



TAMPA ELECTRIC

July 20, 2009

Ms. Trina Vielhauer
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
111 South Magnolia Avenue, Suite 4
Tallahassee, Florida 32301

RECEIVED

JUL 21 2009

BUREAU OF AIR REGULATION

Via FedEx
Airbill No. 7967 8937 4433

Re: Tampa Electric Company - Big Bend Station
Title V Permit Number 0570039-040-AC
Big Bend SCCT 4 Fuel Oil Sulfur Content
Request for Minor Modification

File # 0570039-040-AC

Dear Ms. Vielhauer:

Tampa Electric Company (TEC) Big Bend Station (Big Bend) currently operates four coal-fired steam generating boilers. Big Bend Station is currently constructing a Pratt & Whitney Power System aeroderivative CT-generator unit with an anticipated start up for August 1, 2009. This project consists of two simple cycle combustion turbines, SCCT 4A & 4B (EU 041 & EU 042), coupled to one common generator having a nominal rating of 62 MW (FDEP File 0570039-040-AC). Additionally, this project includes one new Caterpillar 800 kW emergency stationary reciprocating internal combustion engine (RICE) generator set (EU 043). This project will replace three existing combustion turbines, EU ID Nos. 005, 006, and 007.

Low sulfur diesel is stored in an above ground tank with a storage capacity of approximately 4.3 million gallons. Currently, this tank serves as the only source of diesel fuel oil for plant operations at the Big Bend Power Station. This tank will also serve as the fuel source for the aeroderivative simple cycle combustion turbines-generator peaker as well as the emergency startup RICE generator (FDEP file 0570039-040-AC). The current Title V permit for Big Bend does not restrict sulfur content on the liquid fuel used in the above mentioned activities. However, prior to this year, Big Bend has been using low sulfur diesel with a sulfur content of 0.05% by weight.

The air construction permit, 0570039-040-AC, requires the use of Ultra Low Sulfur Diesel (ULSD) with maximum sulfur content of the 0.0015% by weight. The tank serving SCCT 4A & 4B currently contains fuel oil with a level of sulfur that is higher than 0.0015%, but less than the 40 CFR 60 Subpart KKKK requirement of 0.060 lb SO2/MMBtu TEC requests expedited approval of a ULSD limit as outlined in this correspondence.

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

(813) 228-4111

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TAMPAELECTRIC.COM

CUSTOMER SERVICE:
HILLSBOROUGH COUNTY (813) 223-0800
POLK COUNTY (863) 299-0800
ALL OTHER COUNTIES 1 (888) 223-0800

Big Bend is permitted to use the low sulfur diesel as fuel for the plant mobile equipment and trucks, one emergency diesel fire pump, and for the Boilers (BB1 to BB4) during periods of startup, shutdown, malfunction, and flame stabilization and operates as such. In the future, pursuant to the above referenced permit, liquid fuel operating scenarios will include the additions of two aeroderivative simple cycle combustion turbines SCCT 4A & SCCT 4B (EU 041 & EU 042) and one 800 kW emergency generator (EU 043). The primary fuel for EU 041 & 042 is pipeline natural gas and the backup fuel is ULSD. Combustion turbines 4A and 4B are permitted to operate up to 3,500 hours per year using pipeline natural gas or 3,000 hours on natural gas and 500 hours on ULSD. The use of ULSD in the existing operations will result in overall reduction in associated emissions. TEC has permanently shutdown CTs 2 and 3 and will permanently shut down CT 1 upon startup of this project. The PSD analysis conducted as part of the initial application concluded that this project is not subject to New Source Review.

To meet the Ultra Low Sulfur Diesel (ULSD) of 0.0015% Sulfur, by weight, for future operations of SCCT 4A, SCCT 4B, and new emergency RICE generator, best operational practices were developed for 2009:

1. TEC ceased purchases of low sulfur diesel (<0.05% S by wt.)
2. Starting in January 2009, the facility continued to use up the remaining low sulfur diesel as permitted. Please note that TEC is required to have at least 20,000 bbls of reserved fuel oil on-site during hurricane season to maintain fuel reliability should storms prevent fuel oil shipments by sea or land.
3. In April of 2009, during the transfer of the remaining low sulfur diesel to a day tank, the tank heel or liquid fuel suction intake level (one foot level from the bottom of the tank) was reached. The tank suction pump cavitates when the liquid fuel falls below the one-foot tank level. This meant that approximately 9,000 bbls of low sulfur diesel remained in the tank. Options were considered to develop a plan to completely empty the tank of the trapped low sulfur diesel to allow deliveries of ULSD to maintain inventory. TEC evaluated the work practice of opening up the 4.3 million gallons storage tank to manually pump down the remaining low sulfur diesel. It was determined that this option was not practical because of safety risks associated with employee exposure to the low sulfur diesel, working in confined space, risks of fire or explosion, and environmental risks such as spills.
4. TEC then implemented a plan for the dilution approach currently in practice. The safest and most environmentally sound option is to dilute the low sulfur diesel with ULSD in increments, consume the diluted diesel mixture, add more ULSD until the sulfur content of the ULSD reaches the 0.0015% sulfur level.

