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BUREAU OF AIR REGULATION

September 15, 2006

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

Via FedEx
Airbill No. 7900 7208 1559

Re: Tampa Electric Company
Polk Power Station Unit 1
100% Petcoke and Sulfur Content Increase Test Burn Request
Permit No. 1050233-016-AV
AIRS #1050233, EU ID #001

Dear Mr. Koerner:

Tampa Electric Company (TEC) has received your letter of permit issuance extension dated August 28, 2006 addressing the proposed request to conduct a test burn at Polk Power Station (PPS) Unit 1 under the authority of the current Title V Air Operation Permit No. 1050233-016-AV. The test burn would be conducted to test the feasibility of firing syngas produced from the gasification of up to 100% petcoke fuel (with a flux) at a maximum sulfur content of 6 percent by weight. This correspondence is intended to provide reasonable assurance that an increase in blended fuel sulfur content will not result in an exceedance of current permitted emissions.

In past dialogue, the Florida Department of Environmental Protection (FDEP) has expressed a concern about a possible potential increase in emissions due to the gasification of a higher percentage of blended petcoke. TEC will demonstrate compliance to all permitted conditions by conducting simultaneous performance tests on the sulfuric acid plant (SAP) while testing Unit 1 for both the baseline test and the petcoke tests. The purpose for the test burn request is to determine the effect of higher percentages of blended petcoke and sulfur content, while optimizing the SAP's and Acid Gas Removal (AGR) production processes.

The syngas generated from the baseline coal/petcoke blend and supplied to the combustion turbine (CT) will be comparable to the syngas generated from up to 100% petcoke gasification.

For this reason, TEC states that Polk Unit 1 will not increase any of its current emissions standards as a result of conducting the performance tests in the Test Burn Scenario included on

the February 28, 2006 letter. Similar to the past petcoke/coal fuel blend test burns, TEC proposes to conduct the performance tests in the Test Burn Scenario (Table 1) below and evaluate NO_x, SO₂, and H₂SO₄ emissions as a result of firing syngas produced from the gasification of up to 100% petcoke fuel (with a flux).

Table 1. Performance Test Burn Scenarios

TEST	SULFUR %	PETCOKE %
Baseline Test - 10 Days	3.0 -3.5	55 - 60
Test 1 - 28 days	3.5 - 6	65 - 75
Test 2 - 28 days	4 - 6	75 - 85
Test 3 - 28 days	4 - 6	85 - 95
Test 4 - 28 Days	4 - 6	95 - 100

A range in blended petcoke percentages and sulfur percentages has been requested because the exact conditions for the tests will not be known until the initial test results are evaluated and facility operating system reviewed. Typically petcoke has ~6% sulfur content, and numerous factors go into the exact sulfur content of the coal to be blended with the petcoke.

Potential increases in SO₂ and SAM emissions are the only ones with possible PSD implications, not because of the pet coke fuel per se, but rather because the less expensive fuels (including fuels with higher petcoke concentrations) contain more sulfur. This could impact the acid gas removal system (MDEA) or sulfur recovery system (Sulfuric Acid Plant). Again, TEC would like to reiterate the main objective of the test is to identify these impacts, if any, and adjust operating conditions or identify potential plant modifications to ensure long term emissions compliance. The test plan calls for up to 28 days operation on each fuel blend to accomplish this task.

The Sulfuric Acid Plant is not presently fully utilized and over the past five years the SAP has operated at just over 55% of its permitted capacity (Table 2). Increase in sulfuric acid production is available without extending any current permit production limits.

Table 2. Sulfuric Acid Plant Production Capacity

Permitted Allowance (TN/yr)	2005	2004	2003	2002	2001
77,640	42,239.63	56,434.11	29,747.99	51,286.09	41,099.71

Possible operational modifications to the AGR include higher flow rates to the AGR absorber (i.e. larger pumps), lower chiller temperatures in the MDEA, increase contact time by changing MDEA inlet location, and higher MDEA stripper heat flux (increase steam flow rate). TEC will evaluate each of these options with regards to operation feasibility and capital investment. Until the test burn is conducted, a fully informed decision will not be possible.

Potential modifications to the SAP include the injection of additional oxygen to the converter, increase air flow to the decomposition furnace and or oxygen injection, increase the gas cooling tower cooling capacity, add more filter candles to the absorption tower, additional or different catalyst in the converter bed, and a new or upsized compressor to increase flow rates. As with the AGR, viable process changes are integral with the test burn, and each process modification could involve significant capital cost.

