



Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

September 16, 1999

BUREAU OF AIR REGULATION

Greg Worley, Chief  
Pre-Construction/HAP Section  
United States Environmental Protection Agency  
Region 4  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8909

SEP 21 1999  
RECEIVED

**Re: Air Construction Permit, DEP File No. 1050004-00-AC ( PSD-FL-245-A)  
250 Megawatt Combustion Turbine - McIntosh Power Plant Unit No. 5**

Dear Mr. Worley:

As you are aware, Unit No. 5 is the first generation of Westinghouse 501G series Combustion Turbine that commenced initial operation on April 14, 1999. In accordance with the 40 CFR 60.8(a) as referenced in Specific Condition 29 of our permit, demonstration of compliance with the New Source Performance Standards (NSPS) and emission limits must be performed no later than 180 days of initial operation of the unit (on or before October 14, 1999). Therefore, anticipating a smooth startup period and shakedown of equipment, on June 24, 1999 we tendered notice of our intention to perform the emission testing beginning July 24, 1999.

However, this unit due to its large size had not been factory tested prior to its installation on site of McIntosh Power Plant and special test program had been developed to validate the unit's design in the field. Unfortunately during initial testing program numerous mechanical problems and malfunctions were encountered leading to extensive laboratory testing and redesign of some components. Since some of the malfunction incapacitated the operation of the unit, on July 19, 1999 we informed the Agency and the Florida Department of Environmental Protection (DEP) of the cancellation of performance tests. Unit No. 5 has been in an outage since July 30<sup>th</sup> 1999 and we do not anticipate restart of this machine until approximately November 11, 1999. It will be worthwhile to note that the unit has been put through startup at a low load for only 171 hours since April 14, 1999. Therefore, the testing program was in its infancy when it had to be discontinued.

To facilitate your appreciation of the problems and malfunctions encountered by this unit, the following are some of the malfunctions:

1. The unit experienced a phenomenon known as High Frequency Dynamics (HFD) in late April at loads up to 195 MW. HFD is a condition where pressure pulsations occur in the combustion system at very high frequencies. These pulsations caused vibrations in the combustion components that led to equipment damage. Solution to this problem has required extensive ongoing laboratory testing and redesign of various components, including the combustion baskets and possibly the transition stage.
2. One compressor diaphragm incurred damage as a result of an inner shroud vibration. This occurred in late July when the unit was running at 155 MW. To make matters worse, part of the damaged component went downstream in the machine and caused further damage. Therefore, some of the diaphragms are currently being redesigned and remanufactured.
3. The valves used for controlling fuel gas to the engine did not perform as per design expectation. This problem was noticed in the first two weeks of July during the initial light off. These valves are being replaced with a different type of valve.

City of Lakeland ● Department of Electric

Greg Worley, Chief  
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To redesign and replace the damaged parts, restart the unit, tune the machine for safe optimum performance and prepare it for the performance emission testing, a number of tasks must be successfully completed. Assuming the replacement parts are made available following redesign and manufacturing, they must be installed at the site. Upon receipt and installation of damaged parts, a full offline inspection and test must be completed prior to restart of the unit. Providing the result of offline inspection and tests are satisfactory, the unit will be restarted and will be put through tuning sequences to ensure the engine will run safely and reliably while demonstrating the guaranteed and permitted emission levels. Finally, once the engine is tuned satisfactorily, the unit will be ready for emission compliance testing.

The EPA has recognized that 180 days are required for initial operation and shakedown of a newly constructed unit as reflected in the requirements of 40 CFR Part 60.8. As you will appreciate, unit's initial operation had to be stopped during its infancy of the testing procedure. Replacement parts will need to go through extensive testing and tuning prior to normal operation of the machine. Therefore, we are writing to request that the Agency allow a 60-day window from the date of restart of the unit to perform the compliance testing. We have discussed this matter in a telephone discussion with Mr. David McNeal. Mr. McNeal was sympathetic about our predicament and indicated that EPA has had a policy since September 1977 to allow a 30-day window to perform the initial testing. Additionally, in a letter addressed to Mr. Clair Fancy dated October 19, 1994, Ms. Jewell Harper confirmed this policy and delegated the decision to the State providing the extension of time was consistent with the 30-day window (please see attached). As mentioned before, Lakeland is requesting a 60-day window from restart of the unit for initial testing and would appreciate your consideration in this matter.

As always, we look forward to working with you and your staff in finding a suitable solution to our request. If you should have questions, please do not hesitate to contact me.

Sincerely,



Farzie Shelton

Cc: Mr. C.H. Fancy, P.E. - DEP  
Mr. Hamilton Owen P.E. - DEP  
Mr. Al Lincro P.E. - DEP  
Mr. David McNeal - EPA

SWD  
T. Heron, BAR  
Attachment

City of Lakeland ● Department of Electric

Control Number: 9700055

- 
- Category: NSPS
- Region: Region 4
- Date: 10/19/1994
- Title: Initial Testing Deadline Extension
- Recipient: Fancy, Clair
- Author: Harper, Jewell
- Comments: .
- 
- 

• Abstract:

• Q. Will EPA extend the deadline for initial testing at a  
• cogeneration facility?

• A. Yes. If a facility is shut down due to equipment  
• malfunction and cannot conduct an initial test within 180  
• days of startup, testing should be conducted as soon as  
• practicable, but not more than 30 days after restarting. If  
• the facility cannot be operated at its maximum production  
• rate during the initial test, a subsequent test must be  
• conducted when the maximum production rate can be achieved.