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5. In order to demonstrate the effectiveness of this protocol, TEC sampled the low sulfur diesel remaining after the April transfer to the day tank to determine the baseline sulfur content. Lab results show the sulfur content of the 9,000 bbls of low sulfur diesel to be 0.0469% by weight. Three 5,000 bbls shipments of ULSD were added to the tank on separate occasions in April and May to allow dilution. The tank was sampled and the dilution protocol was proven effective as the sulfur content of the diesel mixture in the tank had decreased from 0.0469% to 0.0125% sulfur, a 73% reduction.
6. TEC's current plan is to have at least 20,000 bbls in reserve, to maintain electric grid reliability through the 2009 hurricane season, consume the mixed ULSD plant wide and add ULSD to further dilute and reduce the sulfur content until the ULSD in the tank reaches 0.0015% by weight.

SCCT 4A, SCCT 4B, and Emergency RICE generator are expected to startup in early August of 2009. The SCCT's will be in compliance with the emissions standards from the applicable 40 CFR 60, Subpart KKKK (0.060 lb SO<sub>2</sub>/MMBtu). The use of ULSD with a conservative estimate sulfur content of < 0.0125 % does not trigger any PSD significant increases for applicable pollutants. Attached is an application for a minor modification (Attachment 1) and calculations demonstrating that this request qualifies as a minor modification (Attachment 2).

TEC requests expedited processing of this request to ensure that the subject units can be operated to maintain reliability for our customers in a responsible and safe manner. TEC appreciates your assistance in this matter. Please contact me or Julie Ward at (813) 228-4740 if you have any questions or comments.

Sincerely,



Byron Burrows, P.E. BCEE  
Manager – Air Programs  
Environmental, Health & Safety

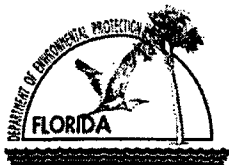
cc: Mr. Jeff Keorner, FDEP  
Mr. Bruce Mitchell, FDEP  
Mr. Sterlin Woodard, EPCHC  
Ms. Diana Lee, EPCHC  
Mr. Jason Waters, EPCHC

EHS/ich/JMW207

Enclosure

**Attachment 1**

**Permit Application for Minor Modification**



# Department of Environmental Protection

## Division of Air Resource Management

### APPLICATION FOR AIR PERMIT - LONG FORM

#### I. APPLICATION INFORMATION

**Air Construction Permit** – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

**Air Operation Permit** – Use this form to apply for:

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

**To ensure accuracy, please see form instructions.**

#### Identification of Facility

1. Facility Owner/Company Name: <b>Tampa Electric Company</b>	
2. Site Name: <b>Big Bend Station</b>	
3. Facility Identification Number: <b>0570039</b>	
4. Facility Location... Street Address or Other Locator: <b>13031 Wyandotte Road</b> City: <b>Apollo Beach</b> County: <b>Hillsborough</b> Zip Code: <b>33572</b>	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>Julie Ward, Engineer, Environmental, Health, &amp; Safety</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>Tampa Electric Company</b> Street Address: <b>P.O. Box 111</b> City: <b>Tampa</b> State: <b>FL</b> Zip Code: <b>33601-0111</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(813) 228 - 4740</b> ext.                      Fax: <b>(813) 228 - 1308</b>	
4. Application Contact E-mail Address: <b>jmward@tecoenergy.com</b>	

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

**Purpose of Application**

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

**Air Construction Permit**

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

**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**



**Minor Modification  
Title V Permit Number 0570039-040-AC  
Big Bend SCCT 4 Fuel Oil Sulfur Content**

**Interim Limit for fuel oil burned 0.0125 % SO2 by weight.**



**Owner/Authorized Representative Statement**

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

1. Owner/Authorized Representative Name : <b>Paul L. Carpinone</b> <b>Director, Environmental Health and Safety</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>Tampa Electric Company</b> Street Address: <b>P.O. Box 111</b> City: <b>Tampa</b> State: <b>Florida</b> Zip Code: <b>33601-0111</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(813) 228 - 4858</b> ext. Fax: <b>(813) 228 - 1308</b>
4. Owner/Authorized Representative E-mail Address: <b>plcarpinone@tecoenergy.com</b>
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>   Signature   Date



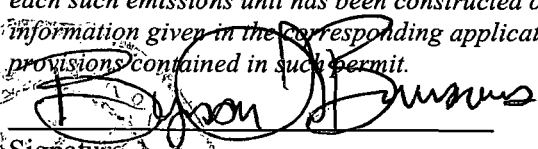
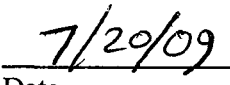
**Application Responsible Official Certification**

