SUCCESS STORY

## **Low NOx Burners and Coal Spreaders**

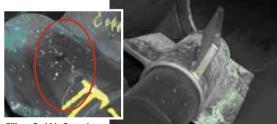
## Wisconsin Electric Power Valley Generating Station

#### PLANT SPECIFICATIONS

- Largest US cogeneration facility producing electricity and steam.
- Generates steam heat to almost 460 customers. in downtown Milwaukee.
- . Supplies 280 MW from two coal-fired units.
- · Utilizes Riley CCV Burner with axial swirl spreaders.
- Burner capacity 50-250 MMBtu/hr.
- 70% reduction in NOx emissions equivalent to 0.068kg/MMBtu.

#### THE RESULT

- Burner operating conditions: 426 °C.
- · Coal velocity: 30.48mps.
- Ash content: 9% comprised of 80% silicon dioxide and aluminum oxide.
- Stellite weld overlay: 38mm erosion after 22 months operation.
- Silicon carbide ceramic: 1.77mm erosion and significant cracking and spalling.
- Kennametal WC cladding 0.177" erosion.
- Kennametal increased service life to 48 months with low NOx emissions.
- Generation revenue gains = \$3.63 million/year.



Silicon Carbide Spreader

Protected with Kennametal Cladding

# **Dynegy Power Corporation Wood River Generating Station**

#### PLANT SPECIFICATIONS

- 650 MW boiler.
- . T-fired boiler with balanced draft.
- · Powder River Basin coal (low Btu high ash content).
- Burner velocities 24.3mps.

### THE RESULT

- Chrome carbide weld overlay increased service life to 8–9 months.
- Kennametal WC cladding increased service life to 48 months.
- Other materials tested using ASTM G73 test\* with 73mps particle velocity:
  - Stellite 6/31 weld overlay
- A532 casting
- Chromium carbide coating
- Silicon carbide ceramic tile
- Above materials showed material loss of 1.15g-2.36g.
- . Kennametal WC showed material loss of only 0.21g.
- \* Conducted by EPRI Electric Power Research Institute



Weld Overlay

Protected with Conforma Clad™ Cladding

Kennametal WC showed material loss of only 0.21g. Generation revenue gains = \$3.63 million/year.



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