TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

Orlando Utilities Commission (OUC)
Curtis H. Stanton Energy Center Units 1 & 2

Removal of Nitrogen Oxides (NO_X) Emissions Cap

Orange County

DEP File No. 0950137-025-AC
Modification of Permit No. 0950137-011-AC

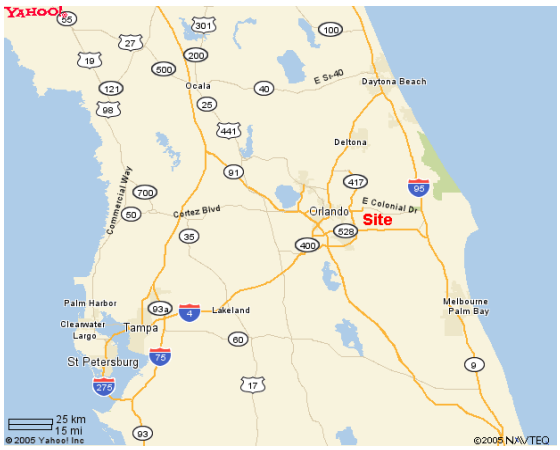
Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
Special Projects Section

August 27, 2008

Facility Description and Location

The OUC Stanton Energy Center (the Stanton Plant) consists of: two 468 megawatts (MW) fossil fuel-fired steam electric generating units (Units 1 and 2) that began operation in 1987 and 1996 respectively; a 640 MW gas-fueled combined cycle unit (Unit A) that began operation in 2003; and a nominal 300 MW gas-fueled combined cycle unit (Unit B) that is under construction.

The Stanton Plant is located in Orange County, Southeast of Orlando and North of Highway 528 at 5100 South Alafaya Trail. The site is located 144 kilometers (km) southeast from the Chassahowitzka National Wildlife Area; the nearest Federal PSD Class I Area. The UTM coordinates for this site are 483.6 km East and 3151.1 km North. The location of the Stanton Plant is shown below.



Location of the Stanton Plant near Orlando and Stanton Units 1 and 2.

Facility Regulatory Categories

Title III: The existing facility is identified as a potential major source of hazardous air pollutants (HAP).

Title IV: The existing facility has units subject to the acid rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source of air pollution in accordance with Chapter 213, Florida Administrative Code (F.A.C.)

Prevention of Significant Deterioration (PSD): The existing facility is a PSD-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

Project Description and Analysis

OUC submitted an application for a modification of Permit No. 0950137-011-AC. The permit authorized installation of a dibasic acid (DBA) additive system on the wet flue gas desulfurization (wet FGD) scrubbers and a combustion optimization neural network-based (NN) on Units 1 and 2. The requested modification is removal of a combined NO_X emissions cap of 8,300 tons per year (TPY) on Units 1 and 2. The affected permit is at the following link:

www.dep.state.fl.us/Air/permitting/construction/ouc-stanton/stanton_unit/011FPermit.pdf

The cap was unrelated to the project but was required in a federally enforceable permit applicable to Units 1 and 2 to avoid triggering a PSD review for NO_X on an integrated coal gasification and combined cycle (IGCC) project originally planned as Unit B. The purpose of and calculations associated with establishment of the cap are given at the following link:

www.dep.state.fl.us/Air/permitting/construction/ouc_southern/oucnetting.pdf

The cap would have applied beginning the first month of first fire of the IGCC project. That date would have occurred sometime between 2010 and 2012. The IGCC project for which the cap was needed was replaced with a natural gas-fueled combined cycle (NGCC) project, for which a PSD permit was issued in May, 2008. Unlike the cancelled IGCC project, the replacement project was subjected to a PSD review and a determination of best available control technology (BACT) for NO_X. The PSD review and BACT determination for the NGCC Unit B are available in the document at the following link:

www.dep.state.fl.us/Air/permitting/construction/ouc-stanton/TECHNICAL373A.pdf

The DBA and NN permit for Units 1 and 2 was issued at about the same time as the permit for the IGCC version of the Unit B project. The DBA and NN permit provided a convenient opportunity to include the cap affecting the Units 1 and 2.

Because the IGCC project was cancelled and the replacement NGCC project subjected to PSD and BACT for NO_X, the emission cap is not necessary. Because construction was not completed on the IGCC project, Units 1 and 2 have not yet been required to operate under the requirements of the emissions cap.

