

BAYSIDE POWER STATION
AIR CONSTRUCTION PERMIT
REVISION APPLICATION

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FEB 26 2004

BUREAU OF AIR REGULATION

Prepared for:



TAMPA ELECTRIC
Tampa, Florida

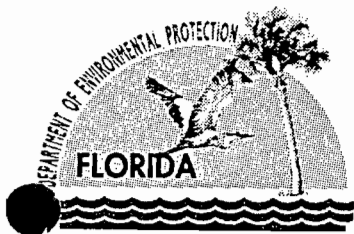
Prepared by:

ECT

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

ECT No. 040148-0100

February 2004



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

March 11, 2004

Mr. Gregg M. Worley, Chief
Air Permits Section
U.S. EPA, Region 4
61 Forsyth Street
Atlanta, Georgia 30303-8960

RE: Tampa Electric Company
Bayside Power Station
DEP File No. 0570040-021-AC, PSD-FL-301B

Dear Mr. Worley:

Enclosed for your review and comment is a PSD application submitted by Tampa Electric Company for proposed modifications at their Bayside Power Station in Hillsborough County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/921-9533. If you have any questions, please contact Jeff Koerner, review engineer, at 850/921-9536.

Sincerely,

Pathy Adams
for A. A. Linero, P.E.
Administrator
South Permitting Section

AAL/pa
Enclosure
cc: J. Koerner

"More Protection, Less Process"

Printed on recycled paper.



TAMPA ELECTRIC

February 25, 2004

Mr. Jeff Koerner, P.E.
Florida Department of
Environmental Protection
Division of Air Resource Management
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Re: Tampa Electric Company
Bayside Power Station
PSD Air Construction Permit Revision Request
Permit No. PSD-FL-301A

Dear Mr. Koerner:

301B

Tampa Electric Company (TEC) submits a request for a revision to the Bayside Power Station (BPS) PSD Air Construction Permit Number PSD-FL-301A. This request addresses a number of minor items in the current PSD permit TEC believes can be improved through minor revisions and clarifications. For the most part, these requested modifications involve procedural issues, and do not affect the nature and character of the emissions from this facility. As such, this request is submitted as a PSD air construction permit revision in accordance with the Florida Department of Environmental Protection (FDEP) guidance.

The proposed PSD permit condition changes address clarification of requirements during startup, shutdown, malfunction and low load operation, and includes both a cold startup plan (Attachment D) and a warm startup plan (Attachment E).

As requested by the Department per the January 30, 2004 conversation, the enclosed PSD air operation permit revision application includes the following materials:

- (1) Attachment A: Completed Application for Air Permit - Long Form (Facility Information section only, including Responsible Official and Professional Engineer certifications);
- (2) Attachment B: Detailed narrative describing each requested permit condition change and the rationale for the change, followed by supporting information for the request (e.g., pertinent guidance memoranda);
- (3) Attachment C: Marked-up copy of the current Title V permit that contains the requested permit condition changes. For each permit condition change, the requested permit language (strikeout and/or additional text) is shown;
- (4) Attachment D: Cold Startup Plan;
- (5) Attachment E: Warm Startup Plan;
- (6) Attachment F: Typical Tuning Schedule;
- (7) Attachment G: CT Water Wash CEM Data.

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111

AN EQUAL OPPORTUNITY COMPANY
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2-26-04
JPK
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MAR 04 2004

BUREAU OF AIR REGULATION

Via FedEx
Airbill No. 7924 3837 8239

(813) 288-4111


CUSTOMER SERVICE:
HILLSBOROUGH COUNTY (813) 223-0800
OUTSIDE HILLSBOROUGH COUNTY 1 (888) 223-0800

Mr. Jeff Koerner
February 25, 2004
Page 2 of 2

To facilitate the Department's review of this PSD permit revision request, an electronic copy of the marked up BPS PSD permit is also being submitted to you via e-mail. This electronic file of the complete BPS PSD permit shows the requested condition changes using highlighted formats (i.e., red strikeout for deleted text and blue underline for added text).

TEC appreciates the cooperation and consideration of the Department in this requested PSD permit revision for the BPS. Your expeditious processing of this request for a permit revision will be appreciated. If you have any questions or comments pertaining to this request, please direct them to Ms. Greer Briggs at (813) 228-4302.

Sincerely,



Laura R. Crouch
Manager - Air Programs
Environmental, Health & Safety

EA/bmr/GMB166

Enclosure

c/enc: **Mr. Ed Svec, FDEP**
Mr. Jerry Kissel, FDEP SW District

INTRODUCTION

Tampa Electric Company (TEC) has recently constructed and placed in operation seven natural gas-fired General Electric (GE) 7FA combustion turbine (CT)/heat recovery steam generator (HRSG) combined-cycle units that are used to repower existing F.J. Gannon Station Units 5 and 6 steam turbines. The seven new CT/HRSG units are grouped into two units designated as Bayside Power Station (Bayside) Units 1 and 2. Bayside Units 1 and 2 repower F.J. Gannon Station Units 5 and 6, respectively. Bayside Unit 1 includes three CT/HRSGs designated as CT-1A, CT-1B, and CT-1C. Bayside Unit 2 includes four CT/HRSGs designated as CT-2A, CT-2B, CT-2C, and CT-2D.

In addition to Bayside Units 1 and 2, TEC plans to repower Units 3 and 4 at the F.J. Gannon Station by installing an additional four GE 7FA combustion turbine CT/HRSG units that will operate in conjunction with the existing Units 3 and 4 steam turbines. The four new CT/HRSG units will be grouped into two units designated as Bayside Units 3 and 4. Bayside Units 3 and 4 will repower F.J. Gannon Station Units 3 and 4, respectively. Bayside Unit 3 will include two CT/HRSGs designated as CT-3A and CT-3B. Bayside Unit 4 will include two CT/HRSGs designated as CT-4A and CT-4B.

Florida Department of Environmental Protection (FDEP) Air Construction Permit No. PSD-FL-301, issued on March 30, 2001, authorized the construction and initial operation of Bayside Units 1 and 2. This initial air construction permit was subsequently superseded by FDEP Air Construction Permit No. PSD-FL-301A issued on January 8, 2002 to incorporate Bayside Units 3 and 4.

The purpose of this air construction permit revision application is to request changes to several conditions of Air Construction Permit No. PSD-FL-301A. The requested air construction permit condition changes address CT low load operation, tuning, and water washes, reporting of malfunctions, and steam turbine startups.

A brief overview of the requested permit condition changes is as follows:

- CT Low Load Operation – deletion of the Specific Condition A.17.b. constraint on operation below 50 percent of base load. Performance testing conducted on the Bayside Unit 1 and 2 GE FA CTs indicates that the CTs are able to comply with the CO and NO_x 24-hour block average permit limits at loads below 50 percent of base load;
- Malfunction Reporting – revision to Specific Condition A.17.c.(1) to only require reporting of malfunctions, as defined by Specific Condition (A.17.c)(1), if permit limits are exceeded;
- Steam Turbine Startup and Shutdown – addition of “warm” steam startup provisions to Specific Condition A.17.c. and revisions to Specific Condition A.17.d “cold” steam turbine startup and shutdown plan requirements;
- CT Tuning – clarification of Specific Condition A.17.c.(3) CT tuning requirements; and
- CT Water Washes – addition to Specific Condition A.17.c. to allow CEMS data exclusion during periods of CT drying following an off-line water wash.

Sections I (application information) and II (facility information) of the Department’s *Application for Air Permit – Long Form*, DEP Form No. 62-210.900(1), Effective June 16, 2003, follow this introduction (Attachment A). A detailed discussion of each requested permit condition change is provided in Attachment B. A marked-up copy of the current Bayside air construction permit is provided in Attachment C. An electronic copy of Attachment C has also been provided to the Department via electronic mail. Attachments D and E provide steam turbine cold and warm startup plans, respectively. Information regarding General Electric’s CT tuning schedule and CT continuous emission monitoring system data associated with CT heating following compressor water washes are provided in Attachments F and G, respectively.

