Lake Road Generating Station Procedure No. B4-004

Lake Road Boiler 4							
Eake Road Boller 4		[
Heat Rate Test		Collected by:	Settling	1	2		
Data Sheet 1 - Page 1 of 3		Time	Setting				
Boiler Gas Fuel Integrator	DCS INTEGRATOR	MCF	100000	100220	100440		
Boiler Gas Fuel	Calculated	MCF		220	220		
Gas HHV - Preliminary	Southern Star Pipeline	Btu/SCF	1000	1000	1000		
Gas HHV - As Fired	Outside Laboratory	Btu/SCF	1005	1005	1005		
Fuel Input - Preliminary	Calculated	MMBtu		220	220		
Fuel Input - As Fired	Calculated	MMBtu		221.1	221.1		
T do ringui. 7 to ringu	04/06/4/04				22111		-
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							-
	 	+	-				
		1					
Dellas Food Material Internation	Bailes Basel Intersetes	I/I DC	200000	200165	200330	_	
Boiler Feed Water Integrator	Boiler Panel Integrator	KLBS	200000				
Boiler Feed Water	Calculated	KLBS		165	165		
Boiler Feed Water Pressure	Boiler Panel Reading	PSIG	1200	1200	1200		
Boiler Feed Water Temperature	Boiler Panel Reading	F	340	342	344		
Boiler Feed Water Enthalpy	 	Btu/Lb	313	315	317		
Boiler Feed Water Input	Calculated	MMBtu		52.0	52.3		
	 	1					
Total Energy Inputs - Preliminary	Calculated	MMBtu		272.0	272.3		
Total Energy Inputs - Final	Calculated	MMBtu		273.1	273.4		
Boiler Steam Flow	Boiler Panel Reading	KLBS	200000	200150	200300		
Boiler Steam Flow	Calculated	KLBS		150	150		
Boiler SH Outlet Pressure	Boiler Panel Reading	PSIG	850	850	850		
Boiler SH Outlet Temperature	Boiler Panel Reading	F	870	880	870		
Boiler Steam Enthalpy		Btu/Lb	1436	1442	1436		
Boiler Steam Output	Calculated	MMBtu		216.3	215.4		
Boiler Blowdown	Calculated	KLBS		15	15		
Boiler Drum Pressure	Boiler Panel Reading	PSIG	900.0	900.0	900.0		
Boiler Blowdown Enthalpy		Btu/Lb		529	529		
Boiler Blowdown Output	Calculated	MMBtu		7.9	7.9		
Doller Cictidown Output	Caroalato	I IIIII					
Total Energy Outputs	Calculated	MMBtu		224.2	223.3		
Total Energy Outputs	Calculated	MINDIA		227.2	220.0		
	1	1 1					
Dellar Clause Flau	Dos	VI PE/UD					
Boiler Steam Flow	DCS	KLBS/HR					
Steam Flow Integrator	DCS INTEGRATOR	KLBS					
Steam Flow Integrator Superheater Outlet Pressure	DCS INTEGRATOR DCS	KLBS PSIG					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature	DCS INTEGRATOR DCS DCS	KLBS PSIG F					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure	DCS INTEGRATOR DCS DCS DCS DCS	KLBS PSIG F PSIG					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow	DCS INTEGRATOR DCS DCS DCS DCS DCS	KLBS PSIG F PSIG KLBS/HR					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS	KLBS PSIG F PSIG KLBS/HR KLBS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS DC	KLBS PSIG F PSIG KLBS/HR KLBS PSIG					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS DC	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS DCS DCS INTEGRATOR DCS DCS DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Tremerature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS INTEGRATOR DCS DCS DCS DCS DCS DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Temperature Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF MCF/HR MCF % O2 AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Pressure Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps ID Fan Amps	DCS INTEGRATOR DCS DCS DCS DCS DCS DCS DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG KLBS/HR KLBS PSIG G MCF/HR MCF % O2 AMPS AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Pressure Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps ID Fan Amps Ampient Air Temperature Dry Bulb	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2 AMPS AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Pressure Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Temperature Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps ID Fan Amps Ambient Air Temperature Dry Bulb Ambient Air Temperature Wet Bulb	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2 AMPS AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Pressure Doum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Pressure Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps ID Fan Amps Amps Ambient Air Temperature Dry Bulb	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2 AMPS AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Pressure Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Flow Integrator Feedwater Pressure Gas Flow Gas Flow Integrator Boiler Excess O2 FD Fan Amps ID Fan Amps ID Fan Amps Ambient Air Temperature Dry Bulb Ambient Air Temperature Wet Bulb	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2 AMPS AMPS					
Steam Flow Integrator Superheater Outlet Pressure Superheater Outlet Pressure Drum Pressure Boiler Feed Water Flow Feedwater Flow Integrator Feedwater Pressure Feedwater Pressure Gas Flow Gas Flow Integrator Boiler Excess 02 FD Fan Amps ID Fan Amps Ampient Air Temperature Dry Bulb Ambient Air Temperature Wet Bulb	DCS INTEGRATOR DCS	KLBS PSIG F PSIG KLBS/HR KLBS PSIG F MCF/HR MCF % O2 AMPS AMPS					

Lake Road Generating Station Procedure No. B4-004

Lake Road Boiler 4

		Collected by:					
Heat Rate Test		Hour	Settling	1	2		
Data Sheet 1 - Page 2 of 3		Time					
Item	Source	Units					ļ
Boiler Efficiency - Preliminary	Calculated	%		82.4%	82.0%		
Boiler Efficiency - As Fired	Calculated	%	3.00	82.1%	81.7%		
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FORMULA FOR CALCULATING BOILER EFFICIENCY		
Boiler Efficiency (%)	Boiler Energy Output (MMBtu) x 100%	
	Boiler Energy Input (MMBtu)	

NOTES & COMMENTS	

Lake Road Generating Station Procedure No. B4-004

Lake Road Boiler 4

Heat Rate Test Data Sheet 1 - Page 3 of 3		
Notes & Comments		
	With the control of t	
- AB-777 -		. 202700-1
4.4400		
Data collected by:	Reviewed by:	Approved by:
WRITTEN BY	DEPARTMENT HEAD	STATION SUPERINTENDENT
	APPROVED	APPROVED
Wayne Siebern	Jim Parker	Mike Smith

LAKE ROAD BOILER 4 TESTING

PURPOSE:

Quantify efficiency for Lake Road Boiler 4, 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	comp	leted	I,
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1.	Testing shall be conducted at least once every 24 months.
2.	Testing should be conducted immediately following a Spring or Fall
	outage or when the boiler has been inspected and found to be in good operating
	condition.
3.	The test shall be performed using the input/output method on gas fuel only.
4.	There shall be a 30 minute settling period before the 2 hour test begins.
	The boiler shall be within 5% of the target load of 150,000 lb/hr throughout the
	settling period.
5.	Any deviations from load shall be noted on Data Sheet 1.

