



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

MAY 25 1993

4APT-AEB

Mr. Howard Rhodes, Interim Director
Air Resources Management Division
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 323989-2400

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Division of Air
Resources Management

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Division of Air
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RE: Determining Compliance for Gas Turbine Unit No. 8 at the
City of Lakeland Department of Electric Water and Utilities

Dear Mr. Rhodes:

The purpose of this letter is to provide you with the EPA Region IV perspective on a modification request submitted by the referenced utility. A copy of the April 21, 1993, request from the Lakeland Utilities is enclosed, and we are providing a determination to you, rather than responding directly to Lakeland Utilities, since the applicable regulations for Unit No. 8 (40 C.F.R. Part 60, Subpart GG - Standards of Performance for Stationary Gas Turbines) have been delegated to your agency.

In their request, Lakeland Utilities asked for approval for an exemption from the requirement to calculate turbine emission rates using the equation in 40 C.F.R. §60.335(c)(1). Although 40 C.F.R. §60.335(f)(1) provides source owners and operators with the opportunity to petition to use other equations as an alternative to the one in 40 C.F.R. §60.335(c)(1), we do not believe that the submittal from Lakeland Utilities contains enough information to justify approval of an alternative equation. Furthermore, based upon telephone conversations between Mr. David McNeal of my staff and Ms. Farzie Shelton of Lakeland Utilities, we believe that, while the company may be experiencing operating problems with respect to water-to-fuel ratios established during the initial performance test conducted on Unit 8, use of an alternative equation would not remedy these operating problems.

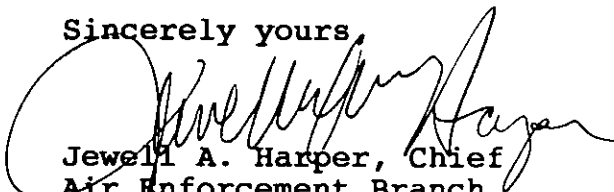
The purpose of the equation in 40 C.F.R. §60.335(c)(1) is to correct measured NO_x emissions during a performance test to ISO standard conditions (280 degrees Kelvin, 60 percent relative humidity, and 101.3 kilopascals pressure). An initial performance test was performed on Unit 8, and when the equation in 40 C.F.R. §60.335(c)(1) was used to correct emissions to ISO standard conditions, it was determined that the unit was in compliance with applicable NO_x limits at four unit loads (30%, 50%, base, and peak load) when burning either natural gas or oil.

Based upon these results, it is unclear why the company would need to use an alternative equation to calculate emission rates for the performance test. This is especially true since any alternative equation should express results on the same basis and should yield identical or nearly identical results to those calculated with the equation in 40 C.F.R. §60.355(c)(1). If Lakeland Utilities still wants to pursue approval of an alternative equation, our recommendation would be that the company submit a report comparing emission rates calculated with both the equation in 40 C.F.R. §60.335(c)(1) and the proposed alternative equation.

Based upon telephone conversations with Ms. Farzie Shelton of Lakeland Utilities, the difficulties that prompted their April 21, 1993, letter seem to be related to demonstrating continuous compliance for Unit No. 8 and not to demonstrating initial compliance. Under the provisions of Subpart GG, the water-to-fuel ratio needed to comply at each of four turbine loads is established during the initial performance test, and this ratio is used as an indicator of compliance following the initial test. According to Ms. Shelton, the company applied for approval of an alternative to the equation in 40 C.F.R. §60.335(c)(1) because of concerns that they may be currently using too much water for NO_x control on Unit No. 8 and that any excess water in the system will damage the turbine. While we would be willing to evaluate any proposed solutions to the problems experienced by Lakeland Utilities, we cannot understand how the specific proposal made in their April 21 letter (use of an alternate equation for adjusting performance test results to ISO standard conditions) will solve problems associated with the use of too much water for NO_x control.

If you have any questions about the information included in this letter, please contact Mr. David McNeal of my staff at 404/347-5014.

Sincerely yours,



Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division

Enclosure

cc: Mike Harley, FL DER w/enclosure
Charles Logan, FL DER w/enclosure

D. Lewis



**LAKELAND
ELECTRIC & WATER**

Excellence Is Our Goal, Service Is Our Job

B4AUS

(813) 499-6603

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

April 21, 1993

Mr. David McNeal
United States Environmental Protection Agency
Region IV
345 Courtland Street N.E.
Atlanta, Georgia 30365

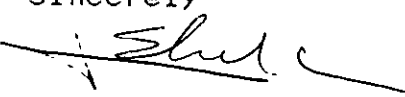
Dear Mr. McNeal:

Pursuant to our telephone conversation today, enclosed please find a copy of our communication with the Florida Department of Environmental Regulation (FDER) requesting modification of our unit No. 8 (a combined cycle gas turbine GE Frame 7E) construction permit. The enclosure contained with this communication is the data supplied to us by the GE (manufacturer of this gas turbine) to enable us to obtain exemption from 40 CFR Part 60 Subpart GG 60.335(b)(1) requirement in accordance with Section 60.335(f)(1).

