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BUREAU OF AIR REGULATION

Certified Mail



December 5, 2001

*0050014-003-AC  
PSD-FL-269*

Mr. Scott M. Sheplak, P.E.  
Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

*Bureau of Air Monitoring  
& Mobile Sources*

*DEC 12 2001*

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Dear Mr. Sheplak:

RE: STARTUP ISSUES

Lansing Smith Unit 4 & 5 (PSD-FL-269 (PA99-40))

As you are aware, Gulf Power is preparing to startup a new combined cycle unit at the Lansing Smith Electric Generating Plant. As previously discussed, there are various environmental time clocks which begin at different stages when coordinating the startup of a new unit that must meet NSPS, PSD, CEM certification and Acid Rain. At many times these conflict with each other and at best can be confusing for all involved. Pursuant to this, Gulf Power has developed a gantt chart outlining the various tasks to help us through all the environmental provisions of startup and certification. Because there is some interpretation of regulations involved, we would like to share our determinations with you. Thus, we should have agreement as these actions occur. For your review, please find our gantt chart enclosed as "Attachment One". Additionally, please note a change in the startup date for Smith Unit 5 since our November 16 letter to you. The new startup date of Unit 5 is January 12, 2002.

As noted above, there are several items that require interpretation. We have outlined these in "Attachment Two" for easy reference. Please review our list and let me know if there are any problems with Gulf Power proceeding as outlined in our worksheet and gantt chart schedule.

Please call me at 850.444.6527 if you have any questions or need more information regarding these issues. Your help is appreciated.

Sincerely,

*G. Dwain Waters Q.E.P.*

G. Dwain Waters, Q.E.P.  
Air Quality Programs Supervisor

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Mr. Scott Sheplak  
December 5, 2001

cc: Robert G. Moore, Gulf Power Company  
James O. Vick, Gulf Power Company  
Mike Sarab, Gulf Power Company  
Valerie Wade, Gulf Power Company  
Robert Haskew, Gulf Power Company  
Marie Largilliere, Gulf Power Company  
Danny Herrin, Southern Company Services  
Dale Evely, Southern Company Services  
Sandra Veazey, FDEP-NWF District, Pensacola, FL

# SMITH COMBINED CYCLE REGULATORY ISSUES WORKSHEET

12/05/01

## **Maximum Production Rate Definition:**

As applied to the initial startup of a combined cycle unit, maximum production rate is met when a combined cycle unit reaches between 90-100 percent of the total heat input (Combustion Turbine + Duct Burner w/o Power Augmentation) as outlined in the design and permit application.

Discussion: This definition is critical because PSD certification tests must be conducted within 60 days of reaching the maximum production rate. The maximum production rate may not be reached until 2-3 months after initial first fire.

## **Custom Fuel Monitoring Plan:**

The custom fuel monitoring plan is no longer required to contain information regarding H<sub>2</sub>S as previously required under the Acid Rain Part 75 rules. This change is outlined in a recent EPA rule revision removing H<sub>2</sub>S from consideration when determining pipeline quality natural gas.

Discussion: Based on the latest guidance from EPA, no monitoring for H<sub>2</sub>S will be implemented for Plant Smith. Heat input and total Sulfur will be provided by the natural gas pipeline transmission company.

## **Reduction of Multiple Load Testing for NSPS Subpart GG:**

Pursuant to guidance recently issued by EPA, initial testing at 4 operating loads for NSPS Subpart GG is not necessary if CEMs are used for compliance. (See attached Determination Letter)

Discussion: Initial NSPS Subpart GG compliance testing of the Smith combustion turbines will take place at maximum CT load in lieu of 4 loads since CEMS will be used for continuous compliance to the NO<sub>x</sub> standards.

## **RATA Test Results in lieu of Method 20:**

Pursuant to guidance recently issued by EPA, RATA NO<sub>x</sub> test results of greater than 3 hours of data may be used in lieu of Method 20 as long as the CEMS are calibrated in accordance with the procedure in Section 6.2.3 of Method 20. (See attached Determination Letter)

Discussion: Initial and annual NO<sub>x</sub> compliance tests at Plant Smith will be conducted using EPA Reference Method 7E in lieu of Method 20. Calibration must meet Section 6.2.3 of Method 20 and greater than 3 hours of data must be used.

