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March 21, 2000

Mr. David Zell
Air Permitting Engineer
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Via FedEx
Airbill No. 7910 6056 6864

Mr. Sterlin Woodard
Air Management Division
Environmental Protection Commission
of Hillsborough County
1410 N. 21st Street
Tampa, Florida 33605

Via FedEx
Airbill No. 7908 2277 3822

Re: Tampa Electric Company (TEC) – F.J. Gannon Station Unit 3
Wood Derived Fuel (WDF) Test Burn
FDEP Permit No. 0570040-008-AC

Dear Mr. Zell and Mr. Woodard:

Please find enclosed the revised test protocol that TEC intends to use in support of the wood derived fuel test burn that is scheduled to take place beginning the week of March 27, 2000. Conceptually, this revised test protocol is the same as the original submitted in January 2000. However, this version incorporates many of the conditions in the wood derived fuel test burn authorization letter that TEC received from the Department dated March 18, 1997.

If you have any questions, please feel free to call me at (813) 641-5125.

Sincerely,

Shannon K. Todd
Engineer
Environmental Planning

EP\gm\SKT152

Enclosures

c/enc: S.Sheplak – FDEP

Bio-mass WDF Emission Test Burn Protocol
For
Coal Fired Unit No. 3
At

F. J. Gannon Station

Tampa, Florida

Prepared for
Tampa Electric Company
By
Corporate Environmental Services
Of
Tampa Electric Company

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Introduction

In reference to the F. J. Gannon Station Unit No. 3 Wood Derived fuel permit (number 0570040-08-AC), Tampa Electric Company plans to perform a test burn including emissions testing on Boiler No. 3 with a fuel blend composed of coal combined with wood/wood chips and or Yard Trash. Wood/wood chips are defined as:

> *"Fuel derived from clean wood lumber, pallets, construction debris free of listed hazardous substances including, but not limited to, pentachlorophenol, creosote, tar, asphalt, and paint containing heavy metals." (Specific Condition 3. B. iii.)*

Yard Trash is defined as:

> *"Vegetative material resulting from landscaping maintenance or land clearing operations and includes materials such as trees and shrub trimmings, grass clippings, palm fronds, trees and tree stumps." (Specific Condition 3. B. ii.)*

During this test burn, a maximum of 1,800 tons of 7.0% WDF by weight will be introduced to the boiler for no more than 21 days. TEC intends to introduce this material to the Gannon Unit 3 boiler during the week of March 27, 2000 and continue the performance test for no more than 60 days. During this time, TEC will conduct a fuel blend emissions test as described in this protocol. The emissions test is tentatively scheduled for the week of April 17, 2000.

Facility Description

Source:	F. J. Gannon Unit No. 3 is a 180 MW cyclone boiler that will be tested to determine continued compliance emissions. This unit is normally fueled on coal only.
Location:	F. J. Gannon Station is located in Hillsborough County on Port Sutton Rd., Tampa, Florida.
Regulation:	USEPA 40 CFR Part 60, Appendix A.
Test Coordinator:	Corporate Environmental Services (CES) Tampa Electric Company

Proposed Testing Schedule

The wood derived fuel emissions testing is tentatively scheduled to begin during the week of April 17, 2000 and the coal fired baseline test is tentatively scheduled to take place during the week of May 1, 2000. Each schedule is subject to change based on unit

operation, resource availability and/or equipment availability. Once begun, all wood derived fuel emissions testing will be completed within five days and all baseline emissions testing will be completed within seven days.

Testing Protocol

1) Performance Test Methods and Sample Strategy

   A) Three test runs will be performed with the unit operating at base load. The average of the three runs will be used for reporting purposes. The unit will be tested between 90% and 100% of the maximum permitted heat input on the day of the test in accordance with existing permit conditions.
   B) Exhaust emission test runs will be at least the minimum required volume to be sampled as specified by each method.
   C) Coal and WDF fuel samples will be collected daily and composited and tested.

Coal used for the baseline tests and trial burn test shall be conducted with coal that has a similar heat content, sulfur content, and other measured parameters as determined by comparison to one another.

A brief description of each test method used for exhaust sampling is listed below along with a test matrix combining all methods and parameters.

A) EPA Method 2 for flow

Stack gas flow shall be measured with an S-type pitot tube that will be connected to each sampling probe for measurement of stack gas velocity and volumetric flow. Each pitot tube is calibrated to method specifications before and after each test. During the test, periodic inspections are performed to assure no damage has occurred to the pitot tip.

B) EPA Method 8 for Sulfuric Acid Mist

H_2SO_4 will be sampled isokinetically using a 10-foot heated probe with a pyrex glass insert. The sample is extracted through an approved glass fiber filter where any particulate bound H_2SO_4 is captured. Prior to the filter, the system is heated to the minimum temperature required to prevent moisture condensation. Four glass impingers will capture the remaining acid mist components by reagent mixtures.

C) EPA Method 9 for Visible Emissions

One 60-minute visible emission observation will be performed during the particulate testing by a state certified observer.

D) EPA Method 17 for Particulate Matter

Particulate matter will be sampled isokinetically using a 10-foot stainless steel probe. The sample is extracted through an approved glass fiber filter where particulate matter is captured at stack temperatures. Four glass impingers will capture moisture content of the stack gas.

E) EPA Method 18 for Non-Methane/Ethane Volatile Organic Compounds

A gaseous sample is extracted from the stack at a steady rate into a tedlar bag and sealed. The samples are delivered to an independent laboratory within 24 hours and analyzed by GC/mass Spectroscopy.

Table 1

TEST MATRIX OF METHODS WITH COAL AND FUEL BLENDS

TEST	**TEST METHOD**
Stack Gas Flow	EPA Method 2
Stack Gas Molecular Weight	EPA Method 3
Stack Gas Moisture	EPA Method 4
Sulfuric Acid Mist	EPA Method 8
Opacity	EPA Method 9
Particulate Matter	EPA Method 17
Total Non-Methane/Ethane VOC	EPA Method 18

F) Ambient Conditions. The following data will be collected during each test run to allow correction to standard conditions.

1) Temperature in °F
2) Barometric pressure in inches of Hg.

2) Operational data will be provided by Gannon Station to document the unit's operating parameters during the test. The following test data will be collected for each test run.

A) Input rates of each fuel (yard trash, wood/wood chips, and coal).
B) Heat Input from CEMs in MMBtu/Hr.
C) Opacity, NOx, and SO_2 CEM data (NOx and SO_2 shall be reported in pounds per MMBtu on an hourly average basis).
D) Pertinent boiler/ESP operating conditions.
E) Gross megawatt power output.
F) Percent excess oxygen.

Fuel samples shall be analyzed for:

- Sulfur wt. %
- Volatiles wt. %
- Nitrogen wt. %
- Ash wt. %
- Heat Content Btu/lb
- Carbon wt %
- Moisture wt %
- Arsenic
- Beryllium
- Chromium
- Lead
- Nickel
- Vanadium
- Zinc
- Chlorides

3) Sample Quality Assurance/Quality Control

A) Dry gas meter calibrations are performed each quarter and re-checked after testing. Leak checks on the dry gas meter system are also performed before and after each test run.

B) Reagent mixtures are produced in a certified laboratory within 24 hours of testing. Reagents are stored in ice prior to and after use until analyzed with appropriate chain of custody forms to track the samples.

C) Fuel sampling will be handled by Gannon Station personnel and analyzed by a certified laboratory with appropriate chain of custody forms to track the samples.