

**STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF FINAL PERMIT**

In the Matter of an  
Application for Permit by:

Tampa Electric Company – Bayside Power Station  
Port Sutton Road  
Tampa, FL 33619

Project No. 0570040-013-AC  
Air Permit No. PSD-FL-301  
F.J. Gannon Re-Powering Project

*Authorized Representative:*

Ms. Karen Sheffield, General Manager

Hillsborough County, Florida

Enclosed is Final Air Permit No. PSD-FL-301 (Project No. 0570040-013-AC). This permit authorizes construction of seven new combined cycle gas turbines to re-power the existing F.J. Gannon Station. The existing plant is renamed the "Bayside Power Station" and is located within the existing plant boundaries on Tampa's Port Sutton Road in Hillsborough County, Florida. As noted in the Final Determination (attached), minor changes to the draft permit were made by the Department, mostly at the request of the applicant. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.



C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

**CERTIFICATE OF SERVICE**

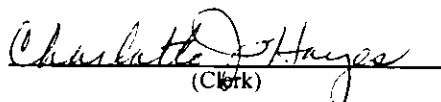
The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 3/30/01 to the person(s) listed:

Ms. Karen Sheffield, TEC Bayside Power Station\*  
Ms. Cindy Barringer, TEC Bayside Power Station  
Mr. Patrick Shell, TEC  
Mr. Tom Davis, ECT  
Chair, Hillsborough County BCC

Mr. Jerry Campbell, HEPC  
Mr. Bill Thomas, SWD  
Mr. John Notar, NPS  
Mr. Winston Smith, EPA Region 4

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk)

3/30/01  
(Date)

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

7099 3400 0000 1449 2471

Article Sent To:

Postage	\$	TEC Bayside
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
<b>Total Postage &amp; Fees</b>	\$	Postmark Here

Name (Please Print Clearly) (to be completed by mailer)  
 Ms. Karen Sheffield, Gen. Mgr  
 Street, Apt No. or PO Box No.  
 Port Sutton Road  
 City, State, ZIP+4  
 Tampa, FL 33619

PS Form 3800, July 1999 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> <li>Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Received by (Please Print Clearly) B. Date of Delivery                  _____ 4/2/01</p> <p>C. Signature                  x <i>[Signature]</i> <input type="checkbox"/> Agent  <input type="checkbox"/> Addressee</p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes                  If YES, enter delivery address below: <input type="checkbox"/> No</p>
<p>1. Article Addressed to:</p> <p>Ms. Karen Sheffield, Gen. Mgr.                  TEC Bayside Power Station                  Port Sutton Road                  Tampa, FL 33619</p>	<p>3. Service Type</p> <p><input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail  <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise  <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p>
<p>2. Article Number (Copy from service label)                  7099 3400 0000 1449 2471</p>	<p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>

## FINAL DETERMINATION

Bayside Power Station  
Re-Powering of the F.J. Gannon Plant  
Hillsborough County, Florida

Air Permit No. PSD-FL-301  
Project No. 0570040-013-AC

### PROJECT DESCRIPTION

The Tampa Electric Company (TEC) owns and operates the F.J. Gannon Station located on Port Sutton Road in Tampa, Hillsborough County, Florida. TEC proposes to re-power the existing Gannon Station with seven new combined cycle gas turbines in accordance with the DEP/TEC Consent Final Judgment signed on December 7, 1999 and with the EPA/TEC Consent Decree entered on October 5, 2000. Each unit will consist of a nominal 170 MW General Electric Model PG7241(FA) gas turbine with heat recovery steam generator. Steam from three new combined cycle units (Bayside Units 1A, 1B, and 1C) will re-power existing the steam-electric turbine of Gannon Unit 5 (nameplate rating of 239 MW). Steam from four new combined cycle units (Bayside Units 2A, 2B, 2C, and 2D) will re-power the existing steam-electric turbine of Gannon Unit 6 (nameplate rating of 414 MW). An existing 14 MW simple cycle gas turbine will remain on site. All existing coal-fired boilers (Gannon Units 1 - 6) will be shut down prior to January 1, 2005. The re-powered plant will have a nominal electrical production capacity of approximately 1742 MW.

### NOTICE, PUBLICATION, AND COMMENTS RECEIVED

The Department distributed an Intent to Issue Permit package on February 5, 2001 that authorizes the construction of the seven new combined cycle gas turbines to re-power the existing F.J. Gannon Station. The applicant published the "Public Notice of Intent to Issue" in The Tampa Tribune on February 10, 2001 and the Department received proof of publication on February 15, 2001. During the 30-day comment period, the Department received comments regarding the proposed draft permit from the following sources:

- In a letter dated March 6, 2001, the Hillsborough Environmental Protection Commission (HEPC) made several comments and suggestions.
- In a letter dated March 9, 2001, the Tampa Electric Company (TEC) made several comments and suggestions.
- In a letter dated March 12, 2001, the EPA Region 4 Office offered no written comments in addition to previous verbal comments made to staff.

On February 23, TEC filed for an extension of time in which to file for an administrative hearing. On March 14, 2001, the Department met with TEC to discuss and resolve their concerns. The meeting resulted in several mutually agreed upon minor changes. On March 16, 2001, the proposed changes were provided to the HEPC and EPA Region 4 office for additional comments with a response deadline of March 23, 2001. No additional comments on the proposed changes were received. The following sections identify the agreed upon changes, summarize other minor changes, and provide responses to other questions and concerns. Actual permit text is included in "quotation marks", deleted text is marked with a ~~strike through~~, and revised text is noted with a dotted underline.

### RESPONSES AND REVISIONS

#### PLACARD PAGE (PAGE 1)

**Expiration Date:** Revised the "Expiration Date" from ~~December 31, 2004~~ to July 1, 2005 to allow a reasonable time to submit the Title V application and make it "complete". Added a requirement to complete physical construction by December 31, 2004 (original expiration date) to Condition 4 in section IIIA.

## FINAL DETERMINATION

**Statement of Basis:** No revision was made. TEC withdrew request regarding rewording of references to the settlement agreements.

### SECTION I. FACILITY INFORMATION

**Page 2, Facility Description:** For clarification, revised first sentence of descriptive text to, "Upon completion of construction by the end of 2004, the new Bayside Power Station will have a nominal electrical production capacity of 1742 MW based on the nominal capacities for Bayside Unit 1 (753 MW), Bayside Unit 2 (975 MW), and existing simple cycle combustion turbine CT-1 (14 MW)." Note: This change provides more detail and clarifies the nominal capacity of the plant in response to comments by both TEC and HEPC.

**Page 2, Regulatory Classification, Title III:** For clarification, revised second sentence of descriptive text to, "The MACT applicability determination for this project is deferred until ~~one new combined cycle gas turbine is tested for HAP emissions~~ completion of the HAP emissions testing as described in this permit."

**Page 3, Regulatory Classification, Title V:** For clarification, the first sentence of descriptive text was revised to, "The ~~existing~~ facility is a Title V major source of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year."

**Page 3, Relevant Documents:** For clarification, revised reference to the EPA/TEC Consent Decree to, "EPA/TEC Consent Decree ~~signed in February of 2000~~ entered on October 5, 2000; and".

### SECTION II. STANDARD CONDITIONS

**Page 4, Condition 8:** Corrected typographical error of rule citation to, "[Rule 62-212.400(6)(b), F.A.C. and 40 CFR ~~525~~1.166(j)(4)]".

**Page 5, Condition 12:** No revision was made. TEC agrees to submit the Title V revision application for Bayside Unit 1 in accordance with this condition as drafted. However, TEC will specifically note the current schedule for completing Bayside Unit 2 in the application and that the required information will be provided as soon as possible to "complete" the application for a Title V revision. As previously mentioned, the expiration date was extended 6 months to allow additional time to make the application complete. A requirement to complete physical construction by December 31, 2004 (original expiration date) was added to Condition 4 in Section IIIA.

**Page 5, Condition 18.a:** No revision was made. HEPC suggested changing the minimum visible emissions observation period from 30 minutes to 60 minutes because of the multiple opacity standard in Condition 19.a in Section IIIA. The Department notes that this is an alternative standard specified for periods of startup and shutdown and does not intend the permittee to conduct regularly scheduled visible emissions tests for startup and shutdown in addition to tests for normal operation.

### SECTION III. A. COMBINE CYCLE GAS TURBINES

**Page 7, Emissions Unit Description:** For clarification, revised table format and added descriptive text, "Bayside Unit 1 is designed to produce a nominal 753 MW and Bayside Unit 2 is designed to produce a nominal 975 MW of electrical power" under heading of "Generating Capacity".

**Page 7, Condition 1:** Deleted unnecessary comma after "particulate matter".

**Page 8, Condition 4:** As previously discussed, revised condition to:

- "4. Schedule: Bayside Unit 1 is scheduled for completion in ~~March~~ May 2003 and Bayside Unit 2 is scheduled for completion in ~~March~~ May 2004. Physical construction shall be complete by December 31, 2004. The permittee shall inform the Department of any substantial changes to the construction schedule. [Application; Rule 62-212.400, F.A.C.]"

## FINAL DETERMINATION

**Page 8, Condition 5:** For clarification, revised the first sentence of condition to, "The permittee is authorized to install, tune, operate and maintain seven new General Electric Model PG7241(FA) gas turbines with electrical generator sets, each designed to produce a nominal 170 MW direct of electrical power."

**Page 8, Condition 5:** For clarification, revised last sentence of condition to, "The permittee shall submit the final design data upon completion with the Title V application."

**Page 8, Condition 8:** For clarification, revised condition to:

- "8. DLN Combustion Technology: The permittee shall install, tune, operate and maintain the General Electric dry low-NOx combustion system (DLN 2.6 or better) to control NOx emissions from each combined cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the dry low-NOx combustors and automated gas turbine control system shall be tuned to optimize the reduction of CO, NOx, and VOC emissions minimize NOx emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations to minimize these pollutant emissions. The permittee shall provide at least 5 days advance notice prior to any tuning session. For each regularly scheduled tuning session to be performed by the manufacturer, the permittee shall provide at least 5 days advance notice. Such notice is not required for tuning sessions conducted to mitigate an emergency, correct a malfunction, or provide engineering test data. [Design; Rule 62-212.400(BACT), F.A.C.]"

