TAMPA ELECTRIC

September 13, 2002

Mr. Al Linero, P.E.
Administrator- New Source Review
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7900 62823 259

Re: Tampa Electric Company (TEC)
Polk Power Station Unit 1
Permitting Exemption Determination Request
Permit No. 1050233-009-AV

Dear Mr. Linero:

Tampa Electric Company's (TEC) is submitting this letter is to notify the Florida Department of Environmental Protection (FDEP) of the capital improvement projects that are planned for Polk Power Station (PPS) Unit 1. The permit issued on February 5, 2002 requires TEC to meet a Nitrogen Oxide (NO_x) emissions limit of 15 parts per million dry volume (ppmvd) @ 15% O_2 on a 30-day rolling average effective July 1, 2003 for operation of Unit 1 while firing syngas. These capital improvement projects will allow the PPS Unit 1 to comply with the new NO_x emissions permit limit. TEC plans to begin installation and construction of the described projects on October 1, 2002.

This letter is organized as follows:

- Background;
- Planned Capital Improvement Projects;
- Impact of Project on Air Quality Emissions;
- Regulatory Analysis;
- Closing;
- Attachment A – Responsible Official Signature
- Attachment B – Professional Engineering Certification
- Attachment C – Process Improvement Details
- Attachment D– Drawings

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1.0 BACKGROUND

The PPS Unit 1 was originally permitted for operation on syngas with a NO_x emissions limit of 25 ppm. This limit was established as an initial Best Available Control Technology (BACT) emissions limit, and was revised after the completion of the collection of actual operating data. This BACT limit for Unit 1 was established in this manner prior to actual operation of this unique unit since, the ultimate system performance was unknown.

On February 5, 2002 the FDEP issued a final air quality permit (FDEP Permit No. 1050233-007-AC) which re-established the NO_x emissions limit for Unit 1 on syngas as 15 ppm. This emissions limit was arrived at after extensive information interchange between TEC and the FDEP, and constitutes a negotiated settlement on the emissions limit. The compliance deadline for the new emission limit was set for July 1, 2003. This new emissions limit of 15 ppm is more stringent than TEC believes Unit 1 can currently, consistently meet. Thus, TEC is embarking on a series of capital improvement projects to enable Unit 1 to meet this newly established emissions limit. These capital improvement projects are described following.

2.0 PLANNED CAPITAL IMPROVEMENT PROJECTS

There are three main phases to TEC's planned capital improvement project. These three phases are interrelated as TEC believes it will be necessary to implement all three projects to be able to consistently ensure compliance with the 15 ppm NO_x emissions limit. These three phases are:

1. Installation of a syngas saturator, allowing for humidification of the syngas;

2. Increasing the airflow to the air separation unit (ASU), which in turn will allow for the increase in production of nitrogen that, is used as a diluent in the combustion turbine. This increase will be effected through:

   (a) The addition of guide vanes to the main air compressor (MAC)

   (b) Upgrading the companders (which supply refrigeration to the ASU) and the associated piping.

3. Increasing the amount of diluent gaseous nitrogen (DGAN) through upgrading the diluent N_2 compressor. This increase will be effected by:

   (a) Modification of the current control system

   (b) Installation of additional guide vanes to the compressor

These planned upgrades are discussed in additional detail in Attachment C to this letter.

Because of the complex nature of these proposed changes, the unique facility configuration, limited equipment availability (i.e., only during outages), and the deadline for completion, which is less than one year away, it is necessary for TEC to immediately begin the ordering and installation of equipment for these process changes.

3.0 IMPACT OF PROJECT ON AIR QUALITY EMISSIONS

The planned project changes are expected to decrease the air emissions from the facility. The primary purpose of the changes is to enable the facility to consistently meet the pending NO_x emissions limit of 15 ppm, which will be reduced from the current emissions limit of 25 ppm. In addition to the reduction of the NO_x emissions, these changes are not expected to increase the emissions of any other regulated pollutant from the facility.

The impact on overall facility emissions from each of the three changes are described in this section. First, in addition to reducing NO_x emissions, the syngas saturator will increase the overall thermal efficiency of the facility. Hence, less fuel will be required to produce the same amount of electrical power. Thus, it is reasonable to assume that other emissions, which depend upon the amount of fuel, consumed (e.g., Sulfur Dioxide (SO_2)) will decrease as a result of the installation of the syngas saturator.