OPERATIONAL STEPS:

The following are the operational steps for the test:

- 6.____ Determine proper testing conditions. A preliminary run shall be performed prior to the test to verify that all equipment is operational and to acquaint test personnel with the test instruments and procedures. If there is equipment out of service, these items shall be noted on Data Sheet 1.
- 7. The test documentation shall include completed Maintenance Work Requests (WR) for the following instrument calibrations:
 - Boiler gas flow meter
 - Boiler steam flow meter
 - Boiler steam pressure indicator
 - Boiler steam temperature indicator
 - Boiler drum pressure indicator
 - Boiler feed water flow meter
 - Boiler feed water pressure indicator
 - Boiler feed water temperature indicator
 - Boiler flue gas oxygen analyzer



Prepared by: Wayne Siebern	Date: 10/26/2007	Operating P	
Rev:	Date:	Lake Road Gene	erating Station
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8. Gas samples for the test shall be collected for each segment of the test including the settling period and 2 hour test. The gas samples are to be sent to an outside laboratory for a determination of the as-fired BTU/SCF value (higher heating value). Verify that all materials needed to obtain the gas samples are readily
available on site.
9 Notify the appropriate Aquila fuels personnel of the testing schedule.
10. Notify Missouri PSC personnel, System Operations, Operations, and
Maintenance personnel of the test date/time.
11. Put the boiler on line and load the boiler to 150,000 lb/hr for the 30 minute
settling period. Maintain this boiler load and operating condition throughout the 2
hour test period. Subsequent tests shall be performed within 5% of this initial test
load.
12. Begin the gas sample collection and verify that the samples have been
collected. Initial below that the samples were collected.
Settling Hour 1 Hour 2
13. Begin the hourly data collection according to Data Sheet 1. Collect all
information on Data Sheet 1 at the end of the 30 minute settling period and at hourly
intervals during the 2 hour test period. Initial below that the data was collected.
Settling Hour 1 Hour 2
14 Review the data hourly to determine if test data is reasonable and accurate.
If inaccurate, test will be stopped and performed at a later date. Initial below that data
was reviewed and is accurate.
Settling Hour 1 Hour 2
15. At the completion of the test, notify System Operations that the test has
concluded and the boiler is released for normal operation.
16 At the test conclusion, compile data.
17 Evaluate data using the boiler manufacturer references.
18. Prepare the gas samples for shipping and analysis.
19 Complete preliminary input/output boiler efficiency calculations using the
gas supplier BTU values. Record the results on the data sheet.
20 Compare baseline (initial test) and all subsequent data to actual test results
and determine if adequate and consistent.

4	Prepared by: Wayne Siebern	Date: 10/26/2007	Operating	Procedure
Aquila	Rev:	Date:	Lake Road Ger	nerating Station
V	Appr:	Title:		No: B4-004
	Appr:	Boiler 4 Testing		Page 2 of 3

21	Attach copies of Data Sheet 1, and other Operator logs/test sheets, if
necessary	
22	When the fuel sample results from the outside lab are obtained and
reviewed,	, complete the final boiler efficiency calculations. Record the results on
Data Shee	et 1.
23	Include an executive summary of the findings with the test documentation,
including	Data Sheet 1.
24.	Forward the test results to the appropriate contact for the Aquila Regulatory
Departme	ent.

	Prepared by: Wayne Siebern	Date: 10/26/2007	` `	Procedure
Aguila	Rev:	Date:	Lake Road Generating Stat	
Aquila	Appr:	Title:		No: B4-004
	Appr:	Boiler 4 Testing		Page 3 of 3

Lake Road Generating Station Procedure No. B5-305

Lake Road Boiler

Data Sheet 1 - Page 1 of 3

DATE						r	
DATE	DA	TA TAKEN BY					
		Hour	Settling	11	2	3	4
		Time					
INPUTS							
FEED WATER INTEGRATOR	Panel Integrator		100000	100220	100440		100880
FEEDWATER FLOW	Calculated	KLBS		220	220	220	220
FEEDWATER PRESSURE	DCS	PSIG	1200	1200	1200	1200	1200
FEEDWATER TEMPERATURE	DCS	F	340	340	340	340	340
FEEDWATER ENTHALPY		BTU/LB	313	313	313	313	313
FEEDWATER MMBTU	Calculated	MMBTU	0.0	68.9	68.9	68.9	68.9
	 						
COAL BURNED INTEGRATOR	Panel Integrator	KLBS	100000	100030	100059	100090	100120
COAL BURNED	Calculated	KLBS		30	29	31	30
PRELIMINARY COAL HHV (LAKE ROAD LAB)	Lake Road Lab	BTU/LB		9290	9280	9290	9299
COAL MMBTU (LAKE ROAD LAB)	Calculated	MMBTU	0	278.7	269.12	287.99	278.97
FINAL COAL HHV (OUTSIDE LAB)	Outside Lab	BTU/LB		9350	9360	9370	9360
COAL MMBTU (OUTSIDE LAB)	Calculated	MMBTU	0	280,5	271.4	290.5	280,8
TOTAL INPUTS - (LAKE ROAD LAB)	Calculated	ммвти		347.6	338.0	356.9	347.8
TOTAL INPUTS (OUTSIDE LAB)	Calculated	MMBTU		349.4	340.3	359.3	349.7
	- Galoriatou			0.10.7		000.0	
OUTPUTS							
STEAM FLOW INTEGRATOR	Panel Integrator	KLBS	100000	100200	100400	100600	100800
STEAM FLOW	Calculated	KLBS		200	200	200	200
STEAM PRESSURE	DCS	PSIG	890	890	890	890	890
STEAM TEMPERATURE	DCS	F	860	870	875	880	875
STEAM ENTHALPY		BTU/LB	1429	1435	1438	1441	1438
STEAM MMBTU	Calculated	ммвт∪	0	287.0	287.6	288.2	287.6
BLOWDOWN FLOW	Calculated	KLBS		20	20	20	20
DRUM PRESSURE BLOWDOWN ENTHALPY	DCS	PSIG BTU/LB	920 532	920 532	920 532	920 532	920 532
BLOWDOWN MMBTU	Calculated	MMBTU	332	10,6	10.6	10.6	10.6
TOTAL OUTPUTS	Calculated	MMBTU	0	297.64	298.24	298.84	298.24
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Lake Road Generating Station Procedure No. B5-305

Lake Road Boller 5							
Cake kosa poliet 2		Collected by:	_				
		Hour	Settling	1	2	3	4
Data Sheet 1 - Page 2 of 3		Time					
OUTSIDE DATA							
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Lake Road Generating Station Procedure No. B5-305

Lake Road Boller 5							
Land Notes Doller o		Collected by:			_		
Data Sheet 1 Daga 2 of 2		Hour	Settling	1	2	3	4
Data Sheet 1 - Page 3 of 3	Source	Time Units					
		 					
		+			 		
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· · · · · · · · · · · · · · · · · · ·							
		 					
Ash Analysis (LOI)	Lake Road Laboratory	% Carbon					
	<u> </u>	1	I	L			
COAL BLEND INFORMATION							
Coal Type Low BTU (PRB)	Coal Mine	-					
High BTU		1					
Coal Blend (% PRB)							
				.			
FORMULA FOR CALCULATING BC	OILER EFFICIENCY						
Boiler Efficiency (%) =	Output x 100%						
1 ' '		_					
	Input						
	Input						
PRELIMINARY BOILER EFFICIENCE							
				85 64%	88 24%	83.74%	85.74%
Boiler Efficiency Per Time Period (%)	CY CALCULATION			85.64%	88.24%	83.74%	85.74%
	CY CALCULATION			85.64%	1-0	83.74%	85.74%
Boiler Efficiency Per Time Period (%)	CY CALCULATION			85.64%	1-0		85.74%
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	CY CALCULATION			85.64%	1-0		85.74%
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC	CY CALCULATION				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	CY CALCULATION			85.64% 85.20%	1-0		85.74% 85.29%
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%)	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%)	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%)	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	
Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period FINAL BOILER EFFICIENCY CALC Boiler Efficiency Per Time Period (%) Boiler Efficiency For Entire 4 Hour Period	d (%)				85.	81%	

BOILER 5

BOILER EFFICIENCY TEST ASSUMPTIONS

- 1. The continuous blowdown from the drum is to be considered an output and a saturated liquid at drum pressure.
- 2. The energy in the flue gas is a loss.
- 3. The steam leaving the boiler will be at the superheater outlet pressure and the temperature measured by the control room OIS screen.