ATTACHMENT A

**APPLICATION FOR AIR PERMIT - LONG FORM
SECTIONS I AND II**



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

RECEIVED

FEB 26 2004

BUREAU OF AIR REGULATION

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Tampa Electric Company	
2. Site Name: Bayside PowerStation	
3. Facility Identification Number: 0570040	
4. Facility Location... Street Address or Other Locator: Port Sutton Road City: Tampa County: Hillsborough Zip Code: 33619	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Application Contact

1. Application Contact Name: Greer Briggs	
2. Application Contact Mailing Address... Organization/Firm: Tampa Electric Company Street Address: 6994 U.S. Highway 41 North City: Apollo Beach State: FL Zip Code: 33572-1500	
3. Application Contact Telephone Numbers... Telephone: (813) 641-5034 ext. Fax: (813) 641-5081	
4. Application Contact Email Address: gmbriggs@tecoenergy.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	2-26-04
2. Project Number(s):	0570040-021-AC
3. PSD Number (if applicable):	PSD-FL-301B
4. Siting Number (if applicable):	

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

Air construction permit (Revision).

Air Operation Permit

Initial Title V air operation permit.

Title V air operation permit revision.

Title V air operation permit renewal.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit
(Concurrent Processing)**

Air construction permit and Title V permit revision, incorporating the proposed project.

Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

This permit revision application requests changes to the conditions of Air Construction Permit No. PSD-FL-301A. Please refer to see Attachments B and C for a discussion of the requested permit condition changes.

APPLICATION INFORMATION

Owner/Authorized Representative Statement N/A

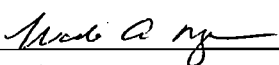
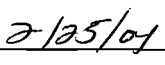
Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Owner/Authorized Representative Telephone Numbers... Telephone: () - ext. Fax: () -
4. Owner/Authorized Representative Email Address:
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i> _____ Signature _____ Date

APPLICATION INFORMATION

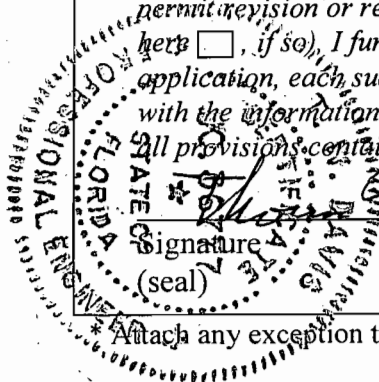
Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name: Wade A. Maye, General Manager – Bayside/Gannon Station
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input checked="" type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source.
3. Application Responsible Official Mailing Address... Organization/Firm: Tampa Electric Company Street Address: P.O. Box 111 City: Tampa State: FL Zip Code: 33601-0111
4. Application Responsible Official Telephone Numbers... Telephone: (813) 641-5403 ext. Fax: (813) 630-5351
5. Application Responsible Official Email Address: wamaye@tecoenergy.com
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>  _____ Signature  _____ Date

APPLICATION INFORMATION
Professional Engineer Certification

1. Professional Engineer Name: Thomas W. Davis Registration Number: 36777
2. Professional Engineer Mailing Address... Organization/Firm: Environmental Consulting & Technology, Inc. Street Address: 3701 Northwest 98th Street City: Gainesville State: FL Zip Code: 32606-5004
3. Professional Engineer Telephone Numbers. Telephone: (352) 332-0444 ext. Fax: (352) 332-6722
4. Professional Engineer Email Address: tdavis@ectinc.com
5. Professional Engineer Statement: <p><i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i></p> <p>(1) <i>To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i></p> <p>(2) <i>To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i></p> <p>(3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i></p> <p>(4) <i>If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i></p> <p>(5) <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i></p> <p>Signature: <u><i>Thomas W. Davis</i></u> Date: <u>2/23/04</u></p>



*Attach any exception to certification statement.

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NOX	A	N
SO2	A	N
CO	A	N
PM10	A	N
PM	A	N
VOC	A	N

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: * _____
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: * _____
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: * _____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction or Modification: (Permit Condition Revisions) <input checked="" type="checkbox"/> Attached, Document ID: Attachments B and C
3. Rule Applicability Analysis: (Previously submitted – see comments) <input type="checkbox"/> Attached, Document ID: _____
4. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Additional Requirements for FESOP Applications N/A

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
 Attached, Document ID: _____ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications N/A

1. List of Insignificant Activities (Required for initial/renewal applications only):
 Attached, Document ID: _____ Not Applicable (revision application)
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):
 Attached, Document ID: _____
 Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
 Attached, Document ID: _____
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
 Attached, Document ID: _____
 Equipment/Activities On site but Not Required to be Individually Listed
 Not Applicable
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
 Attached, Document ID: _____ Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:
 Attached, Document ID: _____ Not Applicable

Additional Requirements Comment

*** - Facility plot plans, process flow diagrams, area maps, and precautions to prevent fugitive emissions were previously submitted. Please reference air construction permit applications dated September 2000 (Bayside Units 1 and 2) and June 2001 (Bayside Units 3 and 4).**

ATTACHMENT B

**REQUESTED REVISIONS TO AIR
CONSTRUCTION PERMIT NO. PSD-FL-301A**

**PSD AIR CONSTRUCTION PERMIT
PROJECT NO.: 0570040-015-AC
AIR PERMIT NO.: PSD-FL-301A
REQUESTED PERMIT CONDITION CHANGES**

ATTACHMENT B

**REQUESTED PSD AIR CONSTRUCTION PERMIT
CONDITION CHANGES**

The proposed PSD permit condition changes address Unit 1 and Unit 2 at Bayside Power Station (BPS). A discussion of each requested permit condition change is provided in the following sections. This detailed discussion of the permit revision request is organized by each individual item. The basis for each request is presented, followed by supporting information for the request (e.g., pertinent guidance memoranda). Suggested permit language is also included for the Florida Department of Environmental Protection (FDEP) to use as a starting point for implementation of the change. For the most part, these requested modifications involve procedural issues, and do not affect the nature and character of the emissions from this facility. As such, this request is submitted as a permit revision in accordance with FDEP guidance. The page numbers indicated below are references to PSD Permit No. PSD-FL-301A.

1.0 STARTUP, SHUTDOWN, AND LOW LOAD OPERATION

1.1 BASIS FOR REQUEST

1.1.1 LOW LOAD OPERATION

Condition A.17.b allows each gas turbine up to three hours of operation below 50% base load in any 24-hour block. TEC has completed the GE performance test, where TEC had the ability to go below 50% load, satisfying all emission standards. The requirement of this condition restricts how the facility can be operated while all permitted limits/standards are being met. TEC has demonstrated by the GE Performance test (see attached graph) that it could operate the gas turbine for more than three hours below 50% load and maintain compliance with CO and NOx emissions standards. Since TEC must always satisfy all emission standards while operating at low load, TEC requests that the hours of such operation be unlimited. By changing this condition, TEC will be allowed flexibility in its operation of the facility. TEC understands the limits in the permit and will comply with the permit.

**PSD AIR CONSTRUCTION PERMIT
PROJECT NO.: 0570040-015-AC
AIR PERMIT NO.: PSD-FL-301A
REQUESTED PERMIT CONDITION CHANGES**

1.1.2 STARTUP, SHUTDOWN, AND MALFUNCTION

Condition A.17.c.1, Section III, defines a documented malfunction as a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail. The PSD-FL-301A permit allows CEMS data exclusion for up to four 1-hour emission averages in any 24-hour block due to all such episodes. TEC requests the ability to not notify for a malfunction that can be included in the four 1-hour averages. TEC does understand that an exceedance of the limits set forth in the permit requires a 24-hour notification to the Compliance Authority.

1.1.3 STEAM TURBINE (ST) COLD STARTUP PLAN

The BPS PSD-FL-301A permit states that TEC would submit a revised cold startup plan within 90 days of completing eight ST cold startups following commencement of commercial operation or within 90 days after 12 months of commercial operation (whichever occurs first). Attachment D contains TEC's revised cold startup plan for BPS.

1.1.4 STEAM TURBINE (ST) WARM STARTUP PLAN

Based on actual operating data and experience, TEC recommends including a "ST warm startup plan" together with a ST cold startup plan, where a ST warm startup is defined as a startup after the steam turbine has been offline for less than 24-hours and the first stage turbine metal temperature is 250°F or more. The startup plan for a cold startup and a warm startup are similar, but the timeframe is shorter for a warm startup. Thus, periods of data excluded for a ST warm start-up shall not exceed eight 1-hour emission averages in a 24-hour block. Attachment E contains TEC's warm startup plan for BPS. Thus, TEC requests a revision to the permitting note for a warm start-up to allow the permit to reflect the operations at the facility

1.1.5 TUNING

A tuning session is usually determined by the manufacturer and is performed by increasing/decreasing the load and "tuning" the machine at various intermittent loads until the machine is fully tuned at all loads (Attachment F). Thus, TEC requests a revision to the permitting note of the tuning section to allow the permit to reflect the operations at the facility.

