TECO
TAMPA ELECTRIC COMPANY

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May 13, 1981

Mr. Dan A. Williams, P.E.
Florida Department of
Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Florida 33610

Dear Mr. Williams:

Re: Gannon Units 1-4 Coal Conversion

This is in reference to your letter of May 7, 1981 regarding the construction permit applications for our Gannon Station Units 1-4 coal conversion. Please find enclosed a copy of our "Proposed Francis J. Gannon Station Sulfur Dioxide Regulatory Compliance Plan," which was submitted to the Environmental Regulation Commission (ERC) at the Public Hearing on October 23, 1980. This compliance plan was accepted by the ERC. In addition, the agreement regarding a six-month continuous monitoring test was incorporated into the compliance plan.

Tampa Electric Company will voluntarily install continuous monitoring equipment (for sulfur dioxide) for comparative testing with the fuel analysis program. The continuous monitors will be installed on one stack subsequent to that unit's conversion to coal. The test program will last for six months, and the results will be presented to DER for evaluation. The complete discussion of the agreement is found in the text of the Public Hearing, Docket No. 80-25R, Pages 26-42, by the court reporting services of Habershaw and Eberhard, submitted to DER.

The fuel analysis compliance plan accepted by the ERC is discussed in the document "The Acceptability of Fuel Analysis for Determining SO_2 Emissions at the Tampa Electric Company Gannon Steam Generating Systems," prepared by Entropy Environmentalists, Inc., and submitted to the ERC at the hearing. The coal sampling and analysis procedure is discussed in "Tampa Electric Company Supplementary Documentation for Gannon Units Nos. 1-4 Conversion to Coal," submitted to the ERC at the hearing.

Hopefully, this information will provide you with what is required for issuance of the construction permits. If you have any questions or require any additional information, please do not hesitate to call me.

Sincerely,

Jerry L. Williams

Jerry L. Williams, P.E.
Manager
Environmental Planning

cc: Mr. Steve Smallwood, FDER
Mr. Larry George, FDER
Ms. Mary Clark, FDER

Running weekly average (EPA)
vs
Calendar weekly average (TECO)

PROPOSED
FRANCIS J. GANNON STATION
SULFUR DIOXIDE
REGULATORY COMPLIANCE
PLAN

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PLAN

I. Introduction

This compliance plan has been developed to explain how Tampa Electric Company intends to demonstrate that its Gannon Station operations will be maintained in such a manner that current allowable emissions will not be increased and that Florida Ambient Air Quality Standards (AAQS) will be protected.

The current allowable sulfur dioxide emission rate for individual coal burning units at Gannon Station is 2.4 lbs. per million BTU based on a weekly composite fuel analysis. The current allowable sulfur dioxide emission rate for the entire station can be calculated at 10.6 tons per hour, also over a weekly period. Part I of the compliance plan describes how weekly generation data and weekly fuel analyses data will be used to demonstrate compliance with the existing 2.4 lbs/MMBTU and the 10.6 tons per hour limitations.

Allowable emission rates over a 24-hour averaging time are limited by ambient impacts predicted with dispersion modeling. The results of this modeling indicate that maximum emission rates for the protection of AAQS vary inversely with station load. Detailed sulfur variability statistical studies (Entropy, Inc. August 1980) indicate that compliance with a weekly limit 2.4 lbs. per million BTU assures compliance with the 24-hour AAQS up to 10,050 MMBTU per hour (about 83% station load). Part II describes how at load points above 10,050 MMBTU per hour, daily fuel analysis will be performed and examined carefully to ensure operations at appropriate levels.

II. PART I - COMPLIANCE WITH EMISSION LIMITS

The purpose of this portion of the plan is to show compliance with a 2.4 lbs. SO_2/MMBTU emission limit and a 10.6 tons SO_2/hour emission cap over a weekly averaging period and ensure compliance with Florida Ambient Air Quality standards. Inputs to this portion of the plan include weekly station generation data, station heat rate data and weekly composite fuel analysis results.

