

# KCPL Iatan Station Unit 1

## Multi-load Heat Rate Test Procedure

### **Purpose:**

Determine net unit heat rate at 6 loads.

730 MW, 700 MW, 650 MW, 600 MW, 550 MW, 450 MW.

### **Methodology:**

Operate at each load point for 2 hours. Measure boiler fuel heat input and generator power production for 1 hour at each load. Calculate heat rate from measured coal and power production data. Testing at each load point will begin when the unit is stabilized with a constant valve position, throttle pressure, and steam temperature.

### **Manual Data Collection:**

1. Collect one coal sample from each operating feeder at the beginning and end of each test hour at each load (2 samples per load). Samples should be labeled with the time, date, location. (KCPL Operators)
2. Collect one fly ash and economizer ash sample at the end of the test. Samples should be labeled with time, date and location. (KCPL Operators)

### **Automatic Data Collection:**

1. Save a complete data set from the PI historian every 5 minutes. (PCS)
2. Save a complete data set from the performance monitor every minute (PCS)

### **Data Analysis:**

1. Test each coal sample for proximate and ultimate analysis. (KCPL Lab)
2. Test ash sample for unburned carbon and moisture. (KCPL Lab)
3. Compile data from test data sources. (PCS)
4. Compute boiler efficiency, turbine efficiencies, turbine cycle heat rate, and unit heat rate for each hour (PCS)
5. Compute average boiler efficiency, turbine efficiencies, turbine cycle heat rate, and unit heat rate for each load. (PCS)

### **Data Presentation:**

Prepare heat rate report. (PCS)

## KCPL Iatan Station Unit 1 Multi-load Heat Rate Test Procedure

### Schedule

Establish unit in normal control mode with soot blowing at 18:00 Hours – Date

Empty bottom ash, fly ash, and economizer ash at 19:00 hours – Date

730 MW 20:00 - 22:00 hours – Date

Gather coal samples 20:00 hours

21:00 hours

Move Unit to 700 MW 21:00 hours – 22:00 Hours

700 MW 22:00 - 00:00 hours – Date

Gather coal samples at 22:00 hours

23:00 hours

Move Unit to 650 MW 23:00 hours – 00:00 Hours

650 MW 00:00 - 02:00 hours – Date

Gather coal samples at 00:00 hours

01:00 hours

Move Unit to 600 MW 01:00 hours – 02:00 Hours

600 MW 02:00 - 04:00 hours – Date

Gather coal samples at 02:00 hours

03:00 hours

Move Unit to 550 MW 03:00 hours – 04:00 Hours

550 MW 04:00 - 06:00 hours – Date

Gather coal samples at 04:00 hours

05:00 hours

Move Unit to 450 MW 05:00 hours – 06:00 Hours

450 MW 06:00 - 08:00 hours – Date

Gather coal samples at 06:00 hours

07:00 hours

Gather ash samples at 07:00 hours

Release the Unit to Dispatch 08:00 hours – Date

## IATAN UNIT 1 DATA REQUEST

### **PURPOSE:**

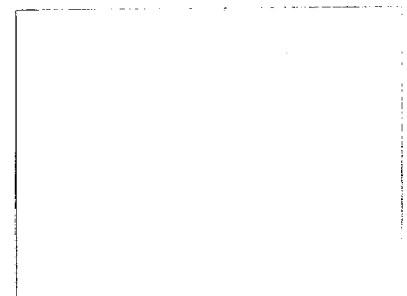
Quantify heat rate/efficiency for Iatan Unit 1, in accordance with requirements for the Fuel Adjustment Clause (FAC) as described in 4 CSR 240-3.161 (2)(P).


### **INFORMATION/BACKGROUND:**

**Initial spaces below as steps are completed.**

The following are the operating parameters of the test:

1. \_\_\_\_\_ Testing shall be conducted by the Iatan Plant Personnel at least once every 24 months or after a significant change in plant configuration has occurred, if sooner.
2. \_\_\_\_\_ Data shall be requested via contact of the Iatan Plant Manager by the Aquila Co-Owner Representative 60 days in advance of the required date for submittal.
3. \_\_\_\_\_ Data shall be forwarded by the Aquila Co-Owner Representative to the Aquila Generation Engineering Department for review.
4. \_\_\_\_\_ Review of the data shall be performed by Aquila Generation Engineering to ensure that all data necessary is collected.
5. \_\_\_\_\_ Forward the test results/data to the appropriate contact for the Aquila Regulatory Department.



 <b>Aquila</b>	Prepared by: Kim Weir	Date: 11/9/2007		
	Rev:	Date:		
	Appr:	Title: Iatan FAC date request		Page 1 of 1
	Appr:			