1.1.6 STARTUP AND SHUTDOWN PLAN

Condition A.17.d, Section III, requires TEC to notify the Compliance Authority at least 24-hours in advance of a steam turbine cold startup. As stated above, TEC is submitting both a cold and warm startup plan as part of the modifications to this PSD permit where the warm startup is defined as being off line for less than 24 hours, and a cold startup is defined as being off line for 24 hours or more. Because TEC is submitting the revised cold startup plan along with the warm startup plan, TEC requests that the permit

**PSD AIR CONSTRUCTION PERMIT
PROJECT NO.: 0570040-015-AC
AIR PERMIT NO.: PSD-FL-301A
REQUESTED PERMIT CONDITION CHANGES**

language reflect this change. In addition, a 24-hour notification for startup may not always be available. TEC suggests removing this condition for 24-hour notification in its entirety.

1.1.7 COMBUSTION TURBINE (CT) WATER WASHES

Compressor water washing is done to clean fouled compressor blades. If not cleaned, compressor fouling will result in limited output and increased fuel costs. The off-line water wash aids in the operation of the CT to minimize power and efficiency loss. At the end of such an event, the manufacturer requires drying time of the compressor, where the compressor must be heated by bringing the CT on-line at low loads. This is not considered a startup of the unit since the flue gas temperature is not high enough to turn the SCR on. Thus the four 1-hour averages excluded for startup, shutdown, and malfunction are not applicable. Based on operating experience and to enhance CT compressor performance, it is recommended that an off-line water wash be performed six times per year, per CT. This event is not currently part of the PSD permit, but owing to emissions in excess of the permitted standards during such an event, TEC requests two 1-hour exemptions (Attachment G). TEC also suggests including the CT water wash under the CEM Data Exclusion section.

1.2 SUGGESTED PERMIT LANGUAGE

TEC proposes the following language to effect the requested change.

From:

A.17(b) Low Load Operation: Excluding startup, shutdown, and documented malfunction, each gas turbine is allowed up to three hours of operation below 50% base load in any 24-hour block, providing: the gas turbine is firing natural gas; the CO and NOx CEMS are functioning properly during such periods and recording valid emissions data within the span range of the monitors; and the gas turbine remains in compliance with the CO and NOx emissions standards based on 24-hour block averages of valid CEMS data.

To:

A.17(b) Low Load Operation: Excluding startup, shutdown, and documented malfunction, each gas turbine is allowed ~~up to three~~ unlimited hours of operation below 50% base load in any 24-hour block, providing: the gas turbine is firing natural gas; the CO and NOx CEMS are functioning properly during such periods and recording valid emissions data within the span range of the monitors; and the gas turbine remains in compliance with the CO and NOx emissions standards based on 24-hour block averages of valid CEMS data.

From:

A.17(c)(1) Startup, Shutdown, and Malfunction: Periods of data excluded for gas turbine startup (excluding steam turbine cold startup), shutdown, or documented malfunction shall not exceed four 1-hour emission averages in any 24-hour block due to all such episodes. Gas turbine startup is the commencement of operation of a gas turbine that 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 malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. A documented malfunction is a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

PSD AIR CONSTRUCTION PERMIT
PROJECT NO.: 0570040-015-AC
AIR PERMIT NO.: PSD-FL-301A
REQUESTED PERMIT CONDITION CHANGES

To:

A.17(c)(1) Startup, Shutdown, and Malfunction: Periods of data excluded for gas turbine startup (excluding steam turbine cold startup), shutdown, or documented malfunction shall not exceed four 1-hour emission averages in any 24-hour block due to all such episodes. Gas turbine startup is the commencement of operation of a gas turbine that 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 malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. ~~A documented malfunction is a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.~~

From:

A.17(c)(3) Tuning: If the permittee provides at least five days advance notice prior to a major tuning session performed by the manufacturer's representative, monitoring data during tuning may be excluded from the 24-hour block compliance averages. Periods of data excluded for such episodes shall not exceed a total of three 1-hour averages in any 24-hour block. Tuning sessions must be performed in accordance with the manufacturer's recommendations. {Permitting Note: As an example, a major tuning session would occur after a combustor change-out. A tuning session may take a few hours each day over a few days. No more than two major tuning sessions would be expected during any year.}

To

~~**A.17(c)(3) Tuning:** If the permittee provides at least five days advance notice prior to a major tuning session performed by the manufacturer's representative, monitoring data during tuning may be excluded from the 24-hour block compliance averages. Periods of data excluded for such episodes shall not exceed a total of three 1-hour averages in any 24-hour block. Tuning sessions must be performed in accordance with the manufacturer's recommendations. {Permitting Note: As an example, a major tuning session would occur after a combustor change-out. A tuning session may take a few hours each day over a few days. No more than two major tuning sessions would be expected during any year. A tuning session is typically determined by the manufacturer. It is performed by increasing and/or decreasing the load and "tuning" the machine at various intermittent loads until the machine is fully tuned at all loads.}~~

Add:

A.17(c)(4) A "steam turbine warm startup" is defined as a startup after the steam turbine has been off line for less than 24-hours and the first stage turbine metal temperature is 250°F or more. Periods of data excluded for a steam turbine warm start-up shall not exceed eight 1-hour emission averages in a 24-hour block.

Add:

A.17(c)(5) Six times per year per CT, the permittee may perform an off-line CT compressor wash. Periods of data excluded for such episodes shall not exceed a total of two 1-hour averages in any 24-hour block. {Permitting Note: At the end of such an event, the manufacturer requires drying time of the compressor, where the compressor must be heated by bringing the CT on line at low loads.}

From:

A.17(d) A "steam turbine cold startup" is defined as startup after the steam turbine has been offline for 24 hours or more and 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 each steam turbine cold startup. The permittee shall notify the Compliance Authority at least within 24 hours in advance of a steam turbine cold startup. 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, the duration of each procedure, and the methods used to minimize emissions during these periods. Within 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 data exclusion allowed for a steam turbine cold startup defined in Condition 23 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.

PSD AIR CONSTRUCTION PERMIT
PROJECT NO.: 0570040-015-AC
AIR PERMIT NO.: PSD-FL-301A
REQUESTED PERMIT CONDITION CHANGES

To:

~~A.17(d) 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 each steam turbine cold startup. The permittee shall notify the Compliance Authority at least within 24 hours in advance of a steam turbine cold startup. 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, the duration of each procedure, and the methods used to minimize emissions during these periods. Within 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 data exclusion allowed for a steam turbine cold startup defined in Condition 23 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.~~