**Page 8, Condition No. 9:** For clarification, revised last sentence of condition to, "... The SCR system shall be designed to reduce NOx emissions while minimizing ammonia slip within the permitted levels control NOx emissions to the permitted levels with an ammonia slip no greater than 5 ppmvd corrected to 15% oxygen when firing natural gas and no greater than 9 ppmvd corrected to 15% oxygen when firing distillate oil."

**Page 8, Condition 10:** Revised last sentence of condition to, "The permittee shall submit the final design data upon completion with the Title V application."

**Page 9, Condition 11:** Moved redundant text "a compressor inlet air temperature of 59° F" from paragraph "a" and paragraph "b" to following unnumbered paragraph.

**Page 9, Condition 13:** Deleted this entire condition and renumbered accordingly. TEC maintained that the ability to operate the existing Gannon units as necessary until the required shutdown was a motivating factor during the settlement discussions. The Department agreed that the authority to prioritize dispatch of the remaining coal-fired units was not specifically addressed in the settlement agreements.

**Page 9, Condition 14.c:** No revision was made. TEC withdrew an initial request for a slightly higher oil-firing limit. HEPC requested clarification regarding the oil-firing limit. Each unit is capable of firing approximately 13,460 gallons of oil per hour for 875 hours, which is approximately 11,750,000 gallons per unit per year. The allowable oil-firing rate is based on a 12-month rolling total.

**Page 10, Condition 16:** Revised specific paragraphs of condition to:

- "a. Ammonia Slip: Each SCR system shall be designed and operated for a maximum ammonia slip of no more than 5 ppmvd corrected to 15% oxygen when firing natural gas and no more than 9 ppmvd corrected to 15% oxygen when firing distillate oil. Subject to the requirements of Condition No. 25 in this section, each SCR system shall be designed and operated for an ammonia slip target of less than 5 ppmvd corrected to 15% oxygen when firing natural gas. When firing distillate oil, the ammonia slip shall not exceed 9 ppmvd corrected to 15% oxygen. [Rule 62-4.070(3), F.A.C.]"

FINAL DETERMINATION

- b. No revision was made. TEC's withdrew initial comments regarding CO emissions.
- d. Based on EPA Region 4's verbal comments, revised the last sentence before the permitting note to, "Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as ~~surrogate standards for particulate matter~~ indicators of good combustion." HEPC suggested moving the notes regarding "expected maximum" particulate matter emissions from the note to the enforceable part of the condition. The Department did not intend these rates to be enforceable and, as such, did not require any compliance testing for particulate matter. Instead, the "efficient combustion of clean fuels" is the BACT control and compliance with the CO CEMS limit serves as an indicator of good combustion.
- g. Based on EPA Region 4's verbal comments, revised the last sentence before the permitting note to, "Compliance with CO standards shall serve as ~~surrogate standards for VOC emissions~~ indicators of good combustion." HEPC suggested moving the notes regarding "expected maximum" VOC emissions from the note to the enforceable part of the condition. The Department has the same response as that for particulate matter above.

**Page 10, Condition 19:** Revised specific paragraphs of condition to:

~~"b. Except for startup and shutdown, operation below 50% base load is prohibited. Excluding startup, shutdown, and documented unavoidable malfunction, each gas turbine is allowed up to 3 hours of operation below 50% base load in any 24-hour block period, providing:~~

- ~~(1) The gas turbine is firing natural gas;~~
- ~~(2) The CO and NOx CEM systems are functioning properly during such periods and valid emissions data (within the span range of the monitors) is being monitored and recorded; and~~
- ~~(3) The gas turbine remains in compliance with the CO and NOx emissions standards (24-hour block averages) based on valid CEM system data.~~

~~Note: Operation during startup, shutdown, and documented unavoidable malfunction are addressed in Condition No. 27.d."~~

c. Revised first sentence to, "A "steam turbine cold startup" is defined as startup after the steam turbine has been offline for 24 hours or more ~~and~~ or the first stage turbine metal temperature is 250° F or less."

~~"e. For each Bayside Unit, the permittee shall provide a Startup and Shutdown Plan as part of the application for a Title V air operation permit. The plan shall identify startup and shutdown procedures, duration of the procedures, and the methods used to minimize emissions during these periods. Within 90 days of completing the eighth steam turbine cold startups following commencement of commercial operation or within 90 days after 12 months of commercial operation, whichever occurs first, the permittee shall submit a revised plan to the Department based on actual operating data and experience. The Department shall review the actual operational data and determine whether the period of data exclusion for a steam turbine cold startup defined in Condition 27 of this section shall be ~~decreased~~ modified to represent good operational practices. The Department shall also evaluate the operational information and determine whether a separate "warm startup" requirement shall be specified in the Title V operation permit for startup after the steam turbine has been offline for 24 hours or more, but less than 48 hours."~~

**Page 12, Condition 22:** Revised third sentence of condition to, "Tests for CO<sub>2</sub> ~~and~~ NO<sub>x</sub> ~~and~~ VOC shall be conducted concurrently." This was a typographical error as no testing was required for VOC emissions.

**Page 13, Condition 23:** Replaced last sentence of this condition with, "Within 60 days after submittal of the HAP emissions test report, the permittee shall submit a revised MACT applicability analysis (based on the test

## FINAL DETERMINATION

data and current EPA guidance) and propose a Maximum Available Control Technology for the units, if required.” Note: At this time, the Department is aware of only two viable HAP emissions control options for this project: an oxidation catalyst and the efficient high-temperature combustion of the General Electric Model PG7241(FA) gas turbine.

**Page 13, Condition 24:** Changed “200” to “400” hours of oil firing as the threshold for conducting compliance tests if oil is fired as a backup fuel. Deleted third sentence of condition to clarify that annual CO and NOx emissions testing (in addition to CEMS monitoring) is not required and added following, “{Permitting Note: Continuous compliance with the CO and NOx standards is demonstrated with certified CEMS system data.}”

**Page 13, Condition 25:** Completely revised condition to:

- “25. Additional Ammonia Slip Testing: If the tested ammonia slip rate for a gas turbine exceeds 5 ppmvd corrected to 15% oxygen when firing natural gas during the annual test, the permittee shall:
- Begin testing and reporting the ammonia slip for each subsequent calendar quarter;
  - Take corrective actions before the ammonia slip exceeds 7 ppmvd corrected to 15% oxygen that lowers the ammonia slip to less than 5 ppmvd corrected to 15% oxygen; and
  - Test and demonstrate that the ammonia slip is less than 5 ppmvd corrected to 15% oxygen within 15 days after completing the corrective actions.

Corrective actions may include, but are not limited to, adding catalyst, replacing catalyst, or other SCR system maintenance or repair. After demonstrating that the ammonia slip level is less than 5 ppmvd corrected to 15% oxygen, testing and reporting shall resume on an annual basis. [Rules 62-4.070(3) and 62-297.310(7)(b), F.A.C.]”

Note: Ammonia emissions greater than “7” ppmvd corrected to 15% oxygen would be considered a permit violation subject to daily penalties until corrected.

**Page 13, Condition 26:** Deleted condition and renumbered accordingly. It was considered unnecessary because Condition No. 22 in Section II previously addressed conducting “special compliance tests” in accordance with Rule 62-297.310(7)(b), F.A.C.

**Page 13 and 14, Condition 27:** This condition was revised to:

27. Continuous Emission Monitoring System: Removed references to an oxygen monitor because TEC will install a CO<sub>2</sub> monitor.
- Data Collection. Replaced seventh sentence with, “~~All data points collected during an hour shall be, to the extent practicable, evenly spaced over the hour.~~ The CEM system shall be designed and operated to sample, analyze, and record data evenly spaced over the hour.”
  - CO and CO<sub>2</sub> and Oxygen Certification. Removed references to an oxygen monitor because TEC will install a CO<sub>2</sub> monitor.
  - Data Exclusion. Revised paragraph (2) to:  
“(2) Periods of data excluded for a steam turbine cold startup shall not exceed sixteen hours in any ~~block~~ 24-hour block period. A “steam turbine cold startup” is defined as startup after the steam turbine has been offline for 24 hours or more ~~and~~ or the first stage turbine metal temperature is 250° F or less. Based on actual operating experience and data, the Department may ~~decrease~~ modify this period of data exclusion in the Title V air operating permit without modifying this PSD permit.”

## FINAL DETERMINATION

---

**Page 16, Condition 30:** Revised first sentence of condition to:

“30. Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of distillate oil consumption for each gas turbine of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D.”

### SECTION III.C. EXISTING EMISSIONS UNITS

**Page 18, Condition 1:** Revised last sentence of condition to, “Upon first fire in any combined cycle gas turbine for Bayside Unit 1, the heat input limit on the coal yard (EU-008) is reduced to  $56.7 \times 10^{06}$  mmBTU per calendar year consecutive 12 months.” Note: The calendar year basis for the coal yard heat-input limit is consistent with the original permit condition.

**Page 18, Condition 2:** Revised last sentence of condition to, “Upon first fire in any combined cycle gas turbine for Bayside Unit 2, the heat input limit on the coal yard (EU-008) is reduced to  $35.3 \times 10^{06}$  mmBTU per calendar year consecutive 12 months.” Note: The calendar year basis for the coal yard heat-input limit is consistent with the original permit condition.

### SECTION IV. APPENDICES

**Appendix B:** Minor formatting changes were made to the emissions summary table and additional notes added. Additional details were included in the Final BACT Determinations summary.

**Appendix GC, Condition G.2:** This condition was not revised because it is directly from Rule 62-4.160, F.A.C.

### TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

**Page 6, Paragraph 3.7:** TEC asserts that available information suggests that substantial increases in CO emissions resulted from their efforts to reduce NO<sub>x</sub> emissions from the Gannon coal-fired boilers (primarily by reducing the combustion oxygen). TEC believes that the single 3-hour test performed on Gannon Unit 5 confirms this supposition. TEC does not believe that the AP-42 emission factors represent reasonable CO emissions from coal-fired boilers using lean combustion to control NO<sub>x</sub> emissions. The Department notes the following:

- TEC submitted a supporting document entitled, “Results from the ICCT T-Fired Demonstration Project Including the Effect of Coal Fineness on NO<sub>x</sub> Emissions and Unburned Carbon Levels (Hardman, Smith, and Tavoulaareas)”, which was presented at the EPRI/EPA Joint Symposium on Stationary NO<sub>x</sub> Control in May of 1993.
- The NO<sub>x</sub> reduction strategies were included as a pollution control project in 1996. At this time, TEC did not identify that any substantial increases in CO emissions would result.
- Through at least 1999, TEC continued to submit CO emissions data in their Annual Operating Reports based on AP-42 emission factors.
- The Department does not believe a 3-hour stack test is sufficient to determine annual emissions.