LAKE ROAD BOILER 5 TESTING

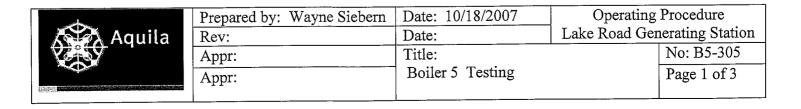
PURPOSE:

Quantify efficiency for Lake Road Boiler 5, 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 fo	llowing are the operating parameters of the test:
1.	No wet coal shall be used during the testing and no significant pulverizer
	problems shall be in occurrence during the test period.
2.	No natural gas shall be burned during the test. The test coal blend shall be
	maintained for at least 24 hours prior to the test. No gas fuel shall be burned
	during the test; however, it may be burned prior to the test if needed for
	operational reasons.
3.	Testing shall be conducted at least once every 24 months.
4.	Testing should bre conducted as soon as possible following a Spring or
	Fall outage or when the boiler is free of ash deposits/accumulation.
5.	There shall be a 30 minute settling period before the 4 hour test begins.
	The boiler shall be within 5% of the target load of 200,000 lb/hour throughout the
	settling period. Only minor changes in unit control shall be made during this tim
_	as required to bring the boiler into normal, steady-state operation.
6.	Soot blowing and equipment starting/stopping should be kept to a
7	minimum and logged on Data Sheet 1.
7. 8.	Any deviations from load shall be noted on Data Sheet 1. Ensure the plant Distributed Control System (DCS) operating screens
٥.	(described below in Step 18) are available for printing every 15 minutes.
	(described below in step 18) are available for printing every 13 minutes.
OPER	RATIONAL STEPS:
	llowing are the operational steps for the test:
	Determine proper testing conditions. A preliminary run shall be performed
	or to the test to verify that all equipment is operational and to acquaint test
	rsonnel with the test instruments and procedures. If there is equipment out of
sei	rvice, these items shall be noted on Data Sheet 1.



10	The test documentation shall in	clude completed Mainte	nance Work	
Requests	(WR) for the following instrum	ent calibrations:		
• 5-	1 Pulverizer coal scale			
• 5-	2 Pulverizer coal scale			
• Bo	oiler steam pressure			
	oiler steam temperature			
	oiler steam flow			
	oiler feed water pressure			
	oiler feed water temperature			
	oiler feed water flow			
	oiler drum pressure			
	lue gas oxygen			
	Ash samples (see Procedure nur	mber B5-300 for collecti	ng ach samples)	for
	nall be collected at the end of ear		-	
	d each hour of the 4 hour test ru	_	iorading the beth	1116
<u> </u>	Coal samples (see Procedure no		ting coal sample	s)
	st shall be collected at the end of			
	d each hour of the 4 hour test ru		, , , , , , , , , , , , , , , , , , ,	
±	Note the fuel blend on Data She			
	Notify Missouri PSC personnel		perations, and	
	nce personnel of the test date/tir		·,	
	Put the boiler on line and load		nr for the 30 min	ute
	eriod. Maintain this boiler load			
	period. Subsequent tests shall b			
load.	•			
16.	Begin the ash sample collection	n and verify that the sam	ples have been	
collected.	. Initial below that the samples	were collected.		
	Settling		Hour 2	
17	Begin the coal sample collection	on and verify that the san	nples have been	
collected.	. Initial below that the samples			
	Settling		Hour 2	
18	Begin the data collection proce			
Print the	applicable DCS screens at 15 m	inute intervals through the	he entire 4 ½ hou	ır
	cocess, beginning at the start of t			
	rces at hourly intervals through	the entire testing process	s, beginning at th	e
	e settling period.		20	
19	Record all information on Data		e 30 minute settli	ıng
	d at one hour intervals during th		11 1	
20	Review the data hourly to deter	rmine if test data is reaso	nable and accura	ite.
	rate, test will be stopped and per	formed at a later date. I	nitial below that	data
was revie	ewed and is accurate.	TT 1	τ 2	
	Settling	_ Hour 1 I	Hour 2	
	Prepared by: Wayne Siebern	Date: 10/18/2007	Operating	Procedure
人 Aquila	Rev:	Date:	Lake Road Ger	nerating Station
VAST CARE	Appr:	Title:		No: B5-305
***	Appr:	Boiler 5 Testing		Page 2 of 3
<u></u>				

21 At the completion of the test, notify System Operations that the test has
concluded and the boiler is released for normal operation.
22. At the test conclusion, compile and ensure that all data was collected.
Prepare the ash samples for testing and analysis per procedure number B5-
300. The ash samples shall be tested by the Lake Road lab and shall include LOI.
24. Prepare the coal samples for testing and analysis per procedure number B5-
301. One set of samples shall be tested by the Lake Road lab. The other set of
samples will be sent to an outside laboratory to perform a short proximate analysis in
addition to the testing done in house (BTU, ash, sulfur, moisture).
25 Complete preliminary boiler efficiency calculations using in-house Btu
values. Record the results on the data sheet.
26 Attach copies of the DCS printouts, Data Sheet 1, and other Operator
logs/test sheets, if necessary.
27 When fuel sample Btu results from the outside lab are obtained and
reviewed, complete the final boiler efficiency calculations. Record the results on
Data Sheet 1.
28 Include an executive summary of the findings with the test documentation,
including Data Sheet 1, DCS reports, and heat rate calculations.
29. Forward the test results to the appropriate contact for the Aquila Regulatory
Department.

	Aquila
100	

	Prepared by: Wayne Siebern	Date: 10/18/2007	Operating Procedure
	Rev:	Date:	Lake Road Generating Station
	Appr:	Title:	No: B5-305
	Appr:	Boiler 5 Testing	Page 3 of 3
•	1	1	

