas currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for a given pollutant. A new facility is considered "major" with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant, or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories (Table 62-212.400-1, F.A.C.), or
- 5 tons per year of lead.

For new projects at PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates and defined in Rule 62-210.200(Definitions), F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

▪ **PSD Applicability for the Project**

Method of Estimating Emission Increases and Decreases. PSD does not apply to projects that are not major modifications of major stationary sources.

A “Major Stationary Source” is defined in Rule 62-210.200, F.A.C. The portion relevant to the existing Bayside facility is as follows:

Major Stationary Source – (a) A major stationary source is:

1. Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any PSD pollutant: Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input,

A “Major Modification” is defined in Rule 62-210.200, F.A.C. as follows:

Major Modification – (a) Any physical change in or change in the method of operation of a major stationary source that would result in a **significant emissions increase** of a PSD pollutant and a significant net emissions increase of that pollutant from the major stationary source.

For the pollutants of interest in this assessment, significant emissions increase is defined in Rule 62-210.200, F.A.C., as follows:

Significant Emissions Rate – (a) With respect to any emissions increase or any **net emissions increase**, or the potential of a facility to emit any of the following pollutants, significant emissions rate means a rate of pollutant emissions that would equal or exceed:

1. A rate listed at 40 CFR 52.21(b)(23)(i), adopted by reference at Rule 62-204.800, F.A.C.; specifically, any of the following rates:
 - a. Carbon monoxide: 100 tons per year (tpy);
 - b. Nitrogen oxides: 40 tpy;
 - c. Sulfur dioxide: 40 tpy;
 - d. Particulate matter:
 - (I) 25 tpy of PM emissions;
 - (II) 15 tpy of PM₁₀ emissions.

For the project of interest, the relevant parts of the definition of “net emissions increase” are given in Rule 62-210.200, F.A.C., as:

Net Emissions Increase –

- (a) With respect to any PSD pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero (0):
 1. The increase in emissions from a particular physical change or change in the method of operation as calculated pursuant to paragraph 62-212.400(2)(a), F.A.C.; and
 2. Any other increases and decreases in actual emissions at the major stationary source that are **contemporaneous** with the particular change and are **creditable**. Baseline actual emissions for calculating increases and decreases under this subparagraph shall be determined as provided by the definition of “baseline actual emissions”, except that subparagraphs (a)3. and (b)4. of such definition shall not apply.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Within the same definition, the term “contemporaneous” is defined as follows:

- (b) *An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:*
1. *The date five years before construction on the particular change commences; and*
 2. *The date that the increase from the particular change occurs.*

The applicant will commence construction on the SCCT peaking unit project on or about September 30, 2008. The project by itself will cause increases in actual emissions for several PSD pollutants. A contemporaneous emissions decrease occurred between September 2003 and January 2004. Following are some excerpts from the a Florida Public Service Commission (PSC) depreciation analysis (PSC Docket No. 070284-EI) related to annual dismantlement accrual amounts (charges) submitted by Tampa Electric Company for cost recovery.

“Tampa Electric Company was required to shut down and repower units at the Gannon Station on or before December 31, 2004, pursuant to a Consent Decree (CD) and Consent Final Judgment (CFJ) entered by the U.S. EPA and the Florida Department of Environmental Protection (DEP), respectively. The CD and CFJ included provisions for environmental controls and pollution reductions from its coal-fired power plants. The emission reduction provisions required the repowering of the coal-fired Gannon Power Station (Gannon) to natural gas. The repowered units were renamed Bayside Power Station with in-service dates of April 24, 2003, and January 15, 2004.”

The shut down of Gannon Unit 5 was not contemporaneous with the new project because by April 24, 2003, the Unit 5 steam turbine had been connected and placed in service with Bayside combined cycle Unit 1. Most of those shutdown credits were used by the Bayside Unit 1 and Unit 2 projects that replaced Gannon Units 5 and 6.

The shut down of Gannon Unit 6 is contemporaneous because the permanent shut down occurred between September 2003 (when the Unit 6 steam turbine was last fed with steam from the original coal-fueled boiler) and January 15, 2004, by which time the Unit 6 steam turbine had been connected to and placed in service with Bayside combined cycle Unit 2. The following excerpt was taken from another PSC analysis (PSC Docket No. 030409-EI) related to depreciation of Gannon assets.

*“Staff’s analysis represents an overall review of the company’s proposed life, salvage and reserve factors, as well as, the establishment of a fixed levelized annual accrual for dismantlement of fossil plants in accordance with Order No. 24741, issued July 1, 1991, in Docket No. 890186-EI, In re: Investigation of the rate making and accounting treatment for the dismantlement of fossil-fueled generating stations. The analysis of the company’s data and resulting expenses reflect the impact of its current planning to ensure that assets are fully amortized at the time of retirement as reflected on Attachments A and B. Attachment A shows the comparison of rate components (lives, salvages, and reserves) and Attachment B shows the comparison of expenses approved pursuant to Order No. PSC-03-0736-PCO-EI compared to staff’s recommended 2004 expenses. Staff’s recommendation reflects an approximate \$3.3 million decrease in annual accruals on a going forward basis beginning January 1, 2004. The major changes occurred with the **December 31, 2003 retirement of Gannon Station coal related assets and Bayside Units 1 and 2 turbine related plant totaling approximately \$49 million.**”*

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The contemporaneous creditable emissions changes are given in the following table.

Pollutant	Annual Emissions Per SCCT (TPY)¹	Annual Emissions for 8 SCCT (TPY)¹	Contemporaneous Emissions Decreases from GN-6 Operations³	Net Change in Emissions⁴	PSD Threshold (TPY)	PSD Applies ?
NO _x	56.2	449.6	-942.0	-492.4	40	No
CO	8.18	65.4	Not Needed (NN) ⁵	65.4	100	No
SO ₂	3.31	26.5	NN	26.5	40	No
PM ²	4.38	35.0	-32.7	2.3	25	No
PM ₁₀	4.38	35.0	-32.7	2.3	15	No
VOC	2.36	18.9	NN	18.9	40	No
Pb	0.0003	0.0024	NN	0.0024	0.6	No
SAM	0.38	3.0	NN	3.0	7	No

- Notes: (1) Based on 3,500 hours of operation while firing only pipeline-quality natural gas at the highest emission rate in simple cycle mode.
 (2) All PM is considered to be PM₁₀ due to firing only pipeline-quality natural gas.
 (3) Credible emissions based on the TEC/EPA Consent Decree and the 24-month timeframe from 2/2/01 to 1/30/03. See Attachment A for the PSD netting analysis pollutant calculations.
 (4) Emission rates for CO, SO₂, VOC, lead (Pb) and sulfur acid mist (SAM) represent potential to emit (PTE) for the SCCT project without consideration of netting per the Tampa Electric Company/EPA Consent Decree.
 (5) Contemporaneous emissions decrease not needed because the PTE for the pollutant for the proposed new construction does not exceed the significant emissions rate.

Considering the creditable contemporaneous emissions increases and decreases, the net emissions increases will be less than the significant emissions rates for each pollutant. Therefore, the project will not constitute a major modification at a major stationary source and PSD new source review does apply.

The company has already purchased the SCCT prime movers. After obtaining the necessary permit, the company will have commenced construction (for the purposes of qualifying for the contemporaneous decreases) between September 30 and December 31, 2008.

3. EMISSIONS STANDARDS

▪ Brief Discussion of Emissions

Simple Cycle Combustion Turbine (SCCT) Peaking Units. The applicant proposes that each SCCT peaking unit will fire only pipeline-quality natural gas and operate in the simple cycle mode, with the hours of operation limited to 3,500 per SCCT peaking unit per year. The only pollutants regulated under 40 CFR 60, Subpart KKKK, are NO_x and SO₂. Even though two SCCT are connected to a common generator, each SCCT has its own stack and must meet the emission limits for NO_x.

NO_x: The applicant proposes a limitation of 25 parts per million by volume dry (ppmvd) @15% oxygen, 32.0 pounds per hour (lbs/hr) and 56.0 TPY, with compliance demonstrated by using a carbon dioxide (CO₂) diluent monitor and a continuous emissions monitoring system (CEMS) on a 4-hour rolling average. Water injection will be used to minimize NO_x emissions.

CO/VOC/HAP: The facility is currently a synthetic minor for HAP. The use of an oxidation catalyst and the firing of pipeline-quality natural gas in the SCCT peaking units are the best means to minimize the emissions of CO and VOC and thus reduce HAP emissions. The proposed modification is minor for HAP. For the initial demonstration compliance, a one-time test is proposed for one SCCT to establish compliance with the VOC mass limit. Afterwards, CO is a surrogate for VOC as a demonstration of good combustion.

PM/PM₁₀: Since there aren't any post-combustion PM/PM₁₀ control technologies being used on SCCT firing natural gas, the applicant proposes to fire only pipeline-quality natural gas in the SCCT peaking units to provide the best means to minimize emissions of PM/PM₁₀. For the initial demonstration compliance, a one-time test is proposed for one SCCT to establish compliance with the PM mass limit and the manufacturer's warranty.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

SO₂/SAM: The applicant indicates that fuel sulfur quality is the only technically feasible method of controlling SO₂ and SAM emissions. The applicant proposes to fire only pipeline-quality natural gas in the SCCT peaking units with a fuel sulfur limitation of 2 grains of sulfur per 100 standard cubic feet to provide the best means to minimize emissions of SO₂ and SAM. This surrogate limit will be a permit limit and the equivalent mass limit is more stringent than the corresponding SO₂ allowable standard contained in 40 CFR 60, Subpart KKKK (0.0055 lb/MMBtu versus 0.060 lb/MMBtu, respectively). This limit is requested and is necessary to keep the emissions of SO₂ below the significant emissions rate. For the initial demonstration compliance, a one-time test is proposed for one SCCT to establish compliance with the SO₂ mass limit and the fuel quality.

Emergency Engine/Generator Sets. The applicant proposes to install two emergency engine/generator sets. Excluding emergency conditions, each diesel engine/generator set will only be operated for approximately 2 hours per week (100 hr/yr) for routine testing and maintenance purposes and will fire only ULSD fuel oil. Under this scenario, the projected collective total ULSD fuel oil usage is 11,440 gallons per year (gal/yr) and entitles them to a categorical exemption at Rule 62-210.300(3)(a)35.d., F.A.C., One or More Emergency Generators Located Within a Single Facility, because they will burn only one fuel type and collectively fire no more than 32,000 gal/yr.

4. AIR QUALITY ANALYSIS

▪ Air Quality Analysis

Because the proposed project is not subject to preconstruction review requirements, an air quality analysis is not required.

5. CONCLUSION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Bruce Mitchell is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

Emissions data for the Pratt & Whitney (P&W) FT8-3 Swift Pac combustion turbines (CTs) are provided in Appendix B of the permit application, Tables 1 through 11 as revised. The original Appendix B emission rate calculations were revised to reflect: (a) maximum annual operating hours of 3,500 hrs/yr/CT, and (b) heat input margin of 7 percent. The following sections provide the basis for each emission rate calculation.

Note that the calculation results provided in Tables 1 through 13 used the full electronic spreadsheet precision; i.e., were not rounded. For this reason, a check of the calculations using the data shown in Tables 1 through 11 may, in some cases, produce slightly different results because the tables do not display all of the 15 digits used by the electronic spreadsheet.

Table 1: CT Annual Emission Rate Summary

The criteria pollutant emissions on this table are taken directly from Table 7 for the CTs and Table 10 for the emergency engines. The annual emissions from Table 10 were multiplied by two to account for both engines. The HAP are shown for the CTs only, and are from Table 6. The H₂SO₄ mist is also from Table 7. The CO₂ emissions were based on emission factors, heat input rates, and operating hours, and were calculated as shown below.

CO₂ Calculation for the CTs:

AP-42 CO₂ Emission Factor = 110 lb/MMBtu (from AP-42 Table 3.1-2a)

Heat Input per CT = 342.7 MMBtu/hr (from Table 9)

Annual Operating Hours = 3,500 hours per year (from Table 2)

CO₂ = 110 lb/MMBtu x 342.7 MMBtu/hr x 3,500 hr/yr x ton/2,000 lb x 8 CTs = 527,799 ton/yr

CO₂ Calculation for the Emergency Engines:

AP-42 CO₂ Emission Factor = 165 lb/MMBtu (from AP-42 Table 3.4-1)

Heat Input per Engine = 7.89 MMBtu/hr (from Table 11)

Annual Operating Hours = 100 hours per year (from Table 10)

CO₂ = 165 lb/MMBtu x 7.89 MMBtu/hr x 100 hr/yr x ton/2,000 lb x 2 engines = 130 ton/yr

Table 2: CT Operating Scenarios

Operating scenarios identified in Table 2 represent the range of loads (50 to 100 percent), approximate ambient temperatures (20 to 90° F), fuel types (natural gas), and use of evaporative cooling under which Units 3-6 will operate.

Table 3: Hourly PM/PM₁₀, SO₂, H₂SO₄ Mist, and Pb Emission Rates (per CT) - Natural Gas

A. PM/PM₁₀

For each ambient temperature and CT operating load, PM/PM₁₀ emissions in lb/hr were based on P&W data for PM/PM₁₀ as measured by EPA Reference Method 5B or 17. Emissions in lb/hr were converted to g/s by multiplying by a conversion factor of 0.126.

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

Example: Case 2; 20° F ambient temperature, 75% load

$$\text{P\&W PM/PM}_{10} = 2.5 \text{ lb/hr}$$

$$\text{PM/PM}_{10} = 2.5 \text{ lb/hr} \times 0.126 = 0.32 \text{ g/s}$$

B. SO₂

For each ambient temperature and CT operating load, SO₂ emissions in lb/hr were based on P&W fuel flow data, natural gas sulfur content of 2.0 gr S/100 ft³, natural gas density of 0.0451 lb/ft³, and conversion factor of 7,000 grains per pound. Emissions in lb/hr were converted to g/s by multiplying by a conversion factor of 0.126.

Example: Case 4; 59° F ambient temperature, 100% load

$$\text{Fuel Flow} = 13,967 \text{ lb/hr NG}$$

$$\text{Margin} = 7\%$$

$$\text{Adjusted Fuel Flow} = \text{Fuel Flow} \times \text{Margin} = 13,967 \text{ lb/hr} \times 1.07 = 14,945 \text{ lb/hr}$$

$$\text{SO}_2 = (14,945 \text{ lb/hr NG}) \times (2.0 \text{ gr S} / 100 \text{ ft}^3) \times (\text{ft}^3 / 0.0451 \text{ lb NG})$$

$$\times (1 \text{ lb S} / 7,000 \text{ gr S}) \times (2 \text{ lb SO}_2 / 1 \text{ lb S})$$

$$\text{SO}_2 = 1.89 \text{ lb/hr}$$

$$\text{SO}_2 = 1.89 \text{ lb/hr} \times 0.126 = 0.24 \text{ g/s}$$

C. H₂SO₄

For each ambient temperature and CT operating load, H₂SO₄ emissions in lb/hr were based on an assumed 7.5% conversion rate by volume of SO₂ to H₂SO₄. Emissions in lb/hr were converted to g/s by multiplying by a conversion factor of 0.126.

