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AIR REGULATION

January 22, 1997

Mr. William E. Schroeder
Permitting Engineer
Southwest District
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Via FedEx
Airbill No. 7748636361

**Re: Tampa Electric Company
F. J. Gannon Unit 3
Operating Permit No. AO29-172179
Wood Derived Fuel Test Burn
Submittal of Additional Information**

Dear Mr. Schroeder:

As discussed in recent meetings and telephone conversations between the Florida Department of Environmental Protection (FDEP), the Environmental Protection Commission of Hillsborough County (EPCHC) and Tampa Electric Company (TEC), additional emissions calculations were deemed necessary to provide further reasonable assurance regarding the proposed test burn. To address this need, TEC compiled a listing of emission factors for the pollutants of concern that may be present in the emissions from the proposed coal/wood derived fuel (WDF) blend, calculated emission rates for these pollutants of concern from the proposed coal/WDF blend, conducted dispersion modeling to determine the ambient impact of each pollutant of concern and compared the modeled ambient impact for each pollutant of concern to the FDEP's draft guidance on ambient reference concentrations (ARC). Tables summarizing this information are enclosed for your review.

Several assumptions were made in the calculation of this information and should be considered when reviewing the enclosed documents. These assumptions are listed below:

- The emission factors for each component of the fuel blend (i.e., coal, paper pellets, and yard waste/wood chips) were obtained from AP-42. If an emission factor was not available from AP-42, an alternate emission factor was obtained from FCG/EPRI data. In some cases emission factors were not available for certain pollutants. The various emission factors for each component of the fuel blend are reflected by pollutant in Enclosure 1.
- A scenario was developed to establish a "worst case" burn reflective of TEC's intent, which is to obtain the operational flexibility to burn 80% coal and up to 20% of WDF. The "worst case" was determined by comparing the emission factors of each component of the fuel blend by pollutant. The higher emission factor of the fuel blend components (i.e., paper pellets, or yard waste/wood chips) was then chosen to represent a full 20% of the proposed burn while

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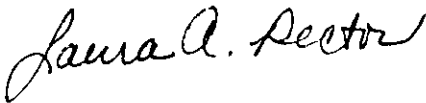
coal emission factor was used for the remaining 80%. Where no emission factor was available for the alternative fuel, a coal emission factor was used. Similarly, where no emission factor was available for coal, an alternate emission factor was used. This comparison information is detailed in Enclosure 1.

- Using this "worst case" scenario, emission rates were calculated based on "worst case" emission factors and proposed fuel usage. These calculations are provided in Enclosure 2.
- Using these emission rates and the EPA approved Industrial Source Complex model (ISCST3), potential impacts to ambient air quality were determined and compared to the FDEP draft guidance ARC's. The modeling was conducted using the regulatory default options and 1991 meteorological data from Tampa and Ruskin. A polar receptor grid was used, extending from the property boundary to 50 kilometers. A comparison of the maximum modeled ambient concentrations to the draft ARC's is provided in Enclosure 3.

This analysis demonstrates that firing coal/WDF blend will not cause the exceedance of any ARC of concern under the "worst case" test burn scenario. Given this data, all parties should be reasonably assured that the proposed test burn will not cause detrimental environmental effects.

If you have any additional questions, feel free to contact me at (813)641-5087. Thank you for your continued assistance on this project.

Sincerely,



Laura A. Rector
Engineer - Environmental Planning

EP\gm\JAR078

Enclosures

c/enc: Mr. Clair Fancy-FDEP
Mr. Gerald Kissell - FDEP
Mr. Jerry Campbell - EPCHC
Mr. Richard Kirby - EPCHC
Mr. Leroy Shelton - EPCHC
Mr. Sterlin Woodard - EPCHC