Lake Road Generating Station Procedure No. B8-004

Lake Road Boller 8						1	·
Heat Rate Test		Collected by:	DWi		2		
Data Sheet 1 - Page 1 of 3		Hour Time	Settling	1	2		
Boiler Gas Fuel Integrator	DCS Integrator	MCF	100000	100210	100420		
Boiler Gas Fuel Integrator	Calculated	MCF	100000	210	210		
Gas HHV - Preliminary	Southern Star Pipeline	Btu/SCF	1000	1000	1000		
			1005	1005	1005		
Gas HHV - As Fired	Outside Laboratory	Btu/SCF	1005	210	210		-
Fuel Input - Preliminary	Calculated	MMBtu					
Fuel Input - As Fired	Calculated	MMBtu		211.1	211.1		
		1	-				
		+					
		 				-	
Boiler Feed Water Integrator	DCS Integrator	KLBS	200000	200160	200320		
Boiler Feed Water	Calculated	KLBS		160	160		
Boiler Feed Water Pressure	DCS	PSIG	500	500	500		ļ
Boiler Feed Water Temperature	DCS	F	250	250	250		
Boiler Feed Water Enthalpy		Btu/Lb		220	220	ļ]
Boiler Feed Water Input	Calculated	MMBtu		35.2	35.2	ļ	
		ļ					
Total Energy Inputs - Preliminary	Calculated	MMBtu		245.2	245,2		ļ
Total Energy Inputs - Final	Calculated	- MMBtu		246.3	246.3		
Boiler Steam Flow Integrator	DCS Integrator	KLBS	200000	200150	200300		
Boiler Steam Flow	Calculated	KLBS		150	150		
Boiler SH Outlet Pressure	DCS	PSIG	325	325	325		
Boiler SH Outlet Temperature	DCS	F	700	705	700		
Boiler Steam Enthalpy		Btu/Lb		1367	1367		
Boiler Steam Output	Calculated	MMBtu		205,1	205.1		
Boiler Blowdown	Calculated	KLBS		10	10		
Boiler Drum Pressure	DCS	PSIG	350.0	350.0	350.0		
Boiler Blowdown Enthalpy	1	Btu/Lb		414	414	****	
Boiler Blowdown Output	Calculated	MMBtu		4.1	4.1		
Boiler Blowdown Calput	Calodiates	MANUELL		7.1			
Total Energy Outputs	Calculated	MMBtu		205.1	205.1		
Total Energy Culputs	Galodiated	MAIDIG		200.1	200.1		
		<u> </u>		·			
·· · · · · · · · · · · · · · · · · · ·							
D-7 01 51	DCS	KLBS/HR					
Boiler Steam Flow	i						
Steam Flow Integrator	DCS Integrator	KLBS					
Superheater Outlet Pressure	DCS	PSIG					
Superheater Outlet Temperature	DCS	F				-	
Drum Pressure	DCS	PSIG					-
Boiler Feed Water Flow	DCS	KLBS/HR	ļ				
Feedwater Flow Integrator	DCS Integrator	KLBS					
Feedwater Pressure	DCS	PSIG					
Feedwater Temperature	DCS	F					
Gas Flow	DCS	MCF/HR				 	
Gas Flow Integrator	DCS Integrator	MCF		L			
Boiler Excess O2	· DCS	% O2					
FD Fan Amps	DCS	AMPS					
				·			ļ—
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		1				<u> </u>	
		1					
Ambient Air Temperature Dry Bulb	Lake Road Lab	°F					
		0 F			 		
Ambient Air Temperature Wet Bulb	Lake Road Lab	IN HG					
Barometric Pressure	Lake Road Lab	INFIG	 	-			
		+	 	· · · · · · · · · · · · · · · · · · ·	-		
	 	-	 		-	—	1
	1		<u> </u>	J		<u> </u>	

Lake Road Generating Station Procedure No. B8-004

Lake Road Boiler 8

		Collected by:				
Heat Rate Test		Hour	Settling	1 .	2	
Data Sheet 1 - Page 2 of 3		Time		<u> </u>		
Item	Source	Units				
Boiler Efficiency - Preliminary	Calculated	%		83.6%	83.6%	
Boiler Efficiency - As Fired	Calculated	%		83.3%	83.3%	

FORMULA FOR CALCULATING BOILER EFFICIENCY	
Boiler Efficiency (%)	Boiler Energy Output (MMBtu) x 100%
	Boiler Energy Input (MMBtu)

NOTES & COMMENTS			
	·		
		- And	

Lake Road Generating Station Procedure No. B8-004

Lake Road Boller 8

Heat Rate Test Data Sheet 1 - Page 3 of 3		
Notes & Comments		
		<u></u>
11.00		. 10 Adm - 9
		Miles III
		A SAME OF THE SAME
		- Marine
Data collected by:	Reviewed by:	Approved by:
WRITTEN BY	DEPARTMENT HEAD	STATION SUPERINTENDENT
	APPROVED	APPROVED
Wayne Siebern	Jim Parker	Mike Smith

LAKE ROAD BOILER 8 TESTING

PURPOSE:

Quantify efficiency for Lake Road Boiler 8, in accordance with requirements for the Fuel Adjustment Clause (FAC) as described in 4 CSR 240-3.161 (2)(P).

INFORMATION/BACKGROUND:

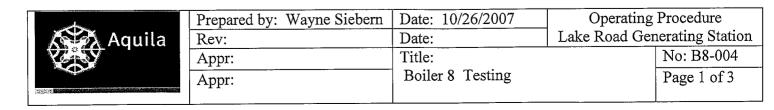
Initial	spaces	below	as steps	are	comp	leted.

1.	Testing shall be conducted at least once every 24 months.
2.	Testing should be conducted immediately following a Spring or Fall
	outage or when the boiler has been inspected and found to be in good operating
	condition.
3.	The test shall be performed using the input/output method on gas fuel only.
4.	There shall be a 30 minute settling period before the 2 hour test begins.
	The boiler shall be within 5% of the target load of 150,000 lb/hr throughout the
	settling period.
5.	Any deviations from load shall be noted on Data Sheet 1.

OPERATIONAL STEPS:

The following are the operational steps for the test:

- 6. Determine proper testing conditions. A preliminary run shall be performed prior to the test to verify that all equipment is operational and to acquaint test personnel with the test instruments and procedures. If there is equipment out of service, these items shall be noted on Data Sheet 1.
- 7.____ The test documentation shall include completed Maintenance Work Requests (WR) for the following instrument calibrations:
 - Boiler gas flow meter
 - Boiler steam flow meter
 - Boiler steam pressure indicator
 - Boiler steam temperature indicator
 - Boiler drum pressure indicator
 - Boiler feed water flow meter
 - Boiler feed water pressure indicator
 - Boiler feed water temperature indicator
 - Boiler flue gas oxygen analyzer



includi outside value).		2 hour test. The gas ation of the as-fired I	samples are to be sent to an BTU/SCF value (higher heatin	ıg
9	Notify the appropriate Ac	quila fuels personnel	of the testing schedule.	
	Notify Missouri PSC pe		erations, Operations, and	
	enance personnel of the test			
			150,000 lb/hr for the 30 minut	e
			g condition throughout the 2	
	est period. Subsequent tests	s shall be performed	within 5% of this initial test	
load.		11 1	1 1 1 1	
	Begin the gas sample co	<u> </u>	<u>-</u>	
collect	ed. Initial below that the sa			
inform	Begin the hourly data co	e end of the 30 minu	o Data Sheet 1. Collect all te settling period and at hourly	У
	Settling	Hour 1	Hour 2	
14	Review the data hourly	to determine if test of	data is reasonable and accurate).
If inac	curate, test will be stopped	and performed at a l	ater date. Initial below that da	ata
was re	viewed and is accurate.			
	Settling		Hour 2	
			Operations that the test has	
	ded and the boiler is release	_	ion.	
	At the test conclusion, o		C	
	Evaluate data using the			
	Prepare the gas samples			
			ficiency calculations using the	į
20	pplier BTU values. Record Compare baseline (initiatermine if adequate and con	al test) and all subse	quent data to actual test results	S

· • · · · ·				Procedure Station
A Aquila	Rev:	Date:	Lake Road Ger	nerating Station
Aquita	Appr:	Title:		No: B8-004
	Appr:	Boiler 8 Testing		Page 2 of 3

21	Attach copies of Data Sheet 1, and other Operator logs/test sheets, if
necessary.	
22.	When the fuel sample results from the outside lab are obtained and
reviewed,	complete the final boiler efficiency calculations. Record the results on
Data Shee	t 1.
23.	Include an executive summary of the findings with the test documentation,
including 1	Data Sheet 1.
24.	Forward the test results to the appropriate contact for the Aquila Regulatory
Departmen	