Example: Case 7; 90° F ambient temperature, 100% load

$$\text{SO}_2 = 1.79 \text{ lb/hr}$$

$$\text{H}_2\text{SO}_4 = (1.79 \text{ lb/hr SO}_2) \times (7.5 / 100) \times (98 \text{ lb-mole H}_2\text{SO}_4 / 64 \text{ lb-mole SO}_2)$$

$$\text{H}_2\text{SO}_4 = 0.21 \text{ lb/hr}$$

$$\text{H}_2\text{SO}_4 = 0.21 \text{ lb/hr} \times 0.126 = 0.026 \text{ g/s}$$

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

D. Lead

For each ambient temperature and CT operating load, estimates of lead emission rates were developed using an emission factor from the EPA AP-42 (Section 1.4 Natural Gas Combustion, Table 1.4-2), and P&W heat input rates.

Example: Case 1; 20° F ambient temperature, 100% load

P&W Fuel Flow = 14,763 lb/hr (with margin)

Heat Input = 14,763 lb/hr x 22,933 Btu/lb [HHV] = 338.6 x 10⁶ Btu/hr [HHV]

Lead Emission Factor = 4.9 x 10⁻⁷ lb / 10⁶ Btu

Lead = (338.6 x 10⁶ Btu/hr) x (4.9 x 10⁻⁷ lb / 10⁶ Btu)

Lead = 0.00017 lb/hr (Negligible)

Table 4: NO_x, CO, and CO Emission Rates (per CT) - Natural Gas

E. NO_x

For each ambient temperature and CT operating load, NO_x emissions in ppmvd at 15% O₂ and lb/hr were based on P&W data. Emissions in lb/hr were converted to g/s by multiplying by a conversion factor of 0.126.

Example: Case 3; 20° F ambient temperature, 50% load

P&W NO_x = 25 ppmvd @ 15% O₂ P&W NO_x = 18.2 lb/hr

NO_x = 18.2 lb/hr

NO_x = 18.2 lb/hr x 0.126 = 2.29 g/s

F. CO

For each ambient temperature and CT operating load, CO emissions in ppmvd at 15% O₂ and lb/hr were based on P&W data. The efficiency of the oxidation catalyst was used to determine the final emissions in the exhaust. Emissions in lb/hr were converted to g/s by multiplying by a conversion factor of 0.126.

Example: Case 7; 90° F ambient temperature, 100% load

P&W CO = 6.0 ppmvd @ 15% O₂ P&W CO = 44.1 lb/hr

Oxidation Catalyst Efficiency = 90%

CO = 44.1 lb/hr x (100-90)/100 = 4.4 lb/hr

CO = 4.4 lb/hr x 0.126 = 0.56 g/s

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

G. VOC

For each ambient temperature and CT operating load, VOC emissions in ppmvd at 15% O₂ and lb/hr were based on P&W data. Emissions in lb/hr were converted to g/s by multiplying by a conversion factor of 0.126.

Example: Case 5; 59° F ambient temperature, 75% load

P&W VOC = 5.5 ppmvd @ 15% O₂ P&W VOC = 3.8 lb/hr

Oxidation Catalyst Efficiency = 50%

$$\text{VOC} = 3.8 \text{ lb/hr} \times (100-50)/100 = 1.9 \text{ lb/hr}$$

$$\text{VOC} = 1.9 \text{ lb/hr} \times 0.126 = 0.24 \text{ g/s}$$

Table 5: Hazardous Air Pollutant Hourly Emission Rates - Natural Gas (Per CT)

Estimates of hazardous air pollutant emission rates were developed using emission factors from the references shown at the bottom of Table 5 and P&W heat input data for all operating cases. As indicated in the second footnote of the table, the emission factors for the organic compounds have been adjusted to account for the control efficiency of the oxidation catalyst. The maximum hourly heat input rate occurs at 59° F ambient temperature, 100% load i.e., Case 4. The maximum hourly and annual emission estimates were based on Case 4. For annual emission estimates, continuous operation (2,500 hrs/yr) was assumed.

Example: Maximum Hourly Naphthalene; Case 1; 20° F ambient temperature, 100% load

$$\text{P\&W CT Heat Input} = 338.6 \times 10^6 \text{ Btu/hr [HHV]} \text{ (with margin)}$$

$$\text{Naphthalene AP-42 Emission Factor} = 1.30 \times 10^{-6} \text{ lb} / 10^6 \text{ Btu}$$

Since naphthalene is an organic, the emission factor is adjusted to account for 50% control efficiency.

$$\text{Adjusted Emission Factor} = 1.30 \times 10^{-6} \text{ lb} / 10^6 \text{ Btu} \times 0.5 = 6.50 \times 10^{-7} \text{ lb} / 10^6 \text{ Btu}$$

$$\text{Naphthalene} = (338.6 \times 10^6 \text{ Btu/hr}) \times (6.50 \times 10^{-7} \text{ lb} / 10^6 \text{ Btu})$$

$$\text{Naphthalene} = 2.20 \times 10^{-4} \text{ lb/hr}$$

Table 6: Hazardous Air Pollutant Annual Emission Rates (8 CTs)

Annual hazardous air pollutant emission rates were determined based on the maximum pollutant hourly rates contained in Table 5 (i.e., Case 4, 59° F, 100% CT load, natural gas firing), and assuming that all eight CTs operate for 2,500 hours per year.

Example: Maximum Annual Naphthalene; Case 4; 59° F ambient temperature, 100% load

$$\text{Naphthalene} = (2.23 \times 10^{-4} \text{ lb/hr}) \times (3500 \text{ hr/yr}) \times (\text{ton} / 2,000 \text{ lb}) \times 8 \text{ CTs}$$

$$\text{Naphthalene} = 3.12 \times 10^{-3} \text{ ton/yr}$$

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

Table 7: Annual Criteria and Sulfuric Acid Mist Pollutant Emission Rates

Annual emission rates were determined from the pollutant hourly rates for Case 4 (59° F, 100% CT load, natural gas firing), and assuming that each CT operates for 3,500 hours per year. An example calculation for NO_x follows:

Example: NO_x

Case 4 NO_x Hourly Emission Rate = 32.0 lb/hr (per CT)

Annual NO_x = 32.0 lb/hr x 3,500 hrs/yr x ton/ 2000 lb x 8 CTs

Annual NO_x = 448.0 ton/yr

Table 8: CT Exhaust Data, Natural Gas (Per CT)

Table 8.A.: Exhaust Molecular Weight (MW)

Exhaust gas compositions (volume %), exhaust flow rates (lb/sec), and exhaust temperatures (°F) shown in Table 8.A were obtained from the P&W performance specification data.

1. Exhaust gas molecular weight was calculated by multiplying the exhaust composition (in volume % divided by 100) by the component molecular weight (in lb/lb-mole) and summing all components.

Example: Case 7 (90° F, 100% Load)

$$MW = [(0.842/100) \times 39.944] + [(70.8/100) \times 28.013] + [(12.6/100) \times 31.999] \\ + [(3.27/100) \times 44.010] + [(12.45/100) \times 18.015]$$

MW = 27.88 lb/lb-mole

2. Exhaust temperatures (in units of °K) were calculated by converting the P&W exhaust temperatures (in units of °F)

Example: Case 8 (90° F, 75% Load)

P&W Exhaust Temperature: 864 °F

$$\text{Exhaust Temperature} = (864 \text{ °F} + 459.67) / (1.8)$$

Exhaust Temperature = 735 °K

3. Exhaust oxygen concentrations, dry were calculated by correcting the P&W exhaust oxygen concentrations, wet, to dry conditions.

Example: Case 6 (59° F, 50% Load)

P&W Exhaust Oxygen Concentration: 14.9 volume % (wet)

P&W Exhaust Water Concentration: 8.05 volume %

$$\text{Exhaust Oxygen Concentration (dry)} = [(14.9) / (100 - 8.05)] \times 100$$

Exhaust Oxygen Concentration = 16.20 volume % (dry)

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

Table 8.B.: Exhaust Flow Rates Data

Exhaust gas flow rates (actual, standard, and actual at 15% O₂, dry) were calculated based on the P&W data shown in Table 8A. Stack diameter was provided by TEC. Stack exit velocity was calculated based on the exhaust flow rates and calculated stack area.

1. Exhaust gas flow rates, in units of actual cubic feet per minute, were calculated based on the P&W exhaust flow rates (in units of lb/sec) and molecular weights shown in Table 8A and the Ideal Gas Law.

Example: Case 1 (20° F, 100% Load)

P&W Exhaust Flow Rate: 212.0 lb/sec (from Table 8A)

Exhaust Gas Molecular Weight: 28.22 lb/lb-mole (from Table 8A)

P&W Exhaust Gas Temperature: 828 °F (from Table 8A)

Volume of one lb-mole at 68° F: 385.3 ft³/lb-mole (Ideal Gas Law)

$$\text{Exhaust Gas Flow Rate (acfm)} = (212.0 \text{ lb/sec}) \times (60 \text{ sec/min}) \times (\text{lb-mole} / 28.22 \text{ lb}) \\ \times (385.3 \text{ ft}^3/\text{lb-mole}) \times [(828 + 460) / (68 + 460)]$$

$$\text{Exhaust Gas Flow Rate} = 423,625 \text{ acfm}$$

2. Stack area was calculated based on the stack exit diameter provided by TEC.

Example: All Cases

Stack Exit Diameter: 9.5 ft; 2.896 m

$$\text{Stack Exit Area} = \pi \times (9.5 \text{ ft} / 2)^2$$

$$\text{Stack Exit Area} = 70.88 \text{ ft}^2; 6.59 \text{ m}^2$$

3. Stack exit velocities were calculated by dividing the calculated actual exhaust flow rate by the stack exit area.

Example: Case 3 (20° F, 50% Load)

Calculated Actual Exhaust Flow Rate: 287,770 ft³/min (From Table 8B)

Calculated Stack Exit Area: 70.88 ft²

$$\text{Stack Exit Velocity} = (287,770 \text{ ft}^3/\text{min}) \times (1 \text{ min} / 60 \text{ sec}) \times (1 / 70.88 \text{ ft}^2)$$

$$\text{Stack Exit Velocity} = 67.7 \text{ ft/sec}; 20.6 \text{ m/sec}$$

4. Exhaust gas flow rates, in units of dry, standard (at 68 °F) actual cubic feet per minute, were calculated based on the P&W exhaust flow rates (in units of lb/sec), moisture contents, and molecular weights shown in Table 8A and the Ideal Gas Law.

Example: Case 7 (90° F, 100% Load)

P&W Exhaust Flow Rate: 192.0 lb/sec (from Table 8A)

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

P&W Exhaust Gas Moisture Content: 12.45 volume % (from Table 8A)

Exhaust Gas Molecular Weight: 27.88 lb/lb-mole (From Table 8A)

Volume of One lb-mole at 68° F: 385.3 ft³/lb-mole (Ideal Gas Law)

Exhaust Gas Flow Rate (dscfm) = (192.0 lb/sec) x (60 sec / min) x (lb-mole / 27.88 lb)
x (385.3 ft³/lb-mole) x [1 - (12.45 / 100)]

Exhaust Gas Flow Rate = 139,366 dscfm

- 5 Exhaust gas flow rates, in units of dry, standard cubic feet per minute corrected to 15% O₂, were calculated by correcting the standard dry exhaust flow rate (dscfm) to 15% O₂.

Example: Case 9 (90° F, 50% Load)

Exhaust Flow Rate: 105,847 dscfm (from Table 8B)

Calculated Exhaust Oxygen Content: 16.0 volume % (dry) (from Table 8A)

Atmospheric Oxygen Content: 20.9 volume %

Exhaust Gas Flow Rate (dscfm @ 15% O₂) = (105,847 dscfm) x [(20.9 - 16.0) / (20.9 - 15.0)]

Exhaust Gas Flow Rate = 87,907 dscfm @ 15% O₂

Table 9: Fuel Flow Rate Data (Per CT) - Natural Gas

Data shown in Table 9 is based on P&W fuel flow rates, and the heat contents and densities of natural gas. The P&W fuel rate (lb/hr) as shown on the table has been adjusted to include a 7 % margin. The heat input values and conversions to other fuel rate units have been derived from the adjusted P&W fuel rate.

Example: Natural Gas Case 5 (59° F, 75% load)

P&W fuel rate = 10,827 lb/hr

Adjusted fuel rate = 10,827 lb/hr x 1.07 = 11,585 lb/hr

Natural Gas Density = 0.0451 lb/ft³

Natural Gas Heat Content: 22,933 Btu/lb (HHV)

Natural Gas Heat Content: 20,671 Btu/lb (LHV)

Heat Input (LHV) = 11,585 lb/hr x 20,671 Btu/lb x (10⁶/10⁶) = 239.5 MMBtu/hr

Heat Input (HHV) = 11,585 lb/hr x 22,933 Btu/lb x (10⁶/10⁶) = 265.7 MMBtu/hr

Fuel Rate = 11,585 lb/hr / 0.0451 lb/ft³ x (10⁶/10⁶) = 0.257 10⁶ ft³/hr

Fuel Rate = 11,585 lb/hr x hr/3,600 sec = 3.218 lb/sec

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

Table 10: Emergency Diesel Engines, Criteria Pollutant Emission Rates

The emission rates in units of g/hp-hr for NO_x, CO, VOC, and PM were provided by the vendor. The horsepower was derived from the electrical output rating (kWe) of the engine. The emission rates for SO₂ were derived from the fuel flow, density, and fuel sulfur content information, which were also provided.