The Department acknowledges that TEC disagrees with the Department’s PSD applicability determination regarding CO emissions.

**Page 9, Paragraph 4.2:** TEC withdrew initial comments questioning the oil-firing limit.

**Page 10, Table 4.1:** TEC requested that ammonia slip limits be included for the projects listed in this table. The Department does not have ready access to this information for out-of-state projects. However, the following table summarizes ammonia slip limits for recently permitted projects in Florida.



**FINAL DETERMINATION**

<b>Facility</b>	<b>Ammonia Slip Limit</b>
Calpine Osprey Energy Center	9 ppmvd @ 15% O2, gas only
Calpine Blue Heron Energy Center	5 ppmvd @ 15% O2, gas only
FPC Hines Power Block II	5 ppmvd @ 15% O2, gas 9 ppmvd @ 15% O2, oil
CPV Gulfcoast	5 ppmvd @ 15% O2, gas and oil
CPV Atlantic	5 ppmvd @ 15% O2, gas and oil
KUA Cane Island Unit 3	5 ppmvd @ 15% O2, gas and oil
Duke New Smyrna Beach Power	5 ppmvd @ 15% O2, gas only

**Page 15, Paragraph 4.7:** HEPC notes that this paragraph indicates a volume of “5.85” million gallons for the distillate oil tank (EU 027), but that the Draft Permit specifies an “8” million gallons. The Department agrees that this should read “8” million gallons.

**Page 16, Paragraph 5:** The Department acknowledges that TEC disagrees with the Department’s determination regarding MACT applicability. TEC maintains that the three gas turbines serving a single steam turbine comprising Bayside Unit 1 and the four gas turbines serving single steam turbine comprising Bayside Unit 2 are separate “process or production units” as defined by the MACT regulations in Section 112(g) of the Clean Air Act Amendments of 1990. Therefore, the potential HAP emissions must be considered independently when determining MACT applicability. The Department disagrees with this interpretation, as does EPA Region 4.

**Pages 19 and 20, Paragraph 7.3:** This section discusses an estimated reduction in the operation of existing coal-fired Gannon Units 1 – 4 after the Bayside Units become operational. This information is based on several assumptions made by the Department’s reviewing project engineer and is not an enforceable requirement. The Department recognizes that TEC does not necessarily agree with the assumptions or conclusions regarding this point.

**CONCLUSION**

Other typographical and formatting errors were corrected. The Department considers all revisions to be minor. The final action of the Department is to issue the permit with the changes described above.



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

David B. Struhs  
Secretary

## PERMITTEE:

Tampa Electric Company – Bayside Power Station  
Port Sutton Road  
Tampa, FL 33619

Project No. 0570040-013-AC  
Air Permit No. PSD-FL-301  
Facility ID No. 0570040  
SIC No. 4911  
Expires: July 1, 2005

## Authorized Representative:

Ms. Karen Sheffield, General Manager

## PROJECT AND LOCATION

This permit authorizes construction of seven new combined cycle gas turbines with a nominal electrical production capacity of approximately 1728 MW to re-power the existing Gannon Station. The existing plant is renamed the "Bayside Power Station" and is located within the existing plant boundaries on Tampa's Port Sutton Road in Hillsborough County, Florida. The UTM coordinates are Zone 17, 360.00 km E, 3087.50 km N.

## STATEMENT OF BASIS

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. This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and 40 CFR 52.21. Specifically, this permit is issued pursuant to the Chapter 62-212, F.A.C. requirements for Preconstruction Review of Stationary Sources and the Prevention of Significant Deterioration (PSD) of Air Quality. The conditions of this permit do not relieve the permittee from any applicable requirement of the DEP/TEC Consent Final Judgement or the EPA/TEC Consent Decree.

## APPENDICES

The following Appendices are attached as part of this permit.

- Appendix A - Terminology
- Appendix B - Final BACT Determinations and Emissions Standards
- Appendix E - Summary of Mass Emissions for Given Inlet Temperatures
- Appendix GC - General Conditions
- Appendix GG - NSPS Subpart GG Requirements for Gas Turbines
- Appendix XS - Semi-Annual Continuous Monitor Systems Report

Howard L. Rhodes, Director  
Division of Air Resources Management

3/30/01

(Date)

## SECTION I. FACILITY INFORMATION

### FACILITY DESCRIPTION

Upon completion of construction by the end of 2004, the new Bayside Power Station will have a nominal electrical production capacity of 1742 MW based on the nominal capacities for Bayside Unit 1 (753 MW), Bayside Unit 2 (975 MW), and existing simple cycle combustion turbine CT-1 (14 MW). The following table summarizes the emission units and current status upon issuance of this air construction permit.

EU No.	Status <sup>a</sup>	Emission Unit Description
001	A <sup>d</sup>	Gannon Unit 1 – 125 MW coal fired boiler with steam electrical generator
002	A <sup>d</sup>	Gannon Unit 2 – 125 MW coal fired boiler with steam electrical generator
003	A <sup>d</sup>	Gannon Unit 3 – 180 MW coal fired boiler with steam electrical generator
004	A <sup>d</sup>	Gannon Unit 4 – 188 MW coal fired boiler with steam electrical generator
005	A <sup>b, d</sup>	Gannon Unit 5 – 239 MW coal fired boiler with steam electrical generator
006	A <sup>c, d</sup>	Gannon Unit 6 – 414 MW coal fired boiler with steam electrical generator
007	A	Combustion Turbine No. 1 – 14 MW simple cycle gas turbine
008	A	Gannon Station Coal Yard - Serves Gannon Units 1 – 6
009	A	Economizer Ash Silo w/Baghouse – Serves Gannon Unit No. 4
010	A	Fly Ash Silo No. 1 w/Baghouse – Serves Gannon Units 5 and 6
011	A	Fly Ash Silo No. 2 w/Baghouse – Serves Gannon Units 1 – 4
012	A	Pug Mill and Truck Unloading – Serves Gannon Units 5 and 6
013	A	Coal Bunker w/Roto-Clone – Serves Gannon Unit 1
014	A	Coal Bunker w/Roto-Clone – Serves Gannon Unit 2
015	A	Coal Bunker w/Roto-Clone – Serves Gannon Unit 3
016	A	Coal Bunker w/Roto-Clone – Serves Gannon Unit 4
017	A	Coal Bunker w/Roto-Clone – Serves Gannon Unit 5
018	A	Coal Bunker w/Roto-Clone – Serves Gannon Unit 6
019	I	Inactive emission unit
020	C <sup>b</sup>	Bayside Unit 1A – 170 MW combined cycle gas turbine
021	C <sup>b</sup>	Bayside Unit 1B – 170 MW combined cycle gas turbine
022	C <sup>b</sup>	Bayside Unit 1C – 170 MW combined cycle gas turbine
023	C <sup>c</sup>	Bayside Unit 2A – 170 MW combined cycle gas turbine
024	C <sup>c</sup>	Bayside Unit 2B – 170 MW combined cycle gas turbine
025	C <sup>c</sup>	Bayside Unit 2C – 170 MW combined cycle gas turbine
026	C <sup>c</sup>	Bayside Unit 2D – 170 MW combined cycle gas turbine
027	A	Distillate Oil Storage Tank - 8 million gallon capacity serves Bayside Units

**Notes:**

- a. Status: A (Active), I (Inactive), C (Under Construction)
- b. EU 005 must be shutdown before operating EUs 020, 021, and 022.
- c. EU 006 must be shutdown before operating EU 023, 024, 025, and 026.
- d. EUs 001, 002, 003, 004, 005, and 006 must be shut down before January 1, 2005.

## SECTION I. FACILITY INFORMATION

---

### REGULATORY CLASSIFICATION

Title III: The existing facility is a major source of hazardous air pollutants (HAPs). The MACT applicability determination for this project is deferred until completion of the HAP emissions testing as described in this permit.

Title IV: The facility has several emissions units, including the new combined cycle gas turbines, that are subject to the Acid Rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

PPSC: The existing Gannon Station was constructed prior to the power plant site certification requirements of Chapter 62-17, F.A.C. The re-powering project is not subject to power plant site certification because there will be no expansion of the steam electrical generating capacity.

PSD: The facility is located in an area that is in attainment with, or designated as unclassifiable for, each pollutant subject to a National Ambient Air Quality Standard. It is classified as a fossil fuel-fired steam electric plant, which is one of the industries listed as one of the 28 PSD Major Facility Categories identified in Table 62-212.400-1, F.A.C. Emissions from the facility are greater than 100 tons per year for at least one regulated pollutant. Therefore, the facility is "major" with respect to Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

NESHAP: The permittee did not identify any emission unit as being subject to a National Emissions Standard for Hazardous Air Pollutants (NESHAP).

NSPS: The new combined cycle gas turbines are subject to the New Source Performance Standards (NSPS) of 40 CFR 60, Subpart GG and the oil storage tank is subject to 40 CFR 60, Subpart Kb.

### RELEVANT DOCUMENTS

- DEP/TEC Consent Final Judgment signed on December 7, 1999;
- EPA/TEC Consent Decree entered on October 5, 2000; and
- PSD permit application received on September 21, 2000 and all related correspondence.