Aguila	Prepared by: Wayne Siebern	Date: 10/26/2007 Date:	Operating Procedure Lake Road Generating Station	
Aquila	Rev: Appr:	Title:	No: B8-004	
	Appr:	Boiler 8 Testing	Page 3 of 3	

Lake Road Generating Station Procedure No. T2-302

Lake Road Turbine 2		Г				(
Heat Rate Test		Collected by: Hour	Settling	1	2	3	4
Data Sheet 1 - Page 1 of 3		Time				~	
Indicated Gross Megawatts	DCS Indication	MW					
Indicated Station Use Megawatts	Panel Watt Meter	MW					
Net Megwatts	Calculated	MW	0	0	0	0	
Indicated MVARS	DCS Indication	MVARS					
Turbine Steam Flow	Turbine Panel	KLBS/HR	245	245	245	245	245
Turbine Inlet Steam Pressure	Turbine Panel	PSIG	850	855	850	855	850
Turbine Inlet Steam Temperature	Turbine Panel	F	900	890	900	895	895
Turbine Inlet Steam Enthalpy	Turbine Panel	Btu/LB	1453	1448	1453	1450	145
Turbine Inlet Steam Energy	Calculated	MMBTU	1400	354.8	356.0	355.3	355.
Condenda Flori	Turking Donal	KI DC/I ID	045	045		045	24
Condensate Flow	Turbine Panel	KLBS/HR	245	245	245	245	245
Exhaust Pressure	Turbine Panel	IN HG	3.0	3.4	3.2	3.0	3.0
Condensate Temperature	Turbine Panel	F	110	105	110	115	115
Condensate Enthalpy	Turbine Panel	Btu/LB	78	73	78	83	83
Condensate Energy	Calculated	MMBTU		17.9	19.1	20.3	20.3
Circulating Water Inlet Temperature	Turbine Panel	F					
Circulating Water Outlet Temperature	Turbine Panel	F					
							-
44, 474, 474							
						NO.	
Ambient Air Temperature Day Bulb	Lake Poad Lah	0 E					
Ambient Air Temperature Dry Bulb Ambient Air Temperature Wet Bulb	Lake Road Lab	⁰ F				-	

Lake Road Generating Station Procedure No. T2-302

	Collected by:					
	Hour	Settling	1	2	3	4
	Time					
Source	Units					
KWH Meter Integrator Reading	MWH	50000	50028	50057	50085	50113
Calculated	MWH		28	29	28	28
Calculated	Btu		336875000	336875000	334915000	335160000
Calculated	Btu/KWH		12,031	11,616	11,961	11,970
Calculated	Btu/KWH		11,892			
				:		
				:		
	Source KWH Meter Integrator Reading Calculated Calculated Calculated	Source Units KWH Meter Integrator Reading MWH Calculated MWH Calculated Btu Calculated Btu/KWH	Hour Settling	Hour Settling 1	Hour Time Settling 1 2	Hour Time Settling 1 2 3

FORMULA FOR CALCULATING GROSS TURBINE HEAT RATE	,	
Gross Turbine Heat Rate (Btu / KWH) =	Turbine Energy Input - Output (Btu)	
	Gross Generation (MWH) x 1000 (KWH / MWH)	

NOTES & COMMENTS		
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	* .	

Lake Road Generating Station Procedure No. T2-302

Heat Rate Test Data Sheet 1 - Page 3 of 3		
Notes & Comments		
	- Van	West Control of the C
		#
		10.4804-3.400
		And the second s
		Maria III
Data collected by:	Reviewed by:	Approved by:
WRITTEN BY	DEPARTMENT HEAD	STATION SUPERINTENDENT APPROVED
Wayne Siebern	APPROVED <i>Jim Parker</i>	Mike Smith

Lake Road Generating Station Procedure No. T3-303

Lake Road Turbine 3						r	
		Collected by:					
Heat Rate Test		Hour	Settling	. 1	2	3	4
Data Sheet 1 - Page 1 of 3		Time					
Indicated Gross Megawatts	DCS Indication	MW					
Indicated Station Use Megawatts	Panel Watt Meter	MW					
Net Megwatts	Calculated	MW	0	0	0	0	0
Indicated MVARS	DCS Indication	MVARS					
Condensate Flow to DA	Turbine Panel	LBS/HR	140000	140000	145000	140000	140000
Condensate Flow to DA	Turbine Paner	LBOITIN	140000	140000	143000	140000	140000
							
							.,,
Turbine Inlet Steam Pressure	Turbine Panel	PSIG	230	230	230	230	230
Turbine Inlet Steam Temperature	Turbine Panel	F	530	525	530	535	530
Turbine Inlet Steam Enthalpy	Turbine Panel	Btu/LB	1281.2	1278.4	1281.2	1284.0	1281.2
Turbine Inlet Steam Flow	Calculated	LBS/HR	133000	134000	138550	133190	132900
	2 15 2	2010					
3-2 Extraction Steam Pressure	2nd Floor Gauge	PSIG	29	30	31	28	29
3-2 Extraction Steam Temperature	2nd Floor Temp Ind	F	350	345	360	350	351
3-2 Extraction Steam Enthalpy	e of stocking the shape of	Btu/LB	1211.0	1208.4	1215.7	1211.2	1211.5
3-2 Extraction Steam Flow	Calculated Separately	LBS/HR	5000	4500	4750	5010	5200
3-1 Extraction Steam Pressure	2nd Floor Gauge	PSIG	0	-1	1	0	0
3-1 Extraction Steam Temperature	2nd Floor Temp Ind	F	250	255	245	260	255
3-1 Extraction Steam Enthalpy		Btu/LB	1168.8	1171.5	1166.1	1173.6	1171.2
3-1 Extraction Steam Flow	Calculated Separately	LBS/HR	2000	1500	1700	1800	1900
Turbine Exhaust Pressure	Control Room Panel	IN HG	4	3,5	4.1	3.5	4
Turbine Condensate Temperature	Turbine Hotwell Thermometer	F	120	115	121	118	120
Condensate Enthalpy		Btu/LB	88.0	83.0	89.0	86.0	88.0
Condensate to DA Temperature	2nd Floor Thermometer	F			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Condendate to Br. Temperature	End i logi i Homioniotoi	·					
3-2 Condensate from Heater Temp	3rd Floor Recorder	F					
3-1 Condensate from Heater Temp	3rd Floor Recorder	F					
3-1 Condensate to Heater Temp	2nd Floor Thermometer	F					
Turbine Inlet Steam Energy	Calculated	MMBTU	170.40	171.30	177.51	171.01	170.27
3-2 Extraction Steam Energy	Calculated	MMBTU	6.06	5.44	5.77	6.07	6.30
		*****					And the second of the second of the second
3-1 Extraction Steam Energy	Calculated	MMBTU	2.34	1.76	1.98	7.7	2.23
Condensate Energy	Calculated	MMBTU	12.32	11.62	12.90	12.04	12.32
							
					·		
		<u> </u>					
		0					
Ambient Air Temperature Dry Bulb	Lake Road Lab	°F					
Ambient Air Temperature Wet Bulb	Lake Road Lab		-				
Barometric Pressure	Lake Road Lab	IN HG	-				
				<u> </u>			<u>.</u>
-							
	1	l	J			·	