Example: Derivation of Horsepower

Electrical Output Rating = 800 kWe
Assumed Efficiency = 80%

$$\text{Horsepower} = 800 \text{ kWe} \times (1/(80/100)) \times \text{hp}/0.7457 \text{ kW} = 1,340 \text{ hp}$$

Example: Criteria Pollutant Calculation for NO_x

NO_x Emission Rate = 5.26 g/hp-hr
Operating Hours = 100 hr/yr

$$\text{NO}_x \text{ (lb/hr)} = 5.26 \text{ g/hp-hr} \times 0.002204 \text{ lb/g} \times 1,340 \text{ hp} = 15.5 \text{ lb/hr}$$

$$\text{NO}_x \text{ (ton/yr)} = 15.5 \text{ lb/hr} \times 100 \text{ hr/yr} \times \text{ton}/2,000 \text{ lb} = 0.78 \text{ ton/yr}$$

Example: Calculation of SO₂ Emissions

Maximum Fuel Flow = 57.2 gal/hr

Fuel Sulfur Content = 0.0015 wt % S (for ultra low sulfur diesel)

Fuel Density = 7.08 lb/gal

$$\text{SO}_2 \text{ (lb/hr)} = 57.2 \text{ gal/hr} \times 7.08 \text{ lb/gal} \times 0.0015 \% \text{ S}/100\% \times 2 \text{ lb SO}_2/1 \text{ lb S} = 0.012 \text{ lb/hr}$$

$$\text{SO}_2 \text{ (ton/yr)} = 0.012 \text{ lb/hr} \times 100 \text{ hr/yr} \times \text{ton}/2,000 \text{ lb} = 0.0006 \text{ ton/yr}$$

$$\text{SO}_2 \text{ (g/hp-hr)} = 0.012 \text{ lb/hr} \times \text{g}/0.0022046 \text{ lb} \times 1/1,340 \text{ hp} = 0.004 \text{ g/hp-hr}$$

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

Table 11: Emergency Diesel Engines, Hazardous Air Pollutant Emission Rates

The HAP were based on EPA AP-42 emission factors (Section 3 Table 3.3-2), and the information supplied by the vendor.

Example: Calculation of Formaldehyde Emissions

Maximum Fuel Flow = 57.2 gal/hr

Fuel Heat Content = 138,000 Btu/gal (HHV)

AP-42 Formaldehyde Emission Factor = 0.00118 lb/MMBtu

Operating Hours = 100 hr/yr

Engine Heat Input = 57.2 gal/hr x 138,000 Btu/gal x (10⁶/10⁶) = 7.89 MMBtu/hr

Formaldehyde (lb/hr) = 0.00118 lb/MMBtu x 7.89 MMBtu/hr = 0.00931 lb/hr

Formaldehyde (ton/yr) = 0.00931 lb/hr x 100 hr/yr x ton/2,000 lb = 0.000466 ton/yr

Table 12: CT Stack Parameters – Natural Gas

The data in this table is also contained in Table 8. The exhaust velocities and temperatures are shown to more decimal places, but their derivation was previously described.

Table 13: Emergency Diesel Engines, Stack Parameters

The stack height, diameter, flow rate, and exhaust temperature were provided by the vendor. Examples of the conversions, e.g., feet to meters, and the derivation of stack area and exit velocity have previously been given for Table 8.

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION
ATTACHMENT A**

PSD NETTING ANALYSIS POLLUTANT CALCULATIONS

LIST OF ACRONYMS

°F	degrees Fahrenheit	min	minute
°K	degrees Kelvin	NG	natural gas
%	percent	NO _x	nitrogen oxides
acfm	actual cubic feet per minute	O ₂	oxygen
AP-42	EPA's Compilation of Air Pollutant Emission Factors, 5 th Edition	P&W	Pratt & Whitney
Btu	British thermal unit	Pb	lead
Btu/hr	British thermal units per hour	PM	particulate matter
CO	carbon monoxide	PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
CO ₂	carbon dioxide	ppmvd	parts per million by volume, dry
CT	combustion turbine	S	sulfur
dscfm	dry standard cubic feet per minute	sec	second
EPA	United States Environmental Protection Agency	sec/min	seconds per minute
ft	feet	SO ₂	sulfur dioxide
ft ²	square feet	TEC	Tampa Electric Company
ft ³	cubic feet	ton/yr	ton per year
ft/sec	feet per second	ULSD	ultra low sulfur distillate
ft ³ /min	cubic feet per minute	VOC	volatile organic compound
ft ³ /lb-mole	cubic feet per pound mole	wt % S	weight percent sulfur
gal/hr	gallons per hour	yr	year
g	gram		
g/hp-hr	grams per horsepower hour		
g/s	grams per second		
gr	grain		
gr S	grains of sulfur		
gr S/100 ft ³	grains of sulfur per 100 cubic feet		
H ₂ SO ₄	sulfuric acid, or sulfuric acid mist		
HAP	hazardous air pollutant		
HHV	higher heating value		
hp	horsepower		
hr	hour		
hr/yr	hours per year		
kW	kilowatt		
kWe	kilowatts electric		
lb	pounds		
lb/ft ³	pounds per cubic feet		
lb/gal	pounds per gallon		
lb/hr	pounds per hour		
lb/sec	pounds per second		
LHV	lower heating value		
lb/MMBtu	pounds per million British thermal units		
MMBtu/hr	million British thermal units per hour		
lb-mole	pound mole		
lb/lb-mole	pound per pound mole		
lb/sec	pound per second		
m	meter		
m ²	square meters		
m/sec	meters per second		

DRAFT PERMIT

PERMITTEE:

Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Authorized Representative:
Mr. David M. Lukcic, Manager of Environmental Programs

Project No. 0570040-024-AC
H.L. Culbreath Bayside Power Station
Eight Simple Cycle Combustion Turbine
Peaking Units
SIC No. 4911
Permit Expires December 31, 2010

PROJECT AND LOCATION

This permit authorizes the construction of eight simple cycle combustion turbine (SCCT) peaking units, with four associated electrical generators, at the existing H.L. Culbreath Bayside Power Station (Bayside). Two SCCT will be coupled to one common generator having a nominal gross generation capacity of 62 megawatts (MW). Each SCCT will fire only pipeline-quality natural gas and operate only in the simple cycle mode. The project will add a total Bayside gross generation capacity of 248 MW worth of SCCT peaking power. The existing facility is located at 3602 Port Sutton Road in Tampa, Hillsborough County. The map coordinates are UTM Zone 17, 360.00 km East and 3087.50 km North.

STATEMENT OF BASIS

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The project was processed in accordance with the requirements of Rule 62-212.400, F.A.C., the preconstruction review program for the Prevention of Significant Deterioration (PSD) of Air Quality. The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

CONTENTS

- Section I. General Information
- Section II. Administrative Requirements
- Section III. Emissions Units Specific Conditions
- Section IV. Appendices

(Draft)

Joseph Kahn, Director
Division of Air Resource Management

Effective Date

SECTION 1. GENERAL INFORMATION (DRAFT PERMIT)

FACILITY DESCRIPTION

The Tampa Electric Company's H.L. Culbreath Bayside Power Plant operates an existing electrical utility plant in Tampa, Florida. The existing electrical utility plant produces electricity for distribution to the grid as a saleable product.

When the F.J. Gannon Power Station (Gannon) was repowered, it was renamed the H.L. Culbreath Bayside Power Station (Bayside). Gannon's existing coal-fired Units 1-6 were shut down and replaced with Bayside's Units 1 and 2. Bayside Unit 1 went into commercial service in May 2003 and Bayside Unit 2 went into commercial service in January 2004. The repowered facility provides approximately 1,800 megawatts (MW) of natural gas-fueled electric energy. The repowering project integrated seven new combustion turbines (CT) and associated heat recovery steam generators (HRSG) with two of the facility's existing steam generators. Repowering with natural gas has reduced the facility's nitrogen oxides (NO_x) and sulfur dioxides (SO₂) emissions by approximately 99% and particulate matter (PM) emissions by more than 93% from 1998 levels.

The regulated emissions units at the Bayside facility include the following: seven natural gas-fired (CT)/HRSG combined-cycle (CC) units that operate in conjunction with the existing steam turbines of Gannon's Units 5 and 6; an existing 14 MW SCCT; and an eight million gallon distillate oil storage tank. The seven CT/HRSG units are each manufactured by General Electric (GE), Model PG7241 FA, and produce a nominal 169 MW of shaft-driven electricity; and the associated HRSG are unfired. They are grouped into two units designated as Units 1 and 2, which repowered Gannon's Units 5 and 6, respectively. Unit 1 includes three CT/HRSG CC units designated as CT-1A, CT-1B, and CT-1C, with a steam-electric nameplate rating of 239 MW. Unit 2 includes four CT/HRSG CC units designated as CT-2A, CT-2B, CT-2C, and CT-2D, with a steam-electric nameplate rating of 414 MW. The CT only operate in the CC mode (i.e., the HRSG are not equipped with bypass stacks). The facility utilizes pipeline-quality natural gas as its primary fuel source with distillate fuel oil serving as a backup fuel. These emissions units are Acid Rain Units and are regulated under the Florida Electrical Power Plant Siting Act.

PROJECT DESCRIPTION

The project will consist of constructing four Pratt & Whitney Power Systems (PWPS) FT8-3® SwiftPac® aeroderivative CT/generator peaking units. They are designated as Unit 3 (CT-3A & CT-3B), Unit 4 (CT-4A & CT-4B), Unit 5 (CT-5A & CT-5B) and Unit 6 (CT-6A & CT-6B). Each PWPS FT8-3® SwiftPac® aeroderivative CT/generator peaking unit is comprised of two SCCT coupled to one common generator having a nominal gross generation capacity of 62 MW. Accordingly, there will be a total of eight (8) SCCT and four (4) associated generators. Each SCCT will be fired exclusively with pipeline-quality natural gas containing less than 2 grains of total sulfur per one hundred standard cubic feet (gr S/100 scf) and will operate in peaking service for no more than 3,500 hours per year (hr/yr) per SCCT. Each SCCT will utilize water injection to control the emissions of NO_x and an oxidation catalyst to control the emissions of carbon monoxide (CO) and volatile organic compounds (VOC).

The project will also include the construction of two 800 kilowatt (kW) emergency diesel engine/generator sets. Excluding emergency conditions, each diesel engine/generator set will be operated for approximately two hours per week (100 hr/yr) for routine testing and maintenance purposes. The emergency diesel engines will be fired with ultra low sulfur diesel (ULSD) fuel oil. Under this proposal, the maximum total ULSD fuel oil usage is 11,440 gallons per year (gal/yr) and entitles them to a categorical exemption in Rule 62-210.300(3)(a)35.d., F.A.C., One or More Emergency Generators Located Within a Single Facility, because they will burn only one fuel type and collectively fire no more than 32,000 gal/yr.

SECTION I. GENERAL INFORMATION (DRAFT PERMIT)

NEW EMISSION UNITS

This permit authorizes construction and installation of the following new regulated emission units:

ARMS ID	Emission Unit (EU) Description
031	Unit 3: 3A & 3B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit
032	Unit 4: 4A & 4B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit
033	Unit 5: 5A & 5B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit
034	Unit 6: 6A & 6B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit

This permit also authorizes construction and installation of the following emission units, which are exempt from construction permitting requirements, but certain new source performance standards may still apply. These emission units will be included in the Title V Air Operating Permit.

ARMS ID	EU Description
035 & 036	Two 800 kW emergency diesel engine/generator sets, which are categorically exempt emission units in Rule 62-210.300(3)(a)35.d., F.A.C.

REGULATORY CLASSIFICATION

Title I, Part C, Clean Air Act (CAA): The facility is a PSD-major facility pursuant to Rule 62-212.400, F.A.C.

Title I, Section 111, CAA: Units 3 through 6 are subject to the New Source Performance Standards (NSPS) of Title 40, Code of Federal Regulations, Part 60 (40 CFR 60), Subpart KKKK (Standards of Performance for Stationary Combustion Turbines).

Title I, Section 111, CAA: EU 035 and 036 (Two Emergency Diesel Engine/Generator Sets) are subject to the manufacturer's certification requirements of compliance under 40 CFR 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines).

Title I, Section 112, CAA: The facility is not a "Major Source" of hazardous air pollutants (HAP).

Title IV, CAA: The facility has units subject to the Acid Rain provisions of the Clean Air Act. The new SCCT peaking units will be subject to the Acid Rain provisions of the Clean Air Act.

Title V, CAA: The facility is a Title V or "Major Source of Air Pollution" in accordance with Rule 62-210.200(Definitions) and Chapter 62-213, F.A.C.

APPENDICES

The following Appendices are attached as part of this permit.

- Appendix A. Citation Formats and Glossary of Common Terms
- Appendix B. General Conditions
- Appendix C. Common Conditions
- Appendix D. Standard Testing Requirements
- Appendix E. Standard Continuous Monitoring Requirements
- Appendix F. NSPS Subpart A, General Provisions
- Appendix G. NSPS Subpart KKKK, Requirements for Stationary Combustion Turbines

SECTION I. GENERAL INFORMATION (DRAFT PERMIT)

RELEVANT DOCUMENTS

The permit request and additional information received to make it complete are not a part of this permit; however, the information is listed in the technical evaluation which is issued concurrently with this permit.

SECTION II. ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

1. **Permitting Authority:** All documents related to applications for permits to construct, operate or modify emissions unit should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. Copies of all such documents shall also be submitted to the Compliance Authority.
2. **Compliance Authority:** All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Hillsborough County Environmental Protection Commission (HCEPC) office. The mailing address of the HCEPC's Air Quality Division (AQD) is 3629 Queen Palm Drive, Tampa, Florida 33619. The Local Program telephone number is 813/627-2600 and facsimile number is 813/627-2660.
3. **General Conditions:** The permittee shall operate under the attached General Conditions listed in Appendix B of this permit. General Conditions are binding and enforceable pursuant to Chapter 403, F.S. [Rule 62-4.160, F.A.C.]
4. **Applicable Regulations, Forms and Application Procedures:** Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C., and follow the application procedures in Chapter 62-4, F.A.C. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. **New or Additional Conditions:** For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
6. **Source Obligation:**
 - a. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.
 - b. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.[Rule 62-212.400(12), F.A.C.]
7. **Modifications:** No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. This permit authorizes construction of the referenced facilities. [Chapters 62-210 and 62-212, F.A.C.]
8. **Application for Title IV Permit:** At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid

SECTION II. ADMINISTRATIVE REQUIREMENTS (DRAFT PERMIT)

Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency in Atlanta, Georgia. This permit does not specify the Acid Rain program requirements. These will be included in the Title V Air Operation Permit. [40 CFR 72; 40 CFR 70; and Chapter 62-213, F.A.C.]

9. Title V Air Operation Permit: This permit authorizes construction of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V Air Operation Permit is required for regular operation of the permitted emission units. The permittee shall apply for and obtain a Title V operation permit in accordance with Rule 62-213.420, F.A.C. To apply for a Title V Air Operation Permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation and a copy to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213, F.A.C.]