## Determination Detail

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Control Number: 0000063

**Category:** NSPS  
**EPA Office:** Region 4  
**Date:** 05/26/2000  
**Title:** Alternative Testing & Monitoring for Combustion Turbines  
**Recipient:** Region 4 Air Division Directors  
**Author:** R. Douglas Neeley  
**Comments:**

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**Subparts:** Part 60, GG                      Stationary Gas Turbines

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**References:** 60.333(b)  
60.334(b)  
60.334(b)(1)  
60.334(b)(2)  
60.334(c)(1)  
60.335(c)(1)  
60.335(c)(2)  
60.335(c)(3)

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**Abstract:**

**Q:** Has authority been delegated to State and Local Agencies to approve certain monitoring and testing alternatives for stationary gas turbines subject to Subpart GG?

**A:** Yes. All State and Local Agencies in Region 4 have been delegated the authority to approve certain monitoring and testing alternatives for stationary gas turbines subject to 40 CFR Subpart GG. Based upon the fact that these alternatives are routinely approved by Region 4, it was determined that requiring them to be submitted to the Region for case-by-case reviews consumes significant resources without providing a corresponding environmental benefit.

**Letter:**

4APT-ARB

State or Local Air Director

SUBJ: Approval of Routine Alternative Testing and Monitoring Procedures for Combustion Turbines Regulated Under New Source Performance Standards

Dear State or Local Air Director:

Over the past year, Region 4 has received numerous requests for approval of alternative testing and monitoring procedures for combustion turbines (CTs) regulated under 40 C.F.R. Part 60, Subpart GG (Standards of Performance for Stationary Gas Turbines). In the process of reviewing these requests, we have identified several alternatives that are routinely approved. Although these alternatives are being approved on a regular basis, the U.S. Environmental Protection Agency (EPA) Region 4 has typically required that all alternative testing and monitoring proposals be submitted for case-by-case reviews. Since the approval of certain alternatives has become so routine, we have concluded that submitting them to Region 4 for review consumes regional, state, and local agency resources and slows down the approval process without providing a corresponding environmental benefit. Specific alternatives for which we have found this to be the case are described in detail in the remainder of this letter, and due to their routine nature, it will no longer be necessary for you to submit such alternative testing or monitoring proposals to Region 4 for case-by-case review or approval. These (alternatives) may be approved by your Agency without additional input from Region 4.

**Nitrogen monitoring requirement for gas-fired CTs**

Under the provisions for 40 C.F.R. Section 60.334(b)(2), owners and operators of CTs who do not have intermediate bulk storage for the fuel fired in their turbines are required to conduct daily monitoring to determine the sulfur and nitrogen content of the fuel combusted. Under the terms of the enclosed August 14, 1987, custom fuel monitoring policy issued by EPA Headquarters, the nitrogen monitoring requirement for pipeline quality natural gas-fired turbines can be waived because this fuel does not contain fuel-bound nitrogen and any free nitrogen that it may contain does not contribute appreciably to the formation of nitrogen oxides (NO<sub>x</sub>) emissions. Based upon the precedent set in the August 1987 custom fuel monitoring policy, the requirement to monitor the nitrogen content of pipeline quality natural gas can be waived for all Subpart GG turbines.

**Sulfur monitoring for gas-fired CTs**

EPA's August 1987 custom fuel monitoring policy also provides details regarding a procedure that owners and operators of natural gas-fired

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turbines can follow in order to obtain approval to reduce their sulfur analysis frequency from a daily to a semiannual basis. Under this policy, owners and operators of affected facilities can obtain approval for a semiannual monitoring frequency by collecting and analyzing samples under the following schedule:

1. Samples must initially be collected and analyzed twice a month for six months. If six months of bi-monthly sampling and analysis indicate that sulfur concentrations are well below the applicable standard with low variability, the sampling frequency can be reduced to a quarterly basis.
2. If six quarters of quarterly sampling and analysis indicate that sulfur concentrations are well below the applicable standard with low variability, the sampling frequency can be reduced to a semiannual basis.
3. If any analyses indicate noncompliance with the applicable sulfur limit of 0.8 weight percent in 40 C.F.R. Section 60.333(b), samples must be collected and analyzed on a weekly basis while the custom fuel monitoring schedule is re-examined.
4. If there is a substantial change in fuel quality, samples must be collected and analyzed on a weekly basis while the custom fuel monitoring schedule is re-examined.

