Marty

TAMPA ELECTRIC

RECEIVED
APR 11 2012
DIVISION OF AIR
RESOURCE MANAGEMENT

April 9, 2012

Jeffrey F. Koerner, Program Administrator
Florida Department of Environmental Protection
Division of Air Resource Management
Office of Air Permitting and Compliance
2600 Blair Stone Road, M.S. 5505
Tallahassee, Florida 32399-2400

Fedex
Airbill No. 7982-6239-7389

Re: Tampa Electric Company - Big Bend Station
Title V Permit Number 0570039-045-AV
Heat Input Revision & Compliance Determination
Air Permit Application 3030-1
RAI Resubmittal Response
Facility ID No. 0570039

0570039-053-AC
0570039-054-AV

Dear Mr. Koerner:

Tampa Electric Company (TEC) submitted an air construction permit application (No. 3030-1) on November 10, 2011. This application requested a modified heat input note, correction to the allowable heat input rates on Units No. 1 to 4, and a proposed fuel sampling methodology to demonstrate compliance with the corrected heat input rates. On January 9, 2012, TEC received a request for additional information (RAI) from the Department. On January, 19, 2012, TEC submitted an RAI response to the Department. On February 3, 2012, TEC withdrew its response based on subsequent discussions with the Department and pending comments from the EPA.

TEC has revised the responses based our meeting with the Department staff in Tallahassee on March 29, 2012 and feedback from the EPA. The responses are discussed below.

Comment 1
Please provide the current design heat input rates for Big Bend Units 1-4 as of the date of your requested revisions.

Response 1

Section 3.2 of the permit application (No. 3030-1) contains a summary of the current design heat input data provided by the boiler manufacturers. The boiler specifications show the heat input rates at the continuous and peak rated conditions for Units No. 1 and No. 2. The peak rates are approximately 5 to 7% higher than the continuous rates. The boiler specifications show the heat input rates at the continuous rated conditions (not the peak conditions) for Units No. 3 and No. 4.

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111
(813) 228-4111

A summary of the heat input rates currently listed in the Title V permit are summarized in Table 1.

Table 1. Permitted Heat Input Summary for the Units No. 1 to 4.

System	Continuous Rated Heat Input (mmBtu/hr)	Peak Heat Input (mmBtu/hr)	Permitted Heat Input (mmBtu/hr)
Unit 1	3,770	4,037	4,037
Unit 2	3,780	3,996	3,996
Unit 3	4,115	N/A	4,115
Unit 4	4,330	N/A	4,330

The historical data (2002 to 2011) was used to evaluate the typical propagation error in the heat input calculation. The historical data shows the error associated with the 3-month heat rate calculation is approximately ±500 Btu/kWh (5%). The reported error in the measurement of the gross power output is approximately ±0.9 MW (0.2%). The resulting propagation error in the heat in heat calculation is approximately ±200 mmBtu/hour (5.2%). The calculation shows most of the error appears to be attributed to the gravimetric monitoring. Therefore, based upon the discussions at the March 29, 2012 meeting, TEC proposes to demonstrate unit capacity during the compliance testing to within 10% of its true value or current permitted heat input rates pursuant to Chapter 62-297.310(5)(b) F.A.C.

Comment 2
Please include the method that was used for determining the values in item 1 above (either fuel sampling and analysis data or acid rain continuous emissions monitoring data) and the averaging time that these values represent.

Response 2
The design heat inputs in Response 1 are based on the boiler manufacturers' rated conditions.

Comment 3
Please indicate the desired method that will be used in the future to establish the permitted maximum capacity for pollutants for which emission rates are determined by stack testing.

Response 3

TEC proposes to use a specific heat metric to demonstrate unit capacity during compliance testing. The metric calculates the heat input as the product of the gross heat rate (Btu/kWh) and gross power output (MW). The gross power output (MW) will be measured on a 4-hour rolling average. The gross unit heat rate will use a 3-month rolling "seasonal" average based on monthly heat rates from the Generation, Fuels & Performance Report (GFP). The monthly unit heat rate will be calculated as the ratio of monthly heat input and power output using the gravimetric fuel sampling methods described in Section 2.0 of the air permit application No. 3030-1. The gross heat input is specifically calculated as follows:

HI = HR × P /1000

where,

HI = Calculated gross heat input (mmBtu/hr)

HR = Calculated average unit heat rate (Btu/kWh) based on a 3 month rolling "seasonal average"

P = Gross power output (MW) based on a 4 hour rolling average

This metric has shown good agreement with other well established metrics such as the ASME boiler efficiency method and coal throughput measurements. Comparisons between the boiler efficiency method and the proposed metric have shown very good agreement up to approximately 3%.

In contrast, CEMS-derived heat input and the proposed metric have not shown good agreement. Typically, the CEMS-derived heat input has been observed in excess of 15% of the proposed metric. A simple linear correction of the CEMS-derived heat input to account these biases is not technically defendable since the response is highly non-linear and will provide inconsistent results. TEC believes this metric (even corrected) is not an appropriate metric for compliance purposes.

Proposed Title V Permit Modifications

Modifications to Conditions A.2 and B.2 are proposed to establish a heat input calculation methodology to demonstrate capacity during annual stack testing only. Additions are shown as double underlines while deletions are shown as strikethroughs. All proposed changes are shown in yellow highlight.

