



# Riley Power

## SUCCESS STORIES

# KANSAS CITY BOARD OF PUBLIC UTILITIES QUINDARO UNIT 2

### LOW NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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



### 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



Riley Power, Inc. + 508-852-7100 + [babcockpower.com](http://babcockpower.com)



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