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)
PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

ARMS ID	Emission Unit Description
031	Unit 3: 3A & 3B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit
032	Unit 4: 4A & 4B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit
033	Unit 5: 5A & 5B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit
034	Unit 6: 6A & 6B: One PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking unit

APPLICABLE STANDARDS AND REGULATIONS

1. NSPS Requirements: Each SCCT peaking turbine shall comply with the applicable NSPS in 40 CFR 60 including: Subpart A (General Provisions) and Subpart KKKK (Standards of Performance for Stationary Combustion Turbines for which Construction is Commenced after February 18, 2005). See Appendix F for the NSPS Subpart A provisions and Appendix G for the NSPS Subpart KKKK provisions. Some separate reporting and monitoring may be required by the individual subparts. [Rule 62-204.800(7)(b), F.A.C., and 40 CFR 60, Subparts A and KKKK]

EQUIPMENT DESCRIPTION

2. SCCT Peaking Units: The permittee is authorized to install, tune, operate, and maintain four PWPS FT8-3® SwiftPac® aeroderivative SCCT/generator peaking units. Two SCCT peaking unit will be coupled to one common generator having a nominal gross generation capacity of 62 MW. The project will add a total Bayside gross generation capacity of 248 MW worth of SCCT peaking power. The combustion turbines will be equipped with water injection to minimize NO_x emissions and an oxidation catalyst to minimize CO and VOC emissions. Each SCCT peaking unit will only be operated in the simple cycle mode and allowed to operate for a maximum of 3,500 hours per year (hr/yr). [Application; and Rules 62-210.200(Definitions-Potential to Emit (PTE)) and 62-4.070(3), F.A.C.]

CONTROL TECHNOLOGY

Wet Injection: The permittee shall install, operate, and maintain a water injection system to reduce NO_x emissions from each SCCT peaking unit. Prior to the initial emissions performance tests, the water injection system shall be tuned to achieve the permitted NO_x emissions standard. Thereafter, the system shall be maintained and tuned in accordance with the manufacturer’s recommendations or determined best practices. [Applicant request and Rule 62-4.070(3), F.A.C.]

3. Oxidation Catalyst: The permittee shall install, operate, and maintain an oxidation catalyst system to reduce CO and VOC emissions from the SCCT peaking units. The system shall be maintained and operated in accordance with the manufacturer’s recommendations or determined best practices. [Applicant request and Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

4. Hours of Operation: Each SCCT peaking unit is limited to a maximum of 3,500 hours per year of operation. [Applicant request; and Rules 62-210.200(Definitions-PTE) and 62-212.400(PSD), F.A.C.]
5. Permitted Capacity: The maximum heat input rate of each SCCT peaking unit is 342.7 million British thermal units (MMBtu) per hour when firing pipeline-quality natural gas [based on 100% load with evaporative cooling, 59° F ambient temperature, 52° F compressor inlet air temperature, and the higher heating value (HHV) of the fuel]. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions and evaporative cooling. The permittee shall provide manufacturer’s performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Application and design; and Rule 62-210.200(Definitions-PTE), F.A.C.]

6. **Authorized Fuels:** Each SCCT peaking unit shall fire only pipeline-quality natural gas, which shall contain no more than 2 grains of sulfur per 100 standard cubic feet of natural gas. [Rules 62-210.200(Definitions-PTE) and 62-212.400(PSD), F.A.C.]
7. **Simple Cycle Mode:** Each SCCT peaking unit shall operate only in the simple cycle mode not to exceed the permitted hours of operation allowed by this permit. This restriction is based on the permittee's request, which formed the basis of the PSD applicability and emission standards specified in this permit. For any request to convert these units to combined cycle operation by installing/connecting to heat recovery steam generators, including changes to the fuel or quantity related to combined cycle conversion that may cause an increase in short or long-term emissions, the permittee shall submit a full PSD permit application complete with a proposed best available control technology (BACT) determination as if the SCCT peaking units had never been built. [Rules 62-210.200(Definitions-BACT & PTE), 62-212.400(12) and 62-212.400(PSD-BACT), F.A.C.]

EMISSIONS AND TESTING REQUIREMENTS

8. **Emission Standards:** Emissions from each SCCT peaking unit shall not exceed the following standards.

Pollutant	Emission Standard ^e	Averaging Time	Compliance Method	Basis
NO _x ^a	25.0 ppmvd @ 15% oxygen (O ₂)	4-hr rolling avg. ^f	CEMS	NSPS
	32.0 lb/hr/SCCT 56.0 tons/yr/SCCT	3 1-hr runs	Stack Test	Rule 62-4.070(3), F.A.C.
CO ^b	21.0 ppmvd @ 15% O ₂	3-hr rolling avg.	CEMS	ESCPSD Rule 62- 212.400(12), F.A.C.
	9.1 lb/hr/SCCT 8.2 tons/yr/SCCT	3 1-hr runs	Stack Test	
VOC ^b	5.1 lb/hr/SCCT	3 1-hr runs	Surrogate is CO One-Time Stack Test	ESCPSD Rule 62- 212.400(12), F.A.C.
Visible Emissions	<20 % Opacity	6-minute block	Visible Emissions Test	Rule 62- 296.320(4)(b)1., F.A.C.
PM ^c	2 gr S/100 scf of gas 2.5 lb/hr/SCCT	3 1-hr runs	Recordkeeping One-Time Stack Test	Vendor data
SO ₂ ^d	2 gr S/100 scf of gas 1.9 lb/hr/SCCT 0.03 lb/MWhr/SCCT	N/A	Recordkeeping One-Time Stack Test	ESCPSD Rule 62- 212.400(12), F.A.C.
SAM ^d	2 gr S/100 scf of gas	N/A	Recordkeeping	ESCPSD Rule 62- 212.400(12), F.A.C.

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

- a. Continuous compliance with the 4-hr rolling average NO_x standards shall be demonstrated based on data collected by the required Continuous Emissions Monitoring System (CEMS). The initial and annual EPA Method 7E or Method 20 tests associated with demonstration of compliance with 40 CFR 60, Subpart KKKK or certification of the CEMS instruments shall also be used to demonstrate compliance with the individual standards for natural gas during the time of those tests.
- b. Continuous compliance with the 3-hour rolling average CO standards shall be demonstrated based on data collected by the required CEMS. The initial and annual EPA Method 10 tests associated with the certification of the CEMS instruments shall also be used to demonstrate compliance with the standard for natural gas. An oxidation catalyst shall be installed on each SCCT peaking unit to minimize the emissions of CO and VOC. CO will be used as a surrogate for VOC emissions as a demonstration of good combustion. For an initial demonstration of compliance with the VOC mass limit, a one-time compliance test using EPA Method 25A, 40 CFR 60, Appendix A, shall be conducted on only one SCCT peaking unit.
- c. The sulfur fuel specification combined with the efficient combustion design and operation of the gas turbine should minimize PM emissions (PM emissions are a surrogate for PM₁₀ emissions) as well as visible emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. Compliance with the fuel specifications shall be demonstrated by keeping records of the fuel sulfur content. Compliance with the visible emissions standard shall be demonstrated by conducting tests in accordance with EPA Method 9. For an initial demonstration of compliance with the PM mass limit, a one-time compliance test using EPA Method 5, 40 CFR 60, Appendix A, shall be conducted on only one SCCT peaking unit.
- d. The fuel sulfur specification effectively limits the potential emissions of SO₂ and sulfuric acid mist (SAM) from each SCCT peaking unit. The application's SO₂ potential emissions are 1.9 lb/hr (0.03 lb/MWhr), based on 2 gr/100 scf of natural gas, equivalent to 0.0055 lb/MMBtu and is less than the 40 CFR 60, Subpart KKKK standard of 0.060 lb/MMBtu. Compliance with the fuel sulfur specifications shall be the use of pipeline-quality natural gas. For an initial demonstration of compliance with the SO₂ mass limit, a one-time compliance test using EPA Method 6, 6C, 8, or 20, 40 CFR 60, Appendix A, shall be conducted on only one SCCT peaking unit.
- e. The mass emission rate standards are based on a turbine inlet temperature condition of 59 °F, evaporative cooling on, and using the HHV of the fuel. Mass emission rate may be adjusted to actual test conditions in accordance with the performance curves and/or equations on file with the Department.
- f. 40 CFR 60, Subpart KKKK as described in 40 CFR 60.4350(g).

{Permitting Note: In combination with the annual restriction on hours of operation, the above emissions standards effectively limit annual potential emissions from the SCCT peaking units.}

[Rules 62-4.070(3), 62-210.200(Definitions-PTE) and 62-212.400(PSD), F.A.C.; and 40 CFR 60, Subpart KKKK]

9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering, confining, or applying water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]
10. Standard Testing Requirements: See Appendix D (Standard Testing Requirements) of this permit for notification, testing, recordkeeping and reporting requirements regarding a performance test. [Rules 62-204.800 and 62-297.100, F.A.C.; Appendix D of this permit; and 40 CFR 60, Appendix A]

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

11. **Test Methods:** Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Methods for Determining Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content: These methods shall be performed as necessary to support other methods.
5	Method for Determining Particulate Matter Emissions
7E	Determination of NO _x Emissions from Stationary Sources (Instrumental)
6 or 6C	Determination of SO ₂ Emissions from Stationary Sources
8	Determination of SAM and SO ₂ Emissions from Stationary Sources
9	Visual Determination of Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources
20	Determination of NO _x , SO ₂ , and Diluent Emissions from Stationary Combustion Turbines
25A	Determination of Total Gaseous Organic Concentrations Using a Flame Ionization Analyzer

The methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used for compliance testing unless prior written approval is received from the administrator of the Department's Emissions Monitoring Section in accordance with an alternate sampling procedure pursuant to Rule 62-297.620, F.A.C. [Rule 62-204.800, F.A.C. and 40 CFR 60, Appendix A]

12. **Testing Requirements:** Initial tests shall be conducted between 90% and 100% of permitted capacity; otherwise, this permit shall be modified to reflect the true maximum capacity as constructed. Subsequent annual tests shall be conducted between 90% and 100% of permitted capacity in accordance with the requirements of Rule 62-297.310(2), F.A.C. An initial compliance test shall be conducted for each pollutant that is limited. For each run during tests for visible emissions, emissions of CO recorded by the CEMS shall also be reported. Data collected from the reference method during the required CEMS quality assurance relative accuracy test audit (RATA) tests may substitute for annual compliance tests for NO_x and CO, provided the owner or operator indicates this intent in the submitted test protocol, and obtains approval prior to testing. If the RATA is conducted at less than permitted capacity, and the data is used for annual compliance, the requirements of Rule 62-297.310(2)(Operating Rate During Testing), F.A.C., still apply. The mass emission rate standards are based on a turbine inlet condition of 59°F and 100 percent full load operation. Mass emission rate may be adjusted from actual test conditions in accordance with the performance curves and/or equations on file with the Department. [Rules 62-297.310(2) and (7)(a), F.A.C.; 40 CFR 60.8; and Appendix D of this permit]

13. **Initial Compliance Demonstration for CO, PM, VOC and Visible Emissions:** Initial compliance stack tests while firing natural gas shall be conducted within 60 days after achieving the maximum production rate, but not later than 180 days after the initial startup on natural gas. In accordance with the test methods specified in this permit, the SCCT peaking units shall be tested to demonstrate initial compliance with the emission standards for CO and the visible emissions standard. A one-time compliance test shall be conducted on one SCCT peaking unit for PM and VOC mass emissions in order to satisfy compliance with the vendor guarantee and good combustion of clean fuel, respectively. CO emissions are a surrogate for VOC emissions and PM is a surrogate for PM₁₀ emissions. [Rules 62-4.070 and 62-297.310(7)(a), F.A.C.; 40 CFR 60.8; and Appendix D of this permit]

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

{Permitting Note: A one-time demonstration of compliance with the PM and VOC mass emission rates shall be required using the appropriate EPA Methods in 40 CFR 60, Appendix A, on only one SCCT peaking unit.}

14. Initial and Subsequent Compliance Demonstration for NO_x: See 40 CFR 60.4400 and 4405 in Appendix G (NSPS Subpart KKKK Requirements for Stationary Combustion Turbines) of this permit. [40 CFR 60.4400 and 60.4405; and Appendices A and G of this permit]
15. Initial and Subsequent Compliance Demonstration for Sulfur: See 40 CFR 60.4415 in Appendix G (NSPS Subpart KKKK Requirements for Stationary Combustion Turbines) of this permit. A one-time compliance test on one SCCT peaking unit shall be conducted for SO₂ mass emissions in order to satisfy compliance with the mass limit and the quality of the pipeline natural gas. Afterwards, the use of pipeline-quality natural gas in accordance with the permit and 40 CFR 60.4415 will be used as a surrogate for SO₂ emissions. [40 CFR 60.4415; Appendices A and G of this permit; and Rule 62-4.070(3), F.A.C.]

{Permitting Note: A one-time demonstration of compliance with the SO₂ mass emission rate shall be required using the appropriate EPA Method in 40 CFR 60, Appendix A, on only one SCCT peaking unit.}
16. Annual Compliance Testing: Annual compliance tests for NO_x and visible emissions shall be conducted during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3) and 62-297.310(7)(a)4, F.A.C.]
17. Continuous Compliance: The permittee shall demonstrate continuous compliance with the 3-hour rolling average CO emissions standards; and with the 4-hour rolling average NO_x emission standards based on data collected by the certified CEMS. Within 45 days of conducting any RATA on a CEMS, the permittee shall submit a report to the Compliance Authority summarizing results of the RATA. Compliance with the CO emission standards also serves as an indicator of efficient fuel combustion, which also reduces emissions of PM. [Rules 62-4.070(3) and 62-204.800, F.A.C.]
18. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

EXCESS EMISSIONS

{Permitting Note: Rule 62-210.700, F.A.C. (Excess Emissions) cannot vary or supersede any federal provision of the NSPS, NESHAP, or Acid Rain programs.}

19. Excess Emissions Allowed - SIP. See Appendix C (Common Conditions) of this permit. [Rule 62-210.700(1), F.A.C. and Appendix C of this permit]
20. Excess Emissions Prohibited - SIP. See Appendix C (Common Conditions) of this permit. [Rule 62-210.700(4), F.A.C. and Appendix C of this permit]
21. Excess Emissions NSPS - NO_x: See 40 CFR 60.4350 and 4380 in Appendix G (NSPS Subpart KKKK Requirements for Stationary Combustion Turbines) of this permit. [40 CFR 60.4350 and 60.4380]
22. Excess Emissions NSPS - SO₂: See 40 CFR 60.4385 in Appendix G (NSPS Subpart KKKK Requirements for Stationary Combustion Turbines) of this permit. [40 CFR 60.4385]
23. Notification Requirements: The owner or operator shall notify the Compliance Authority within one working day of discovering any emissions that demonstrate non-compliance for a given averaging period.

