TECO

TAMPA ELECTRIC

September 17, 2002

Mr. Scott M. Sheplak, P.E.
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Via FedEx
Airbill No. 7927 4950 9803

Re: Tampa Electric Company
Big Bend Station
FDEP File No. 0570039-002-AV
Notification of Use of
Coal Treated with Asphalt-Based Binder

Dear Mr. Sheplak:

As you know, based on correspondence with the Department and the Hillsborough County Environmental Protection Commission, Tampa Electric Company (TEC) has been firing solid fuel that has been treated with a binder that is used as a chemical dust suppressant. Based on a conversation with Jonathan Holtom, TEC was advised that the Department is reviewing the heat input, NO_x, SO_2, and CO very closely with respect to binders.

Enclosed is a signed certification, which includes heat input and potential to emit calculations, from a Professional Engineer that the above criteria will not adversely affect the environment regarding the asphalt-based binder. Also, enclosed are the Material Safety Data Sheets (MSDS) for the asphalt-based binder agent under evaluation for use in the treatment process for the fuel that TEC will receive. Please note TEC is currently requesting authorization to burn a maximum of 2,100 tons of this material at Big Bend Station. Once the 2,100 tons of coal coated with this binder have been combusted, TEC will no longer use the asphalt-based binder as a treatment for suppressing dust. The treated coal will be blended up to a maximum of five percent by weight with other solid fuels used at Big Bend Station and combusted in Units 1 through 4.

TEC requests concurrence from the Department that treating a relatively small amount of solid fuel with an asphalt-based binder material along with a maximum blend of up to five percent will not result in an adverse environmental impact.

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Please feel free to telephone me at (813) 641-5033, if you have any questions.

Sincerely,

Shelly Castro
Associate Engineer
Environmental Affairs

EA/bmr/SSC133

Enclosures

c/enc: Mr. Jonathan Holtom, FDEP
Mr. Jerry Kissel, FDEP-SW District
Mr. Jerry Campbell, EPCHC

ECT
Environmental Consulting & Technology, Inc.

August 19, 2002

Ms. Shelly Castro
Tampa Electric Company
6944 U.S. Highway 41 North
Apollo Beach, FL 33572-9200

Re: Tampa Electric Company - Big Bend Station
Use of Coal Treated with Asphalt Emulsion Binder

Dear Ms. Castro:

Tampa Electric Company (TEC) previously submitted correspondence to the Florida Department of Environmental Protection (FDEP) regarding the use of an asphalt-based coal binder to reduce fugitive particulate matter emissions during coal handling and storage; reference correspondence to Mr. Scott Sheplak dated September 19, 2001 and April 23, 2002. In a letter to TEC dated May 3, 2002, the Department expressed concerns that the coal binder would have the potential to increase actual emission rates and therefore could possibly trigger PSD New Source Review.

TEC now proposes to burn a maximum of 2,100 tons of coal that has been treated with the asphalt – based binder during the remainder of 2002 as a one time event. The treated coal will be blended up to a maximum of five percent by weight with other solid fuels used at the Big Bend Station and combusted in Units 1 through 4. Following combustion of this amount of treated coal, there will be no further use of the asphalt-based binder.

As requested, this letter provides a professional engineer certification with respect to the Department's concern regarding potential emission rate increases and fuel heat content:

A. Potential for Emission Increases

The coal binder (Asphalt Emulsion) is a material manufactured by Midwest Terminals of Toledo, Inc. The Material Safety Data Sheet (MSDS) indicates that the product is a light brown liquid emulsion comprised primarily of asphalt (from 45 to 65 percent by weight) and water (from 34.905 to 54.945 percent by weight). The binder will also contain minor amounts of tall oil (from 0.03 to 0.05 percent by weight) and caustic soda (from 0.025 to 0.045 percent by weight).

The asphalt-based binder is a liquid emulsion comprised primarily of asphalt and water. The high temperature combustion temperatures and combustion residence times occurring in the Big Bend Station coal-fired units would be expected to result in essentially complete combustion of the binder hydrocarbons to carbon dioxide (CO_2) and water (H_2O).

The amount of asphalt-based binder that TEC proposes to burn also represents a very small portion of the total mass of coal fuel that is combusted in the Big Bend Station units. In 2001, a total of 4,104,032.7 tons of coal was burned at the Big Bend Station. The planned combustion of 2,100 tons of treated coal therefore represents only 0.05 percent of the Big Bend Station's coal consumption during 2001. The asphalt-based binder material comprises 3.5 weight per cent of the treated coal. Accordingly, the amount of asphalt-based binder contained in the 2,100 tons of treated coal is 73.5 tons or only 0.0018 percent of the Big Bend Station's coal usage in 2001.