The second and third changes involve providing additional nitrogen diluent to the combustion process. The supply of additional diluent nitrogen is expected to be a two step process, which will be used as needed to reduce NO_x emissions to less than the permitted level. The first step in the use of the additional nitrogen diluent is to use the improvements detailed in the third change, namely being able to take advantage of additional diluent nitrogen that is currently being produced, but not at sufficient pressure to be used in the Combustion Turbine (CT). During this first step of using the diluent nitrogen, the CT is expected to realize a slight improvement in efficiency, although not to the level of improvement that is anticipated with the saturator.

The second step in supplying additional diluent is to increase the process rate of the Air Separation Unit (ASU), thereby producing more nitrogen. This step will slightly increase the parasitic load (i.e., operating electrical requirement) on the system. However, any increase in parasitic load is expected to be more than offset by the increase in efficiency that is achieved as a result of the installation of the syngas saturator and the slight increase in efficiency from the use of additional, available diluent nitrogen. Thus, the overall project is expected to increase the operating efficiency of the process, and therefore will not cause an increase in the emissions of any regulated pollutants from this unit.

4.0 REGULATORY ANALYSIS

TEC has evaluated the potentially, applicable air quality regulations that address this emissions unit, and has concluded that these planned changes do not constitute a modification, hence do not require permitting or a permit modification. This analysis is summarized in this section. However, because this determination is subject to some level of interpretation, TEC is requesting that FDEP respond in writing, indicating their concurrence with this interpretation.

First, the facility is subject to provisions of NSPS Subpart GG, Standards of Performance for Stationary Gas Turbines, for the operation of the combustion turbine. This change is clearly not a modification for two main reasons. First, these process changes will not increase the regulated pollutant emissions from the CT. Second, pollution prevention projects are clearly identified as exempt from being considered a modification. The pertinent portion of the definition of the term modification, as contained in 40 CFR 60.14 is reproduced following.

> *(a) Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the*

> *meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.*
>
> *(e) The following* ***shall not, by themselves, be considered modifications under this part****:*
>
> *(5)* ***The addition or use of any system or device whose primary function is the reduction of air pollutants****, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.*

The facility underwent the Prevention of Significant Determination (PSD) permitting process for the construction permitting of Unit 1. Because there is no increase in PSD subject pollutants as part of this change, this change is not subject to the PSD permitting process. Additionally, the driving force for performing this change is the revised BACT emissions limit. This revision was required by the initial BACT determination. Therefore, it is not required to revisit the BACT determination or PSD permitting process as a result of these planned changes.

The Florida DEP defines modification in FAC 62-210.200 (188) as follows.

> *(188) "Modification" - Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.*
>
> *1. A physical change or change in the method of operation shall not include:*
>
> *a. Routine maintenance, repair, or replacement of component parts of an emissions unit; or*
>
> *b. A change in ownership of an emissions unit or facility.*
>
> *2. For any pollutant that is specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975.*
>
> *3. For any pollutant that is not specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would exceed any restriction on hours of operation or production rate included in any applicable Department air construction or air operation permit.*

Because the planned changes for Unit 1 will not increase the emissions of any regulated pollutant, these changes are not considered a modification per the Florida air quality rules.

5.0 CLOSING

TEC appreciates the cooperation and consideration of the Department in this matter. Due to the timing that is associated with the procurement and installation of the required equipment to effect the planned changes, TEC wishes to commence with this project as soon as possible. TEC would appreciate an expedited review of this information. If the DEP determines that permitting is necessary, TEC requests a written response outlining the requirements.

If you have any questions or comments pertaining to this request, please contact Dru Latchman or me at (813) 641-5034.

Sincerely,

Dru Latchman
for

Laura R. Crouch
Manager- Air Programs
Environmental Affairs

EA/bmr/DNL126

Enclosures

c/enc:: Mr. Scott Sheplak, P.E., FDEP
Mr. Jerrry Kissel, FDEP - SW
Mr. Hamilton Oven, P.E., FDEP

Attachment A- Responsible Official Certification

I have reviewed the information contained in this letter. I hereby certify that these documents are authentic and accurate to the best of my knowledge.