## SECTION II. STANDARD CONDITIONS

### ADMINISTRATIVE REQUIREMENTS

1. **Permitting Authority:** All documents related to applications for permits to construct, operate or modify an 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 and phone number 850/488-0114.
2. **Compliance Authorities:** All documents related compliance activities such as reports, tests, and notifications should be submitted to the Air Resources Section of the Southwest District Office, Florida Department of Environmental Protection, 3804 Coconut Palm Drive, Tampa, Florida 33619-8218. The phone number is 813/744-6100 and the fax number is 813/744-6084. Copies of all such documents shall be submitted to the Air Management Division of the Hillsborough County Environmental Protection Commission, 1410 North 21 Street, Tampa, FL 33605. The phone number is 813/272-5530 and the fax number is 813/272-5605.
3. **Terminology:** The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. *Appendix A* lists frequently used abbreviations and explains the format used to cite rules and regulations in this permit.
4. **General Conditions:** The owner and operator are subject to, and shall operate under, the attached General Conditions listed in *Appendix GC* of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
5. **Applicable Regulations, Forms and Application Procedures:** Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 52, 60, 72, 73, and 75 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. 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. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
6. **PSD Expiration:** Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. Such an extension does not relieve the permittee from any applicable requirement of the DEP/TEC Consent Final Judgement or the EPA/TEC Consent Decree. [40 CFR 52.21(r)(2)]
7. **Permit Expiration:** For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. Such an extension does not relieve the permittee from any applicable requirement of the DEP/TEC Consent Final Judgement or the EPA/TEC Consent Decree. [Rules 62-4.070(4), 62-4.080, and 62-210.300(1), F.A.C.]
8. **BACT Determination:** In conjunction with an extension of the 18 month period to commence or continue construction, phasing of the project, or an extension of the permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rule 62-212.400(6)(b), F.A.C. and 40 CFR 51.166(j)(4)]
9. **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

## SECTION II. STANDARD CONDITIONS

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.]

10. **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. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
11. **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 Rain Permit to the Region 4 office of the U.S. Environmental Protection Agency in Atlanta, Georgia and a copy to the Department's Bureau of Air Regulation in Tallahassee. [40 CFR 72]
12. **Title V Permit:** This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least ninety days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V 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 with copies to each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

### EMISSIONS AND CONTROLS

13. **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.]
14. **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.]
15. **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.]
16. **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.]

### TESTING REQUIREMENTS

17. **Sampling Facilities:** The permittee shall provide stack testing facilities and sampling locations in accordance with Rule 62-297.310(6), F.A.C.
18. **Test Procedures:** Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
  - a. **Required Sampling Time.** 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. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.

## SECTION II. STANDARD CONDITIONS

- 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.
- 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.

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

19. **Test Notification:** The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. [Rule 62-297.310(7)(a)9., F.A.C.; 40 CFR 60.7 and 60.8]
20. **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.]
21. **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. [Rule 62-297.310(5)(a), F.A.C.]
  - 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)(b), F.A.C.]
22. **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.]

### RECORDS AND REPORTS

23. **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 five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2., F.A.C.]
24. **Emissions Performance Test Reports:** A report indicating the results of any required emissions performance test shall be submitted to each 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. [Rule 62-297.310(8), F.A.C.]
25. **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(2), F.A.C.]

**SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS**

**A. COMBINED CYCLE GAS TURBINES**

This section of the permit addresses the following new emissions units.

EU ID	Bayside ID	Common Emission Unit Description
020 021 022 023 024 025 026	1A 1B 1C 2A 2B 2C 2D	<u>Combined Cycle Gas Turbines:</u> Each unit consists of a General Electric Model PG7241(FA) gas turbine-electrical generator set, an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, an unfired heat recovery steam generator (HRSG), a single exhaust stack that is 150 feet tall and 19.0 feet in diameter and associated support equipment. The project also includes electric fuel heaters and cooling towers. Natural gas is the primary fuel with very low sulfur distillate oil as a limited backup fuel.
<p><b>Controls:</b> Emissions of CO, PM/PM<sub>10</sub>, SAM, SO<sub>2</sub>, and VOC are minimized by the efficient combustion of these clean fuels at high temperatures. NO<sub>x</sub> emissions are reduced by a Selective Catalytic Reduction (SCR) system combined with dry low-NO<sub>x</sub> (DLN) combustion technology when firing natural gas and combined with water injection when firing very low sulfur distillate oil as a backup fuel.</p> <p><b>Heat Input:</b> At a compressor inlet air temperature of 59° F and firing 1842 mmBTU (HHV) per hour of natural gas, each unit produces approximately 169 MW. Exhaust gases exit the stack with a volumetric flow rate of approximately 1,020,000 acfm at 215° F. At a compressor inlet air temperature of 59° F and firing 1995 mmBTU (HHV) per hour of very low sulfur distillate oil, each unit produces approximately 182 MW. Exhaust gases exit the stack with a volumetric flow rate of approximately 1,160,000 acfm at 275° F.</p> <p><b>Generating Capacity:</b> Bayside Units 1A, 1B, and 1C supply steam to a single steam electrical generator (formerly serving Gannon Unit 5) with a nameplate rating of 239 MW. Bayside Units 2A, 2B, 2C, and 2D supply steam to a single steam electrical generator (formerly serving Gannon Unit 6) with a nameplate rating of 414 MW of electrical power. Bayside Unit 1 is designed to produce a nominal 753 MW and Bayside Unit 2 is designed to produce a nominal 975 MW of electrical power.</p>		

**APPLICABLE STANDARDS AND REGULATIONS**

1. **BACT Determinations:** The emissions units addressed in this section are subject to Best Available Control Technology (BACT) determinations for carbon monoxide (CO), particulate matter (PM/PM<sub>10</sub>), and volatile organic compounds (VOC). [Rule 62-212.400(BACT), F.A.C.]
2. **MACT Determination:** The MACT applicability determination for this project is deferred until a combined cycle gas turbine is tested for HAP emissions in accordance with Condition No. 22 of this section. However, the permittee shall plan accordingly for the possibility of future applicable controls. If additional controls are later required, the Department shall allow the permittee a reasonable time to install equipment and conform to new or additional conditions. [Rules 62-4.080 and 62-204.800(10)(d), F.A.C.; Section 112(g), CAAA]
3. **NSPS Requirements:** Each gas turbine shall comply with all applicable requirements of 40 CFR 60, adopted by reference in Rule 62-204.800(7)(b), F.A.C.
  - a. **Subpart A, General Provisions**, including: 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements).
  - b. **Subpart GG, Standards of Performance for Stationary Gas Turbines** as specified in *Appendix GG* of this permit.



## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

#### EQUIPMENT

4. Schedule: Bayside Unit 1 is scheduled for completion in May of 2003 and Bayside Unit 2 is scheduled for completion in May of 2004. Physical construction shall be complete by December 31, 2004. The permittee shall inform the Department of any substantial changes to the construction schedule. [Application; Rule 62-212.400(BACT), F.A.C.]
5. Combined Cycle Gas Turbines: The permittee is authorized to install, tune, operate and maintain seven new General Electric Model PG7241(FA) gas turbines with electrical generator sets, each designed to produce a nominal 170 MW of electrical power. Each unit shall be designed as a combined cycle system to include an automated gas turbine control system, an inlet air filtration system, an unfired heat recovery steam generator (HRSG), a single exhaust stack that is 150 feet tall and 19.0 feet in diameter, and associated support equipment. [Applicant Request; Design]
6. Heat Recovery Steam Generators (HRSG): The preliminary design of the HRSGs provides three levels of steam conditions when firing natural gas (high pressure, intermediate pressure, and low pressure) and two levels of steam conditions when firing very low sulfur distillate oil as a backup fuel (high pressure and intermediate pressure). The Bayside 1 Unit HRSGs will be identical and the Bayside 2 Unit HRSGs will be identical. The permittee shall submit the final design data with the Title V application. [Design]
7. Automated Control System: The permittee shall install, calibrate, tune, operate, and maintain a Speedtronic™ Mark VI automated gas turbine control system for each combined cycle unit. Each system shall be designed and operated to monitor and control the gas turbine combustion process and operating parameters including, but not limited to: air/fuel distribution and staging, turbine speed, load conditions, temperatures, heat input, and fully automated startup/shutdown. [Design; 62-212.400(BACT), F.A.C.]
8. DLN Combustion Technology: The permittee shall install, tune, operate and maintain the General Electric dry low-NOx combustion system (DLN 2.6 or better) to control NOx emissions from each combined cycle gas turbine. Prior to the initial emissions performance tests for each gas turbine, the dry low-NOx combustors and automated gas turbine control system shall be tuned to minimize NOx emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations. For each regularly scheduled tuning session to be performed by the manufacturer, the permittee shall provide at least 5 days advance notice. Such notice is not required for tuning sessions conducted to mitigate an emergency, correct a malfunction, or provide engineering test data. [Design; Rule 62-212.400(BACT), F.A.C.]
9. Selective Catalytic Reduction (SCR) System: The permittee shall install, tune, operate and maintain an SCR system to control NOx emissions from each combined cycle gas turbine. The SCR system consists of an ammonia injection grid, catalyst, anhydrous ammonia storage, monitoring and control system, electrical, piping and other support equipment. The SCR system shall be designed to reduce NOx emissions while minimizing ammonia slip within the permitted levels. [DEP/TEC Consent Final Judgement; EPA/TEC Consent Decree; Rule 62-4.070(3), F.A.C.]
10. Evaporative Inlet Air-Cooling System: Each combined cycle gas turbine may have an evaporative cooling system designed to reduce the temperature of the inlet air to the gas turbine compressor. The reduced temperature provides a greater mass flow rate and increase in power production with additional fuel combustion. The preliminary design is for a water distribution system with packed media blocks of corrugated layers of fibrous material. Air passing over the system wicks moisture away from the media to create the cooling effect. The permittee shall submit the final design data with the Title V application. [Applicant Request; Design]

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

#### PERFORMANCE RESTRICTIONS

11. Permitted Capacity: The maximum heat input rates to each gas turbine shall not exceed the following:

- a. **Natural Gas Firing**: 1842 mmBTU per hour while producing approximately 170 MW.
- b. **Distillate Oil Firing**: 1995 mmBTU per hour while producing approximately 182 MW.

The heat input rates are based on a compressor inlet air temperature of 59° F, the higher heating values (HHV) of each fuel and expected performance levels beyond the manufacturer's guarantee. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, and evaporative cooling. The permittee shall provide the manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 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. [Design; Rule 62-210.200(PTE), F.A.C.]

12. Allowable Fuels: As the primary fuel, each combined cycle gas turbine shall fire pipeline-quality natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet of natural gas. As a backup fuel, each combined cycle gas turbine may be fired with very low sulfur No. 2 distillate oil (or a superior grade) containing less than 0.05% sulfur by weight. No other fuels are allowed. [Design; Rules 62-210.200(PTE); DEP/TEC Consent Final Judgement; EPA/TEC Consent Decree]

13. Restricted Operation: The hours of operation for each combined cycle gas turbine are not limited (8760 hours per year). However, very low sulfur distillate oil may only be fired as a backup fuel, provided:

- a. The unit cannot fire natural gas;
- b. The unit fires No. 2 distillate oil (or a superior grade) containing less than 0.05% sulfur by weight as the backup fuel;
- c. The unit fires no more than 11,775,000 gallons of very low sulfur distillate oil during any consecutive 12 months (equivalent to 875 hours per year of oil firing);
- d. All air pollution controls are functional and used to the maximum extent possible for the unit; and
- e. The unit is in compliance with the emissions standards of this permit.

[Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.; EPA/TEC Consent Decree]

14. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to minimize emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the combined cycle gas turbines and pollution control systems in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

#### EMISSIONS STANDARDS

*{Permitting Note: A summary table of the emissions standards is provided in Appendix B of this permit.}*

15. Emissions Standards Based on Performance Tests: The following standards apply to each combined cycle gas turbine as determined by emissions performance tests conducted at permitted capacity. The mass emission limits are based a compressor inlet temperature of 59° F. For comparison to the standard, actual measured mass emissions shall be corrected to a compressor inlet temperature of 59° F with manufacturer's data on file with the Department.

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

- a. **Ammonia Slip:** Subject to the requirements of Condition No. 24 in this section, each SCR system shall be designed and operated for an ammonia slip target of less than 5 ppmvd corrected to 15% oxygen when firing natural gas. When firing distillate oil, the ammonia slip shall not exceed 9 ppmvd corrected to 15% oxygen. [Rule 62-4.070(3), F.A.C.]
  - b. **Carbon Monoxide (CO):** When firing natural gas, CO emissions shall not exceed 28.7 pounds per hour and 7.8 ppmvd corrected to 15% oxygen. When firing distillate oil, CO emissions shall not exceed 64.5 pounds per hour and 15.0 ppmvd corrected to 15% oxygen. Compliance shall be based on a 3-run test average as determined by EPA Method 10. Certified CEM system data may be used to demonstrate compliance with this standard. [Rule 62-212.400(BACT), F.A.C.]
  - c. **Nitrogen Oxides (NOx):** When firing natural gas, NOx emissions shall not exceed 23.1 pounds per hour and 3.5 ppmvd corrected to 15% oxygen. When firing distillate oil, NOx emissions shall not exceed 79.2 pounds per hour and 12.0 ppmvd corrected to 15% oxygen. NOx emissions are defined as oxides of nitrogen reported as NO<sub>2</sub>. Compliance shall be based on a 3-run test average as determined by EPA Methods 7E. Certified CEM system data may be used to demonstrate compliance with this standard. [DEP/TEC Consent Final Judgement; EPA/TEC Consent Decree; 40 CFR 60.332]
  - d. **Particulate Matter (PM/PM<sub>10</sub>):** The fuel specifications in Condition No. 12 of this section combined with the efficient combustion design and operation of each combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for particulate matter emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. {Permitting Note: Particulate matter emissions are expected to be less than 12 pounds per hour when firing natural gas and less than 30 pounds per hour when firing distillate oil, as determined by EPA Methods 5, front-half catch only.} [Rule 62-212.400(BACT), F.A.C.]
  - e. **Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO<sub>2</sub>):** The limits on fuel sulfur specified in Condition No. 12 of this section effectively limit the potential emissions of SO<sub>2</sub> and SAM. Compliance with the fuel sulfur limits shall be demonstrated by the fuel sampling, analysis, record keeping and reporting requirements in Condition No. 27 of this section. [Design; 40 CFR 60.333]
  - f. **Visible Emissions:** When firing either natural gas or distillate oil, visible emissions shall not exceed 10% opacity, based on a 6-minute average as determined by EPA Method 9. Except as allowed by Condition No. 18 of this section, this standard applies to all loads. [Rule 62-212.400(BACT), F.A.C.]
  - g. **Volatile Organic Compounds (VOC):** The efficient combustion of clean fuels and good operating practices for each combined cycle gas turbine represent the Best Available Control Technology (BACT) requirements for VOC emissions. Compliance with the CO standards shall serve as indicators of good combustion. {Permitting Note: VOC emissions are expected to be less than 3 pounds per hour (1.3 ppmvd corrected to 15% oxygen) when firing natural gas and less than 7.5 pounds per hour (3.0 ppmvd corrected to 15% oxygen) when firing distillate oil, as determined by EPA Method 25A measured and reported as methane.} [Design; Rule 62-212.400(BACT), F.A.C.]
16. **Emissions Standards Based on CEM System Data:** The following standards apply to each combined cycle gas turbine based on data collected from required Continuous Emissions Monitoring (CEM) systems.
- a. **Carbon Monoxide (CO):** When firing natural gas, CO emissions shall not exceed 9.0 ppmvd corrected to 15% oxygen based on a 24-hour block average. When firing distillate oil, CO emissions shall not exceed 20.0 ppmvd corrected to 15% oxygen based on a 24-hour block average.
  - b. **Nitrogen Oxides (NOx):** When firing natural gas, NOx emissions shall not exceed 3.5 ppmvd corrected to 15% oxygen based on a 24-hour block average. When firing distillate oil, NOx emissions

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

#### A. COMBINED CYCLE GAS TURBINES

shall not exceed 12.0 ppmvd corrected to 15% oxygen based on a 24-hour block average.

Each 24-hour block average shall start at midnight each operating day and shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

#### EXCESS EMISSIONS

17. 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 the CO and NOx CEM system compliance averages. [Rule 62-210.700(4), F.A.C.]
18. Excess Emissions Defined: During startup, shutdown, and documented unavoidable malfunction of each combined cycle gas turbine, the following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of operation. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such incidents.
  - a. During startup and shutdown, visible emissions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods during any calendar day, which shall not exceed 20% opacity. Data for each 6-minute averaging period shall be exclusive from other 6-minute averaging periods.
  - b. Excluding startup, shutdown, and documented unavoidable malfunction, each gas turbine is allowed up to 3 hours of operation below 50% base load in any 24-hour block period, providing:
    - (1) The gas turbine is firing natural gas;
    - (2) The CO and NOx CEM systems are functioning properly during such periods and valid emissions data (within the span range of the monitors) is being monitored and recorded; and
    - (3) The gas turbine remains in compliance with the CO and NOx emissions standards (24-hour block averages) based on valid CEM system data.

Note: Operation during startup, shutdown, and documented unavoidable malfunction are addressed in Condition No. 25.

  - c. A "steam turbine cold startup" is defined as startup after the steam turbine has been offline for 24 hours or more or the first stage turbine metal temperature is 250° F or less. To minimize emissions, no more than one gas turbine for each Bayside Unit shall be operated during such a startup. The permittee shall notify each Compliance Authority at least 24 hours in advance of a steam turbine cold startup.
  - d. In accordance with Condition No. 25 of this section, specific data collected by the CEM systems during startup, shutdown, malfunction, and tuning may be excluded from the CO and NOx compliance averaging periods. If a CEM system reports emissions in excess of a 24-hour block emissions standard, the permittee shall notify the Compliance Authority within one (1) working day with a preliminary report 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.
  - e. For each Bayside Unit, the permittee shall provide a Startup and Shutdown Plan as part of the application for a Title V air operation permit. The plan shall identify startup and shutdown procedures, duration of the procedures, and the methods used to minimize emissions during these periods. Within

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

90 days of completing eight steam turbine cold startups following commencement of commercial operation or within 90 days after 12 months of commercial operation, whichever occurs first, the permittee shall submit a revised plan to the Department based on actual operating data and experience. The Department shall review the actual operational data and determine whether the period of data exclusion for a steam turbine cold startup defined in Condition 25 of this section shall be modified to represent good operational practices. The Department shall also evaluate the operational information and determine whether a separate "warm startup" requirement shall be specified in the Title V operation permit for startup after the steam turbine has been offline for 24 hours or more, but less than 48 hours.

[Design; Rules 62-210.700, 62-4.130, and Rule 62-212.400 (BACT), F.A.C.]

#### EMISSIONS PERFORMANCE TESTING

19. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. 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. [Rule 62-297.310(2), F.A.C.]
20. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source <ul style="list-style-type: none"><li>This is an EPA conditional test method.</li><li>The minimum detection limit shall be 1 ppm.</li></ul>
5	Determination of Particulate Matter Emissions from Stationary Sources <ul style="list-style-type: none"><li>For gas firing, the minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.</li><li>For oil firing, the minimum sampling time shall be one hour per run and the minimum sampling volume shall be 30 dscf per run.</li></ul>
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources <ul style="list-style-type: none"><li>The method shall be based on a continuous sampling train.</li><li>The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.</li></ul>
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography <ul style="list-style-type: none"><li>EPA Method 18 may be used concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.</li></ul>
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Volatile Organic Concentrations

Except for Method CTM-027, the above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "<http://www.epa.gov/ttn/emc/ctm.html>". No other methods may be used for

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

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 62-297.620, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

21. **Initial Compliance Tests:** Each combined cycle gas turbine shall be tested when firing each authorized fuel to demonstrate compliance the emission standards for CO, NOx, visible emissions and ammonia slip. The tests shall be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of each combined cycle gas turbine. Tests for CO and NOx shall be conducted concurrently. Certified CEM system data may be used to demonstrate compliance with the CO and NOx standards. The test results for ammonia slip shall also report the average NOx emissions during each test run. [Rule 62-297.310(7)(a)1., F.A.C.; 40 CFR 60.335]
22. **Initial HAP Performance Tests:** At least one of the Bayside Unit 1 combined cycle gas turbines shall be tested when firing natural gas for total volatile organic compounds and the following hazardous air pollutant (HAP) emissions: acetaldehyde, formaldehyde, toluene, and xylene. EPA Method 25A shall be used to determine the emission rate of total volatile organic compounds and EPA Method 18 shall be used to determine the emission rate of each individual HAP. The tests must be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of each combined cycle gas turbine. Tests shall be conducted at two operating rates: between 65% and 75% of permitted capacity and between 90% to 100% of permitted capacity. For each operating rate, the tests shall consist of at least three 1-hour runs and emissions shall be reported in terms of ppmvd corrected to 15% oxygen, pounds per million BTU, pounds per hour, and pounds per MW-hour. The test report shall include the gas turbine exhaust temperature (prior to the heat recovery steam generator) and the average CO and NOx emissions recorded by the CEM systems. Within 60 days after submittal of the HAP emissions test report, the permittee shall submit a revised MACT applicability analysis (based on the test data and current EPA guidance) and propose a MACT for the units, if required. [Rule 62-4.070(3), F.A.C.]
23. **Annual Compliance Tests:** During each federal fiscal year (October 1<sup>st</sup> to September 30<sup>th</sup>), each combined cycle gas turbine shall be tested when firing natural gas to demonstrate compliance with the emission standards for ammonia slip and visible emissions. Each combined cycle gas turbine that fires more than 400 hours of distillate oil during the federal fiscal year shall also be tested for visible emissions and ammonia slip when firing oil. NOx emissions recorded by the CEM system during the test for ammonia slip shall be reported for each test run. {Permitting Note: Continuous compliance with the CO and NOx standards is demonstrated with certified CEMS system data.} [Rules 62-212.400(BACT) and 62-297.310(7)(a)4., F.A.C.]
24. **Additional Ammonia Slip Testing:** If the tested ammonia slip rate for a gas turbine exceeds 5 ppmvd corrected to 15% oxygen when firing natural gas during the annual test, the permittee shall:
  - a. Begin testing and reporting the ammonia slip for each subsequent calendar quarter;
  - b. Take corrective actions before the ammonia slip exceeds 7 ppmvd corrected to 15% oxygen that lowers the ammonia slip to less than 5 ppmvd corrected to 15% oxygen; and
  - c. Test and demonstrate that the ammonia slip is less than 5 ppmvd corrected to 15% oxygen within 15 days after completing the corrective actions.