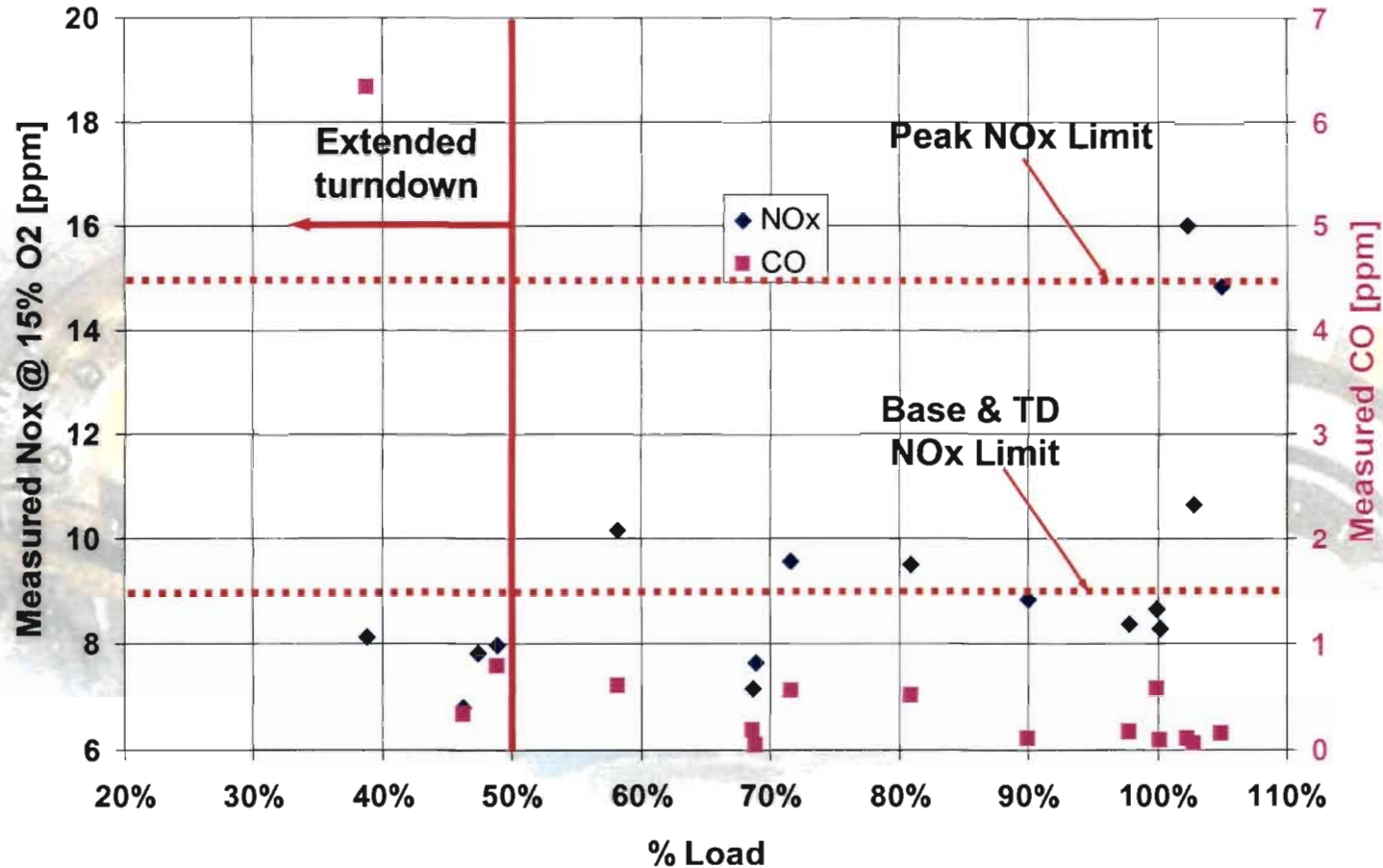
Measured NOx and CO



CO measured at stack
NOx measured pre-SCR

TECO Bayside (297832) - December 2003

CO limit = 9 PPM



- Results using OFE2.0 code (enabler for extended turndown).
- OFE2.0 algorithm still being developed (this data will help develop).
- NOx deviation will be eliminated as the algorithm matures.
- CO pick up during extended turndown expected.
- Need to work with TECO to better understand site permitting requirements.

ATTACHMENT C

MARK-UP OF AIR CONSTRUCTION

PERMIT NO. PSD-FL-301A

PERMITTEE:

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

Authorized Representative:

Mr. Wade Maye, General Manager

Project No. 0570040-015-AC Air Permit No. PSD-FL-301A Facility ID No. 0570040 SIC No. 4911 Expires: July 1, 2005
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PROJECT AND LOCATION

This permit authorizes construction of eleven new combined cycle gas turbines with an approximate electrical production capacity of 2845 MW. The new units will be used to re-power the steam-electrical generators for Units 3, 4, 5, and 6 at the existing F. J. Gannon Station. The re-powered plant will be renamed the “Bayside Power Station”. The project will be located within the existing plant boundaries in Hillsborough County, Florida. The UTM coordinates are: (Intentionally removed from electronic copy.).

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 Judgment 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 Rates
- 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

Effective Date

SECTION I. FACILITY INFORMATION

PROJECT DESCRIPTION

Upon completion of construction and shutdown of all coal-fired units, the new Bayside Power Station will have an approximate electrical production capacity of 2845 MW based on the nominal capacities for Bayside Unit 1 (746 MW), Bayside Unit 2 (1090 MW), Bayside Unit 3 (501 MW), and Bayside Unit 4 (508 MW). Note that the final design may not fully utilize the nameplate capacities of the existing steam-electrical turbines. The following table summarizes the emission units regulated by this air construction permit.

EU No.	Emission Unit Description
001	Gannon Unit 1 – existing coal fired boiler with 125 MW steam electrical generator
002	Gannon Unit 2 – existing coal fired boiler with 125 MW steam electrical generator
003	Gannon Unit 3 – existing coal fired boiler with 180 MW steam electrical generator
004	Gannon Unit 4 – existing coal fired boiler with 188 MW steam electrical generator
005	Gannon Unit 5 – existing coal fired boiler with 239 MW steam electrical generator
006	Gannon Unit 6 – existing coal fired boiler with 414 MW steam electrical generator
008	Gannon Station Coal Yard – Serves existing Gannon Units 1 – 6
020	Bayside Unit 1A – 169 MW combined cycle gas turbine fired with natural gas
021	Bayside Unit 1B – 169 MW combined cycle gas turbine fired with natural gas
022	Bayside Unit 1C – 169 MW combined cycle gas turbine fired with natural gas
023	Bayside Unit 2A – 169 MW combined cycle gas turbine fired with natural gas
024	Bayside Unit 2B – 169 MW combined cycle gas turbine fired with natural gas
025	Bayside Unit 2C – 169 MW combined cycle gas turbine fired with natural gas
026	Bayside Unit 2D – 169 MW combined cycle gas turbine fired with natural gas
027	Bayside Unit 3A – 169 MW combined cycle gas turbine fired with natural gas
028	Bayside Unit 3B – 169 MW combined cycle gas turbine fired with natural gas
029	Bayside Unit 4A – 169 MW combined cycle gas turbine fired with natural gas
030	Bayside Unit 4B – 169 MW combined cycle gas turbine fired with natural gas

Notes:

- Gannon Unit 5 (EU 005) must be shutdown before operating Bayside Unit 1 (EUs 020, 021, and 022).
- Gannon Unit 6 (EU 006) must be shutdown before operating Bayside Unit 2 (EU 023, 024, 025, and 026).
- Gannon Unit 3 (EU 003) must be shutdown before operating Bayside Unit 3 (EU 027 and 028).
- Gannon Unit 4 (EU 004) must be shutdown before operating Bayside Unit 4 (EU 029 and 030).
- EUs 001, 002, 003, 004, 005, and 006 must be shut down before January 1, 2005. The Department expects that other coal-related activities will also cease operation shortly after the shutdown of these coal-fired boilers.

REGULATORY CLASSIFICATION

Title III: The existing facility is a major source of hazardous air pollutants (HAPs). Based on the available information, this project is not subject to the requirements of a 112(g) case-by-case determination of the Maximum Available Control Technology (MACT).

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

SECTION I. FACILITY INFORMATION

Title V: 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. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), 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 existing 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 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.

RELEVANT DOCUMENTS

- DEP/TEC Consent Final Judgment signed on December 7, 1999.
- EPA/TEC Consent Decree entered on October 5, 2000.
- PSD permit application (Bayside Units 1 and 2) received on September 21, 2000 and all related correspondence.
- Original PSD air construction Permit No. PSD-FL-301 issued on March 30, 2001.
- PSD permit application (Bayside Units 3 and 4) received on June 26, 2001 and all related correspondence.

SECTION II. STANDARD CONDITIONS

ADMINISTRATIVE REQUIREMENTS

1. Effective Date: The effective date of this permit is specified on the placard page (page 1).
2. Permitting Authority: All documents related to applications for permits to construct, operate or modify an emissions unit shall 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. Copies shall also be provided to the Compliance Authority.
3. Compliance Authority: All documents related compliance activities such as reports, tests, and notifications shall be submitted to the Air Management Division of the Environmental Protection Commission of Hillsborough County, 1410 North 21 Street, Tampa, FL 33605. The phone number is 813/272-5530 and the fax number is 813/272-5605. Copies of all such documents shall 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.
4. 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.
5. General Conditions: The owner and operator are subject to, and shall operate under, the attached General Conditions listed in *Appendix GC* of this permit. [Rule 62-4.160, F.A.C.]
6. 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.]
7. PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months of the effective date of this permit, 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 Judgment or the EPA/TEC Consent Decree. [40 CFR 52.21(r)(2)]
8. 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 Judgment or the EPA/TEC Consent Decree. [Rules 62-4.070(4), 62-4.080, and 62-210.300(1), F.A.C.]
9. 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)]
10. 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.]

11. 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 62-210.200 (Definitions) and 62-210.300(1), F.A.C.]
12. 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]
13. 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 the 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 the 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; 40 CFR 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 Compliance Authority, 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 Compliance Authority. [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 Compliance Authority 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 the Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Compliance Authority 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.

Description: Each emissions 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 exclusive fuel.

Heat Input: At a compressor inlet air temperature of 59° F and firing 1842 MMBtu (HHV) per hour of natural gas, each unit produces a nominal 169 MW of shaft-driven electricity. Exhaust gases exit the stack with a volumetric flow rate of approximately 1,030,000 acfm at 220° F.