In addition to situations where the owner or operator of a CT regulated under Subpart GG proposes a custom fuel monitoring schedule that is identical to the one outlined in EPA's August 1987 policy, there are two other natural gas sulfur content monitoring alternatives that will not have to be submitted to Region 4 for review. One of these alternatives involves allowing an owner or operator of a new facility to use a semiannual monitoring frequency for natural gas sulfur content immediately upon startup if they can provide the results of bi-monthly and quarterly analyses conducted in accordance with the first and second steps of the schedule outlined above. Region 4 has approved this type of alternative on several occasions. The analytical data needed to justify a waiver of the bi-monthly and quarterly sampling steps may be available when a new unit is added to a source where ongoing monitoring is being conducted for other CTs at the site or when the company's gas supplier can provide previous analytical results for samples whose sulfur content is representative of the fuel that it will be supplying for the new CT.

The other natural gas sulfur monitoring alternative that will not have to be submitted to Region 4 for case-by-case reviews involves situations in which the owner or operator of a CT subject to Subpart GG proposes that the gas samples be collected at a place in the gas transmission line either upstream or downstream of the site where the CT is located. In several previous determinations Region 4 has indicated using such sampling locations is acceptable provided that no new gas enters the transmission line between the sampling location and the affected facility in question. The basis for approval of an alternate sampling location in this situation is that if no new gas enters the transmission line between the offsite sampling location and the CT, the sulfur content of the samples collected and analyzed will be representative of that burned in the affected facility.

Use of continuous emission monitors for NOx

The monitoring provisions in 40 C.F.R. Section 60.334(c)(1) use operating parameters (water-to-fuel injection rates and fuel nitrogen content) to identify periods of NOx excess emissions. Since many of the turbines being installed today are fired with pipeline quality natural gas and do not rely on water injection control, the monitoring required in Subpart GG will not provide any useful information about excess emissions for such turbines. According to the enclosed May 31, 1994, EPA Headquarters' determination, owners and operators of CTs that do not use water injection for NOx control must propose a method for monitoring excess emissions under Subpart GG. One approach that many CT owners and operators rely on to address this requirement is to use NOx continuous emission monitoring systems (CEMS) that have been installed and certified under other requirements such as the acid rain monitoring rule in 40 C.F.R. Part 75 or through conditions in a Prevention of Significant Deterioration (PSD) permit. The enclosed March 12, 1993, EPA Headquarters' determination contains detailed requirements when CEMS are used as an alternative means of monitoring NOx emissions under Subpart GG. Requests from owners and operators proposing to follow these procedures would not have to be submitted to Region 4 for review. In cases where a CEMS is used to satisfy the NOx monitoring requirements under Subpart GG, the requirement to collect and analyze oil samples for nitrogen content under the provisions in 40 C.F.R. Section 60.334(b) can also be waived.

#### Correcting NOx data to International Standards Organization conditions

One provision in the March 12, 1993, Headquarters' policy regarding the use of NOx CEMS for which Region 4 has routinely approved alternatives involves the requirement that the continuous monitor be capable of calculating emission rates corrected to International Standards Organization (ISO) standard day conditions (288 degrees Kelvin, 60 percent relative humidity, and 101.3 kilopascals of pressure). Since the testing provision in 40 C.F.R. Section 60.335(c)(1) requires that performance test results be corrected to ISO standard day conditions, CEMS results must also be expressed on this same basis in order to conclusively identify periods of excess emissions. In many cases today, however, CTs are subject to NOx limits under PSD that are considerably more stringent than those in Subpart GG, and typically these PSD limits are not expressed on an ISO-corrected basis. Depending on the type of turbine, the applicable NOx standard in Subpart GG is either 75 parts per million (ppm) or 150 ppm, and limits contained in PSD permits being issued today are often less than 10 ppm. Based upon the fact that these limits are more stringent than those in Subpart GG, New Source Performance Standard (NSPS) compliance would generally be a concern only in cases where a source is in violation of the corresponding PSD limit. On this basis, Region 4 routinely waives the requirement to correct CEMS results to ISO standard day conditions on a continuous basis provided that the source owner or operator maintains records of the data (ambient temperature, ambient humidity, and combustor inlet pressure) that would enable it to make the correction at the request of EPA or a state or local agency to which the authority to implement Subpart GG has been delegated. Based upon the previous approvals granted by Region 4, requests that CEMS not be required to make ISO corrections on a continuous basis when units are subject to PSD NOx limits that are more stringent than those in Subpart GG would not have to be submitted to Region 4 for case-by-case reviews. One condition imposed on any such approvals, however, must be that the CT owner or operator keeps records of the data needed to make the correction.