Although we have requested that FDER, under their NSPS authorization, to grant us this exemption we think that EPA has not authorized the State to implement Section 60.335(f)(1). Therefore we are writing to request this exemption from EPA.

We appreciate if you would expedite this request at your earliest convenience. If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely


Farzie Shelton

Enc.



Farzie Shelton

ENVIRONMENTAL COORDINATOR, Ch E.

March 10, 1993

Mr. Preston Lewis P.E.
Department of Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee Florida 32399-2400

**Re: Modification of Construction Permit No. AC53-190437 - Larsen
Power Plant Unit No. 8**

Dear Mr. Lewis:

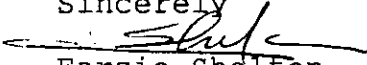
We are in the process of obtaining an air operating permit for our Unit No. 8 (a combined cycle gas turbine) at Larsen Power Plant. To that end, we have received from DER Southwest District office a draft permit, encompassing all conditions covered by our construction permit. We have approached the Department and have requested certain minor changes to be incorporated in this permit. Although Mr. David Zell, the permitting Engineer, has no objection to these changes he is of the opinion that our construction permit needs to be modified to reflect these changes. we also understand that he has confirmed this in a telephone conversation with you and that you see no problem to accommodate these changes. Therefore, we are writing to request the changes as per enclosure.

Additionally, we would like to request the refund of \$2000.00 application fee we submitted for the operation permit on September 17, 1993 (check No. 00116920). In accordance with Rule 17-213.210 F.A.C. (Annual Operation Licensing Fee) "no permit application processing fee, renewal fee, modification fee or amendment fee is required for an operation permit for a major source of air pollution".

We would appreciate if you would process our request expeditiously as the faith of our operating permit must be decided upon by May 28, 1993 unless a further request for extension of time is filled by us.

If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely


Farzie Shelton

Enc.

xc: David Zell - DER Tampa office
Bill Rodriguez
Chuck Garing

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The following modifications are in relation to the pages contained in the above referenced permit. Deleted material is represented by ~~strike through~~ and new material is represented by underline:

Page 6 of 10 - Specific Condition:

6. The permitted materials and utilization rates for the ~~combined cycle~~ gas turbine shall not exceed the values as follows:

- Maximum No. 2 fuel oil consumption shall not exceed the following limitations: 8,190 gals/hr;
23,914,800 gals/yr.

~~Maximum annual firing using No. 2 fuel oil shall not exceed 1/3 of the annual capacity factor.~~

Rational: The operation of this unit utilizing gas or oil should not be limited to the combined cycle only.

The maximum annual fuel oil could be construed 1/3 capacity in relation to gas burned. Therefore if there is a curtailment of gas no fuel oil can be burned and the unit would be unoperational. Also the previous condition limits the burning of fuel oil to 1/3 capability of the unit during any given year. Therefore it should not be necessary to limit it any further.

Page 8 of 10 - Specific Condition:

13. During performance tests, to determine compliance with the proposed Nox standard, measured Nox emission at 15 percent oxygen will be adjusted to Iso ambient atmospheric conditions by the gas turbines built in automatic control ~~following correction factor:~~

Delete the formula and units.

Rationale: Please see enclosed case justification furnished by GE (gas turbine manufactures) attesting to the capability of the controls.

Table 1 - allowable emission limits:

Pollutant	Standards		Gas Turbine Tons per year	
	Gas Firing	No. 2 Oil	Gas	Oil
SO2	Natural Gas	0.2 % S by Wt	2.6	307

Rational: The tons/yr of SO2 for gas should be left blank (with no limit) as the 2.6 tons/yr has not been verified by our consulting engineers (Black & Veatch) to be achievable. The 2.6 tons/yr was given as an estimate and we do not have confidence that these estimates of SO2 emissions can be demonstrated if the need should arise to demonstrate compliance during operation. Furthermore, neither the Department nor the EPA under the Clean Air Act (CAA) are concerned about the amount of SO2 emitted while burning gas.