Date: 9/11/02

Signature: Mark Hornick
General Manager
Polk Power Station

ATTACHMENT A – PROFESSIONAL ENGINEERING CERTIFICATION

I, the undersigned, hereby certify that:

To the best of my knowledge, the information reported in this determination request is true, accurate, and complete based upon information presented to me by the facility engineering and corporate environmental staff, and reasonable techniques available for estimating emissions. This determination request was prepared under my direct supervision.

Mitchell Jay Hait 7/31/02

Signature Date

Professional Engineer No. 0052281

MITCHELL JAY HAIT

ATTACHMENT C - PROCESS IMPROVEMENT DETAILS

Phase one of the overall project is the humidification of the syngas through the installation of a syngas saturator that is depicted in Figures 1a and 1b in Attachment D. Figure 1a shows the current configuration of the low temperature gas cooling section of the plant and Figure 1b shows the planned future configuration. An existing column called the Water Wash Column will be modified to become the syngas saturator. In the current configuration, syngas flows from the coolers through the Water Wash Column and into the Methyl Diethanol Amine (MDEA) Absorber, where sulfur species are removed. In the future configuration, the flow path will be modified whereby the syngas will first flow through the MDEA absorber and then to the saturator column. In the saturator, the syngas will be contacted with a counter-current flowing stream of hot water. As the syngas passes from the bottom to the top of the column, it will be warmed and humidified by the warm water flowing downward. The syngas will leave the column with approximately 5% water vapor that is expected to reduce NO_x emissions by 3 to 5 ppmvd. The saturator will add the equivalent of about 50 gallons per minute (gpm) of water to the syngas. This additional water will come from the existing plant water wells; therefore, no additional water will be withdrawn from the water table. However, additional water treatment facilities will be included to purify the water for the saturator.

Phase one of the overall project is expected to be performed according to the following timetable. Beginning in late summer 2002, piping will be fabricated to reroute the syngas around the current water wash column. This bypass piping will be installed in the fall 2002 planned outage. Next, between the fall 2002 planned outage and the spring 2003 planned outage, modifications will be made to the water wash column internals and the other key equipment (e.g., heat exchanger, pump, and water treatment equipment) will be procured and put in place. Finally, in the spring 2003 planned outage, the last piping spool modifications will be made to place the new saturator in the syngas flow path. The system will be commissioned during subsequent operation between the spring 2003 outage and the required in-service date of July 2003.

The second phase of the overall project is to increase the airflow to the ASU thereby making more diluent N_2 available. Currently, all diluent N_2 is provided by the ASU and the compander system to provide refrigeration for the cryogenic separation of the air into its primary components, N_2 and O_2. This second phase will increase the capability of MAC within the ASU to provide additional air and increase the refrigeration capability of the companders such that more diluent N_2 will be available. The scope of this second phase is to:

(a) install guide vanes in stages two through four on the MAC;

(b) upgrade the MAC motor components as required to ensure that it meets the additional horsepower requirements; and

(c) modify the companders and associated piping to ensure adequate column refrigeration.

In Attachment D, Figure 2 presents a flow diagram of the ASU and depicts the new aspects of this second phase of the overall project.

The installation of additional guide vanes in the MAC will increase the compressor flow capacity by approximately 5%. This additional air supply from the MAC will be delivered to the ASU's cryogenic column thus providing additional N_2 for injection into the combustion turbine via the diluent N_2 compressor. There will be minor modifications to the MAC's motor to ensure that motor components are capable of sustaining the higher power requirements. The companders, that supply most of the refrigeration to the column, will require upgrading to ensure that the column can liquefy the additional airflow from the MAC.