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Gainesville, FL
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The sulfur content of the asphalt-based binder is 1.4 weight percent. This sulfur content is *lower* than the parent coal sulfur level of approximately 2.5 weight percent. As noted above, the asphalt-based binder comprises 3.5 weight percent of the treated coal. The treated coal will therefore have an average sulfur content of 2.46 weight percent. Based on the proposed maximum five percent blend proposed, the aggregate sulfur content of the 95/5 percent coal/treated coal blend will be 2.498 weight percent. Accordingly, there will no significant difference in the sulfur content of the untreated coal and the coal/treated coal blend.

Because the untreated coal and the coal/treated coal blend will have essentially the same characteristics, no change in short-term emission rates would be expected. Annual emission rates changes were estimated based on the efficiencies of the Big Bend Station air pollution control systems and conservatively assuming no displacement of untreated coal due to use of the asphalt-based binder. The Big Bend Station air pollution control systems include electrostatic precipitators (ESPs) for particulate matter (PM) abatement and wet flue gas desulfurization (FGD) systems for controlling SO_2 emissions. As mentioned previously, a maximum of 2,100 tons of treated coal containing 73.5 tons of asphalt-based binder is proposed to be burned at the Big Bend Station. Assuming a conservative 90 percent SO_2 control efficiency for the FGD systems, SO_2 emissions associated with combustion of the asphalt-based binder are estimated at 0.2 tons [73.5 tons binder x (1.4 ton S / 100 ton binder) x (2 ton SO_2 / ton S) x (0.10) = 0.2 ton SO_2].

As noted above, the asphalt-based binder is composed primarily of asphalt and water. Asphalt is a low volatility material that is the final product of crude oil distillation. Estimates of potential changes in PM emissions were approximated using AP-42 emission factors for No. 6 fuel oil. For a sulfur content of 1.4 weight percent, the AP-42 PM emission factor for No. 6 oil is 16.09 lb per 1,000 gallons. Using the asphalt-based binder density of 8.35 lb/gal, the 73.5 tons of asphalt-based binder will have a volume of 17,604.8 gallons resulting in 283.3 lb of PM emissions prior to the ESP control systems. Assuming a conservative 95 percent PM control efficiency for the ESP systems, PM emissions associated with combustion of the asphalt-based binder are estimated at 0.007 tons [73.5 tons binder x (2,000 lb binder / ton binder) x (1 gal / 8.35 lb) x (16.09 lb PM / 1,000 gal) x (0.05) x (ton PM / 2,000 lb PM) = 0.007 ton PM].

Emissions of NO_x and CO from Big Bend Station Units 1 – 4 are primarily influenced by boiler operating parameters such as air-to-fuel ratio, combustion residence time, combustion zone temperatures, etc. These boiler operating parameters will not change due to the combustion of the coal/ treated coal fuel blend in Units 1 – 4. Accordingly, no change in NO_x and CO emissions would be expected due to the combustion of the blended asphalt-based binder treated coal.

Based on the above analysis, it is concluded that any emission increases associated with the combustion of the proposed 2,100 tons of asphalt-based binder treated coal will be well below the PSD significant emission rate increase thresholds.

B. Fuel Heat Content

The heat content of the asphalt-based binder is 17,186 British thermal units per pound (Btu/lb), higher heating value. As noted above, the asphalt-based binder comprises 3.5 weight percent of the treated coal. The average heat content of coal combusted at the Big Bend Station is approximately

12,000 Btu/lb, HHV. The treated coal will therefore have an average heat content of 12,181.5 Btu/lb. Based on the proposed maximum five percent blend, the aggregate heat content of the 95/5 percent coal/treated coal blend will be 12,009 Btu/lb. Accordingly, there will no significant difference in the heat content of the untreated coal and the coal/treated coal blend.

Please contact me at (352) 332-6230, Ext. 351 if there are any questions regarding this certification.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Thomas W. Davis, P.E.
Principal Engineer

Professional Engineer Statement:

I, the undersigned, hereby certify that:

To the best of my knowledge, the emission estimates reported in this certification are true, accurate, and complete based upon reasonable techniques available for estimating emissions.