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

Within one working day of occurrence, the owner or operator shall notify the Compliance Authority of any excess emissions due to a malfunction. The notice may be by telephone, facsimile transmittal, or electronic mail. [Rule 62-4.070(3), F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

24. **CEM Systems:** Subject to the following, the permittee shall install, calibrate, operate, and maintain a continuous emission monitoring system (CEMS) in accordance with 40 CFR 60.4345 (NO_x) and the applicable performance specifications identified in Appendix E (Standard Continuous Monitoring Requirements) of this permit to measure and record the emissions of NO_x and CO from each SCCT peaking unit in terms of the applicable standards. The monitoring system shall be installed, and functioning within the required performance specifications by the time of the initial compliance demonstration.
- NO_x Monitor:** Each NO_x monitor shall be certified pursuant to the specifications of 40 CFR 75. Quality assurance procedures shall conform to the requirements of 40 CFR 75. The annual and RATA tests required for the NO_x monitor shall be performed using EPA Method 7E or 20 in 40 CFR 60, Appendix A.
 - CO Monitor:** The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A within 60 calendar days of achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in 40 CFR 60, Appendix A, and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.
 - Diluent Monitor:** The oxygen (O₂) or carbon dioxide (CO₂) content of the flue gas shall be monitored at the location where CO and NO_x are monitored to correct the measured emissions rates to 15% oxygen. If a CO₂ monitor is installed, the oxygen content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

[Rule 62-4.070(3), F.A.C.; 40 CFR 75; and Appendix E of this permit]

CEMS REQUIREMENTS FOR ANNUAL EMISSIONS

25. **CEMS Annual Emissions Requirement:** The owner or operator shall use data from the NO_x and CO CEMS when calculating annual emissions for purposes of computing actual emissions, baseline actual emissions, and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for purposes of computing emissions pursuant to the reporting requirements of Rule 62-210.370(3), F.A.C. In computing the emissions of a pollutant, the owner or operator shall account for the emissions during periods of startup and shutdown of the emissions unit. [Rules 62-210.200 and 62-210.370(3), F.A.C.]

REPORTING AND RECORDKEEPING REQUIREMENTS

26. **Test Reports:** The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Standard Testing Requirements) of this permit. [Rule 62-297.310(8), F.A.C. and Appendix D of this permit]
27. **Monitoring of Capacity:** The permittee shall monitor and record the operating rate of each SCCT peaking unit on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made by monitoring daily rates of

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75, Appendix D. [Rule 62-4.070(3), F.A.C.]

28. **Monthly Operations Summary:** By the 15th calendar day of each month, the permittee shall record the following for each fuel in a written or electronic log for the combustion turbine for the previous month of operation: fuel consumption, hours of operation, and the updated calendar year totals for each. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. [Rule 62-4.070(3), F.A.C.]

29. **Fuel Sulfur Records:** The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

- a. *Natural Gas Sulfur Limit:* Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. A representative sample shall be collected using ASTM D5287. Methods for determining the sulfur content of the natural gas shall be ASTM methods D1072, or alternatively D3246, D4084, D4468, D4810, D6228, D6667, or Gaseous Processors Association Standard 2377, or more recent versions.

The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 60.4415. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.; 40 CFR 60.4415; and Appendix G of this permit]

30. **Emissions Performance Test Reports:** A report indicating the results of any required emissions performance test shall be submitted to the Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C., and in Appendix D (Standard Testing Requirements) of this permit. [Rule 62-297.310(8), F.A.C. and Appendix D of this permit]

31. **Excess Emissions Reporting:**

- a. *Malfunction Notification:* If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the Compliance Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident.
- b. *SIP Quarterly Report:* Within 30 days following the end of each calendar-quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of NO_x and CO emissions in excess of the permit standards following the NSPS format in 40 CFR 60.7(c), Subpart A. A summary of data excluded from SIP compliance calculations should also be provided. In addition, the report shall summarize the NO_x and CO CEMS system monitors availability for the previous quarter.
- c. *NSPS Reporting:* Within 30 days following the calendar quarter, the permittee shall submit the written reports required by 40 CFR 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) for the previous quarterly period to the Compliance Authority. Excess emissions must be reported for all periods of unit operation, including startup, shutdown and malfunction.

{Note: If there are no periods of excess emissions as defined in 40 CFR 60, Subpart KKKK, a statement to that effect may be submitted with the SIP Quarterly Report to suffice for the NSPS Semi-Annual Report.}

[Rules 62-4.130, 62-204.800 and 62-210.700(6), F.A.C.; and 40 CFR 60.7 and 60.4375]

SECTION III. EMISSIONS UNITS SPECIFIC CONDITIONS (DRAFT PERMIT)

PWPS FT8-3® SwiftPac® SCCT/Generator Peaking Units 3 Thru 6 (EU 031 thru 034)

32. **Annual Operating Report:** The permittee shall submit an annual report that summarizes the actual operating hours and emissions from this facility in accordance with Rule 62-210.370, F.A.C., and Appendix C (Common Conditions) of this permit. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

SECTION IV. APPENDICES

CONTENTS

- Appendix A. Citation Formats and Glossary of Common Terms
- Appendix B. General Conditions
- Appendix C. Common Conditions
- Appendix D. Standard Testing Requirements
- Appendix E. Standard Continuous Monitoring Requirements
- Appendix F. NSPS Subpart A, General Provisions
- Appendix G. NSPS Subpart KKKK, Requirements for Stationary Combustion Turbines

SECTION IV. APPENDIX A
CITATION FORMATS AND GLOSSARY OF COMMON TERMS

CITATION FORMATS

The following illustrate the formats used in the permit to identify applicable requirements from permits and regulations.

Old Permit Numbers

Example: Permit No. AC50-123456 or Permit No. AO50-123456

Where: “AC” identifies the permit as an Air Construction Permit
“AO” identifies the permit as an Air Operation Permit
“123456” identifies the specific permit project number

New Permit Numbers

Example: Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

Where: “099” represents the specific county ID number in which the project is located
“2222” represents the specific facility ID number for that county
“001” identifies the specific permit project number
“AC” identifies the permit as an air construction permit
“AF” identifies the permit as a minor source federally enforceable state operation permit
“AO” identifies the permit as a minor source air operation permit
“AV” identifies the permit as a major Title V air operation permit

PSD Permit Numbers

Example: Permit No. PSD-FL-317

Where: “PSD” means issued pursuant to the preconstruction review requirements of the Prevention of Significant Deterioration of Air Quality
“FL” means that the permit was issued by the State of Florida
“317” identifies the specific permit project number

Florida Administrative Code (F.A.C.)

Example: [Rule 62-213.205, F.A.C.]

Means: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

Example: [40 CFR 60.7]

Means: Title 40, Part 60, Section 7

GLOSSARY OF COMMON TERMS

° F: degrees Fahrenheit

acfm: actual cubic feet per minute

ARMS: Air Resource Management System (Department’s database)

BACT: best available control technology

Btu: British thermal units

CAM: compliance assurance monitoring

SECTION IV. APPENDIX A

CITATION FORMATS AND GLOSSARY OF COMMON TERMS

CEMS: continuous emissions monitoring system
cfm: cubic feet per minute
CFR: Code of Federal Regulations
CO: carbon monoxide
COMS: continuous opacity monitoring system
DEP: Department of Environmental Protection
Department: Department of Environmental Protection
dscfm: dry standard cubic feet per minute
EPA: Environmental Protection Agency
ESP: electrostatic precipitator (control system for reducing particulate matter)
EU: emissions unit
F.A.C.: Florida Administrative Code
F.D.: forced draft
F.S.: Florida Statutes
FGR: flue gas recirculation
Fl: fluoride
ft²: square feet
ft³: cubic feet
gpm: gallons per minute
gr: grains
gr/dscf: grains per dry standard cubic feet
HAP: hazardous air pollutant
Hg: mercury
HHV: higher heating value
I.D.: induced draft
ID: identification
kPa: kilopascals
lb: pound
MACT: maximum achievable technology
MMBtu: million British thermal units
MSDS: material safety data sheets
MW: megawatt
NESHAP: National Emissions Standards for Hazardous Air Pollutants
NO_x: nitrogen oxides
NSPS: New Source Performance Standards

SECTION IV. APPENDIX A

CITATION FORMATS AND GLOSSARY OF COMMON TERMS

O&M: operation and maintenance

O₂: oxygen

Pb: lead

PM: particulate matter

PM₁₀: particulate matter with a mean aerodynamic diameter of 10 microns or less

PSD: prevention of significant deterioration

psi: pounds per square inch

PTE: potential to emit

RACT: reasonably available control technology

RATA: relative accuracy test audit

SAM: sulfuric acid mist

scf: standard cubic feet

scfm: standard cubic feet per minute

SIC: standard industrial classification code

SNCR: selective non-catalytic reduction (control system used for reducing emissions of nitrogen oxides)

SO₂: sulfur dioxide

TPH: tons per hour

TPY: tons per year

UTM: Universal Transverse Mercator coordinate system

VE: visible emissions

VOC: volatile organic compounds

SECTION IV. APPENDIX B

GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of F.S. and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
 - a. Have access to and copy and records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of non-compliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the F.S. or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S.. Such evidence

SECTION IV. APPENDIX B
GENERAL CONDITIONS

shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - a. Determination of Best Available Control Technology (applicable);
 - b. Determination of Prevention of Significant Deterioration (applicable); and
 - c. Compliance with New Source Performance Standards (applicable).
14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c. Records of monitoring information shall include:
 - 1) The date, exact place, and time of sampling or measurements;
 - 2) The person responsible for performing the sampling or measurements;
 - 3) The dates analyses were performed;
 - 4) The person responsible for performing the analyses;
 - 5) The analytical techniques or methods used; and
 - 6) The results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SECTION IV. APPENDIX C
COMMON CONDITIONS

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at the facility.

EMISSIONS AND CONTROLS

1. **Plant Operation - Problems:** If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. **Circumvention:** The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
3. **Excess Emissions Allowed:** Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. **Excess Emissions Prohibited:** Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. **Excess Emissions - Notification:** In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. **VOC or OS Emissions:** No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. **Objectionable Odor Prohibited:** No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(Definitions), F.A.C.]
8. **General Visible Emissions:** No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20% opacity. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]
9. **Unconfined Particulate Emissions:** During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

{Permitting Note: Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any NSPS or NESHAP provision.}

RECORDS AND REPORTS

10. **Records Retention:** All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least 5 years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rule 62-213.440(1)(b)2, F.A.C.]
11. **Annual Operating Report:** The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(3), F.A.C.]

SECTION IV. APPENDIX D
STANDARD TESTING REQUIREMENTS

Unless otherwise specified in the permit, the following testing requirements apply to all emissions units at the facility.

COMPLIANCE TESTING REQUIREMENTS

1. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]
2. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. [Rule 62-297.310(2), F.A.C.]
3. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
4. Applicable Test Procedures
 - a. Required Sampling Time.
 - (1) Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.
 - (2) Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:
 - (a) For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation shall be equal to the duration of the batch cycle or operation completion time.
 - (b) The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a proposed surrogate standard and an existing mass emission limiting standard.
 - (c) The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.
 - b. Minimum Sample Volume. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.

SECTION IV. APPENDIX D
STANDARD TESTING REQUIREMENTS

- c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.
- d. *Allowed Modification to EPA Method 5.* When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube.

[Rule 62-297.310(4), F.A.C.]

5. Determination of Process Variables

- a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

6. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C. Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must also comply with all applicable Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

- a. *Permanent Test Facilities.* The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.
- b. *Temporary Test Facilities.* The owner or operator of an emissions unit that is not required to conduct a compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department or its designee elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department or its designee and remain on the emissions unit until the test is completed.
- c. *Sampling Ports.*
 - (1) All sampling ports shall have a minimum inside diameter of 3 inches.
 - (2) The ports shall be capable of being sealed when not in use.
 - (3) The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.
 - (4) For emissions units for which a complete application to construct has been filed prior to December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.
 - (5) On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

SECTION IV. APPENDIX D
STANDARD TESTING REQUIREMENTS

d. *Work Platforms.*

- (1) Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.
- (2) On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.
- (3) On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.
- (4) All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toe board, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

e. *Access to Work Platform.*

- (1) Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.
- (2) Walkways over free-fall areas shall be equipped with safety rails and toe boards.

f. *Electrical Power.*

- (1) A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.
- (2) If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

g. *Sampling Equipment Support.*

- (1) A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.
 - (a) The bracket shall be a standard 3 inch × 3 inch × one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.
 - (b) A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.
 - (c) The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.
- (2) A complete monorail or dual rail arrangement may be substituted for the eyebolt and bracket.
- (3) When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

[Rule 62-297.310(6), F.A.C.]

7. Frequency of Compliance Tests: The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required.

a. *General Compliance Testing.*

1. The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.

SECTION IV. APPENDIX D
STANDARD TESTING REQUIREMENTS

2. For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.
 3. The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to sub-subparagraph 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:
 - (a) Did not operate; or
 - (b) In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours,
 4. During each federal fiscal year (October 1 – September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:
 - (a) Visible emissions, if there is an applicable standard;
 - (b) Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and
 - (c) c. Each NESHP pollutant, if there is an applicable emission standard.
 5. An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.
 6. For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.
 7. For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to paragraph 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.
 8. Any combustion turbine that does not operate for more than 400 hours per year shall conduct a visible emissions compliance test once per each five-year period, coinciding with the term of its air operation permit.
 9. The owner or operator shall notify the Department or its designee, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.
 10. An annual compliance test conducted for visible emissions shall not be required for units exempted from air permitting pursuant to subsection 62-210.300(3), F.A.C.; units determined to be insignificant pursuant to subparagraph 62-213.300(2)(a)1., F.A.C., or paragraph 62-213.430(6)(b), F.A.C.; or units permitted under the General Permit provisions in paragraph 62-210.300(4)(a) or Rule 62-213.300, F.A.C., unless the general permit specifically requires such testing.
- b. *Special Compliance Tests.* When the Department or its designee, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the

SECTION IV. APPENDIX D
STANDARD TESTING REQUIREMENTS

nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department or its designee.

- c. *Waiver of Compliance Test Requirements.* If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department or its designee, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance of the emissions unit with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department or its designee shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of paragraph 62-297.310(7)(b), F.A.C., shall apply.

[Rule 62-297.310(7), F.A.C.]