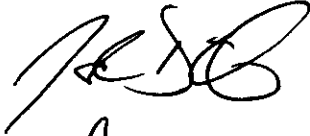
During these tests, we will ensure emissions compliance by reducing the gasifier load and adjusting operating parameters to suit the existing capabilities of the Acid Gas Removal system and the Sulfuric Acid Plant.

Upon completion of all testing, TEC will compile test results in a report to be submitted to the FDEP within 60 days of completion of the test burn. Please find included with this letter an attachment containing TEC's comments and suggested revised construction permit for FDEP review.

Mr. Jeff Koerner
September 15, 2006
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TEC appreciates the Department's cooperation and consideration in this matter. If you have any questions or comments pertaining to this request, please direct them to Joshua Ellwein at (813) 228-4433.

Sincerely,

A handwritten signature in black ink, appearing to read 'BB' with a stylized flourish.

for

Byron Burrows
Manager - Air Programs
Environmental, Health, and Safety

Cc/enc: Ms. Mara G. Nasca, FDEP SW

Attachment 1

Air Construction Permit Comments

maintain a permanent stack sampling platform. In order to help minimize SAM emissions through the SAP stack, low flue gas stack velocities have been designed. As a result, the optimized EPA RM 1 sampling port location has been determined to be where the stack diameter is as small as possible. The stack for the SAP is a free standing structure and with sampling port location near the top of the stack, the structure can not safely support a permanent sampling platform and maintain stack structural integrity. Therefore in the interest of safe practices and feasibility, TEC is requesting an exemption from the installation of a permanent stack sampling platform.

TEC Comment # 1 (Public Notice on Intent to Issue Air Permit)

TEC requests the change of maximum fuel sulfur content from 3.5% to 6% sulfur by weight, as described below (additions in italics).

Project: The Polk Power Station operates an existing integrated gasification and combined cycle (IGCC) combustion turbine (Unit 1). The plant is authorized to gasify a petroleum coke/coal blend of up to 60%/40% and fire the resulting syngas in the combustion turbine. The applicant requests a trial period to gasify various petroleum coke/coal blends of up to 100% and fire the resulting syngas in the combustion turbine. The maximum fuel sulfur content of the current permitted fuel is 3.5% sulfur by weight. For test blends greater than 80%, a flux (*e.g.* coal ash) will be injected to help gasify the petroleum coke. All fuel blends for the proposed project will also comply with *the current permit emission limits but for the purposes of this test fire have the potential to increase the maximum fuel sulfur content up to, but no more than 6%, in addition to an increase in the percent petroleum coke fired.* ~~this fuel sulfur limit other than the percent petroleum coke fired.~~ The unit will continue to meet all *other* existing permit conditions and emission standards.

TEC Comment # 2 (page 3 of 6)

TEC requests the following changes be made to the Construction Permit (additions in italics).

PSD Applicability for Project

Based on the application, it is estimated that there will be no increases in emissions from NO_x, VOC, CO, PM, SO₂, Sulfuric Acid Mist (SAM) and lead from gasifying and firing a higher percentage of petroleum coke in the fuel blends up to 100% petroleum coke. NO_x emissions will be monitored with the emission unit's existing CEMS. VOC and CO emissions are not expected to increase, however the Department will require CO testing for each of the test scenarios to verify emissions. PM is not expected to increase since the coal/petroleum coke blends will be converted to syngas. There will be no changes to the scrubbing and filtration of the syngas process *and any operational changes made will aid in the optimization of acid gas removal.* It is assumed that most all of the PM would be removed prior to being burned in the combustion turbine. This unit is not required to conduct PM testing for syngas, and will not be required for this temporary permit. However, the Department will require VE testing (10% opacity) for the test scenarios. It is anticipated SO₂ and SAM emissions will not increase with the higher sulfur content in the petroleum coke being burned for the test scenarios. ~~The sulfur content must comply with the current permitted limit of 3.5% fuel sulfur content, and must comply with the existing limits of the Title V permit.~~ *All SO₂ and SAM emissions must comply with the existing Title V permit emissions limits.* The Department will require SO₂ and SAM testing for the test scenarios. SO₂ will be monitored by the CEMS in the combustion turbine and Method 6C will be used to measure emissions from the sulfuric acid plant. An approved test method (8, 8A, 8B, or 320) will be used to test H₂SO₄ from the combustion turbine and sulfuric acid plant. Therefore, the project is not subject to PSD preconstruction review.

TEC Comment # 3 (page 4 of 6)

TEC requests the change of maximum fuel sulfur content from 3.5% to 6% sulfur by weight, as described below (additions in italics).

Sulfur Content: The maximum sulfur content of the coal/petroleum coke blend shall not exceed 3.5 6 percent by weight. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

TEC Comment # 4 (page 4 of 6)

TEC requests the removal of coal/petroleum coke blend sulfur content footnote.