Lake Road Generating Station Procedure No. T32-303

Heat Rate Test		Collected by: Hour	Settling	1	2	3	4
Data Sheet 1 - Page 2 of 3		Time					
Item	Source	Units					
Integrated Gross Generation	KWH Meter Integrator Reading	MWH	50000	50012	50024	50036	50048
Gross Generation MWH per Period	Calculated	MWH		12	12	12	12
Turbine Energy Input - Output	Calculated	MMBTU	149.69	152.49	156,85	150.79	149.43
Gross Turbine Heat Rate per Period	Calculated	Btu/KWH_		12,707			12,452
Gross Turbine Heat Rate for Entire Period	Calculated	Btu/KWH			12,	699	

FORMULA FOR CALCULATING GROSS TURBINE HEAT RATE		
Gross Turbine Heat Rate (Btu / KWH) =	Turbine Energy Input - Output (Btu)	
	Gross Generation (MWH) x 1000 (KWH / MWH)	

NOTES & COMMENTS	

Lake Road Generating Station Procedure No. T3-303

Heat Rate Test Data Sheet 1 - Page 3 of 3		
Notes & Comments		
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No. of the Control of		
- Company Comp		
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- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10		
	·	
	•	
Data collected by:	Reviewed by:	Approved by:
WRITTEN BY	DEPARTMENT HEAD	STATION SUPERINTENDENT
******	APPROVED	APPROVED
Wayne Siebern	Jim Parker	Mike Smith

Lake Road Generating Station Procedure No. T5-305

Lake Road Turbine 5					
		Collected by:			
Heat Rate Test Data Sheet 1 - Page 1 of 3		Hour Time	Settling	1	2
Data Officer 1-1 age 1 010		Tane			
Gas Fuel Burn Rate	DCS	MCF/HR			
				'	
Gas Fuel Pressure Supplied to Turbine	DCS	PSIG			
Gas Fuel Temperature Supplied to Turbine		F			
Gas Fuel Supplier (MGE or SSCGP)					
East Side Inlet Air Temperature	DCS	F			
Last Side thet Air Temperature	Des	<u>'</u>			
West Side Inlet Air Temperature	DCS	F			
Ambient Air Temperature Dry Bulb	Lake Road Lab	F			
Ambient Air Temperature Wet Bulb	Lake Road Lab	F			
Describe Describe	Lake Band Lak	la Ha			
Barometric Pressure	Lake Road Lab	In Hg			<u> </u>
Indicated Gross Megawatts	DCS	MW.			
and the state of t		,		<u> </u>	
Indicated Megavars	DCS	MVAR			
Combustor Shell Pressure	DCS	PSIG			
Turbine Exhaust Pressure	DCS	PSIA			
The state of Table 1	200	_			
Average Exhaust Temperature	DCS	F			
Average Blade Temperature	DCS	F			
7.verage blade Temperature	500				
East Scroll Air Inlet Pressure Drop	Turbine Enclosure Manometer	IN H2O			
West Scroll Air Inlet Pressure Drop	Turbine Enclosure Manometer	IN H2O			
East Air Inlet Static Pressure	Turbine Enclosure Manometer	IN H2O			
NAC - 1 A 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	T. die Feelen Manager	1211100			
West Air Inlet Static Pressure	Turbine Enclosure Manometer	IN H2O			

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Lake Road Generating Station Procedure No. T5-305

		Collected by:			
Heat Rate Test		Hour	Settling	1	2
Data Sheet 1 - Page 2 of 3		Time			
Item	Source	Units			
Integrated Gross Generation	KWH Meter Integrator Reading	MWH	50000	50060	50121
Gross Generation MWH per Period	Calculated	MWH		60	61
Integrated Station Use	KWH Meter Integrator Reading	MWH	10000	10002	10004
Station Use MWH per Period	Calculated	MWH		2	2
Integrated Gas Burned	Gas Meter Integrator Reading	MCF	8000	8800	9650
Gas Burned per Period	Calculated	MCF		800	850
Preliminary Gas HHV	Southern Star Pipeline	Btu / CU FT	1005	1005	_1005
Final Gas HHV	Outside Laboratory	Btu / CU FT	1006	1006	1006

FORMULA FOR CALCULATING GROSS HEAT RATE			
Gross Heat Rate (Btu / KWH) =	Burned (MCF) x 1000 (CU FT / MCF) x G Gross Generation (MWH) x 1000 (KWF		
PRELIMINARY HEAT RATE CALCULATION			
Gross Heat Rate Per Time Period (Btu/KWH)		13,400	14,004
Gross Heat Rate For Entire 2 Hour Period (Btu/KWH)		13,	705
FINAL HEAT RATE CALCULATION			
Gross Heat Rate Per Time Period (Btu/KWH)		13,413	14,018
Gross Heat Rate For Entire 2 Hour Period (Btu/KWH)		13,	718
NOTES & COMMENTS			

Lake Road Generating Station Procedure No. T5-305

Heat Rate Test			
Data Sheet 1 - Page 3 of 3			
Notes & Comments			
	Was a second sec		
CONTRACTOR OF THE CONTRACTOR O			
vaneau			
Water			
- Alexandre III			
Data collected by:	Reviewed by:	Approved by:	
MORTENION	DEPARTMENT HEAD	STATION SUPERINTENDENT	
WRITTEN BY	APPROVED	APPROVED	
Wayne Siebern	Jim Parker	Mike Smith	
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LAKE ROAD UNIT 5 HEAT RATE TESTING PROCEDURE

PURPOSE:

Quantify heat rate/efficiency for Lake Road Unit 5, in accordance with requirements for the Fuel Adjustment Clause (FAC) as described in 4 CSR 240-3.161 (2)(P).

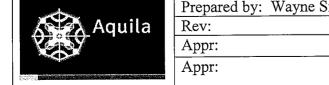
INFORMATION/BACKGROUND:

Initial spaces below as steps are completed	Initial	spaces	below	as steps	are	comp	leted
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1.	Testing shall be conducted at least once every 24 months.
2.	There shall be a 15 minute settling period before the 2 hour test begins.
	The test shall be performed with the unit in the "base load" exhaust temperature
	control mode throughout the settling and testing periods. This will result in
	approximately 60 MW gross generation when the turbine compressor inlet
	temperature is 80° F.
3.	Any deviations from load shall be noted on Data Sheet 1.
4.	Ensure the turbine Distributed Control System (DCS) operating screens are
	available for obtaining data during the test period.

OPERATIONAL STEPS:

- Determine proper testing conditions. If done during a Southwest Power Pool (SPP) Capability test, the ambient site conditions must be met and the test performed in the summer months (June-September). If not performed in conjunction with the SPP test, determine when instruments have been recently calibrated and minimal equipment is out of service, etc. If there is equipment out of service, these items shall be noted on Data Sheet 1.
- The test documentation shall include completed Maintenance Work Requests (WR) for the following instrument calibrations:
 - Gas fuel flow metering
 - Gas fuel pressure to turbine
 - Gas fuel temperature to turbine
 - Turbine compressor inlet air temperature (east side)
 - Turbine compressor inlet air temperature (west side)
 - Air Compressor Section Flow Manometers
 - Combustor shell pressure
 - Gross Generation KWH Meter (done by Meter Department)