Another important consideration is that the cancelled IGCC version of Unit B was permitted to emit 1006 TPY of NO_X. The replacement NGCC project was permitted to emit only 80 TPY of NO_X. A full comparison of the emissions from the two versions of the project is shown in the following table:

Pollutants	IGCC Case Potential Emissions (TPY)	NGCC Case Potential Emissions (TPY)
Carbon Monoxide (CO)	654	163
Nitrogen Oxides (NO_X)	1006 (-19)*	80
Particulate Matter (PM/PM_{10})	189/179	110/109
Sulfuric acid mist (SAM)	22.4	8
Sulfur Dioxide (SO_2)	162	55
Volatile Organic Compounds (VOC)	129	19

* Negative value is after consideration of concurrent reductions from Units 1 and 2.

Besides the DBA and NN projects on Units 1 and 2, OUC is presently implementing a project on the same units to install or upgrade low NO_X burners (LNB) and overfire air (OFA) during outages in spring and fall 2008. The project reference is Permit No. 0950137-015-AC (PSD-FL-395). The details are described in the technical evaluation available at the following link:

www.dep.state.fl.us/Air/permitting/construction/ouc-stanton/TECHNICAL015.pdf

Notwithstanding the vacature of the Clean Air Interstate Rule (CAIR), OUC will implement the measures (LNB and OFA) that will achieve reductions in NO_X emissions irrespective of the described NO_X emissions cap.

For reference, in 2007 NO_X emissions from Units 1 and 2 were 6,170 and 2,590 TPY respectively or combined emissions of 8,760. A reasonable expectation is that the LNB and OFA project on Unit 1 will reduce its NO_X emissions by at least 1,000 TPY.

Given the foregoing discussion, it is reasonable to predict that measured NO_X emissions from the Stanton Plant will likely be less in the future than during the past whether or not the cap is maintained on Units 1 and 2.

Proposed Changes to Permit No. 0950137-011-AC

Because the NO_X emissions cap is in a federally enforceable permit, a permit modification is needed to remove the applicable requirement. Following are the proposed changes to the subject permit in strike through (~~strike through~~) and <u>double underline</u> format.

<u>Section I, General Information, Facility Description</u>

The existing facility consists of two 468 MW fossil fuel fired steam electric generating stations (Units 1 and 2), and one 640 MW combined cycle unit. There are storage and handling facilities for solid fuels, fly ash, limestone, gypsum, slag, and bottom ash. A draft PSD permit was recently issued for the construction of a nominal ~~285~~ <u>300</u> MW ~~integrated gasification~~ <u>natural gas-fueled</u> combined cycle unit (Unit B) planned to be operational by 2012.

<u>Section III, Specific Condition 4</u>

~~4. NO_X Emissions Cap: Units 1 and 2 will meet the following NO_X emissions limits.~~

~~a. Existing Units 1 and 2: The combined NO_X emissions from existing coal fired boiler steam electric generating Stanton Unit 1 and Stanton Unit 2 shall not exceed 8,300 tons per year on a 12-month rolling total. Total NO_X emissions shall be based on data collected from the Unit 1 and Unit 2 NO_X CEMS. Compliance shall be determined after each calendar month by calculating the total emissions from that calendar month and the last 11 calendar months beginning the first month of first fire of IGCC Unit B and thereafter.~~

~~b. If the combined NO_X emissions from Units 1 and 2 exceed 8,300 tons during any 12-month period, and/or the total NO_X emissions from Unit B exceeds 1,006 tons during any 12-month period, Unit B shall be subject to PSD preconstruction review at that time, and a determination of BACT for NO_X shall be made.~~

~~c. For purposes of meeting the NO_X emissions caps, annual emission of NO_X from existing Units 1 and 2, and Unit B shall be calculated with no allowable data exclusions. All valid hours of data (including startup and shutdown) must be included in the rolling 12-month totals. Also, the data substitution procedures of Part 75 for missing data shall not be used in these calculations.~~

~~[62-210.200 (net emissions increase), 62-210.370 (emissions computation), and 62-212.400(12) (Source Obligation), F.A.C.]~~

~~{Permitting Note: IGCC Unit B did not trigger PSD for NO_X due to a NO_X emissions cap taken on existing coal fired boiler steam electric generating Unit 1 and Unit 2. The above conditions establish the requirements for meeting the NO_X emissions limitations for purposes of avoiding PSD preconstruction review by Unit B. These requirements in no way supersede any federal requirement of the applicable NSPS or NESHAP provisions.}~~

Section III, Specific Condition 6

~~6. SIP Quarterly Report: In addition to, and included in, the SIP quarterly excess emissions report required for Unit B the permittee shall submit a report to the Compliance Authority summarizing the previous three 12-month totals of NO_X emissions from Units 1 and 2. The quarterly report is due within 30 days following the end of each calendar-quarter. [Rule 62-4.070, F.A.C.]~~

2. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Al Linero is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.