RECORDS AND REPORTS

8. Test Reports:

- a. The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department or its designee on the results of each such test.
- b. The required test report shall be filed with the Department or its designee as soon as practical but no later than 45 days after the last sampling run of each test is completed.
- c. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department or its designee to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information.
 1. The type, location, and designation of the emissions unit tested.
 2. The facility at which the emissions unit is located.
 3. The owner or operator of the emissions unit.
 4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
 5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
 6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
 7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
 8. The date, starting time and duration of each sampling run.
 9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
 10. The number of points sampled and configuration and location of the sampling plane.
 11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
 12. The type, manufacturer and configuration of the sampling equipment used.
 13. Data related to the required calibration of the test equipment.
 14. Data on the identification, processing and weights of all filters used.

SECTION IV. APPENDIX D
STANDARD TESTING REQUIREMENTS

15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

SECTION IV. APPENDIX E
STANDARD CONTINUOUS MONITORING REQUIREMENTS

The new SCCT peaking units (EU-031 thru 034) are subject to the following requirements for the new continuous emissions monitoring systems (CEMS) required for CO and NO_x emissions.

CEMS OPERATION PLAN

1. **CEMS Operation Plan:** The permittee shall create and implement a plan for the proper installation, calibration, maintenance, and operation of each CEMS required by this permit. The permittee shall submit the CEMS Operation Plan to the Bureau of Air Monitoring and Mobile Sources for approval prior to CEMS installation. The CEMS Operation Plan shall become effective 60 days after submittal or upon its approval. If the CEMS Operation Plan is not approved, the permittee shall submit a new or revised plan for approval. *{Permitting Note: The Department maintains both guidelines for developing a CEMS Operation Plan and example language that can be used as the basis for the facility-wide plan required by this permit. Contact the Emissions Monitoring Section of the Bureau of Air Monitoring and Mobile Sources at 850/488-0114.}* [Rule 62-4.070(3), F.A.C.]

MONITORS, PERFORMANCE SPECIFICATIONS AND QUALITY ASSURANCE

2. **Span Values and Dual Range Monitors:** The permittee shall set appropriate span values for the CEMS based on the emissions standards and range of operation. If necessary, the permittee shall install dual range monitors in accordance with the CEMS Operation Plan. [Rule 62-4.070(3), F.A.C.]
3. **Diluent Monitor:** If required by permit to correct the CEMS output to the oxygen concentrations specified in the applicable emissions standard, the permittee shall either install an oxygen monitor or install a CO₂ monitor and use an appropriate F-Factor computational approach. [Rule 62-4.070(3), F.A.C.]
4. **Moisture Correction:** If necessary, the permittee shall install a system to determine the moisture content of the exhaust gas and develop an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). [Rule 62-4.070(3), F.A.C.]
5. **Continuous Flow Monitor:** For compliance with mass emission flow rate standards, the permittee shall install a continuous flow monitor to determine the stack exhaust flow rate. The flow monitor shall be certified pursuant to 40 CFR Part 60, Appendix B, Performance Specification 6. Alternatively, the permittee may install a fuel flow monitor and use an appropriate F-Factor computational approach to calculate stack exhaust flow rate. *{Permitting Note: The CEMS Operation Plan will contain additional details and procedures for CEMS installation.}* [Rule 62-4.070(3), F.A.C.]
6. **Performance Specifications:** The permittee shall evaluate the “acceptability” of each CEMS by conducting the appropriate performance specification. CEMS determined to be “unacceptable” shall not be considered “installed” for purposes of meeting the timelines of this permit. For CO monitors, the permittee shall conduct Performance Specification 4 of 40 CFR Part 60, Appendix B. For NO_x monitors, the permittee shall conduct Performance Specification 2 of 40 CFR Part 60, Appendix B. [Rule 62-4.070(3), F.A.C.]
7. **Quality Assurance:** The permittee shall follow the quality assurance procedures of 40 CFR Part 60, Appendix F. For CO, the required relative accuracy test audit (RATA) tests shall be performed using EPA Method 10 in Appendix A of 40 CFR Part 60. For NO_x, the RATA tests shall be performed using EPA Method 7E in Appendix A of 40 CFR Part 60. [Rule 62-4.070(3), F.A.C.]

CALCULATION APPROACH FOR SIP COMPLIANCE

8. **CEMS for Compliance:** Once adherence to the applicable performance specification for each CEMS is demonstrated, the permittee shall use the CEMS to demonstrate compliance with the applicable emission standards as specified by this permit. [Rule 62-4.070(3), F.A.C.]
9. **CEMS Data:** Each CEMS shall monitor and record emissions during all operations and whenever emissions are being generated, including during episodes of startups, shutdowns, and malfunctions. All data shall be used, except for invalid measurements taken during monitor system breakdowns, repairs, calibration checks, zero adjustments, and span adjustments. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a

SECTION IV. APPENDIX E
STANDARD CONTINUOUS MONITORING REQUIREMENTS

dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd corrected to 15% oxygen. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for CO and NO_x as specified in this permit. For purposes of determining compliance with the CEMS emissions standards of this permit, missing (or excluded) data shall not be substituted. [Rule 62-4.070(3), F.A.C.]

10. Operating Hours and Operating Days: For purposes of this Appendix, the following definitions shall apply. An hour is the 60-minute period beginning at the top of each hour. Any hour during which an emissions unit is in operation for more than 15 minutes is an operating hour for that emission unit. A day is the 24-hour period from midnight to midnight. Any day with at least one operating hour for an emissions unit is an operating day for that emission unit. [Rule 62-4.070(3), F.A.C.]
11. Valid Hourly Averages: Each CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over the hour at a minimum of one measurement per minute. Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour.
- a. Hours that are not operating hours are not valid hours.
 - b. For each operating hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data, the 1-hour block average is not valid, and the hour is considered as "monitor unavailable."

[Rule 62-4.070(3), F.A.C.]

12. Calculation Approaches: The permittee shall implement the calculation approach specified by this permit for each CEMS, as follows:

- a. *Daily Averages*:
- b. *Rolling 30-day Average*.
- c. *4-Hour Rolling Average (NO_x)*: Compliance with the 4-hour rolling average shall be determined after each operating hour by calculating and recording the arithmetic average of all valid hourly averages for the previous 4 operating hours (compliance period).
- d. *3-Hour Rolling Average (CO)*: Compliance with the 3-hour rolling average shall be determined after each operating hour by calculating and recording the arithmetic average of all valid hourly averages for the previous 3 operating hours (compliance period).
- e. *Rolling 12-month Totals*:

[Rule 62-4.070(3), F.A.C.]

13. Minimum Valid Hours: At least one valid hourly average shall be used to calculate the emissions over any averaging period specified by this permit. One valid hourly average shall be sufficient to calculate the emissions over any averaging period. [Rule 62-4.070(3), F.A.C.]

MONITOR AVAILABILITY

14. Monitor Availability: Monitor availability shall be calculated on a quarterly basis for each emission unit as the number of valid hourly averages obtained by the CEMS, divided by the number of operating hours, times 100%. The monitor availability calculation shall not include periods of time where the monitor was functioning properly, but was unable to collect data while conducting a mandated quality assurance/quality control activity such as calibration error tests, RATA, calibration gas audit, or relative accuracy audits (RAA). Monitor availability for each CEMS shall be 95% or greater in any calendar quarter. Monitor availability shall be reported in the quarterly excess emissions report. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability.

SECTION IV. APPENDIX E

STANDARD CONTINUOUS MONITORING REQUIREMENTS

The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.
[Rule 62-4.070(3), F.A.C.]

SECTION IV. APPENDIX E
STANDARD CONTINUOUS MONITORING REQUIREMENTS

EXCESS EMISSIONS

15. Definitions:

- a. *Excess Emissions* (under the Florida SIP) are defined as emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions which occur during startup, shutdown, or malfunction.
- b. *Startup* is defined as the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.
- c. *Shutdown* means the cessation of the operation of an emissions unit for any purpose.
- d. *Malfunction* means any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.

[Rule 62-210.200(Definitions), F.A.C.]

16. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rules 62-210.700(4), F.A.C.]

17. Data Exclusion Procedures for SIP Compliance: As per the procedures in this condition, limited amounts of CO and NO_x CEMS emissions data may be excluded from the corresponding compliance demonstration, provided that best operational practices to minimize emissions are adhered to and the duration of data excluded is minimized. As provided by the authority in Rule 62-210.700(5), F.A.C., the following conditions replace the provisions in Rule 62-210.700(1), F.A.C.

- a. *Excess Emissions.* For purposes of SIP-based permit limits, excess emissions data collected during periods of startup and shutdown may be excluded from compliance calculations as allowed by the permit standards.
- b. *Limiting Data Exclusion.* If the compliance calculation using all valid CEMS emission data (as defined in this Appendix) indicates that the emission unit is in compliance, then no CEMS data shall be excluded from the compliance demonstration.
- c. *Event Driven Exclusion.* The excess emissions must occur due to an underlying event (startup or shutdown). If there is no underlying event, then no data may be excluded.
- d. *Continuous Exclusion.* Data shall be excluded on a continuous basis per event. Data from discontinuous periods shall not be excluded for the same underlying event.
- e. *Reporting Excluded Data.* These procedures for excluding SIP-based excess emissions from compliance calculations are not necessarily the same procedures used for “excess emissions” as defined by federal rules. Semiannual reports required by this permit shall indicate the duration of data excluded from SIP compliance calculations as well as the number of excess emissions as defined in the applicable federal rules.

{Permitting Note: The Excess Emissions Rule at Rule 62-210.700, F.A.C., cannot vary any requirement of a NSPS or NESHAP provision.} [Rule 62-210.700(4), F.A.C.]

18. Notification Requirements: The permittee shall notify the Compliance Authority within one working day of discovering any emissions that demonstrate non-compliance for a given averaging period. [Rule 62-4.070(3), F.A.C.]

SECTION IV. APPENDIX E
STANDARD CONTINUOUS MONITORING REQUIREMENTS

CALCULATING AND REPORTING ANNUAL EMISSIONS

19. CEMS for Calculating Annual Emissions: As defined by this Appendix, all valid data shall be used when calculating annual emissions.
 - a. Annual emissions shall include data collected during startup, shutdown, and malfunction periods.
 - b. Annual emissions shall include data collected during periods when the emission unit is not operating, but emissions are being generated (for example, firing fuel to warm up a process for some period of time prior to the emission unit's "official" startup).
 - c. Annual emissions shall not include data from periods of time where the monitor was functioning properly but was unable to collect data while conducting a mandated quality assurance/quality control activity such as calibration error tests, RATA, calibration gas audit, or RAA. These periods of time shall be considered "missing data" for purposes of calculating annual emissions.
 - d. Annual emissions shall not include data from periods of time when emissions are in excess of the calibrated span of the CEMS. These periods of time shall be considered "missing data" for purposes of calculating annual emissions.
20. Accounting for Missing Data: All valid measurements collected during each hour shall be used to calculate a 1-hour block average that begins at the top of each hour. For each hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, the permittee shall account for emissions during that hour using site-specific data to generate a reasonable estimate of the 1-hour block average.
21. Emissions Calculation: Annual emissions shall be calculated as the sum of all valid emissions occurring during the year.
22. Reporting Annual Emissions: The permittee shall use data from each required CEMS when calculating annual emissions for purposes of computing actual emissions, baseline actual emissions, and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for purposes of computing emissions pursuant to the reporting requirements of Rules 62-210.370(3) and 62-212.300(1)(e), F.A.C. [Rule 62-4.070(3), F.A.C.]

SECTION IV. APPENDIX F
NSPS SUBPART A, GENERAL CONDITIONS

Emissions units subject to a New Source Performance Standards of 40 CFR 60 are also subject to the applicable requirements of Subpart A, General Provisions, including:

- § 60.1 Applicability.
- § 60.2 Definitions.
- § 60.3 Units and abbreviations.
- § 60.4 Address.
- § 60.5 Determination of construction or modification.
- § 60.6 Review of plans.
- § 60.7 Notification and Record Keeping.
- § 60.8 Performance Tests.
- § 60.9 Availability of information.
- § 60.10 State Authority.
- § 60.11 Compliance with Standards and Maintenance Requirements.
- § 60.12 Circumvention.
- § 60.13 Monitoring Requirements.
- § 60.14 Modification.
- § 60.15 Reconstruction.
- § 60.16 Priority List.
- § 60.17 Incorporations by Reference.
- § 60.18 General Control Device Requirements.
- § 60.19 General Notification and Reporting Requirements.

Individual subparts may exempt specific equipment or processes from some or all of these requirements. The general provisions may be provided in full upon request.

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005.

Applicability

§ 60.4305 Does this subpart apply to my stationary combustion turbine?

- (a) If you are the owner or operator of a stationary combustion turbine with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005, your turbine is subject to this subpart. Only heat input to the combustion turbine should be included when determining whether or not this subpart is applicable to your turbine.
- (b) Stationary combustion turbines regulated under this subpart are exempt from the requirements of subpart GG of this part.

§ 60.4310 What types of operations are exempt from these standards of performance?

- (a) Emergency combustion turbines, as defined in §60.4420(i), are exempt from the nitrogen oxides (NO_x) emission limits in §60.4320.
- (b) NA
- (c) NA
- (d) NA

Emission Limits

§ 60.4315 What pollutants are regulated by this subpart?

The pollutants regulated by this subpart are nitrogen oxide (NO_x) and sulfur dioxide (SO₂).

§ 60.4320 What emission limits must I meet for nitrogen oxides (NO_x)?

- (a) You must meet the emission limits for NO_x specified in Table 1 to this subpart.
- (b) If you have two or more turbines that are connected to a single generator, each turbine must meet the emission limits for NO_x.

§ 60.4325 What emission limits must I meet for NO_x if my turbine burns both natural gas and distillate oil (or some other combination of fuels)?

Not applicable (NA).

§ 60.4330 What emission limits must I meet for sulfur dioxide (SO₂)?

(a) If your turbine is located in a continental area, you must comply with either paragraph (a)(1) or (a)(2) of this section. If your turbine is located in Alaska, you do not have to comply with the requirements in paragraph (a) of this section until January 1, 2008.

(1) NA

(2) You must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO₂/J (0.060 lb SO₂/MMBtu) heat input. If your turbine simultaneously fires multiple fuels, each fuel must meet this requirement.

(b) NA.

General Compliance Requirements

§ 60.4333 What are my general requirements for complying with this subpart?

- (a) You must operate and maintain your stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
- (b) NA.

Monitoring

§ 60.4335 How do I demonstrate compliance for NO_x if I use water or steam injection?

- (a) If you are using water or steam injection to control NO_x emissions, you must install, calibrate, maintain and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water or steam to fuel being fired in the turbine when burning a fuel that requires water or steam injection for compliance.
- (b) Alternatively, you may use continuous emission monitoring, as follows:

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

(1) Install, certify, maintain, and operate a continuous emission monitoring system (CEMS) consisting of a NO_x monitor and a diluent gas (oxygen (O₂) or carbon dioxide (CO₂)) monitor, to determine the hourly NO_x emission rate in parts per million (ppm) or pounds per million British thermal units (lb/MMBtu).