**NOT APPLICABLE**

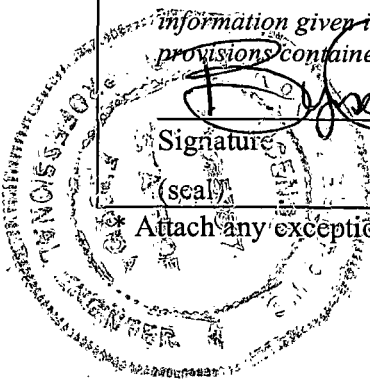
**Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary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

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):			
<input 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, CAIR source, or Hg Budget source.			
3. Application Responsible Official Mailing Address...			
Organization/Firm:			
Street Address:			
City:	State:	Zip Code:	
4. Application Responsible Official Telephone Numbers...			
Telephone: ( ) - ext. Fax: ( ) -			
5. Application Responsible Official E-mail Address:			
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	

**Professional Engineer Certification**

1. Professional Engineer Name: <b>Byron T. Burrows</b> Registration Number: <b>53817</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Tampa Electric Company</b> Street Address: <b>P.O. Box 111</b> City: <b>Tampa</b> State: <b>Florida</b> Zip Code: <b>33601-0111</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(813) 228 - 1282</b> ext. Fax: <b>(813) 228 - 1308</b>
4. Professional Engineer E-mail Address: <b>btburrows@tecoenergy.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(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</i> <i>(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.</i> <i>(3) 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> <i>(4) 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> <i>(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 <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>   Signature _____ (seal)   Date _____

Attach any exception to certification statement.



**Attachment 2**

**Calculations**

ATTACHMENT 2

<b>BIG BEND STATION</b>	
<b>SCCT 4A &amp; 4B ULSD EVALUATION</b>	
<b>Permit Number 0570039-040-AC</b>	
<b>Sulfur Dioxide</b>	
<b>KKKK SO<sub>2</sub> Limit :</b>	<b>0.06 lb/MMBtu</b>
<b>ULSD %S Limit:</b>	<b>0.0015 wt %</b>

Sulfur Dioxide		ULSD Fuel Oil	Current Fuel Oil	KKKK Limit Fuel Oil	Source/Equation
% Sulfur	A	0.0015%	0.0125%	0.059%	Permit/TEC Fuel Analysis/NSPS KKKK
Density lb/gal	B	6.81	6.81	6.81	Permit Application
Est. Btu/gal	C	133,147	133,147	133,147	Permit Application
Est. Btu/lb	D	19,553	19,553	19,553	Permit Application
Emission Factor, lb SO <sub>2</sub> /MMBtu	EF	0.0015	0.013	0.060	$EF=A/100*(2 \text{ lb SO}_2/\text{lb S})*B/C*10^6$
Heat Input, MMBTu/hr HHV	HI	302.7	302.7	302.7	AC Permit Condition 7-@ 100% load w/Evap, 59°F Ambient
Maximum Operating Hours	H	500	500	500	AC Permit- Condition 6
Emission Rate, lb SO <sub>2</sub> /yr per CT	E(lb/yr)	232	1,935	9,081	$E(\text{lb/yr})=EF*HI*H$
Emission Rate, tons SO <sub>2</sub> /yr per CT	E(ton/yr)	0.12	0.97	4.54	$E(\text{ton/yr})=E(\text{lb/yr})/2000$
Emission Rate, tons SO <sub>2</sub> /yr 2 CT's	E2(ton/yr)	0.23	1.9	9.08	$E2(\text{ton/yr})=E(\text{ton/yr})*2$

Maximum Potential Emission Rate Difference= 1.70 tons/yr

<b>BIG BEND STATION</b>
<b>SCCT 4A &amp; 4B ULSD EVALUATION</b>
<b>Permit Number 0570039-040-AC</b>
<b>Sulfuric Acid Mist</b>

Sulfuric Acid Mist		ULSD Fuel Oil	Current Fuel Oil	Source/Equation
% Sulfur		0.0015%	0.0125%	Permit/TEC Fuel Analysis/NSPS KKKK
Sulfur Dioxide Emission, lb/hr	A	0.46	3.87	Lbs/hour Calculated above
SO <sub>2</sub> Conversion Rate on a molar basis	B	7.5	7.5	Permit Application Assumption
H <sub>2</sub> SO <sub>4</sub> Molecular Weight	C	98	98	
SO <sub>2</sub> Molecular Weight	D	64	64	
Emission Factor, lb H <sub>2</sub> SO <sub>4</sub> /hour	EF	0.053	0.44	$EF=A*B/100*C/D$
Maximum Operating Hours	H	500	500	AC Permit- Condition 6
Emission Rate, lb SO <sub>2</sub> /yr per CT	E(lb/yr)	27	222	$E(\text{lb/yr})=EF*H$
Emission Rate, tons H <sub>2</sub> SO <sub>4</sub> /yr per CT	E(ton/yr)	0.013	0.11	$E(\text{ton/yr})=E(\text{lb/yr})/2000$
Emission Rate, tons H <sub>2</sub> SO <sub>4</sub> /yr 2 CT's	E2(ton/yr)	0.027	0.22	$E2(\text{ton/yr})=E(\text{ton/yr})*2$

Maximum Potential Emission Rate Difference= 0.196 tons/yr