• Letter:

• Mr. Clair Fancy  
• Chief  
• Bureau of Air Regulation

- Air Resources Management Division
- Florida Department of Environmental Protection
- 2600 Blair Stone Road
- Tallahassee, Florida 32399-2400
- 
- SUBJ: Extension of the New Source Performance
- Standard-(NSPS) Initial Testing Deadline Requested for the
- Polk Power Partners Mulberry Cogeneration Project
- 

• Dear Mr. Fancy:

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- The purpose of this letter is to provide you with comments
- on the referenced test extension request that Polk Power
- Partners submitted jointly to the U.S. Environmental
- Protection Agency (EPA) Region IV and the Florida
- Department of Environmental Protection on September 22,
- 1994. The company is requesting an extension of the
- deadline to conduct an initial test on a cogeneration
- facility that is subject to NSPS. In accordance with 40
- C.F.R. 60.8(a), initial testing must be conducted within
- 60 days after reaching maximum production, but not later
- than 180 days after initial startup. Because of mechanical
- problems, Polk Power Partners will not be able to conduct
- an initial test within 180 days after startup.
- 

- Based upon the review of the request from Polk Power
- Partners, an extension of the initial testing deadline
- would be appropriate if the extension is consistent with

- previous EPA policies regarding testing deadlines for
- facilities that cannot operate due to equipment
- malfunctions. The basic EPA policy on such extensions was
- established in a memo issued by EPA Headquarters in 1977,
- and a copy of this memo which was downloaded from the EPA
- Applicability Determination Index is enclosed. According to
- this memo, testing should be conducted as soon as
- practicable, but not more than 30 days after restarting, if
- a facility is shutdown due to equipment malfunctions and
- cannot conduct an initial test within 180 days after
- startup.

- In addition to requiring that testing be conducted as soon
- as practicable after restarting the facility, the 1977
- guidance also requires that a subsequent test be conducted
- after the facility reaches its maximum production rate if
- the facility cannot be operated at its maximum production
- rate during the initial test. The purpose for this
- requirement is to ensure that the affected facility is able
- to comply with the applicable standard(s) under "worst
- case" operating conditions.

- If initial testing extension requests are submitted to your
- agency in the future, it will not be necessary to submit
- them to Region IV for approval if extensions granted are
- consistent with the guidance issued in 1977 (i.e., testing
- is completed within 30 days after the facility restarts,
- and if necessary, two tests are conducted when a facility
- cannot be operated at its maximum production rate during

• the initial test). Any extension requests that deviate from  
• this policy should be submitted to Region IV for review.

•  
• If you have any questions about the issues addressed  
• in this letter, please contact Mr. David McNeal of my staff  
• at 404/3473555, voice mailbox 4158.

•  
• Sincerely yours,

•  
• Jewell A. Harper

•  
• Chief

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• Air Enforcement Branch

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• Air, Pesticides and Toxics Management Division

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• cc: State and Local Air Directors Enclosure

•  
• DATE: 10/07/94

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• APPLICABILITY DETERMINATION

•  
• INDEX PAGE 1 DOWNLOAD REPORT

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• Selection Criteria:

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• REFERENCE = 113(a)

•  
• Control Number: A042

•  
• Title: NSPS PERFORMANCE TEST VIOLATION

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• Recipient: WU, JAMES, REGION IV



Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

June 25, 1999

**RECEIVED**

JUN 28 1999  
BUREAU OF  
AIR REGULATION

Mr. C.H. Fancy, P.E.  
Chief Bureau of Air Regulation  
Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road, Mail Station #5505  
Tallahassee, Florida 32399-2400

**Re: Air Construction Permit No. 1050004-006-AC (PSD-FL-245 -A) Lakeland Electric Unit No. 5**

Dear Mr. Fancy:

In compliance with the above referenced permit and 40CFR 60.7(a)(5) and 60.13, we are writing to notify the Department of our intention to perform the necessary certification test commencing July 14, 1999 when we also certify these equipment per 40 CFR 75.

We are providing a copy of this letter to Mr. Bill Thomas of DEP's Southwest District and Mr. Greg Worley of the Environmental Protection Agency.

If you should have any questions, please do not hesitate to contact me.

Sincerely

Farzie Shelton

Cc: Mr. William C. Thomas P.E.  
Administrator  
Department of Environmental Protection  
3804 Coconut Palm Drive  
Tampa Fl 33619

Mr. Greg Worley  
Chief  
Pre-Construction/HAP Section  
United States Environmental Protection Agency  
Region 4  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8909

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Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

June 24, 1999

**RECEIVED**

JUN 28 1999

BUREAU OF  
AIR REGULATION

Mr. C.H. Fancy, P.E.  
Chief Bureau of Air Regulation  
Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road, Mail Station #5505  
Tallahassee, Florida 32399-2400

**Re: Air Construction Permit No. 1050004-006-AC (PSD-FL-245 --A) Lakeland Electric Unit No. 5**

Dear Mr. Fancy:

In compliance with the above referenced permit ( Section III. Emission Unit Specific Condition 29) and 40CFR 60.7 and 60.8, we are writing to notify the Department of our intention to perform the initial stack testing commencing on July 24, 1999. Accordingly, we intend to demonstrate compliance with the NSPS and BACT Standards while burning Natural Gas. However, at this time we do not intend to demonstrate compliance while burning low sulfur fuel oil as, to date, we have not used any fuel oil during start up of this unit. Therefore, we will endeavor to notify you of initial stack testing event while burning fuel oil when the unit has gone through startup period utilizing this fuel.

We are providing a copy of this letter to Mr. Bill Thomas of DEP's Southwest District and Mr. Greg Worley of the Environmental Protection Agency.

If you should have any questions, please do not hesitate to contact me.

Sincerely

  
Farzie Shelton

Cc: Mr. William C. Thomas P.E.  
Administrator  
Department of Environmental Protection  
3804 Coconut Palm Drive  
Tampa Fl 33619

Mr. Greg Worley  
Chief  
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