(2) NA.

(3) NA.

(4) NA.

§ 60.4340 How do I demonstrate continuous compliance for NO_x if I do not use water or steam injection?

(a) NA.

(b) NA.

§ 60.4345 What are the requirements for the continuous emission monitoring system equipment, if I choose to use this option?

If the option to use a NO_x CEMS is chosen:

(a) Each NO_x diluent CEMS must be installed and certified according to Performance Specification 2 (PS 2) in appendix B to this part, except the 7-day calibration drift is based on unit operating days, not calendar days. With state approval, Procedure 1 in appendix F to this part is not required. Alternatively, a NO_x diluent CEMS that is installed and certified according to appendix A of part 75 of this chapter is acceptable for use under this subpart. The relative accuracy test audit (RATA) of the CEMS shall be performed on a lb/MMBtu basis.

(b) As specified in §60.13(e)(2), during each full unit operating hour, both the NO_x monitor and the diluent monitor must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point must be obtained with each monitor for each quadrant of the hour in which the unit operates. For unit operating hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points (one in each of two quadrants) are required for each monitor to validate the NO_x emission rate for the hour.

(c) Each fuel flow meter shall be installed, calibrated, maintained, and operated according to the manufacturer's instructions. Alternatively, with state approval, fuel flow meters that meet the installation, certification, and quality assurance requirements of appendix D to part 75 of this chapter are acceptable for use under this subpart.

(d) Each watt meter, steam flow meter, and each pressure or temperature measurement device shall be installed, calibrated, maintained, and operated according to manufacturer's instructions.

(e) The owner or operator shall develop and keep on-site a quality assurance (QA) plan for all of the continuous monitoring equipment described in paragraphs (a), (c), and (d) of this section. For the CEMS and fuel flow meters, the owner or operator may, with state approval, satisfy the requirements of this paragraph by implementing the QA program and plan described in section I of appendix B to part 75 of this chapter.

§ 60.4350 How do I use data from the continuous emission monitoring equipment to identify excess emissions?

For purposes of identifying excess emissions:

(a) All CEMS data must be reduced to hourly averages as specified in §60.13(h).

(b) For each unit operating hour in which a valid hourly average, as described in §60.4345(b), is obtained for both NO_x and diluent monitors, the data acquisition and handling system must calculate and record the hourly NO_x emission rate in units of ppm or lb/MMBtu, using the appropriate equation from method 19 in appendix A of this part. For any hour in which the hourly average O₂ concentration exceeds 19.0 percent O₂ (or the hourly average CO₂ concentration is less than 1.0 percent CO₂), a diluent cap value of 19.0 percent O₂ or 1.0 percent CO₂ (as applicable) may be used in the emission calculations.

(c) Correction of measured NO_x concentrations to 15 percent O₂ is not allowed.

(d) If you have installed and certified a NO_x diluent CEMS to meet the requirements of part 75 of this chapter, states can approve that only quality assured data from the CEMS shall be used to identify excess emissions under this subpart. Periods where the missing data substitution procedures in subpart D of part 75 are applied are to be reported as monitor downtime in the excess emissions and monitoring performance report required under §60.7(c).

(e) All required fuel flow rate, steam flow rate, temperature, pressure, and megawatt data must be reduced to hourly averages.

(f) Calculate the hourly average NO_x emission rates, in units of the emission standards under §60.4320, using either ppm for units complying with the concentration limit.

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

(g) For simple cycle units without heat recovery, use the calculated hourly average emission rates from paragraph (f) of this section to assess excess emissions on a 4-hour rolling average basis, as described in §60.4380(b)(1).

(h) NA.

§ 60.4355 How do I establish and document a proper parameter monitoring plan?

(a) NA.

(b) NA.

§ 60.4360 How do I determine the total sulfur content of the turbine's combustion fuel? NA.

§ 60.4365 How can I be exempted from monitoring the total sulfur content of the fuel?

You may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO₂/J (0.060 lb SO₂/MMBtu) heat input for units located in continental areas and 180 ng SO₂/J (0.42 lb SO₂/MMBtu) heat input for units located in noncontinental areas or a continental area that the Administrator determines does not have access to natural gas and that the removal of sulfur compounds would cause more environmental harm than benefit. You must use one of the following sources of information to make the required demonstration:

(a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content for oil use in continental areas is 0.05 weight percent (500 ppmw) or less, the total sulfur content for natural gas use in continental areas is 20 grains of sulfur or less per 100 standard cubic feet, has potential sulfur emissions of less than less than 26 ng SO₂/J (0.060 lb SO₂/MMBtu) heat input for continental areas; or

(b) Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 26 ng SO₂/J (0.060 lb SO₂/MMBtu) heat input for continental areas. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required.

§ 60.4370 How often must I determine the sulfur content of the fuel? NA.

Reporting

§ 60.4375 What reports must I submit?

(a) For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under this subpart, you must submit reports of excess emissions and monitor downtime, in accordance with §60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction.

(b) NA.

§ 60.4380 How are excess emissions and monitor downtime defined for NO_x?

For the purpose of reports required under §60.7(c), periods of excess emissions and monitor downtime that must be reported are defined as follows:

(a) NA.

(b) For turbines using continuous emission monitoring, as described in §§60.4335(b) and 60.4345:

(1) An excess emissions is any unit operating period in which the 4-hour rolling average NO_x emission rate exceeds the applicable emission limit in §60.4320. For the purposes of this subpart, a "4-hour rolling average NO_x emission rate" is the arithmetic average of the average NO_x emission rate in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given hour and the three unit operating hour average NO_x emission rates immediately preceding that unit operating hour. Calculate the rolling average if a valid NO_x emission rate is obtained for at least 3 of the 4 hours.

(2) A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO_x concentration, CO₂ or O₂ concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if you will use this information for compliance purposes.

(3) For operating periods during which multiple emissions standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.

(c) NA.

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

§ 60.4385 How are excess emissions and monitoring downtime defined for SO₂?

If you choose the option to monitor the sulfur content of the fuel, excess emissions and monitoring downtime are defined as follows:

- (a) For samples of gaseous fuel obtained using daily sampling, an excess emission occurs each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the combustion turbine exceeds the applicable limit and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit.
- (b) NA.
- (c) A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.

§ 60.4390 What are my reporting requirements if I operate an emergency combustion turbine or a research and development turbine? NA.

§ 60.4395 When must I submit my reports?

All reports required under §60.7(c) must be postmarked by the 30th day following the end of each 6-month period.

Performance Tests

§ 60.4400 How do I conduct the initial and subsequent performance tests, regarding NO_x?

(a) You must conduct an initial performance test, as required in §60.8. Subsequent NO_x performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test).

(1) There are two general methodologies that you may use to conduct the performance tests. For each test run:

(i) Measure the NO_x concentration (in parts per million (ppm)), using EPA Method 7E or EPA Method 20 in appendix A of this part. For units complying with the output based standard, concurrently measure the stack gas flow rate, using EPA Methods 1 and 2 in appendix A of this part, and measure and record the electrical and thermal output from the unit. Then, use the following equation to calculate the NO_x emission rate:

$$E = \frac{1.194 \times 10^{-7} * (NO_x)_c * Q_{std}}{P} \quad (\text{Eq. 5})$$

Where:

E = NO_x emission rate, in lb/MWh

1.194 × 10⁻⁷ = conversion constant, in lb/dscf-ppm

(NO_x)_c = average NO_x concentration for the run, in ppm

Q_{std} = stack gas volumetric flow rate, in dscf/hr

P = gross electrical and mechanical energy output of the combustion turbine, in MW (for simple-cycle operation), for combined-cycle operation, the sum of all electrical and mechanical output from the combustion and steam turbines, or, for combined heat and power operation, the sum of all electrical and mechanical output from the combustion and steam turbines plus all useful recovered thermal output not used for additional electric or mechanical generation, in MW, calculated according to §60.4350(f)(2); or

(ii) Measure the NO_x and diluent gas concentrations, using either EPA Methods 7E and 3A, or EPA Method 20 in appendix A of this part. Concurrently measure the heat input to the unit, using a fuel flow meter (or flow meters), and measure the electrical and thermal output of the unit. Use EPA Method 19 in appendix A of this part to calculate the NO_x emission rate in lb/MMBtu. Then, use Equations 1 and, if necessary, 2 and 3 in §60.4350(f) to calculate the NO_x emission rate in lb/MWh.

(2) Sampling traverse points for NO_x and (if applicable) diluent gas are to be selected following EPA Method 20 or EPA Method 1 (non-particulate procedures), and sampled for equal time intervals. The sampling must be performed with a traversing single-hole probe, or, if feasible, with a stationary multihole probe that samples each of the points sequentially. Alternatively, a multi-hole probe designed and documented to sample equal volumes from each hole may be used to sample simultaneously at the required points.

(3) Notwithstanding paragraph (a)(2) of this section, you may test at fewer points than are specified in EPA Method 1 or EPA Method 20 in appendix A of this part if the following conditions are met:

(i) You may perform a stratification test for NO_x and diluent pursuant to

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

(A) [Reserved], or

(B) The procedures specified in section 6.5.6.1(a) through (e) of appendix A of part 75 of this chapter.

(ii) Once the stratification sampling is completed, you may use the following alternative sample point selection criteria for the performance test:

(A) If each of the individual traverse point NO_x concentrations is within ±10 percent of the mean concentration for all traverse points, or the individual traverse point diluent concentrations differs by no more than ±5ppm or ±0.5 percent CO₂ (or O₂) from the mean for all traverse points, then you may use three points (located either 16.7, 50.0 and 83.3 percent of the way across the stack or duct, or, for circular stacks or ducts greater than 2.4 meters (7.8 feet) in diameter, at 0.4, 1.2, and 2.0 meters from the wall). The three points must be located along the measurement line that exhibited the highest average NO_x concentration during the stratification test; or

(B) For turbines with a NO_x standard greater than 15 ppm @ 15% O₂, you may sample at a single point, located at least 1 meter from the stack wall or at the stack centroid if each of the individual traverse point NO_x concentrations is within ±5 percent of the mean concentration for all traverse points, or the individual traverse point diluent concentrations differs by no more than ±3 ppm or ±0.3 percent CO₂ (or O₂) from the mean for all traverse points; or

(C) NA.

(b) The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. You may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. You must conduct three separate test runs for each performance test. The minimum time per run is 20 minutes.

(1) If the stationary combustion turbine combusts both oil and gas as primary or backup fuels, separate performance testing is required for each fuel.

(2) NA.

(3) NA.

(4) Compliance with the applicable emission limit in §60.4320 must be demonstrated at each tested load level. Compliance is achieved if the three-run arithmetic average NO_x emission rate at each tested level meets the applicable emission limit in §60.4320.

(5) If you elect to install a CEMS, the performance evaluation of the CEMS may either be conducted separately or (as described in §60.4405) as part of the initial performance test of the affected unit.

(6) The ambient temperature must be greater than 0 °F during the performance test.

§ 60.4405 How do I perform the initial performance test if I have chosen to install a NO_x-diluent CEMS?

If you elect to install and certify a NO_x-diluent CEMS under §60.4345, then the initial performance test required under §60.8 may be performed in the following alternative manner:

(a) Perform a minimum of nine RATA reference method runs, with a minimum time per run of 21 minutes, at a single load level, within plus or minus 25 percent of 100 percent of peak load. The ambient temperature must be greater than 0 °F during the RATA runs.

(b) For each RATA run, concurrently measure the heat input to the unit using a fuel flow meter (or flow meters) and measure the electrical and thermal output from the unit.

(c) Use the test data both to demonstrate compliance with the applicable NO_x emission limit under §60.4320 and to provide the required reference method data for the RATA of the CEMS described under §60.4335.

(d) Compliance with the applicable emission limit in §60.4320 is achieved if the arithmetic average of all of the NO_x emission rates for the RATA runs, expressed in units of ppm or lb/MWh, does not exceed the emission limit.

§ 60.4410 How do I establish a valid parameter range if I have chosen to continuously monitor parameters? NA.

§ 60.4415 How do I conduct the initial and subsequent performance tests for sulfur?

(a) You must conduct an initial performance test, as required in §60.8. Subsequent SO₂ performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). There are three methodologies that you may use to conduct the performance tests.

(1) If you choose to periodically determine the sulfur content of the fuel combusted in the turbine, a representative fuel sample would be collected following ASTM D5287 (incorporated by reference, see §60.17) for natural gas. The fuel analyses of this section may be performed either by you, a service contractor retained by you, the fuel vendor, or any other qualified agency. Analyze the samples for the total sulfur content of the fuel using:

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

(i) NA.

(ii) For gaseous fuels, ASTM D1072, or alternatively D3246, D4084, D4468, D4810, D6228, D6667, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see §60.17).

(2) Measure the SO₂ concentration (in parts per million (ppm)), using EPA Methods 6, 6C, 8, or 20 in appendix A of this part. In addition, the American Society of Mechanical Engineers (ASME) standard, ASME PTC 19-10-1981-Part 10, "Flue and Exhaust Gas Analyses," manual methods for sulfur dioxide (incorporated by reference, see §60.17) can be used instead of EPA Methods 6 or 20. For units complying with the output based standard, concurrently measure the stack gas flow rate, using EPA Methods 1 and 2 in appendix A of this part, and measure and record the electrical and thermal output from the unit. Then use the following equation to calculate the SO₂ emission rate:

$$E = \frac{1.664 \times 10^{-7} * (SO_2)_c * Q_{std}}{P} \quad (\text{Eq. 6})$$

Where:

E = SO₂ emission rate, in lb/MWh

1.664 × 10⁻⁷ = conversion constant, in lb/dscf-ppm

(SO₂)_c = average SO₂ concentration for the run, in ppm

Q_{std} = stack gas volumetric flow rate, in dscf/hr

P = gross electrical and mechanical energy output of the combustion turbine, in MW (for simple-cycle operation), for combined-cycle operation, the sum of all electrical and mechanical output from the combustion and steam turbines, or, for combined heat and power operation, the sum of all electrical and mechanical output from the combustion and steam turbines plus all useful recovered thermal output not used for additional electric or mechanical generation, in MW, calculated according to §60.4350(f)(2); or

(3) Measure the SO₂ and diluent gas concentrations, using either EPA Methods 6, 6C, or 8 and 3A, or 20 in appendix A of this part. In addition, you may use the manual methods for sulfur dioxide ASME PTC 19-10-1981-Part 10 (incorporated by reference, see §60.17). Concurrently measure the heat input to the unit, using a fuel flow meter (or flow meters), and measure the electrical and thermal output of the unit. Use EPA Method 19 in appendix A of this part to calculate the SO₂ emission rate in lb/MMBtu. Then, use Equations 1 and, if necessary, 2 and 3 in §60.4350(f) to calculate the SO₂ emission rate in lb/MWh.

