ATTACHMENT No. 2200-1-010

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN

(As submitted in August 2004)

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN
FOR
TELOGIA POWER LLC
Hwy 65, South
Telogia, Florida 32360

I. Background

A. Emissions Unit

Description: Wood Fired Boiler
Identification: B001
APCD ID: ESP1
Facility: D.G. Telogia Power, LLC
Telogia, FL

B. Applicable Regulation, Emissions Limit, and Monitoring Requirements

Regulation: Permit, State regulation
Emissions Limits:
PM: 0.05 lb/MMBtu
Current Monitoring
Requirements: COMS

C. Control Technology: Electrostatic precipitator

II. Monitoring Approach

The key elements of the monitoring approach, including the indicators to be monitored, indicator ranges, and performance criteria are presented in Table I. Secondary voltage and current are monitored in each field and the power input to ESP is determined.

TABLE I
MONITORING APPROACH

I. Indicator	ESP Secondary voltage and current are measured for each field to determine the power to the ESP.
Measurement Approach	The secondary voltage is measured using a voltmeter and the secondary current is measured using an ammeter. The total power (P) input to the ESP is the sum of the products of the secondary voltage (V) and current (I) in each field. ($P=V_1I_1 + V_2I_2$)
II. Indicator Range	An excursion is defined as an ESP power input less than 15 kW. Excursions trigger an inspection, corrective action, and a reporting requirement.
III. Performance Criteria A. Data Representativeness	The voltage and current are measured using the instrumentation the manufacturer provided with the ESP.

III. (Cont'd.) B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	Confirm the meters read zero when the unit is not operating. Compare continuous monitoring opacity readings with power input
D. Monitoring Frequency	The secondary voltage and current are recorded every 2 hours and used to calculate the average power input over a 24-hour period
Data Collection Procedures	The average power input for each 24-hour period is calculated and recorded.
Averaging period	24-hour period.

MONITORING APPROACH JUSTIFICATION

I. Background

The pollutant-specific emissions unit is one 2-field ESP controlling one wood-fired boiler (B001). Boiler No 1 is rated at 150,000 pounds of steam per hour. The boiler is subject to 40 CFR Part 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Boiler No. 1 typically operates from January through December. The boiler normally operates at full capacity and all emissions tests are performed at or near full load. This unit is not a "large" CAM source (the post-control PM emissions are less than 100 tons per year.) Continuous monitoring for opacity only is required for this facility.

II. Rationale for Selection of Performance Indicators

In an ESP, electric fields are established by applying a direct-current voltage across a pair of electrodes, a discharge electrode and a collection electrode. Particulate matter suspended in the gas stream is electrically charged by passing through the electrical field around each discharge electrode (the negatively charged electrode). The negatively charged particles then migrate toward the positively charged collection electrodes. The particulate matter is separated from the gas stream by retention on the collection electrode. Particulate is removed from the collection plates by shaking or rapping the plates.

As a general rule, ESP performance improves as total power input increases. This relationship is true when particulate matter and gas stream properties (such as PM concentration, size distribution, resistivity, and gas flow rate) remain stable and all equipment components (such as rappers, plates, wires, hoppers, and transformer-rectifiers) operate satisfactorily. In an ESP with many fields, the power distribution also plays a key role in the performance of the ESP. In this case, however, measurement of total power input is acceptable because the ESP has only two fields.

The secondary voltage drops when a malfunction, such as grounded electrodes, occurs in the ESP. When the secondary voltage drops, less particulate is charged and collected. Also, the secondary voltage can remain high but fail to perform its function if the collection plates are not cleaned, or rapped, appropriately. If the collection plates

are not cleaned, the current drops. Thus, since the power is the product of the voltage and the current, monitoring the power input will provide a reasonable assurance that the ESP is functioning properly. In other words, problems that would be detected by monitoring other parameters individually also will be manifested in the power input.

III. Rationale for Selection of Indicator Ranges

The total power input to the ESP is the sum of the products of the secondary voltage and secondary current for each field. An excursion is defined as an average ESP power input less than 15 kW. When an excursion occurs, corrective action will be initiated, beginning with an evaluation of the occurrence, which includes verification of the opacity reading to determine the action required to correct the situation. All excursions will be documented and reported.

The indicator range for the ESP power was selected based upon the level indicated from recent operation. The normal operating voltage is set at the highest level achievable without having an excessive spark rate. It is anticipated that power levels less than 5 kW during normal operations will result in opacity readings that approach 20 percent (under normal operations at a power input of over 16 kW , the opacity of the ESP exhaust is less than 5 percent). During abnormal operation or malfunction, the ESP power levels are appreciably lower than normal operational levels. Table II shows that during normal operating conditions, the total ESP power input for the boiler is typically between 16.4 and 35.37 kW. If one field in the ESP goes out of service, the total power input drops below 15 kW.

The opacity normally is below 5 percent. Opacities are measured using a continuous opacity monitor installed in the ESP boiler exhaust stack. This equipment does meet the criteria in 40 CFR 60, Appendix B, Performance Specification 1, and is used for compliance monitoring. Compliance with the boiler's 20 percent opacity limit would not necessarily indicate compliance with the PM limit, although continuous opacity monitoring is required at this source.

TABLE II
BOILER NORMAL OPERATING CONDITIONS
January 22, 2004

Time	Total ESP Power (kW)	Boiler Load (lb/hr)	Opacity Percent
0100	22.18	116,000	4.4
0200	16.58	120,000	4.0
0300	26.56	135,000	4.4
0400	19.80	135,000	4.1
0500	31.76	141,000	4.0
0600	35.37	130,000	3.9
0700	29.50	142,000	4.0
0800	26.96	130,000	3.7
0900	22.61	128,000	4.0
1000	25.48	142,000	4.1
1100	22.62	142,000	3.4
1200	27.04	140,000	3.8
1300	16.40	142,000	4.2

The PM emissions measured during the past six annual emissions compliance tests ranged between 22 and 82 percent of the emissions limit (0.05 lb/MMBtu). The ESP average for all six tests was 42%, which is well within the PM limit. TABLE III presents the data from the past six annual emissions tests. TABLE IV is a detailed breakdown of the readings taken over the course of the last annual emission testing which took place on October 8, 2003. Specific conditions during the tests were as follows:

Steam Generation:	144 lb/hr
Boiler Pressure:	695 psi
Temp:	750° F
Opacity:	Less than 5%

TABLE III
PERFORMANCE TEST DATA

Test Date	Average PM Emission Rate (lb/MMBtu)	Percent of Allowable PM Emission Rate	Average Load (lb steam/hr)	Capacity (lb steam/hr)
2003	0.011	22.00	144,000	150,000
2002	0.023	46.00	142,000	150,000
2001	0.011	22.00	141,000	150,000
2000	0.041	82.00	146,300	150,000
1999	0.030	60.00	144,000	150,000
1998	0.011	22.00	139,000	150,000

TABLE IV
POWER LEVELS ACROSS THE ESP
DURING 10/8/03 ANNUAL EMISSION TESTING

Reading Number	T/R #1		T/R #2		TOTAL CURRENT
	KV	MA	KV	MA	KW
1	47	300	47	480	36.7
2	42	300	48	480	35.6
3	46	200	52	460	33.1
4	44	200	46	360	25.4
5	46	220	48	380	28.4
6	46	140	47	280	19.6
7	40	180	50	400	27.2

[August 2004 update]