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)

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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.