	Prepared by: Wayne Siebern	Date: 10/22/2007	Operating	Procedure
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7 The test shall be performed on gas fuel only.							
8 Notify the appropriate Aquila fuels personnel of the testing schedule.							
9. Notify Missouri PSC personnel, System Operations, Operations, and							
Maintenance personnel of the test date/time.							
10 Place the evaporative coolers in service if necessary to obtain the desired							
80° F turbine compressor inlet temperature. The turbine compressor inlet temperature							
during the test should be as close to 80 F as possible to minimize ambient conditions							
correction requirements.							
11 Start the unit and raise load to the base load limit (approximately 60 MW							
gross) for the 15 minute settling period and continue holding at this load for the 2							
hour test period. This shall be done for the initial "baseline test" and all subsequent							
tests.							
12 Begin the gas sample collection and verify that the samples have been							
collected. Initial below that the samples were collected.							
Settling Hour 1 Hour 2							
13. Begin the hourly data collection according to Data Sheet 1. Collect all							
information on Data Sheet 1 at the end of the 15 minute settling period and at hourly							
intervals during the 2 hour test period. Initial below that the data was collected.							
Settling Hour 1 Hour 2							
14 Review the data hourly to determine if test data is reasonable and accurate.							
If inaccurate, test will be stopped and performed at a later date. Initial below that data							
was reviewed and is accurate.							
Settling Hour 1 Hour 2							
15. At the completion of the test, notify System Operations that the test has							
concluded and the unit is released to dispatcher control.							
16. At the test conclusion, compile data.							
17. Evaluate data using the unit's Correction Curves.							
18. Prepare the gas samples for shipping and analysis.							
19. Complete the preliminary heat rate calculations using the gas supplier Btu							
values. Record the results on the data sheet.							
20. Compare baseline (initial test) and all subsequent data to actual test results							
and determine if adequate and consistent.							
21 Attach copies of the DCS printouts, Data Sheet 1, and other Operator logs/test sheets.							
22 When the gas sample results from the outside lab are obtained and							
reviewed, complete the final heat rate calculations. Record the results of the							
calculations on Data Sheet 1.							
23 Include an executive summary of the findings with the test documentation.							
24. Forward the test results to the appropriate contact for the Aquila Regulatory							
Department.							
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Prepared by: Wayne Siebern	Date: 10/22/2007	Operating Procedure		
Rev:	Date:	Lake Road Ger	nerating Station	
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Appr:	Unit 5 Heat Rate Testi	ng Procedure	Page 2 of 2	

Lake Road Generating Station Procedure No. T6-306

Lake Road Turbine 6					
Heat Rate Test		Collected by: Hour	Settling	1	2
Data Sheet 1 - Page 1 of 3		Time	Setung	<u> </u>	2
Date Chief Lago Late					
Oil Fuel Burned	DCS	Gallons			
Ambient Air Temperature Dry Bulb	Lake Road Lab	F			
Ambient Air Temperature Wet Bulb	Lake Road Lab	F			
Barometric Pressure	Lake Road Lab	In Hg			
Inlet Air Temperature	DCS	F	·		
Indicated Gross Megawatts	DCS	MW			
Indicated Megavars	DCS	MVAR			
Average Exhaust Temperature	DCS	F			
g- more and a section	500	· ·			
Fuel Oil Temperature	Local Thermometer	F			
Fuel Oil Pump Discharge Pressure	Local Pressure Gauge	PSIG			
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Lake Road Generating Station Procedure No. T6-306

Heat Rate Test		Collected by: Hour	Settling	1	2
Data Sheet 1 - Page 2 of 3	· · · · · · · · · · · · · · · · · · ·	Time			
Item	Source	Units			
Integrated Gross Generation	KWH Meter Integrator Reading	MWH	50000	50020	50040
Gross Generation MWH per Period	Calculated	MWH		20	20
Integrated Oil Burned	Oil Meter Integrator Reading	Gallons	2000	4001	6005
Oil Burned per Period	Calculated	Gallons		2001	2004
Preliminary Oil HHV	Lake Road Laboratory	Btu / Gallon	138000	138000	138000
Final Oil HHV	Outside Laboratory	Btu / Gallon	138100	138100	138100
	<u> </u>				

FORMULA FOR CALCULATING GROSS HEAT RATE			
FORMULA FOR CALCULATING GROSS HEAT RATE			
Gross Heat Rate (Btu / KWH) =	Total OII Burned (Gallons) x Oil HHV (Btu / Gallon)		
S. Soot Hour Hailo (Sta / KWII)	Gross Generation (MWH) x 1000 (KWH / MWH)		
PRELIMINARY HEAT RATE CALCULATION			
Gross Heat Rate Per Time Period (Btu/KWH)		13,807	13,828
O II D E E II O IV D I I/DI II O IVII)	·	13,	047
Gross Heat Rate For Entire 2 Hour Period (Btu/KWH)		10,	011
FINAL HEAT RATE CALCULATION			
Gross Heat Rate Per Time Period (Btu/KWH)		13,817	13,838
Gross Heat Rate For Entire 2 Hour Period (Btu/KWH)		13,	B27
NOTES & COMMENTS			
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Lake Road Generating Station Procedure No. T6-306

Heat Rate Test Data Sheet 1 - Page 3 of 3		
Notes & Comments		
		
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Data collected by:	Reviewed by:	Approved by:
M/DITTEN DV	DEPARTMENT HEAD	STATION SUPERINTENDENT
WRITTEN BY	APPROVED	APPROVED
Wayne Siebern	Jim Parker	Mike Smith

LAKE ROAD UNIT 6 HEAT RATE TESTING

PURPOSE:

Quantify heat rate/efficiency for Lake Road unit 6, 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 at least once every 24 months.
2 The # 2 oil flow meter that is displayed on the DCS will be used to
determine the fuel used during the test.
3 There shall be a 15 minute settling period before the 2 hour test begins. The unit shall be within 5% of the target load of 20 gross MW in the peak load control mode throughout the settling period. Only minor changes in unit control shall be made during this time as required to bring the unit into normal, steady-state operation.
4. Any deviations from load shall be noted on Data Sheet 1.
5. Ensure plant Distributed Control System (DCS) operating screens are available for obtaining data during the test period.
OPERATIONAL STEPS:
6 Determine proper testing conditions. If done during a Southwest Power Po (SPP) Capability test, the ambient site conditions must be met and the test performed in the summer months (June-September). If not performed in conjunction with the SPP test, determine when instruments have been recently calibrated, minimal equipment out of service, etc. If there is equipment out of service, these items shall be noted on Data Sheet 1.
7 The test documentation shall include completed Maintenance Work Reques
(WR) for the following instrument calibrations:
• Fuel oil flow meter
 Gross Generation KWH Meter (done by Meter Department)

	Prepared by: Wayne Siebern	Date: 10/23/2007	Operating	Procedure
A Aquila Rev: Date	Date:	Lake Road Ger	nerating Station	
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East Side Inlet Air Temperature West Side Inlet Air Temperature

Exhaust Temperature DCS Indications (8 Total)