As shown graphically on Figure 1, the plant operating range to ensure compliance with existing emission limitations is dependant on weekly station load and weekly composite fuel quality (lbs. SO_2/MMBTU). Operating the plant below 8850 MMBTU/HR (73% load) on a weekly average with a 2.4 lb/MMBTU or less fuel automatically ensures compliance with both the emission limit and the emission cap. When the plant is operated above 8850 MMBTU/HR on a weekly average, the fuel quality must be below 2.4 lbs. SO_2/MMBTU. The maximum weekly average heat input for a given fuel quality can be obtained from Figure 1.

Compliance on a weekly basis will be demonstrated in the following manner. A weekly composite fuel analysis will be obtained and the SO_2 emission rate will be calculated using the percent sulfur and the heating value of the fuel in the following equation:

$$\text{lbs } SO_2/\text{MMBTU} = \frac{(\text{percent sulfur})(100)(.95)(2 \text{ lb } SO_2/\text{lb S})(1{,}000{,}000 \text{ BTU/MMBTU})}{(\text{heating value, BTU/lb})}$$

The tons of SO_2/hour will be calculated from the weekly heat input. The weekly heat input is calculated from the weekly generation and the station heat rate as follows:

Heat input, MMBTU/week= (heat rate, MMBTU/KWH) (generation, KWH/week)

The tons SO_2 emitted per hour will then be calculated as follows:

$$\text{tons } SO_2/\text{hour} = \frac{(\text{heat input, MMBTU/week})\ (\text{lb}SO_2/\text{MMBTU})}{(2000 \text{ lb/ton})\ (168 \text{ hours/week})}$$

III. PART II - COMPLIANCE WITH FLORIDA AMBIENT AIR QUALITY STANDARDS

The purpose of this portion of the compliance plan is to ensure protection of the 24 hour and 3 hour Florida AAQS based on actual conditions modeled and actual load conditions.

The primary input to this part of the compliance plan is the peak load availability and forecast for the following day. If this valve is less than 10,050 MMBTU/HR then the sulfur variability statistics and Part I of this plan assure protection of the AAQS and no further action need be taken.

If the projected peak load is above 10,050 MMBTU/HR (see Figure 2), then a fuel analysis of the coal to be burned the following day will be performed. When the result of this fuel analysis is obtained and the lbs SO_2 per MMBTU has been calculated, Figure 2 will be examined to find the maximum allowable operating point. The Plant Superintendent will then be notified of the maximum allowable operating point.