Trial	% Sulfur Content of Petroleum Coke*	% Petroleum Coke in Coal/Petroleum Coke Blend
Baseline Test- 10 Days	3.0-3.5	55-60
Trial 1- 28 Days (maximum)	3.5-6.0	65-75
Trial 2- 28 Days (maximum)	4-6	75-85**
Trial 3- 28 Days (maximum)	4-6	85-95**
Trial 4- 28 Days (maximum)	4-6	95-100**

*Coal/Petroleum coke blends will not exceed the permitted sulfur content of 3.5% by weight.

** With a flux (coal ash)

[Application No. 1050233-019-AC]

TEC Comment # 5 – Material of flux (page 5 of 6)

TEC does not want to be strictly limited to the use of coal ash as the only material type to be used as a flux. TEC will conduct and report the results of an analysis of the flux injected during each applicable test scenario including proximate/ultimate analysis of mercury content and the monitored flux injection rate. The possibilities of material type used for the flux are numerous, and include common dirt or sand (which is readily available on property) and presents less potential environmental impact than coal ash. TEC requests the following changes be made to the Construction Permit.

Final Summary Report: The permittee shall prepare and submit reports for all required tests within 60 days of completion of the final test burn scenario. The report shall contain but not be limited to the following (additions in italics):

- Tested and monitored emissions for each of the required pollutants;
- The weight by percent of petroleum coke gasified for each test scenario and corresponding emission rate for the required pollutants;
- The amount of all fuels being burned in the combustion turbine;
- Fuel sulfur analysis of all fuel blends gasified;
- Analysis of the flux (*e.g.* coal ash) injected during each applicable test scenario including proximate/ultimate analysis and mercury content;
- The injection rate of the flux (*e.g.* coal ash) during each applicable test scenario;
- Analysis of the syngas composition being burned in each test scenario including sulfur content;

- Representative samples of coal and petroleum coke blends shall be taken and analyzed for each test scenario;
- Evaluation of the increased petroleum coke usage on the fuel handling system and associated process equipment and effects;

TEC Comment # 6 (page 4 of Section 3. Emissions Unit Specific Conditions)

TEC requests the change of maximum fuel sulfur content from 3.5% to 6% sulfur by weight, as described below.

7. Sulfur Content: The maximum sulfur content of the coal/petroleum coke blend shall not exceed 3-5 6 percent by weight. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

TEC Comment # 7 (page 5 of Section 3. Emissions Unit Specific Conditions)

TEC requests the removal of coal/petroleum coke blend sulfur content footnote.

Trial	% Sulfur Content of Petroleum Coke*	% Petroleum Coke in Coal/Petroleum Coke Blend
Baseline Test- 10 Days	3.0-3.5	55-60
Trial 1- 28 Days (maximum)	3.5-6.0	65-75
Trial 2- 28 Days (maximum)	4-6	75-85**
Trial 3- 28 Days (maximum)	4-6	85-95**
Trial 4- 28 Days (maximum)	4-6	95-100**

*Coal/Petroleum coke blends will not exceed the permitted sulfur content of 3.5% by weight.

** With a flux (coal ash)

[Application No. 1050233-019-AC]

TEC Comment # 8 (page 5 of Section 3. Emissions Unit Specific Conditions)

TEC requests the change of maximum fuel sulfur content from 3.5% to 6% sulfur by weight, as described below (additions in italics).

11. Emissions Tests: For each trial, the permittee shall conduct the emissions test for each unit as required by this permit.

- Combustion Turbine: The permittee shall conduct tests for NO_x, SO₂, H₂SO₄, CO, and visible emissions.
- Sulfuric Acid Plant: The permittee shall conduct tests for SO₂, H₂SO₄, and visible emissions.
- The permittee shall show compliance with the solid fuel sulfur content standard of ~~3.5~~ *6%* by weight based on sampling and fuel analyses for each *trial* test scenario.

TEC Comment # 9 – Installation of permanent testing platform (page C-2)

According to Rule 62-297.310(6), F.A.C. the stack sampling facility is required to install and maintain a permanent stack sampling platform. In order to help minimize SAM emissions through the SAP stack, low flue gas stack velocities have been designed. As a result, the optimized EPA RM 1 sampling port location has been determined to be where the stack diameter is as small as possible. The stack for the SAP is a free standing structure and with sampling port location near the top of the stack, the structure can not safely support a permanent sampling platform and maintain stack structural integrity. Therefore in the interest of safe practices and feasibility, TEC is requesting an exemption from the installation of a permanent stack sampling platform.