cc: S. Arif

Gannon Unit 3 Emission Factor Comparison

Pollutant	Coal Uncontrolled Emission Factor			Wood Waste (WW) Uncontrolled Emission Factor			Refuse-Derived Fuel (RDF) Uncontrolled Emission Factor			Largest Emission Factor	
	Factor*	Heat Content	Gannon Factor	AP-42 Factor	Heat Content Adjustment**	Gannon Factor	AP-42 Factor	Heat Content Adjustment***	Gannon Factor	Source	Value
	(lb/10E12 Btu)	(Btu/lb)	(lb/ton)	(lb/ton)		(lb/ton)	(lb/ton)		(lb/ton)		(lb/ton)
Acrolein	No Factor	13,769	No Factor	4.0E-06	1.79	7.17E-06	No Factor	1.47	No Factor	WW	7.17E-06
Arsenic	115	13,769	3.17E-03	8.8E-05	1.79	1.58E-04	5.94E-03	1.47	8.71E-03	RDF	8.71E-03
Benzene	3.8	13,769	1.05E-04	3.6E-03	1.79	6.45E-03	No Factor	1.47	No Factor	WW	6.45E-03
Beryllium	81	13,769	2.23E-03	No Factor	1.79	No Factor	No Factor	1.47	No Factor	Coal	2.23E-03
Chromium	1,502	13,769	4.14E-02	4.6E-05	1.79	8.25E-05	1.40E-02	1.47	2.05E-02	Coal	4.14E-02
Dioxins/Furans	2.0E-06	13,769	5.51E-11	4.1E-08	1.79	7.35E-08	9.47E-06	1.47	1.39E-05	RDF	1.39E-05
Fluorides	9,400	13,769	2.59E-01	No Factor	1.79	No Factor	No Factor	1.47	No Factor	Coal	2.59E-01
Formaldehyde	221	13,769	6.09E-03	6.6E-03	1.79	1.18E-02	No Factor	1.47	No Factor	WW	1.18E-02
Hydrogen Chloride	78,800	13,769	2.17E+00	7.8E-03	1.79	1.40E-02	6.97E+00	1.47	1.02E+01	RDF	1.02E+01
Lead	507	13,769	1.40E-02	3.1E-04	1.79	5.56E-04	2.01E-01	1.47	2.95E-01	RDF	2.95E-01
Mercury	16	13,769	4.41E-04	6.5E-06	1.79	1.17E-05	5.5E-03	1.47	8.07E-03	RDF	8.07E-03
Naphthalene	No Factor	13,769	No Factor	2.3E-03	1.79	4.12E-03	No Factor	1.47	No Factor	WW	4.12E-03
Nickel	1,290	13,769	3.55E-02	5.6E-04	1.79	1.00E-03	4.36E-03	1.47	6.40E-03	Coal	3.55E-02
Non-methane TOC	****	13,769	1.10E-01	No Factor	1.79	No Factor	No Factor	1.47	No Factor	Coal	1.10E-01
Phenol	No Factor	13,769	No Factor	3.9E-04	1.79	6.99E-04	No Factor	1.47	No Factor	WW	6.99E-04
Vanadium	No Factor	13,769	No Factor	1.2E-04	1.79	2.15E-04	No Factor	1.47	No Factor	WW	2.15E-04
Zinc	No Factor	13,769	No Factor	4.4E-03	1.79	7.89E-03	No Factor	1.47	No Factor	WW	7.89E-03

*From AP-42, except benzene, dioxin/furan, fluorides, and hydrogen chloride from FCG/EPRI.

Fluorides emission factor based on fluoride content in coal of 80 ppm.

Hydrogen chloride factor based on chloride content in coal of 846 ppm.

**Heat content adjustment based on dividing actual heat content of wood-derived fuel (8,068 Btu/lb) by heat content of AP-42 fuel (4,500 Btu/lb).

***Heat content adjustment based on dividing actual heat content of wood-derived fuel (8,068 Btu/lb) by heat content of AP-42 fuel (5,500 Btu/lb).

