TECHNICAL EVALUATION

APPLICANT

Tampa Electric Company (TECO)
P. O. Box 111
Tampa, Florida 33601-0111

Polk Power Station
Facility ID No. 1050233

PROJECT

Project No. 1050233-037-AC
Exemption from Requirement to Obtain an Air Construction Permit and Authorization

Sulfuric Acid Plant Gearbox Compressor Project
(Project)

COUNTY

Polk County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

January 2014

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control - General Provisions); 62-210 (Stationary Sources - General Requirements); 62-212 (Stationary Sources - Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources - Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Facility Description and Location

This facility is an existing power plant categorized under Standard Industrial Classification No. 4911.

The existing Polk Power Station is located in Polk County at 9995 State Route 37 South, Mulberry, Florida. The UTM coordinates are Zone 17, 402.45 km East and 3067.35 km North; Latitude: 27° 43’ 43” North and Longitude: 81° 59’ 23” West.

This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is not a major source of hazardous air pollutants (HAP).
- This facility does operate units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

The applicant requested a permit determination for the sulfuric acid plant gearbox compressor (project). The Department can either make a determination that a case-by-case permitting exemption from an air construction (AC) permit is appropriate based on the circumstances (also referred to as a “Rule 62-4.040(1)(b), F.A.C. exemption”) or require a minor source AC permit for the proposed project.

This proposed project is scheduled to occur in March 2014.

The Polk Power Station operates under the current valid Title V air operation permit, Permit No. 1050233-036-AV, which was effective October 14, 2013.

Application (Request) Processing Schedule

Request dated January 21, 2014, received via email on January 24, 2014 (complete “application”).

Complete details of the proposed project are accessible via the Department’s world wide web site at http://appprod.dep.state.fl.us/air/emission/apds/default.asp by entering the project number shown above.

Relevant Documents

- Permit No. 1050233-036-AV, Most Current, Valid Title V Air Operation Permit.
- Permit No. 1050233-026-AV, Most Recent Title V Air Operation Permit Renewal.
- Permit No. 1050233-025-AC, Extension of 1050233-021-AC/PSD194H; Extended expiration date to 06/30/2010.
- Permit No. 1050233-021-AC/PSD-FL-194H, PPS Unit No. 1 - 85% Petcoke Modification, and the Technical Evaluation & Preliminary Determination for Permit No. 1050233-021-AC/PSD-FL-194H.

2. DEPARTMENT REVIEW

The applicant's January 21, 2014 submission describes the details of the proposed project. The proposed project is to take place at the sulfuric acid plant (SAP) at TECO's Polk Power Station.

The SAP (Emissions Unit Identification Number (E.U. ID No.) 004) removes sulfur from the syngas stream before it is combusted in Unit No. 1 (E.U. ID No. 001 - Combined Cycle Gas Turbine No. 1). The SAP basically serves as an air pollution control device for the combined-cycle combustion turbine's air pollutant emissions.

According to TECO, the SAP's compressor runs at or near 100% output to keep the SAP's pressure profile within design limits. This type of operation according to TECO is not optimal. TECO's submitted request is to specifically "*re-engineer the gear box of the compressor to optimize flow control … [to] … improve control stability for the compressor so it can better accommodate minor process disturbances and fuel variations.*"

TECO indicated in their submission that the gearbox compressor serves Unit No. 1 and there is a possibility that the flow to the SAP could increase. An increase in flow would result in lower emissions from the Unit No. 1's stack. This decrease in emissions would occur because the SAP is the air pollution control device for the Unit No. 1's emissions of sulfur and sulfuric acid mist emissions.

TECO previously received a minor source AC permit from the Department to perform this re-engineering work under Permit No. 1050233-021-AC/PSD-FL-194H, but did not perform work on this particular part of the project. The modification to the compressor gear box could help the SAP plant to operate at a higher rate, however, TECO claimed that it might only be on a short-term basis. Based on the fact that there could be a short-term rate increase by the SAP, it could be appropriate to issue a minor AC permit for the proposed work as TECO suggested. However, because this work that has yet to be performed had been previously authorized by a minor source AC permit it does not seem to be an effective use of resources to re-issue another minor source AC permit solely for this specific part of the original project.

The SAP's production is limited to 299 tons per day (TPD) and 109,135 tons per year of 100% H_2SO_4 (sulfuric acid). Review of the SAP's production rate reported to the Department and as reflected in the Department's ARMS database shows the most recent 5 years of operation to be:

Table 1.

Year	Tons per year of 100% H_2SO_4
2012	49,678
2011	58,022
2010	66,365
2009	55,347
2008	59,918

Review of the production data as shown in Table 1 for the SAP shows a peak in calendar year 2010, then a decline in 2011 & 2012.

The Unit No. 1 may operate continuously, e.g., 8,760 hours per year. Review of the Unit No. 1's operation rate reported to the Department and as reflected in the Department's ARMS database shows the most recent 5 years of operation to be:

Table 2.

Year	Hours per year of operation for Unit No. 1
2012	5,618
2011	6,738
2010	7,754
2009	6,294
2008	6,979

Review of the operation data as shown in Table 2 for the Unit No. 1 shows a peak in calendar year 2010, then a decline in 2011 & 2012. This corresponds to the same trend as shown in Table 1 for the SAP. This makes sense as the two emission units' operations are inextricably linked.

A 5-year period of monitoring and reporting under Permit No. 1050233-021-AC/PSD-FL-194H, actually commenced in calendar year (CY) 2009 and will end in CY 2013 for the original project. To provide reasonable assurances that there will continue to be no emission increases that would otherwise trigger PSD NSR under the original project, the monitoring and reporting specified for SO_2 and SAM under Permit No. 1050233-021-AC/PSD-FL-194H, specific condition 3.14. is extended an additional 5 more years following resumption of regular operations after the change under this proposed project, beginning with the first full calendar year following the year in which this change is completed pursuant to Rule 62-4.070(1)&(3), F.A.C. The baseline actual emissions are as follows: SO_2 = 1,087.6 tons per year (TPY) and SAM = 104.8 TPY.

Based on the information provided in the applicant's submission, the previously issued Permit No. 1050233-021-AC/PSD-FL-194H, and the Department's review, the proposed work (project) is deemed to be exempt from an AC permit as conditioned.

3. DETERMINATION

Pursuant to Rule 62-4.040(1)(b), F.A.C. and for the reasons stated in this Technical Evaluation, the Office of Permitting and Compliance hereby determines that the proposed activity (project) will not emit air pollutants "*... in sufficient quantity, with respect to its character, quality or content, and the circumstances surrounding its location, use and operation, as to contribute significantly to the pollution problems within the State, so that the regulation thereof is not reasonably justified.*" Therefore, the project is exempt from the requirement to obtain an AC permit.

This determination may be revoked if the proposed activity is substantially modified or the basis for the exemption is determined to be materially incorrect. A copy of this letter shall be maintained at the site of the proposed activity. This permitting decision is made pursuant to Chapter 403, Florida Statutes.

Mr. Scott M. Sheplak, P.E. is the permit processor responsible for reviewing the request and drafting the exemption. Additional details of this analysis may be obtained by contacting him by telephone at 850/717-9074 or by e-mail at scott.sheplak@dep.state.fl.us in the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.