#### Multiple load testing requirements

Under the provisions of 40 C.F.R. Section 60.335(c)(2), owners and operators of CTs subject to Subpart GG must conduct NOx performance testing at four different loads across the unit operating range. There are two circumstances under which it would be acceptable for initial performance testing to be conducted at a single operating load. One circumstance which is addressed in the enclosed EPA Region 2

determination dated May 19, 1994, would be one in which a turbine is subject to a permit condition which restricts the unit to operating at a single load level. In this situation, a single load test provides adequate assurance of compliance, and nothing would be gained by conducting testing for three additional load levels at which the turbine is not intended to operate.

Although we are not aware of many CTs that are restricted to operating at a single load level, one common situation where a waiver of the requirement to conduct a multiple load performance test on a CT would be one in which a CEMS is used to satisfy the NOx monitoring requirements in the rule. One reason for conducting a multiple load test on a CT is to determine the water injection rate needed to maintain NOx compliance across the unit's normal operating range. Since it is difficult to predict which operating load will represent "worst case" conditions for a CT, conducting a multiple load test is often necessary in order to provide an adequate level of compliance assurance even for turbines that do not use water injection for NOx control. For CTs equipped with NOx CEMS, however, the monitors will provide credible evidence regarding the unit's compliance status on a continuous basis following the initial test, and the level of compliance assurance provided in this case is sufficient to justify approval of requests that initial performance testing be allowed at a single operating load.

#### Initial NOx performance testing options for CEMS-equipped units

In addition to approving requests that single-load testing be accepted for units equipped with NOx CEMS, Region 4 has also allowed companies to use certified monitors to collect the data needed for demonstrating initial compliance. The NOx test method specified for Subpart GG under the provisions in 40 C.F.R. Section 60.335(c)(3) is EPA Method 20, and once a NOx CEMS has been certified, the main difference between using the monitor or Method 20 to collect the data for the initial performance test involves the number of traverse points at which the sampling is conducted. Although a CEMS extracts the sample from a single point instead of the eight traverse points required under Method 20, part of the monitor certification process involves verifying that the CEMS probe is collecting a sample from a representative location in the stack. Therefore, Region 4 has allowed owners and operators of Subpart GG turbines to use certified CEMS to collect data for initial NOx performance testing on a number of occasions. Conditions for these approvals have been that compliance be based on a minimum of three test runs representing a total of at least three hours of data and that the CEMS be calibrated in accordance with the procedure in Section 6.2.3 of Method 20 following each run. Provided that owners and operators agree to these conditions, it will not be necessary to submit future proposals for using NOx CEMS to conduct initial performance testing on Subpart GG turbines to Region 4 for a case-by-case review.

Another initial testing alternative that we know has recently been approved in at least one other EPA Region involves demonstrating compliance with the emission standard in Subpart GG using the data collected during the relative accuracy test audit (RATA) performed on a NOx CEMS. Although no CT owner or operator has made a specific proposal of this type in Region 4, it would be acceptable to us since the amount of sampling conducted during the RATA (a minimum of nine 21-minute test runs) using EPA reference test methods provides enough representative emissions data to determine the CT's compliance status. Therefore, if you receive any proposals to determine NOx compliance for a CT using the reference method test data collected during a RATA conducted on the unit's CEMS, it will not be necessary to submit the proposal to Region 4 for a case-by-case review.