Generating Capacity: The following table summarizes the electrical generating capacity for each combination of combined cycle gas turbines and steam-electrical turbines.

EU No.	Bayside GT Unit	GT MW, Shaft	Existing Gannon ST	MW, ST	Total
020	1A	169 MW	No. 5	239	746
021	1B	169 MW			
022	1C	169 MW			
023	2A	169 MW	No. 6	414	1090
024	2B	169 MW			
025	2C	169 MW			
026	2D	169 MW			
027	3A	169 MW	No. 3	163	501
028	3B	169 MW			
029	4A	169 MW	No. 4	170	508
030	4B	169 MW			
Totals	11 GTs	1859 MW	4 STs	986	2845

Note: GT means gas turbine. The nameplate generating capacity is shown for the steam-electrical turbines (ST). The final design may not fully utilize the nameplate generating capacity.

Controls: The efficient combustion of natural gas at high temperatures minimizes the emissions of CO, PM/PM₁₀, and VOC. Firing natural gas as the only authorized fuel minimizes emissions of SAM and SO₂ because natural gas contains only small amounts of sulfur. A selective catalytic reduction (SCR) system combined with dry low-NO_x (DLN) combustion technology reduces NO_x emissions.

Continuous Monitors: Each gas turbine is equipped with continuous emissions monitoring systems (CEMS) to measure and record CO and NO_x emissions as well as flue gas carbon dioxide content.

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/PM₁₀), and volatile organic compounds (VOC). [Rule 62-212.400(BACT), F.A.C.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

2. 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.

EQUIPMENT

3. Schedule: Bayside Unit 1 is scheduled for completion in May of 2003 and Bayside Units 2, 3, and 4 are scheduled for completion in May of 2004. The permittee shall inform the Department and Compliance Authority of any substantial changes to the construction schedule. [Application; Rule 62-212.400(BACT), F.A.C.]
4. Combined Cycle Gas Turbines: The permittee is authorized to install, tune, operate and maintain eleven new General Electric Model PG7241(FA) gas turbines with electrical generator sets, each designed to produce a nominal 169 MW of shaft-driven 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]
5. 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). The permittee shall submit the final design data with the Title V application. [Design]
6. Automated Control System: The permittee shall install, calibrate, tune, operate, and maintain a Speedtronic™ Mark VI automated control system (or better) for each gas turbine. 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 and shutdown. [Design; 62-212.400(BACT), F.A.C.]
7. 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 provide efficient lean premix combustion. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to reduce CO and NOx emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations. [Design; Rule 62-212.400(BACT), F.A.C.]
8. SCR System: The permittee shall install, tune, operate and maintain a selective catalytic reduction (SCR) system to reduce NOx emissions from each combined cycle gas turbine. The SCR system shall consist of an ammonia injection grid, catalyst, ammonia storage, a monitoring and control system, electrical system, piping, and other ancillary equipment. The SCR system shall be designed to reduce NOx emissions while minimizing ammonia slip within the permitted levels. [DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree; Rule 62-4.070(3), F.A.C.]
9. Evaporative Inlet Air-Cooling System: Each 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 increases power production with additional fuel combustion. The preliminary

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

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]

PERFORMANCE RESTRICTIONS

10. Permitted Capacity: The maximum heat input rate to each gas turbine shall not exceed 1842 MMBtu per hour while producing approximately 169 MW (shaft). The maximum heat input rate is based on a compressor inlet air temperature of 59° F, the higher heating value (HHV) of natural gas and expected performance levels. 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.]
11. Allowable Fuels: Each gas turbine shall fire only pipeline-quality natural gas. The fuel sulfur content shall not exceed 2 grains per 100 SCF of natural gas based on a 12-month rolling average. Compliance shall be demonstrated each month by compiling the daily fuel sulfur analyses provided by the pipeline vendor. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 or equivalent methods. No other fuels are allowed. [Design; Rules 62-210.200(PTE); DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree]
12. Restricted Operation: The hours of operation for each gas turbine are not limited (8760 hours per year). [Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.; EPA/TEC Consent Decree]
13. 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 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 to minimize emissions during startup and shutdown. [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.}

14. 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 on a compressor inlet temperature of 59° F. 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 shall be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.
 - a. **Ammonia Slip**: Subject to the requirements of Condition No. 22 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 based on the average of three test runs. [Rule 62-4.070(3), F.A.C.]
 - b. **Carbon Monoxide (CO)**: CO emissions shall not exceed 28.7 pounds per hour and 7.8 ppmvd corrected to 15% oxygen based on the average of three test runs as determined by EPA Method 10. [Rule 62-212.400(BACT), F.A.C.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

- c. **Nitrogen Oxides (NO_x):** NO_x emissions shall not exceed 23.1 pounds per hour and 3.5 ppmvd corrected to 15% oxygen based on the average of three test runs as determined by EPA Method 7E. NO_x emissions are defined as oxides of nitrogen reported as NO₂. [DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree; 40 CFR 60.332]
 - d. **Particulate Matter (PM/PM₁₀):** The exclusive firing of pipeline-quality natural gas combined with the efficient combustion design and operation of each gas turbine represent the Best Available Control Technology (BACT) requirements for particulate matter emissions. Compliance with carbon monoxide and visible emissions standards shall serve as continuous indicators of efficient combustion to minimize particulate matter emissions. No performance tests are required. [Rule 62-212.400(BACT), F.A.C.]
 - e. **Sulfuric Acid Mist (SAM) and Sulfur Dioxide (SO₂):** The exclusive firing of pipeline-quality natural gas effectively limits potential emissions of SO₂ and SAM. No performance tests are required. [Design; DEP/TEC Consent Final Judgment; EPA/TEC Consent Decree; 40 CFR 60.333]
 - f. **Visible Emissions:** 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. 17 of this section, this standard applies to all loads. [Rule 62-212.400(BACT), F.A.C.]
 - g. **Volatile Organic Compounds (VOC):** The exclusive firing of pipeline-quality natural gas combined with the efficient combustion design and operation of each gas turbine represent the Best Available Control Technology (BACT) requirements for VOC emissions. Compliance with carbon monoxide standards shall serve as a continuous indicator of efficient combustion to minimize VOC emissions. No performance tests are required. [Design; Rule 62-212.400(BACT), F.A.C.]
15. **Emissions Standards Based on CEMS Data:** The following standards apply to each gas turbine based on data collected from each required Continuous Emissions Monitoring System (CEMS).
- a. **Carbon Monoxide (CO):** CO emissions shall not exceed 9.0 ppmvd corrected to 15% oxygen based on a 24-hour block average of CEMS data.
 - b. **Nitrogen Oxides (NO_x):** NO_x emissions shall not exceed 3.5 ppmvd corrected to 15% oxygen based on a 24-hour block average of CEMS data.

Each 24-hour block average shall start at midnight each operating day and shall be calculated from 24 consecutive 1-hour averages. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of the available valid 1-hour averages. [Rules 62-212.400(BACT) and 62-4.070(3), F.A.C.]

STARTUP, SHUTDOWN, MALFUNCTION, AND LOW LOAD OPERATION

16. **Excess Emissions Prohibited:** Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. All such preventable emissions shall be included in the compliance averages determined from the CO and NO_x CEMS data. [Rule 62-210.700(4), F.A.C.]
17. **Alternate Standards and CEMS Data Exclusion:** The following permit conditions establish alternate standards or allow the exclusion of monitoring data for specifically defined periods of startup, shutdown, and documented malfunction of a gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of emissions during such incidents.
- a. **Opacity During Startup and Shutdown:** During startup and shutdown, the opacity of the exhaust gases shall not exceed 10%, except for up to ten 6-minute averaging periods in a calendar day during

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

which the opacity shall not exceed 20%. Data for each 6-minute averaging period shall be exclusive from other 6-minute averaging periods.