Corrective actions may include, but are not limited to, adding catalyst, replacing catalyst, or other SCR system maintenance or repair. After demonstrating that the ammonia slip level is less than 5 ppmvd corrected to 15% oxygen, testing and reporting shall resume on an annual basis. [Rules 62-4.070(3) and 62-297.310(7)(b), F.A.C.]

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

#### CONTINUOUS MONITORING REQUIREMENTS

25. Continuous Emissions Monitoring Systems: The permittee shall install, calibrate, maintain, and operate a continuous emission monitoring (CEM) system in the exhaust stack of each emissions unit to measure and record the emissions of NO<sub>x</sub> and CO from these emissions units in a manner sufficient to demonstrate compliance with the CEM emission standards of this permit. The carbon dioxide (CO<sub>2</sub>) content of the flue gas shall also be monitored at the location where NO<sub>x</sub> and CO are monitored to correct the measured NO<sub>x</sub> and CO emissions rates to 15% oxygen. The oxygen content of the flue gas shall be calculated by the CEM system using F-factors that are appropriate for the fuel being fired. The CEM system shall be used to demonstrate compliance with the CEM emission standards for NO<sub>x</sub> and CO specified in this permit.
- a. *Data Collection*. Compliance with the CEM emission standards for NO<sub>x</sub> and CO shall be based on a 24-hour block average starting at midnight of each operating day. The 24-hour block average shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. Each hourly 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. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). The owner or operator shall use all valid measurements or data points collected during an hour to calculate the hourly averages. The CEM system shall be designed and operated to sample, analyze, and record data evenly spaced over the hour. If the CEM system 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 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 for each allowable fuel, 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 CEM system shall be expressed as ppmvd, corrected to 15% oxygen.
  - b. *NO<sub>x</sub> Certification*. The NO<sub>x</sub> monitor shall be certified and operated in accordance with the following requirements. The NO<sub>x</sub> monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. For purposes of determining compliance with the CEM emission standards of this permit, missing data shall not be substituted. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NO<sub>x</sub> monitor shall be performed using EPA Method 20 or 7E, of Appendix A of 40 CFR 60. The NO<sub>x</sub> monitor shall be a dual range monitor. The span for the lower range shall not be greater than 10 ppm, and the span for the upper range shall not be greater than 30 ppm, as corrected to 15% O<sub>2</sub>.
  - c. *CO and CO<sub>2</sub> Certification*. The CO monitor and CO<sub>2</sub> monitor shall be certified and operated in accordance with the following requirements. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. The CO<sub>2</sub> monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. 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 semi-annually to each Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps. The CO monitor shall be a dual range monitor. The span for the lower range shall not be greater than

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

20 ppm, and the span for the upper range shall not be greater than 60 ppm, as corrected to 15% oxygen. The RATA tests required for the CO<sub>2</sub> monitor shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60.

- d. *Data Exclusion.* Emissions data for NO<sub>x</sub>, CO and CO<sub>2</sub> (or oxygen content) shall be recorded by the CEM system during episodes of startup, shutdown and malfunction. NO<sub>x</sub> and CO emissions data recorded during these episodes may be excluded from the block average calculated to demonstrate compliance with the CEM emission standards as provided in this paragraph.
- (1) Periods of data excluded for gas turbine startup (excluding steam turbine cold startup), shutdown, or documented unavoidable malfunction shall not exceed two hours in any 24-hour block period. Periods of data excluded for such episodes shall not exceed a total of four hours in any 24-hour block period. Gas turbine startup is the commencement of operation of a gas turbine which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, or pollution control device imbalances, which may result in elevated emissions. Shutdown is the process of bringing a gas turbine off line and ending fuel combustion. A documented unavoidable malfunction is a malfunction beyond the control of the operator that is documented within 24 hours of occurrence by contacting each Compliance Authority by telephone or facsimile transmittal.
  - (2) Periods of data excluded for a steam turbine cold startup shall not exceed sixteen hours in any 24-hour block period. A "steam turbine cold startup" is defined as startup after the steam turbine has been offline for 24 hours or more or the first stage turbine metal temperature is 250° F or less. Based on actual operating experience and data, the Department may modify this period of data exclusion in the Title V air operating permit without modifying this PSD permit.
  - (3) If the permittee provides at least five days advance notice prior to a tuning session, data may be excluded from the block average calculated to demonstrate compliance with the CEM emission standards. Periods of data excluded for such episodes shall not exceed a total of three hours in any 24-hour block period. Tuning sessions must be performed in accordance with the manufacturer's recommendations. No more than two such tuning sessions are expected during any year.

All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. The permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during episodes of startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

- e. *Data Exclusion Reports.* A summary report of duration of data excluded from the block average calculation, and all instances of missing data from monitor downtime, shall be reported semi-annually to each Compliance Authority. This report shall be consolidated with the report required pursuant to 40 CFR 60.7. For purposes of reporting "excess emissions" pursuant to the requirements of 40 CFR 60.7, excess emissions shall be defined as the hourly emissions which are recorded by the CEM system during periods of data excluded for episodes of startup, shutdown and malfunction, as allowed above. The duration of excess emissions shall be the duration of the periods of data excluded for such episodes. Reports required by this paragraph and by 40 CFR 60.7 shall be submitted no less than semi-annually, including periods in which no data is excluded or no instances of missing data occur.



## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### A. COMBINED CYCLE GAS TURBINES

f. *Data Conversion.* Upon a Department request, the CEM systems emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

g. *Availability.* NO<sub>x</sub> and CO monitor availability shall not be less than 95% in any calendar quarter.

{Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEM system requirements such as: NSPS Subpart GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

26. Ammonia Monitoring Requirements: The permittee shall install, calibrate, maintain and operate, in accordance with the manufacturer's specifications, an ammonia flow meter to measure and record the ammonia injection rate to each SCR system. The permittee shall document the general range of ammonia flow rates required to meet emissions limitations over the range of combustion turbine load conditions allowed by this permit by comparing NO<sub>x</sub> emissions recorded by the NO<sub>x</sub> monitor with ammonia flow rates recorded using the ammonia flow meter. During NO<sub>x</sub> monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

#### RECORDS

27. 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. Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 or more recent versions.
- b. Compliance with the distillate oil sulfur limit shall be demonstrated by taking a sample, analyzing the sample for fuel sulfur, and reporting the results to each Compliance Authority before initial startup. Sampling the fuel oil sulfur content shall be conducted in accordance with ASTM D4057-88, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, and one of the following test methods for sulfur in petroleum products: ASTM D129-91, ASTM D1552-90, ASTM D2622-94, or ASTM D4294-90. More recent versions of these methods may be used. For each subsequent fuel delivery, the permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor. At the request of a Compliance Authority, the permittee shall perform additional sampling and analysis for the fuel sulfur content.

The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

28. Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of distillate oil consumption for each gas turbine in accordance with the provisions of 40 CFR 75 Appendix D. To demonstrate compliance with the turbine capacity requirements, the permittee shall monitor and record the operating rate of each combined cycle gas turbine 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 using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

---

#### A. COMBINED CYCLE GAS TURBINES

29. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the monthly fuel consumption and hours of operation for each gas turbine. The information shall be recorded in a written (or electronic log) and shall summarize the previous month of operation and the previous 12 months of operation. 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.]

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. STORAGE TANK

This section of the permit addresses the following emissions unit.

EU ID	Emission Unit Description
027	<u>Oil Storage Tank</u> : Existing eight million-gallon storage tank supplies low sulfur distillate oil as a backup fuel to the combined cycle gas turbines (EUs 020 through 026).

#### RULE APPLICABILITY

1. NSPS Subpart Kb Applicability: NSPS Subpart Kb applies to any storage tank with a capacity greater than or equal to 10,300 gallons (40 cubic meters) that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. [Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.110b(a)]
2. Exemption from Portions of NSPS Subpart Kb: Tanks with a capacity greater than or equal to 40,000 gallons (151 cubic meters) storing a liquid with a maximum true vapor pressure less than 3.5 kPa are exempt from the General Provisions (40 CFR 60, Subpart A) and from the provisions of NSPS Subpart Kb, *except* for the record keeping requirements specified below. [Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.110b(c)]

#### PERFORMANCE REQUIREMENTS

3. Equipment: The existing 8 million gallon tank shall provide storage for the very low sulfur distillate oil used as backup fuel for the combined cycle gas turbines. [Applicant Request]
4. Hours of Operation: Operation for the distillate oil storage tank is not restricted (8760 hours per year). [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

#### RECORDS

5. Records: For purposes of reporting in the Annual Operating Report, the permittee shall keep records sufficient to document the annual throughput of distillate oil through the storage tank. [Rule 62-210.370(3), F.A.C.]
6. Oil Tank Records: The permittee shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage tank. Records shall be retained for the life of the facility. [Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.116b(a) and (b)]

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

### C. EXISTING EMISSIONS UNITS

The following conditions supplement all other valid air construction and operation permits for these units.