(b) [Reserved]

Definitions

§ 60.4420 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein will have the meaning given them in the Clean Air Act and in subpart A (General Provisions) of this part.

Combined cycle combustion turbine means any stationary combustion turbine which recovers heat from the combustion turbine exhaust gases to generate steam that is only used to create additional power output in a steam turbine.

Combined heat and power combustion turbine means any stationary combustion turbine which recovers heat from the exhaust gases to heat water or another medium, generate steam for useful purposes other than additional electric generation, or directly uses the heat in the exhaust gases for a useful purpose.

Combustion turbine model means a group of combustion turbines having the same nominal air flow, combustor inlet pressure, combustor inlet temperature, firing temperature, turbine inlet temperature and turbine inlet pressure.

Combustion turbine test cell/stand means any apparatus used for testing uninstalled stationary or uninstalled mobile (motive) combustion turbines.

Diffusion flame stationary combustion turbine means any stationary combustion turbine where fuel and air are injected at the combustor and are mixed only by diffusion prior to ignition.

Duct burner means a device that combusts fuel and that is placed in the exhaust duct from another source, such as a stationary combustion turbine, internal combustion engine, kiln, etc., to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit.

Efficiency means the combustion turbine manufacturer's rated heat rate at peak load in terms of heat input per unit of power output—based on the higher heating value of the fuel.

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

Emergency combustion turbine means any stationary combustion turbine which operates in an emergency situation. Examples include stationary combustion turbines used to produce power for critical networks or equipment, including power supplied to portions of a facility, when electric power from the local utility is interrupted, or stationary combustion turbines used to pump water in the case of fire or flood, etc. Emergency stationary combustion turbines do not include stationary combustion turbines used as peaking units at electric utilities or stationary combustion turbines at industrial facilities that typically operate at low capacity factors. Emergency combustion turbines may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are required by the manufacturer, the vendor, or the insurance company associated with the turbine. Required testing of such units should be minimized, but there is no time limit on the use of emergency combustion turbines.

Excess emissions means a specified averaging period over which either (1) the NOX emissions are higher than the applicable emission limit in §60.4320; (2) the total sulfur content of the fuel being combusted in the affected facility exceeds the limit specified in §60.4330; or (3) the recorded value of a particular monitored parameter is outside the acceptable range specified in the parameter monitoring plan for the affected unit.

Gross useful output means the gross useful work performed by the stationary combustion turbine system. For units using the mechanical energy directly or generating only electricity, the gross useful work performed is the gross electrical or mechanical output from the turbine/generator set. For combined heat and power units, the gross useful work performed is the gross electrical or mechanical output plus the useful thermal output (i.e., thermal energy delivered to a process).

Heat recovery steam generating unit means a unit where the hot exhaust gases from the combustion turbine are routed in order to extract heat from the gases and generate steam, for use in a steam turbine or other device that utilizes steam. Heat recovery steam generating units can be used with or without duct burners.

Integrated gasification combined cycle electric utility steam generating unit means a coal-fired electric utility steam generating unit that burns a synthetic gas derived from coal in a combined-cycle gas turbine. No solid coal is directly burned in the unit during operation. *ISO conditions* means 288 Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.

Lean premix stationary combustion turbine means any stationary combustion turbine where the air and fuel are thoroughly mixed to form a lean mixture before delivery to the combustor. Mixing may occur before or in the combustion chamber. A lean premixed turbine may operate in diffusion flame mode during operating conditions such as startup and shutdown, extreme ambient temperature, or low or transient load.

Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1,100 British thermal units (Btu) per standard cubic foot. Natural gas does not include the following gaseous fuels: landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value.

Noncontinental area means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, the Northern Mariana Islands, or offshore platforms.

Peak load means 100 percent of the manufacturer's design capacity of the combustion turbine at ISO conditions.

Regenerative cycle combustion turbine means any stationary combustion turbine which recovers heat from the combustion turbine exhaust gases to preheat the inlet combustion air to the combustion turbine.

Simple cycle combustion turbine means any stationary combustion turbine which does not recover heat from the combustion turbine exhaust gases to preheat the inlet combustion air to the combustion turbine, or which does not recover heat from the combustion turbine exhaust gases for purposes other than enhancing the performance of the combustion turbine itself.

Stationary combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), heat recovery system, and any ancillary components and sub-components comprising any simple cycle stationary combustion turbine, any regenerative/recuperative cycle stationary combustion turbine, any combined cycle combustion turbine, and any combined heat and power combustion turbine based system. Stationary means that the combustion turbine is not self propelled or intended to be propelled while performing its function. It may, however, be mounted on a vehicle for portability.

Unit operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

Unit operating hour means a clock hour during which any fuel is combusted in the affected unit. If the unit combusts fuel for the entire clock hour, it is considered to be a full unit operating hour. If the unit combusts fuel for only part of the clock hour, it is considered to be a partial unit operating hour.

SECTION IV. APPENDIX G

NSPS SUBPART KKKK, REQUIREMENTS FOR STATIONARY COMBUSTION TURBINES

Useful thermal output means the thermal energy made available for use in any industrial or commercial process, or used in any heating or cooling application, i.e., total thermal energy made available for processes and applications other than electrical or mechanical generation. Thermal output for this subpart means the energy in recovered thermal output measured against the energy in the thermal output at 15 degrees Celsius and 101.325 kilopascals of pressure.

Table 1 to Subpart KKKK of Part 60-Nitrogen Oxide Emission Limits for New Stationary Combustion Turbines

Combustion turbine type	Combustion turbine heat input at peak load (HHV)	NOX emission standard
New turbine firing natural gas.	> 50 MMBtu/h and [le] 850 MMBtu/h	25 ppm at 15 percent O ₂ or 150 ng/J of useful output (1.2 lb/MWh).

Livingston, Sylvia

From: Livingston, Sylvia
Sent: Wednesday, September 10, 2008 4:20 PM
To: 'dmlukcic@tecoenergy.com'; 'btburrows@tecoenergy.com'
Cc: 'tdavis@ectinc.com'; 'campbell@epchc.org'; 'Lee@epchc.org'; 'LiuP@epchc.org'; 'forney.kathleen@epamail.epa.gov'; 'catherine_collins@fws.gov'; Arif, Syed; Mitchell, Bruce; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: TECO - H. L. CULBREATH BAYSIDE POWER STATION; 0570040-024-AC

Dear Sir/Madam:

Attached is the official *Written Notice of Intent to Issue* for the project referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, *noting that you can view the documents*, and then selecting "Send". **We must receive verification that you are able to access the documents.** Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).

Click on the following link to access the permit project documents:

http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/0570040.024.AC.D_pdf.zip

Owner/Company Name: TAMPA ELECTRIC COMPANY

Facility Name: H. L. CULBREATH BAYSIDE POWER STATION

Project Number: 0570040-024-AC

Permit Status: DRAFT

Permit Activity: CONSTRUCTION/ INSTALL 8 SCCT- UNITS 3 THRU 6

Facility County: HILLSBOROUGH

Processor: Bruce Mitchell

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Permit project documents are addressed in this email may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible, and verify that they are accessible. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record. If you have any problems opening the documents or would like further information, please contact the Florida Department of Environmental Protection, Bureau of Air Regulation at (850)488-0114.

Thank you,

Sylvia Livingston
Bureau of Air Regulation
Division of Air Resource Management (DARM)
850/921-0771
sylvia.livingston@dep.state.fl.us

Recipient

Delivery

- ✓ 'dmlukcic@tecoenergy.com'
- ✓ 'btburrows@tecoenergy.com'
- ✓ 'tdavis@ectinc.com'
- 'campbell@epchc.org'
- 'Lee@epchc.org'
- 'LiuP@epchc.org'
- ✓ 'foney.kathleen@epamail.epa.gov'
- ✓ 'catherine_collins@fws.gov'

Arif, Syed

Delivered: 9/10/2008 4:20 PM

Mitchell, Bruce

Delivered: 9/10/2008 4:20 PM

Walker, Elizabeth (AIR)

Delivered: 9/10/2008 4:20 PM

Gibson, Victoria

Delivered: 9/10/2008 4:20 PM

Livingston, Sylvia

From: David Lukcic [dmlukcic@tecoenergy.com]
Sent: Wednesday, September 10, 2008 4:22 PM
To: Livingston, Sylvia; Byron Burrows
Cc: Mitchell, Bruce; Walker, Elizabeth (AIR); Arif, Syed; Gibson, Victoria; tdavis@ectinc.com; forney.kathleen@epamail.epa.gov; campbell@epchc.org; Lee@epchc.org; LiuP@epchc.org; catherine_collins@fws.gov
Subject: Re: TECO - H. L. CULBREATH BAYSIDE POWER STATION;0570040-024-AC

Thank you.

-----Original Message-----

From: "Livingston, Sylvia" <Sylvia.Livingston@dep.state.fl.us>
Cc: Bruce Mitchell <Bruce.Mitchell@dep.state.fl.us>
Cc: Elizabeth (AIR) Walker <Elizabeth.Walker@dep.state.fl.us>
Cc: Syed Arif <Syed.Arif@dep.state.fl.us>
Cc: Victoria Gibson <Victoria.Gibson@dep.state.fl.us>
Cc: <tdavis@ectinc.com>
Cc: <forney.kathleen@epamail.epa.gov>
Cc: <campbell@epchc.org>
Cc: <Lee@epchc.org>
Cc: <LiuP@epchc.org>
Cc: <catherine_collins@fws.gov>
To: David Lukcic <dmlukcic@tecoenergy.com>
To: Byron Burrows <btburrows@tecoenergy.com>

Sent: 9/10/2008 4:20:04 PM

Subject: TECO - H. L. CULBREATH BAYSIDE POWER STATION; 0570040-024-AC

Dear Sir/Madam:

Attached is the official Written Notice of Intent to Issue for the project referenced below. Click on the link displayed below to access the permit

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the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send". We must receive verification that you are able to access the documents. Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).

Click on the following link to access the permit project documents:

http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/0570040.024

.AC.D_pdf.zip

Owner/Company Name: TAMPA ELECTRIC COMPANY Facility Name: H. L. CULBREATH BAYSIDE POWER STATION Project Number: 0570040-024-AC Permit Status: DRAFT Permit Activity: CONSTRUCTION/INSTALL 8 SCCT- UNITS 3 THRU 6 Facility County: HILLSBOROUGH
Processor: Bruce Mitchell

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as soon as possible, and verify that they are accessible. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record. If you have any problems opening the documents or would like further information, please contact the Florida Department of Environmental Protection, Bureau of Air Regulation at (850)488-0114.

Thank you,

Livingston, Sylvia

From: Byron Burrows [btburrows@tecoenergy.com]
Sent: Wednesday, September 10, 2008 5:31 PM
To: Livingston, Sylvia
Subject: Re: TECO - H. L. CULBREATH BAYSIDE POWER STATION;0570040-024-AC

Documents received. Thank you!

Byron

Byron T. Burrows, P.E. BCEE
Manager, Air Programs
Tampa Electric Company
P.O. Box 111
Tampa, FL 33601-0111
Ph - 813.228.1282
Mob - 813.230.3445
Fax - 813.228.1308
btburrows@tecoenergy.com

>>> "Livingston, Sylvia" <Sylvia.Livingston@dep.state.fl.us> 09/10/08 4:20:04 PM >>>

Dear Sir/Madam:

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Owner/Company Name: TAMPA ELECTRIC COMPANY
Facility Name: H. L. CULBREATH BAYSIDE POWER STATION
Project Number: 0570040-024-AC
Permit Status: DRAFT
Permit Activity: CONSTRUCTION/ INSTALL 8 SCCT- UNITS 3 THRU 6
Facility County: HILLSBOROUGH
Processor: Bruce Mitchell

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Thank you,

Sylvia Livingston
Bureau of Air Regulation
Division of Air Resource Management (DARM)

9/10/2008

Livingston, Sylvia

From: Tom Davis [tdavis@ectinc.com]
Sent: Wednesday, September 10, 2008 4:31 PM
To: Livingston, Sylvia
Cc: David Lukcic (dmlukcic@tecoenergy.com)
Subject: RE: TECO - H. L. CULBREATH BAYSIDE POWER STATION; 0570040-024-AC

Sylvia,

I have received and can view the documents provided for the subject project.

Thanks.

From: Livingston, Sylvia [mailto:Sylvia.Livingston@dep.state.fl.us]
Sent: Wednesday, September 10, 2008 4:20 PM
To: dmlukcic@tecoenergy.com; btburrows@tecoenergy.com
Cc: tdavis@ectinc.com; campbell@epchc.org; Lee@epchc.org; LiuP@epchc.org; forney.kathleen@epamail.epa.gov; catherine_collins@fws.gov; Arif, Syed; Mitchell, Bruce; Walker, Elizabeth \ (AIR\); Gibson, Victoria
Subject: TECO - H. L. CULBREATH BAYSIDE POWER STATION; 0570040-024-AC

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Thank you,

Sylvia Livingston

9/10/2008

Livingston, Sylvia

From: Catherine_Collins@fws.gov
Sent: Thursday, September 11, 2008 12:10 PM
To: Livingston, Sylvia
Subject: TECO - H. L. CULBREATH BAYSIDE POWER STATION; 0570040-024-AC

Return Receipt

Your document: TECO - H. L. CULBREATH BAYSIDE POWER STATION; 0570040-024-AC

was received by: Catherine Collins/R9/FWS/DOI

at: 09/11/2008 10:10:06 AM

Livingston, Sylvia

From: Mail Delivery System [MAILER-DAEMON@mseive01.rtp.epa.gov]
Sent: Wednesday, September 10, 2008 4:20 PM
To: Livingston, Sylvia
Subject: Successful Mail Delivery Report

Attachments: Delivery report; Message Headers



Delivery report.txt
(502 B)



Message
Headers.txt (2 KB)

This is the mail system at host mseive01.rtp.epa.gov.

Your message was successfully delivered to the destination(s) listed below. If the message was delivered to mailbox you will receive no further notifications. Otherwise you may still receive notifications of mail delivery errors from other systems.

The mail system

<forney.kathleen@epamail.epa.gov>: delivery via 127.0.0.1[127.0.0.1]:10025: 250
OK, sent 48C82BF8_6079_64388_2 94F10443C9