****AP-42 emission factor provided as lb/ton.

Gannon Unit 3 Calculated Noncriteria Pollutant Emission Rates for Coal/WDF Blend								
Pollutant	Fuel Usage			Uncontrolled Pollutant Emission Factor		Controlled Pollutant Emission Rate*		
	Coal	WDF	Total	Coal	WDF	(lb/hr)	(g/sec)	(tpy)
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/ton)	(lb/ton)			
Acrolein	101,275	25,319	126,594	No Factor	7.17E-06	4.54E-04	5.72E-05	1.99E-03
Arsenic	101,275	25,319	126,594	3.17E-03	8.71E-03	2.71E-03	3.41E-04	1.19E-02
Benzene	101,275	25,319	126,594	1.05E-04	6.45E-03	8.70E-02	1.10E-02	3.81E-01
Beryllium	101,275	25,319	126,594	2.23E-03	No Factor	1.41E-03	1.78E-04	6.18E-03
Chromium	101,275	25,319	126,594	4.14E-02	2.05E-02	2.36E-02	2.97E-03	1.03E-01
Dioxins/Furans	101,275	25,319	126,594	5.51E-11	1.39E-05	1.76E-06	2.22E-07	7.71E-06
Fluorides	101,275	25,319	126,594	2.59E-01	No Factor	1.64E+01	2.07E+00	7.18E+01
Formaldehyde	101,275	25,319	126,594	6.09E-03	1.18E-02	4.58E-01	5.77E-02	2.01E+00
Hydrogen Chloride	101,275	25,319	126,594	2.17E+00	1.02E+01	2.39E+02	3.01E+01	1.05E+03
Lead	101,275	25,319	126,594	1.40E-02	2.95E-01	4.44E-02	5.60E-03	1.95E-01
Mercury	101,275	25,319	126,594	4.41E-04	8.07E-03	1.24E-01	1.57E-02	5.45E-01
Naphthalene	101,275	25,319	126,594	No Factor	4.12E-03	2.61E-01	3.29E-02	1.14E+00
Nickel	101,275	25,319	126,594	3.55E-02	6.40E-03	1.88E-02	2.37E-03	8.23E-02
Non-methane TOC	101,275	25,319	126,594	1.10E-01	No Factor	6.96E+00	8.77E-01	3.05E+01
Phenol	101,275	25,319	126,594	No Factor	6.99E-04	4.42E-02	5.57E-03	1.94E-01
Vanadium	101,275	25,319	126,594	No Factor	2.15E-04	1.36E-04	1.71E-05	5.96E-04
Zinc	101,275	25,319	126,594	No Factor	7.89E-03	4.99E-03	6.29E-04	2.19E-02

*99 percent control assumed for all metals except mercury.

Gannon Unit 3 Ambient Reference Concentration Comparison						
Pollutant	Modeled 8-Hour Ambient Impact ISCST3	8-Hour Ambient Reference Concentration	Modeled 24-Hour Ambient Impact ISCST3	24-Hour Ambient Reference Concentration	Modeled Annual Ambient Impact ISCST3	Annual Ambient Reference Concentration
	(ug/M3)	(ug/M3)	(ug/M3)	(ug/M3)	(ug/M3)	(ug/M3)
Acrolein	0.00003	2.3	0.00002	0.50	<0.00001	2.00E-02
Arsenic	0.00019	0.1	0.00011	0.02	1.00E-05	2.4E-04
Benzene	0.00608	30	0.00344	7.00	3.70E-04	1.2E-01
Beryllium	0.00010	0.02	0.00006	0.01	1.00E-05	4.2E-04
Chromium (III)*	0.00164	5	0.00093	1.2	1.00E-04	1.00E+03
Chromium (VI)**	0.00016	0.5	0.00009	0.1	1.0E-05	8.3E-05
Dioxins/Furans	<0.00001	None	<0.00001	None	1.00E-08	2.20E-08
Fluorides	1.14	25	0.65	6.00	6.97E-02	None
Formaldehyde	0.03	3.7	0.02	0.90	1.94E-03	7.7E-02
Hydrogen Chloride	16.63	70	9.41	17	1.01E+00	7.0E+00
Lead	0.00309	0.5	0.00175	0.1	1.90E-04	9.0E-02
Mercury	0.00867	1	0.00491	0.2	5.30E-04	None
Naphthalene	0.02	500	0.012	119	1.29E-03	None
Nickel	0.0013	10	0.00074	2.4	8.00E-05	4.2E-03
Non-methane TOC	No Result	None	No Result	None	No Result	None
Phenol	0.00308	190	0.00174	45	1.90E-04	3.0E+01
Vanadium	0.00001	0.5	0.00001	0.1	<0.00001	2.0E+01
Zinc	0.00035	50	0.00020	12	2.00E-05	None

*Conservatively assumes that all emitted chromium is trivalent.

**Conservatively assumes that 10 percent of emitted chromium is hexavalent.