Signature
Professional Engineer No. 36777

8/19/03
Date

Material Safety Data Sheet
May be used to comply with
OSHA's Hazard Communication Standard
29 CFR 1900.1200. Standard must be
consulted for specific requirements

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)
Asphalt Emulsion

Section 1

Manufacturer's Name **Midwest Terminals of Toledo Inc.**	Emergency Telephone Number **419-367-1028**
Address **2633 Sunset Lane** **Henderson, KY 42420**	Telephone Number for Information **270-830-6560**
	Date Prepared 7/23/01
	Signature of Preparer (optional) Robin Keller

Section 2 - Identity Information

Hazardous Components	CAS Number	OSHA PEL	ACGIH TLV	Other Limits	% (optional)
Petroleum Hydrocarbon	68476-33-5		5mg/m^3 (fumes)		
Tall Oil	N/A	N/A	N/A	N/A	N/A

Section 3 - Physical / Chemical Characteristics

Boiling Point	212°F		
Vapor Pressure(mm HG)	approx. 22 @ 77°F	Specific Gravity (H_2O=1)	0.96-1.05
Vapor Density (Air =1)	>1	Melting Point	N/A
Solubility in Water	moderately to completely	Evaporation Rate (Butyl Acetate=1)	similar to water
Appearance and Odor	Light brown liquid, minimal odor		

Section 4 - Fire and Explosion Hazard Data

Flash Point(Method Used) **Not Applicable as an Emulsion**	Flammable Limits LEL UEL

Extinguishing Media
If water is evaporated, treat as with an asphalt / oil fire. Use dry chemical foam CO_2

Special Fire Fighting Procedure
Do not enter confined fire area without full bunker gear and NIOSH approved, self-contained breathing apparatus.

Unusual Fire and Explosion Hazards
Emulsion may foam if heated to 212°F. If materials in excess of 212°F are added to the emulsion, foaming can occur.

Section 6 - Reactivity Data			
Stability	Unstable	Stable	X
Conditions to Avoid			
Incompatability (Materials to Avoid)			
Strong Oxidizers			
Hazardous Decomposition or Byproducts			
If burning, carbon monoxide, hydrogen sulfide, hydrocarbons			
Hazardous Polymerization	May Occur	Will Not Occur	X
Conditions to Avoid			

Section 6 - Health Hazard Data				
Routes of Entry	Inhalation? X	Skin? X		Ingestion? X
Health Hazards (Acute and Chronic)				
Inhalation - continued exposure may lead to nausea, dizziness, headache				
Skin - thermal burns can result from hot emulsion. Repeated contact can cause dermatitis				
Ingestion - relatively non toxic				
Carcinogenicity	NTP	IARC X		OSHA
In regards to fumes from hot asphalt, the International Agency for Research on Cancer has found that there is limited evidence of carcinogenicity for undiluted steam-refined asphalts in laboratory animals, but inadequate evidence of carcinogenicity for undiluted steam refined asphalts in humans. Hot asphalt fumes would only be encountered if the water from the emulsion has first been evaporated.				
Signs and Symptoms of Exposure				
Medical Conditions Generally Aggravated by Exposure				
Emergency and First Aid Procedures				
Skin - Wash with soap and water or hand cleaner				
Eyes - Flush with water. Call physician immediately				
Ingestion - Consult physician immediately				

Section 7 - Precautions for Safe Handling and Use
Steps to be Taken in Case Material is Released or Spilled
Dike or absorb emulsionhydrocarbon. Earth, sand or dust are good absorbents. Contact local authorities if emulsified hydrocarbon enters sewer or water source.
Waste Disposal Method
Dispose of in accordance with local, state or federal regulations.
Precautions to be taken in Handling and Storing
Cover face and skin when opening tanks or drums in case the emulsified hydrocarbon is under pressure. Make sure heaters are fully submerged in liquid.
Other Precautions
Avoid pressurizing, torching, welding, grinding empty containers. Do not expose empty containers to heat, sparks or any type of ignition.

Section 8 - Control Measures		
Respiratory Protection		
Not required under normal conditions		
Ventilation	Local Exhaust	Use if in enclosed area
	Special	
	Mechanical (General)	
	Other	
Protective Gloves		Eye Protection
Insulated gloves to prevent thermal burn		Faceshield or goggles
Other protective Clothing or Equipment		
Long sleeve shirts and full length pants		
Work / Hygienic Practices		
Use good practice associated with any thermally hot material		