8. Fuel oil samples (see Procedure CP-302 for collecting fuel oil samples) for
the test shall be collected for each segment of the test including the settling period
and 2 hour test. The samples are to be sent to an outside laboratory for a
determination of the as-fired BTU/Gallon value (higher heating value). Verify that
all materials needed to obtain the fuel oil samples are readily available on site.
9. Notify Missouri PSC personnel, System Operations, Operations, and
Maintenance personnel of the test date/time.
10 Start evaporative coolers, if available.
Raise load to Peak Load (approximately 20 MW gross) for the 15 minute
settling period and continue holding for the 2 hour test period for the initial "baseline
test". Subsequent tests shall be performed at the Peak Load condition without the
need to obtain the same MW load.
12 Begin the fuel oil sample collection and verify that the samples have been
collected. Initial below that the samples were collected.
Settling Hour 1 Hour 2
13. Begin the hourly data collection according to Data Sheet 1. Collect all
information on Data Sheet 1 at the end of the 15 minute settling period and at hourly
intervals during the 2 hour test period. Initial below that the data was collected.
Settling Hour 1 Hour 2
14 Review the data hourly to determine if test data is reasonable and accurate.
If inaccurate, test will be stopped and performed at a later date. Initial below that data
was reviewed and is accurate.
Settling Hour 1 Hour 2
15. At the completion of the test, notify System Operations that the test has
concluded and the unit is released to dispatcher control.
16 At test conclusion, compile data.
17 Evaluate data using Units Correction Curves
18. Prepare the oil samples for shipping and analysis per procedure CP-302.
19. Complete preliminary heat rate calculations using the Lake Road laboratory
BTU value. Record the results on the data sheet.
20 Compare baseline (initial test) and all subsequent data to actual test results and
determine if adequate and consistent.
21 Attach copies of the DCS printouts, Data Sheet 1, and other Operator
logs/test sheets, if necessary.
When the fuel sample results from the outside lab are obtained and
reviewed, complete the final heat rate calculations. Record the results on Data Sheet
1.
23 Include an executive summary of the findings with the test documentation,
including Data Sheet 1, DCS reports, and heat rate calculations.
Forward the test results to the appropriate contact for the Aquila Regulatory
Department.

	Prepared by: Wayne Siebern			ng Procedure	
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Lake Road Generating Station Procedure No. T7-307

Lake Road Turbine 7					
		Collected by:		•	
Heat Rate Test		Hour	Settling	1	2
Data Sheet 1 - Page 1 of 3		Time			
Oil Fuel Burned	DCS	Gallons			
Andrian Air Transport of Brills	Late Band Late	F			
Ambient Air Temperature Dry Bulb	Lake Road Lab	ļ <u>r</u>			
Ambient Air Temperature Wet Bulb	Lake Road Lab	F			
Barometric Pressure	Lake Road Lab	In Hg			
Inlet Air Temperature	DCS	F			
The Composition of the Compositi	550	· ·			
La Marchael Community	D00	1414/	···	-	
Indicated Gross Megawatts	DCS	MW			
Indicated Megavars	DCS	MVAR			

Average Exhaust Temperature	DCS	F			
* · · · · · · · · · · · · · · · · · · ·		· ·			
Fuel Oil Temperature	1176	F			
Fuel Oil Temperature	Local Thermometer	+ -			
Fuel Oil Pump Discharge Pressure	Local Pressure Gauge	PSIG			
					
		 			
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Lake Road Generating Station Procedure No. T7-307

		Collected by:			
Heat Rate Test Data Sheet 1 - Page 2 of 3		Hour Time	Settling	1	2
ltem	Source	Units			
Integrated Gross Generation	KWH Meter Integrator Reading	MWH	50000	50020	50040
Gross Generation MWH per Period	Calculated	MWH		20	20
Integrated Oil Burned	Oil Meter Integrator Reading	Gallons	2000	4001	6005
Oil Burned per Period	Calculated	Gallons		2001	2004
Preliminary Oil HHV	MGE	Btu / Gallon	138000	138000	138000
Final Oil HHV	Outside Laboratory	Btu / Gallon	138100	138100	138100

FORMULA FOR CALCULATING GROSS HEAT RATE			
Gross Heat Rate (Btu / KWH) =	Total Oll Burned (Gallons) x Oil HHV (Btu / Gallon) Gross Generation (MWH) x 1000 (KWH / MWH)		
PRELIMINARY HEAT RATE CALCULATION			
D 11 10 10 7 7 7 7 10 10 10 10 10 10 10 10 10 10 10 10 10			
Gross Heat Rate Per Time Period (Btu/KWH)		13,807	13,828
Gross Heat Rate For Entire 2 Hour Period (Btu/KWH)		13,	317
FINAL HEAT RATE CALCULATION			
Gross Heat Rate Per Time Period (Btu/KWH)		13,817	13,838
Gross Heat Rate For Entire 2 Hour Period (Btu/KWH)		13,	327
NOTES & COMMENTS			
			· · · · · · · · · · · · · · · · · · ·

Lake Road Generating Station Procedure No. T7-307

Heat Rate Test Data Sheet 1 - Page 3 of 3		
Notes & Comments		
P		
Data collected by:	Reviewed by:	Approved by:
WRITTEN BY	DEPARTMENT HEAD	STATION SUPERINTENDENT
	APPROVED	APPROVED
Wayne Siebern	Jim Parker	Mike Smith

LAKE ROAD UNIT 7 HEAT RATE TESTING

PURPOSE:

Quantify heat rate/efficiency for Lake Road unit 7, 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.

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	ollowing are the operating parameters of the test:
	Testing shall be conducted at least once every 24 months.
2.	The # 2 oil flow meter that is displayed on the DCS will be used to
•	determine the fuel used during the test.
3.	
	The unit shall be within 5% of the target load of 20 gross MW in the peak load
	control mode throughout the settling period. Only minor changes in unit control
	shall be made during this time as required to bring the unit into normal, steady-
	state operation.
	Any deviations from load shall be noted on Data Sheet 1.
5.	· · · · · · · · · · · · · · · · · · ·
	available for obtaining data during the test period.
ODEE	A MYON A T. CONTROL
OPER	RATIONAL STEPS:
6.	Determine proper testing conditions. If done during a Southwest Power Pool
_	PP) Capability test, the ambient site conditions must be met and the test performed
•	the summer months (June-September). If not performed in conjunction with the
	PP test, determine when instruments have been recently calibrated, minimal
	uipment out of service, etc. If there is equipment out of service, these items shall
	noted on Data Sheet 1.
7.	The test documentation shall include completed Maintenance Work Requests
_	VR) for the following instrument calibrations:
`	• Fuel oil flow meter
	Gross Generation KWH meter (done by Meter Department)
	East Side Inlet Air Temperature
	West Side Inlet Air Temperature
	• West blue fillet All Temperature

Exhaust Temperature DCS Indications (8 Total)

	Prepared by: Wayne Siebern
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Prepared by: Wayne Siebern	Date: 10/23/2007	Operating Procedure
Rev:	Date:	Lake Road Generating Station
Appr:	Title:	No: T7-307
Appr:	Unit 7 Heat Rate Testi	Page 1 of 2

all materials needed to obtain the fuel oil samples are readily available on site. 9Notify Missouri PSC personnel, System Operations, Operations, and Maintenance personnel of the test date/time. 10Start evaporative coolers, if available. 11Raise load to Peak Load (approximately 20 MW gross) for the 15 minute settling period and continue holding for the 2 hour test period for the initial "baseline test". Subsequent tests shall be performed at the Peak Load condition without the need to obtain the same MW load. 12Begin the fuel oil sample collection and verify that the samples have been collected. Initial below that the samples were collected. SettlingHour 1Hour 2 13Begin the hourly data collection according to Data Sheet 1. Collect all information on Data Sheet 1 at the end of the 15 minute settling period and at hourly intervals during the 2 hour test period. Initial below that the data was collected. SettlingHour 1Hour 2 14Review the data hourly to determine if test data is reasonable and accurate. If inaccurate, test will be stopped and performed at a later date. Initial below that data was reviewed and is accurate.	8 Fuel oil samples (see Procedure CP-302 for collecting fuel oil samples) for the test shall be collected for each segment of the test including the settling period and 2 hour test. The samples are to be sent to an outside laboratory for a determination of the as-fired BTU/Gallon value (higher heating value). Verify that	
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