Riley Power

SUCCESS STORIES

KANSAS CITY BOARD OF PUBLIC UTILITIES NEARMAN CREEK UNIT 1

LOW NO_x BURNER REPLACEMENT/UPGRADE

LOCATION KANSAS CITY, KS, U.S.A.
CAPACITY 235 - 244 MWe (GROSS)

PROJECT OVERVIEW

Riley Power Inc. supplied upgraded replacement Low NO_x Burners for Kansas City Board of Public Utilities Nearman Creek Unit 1. The project scope included the design, material supply, fabrication, and delivery of all materials. Scope of supply included the following:

- New Tilting Directional Flame (TDF) coal nozzles
- New Coal Head Assemblies
- New Windbox Assemblies
- New Burner Secondary Air Control Dampers and Drives
- New Underfire Air (UFA) System
- New Boundary Air (BA) System
- New Overfire Air (OFA) System
- Ceramic Lined Adjustable Coal Pipe Orifices
- New Forney Oil Igniters and Cooling Air Blower Assembly

UNIT DESCRIPTION

Riley Power Inc. "Dry Bottom Turbo" Unit

Unit Output	235 MWe
Steam Flow	1647 kpph
SH Steam Pressure	1990 psi
SH Steam Temperature	1005°F
RH Steam Pressure	485 psi
RH Steam Temperature	1005°F

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 walkdowns to gather missing information, verify assumptions and confirm existing unit conditions
- Design for constructability by involving installation contractor (AMI) early in design
- Utilized shippable components tracking and planned receipt material laydown area with contractor to minimize material handling

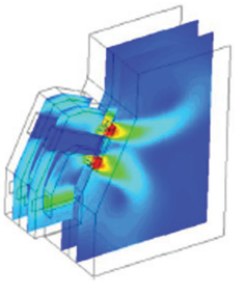
continued on back

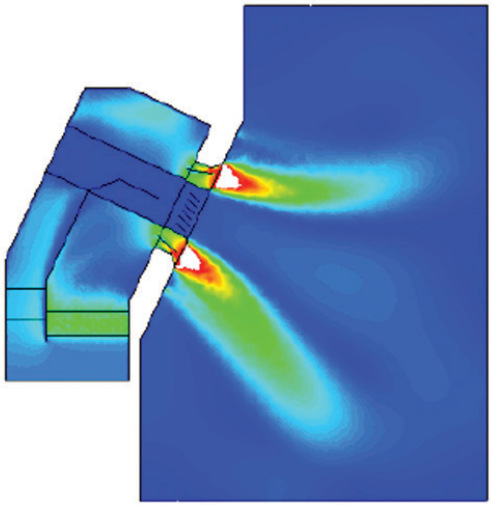
PROJECT PERFORMANCE RESULTS

	BASELINE	GUAR	POST
MW (gross)	244	-	247
Steam flow (kpph)	1647	-	1692
SH outlet steam temp	1005	-	1004
RH outlet steam temp	1002	-	1005
CEMS NOx (lb/MMBtu)	0.49	< 0.26	0.244
CEMS NOx (lb/MMBtu)	-	< 0.209	75
Flyash UBC (wt %)	0.25	-	0.19

CFD Results

Velocity Magnitude Contour @ Center of Nozzle





Contour of Velocity Magnitude @ Center Nozzle