

AG Processing CFB Boiler

Plant Case History

AG Processing Inc.

Hastings, Nebraska

Plant Owner

AG Processing Inc.

Location

Hastings, Nebraska

B&W PGG Scope

Coal-fired internal recirculation circulating fluidized-bed (IR-CFB) boiler from outlet of coal bunkers to outlet of tubular air heater including:

- FD fan and motor
- Tubular air heater
- Steam coil air heater
- Multi-cyclone dust collector
- Ash recycle/reinjection system
- Limestone injection system
- Coal feeding system
- Start-up burners
- Refractory lined lower furnace with erosion protection at the Reduced Diameter Zone (RDZ) transition
- Segmented U-beam primary particle collectors with water-cooled support system
- Bed drain screw coolers
- Bed drain solids conditioning equipment including a screener and crusher
- Sootblower boiler cleaning system by Diamond Power International, Inc. (DPII), a B&W PGG subsidiary

- Attenuator and spray water control station
- Flues and ducts
- Ammonia forwarding, control and injection system
- Instrumentation
- Technical advisory services during startup and commissioning

Boiler Specifications

- Boiler type: Internal recirculation CFB design
- Design fuel: Powder River Basin coal
- Startup fuel: Natural gas
- Steam flow: 311,000 lb/h (37.8 kg/s)
- Steam pressure: 150 psig (1034 kPa)
- Steam temperature: 440F (227C)

Environmental Equipment

- Selective non-catalytic reduction (SNCR) NO_x emissions control system

Contract Order

2006

Commercial Operation

2009

Project/Boiler Facts

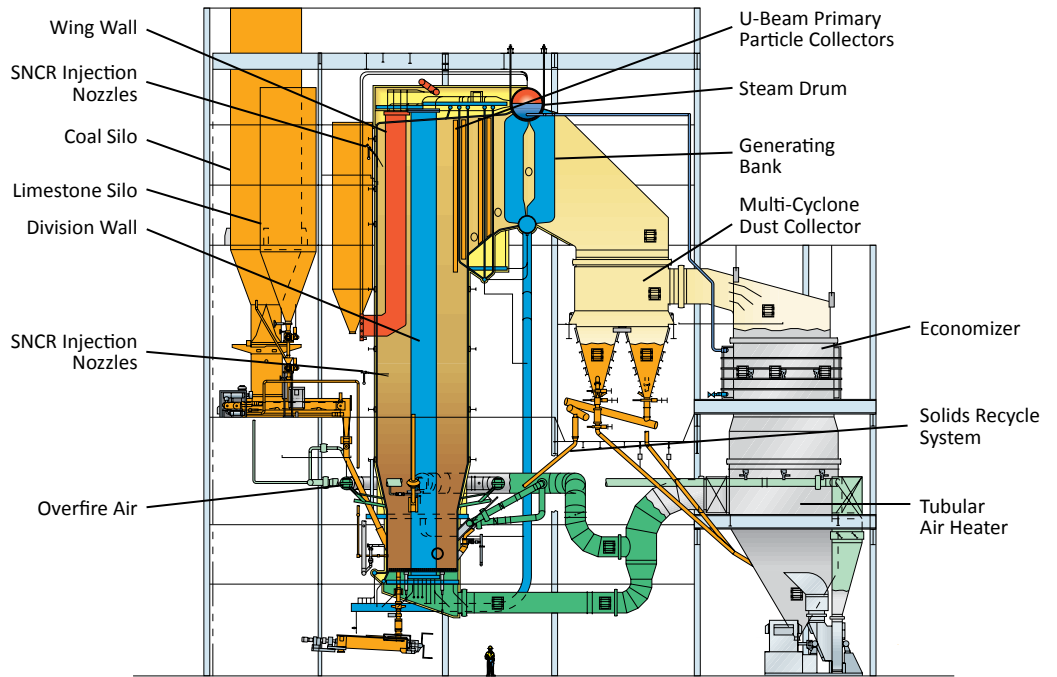
- Low pressure and temperature steam from the boiler is supplied primarily for soy bean processing.
- The addition of limestone to the circulating bed reduces SO₂ emissions from the boiler.
- Low furnace temperatures, staged combustion and SNCR system limit NO_x emissions.
- Unique two-stage solids collection system using U-beams and multi-cyclone dust collector (MDC) provides



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superior collection efficiency. The recycling of solids collected by the MDC improves combustion efficiency and limestone utilization.

- The U-beam and MDC solids collection system requires significantly less maintenance than hot cyclones.
- A patented RDZ design with silicon carbide tiles at the top edge of the furnace refractory is used to minimize tube erosion at the interface.



Sectional sideview of the AG Processing CFB boiler.

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proven results

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Babcock & Wilcox Power Generation Group, Inc.

20 S. Van Buren Avenue
Barberton, Ohio 44203 USA
Phone: 330.753.4511
Fax: 330.860.1886

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