IV. OPERATING FIGURES

FIGURE 1

GANNON STATION
UNITS 1-6
OPERATING CURVES
FOR COMPLIANCE WITH
2.4 #/MMBTU & 10.6 TPH WEEKLY

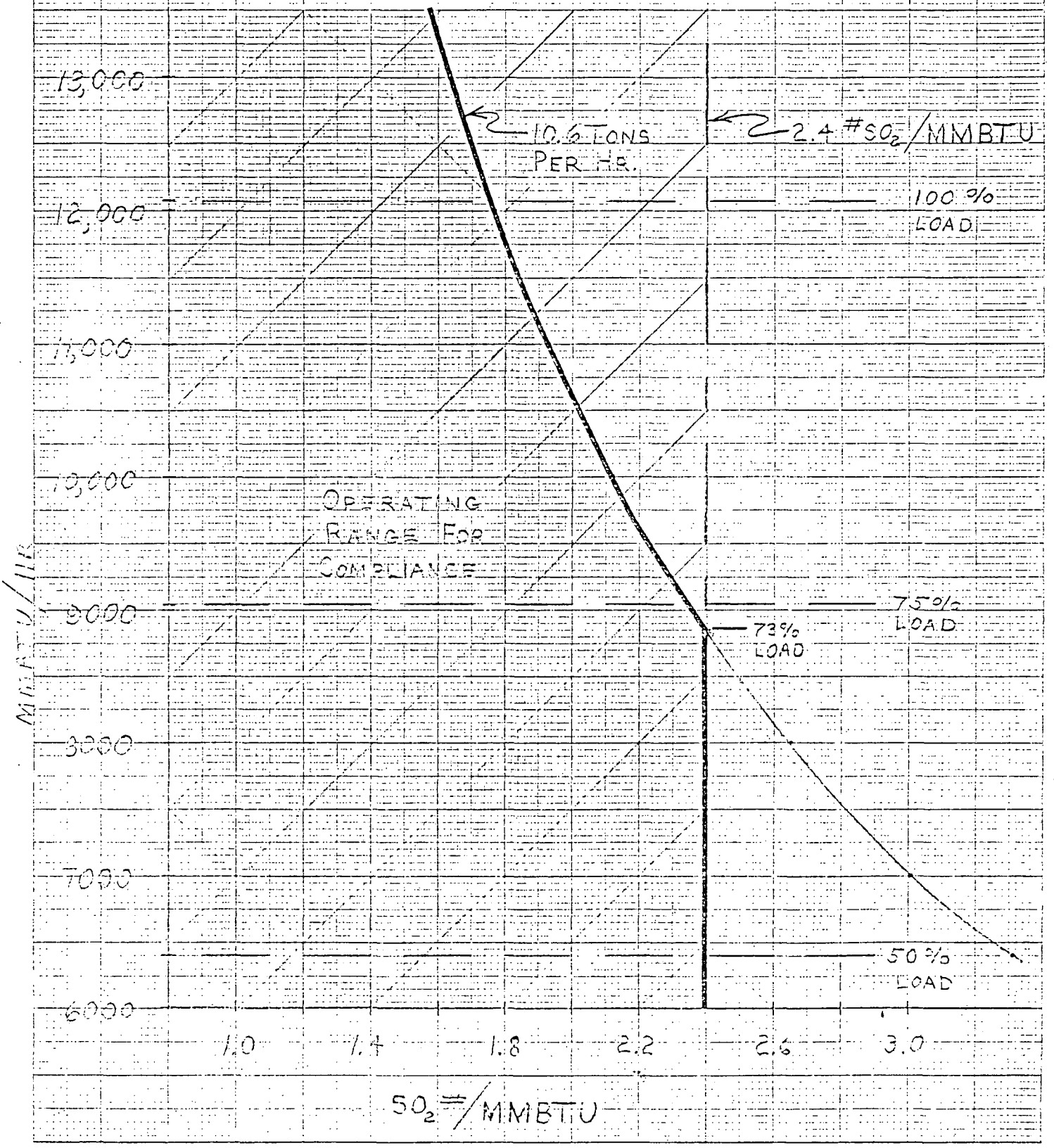
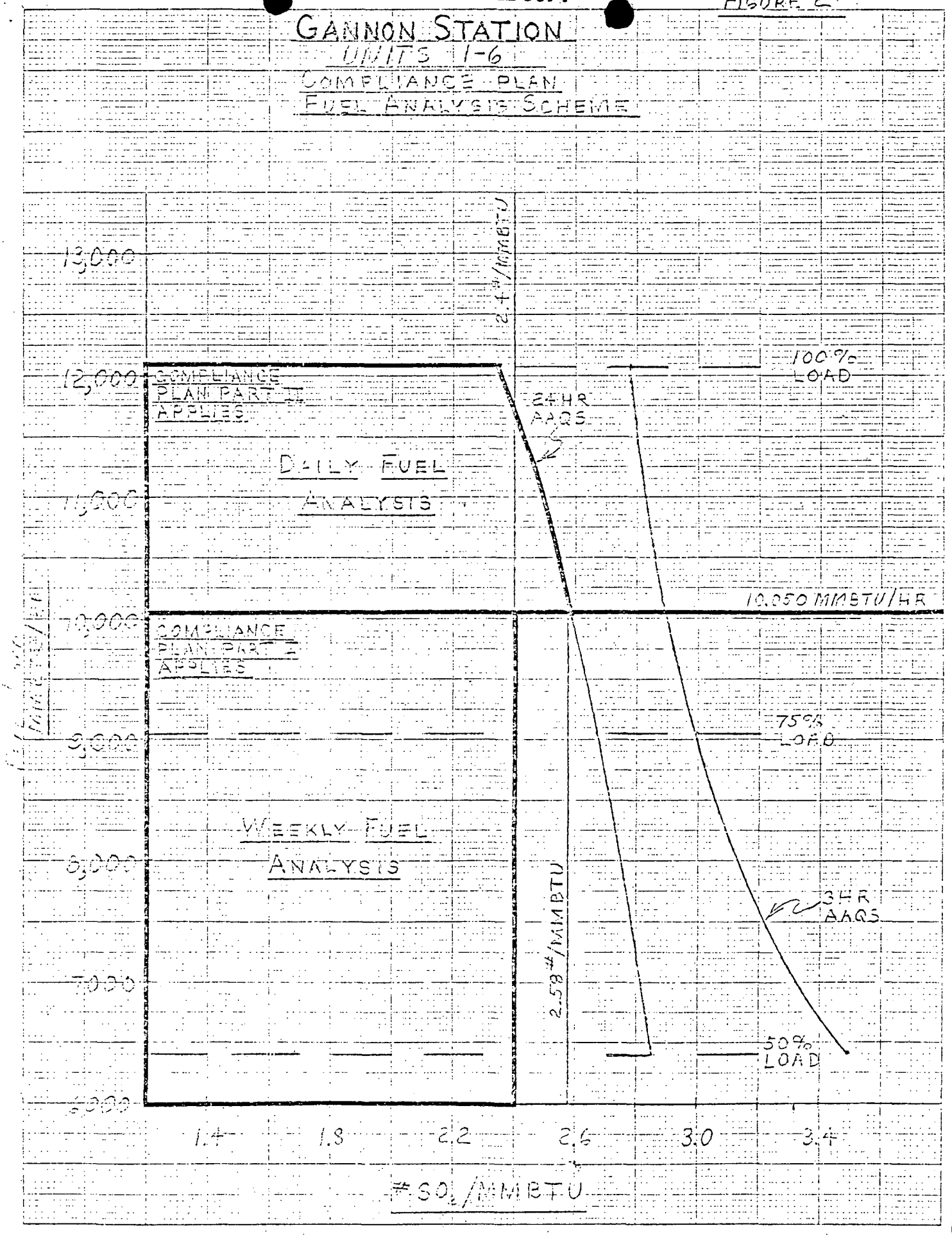