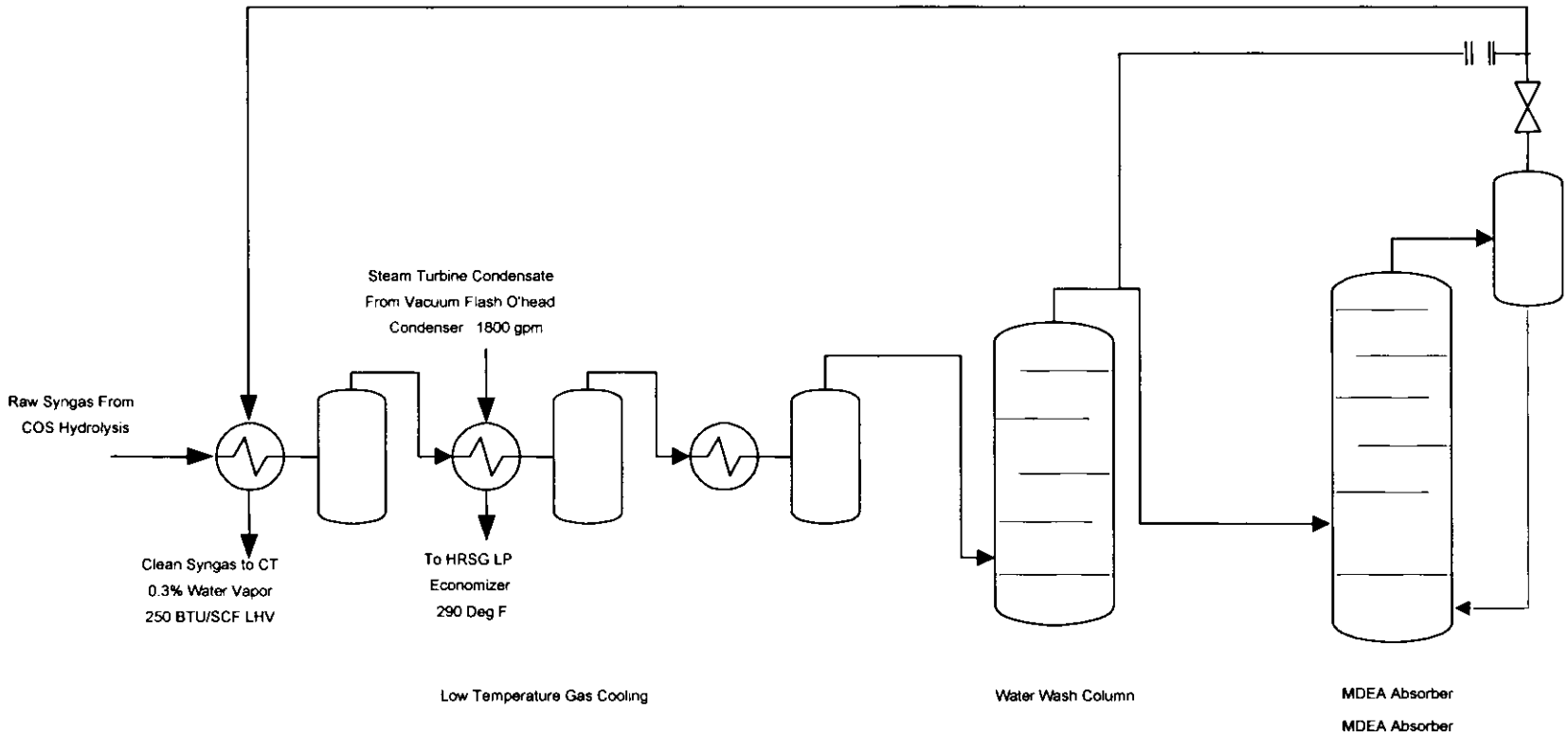
Phase two of the overall project is expected to be performed according to the following timetable. The MAC guide vanes and compander upgrades will be purchased with a sufficient lead-time such that their installation will occur during the fall 2002 planned outage.

The third phase of the overall project is the modification of the controls and the installation of additional guide vanes to the diluent N_2 compressor. The result of phase two of the overall project will make additional DGAN available for injection into the turbine. However, the DGAN is only available at 35 psig from the cryogenic separation section of the ASU. Therefore, compression is needed and the diluent N_2 compressor in the current configuration will not be able to handle the additional load of more diluent N_2 flow. Phase three of the overall project will remedy this situation. This phase will require the installation of additional guide vanes in the diluent N_2 compressor to achieve the increased capacity necessary to sustain the greater flow of DGAN. This modification is similar to the MAC modification in phase two of the project.