EU ID	Emission Unit Description
001	Gannon Unit 1 – 125 MW coal fired boiler with steam electrical generator
002	Gannon Unit 2 – 125 MW coal fired boiler with steam electrical generator
003	Gannon Unit 3 – 180 MW coal fired boiler with steam electrical generator
004	Gannon Unit 4 – 188 MW coal fired boiler with steam electrical generator
005	Gannon Unit 5 – 239 MW coal fired boiler with steam electrical generator
006	Gannon Unit 6 – 414 MW coal fired boiler with steam electrical generator
008	Gannon Station Coal Yard - Serves Gannon Units 1 – 6

#### SHUTDOWN REQUIREMENTS

- Shutdown of Gannon Unit 5: Gannon Unit 5 (EU 005) shall be shut down and rendered incapable of operation prior to first fire in any combined cycle gas turbine for Bayside Unit 1 (EU 020 – EU 022). Upon first fire in any combined cycle gas turbine for Bayside Unit 1, the heat-input limit on the coal yard (EU 008) is reduced to  $56.7 \times 10^{+06}$  mmBTU per calendar year. [Rule 62-212.400(BACT), F.A.C.]
- Shutdown of Gannon Unit 6: Gannon Unit 6 (EU 006) shall be shut down and rendered incapable of operation prior to first fire in any combined cycle gas turbine for Bayside Unit 2 (EU 023 – EU 026). Upon first fire in any combined cycle gas turbine for Bayside Unit 2, the heat-input limit on the coal yard (EU 008) is reduced to  $35.3 \times 10^{+06}$  mmBTU per calendar year. [Rule 62-212.400(BACT), F.A.C.]
- Shutdown of Gannon Units 1 - 6: The permittee shall shutdown and cease any and all operation of coal-fired Gannon Units 1 - 6 (EU 001 - 006) no later than December 31, 2004. "Shutdown" shall mean the permanent disabling of a coal-fired boiler such that it cannot burn any fuel (including wood-derived fuel) nor produce any steam for electricity production, other than through re-powering as specified in this permit. [EPA/TEC Consent Decree]
- Permanent Bar on Combustion of Coal: Commencing on January 1, 2005, the permittee shall not combust coal in the operation of any unit at this plant. [EPA/TEC Consent Decree]
- Notification: Before January 1, 2005, the permittee shall notify the Department of plans for the coal storage and handling facilities. Additional permits may be required. [Rule 62-210.300, F.A.C.]
- Revisions or Extensions: The provisions of this section shall not be extended or revised the without prior written approval of the U.S. EPA. [EPA/TEC Consent Decree]

## SECTION IV. APPENDIX A

### TERMINOLOGY

#### ABBREVIATIONS AND ACRONYMS

<b>CCGT</b>	-	Combined Cycle Gas Turbine
<b>CEM</b>	-	Continuous Emissions Monitor
<b>DARM</b>	-	Division of Air Resource Management
<b>DEP</b>	-	State of Florida, Department of Environmental Protection
<b>DLN</b>	-	Dry Low-NOx Combustion Technology
<b>EPA</b>	-	United States Environmental Protection Agency
<b>°F</b>	-	Degrees Fahrenheit
<b>F.A.C.</b>	-	Florida Administrative Code
<b>F.S.</b>	-	Florida Statute
<b>HRSG</b>	-	Heat Recovery Steam Generator
<b>UTM</b>	-	Universal Transverse Mercator
<b>SCR</b>	-	Selective Catalytic Reduction

#### FORMATS FOR PERMIT REFERENCES AND RULE CITATIONS

*The following examples illustrate the methods used in this permit to abbreviate and cite the references of rules, regulations, permit numbers, and identification numbers.*

#### Florida Administrative Code (F.A.C.) Rules:

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

<i>Where:</i> 62	-	identifies the specific Title of the F.A.C.
62-213	-	identifies the specific Chapter of the F.A.C.
62-213.205	-	identifies the specific Rule of the F.A.C.

#### Facility Identification (ID) Number:

*Example:* Facility ID No. 099-0001

<i>Where:</i> 099	-	identifies the specific county location
0221	-	identifies the specific facility

#### New Permit Numbers:

*Example:* Permit No. 099-2222-001-AC or 099-2222-001-AV

<i>Where:</i> AC	-	identifies the permit as an Air Construction Permit
AV	-	identifies the permit as a Title V Major Source Air Operation Permit
099	-	identifies the specific county that project is located in
2222	-	identifies the specific facility
001	-	identifies the specific permit project

#### Old Permit Numbers:

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

<i>Where:</i> AC	-	identifies the permit as an Air Construction Permit
AO	-	identifies the permit as an Air Operation Permit
123456	-	identifies the specific permit project

**SECTION IV. APPENDIX B**

**FINAL BACT DETERMINATIONS AND EMISSIONS STANDARDS**

**TABLE B-1. EMISSIONS STANDARDS SUMMARY FOR BAYSIDE UNITS 1 AND 2  
Seven General Electric Model PG7241(FA) Combined Cycle Gas Turbines**

Pollutant	Gas Firing	Oil Firing
<i>Standards based on emissions performance tests at permitted capacity and an inlet temperature of 59° F:</i>		
Ammonia	<i>Standard: 5 ppmvd @ 15% O<sub>2</sub></i>	<i>Standard: 9 ppmvd @ 15% O<sub>2</sub></i>
CO (BACT)	<i>Control: Good combustion Standard: 7.8 ppmvd @ 15% O<sub>2</sub> Standard: 28.7 lb/hour</i>	<i>Control: Good combustion Standard: 15.0 ppmvd @ 15% O<sub>2</sub> Standard: 64.5 lb/hour</i>
Fuel Specification (BACT)	<i>Standard: Natural gas with a maximum of 2 grains sulfur per 100 SCF</i>	<i>Standard: No. 2 distillate oil containing no more than 0.05% sulfur by weight</i>
NOx	<i>Controls: SCR with DLN combustion Standard: 3.5 ppmvd @ 15% O<sub>2</sub> Standard: 23.1 lb/hour</i>	<i>Controls: SCR with wet injection Standard: 12.0 ppmvd @ 15% O<sub>2</sub> Standard: 79.2 lb/hour</i>
PM/PM10 (BACT)	<i>Controls: Good combustion and fuel specifications (above) Standard: 10% opacity, 6-minute average Comments: The CO standard serves as an indicator of good combustion. The estimated maximum emission is 12 lb/hour.</i>	<i>Controls: Good combustion and fuel specifications (above) Standard: 10% Opacity, 6-minute average Comments: The CO standard serves as an indicator of good combustion. The estimated maximum emission is 30 lb/hour.</i>
SAM/SO <sub>2</sub>	<i>Standard: Fuel specifications (above)</i>	<i>Standard: Fuel specifications (above) and oil use limited to an equivalent of 875 hour/year</i>
VOC (BACT)	<i>Controls: Good combustion Comments: The CO standard serves as an indicator of good combustion. The estimated maximum emission is 3 lb/hour (1.3 ppmvd @ 15% O<sub>2</sub>).</i>	<i>Controls: Good combustion Comments: The CO standard serves as an indicator of good combustion. The estimated maximum emission is 7.5 lb/hour (3 ppmvd @ 15% O<sub>2</sub>).</i>
<i>Standards based on CEM systems data:</i>		
CO (BACT)	<i>Control: Good combustion Standard: 9.0 ppmvd @ 15% O<sub>2</sub>, 24-hour block average</i>	<i>Control: Good combustion Standard: 20.0 ppmvd @ 15% O<sub>2</sub>, 24-hour block avg.</i>
NOx	<i>Controls: SCR with DLN combustion Standard: 3.5 ppmvd @ 15% O<sub>2</sub>, 24-hour block average</i>	<i>Controls: SCR with wet injection Standard: 12.0 ppmvd @ 15% O<sub>2</sub>, 24-hour block average</i>

**Notes:**

- “BACT” means Best Available Control Technology. “SCR” means selective catalytic reduction system. “DLN” means dry low-NOx combustion technology.
- A detailed description of each BACT evaluation is presented in the Technical Evaluation and Preliminary Determination. Any changes are noted in the Department’s Final Determination issued simultaneously with the final permit.

SECTION IV. APPENDIX B

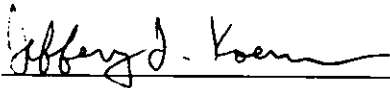
FINAL BACT DETERMINATIONS AND EMISSIONS STANDARDS

FINAL BACT DETERMINATIONS

Actual emissions of NOx and SO2 from the re-powered plant will decrease due to the shutdown of existing coal-fired units. Therefore, the project nets out of PSD for NOx and SO2 emissions. However, each gas turbine is required to fire natural gas as the primary fuel and to incorporate an SCR system for NOx and SO2 emissions reductions as a result of the DEP/TEC Consent Final Judgement and the EPA/TEC Consent Decree. The gas turbines are subject to the acid rain requirements, which require a Continuous Emissions Monitoring (CEM) system for NOx emissions. The NOx CEM system will also be used for compliance with the specified permit limits.

The project did result in significant net actual emissions increases of carbon monoxide (CO) and volatile organic compounds (VOC). The Tampa Electric Company disagrees with the Department's PSD applicability determination regarding CO emissions. Based on an interpretation by EPA Region 4, emissions of particulate matter (PM/PM10) would also be significant if BACT-level controls had previously been installed on existing Gannon Units 5 and 6. For CO, PM/PM10, and VOC emissions, the Department determines that the efficient combustion of clean fuels and good operating practices represent BACT for the combined cycle units. In addition to the control requirements, the CO, PM/PM10, and VOC emissions standards specified in the permit and summarized in Table B-1 represent BACT. A continuous monitoring system is required for CO emissions to demonstrate continuous compliance with the corresponding CO standards and as a continuous indicator of good combustion for PM and VOC emissions. The Department's technical review and rationale for the determinations of Best Available Control Technology (BACT) are presented in Technical Evaluation and Preliminary Determination issued on February 5, 2001 with the Draft Permit.

