

LOW NO_x BURNER REPLACEMENT/UPGRADE

LOCATION KANSAS CITY, KS, U.S.A. CAPACITY 107 MWE (GROSS)

PROJECT OVERVIEW

Riley Power Inc. (RPI) supplied upgraded replacement Low NO_X Burners for Kansas City Board of Public Utilities Quindaro Unit 2. Replaced burners were CE RO II burners installed in the early 90's. The project scope included the design, material supply, fabrication and delivery of all materials. Scope of supply included the following:

- + Nine Low NO_x VS III™ burners with high wear components
- + New ceramic lined coal nozzles and heads
- + Center fired natural gas gun with pneumatic retraction
- + Overfire Air (OFA) System including waterwall panel openings
- + Nine Forney retractable gas igniters
- + 18 programmable, surface mounted flame scanners
- + Igniter valve rack assemblies
- + Auxiliary primary air valves
- + Main gas safety shutoff valves
- + Replacement coal pipe sections and nine variable orifices
- + Nine knife gate coal valves (at classifier exit)

UNIT DESCRIPTION

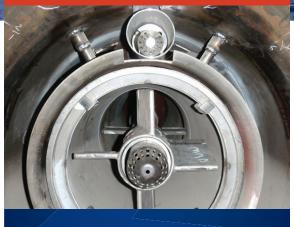
Riley Power Inc "Wall Fired" Unit

Steam Flow 763 kpph (PRB sub-bit coal)*

SH Steam Pressure 1890 psi
SH Steam Temperature 1005°F
RH Steam Pressure 436 psi
RH Steam Temperature 1005°F

* Original unit MCR steam flow firing bit coal, 925 kpph. Converted to 100% PRB coal in mid-1990s

continued on back



RileyPower

RILEY POWER SOLUTION

- Use 3-D model for design, demonstrating an under-standing of the scope, showing complexity of the components, facilitating installation
- Perform multiple unit inspections and walk-downs to redesign burner front piping for proper fit-up and accessibility
- Design for constructability by involving installation contractor (AMI) early in design
- Worked with customer to address coal mill system long standing performance issues





	BASELINE 4/15/10	GUAR	POST 4/25/12	POST 4/25/12	POST 12/08/12
MW (gross)	107	-	95	100	95
Steam Flow (kpph)	763	-	653	687	702
SH Outlet Steam Temp	974	-	998	997	995
RH Outlet Steam Temp	974		938	954	977
CEMS NO _x (lb/MMBtu)	0.245	≤ 0.18	0.178	0.174	0.176
CEMS CO (lb/MMBtu)	0.21	≤ 0.42	0.40	0.42	0.31
Flyash UBC (wt %)	2.84	-	-	-	-



NATURAL GAS ONLY FIRING					
	BASELINE	GUAR	POST		
	6/17/10		2/17/12		
MW (gross)	55	-	55		
Steam Flow (kpph)	362	-	382		
SH Outlet Steam Temp	-	-	895		
RH Outlet Steam Temp	-	-	757		
CEMS NO _x (lb/MMBtu)	0.21	< 0.36	0.10		
CEMS CO (lb/MMBtu)	0	< 0.11	0.02		