A.2 Permitted Capacity during Compliance Testing. The nominal heat input rates shall be used solely as a guide to demonstrate the maximum heat input rates during annual stack testing for the purposes establishing compliance with the emission limitations. The heat input rate shall be limited to within 10% of its true value or nominal heat input rate to account for variances in equipment, instrumentation and calculations. The ~~maximum~~ nominal heat input rates are as follows:

Unit No.	~~MMBtu/hr~~ Nominal Heat Input (mmBtu/hr)
1	4,037
2	3,996
3	4,115

[Rules 62-4.160(2), ~~62-210.200 (Definitions - Potential to Emit (PTE));~~ and, 62-296.405(1), F.A.C.; and, Permit Nos. 0570039-014-AC (Unit Nos. 1 - 4) and 0570039-022-AC (Unit No. 3); and, Rule 62-297.310(5)(b)]

Heat Input. The heat input shall be calculated as the product of the gross heat rate (Btu/kWh) and gross power output (MW). The gross power output shall be measured on a 4-hour rolling average. The gross unit heat rate will use a 3-month rolling "seasonal" average based on calculated monthly heat rates. These rates shall be determined by the tons of coal bunkered, composite coal analyses and gross power output for the month. The composite fuel samples shall be collected by on-site personnel in accordance with ASTM standards.

The permittee and the Department agree that the CEMS-derived heat input used for the Federal Acid Rain Program conservatively overestimates the heat input for these units. The heat CEMS shall not be used for compliance purposes, including annual compliance certification.

B.2 Permitted Capacity during Compliance Testing. The nominal heat input rates shall be used solely as a guide to demonstrate the maximum heat input rates during annual stack testing for the purposes establishing compliance with the emission limitations. The heat input rate shall be limited to within 10% of its true value or nominal heat input rate to account for variances in equipment, instrumentation and calculations. The ~~maximum~~ nominal heat input rates are as follows:

Unit No.	~~MMBtu/hr~~ Nominal Heat Input (mmBtu/hr)
4	4,330

[Rules 62-4.160(2), ~~62-210.200 (Definitions - PTE);~~ and, 62-296.405(1), F.A.C.; PSD-FL-40; and, Permit No. 0570039-014-AC (Unit Nos. 1 - 4);and, Rule 62-297.310(5)(b)]

Heat Input. The heat input shall be calculated as the product of the gross heat rate (Btu/kWh) and gross power output (MW). The gross power output shall be measured on a 4-hour rolling average. The gross unit heat rate will use a 3-month rolling "seasonal" average based on calculated monthly heat rates. These rates shall be determined by the tons of coal bunkered, composite coal analyses and gross power output for the month. The composite fuel samples shall be collected by on-site personnel in accordance with ASTM standards.

The permittee and the Department agree that the CEMS-derived heat input used for the Federal Acid Rain Program conservatively overestimates the heat input for these units. The CEMS-derived heat input shall not be used for compliance purposes, including annual compliance certification.

TEC believes the proposed compliance methodology provides reasonable assurance as required by Rule 62-4.070(1) F.A.C., that applicable Department rules will be met. It is requested the Department continue to process the air construction permit application to establish a reasonable approach to determine heat input during annual compliance testing.

Please contact me at (813) 228-4232 or Byron Burrows at (813) 228-1282, if you have any questions or comments.

Sincerely,

Robert A. Velasco, P.E., BCEE, QEP
Air Programs
Environmental, Health & Safety

EHS/iym/RAV143

cc Cindy Zhang-Torres DEP
Diana Lee, EPCHC

Application Responsible Official Certification

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

1. Application Responsible Official Name: **Byron Burrows**

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

- [X] 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.
- [ ] For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
- [ ] For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
- [ ] The designated representative at an Acid Rain source or CAIR 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)228 -4111** ext. Fax: ( ) -

5. Application Responsible Official E-mail Address: **BTBurrows@tecoenergy.com**

6. Application Responsible Official Certification:

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.

Signature

4/9/2012
Date

Professional Engineer Certification

1. Professional Engineer Name: **Robert Velasco**
   Professional Engineer Job Title: **Senior Environmental Engineer**
   Registration Number: **57190**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Tampa Electric Company**
   Street Address: **702 N Franklin St**
   City: **Tampa** State: **FL** Zip Code: **33602**
3. Professional Engineer Telephone Numbers...
   Telephone: **(813)228 - 4232** ext. Fax: ( ) -
4. Professional Engineer E-mail Address: **RAVelasco@tecoenergy.com**
5. Professional Engineer Statement:

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

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

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

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

(4) If the purpose of this application is to obtain an air construction permit (check here [X], 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 ☐, 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.

(5) 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 , 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.

ROBERT A. VELASCO LICENSE No. 57190 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature

4/9/12
Date

(seal)

* Attach any exception to certification statement.

Professional Engineer Exceptions Statement

1. Professional Engineer Name: **Robert A. Velasco, P.E.**
   Registration Number: **57190**
2. Professional Engineer Address...
   Organization/Firm: **Tampa Electric Company**
   Street Address: **P.O. Box 111**
   City: **Tampa** State: **FL** Zip Code: **33601**
3. Professional Engineer Telephone Numbers...
   Telephone: **(813) 228 - 4232** Fax: **(813) 228 - 1308**
4. Professional Engineer E-mail Address: **ravelasco@tecoenergy.com**
5. Professional Engineer Statement:
   (1) Engineering opinions and information included herein provides reasonable assurance of meeting the requirements of Chapter 62-210.300 F.A.C.;
   (2) Engineering information included herein is believed to be correct to the best of the Engineer's knowledge;
   (3) Emission information is based on acceptable techniques available for calculating emissions or estimating emissions from designated emission sources;
   (4) Seal does not certify or attest to the accuracy of work or information prepared by others who are qualified to perform such services. This includes, but not limited to drawings, specifications, vendor information, engineering test data, laboratory data, correspondences, personnel communication etc.; and
   (5) The Engineer is not responsible for subsequent deviations made by others without the Engineer's written consent.