FIGURE 2

GANNON STATION
UNITS 1-6
COMPLIANCE PLAN
FUEL ANALYSIS SCHEME



V. COMPLIANCE PLAN VERIFICATION

A. Sulfur Variability

An examination of weekly composite fuel analysis results will allow a straightforward evaluation of overall fuel quality in terms of sulfur dioxide emission rate. To provide an extra level of confidence that sulfur variability after conversion has not changed significantly from that currently observed (Entropy, Inc. August 1980), in one week (7 concurrent days) per year, daily fuel samples will be collected, analyzed, and evaluated statistically.

B. Stack Sampling

At some period in each year when daily fuel samples are being collected, a stack test for sulfur dioxide will be conducted for the purpose of comparing those stack test results to fuel analysis results.

VI. REPORTING

A. Frequency - reporting of compliance status shall be performed on a quarterly calendar basis.

B. Content - quarterly reports will consist of:

1. Weekly average emission rate in lbs/MMBTU and tons/hour of sulfur dioxide.

2. Daily emission rates and generation data for those periods necessary under Part II of the plan.

3. Results of sulfur variability testing (Part V. A) and stack sampling (Part V. B) if performed during the calendar quarter.

VII. EPISODE REPORTING

Excess emissions shall be reported to Hillsborough County Environmental Protection Commission. Excess emissions shall be reported in a timely manner, upon completion of fuel analysis data and station loading data. Any episode of excess emissions will be reported as soon as possible by telephone with a written report on the episode to follow within 5 working days.