#### Alternative sampling procedures for oil storage tanks

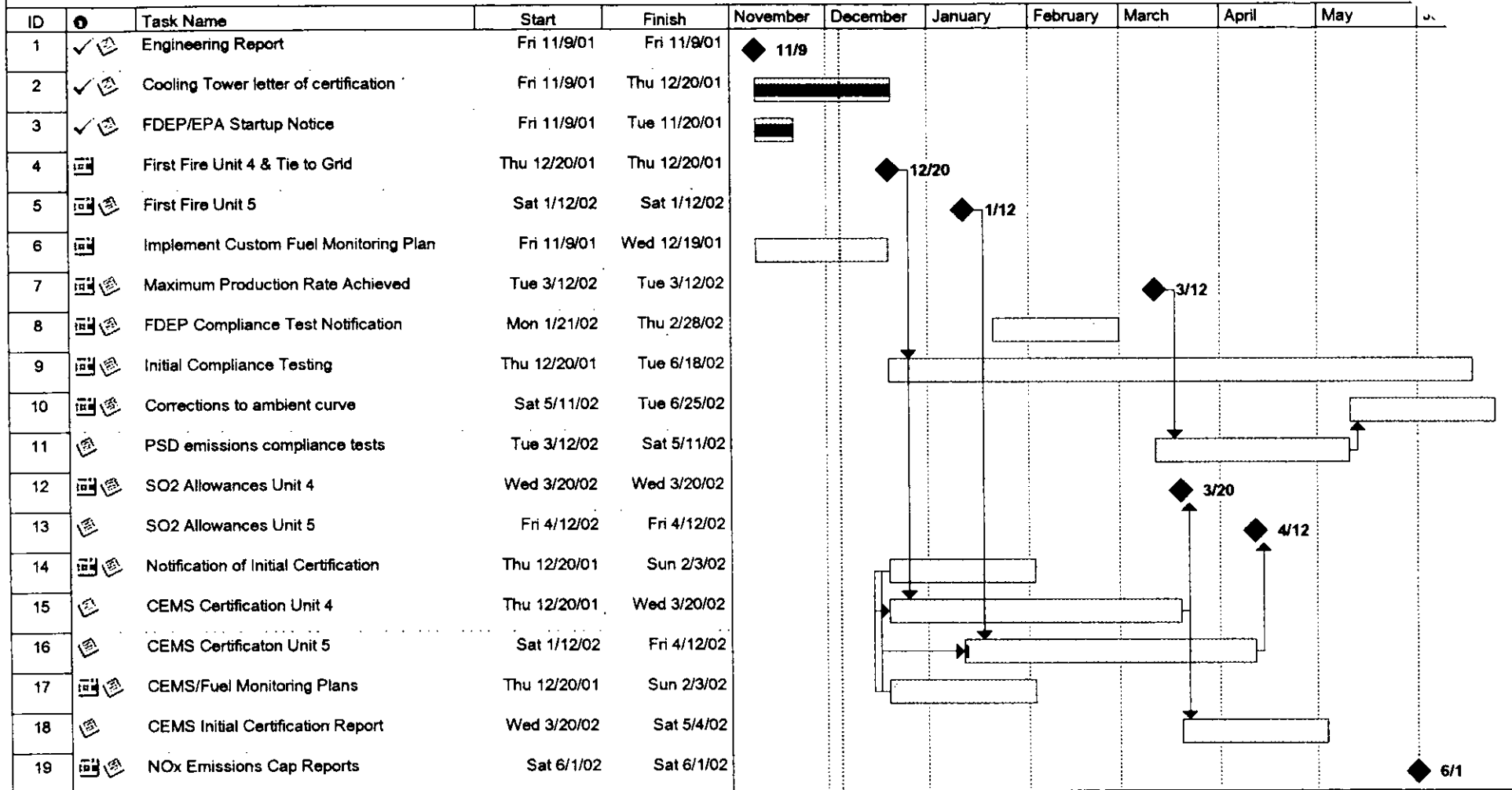


- (1) August 14, 1987, EPA Headquarters custom fuel monitoring policy for Subpart GG turbines
- (2) May 31, 1994, EPA Headquarters determination regarding monitoring obligations for CTs that do not use water injection for NOx control
- (3) March 12, 1993, EPA Headquarters determination regarding the use of CEMS for excess emission monitoring under NSPS Subpart GG
- (4) May 19, 1994, EPA Region 2 approval for single load NOx performance testing on a CT that is restricted to operating at one load

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# Smith Combined Cycle Environmental Air Compliance Test and CEM Certification Workplan



Project: Smith 3 Deadlines updated 11-  
Date: Wed 12/5/01

<b>Task</b>		<b>Rolled Up Task</b>		<b>External Tasks</b>	
<b>Progress</b>		<b>Rolled Up Milestone</b>		<b>Project Summary</b>	
<b>Milestone</b>		<b>Rolled Up Progress</b>			
<b>Summary</b>		<b>Split</b>			

Attachment One