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BUREAU OF AIR REGULATION

June 6, 2006

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

Via FedEx
Airbill No. 7909 4721 6120

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

Dear Mr. Mitchell:

Tampa Electric Company (TEC) has received your March 27, 2006 letter of incompleteness 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 the responses to each question raised by the Florida Department of Environmental Protection (FDEP).

FDEP Question 1

The facility states it will not be increasing any of its current emission standards. It also states the emissions from the combustion turbine (CT) and sulfuric acid plant (SAP) will not significantly increase emissions from the use of 100% petcoke which would trigger the Prevention of Significant Deterioration. (PSD) significant emission rates as defined in 62-210.200 (Definitions), F.A.C. Provide the actual and potential emissions from the CT and SAP for each of the criteria pollutants and sulfuric acid mist (SAM) with the unit firing 60% petcoke/40% coal mix and 100% petcoke.

TEC Response 1

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. On the following Tables 1 and 2 are the 2001-2005 actual emissions from the CT and SAP for each of the criteria pollutants and SAM, while firing approximately 60% petcoke/40% coal mix.

Table 1. Year 2001-2005 Polk Unit 1 CT Annual Operating Report Emission Tons [1]

Year	CO (tons)	NO_x (tons)	Pb (tons)	PM (tons)	SO_2 (tons)	VOC (tons)	SAM (tons)	Polk Unit 1 CT Heat Input (MMBtu)	Polk Unit 1 CT Hours of Opertn (hrs)
2001	21.8	530.2	0.018	27.4	817.7	0.0	77.9	10,710,923	6,694
2002	62.0	566.6	0.021	38.8	1100.6	13.1	96.0	12,877,973	7,901
2003	49.7	349.1	0.016	30.3	842.3	9.9	77.5	10,119,646	6,192
2004	76.4	402.1	0.019	37.5	1160.6	10.0	120.7	12,972,097	7,787
2005	33.2	318.8	0.013	27.2	818.5	7.1	57.7	9,963,771	5,665
Average	48.6	433.4	0.018	32.2	947.9	8.0	86.0	11,328,882	6,848

[1] Data is from all fuel types burned at this emissions unit.

Table 2. Year 2001-2005 Sulfuric Acid Plant Annual Operating Report Emission Tons

Year	CO	NO_x	Pb	PM	SO_2	VOC	SAM
2001	NA [2]	NA [2]	NA [2]	NA [2]	42.0	NA [2]	1.1
2002	NA [2]	NA [2]	NA [2]	NA [2]	102.6	NA [2]	3.8
2003	NA [2]	NA [2]	NA [2]	NA [2]	59.5	NA [2]	2.2
2004	NA [2]	NA [2]	NA [2]	NA [2]	112.9	NA [2]	4.2
2005	NA [2]	NA [2]	NA [2]	NA [2]	84.5	NA [2]	3.2
Average	-	-	-	-	80.3	-	2.9

[2] The Sulfuric Acid Plant at Polk Power Station is subject to 40 CFR 60 Subpart H - Standards of Performance for Sulfuric Acid Plants. Subpart H sets standards only for SO_2 and SAM.

FDEP Question 2

Explain why the baseline test will be firing up to 3.5% sulfur petcoke when all other testing will be firing up to 6% sulfur petcoke. What petcoke/coal mix does the plant typically use? What is the typical petcoke sulfur content?

TEC Response 2

The baseline test will be firing up to 3.5% sulfur content petcoke/coal mix, since according to Condition E.1 of the Polk Power Station Title V Air Operation Permit No. 1050233-016-AV, solid fuels input to the solid fuel gasification plant shall consist of coal or coal/petcoke blends containing a maximum of 60.0% petcoke by weight and a maximum sulfur content of the blended fuel of 3.5% by weight. There is no specific limit on sulfur content of the petcoke, only the 3.5% limit on sulfur content of the fuel blend. The test burn proposed 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% by weight.

Polk Power Station Unit 1 typically utilizes a fuel blend ranging between 50% and 60%, by weight, petroleum coke; the balance is coal.

While the Title V Air Operation Permit does not require a specific petcoke sulfur content limit, the petcoke sulfur content on average is approximately 6%, by weight. The sulfur content of the petcoke/coal blend has averaged 3.24%, by weight (dry basis), since early 2005. As requested during the May 16, 2006 telephone conversation, TEC has submitted as Attachment 1 an analysis of the typical petcoke used to blend with coal to convert into syngas for the purpose of electric generation.

FDEP Question 3

Since 2001, the facility's average reported emissions for CO, NO_x, lead, PM, $S0_2$, VOC and SAM are 55, 557, 0.019, 47, 1065, 9, and 95 tpy respectively. Discuss any increases that may occur with 100% petcoke gasification.

TEC Response 3

The syngas generated from the baseline coal/petcoke blend will be comparable to the syngas generated from up to 100% petcoke gasification. Stack testing of PM, VOC, CO, and Pb is not considered necessary for the following reasons:

The ash content of petcoke is significantly lower than the baseline coal; approximately zero to one weight percent for petcoke compared to five to fifteen percent for baseline coal. Accordingly, PM loading to the gasification process with up to 100% petcoke will be at a maximum around 30 times lower compared to baseline coal. This significantly lower PM loading provides reasonable assurance that there will not be a significant increase in PM emissions from Unit 1 as a result of combusting syngas derived from up to 100% petcoke. In addition, there will be no change in the syngas scrubbing or filtration for the syngas produced from 100% pet coke, so PM emissions are not expected to change.

In the absence of combustion system mechanical problems, emissions of CO, NO_x, and VOC from Unit 1 depend primarily on fuel combustion characteristics. The combustion characteristics of syngas made from 100% petroleum coke are not expected to be different from the combustion characteristics of syngas made from 60% pet coke/40% coal, so there is no reason to expect changes in CO, NO_x, or VOC emission

The lead content of petcoke is approximately one order of magnitude lower than baseline coal. Accordingly, no increase in lead emissions would be expected from Unit 1 while combusting syngas derived from up to 100% petcoke, instead lead emissions should be lower with 100% pet coke fuel if there is any change at all.

SO_2 and SAM emissions are the only ones at issue, not because of the pet coke fuel per se, but rather because the more affordable fuels (including fuels with higher petcoke concentrations) contain more sulfur. This could impact the acid gas removal system (MDEA) or sulfur recovery

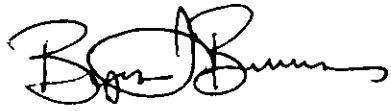
system (Sulfuric Acid Plant). The main objective of the test is to identify these impacts, if any, and adjust operating conditions or identify potential plant modifications to ensure long term emissions compliance. The test plan calls for up to 28 days operation on each fuel blend to accomplish this task.

It was noted that the average emissions for CO, NO_x, Pb, PM, SO_2, VOC, and SAM since 2001 stated on the FDEP Question 3 differ from 2001-2005 data submitted to the FDEP in the Annual Operating Report (AOR). This data has been included in Table 1 above for your information.

A great deal of information concerning the operating performance of the station is available in the public domain. The most comprehensive source of information is the Polk Power Station DOE Final Technical Report. As requested on the May 16, 2006 telephone conversation, TEC has enclosed as Attachment 2 the DOE Final Technical report, which includes process descriptions, environmental performance, and technical questions about Polk Power Station IGCC. Attachment 3 has two informational brochures distributed to educate the local public on how the technology works.

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 Raiza Calderon at (813) 228-4369.

Sincerely,



Byron Burrows, P.E. BCEE
Manager - Air Programs
Environmental, Health, and Safety

EHS/rlk/RC221

Enclosure

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