- b. **Low Load Operation:** Excluding startup, shutdown, and documented malfunction, each gas turbine is allowed ~~up to three~~ unlimited hours of operation below 50% base load in any 24-hour block, providing: the gas turbine is firing natural gas; the CO and NOx CEMS are functioning properly during such periods and recording valid emissions data within the span range of the monitors; and the gas turbine remains in compliance with the CO and NOx emissions standards based on 24-hour block averages of valid CEMS data.
- c. **CEMS Data Exclusion:** For the following identified operational periods, CO and NOx emissions data may be excluded from the 24-hour block compliance averages in accordance with the corresponding requirements.
 - (1) *Startup, Shutdown, and Malfunction:* Periods of data excluded for gas turbine startup (excluding steam turbine cold startup), shutdown, or documented malfunction shall not exceed four 1-hour emission averages in any 24-hour block due to all such episodes. Gas turbine startup is the commencement of operation of a gas turbine that 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 malfunction is any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. ~~A documented malfunction is a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.~~
 - (2) *Steam Turbine Cold Startup:* Periods of data excluded for a steam turbine cold startup shall not exceed sixteen 1-hour emission averages in any 24-hour block. 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 data and experience, the Department may modify this period of data exclusion in the Title V air operation permit without modifying this PSD permit.
 - (3) *Tuning:* ~~If the permittee provides at least five days advance notice prior to a major tuning session performed by the manufacturer's representative, monitoring data during tuning may be excluded from the 24-hour block compliance averages. Periods of data excluded for such episodes shall not exceed a total of three 1-hour averages in any 24-hour block. Tuning sessions must be performed in accordance with the manufacturer's recommendations. {Permitting Note: As an example, a major tuning session would occur after a combustor change-out. A tuning session may take a few hours each day over a few days. No more than two major tuning sessions would be expected during any year.}~~ A tuning session is typically determined and required by the manufacturer. It is performed by increasing/decreasing the load and "tuning" the machine at various intermittent loads until the machine is fully tuned at all loads.)
 - (4) *Steam Turbine Warm Startup:* Periods of data excluded for a steam turbine warm startup shall not exceed eight 1-hour emission averages in a 24-hour block. A "steam turbine warm startup" is defined as startup after the steam turbine has been offline for less than 24 hours and the first stage metal temperature is 250° F or more.
 - (5) *CT Compressor Water Wash:* Six times per year per CT, the permittee may perform a CT compressor wash. At the end of such an event, the manufacturer requires drying time of the compressor, where the compressor must be heated by bringing the CT on line at low loads. Periods

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

of data excluded for such episodes shall not exceed a total of two 1-hour averages in any 24-hr block.

If a CEMS reports emissions in excess of a CO or NO_x standard, the permittee shall notify the Compliance Authority within one 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 Compliance Authority may request a written summary report of the incident.

- d. **Startup and Shutdown Plan:** 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 each steam turbine cold startup. ~~The permittee shall notify the Compliance Authority at least 24~~

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

~~hours in advance of a steam turbine cold startup. 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, the duration of each procedure, and the methods used to minimize emissions during these periods. Within 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 data exclusion allowed for a steam turbine cold startup defined in Condition 23 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.~~

As provided by the authority in Rule 62-210.700(5), F.A.C., the above requirements are established in lieu of the provisions of Rule 62-210.700(1), F.A.C. [Design; Rules 62-210.700(5), 62-4.130, and Rule 62-212.400 (BACT), F.A.C.]

EMISSIONS PERFORMANCE TESTING

18. Operating Rate During Testing: Emissions performance testing 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.]

19. Test Methods: Any 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">This is an EPA conditional test method.The minimum detection limit shall be 1 ppm.
5	Determination of Particulate Matter Emissions from Stationary Sources <ul style="list-style-type: none">The minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.
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">The method shall use a continuous sampling train.
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography <ul style="list-style-type: none">EPA Method 18 may be used concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.
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

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

Network Web Site at "<http://www.epa.gov/ttn/emc/ctm.html>". Although no specific tests are required for emissions of particulate matter and volatile organic compounds, the test methods are included for completeness. No other methods may be used for compliance testing unless prior written approval is received from the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

20. **Initial Compliance Tests:** Each gas turbine shall be tested to demonstrate compliance with the emission standards for CO, NO_x, 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 gas turbine. Tests for CO and NO_x shall be conducted concurrently. Certified CEMS data may be used to demonstrate compliance with the initial CO and NO_x standards. The test results for ammonia slip shall also report the CO and NO_x emissions recorded by the CEMS during each test run. [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.335]
21. **Annual Compliance Tests:** During each federal fiscal year (October 1st to September 30th), each gas turbine shall be tested to demonstrate compliance with the emission standards for ammonia slip and visible emissions. The test results for ammonia slip shall also report the CO and NO_x emissions recorded by the CEMS during each test run. {Permitting Note: Continuous compliance with the CO and NO_x standards is demonstrated with certified CEMS data.} [Rules 62-212.400(BACT) and 62-297.310(7)(a)4, F.A.C.]
22. **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. Before the ammonia slip exceeds 7 ppmvd corrected to 15% oxygen, take corrective actions that result in lowering 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.]

CONTINUOUS MONITORING REQUIREMENTS

23. **Continuous Emissions Monitoring Systems:** The permittee shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) in the exhaust stack of each emissions unit to measure and record emissions of CO and NO_x in a manner sufficient to demonstrate compliance with the CEMS emission standards of this permit. The carbon dioxide (CO₂) content of the flue gas shall also be monitored at the location where CO and NO_x are monitored to correct the measured emissions rates to 15% oxygen. The oxygen content of the flue gas shall be calculated by the CEMS using the CO₂ content of the flue gas and an F-factor that is appropriate for natural gas.
 - a. **Emission Averages.** Compliance with the 24-hour standards for CO and NO_x emissions shall be based on data collected by the required CEMS. The 24-hour block shall start at midnight of each operating day and consist of 24 consecutive 1-hour blocks. If a unit operates continuously throughout the day, the 24-hour block average shall be the average of 24 consecutive 1-hour emission averages. If a unit operates less than 24 hours during the day, the 24-hour block average shall be the average of available valid 1-hour emission averages collected during operation. If monitoring data is authorized for exclusion (due to startup, shutdown, malfunction, or tuning), the 24-hour block average shall be the

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

average of the remaining available valid 1-hour emission averages collected during operation. Upon a request from the Compliance Authority, the NO_x emission rate shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.

- b. *Data Collection.* The CEMS shall be designed and operated to sample, analyze, and record CO, CO₂, and NO_x data evenly spaced over the hour. Each 1-hour emission average shall be computed using at least one data point in each fifteen minute quadrant of the 1-hour block during which the unit combusted fuel. Notwithstanding this requirement, each 1-hour emission average shall be computed from at least two data points separated by a minimum of 15 minutes. If the unit does not operate in more than one quadrant of a 1-hour block, the data is insufficient to determine a 1-hour emission average and shall be ignored. (Example: Unit begins startup with only ten minutes remaining in the 1-hour block. Data is insufficient to determine a 1-hour average and is ignored.) All valid measurements or data points collected during a 1-hour block shall be used to calculate the 1-hour emission averages. If the CEMS measures concentration on a wet basis, the CEMS 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, a curve of the flue gas moisture content versus load may be developed through manual stack test measurements and used in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). The CO and NO_x CEMS shall express the 1-hour emission averages and the 24-hour block averages in terms of "ppmvd corrected to 15% oxygen".
- c. *Data Exclusion.* CO, CO₂, and NO_x emissions data shall be recorded by the CEMS at all times including episodes of startup, shutdown, malfunction, and tuning. CO and NO_x emissions data recorded during such episodes may be excluded from the 24-hour block compliance averages in accordance with the requirements of Condition No. 17 of this section. All periods of data excluded due to startup, shutdown or malfunction 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 shall not be excluded if the 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 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. Excluded emissions shall be summarized in the required semiannual report.
- d. *NO_x Certification.* The NO_x 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 CEMS emission standards of this permit, missing data shall not be substituted. Instead the 24-hour 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_x monitor shall be performed using EPA Method 7E or 20 as defined in Appendix A of 40 CFR 60. The span for the NO_x monitor shall not be greater than 10 ppmvd corrected to 15% O₂. A dual span monitor may be used.
- e. *CO and CO₂ Certification.* The CO₂ monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 3. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures for each monitor 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 the Compliance Authority. The RATA tests required for the CO₂ monitor shall be performed using EPA Method 3A, of Appendix A in 40 CFR 60. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

A. COMBINED CYCLE GAS TURBINES

- f. in 40 CFR 60. The Method 10 analysis shall use a continuous sampling train. The span for the CO monitor shall not be greater than 25 ppm corrected to 15% oxygen. A dual span CO monitor may be used.
- g. *Monitor Availability.* Monitor availability shall not be less than 95% in any calendar quarter. The report required in Condition 23e above shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Compliance Authority with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

{Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEMS 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), 62-210.700(5), and 62-212.400(BACT), F.A.C.]