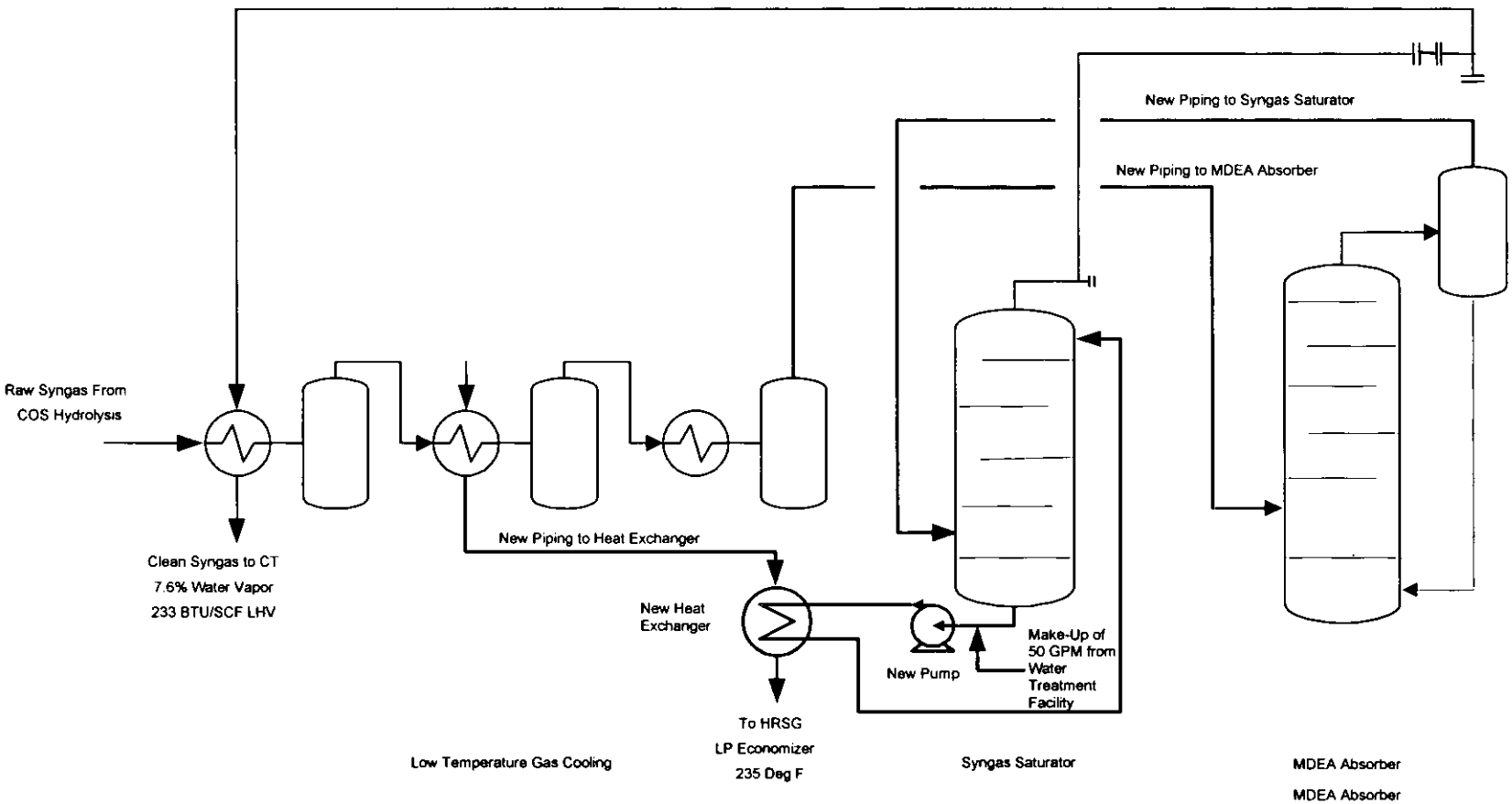
Phase three of the overall project is expected to be performed according to the following timetable. The diluent N_2 compressor modification is scheduled to occur no later than the spring 2003 planned outage. In addition, control system modifications will be made in late 2002 to assure stability of control in order to deliver maximum DGAN to the turbine while maintaining overall plant control stability during load changes.

Attachment D- Drawings

Figures 1A: Current Low Temperature Gas Cooling, Water Wash Column and MDEA Configuration



Figures 1B: Future Low Temperature Gas Cooling, Saturator and MDEA Configuration



Figures 2: Air Separation Unit