Determination By:



J. F. Koerner, P.E., Project Engineer  
New Source Review Section

03-29-01

(Date)

Recommended By:



C. H. Fancy, Chief  
Bureau of Air Regulation

3/29/01

(Date)

Approved By:



Howard L. Rhodes, Director  
Division of Air Resources Management

3/30/01

(Date)

**SECTION IV. APPENDIX E**

**SUMMARY OF MASS EMISSIONS FOR GIVEN INLET TEMPERATURES**

**Table E-1. Summary of Mass Emissions for Given Compressor Inlet Temperatures**

Pollutant	Inlet Temp.	Mass Emission Rate, lb/hour	
		Gas Firing	Oil Firing
CO	18° F	31.1	70.0
	35° F	30.0	68.0
	59° F	28.7	64.5
	72° F	27.8	62.5
	93° F	26.9	60.4
NOx	18° F	24.7	96.8
	35° F	23.8	94.3
	59° F	23.1	90.9
	72° F	22.6	89.0
	93° F	21.9	86.0
PM/PM10	18° F	11.5	29.0
	35° F	11.4	28.6
	59° F	11.3	28.0
	72° F	11.3	27.6
	93° F	11.2	27.1
VOC	18° F	3.0	7.8
	35° F	3.0	7.5
	59° F	2.8	7.3
	72° F	2.7	7.1
	93° F	2.7	6.9

Notes:

- NOx emissions standards for emissions controlled by an SCR system and reported as NO2.
- PM are based on EPA Method 5 (front-half catch only).



## SECTION IV. APPENDIX GC

### GENERAL CONDITIONS

- G.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, Florida Statutes. 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.
- G.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.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and 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.
- G.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.
- G.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 Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.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.
- G.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.

- G.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.

- G.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 Florida Statutes or Department rules, except where such use is prescribed by

## SECTION IV. APPENDIX GC

### GENERAL CONDITIONS

Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code 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.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (Yes, for CO, PM/PM10, and VOC);
  - (b) Determination of Prevention of Significant Deterioration (Yes); and
  - (c) Compliance with New Source Performance Standards (Yes, with Subparts GG and Kb).
- G.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.
- G.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 GG**

**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

**NSPS SUBPART GG REQUIREMENTS**

[Note: Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference to the original rules. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown in **bold** immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.]

11. Pursuant to 40 CFR 60.332 Standard for Nitrogen Oxides:

(a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraph (b) section shall comply with:

(1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

F = NOx emission allowance for fuel-bound nitrogen as de-fined in paragraph (a)(3) of this section.

(3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NOx percent by volume)
N ≤ 0.015	0
0.015 < N ≤ 0.1	0.04(N)
0.1 < N ≤ 0.25	0.004 + 0.0067(N - 0.1)
N > 0.25	0.005

Where, N = the nitrogen content of the fuel (percent by weight).

**Department requirement:** While firing gas, the "F" value shall be assumed to be 0.

**[Note: This is required by EPA's March 12, 1993 determination regarding the use of NOx CEMS. The "Y" values provided by the applicant are approximately 10.0 for natural gas and 10.6 for fuel oil. The equivalent emission standards are 108 and 102 ppmvd at 15% oxygen. The emissions standards of this permit is more stringent than this requirement.]**

(b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

12. Pursuant to 40 CFR 60.333 Standard for Sulfur Dioxide:

## SECTION IV. APPENDIX GG

### NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with:

- (b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

13. Pursuant to 40 CFR 60.334 Monitoring of Operations:

- (b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

- (1) If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.

**Department requirement:** The owner or operator is allowed to use vendor analyses of the fuel as received to satisfy the sulfur content monitoring requirements of this rule for fuel oil. Alternatively, if the fuel oil storage tank is isolated from the combustion turbines while being filled, the owner or operator is allowed to determine the sulfur content of the tank after completion of filling of the tank, before it is placed back into service.

[Note: This is consistent with guidance from EPA Region 4 dated May 26, 2000 to Ronald W. Gore of the Alabama Department of Environmental Management.]

- (2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

**Department requirement:** The requirement to monitor the nitrogen content of pipeline quality natural gas fired is waived. The requirement to monitor the nitrogen content of fuel oil fired is waived because a NOx CEMS shall be used to demonstrate compliance with the NOx limits of this permit. For purposes of complying with the sulfur content monitoring requirements of this rule, the owner or operator shall obtain a monthly report from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation.

[Note: This is consistent with EPA's custom fuel monitoring policy and guidance from EPA Region 4.]

- (c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

- (1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

SECTION IV. APPENDIX GG

NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

**Department requirement:** NOx emissions monitoring by CEM system shall substitute for the requirements of paragraph (c)(1) because a NOx monitor is required to demonstrate compliance with the standards of this permit. Data from the NOx monitor shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit.

[Note: As required by EPA's March 12, 1993 determination, the NOx monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NOx emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.]

(2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

14. Pursuant to 40 CFR 60.335 Test Methods and Procedures:

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 per-cent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 and 60.333(a) as follows:
  - (1) The nitrogen oxides emission rate (NOx) shall be computed for each run using the following equation:

$$\text{NOx} = (\text{NOx}_o) (\text{Pr}/\text{Po})^{0.5} e^{19(\text{Ho}-0.00633)} (288^\circ\text{K}/\text{Ta})^{1.53}$$

where:

NOx = emission rate of NOx at 15 percent O2 and ISO standard ambient conditions, volume percent.

NOxo = observed NOx concentration, ppm by volume.

Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.

Po = observed combustor inlet absolute pressure at test, mm Hg.

Ho = observed humidity of ambient air, g H2O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

**Department requirement:** The owner or operator is not required to have the NOx monitor continuously correct NOx emissions concentrations to ISO conditions. However, the owner or operator shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator.

## SECTION IV. APPENDIX GG

### NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

[Note: This is consistent with guidance from EPA Region 4.]

- (2) The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with 40 CFR 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

**Department requirement:** The owner or operator is allowed to conduct initial performance tests at a single load because a NO<sub>x</sub> monitor shall be used to demonstrate compliance with the BACT NO<sub>x</sub> limits of this permit.

[Note: This is consistent with guidance from EPA Region 4.]

- (3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO<sub>x</sub> emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

**Department requirement:** The owner or operator is allowed to make the initial compliance demonstration for NO<sub>x</sub> emissions using certified CEM system data, provided that compliance be based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected during the initial relative accuracy test audit (RATA) performed on the NO<sub>x</sub> monitor. The span value specified in the permit shall be used instead of that specified in paragraph (c)(3) above.

[Note: These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed pursuant to Department authority and is consistent with guidance from EPA Region 4.]

- (d) The owner or operator shall determine compliance with the sulfur content standard in 40 CFR 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference – see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

**Department requirement:** The permit species sulfur testing methods and allows the owner or operator to follow the requirements of 40 CFR 75 Appendix D to determine the sulfur content of liquid fuels.

[Note: This requirement establishes different methods than provided by paragraph (d) above, but the requirements are equally stringent and will ensure compliance with this rule.]

- (e) To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

[Note: The fuel analysis requirements of the permit meet or exceed the requirements of this rule and will ensure compliance with this rule.]

**SECTION IV. APPENDIX XS**  
**SEMI-ANNUAL CONTINUOUS MONITOR SYSTEMS REPORT**

{Note: This form is referenced in 40 CFR 60.7, Subpart A, General Provisions.}

Pollutant (Circle One):      Nitrogen Oxides (NOx)              Carbon Monoxide (CO)

Reporting period dates: From \_\_\_\_\_ to \_\_\_\_\_

Company: \_\_\_\_\_

Emission Limitation: \_\_\_\_\_

Address: \_\_\_\_\_

Monitor Manufacturer and Model No.: \_\_\_\_\_

Date of Latest CMS Certification or Audit: \_\_\_\_\_

Process Unit(s) Description: \_\_\_\_\_

Total source operating time in reporting period <sup>a</sup>: \_\_\_\_\_

Emission data summary <sup>a</sup>		CMS performance summary <sup>a</sup>	
1. Duration of Excess Emissions In Reporting Period Due To:		1. CMS downtime in reporting period due to:	
a. Startup/Shutdown		a. Monitor Equipment Malfunctions	
b. Control Equipment Problems		b. Non-Monitor Equipment Malfunctions	
c. Process Problems		c. Quality Assurance Calibration	
d. Other Known Causes		d. Other Known Causes	
e. Unknown Causes		e. Unknown Causes	
2. Total Duration of Excess Emissions		2. Total CMS Downtime	
3. $\frac{[\text{Total Duration of Excess Emissions}]}{[\text{Total Source Operating Time}]} \times (100\%)$ <sup>b</sup>		3. $\frac{[\text{Total CMS Downtime}]}{[\text{Total source operating time}]} \times (100\%)$	

<sup>a</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>b</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in 40 CFR 60.7(c) shall be submitted.

*Note: On a separate page, describe any changes to CMS, process or controls during last 6 months.*

I certify that the information contained in this report is true, accurate, and complete.

\_\_\_\_\_  
*Name*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Date*

Florida Department of  
Environmental Protection

Memorandum

---

TO: Howard Rhodes  
THRU: Clair Fancy *CHF* 3/29  
Al Linero *aal* 3/28  
FROM: Jeff Koerner *JK*  
DATE: March 28, 2001  
SUBJECT: Final Air Permit No. PSD-FL-301  
Project No. 0570040-013-AC  
Tampa Electric Company – Bayside Power Station  
Project to Re-Power the F.J. Gannon Station

The Final Permit is attached for your approval and signature that authorizes construction of seven new combined cycle gas turbines to re-power the existing F.J. Gannon Station. The existing plant is renamed the "Bayside Power Station" and is located within the existing plant boundaries on Tampa's Port Sutton Road in Hillsborough County, Florida.

The Tampa Electric Company (TEC) published the "Public Notice of Intent to Issue" in The Tampa Tribune on February 10, 2001 and we received proof of publication on February 15, 2001. During the 30-day comment period, we received minor comments from TEC, the Hillsborough Environmental Protection Commission, and the EPA Region 4 office. On February 23, TEC filed for an extension of time in which to file for an administrative hearing. On March 14, 2001, we met with TEC to discuss and resolve their concerns. The meeting resulted in several mutually agreed upon minor changes. On March 16, 2001, the proposed changes were provided to the Hillsborough Environmental Protection Commission and the EPA Region 4 office for additional comments with a response deadline of March 23, 2001. We received no additional comments on the proposed changes. As noted in the attached Final Determination, the Department made minor changes to the draft permit, mostly at the request of the applicant.

The original Day 90 for this project was April 17, 2001. However, the processing time clock remained tolled for 33 days until TEC withdrew their request for an extension of time in which to file for an administrative hearing. Day 90 is now May 20, 2001. I recommend your approval and signature.

Attachments

CHF/AAL/jfk