24. 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 through each SCR system. The permittee shall document the general range of ammonia flow rates required to meet emissions limitations over the range of gas turbine load conditions allowed in this permit by comparing NOx emissions recorded by the NOx monitor with ammonia flow rates recorded using the ammonia flow meter. During NOx monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the gas turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

RECORDS AND REPORTS

25. Semiannual CEMS Report: In addition to the reports required pursuant to 40 CFR 60.7, the permittee shall submit semiannual reports for each gas turbine summarizing the CEMS data and equipment. For each calendar quarter, the report shall include: the 24-hour block compliance averages for each day of operation; the number of 1-hour emission averages excluded from each 24-hour compliance average; the emissions rate of the excluded monitoring data; the reason for excluding monitoring data; the hours of missing data due to monitor downtime; the reason for any monitor downtime; unusual maintenance or repair of the CEMS; and a summary of any RATA tests performed. Based on operational data, the permittee shall also update the general range of ammonia flow rates required to meet NOx emissions limitations over the range of gas turbine load conditions. A report covering operations from January through June shall be submitted by July 30th of each year. A report covering operations from July through December shall be submitted by January 30th of each year. The report due dates may be modified by the Title V permit. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]
26. Monitoring of Operations: To demonstrate compliance with the gas turbine capacity requirements, the permittee shall monitor and record the operating rate of each 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 CEMS required above, or by monitoring daily rates of consumption and heat content of natural gas 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

B. EXISTING GANNON 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 – existing coal fired boiler with 125 MW steam electrical generator
002	Gannon Unit 2 – existing coal fired boiler with 125 MW steam electrical generator
003	Gannon Unit 3 – existing coal fired boiler with 180 MW steam electrical generator
004	Gannon Unit 4 – existing coal fired boiler with 188 MW steam electrical generator
005	Gannon Unit 5 – existing coal fired boiler with 239 MW steam electrical generator
006	Gannon Unit 6 – existing coal fired boiler with 414 MW steam electrical generator
008	Gannon Station Coal Yard – Serves existing Gannon Units 1 – 6

SHUTDOWN REQUIREMENTS

1. Shutdown of Coal-Fired Gannon Units

- a. *Shutdown of Gannon Unit 3:* The Gannon Unit 3 (EU 003) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 3 gas turbine (EU 027 and EU 028). Upon first fire in any Bayside Unit 3 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by $9.06 \times 10^{+06}$ MMBtu per calendar year.
- b. *Shutdown of Gannon Unit 4:* The Gannon Unit 4 (EU 004) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 4 gas turbine (EU 029 and EU 030). Upon first fire in any Bayside Unit 4 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by $8.70 \times 10^{+06}$ MMBtu per calendar year.
- c. *Shutdown of Gannon Unit 5:* The Gannon Unit 5 (EU 005) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 1 gas turbine (EU 020 – EU 022). Upon first fire in any Bayside Unit 1 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by $13.2 \times 10^{+06}$ MMBtu per calendar year.
- d. *Shutdown of Gannon Unit 6:* The Gannon Unit 6 (EU 006) coal-fired boiler shall be shut down and rendered incapable of operation prior to first fire in any Bayside Unit 2 gas turbine (EU 023 – EU 026). Upon first fire in any Bayside Unit 2 gas turbine, the heat-input limit on the coal yard (EU 008) shall be reduced by $21.4 \times 10^{+06}$ MMBtu per calendar year.
- e. *Shutdown of Gannon Units 1 - 6:* The permittee shall shutdown and cease any and all operation of coal-fired Gannon Units 1 through 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.

[Rule 62-212.400(BACT), F.A.C.; EPA/TEC Consent Decree]

2. 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]
3. Notification: Before January 1, 2005, the permittee shall notify the Department and Compliance Authority of plans for the coal storage and handling facilities. Additional permits may be required. [Rule 62-210.300, F.A.C.]
4. 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]

ATTACHMENT D

**STEAM TURBINE
COLD STARTUP PLAN**

ST COLD START-UP

Below is the ST cold startup procedure for Bayside:

1. Fire the CT to minimum load of 10 MW to begin the steam turbine steam line warm-up. The cold startup process requires that 10 MW be maintained to keep the exhaust gas temperatures to a minimum during the warm-up period.

Approximately 1 hour*

2. Warm the main steam, and hot reheat lines to the steam turbine.

Approximately 8 to 10 hours*

3. The steam turbine is heated slowly, such that the rotating and stationary elements can heat and grow at the same rate. The steam turbine rotor must then be allowed to heat up such that the temperature differential between the inner bore and surface meet stress requirements. The CT remains at low MWs to ensure the steam temperatures are kept low, so that the steam turbine is not heated too quickly.

Approximately 2 to 4 hours*

4. The steam turbine must complete a low load soak. This allows the steam turbine to grow while the steam turbine is rolling.

Approximately 1 hour*

5. The cold reheat line is then heated up. These lines cannot be heated up until the steam turbine is rolling because they return to the HRSG.

6. CT load can be increased to bring the steam turbine load up and maintain emissions.

Total: 12 to 16 hours*

- * Cold steam turbine startup times vary depending on the steam turbine metal temperatures.

ATTACHMENT E

**STEAM TURBINE
WARM STARTUP PLAN**

ST WARM START-UP

Below is the ST warm startup procedure for Bayside:

1. Fire the CT to minimum load of 10 MW to begin the steam turbine steam line warm-up. The cold startup process requires that 10 MW be maintained to keep the exhaust gas temperatures to a minimum during the warm-up period.

Approximately 1 hour*

2. Warm the main steam, and hot reheat lines to the steam turbine.

Approximately 2 to 4 hours*

3. The steam turbine is heated slowly, such that the rotating and stationary elements can heat and grow at the same rate. The steam turbine rotor must then be allowed to heat up such that the temperature differential between the inner bore and surface meet stress requirements. The CT remains at low MWs to ensure the steam temperatures are kept low, so that the steam turbine is not heated too quickly.

Approximately 1 to 2 hours*

4. The steam turbine must complete a low load soak. This allows the steam turbine to grow while the steam turbine is rolling.

Approximately 1 hour*

5. The cold reheat line is then heated up. These lines cannot be heated up until the steam turbine is rolling because they return to the HRSG.
6. CT load can be increased to bring the steam turbine load up and maintain emissions.

Total: 5 to 8 hours*

- * Warm steam turbine startup times vary depending on the steam turbine metal temperatures.

ATTACHMENT F

TYPICAL TUNING SCHEDULE

Tuning Verification, 7FA

Mode 1 to 3 Transfer check 30 minutes to 60 minutes

Mode 3:

15 MW - 10 minutes check
25 MW - 3 minutes
30 MW - 10 minutes check
40 MW - 3 minutes check
45 MW - 10 minutes check

Mode 3 to 4 Transfer check 30 minutes to 60 minutes

Mode 4:

40 MW - 10 minutes check
50 MW - 3 minutes
60 MW - 3 minutes
65 MW - 10 minutes check
75 MW - 3 minutes
85 MW - 3 minutes
95 MW - 10 minutes check

Mode 4 to 6 Transfer check 30 minutes to 60 minutes

Mode 6:

75 MW - 40 minutes check
80 MW - 6 minutes
90 MW - 6 minutes
100 MW - 40 minutes check
110 MW - 6 minutes
120 MW - 6 minutes
130 MW - 40 minutes check
140 MW - 6 minutes
150 MW - 6 minutes
160 MW - 6 minutes
170 MW - 6 minutes (if needed)
180 MW - 60 minutes check(if needed)

Note: DATA POINTS MAY VARY SLIGHTLY DUE TO AMBIENT CONDITIONS. An approximated 9 hours for normal tuning schedule.

ATTACHMENT G

CT WATER WASH CEM DATA

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Tampa Electric Company
 Bayside CT1A
 Hillsborough County, Florida

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Today's Date: 02/20/2004
 Time: 10:43:44

Reporting Period
 Day: 12/20/2003

Time	Daily Emissions Log							
	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0700	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0800	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0900	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1000	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1700	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1800	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1900	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2000	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0

AVG ***** ***** ***** ***** ***** ***** ***** *****

Operating Hours: 0

Legend

- C - Out of Control
- D - Out of Service
- I - Insufficient Data
- M - Maintenance Fault
- A - Calibration Error
- X - Calibration Expired

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Tampa Electric Company
 Bayside CT1A
 Hillsborough County, Florida

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Today's Date: 02/20/2004
 Time: 10:45:46

Reporting Period
 Day: 12/21/2003

Time	Daily Emissions Log							
	CO2 %	NOx ppm	NOx lb/mmBtu	NOx @15% O2	CO ppm	CO @15% O2	Gen MW	HTIP lb/mmBtu
0100	1.5	23.2	0.192	52.1	131.7	295.9	0.4	349.6
0200	1.8	29.1	0.201	54.5	200.9	376.2	0.4	378.6
0300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0700	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0800	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
0900	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1000	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1500	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1600	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1700	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1800	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
1900	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2000	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2100	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2200	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2300	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
2400	0.0I	0.0I	0.000	0.0	0.0	0.0	0.0	0.0
AVG	1.7	26.2	0.197	53.3	166.3	336.1	0.4	364.1

Operating Hours: 2

Legend

- C - Out of Control
- D - Out of Service
- I - Insufficient Data
- M - Maintenance Fault
- A - Calibration Error
- X - Calibration Expired

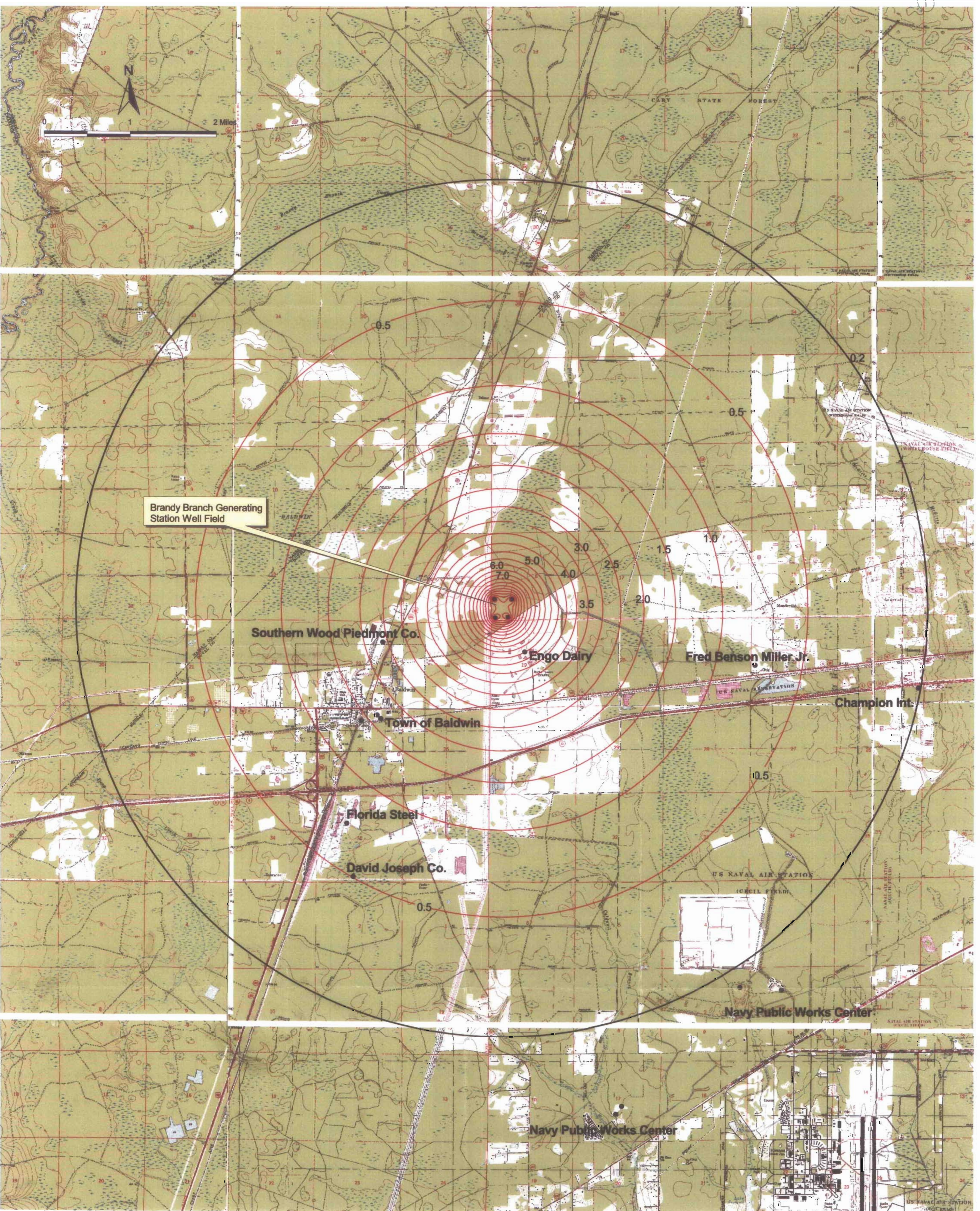


Exhibit 6
JEA Brandy Branch Generating Station
Upper Floridan Aquifer Steady State Drawdown
Resulting From Pumping at 2.75 mgd

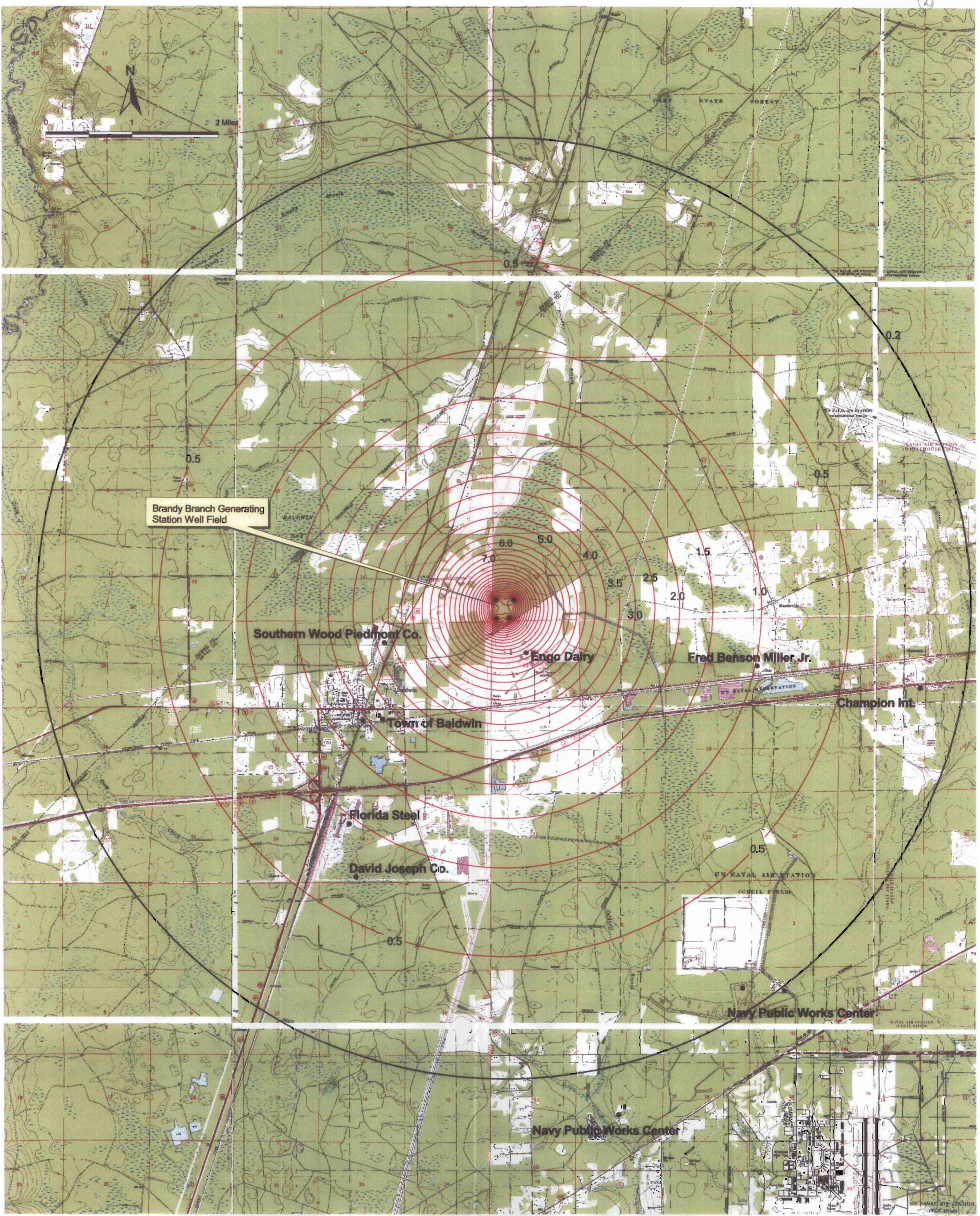


Exhibit 7
JEA Brandy Branch Generating Station
Upper Floridan Aquifer Steady State Drawdown
Resulting From Pumping at 3.72 mgd