AG Processing CFB Boiler

Plant Case History

AG Processing Inc.
Hastings, Nebraska

Plant Owner
AG Processing Inc.

Location
Hastings, Nebraska

B&W 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 subsidiary
- Attemperator 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

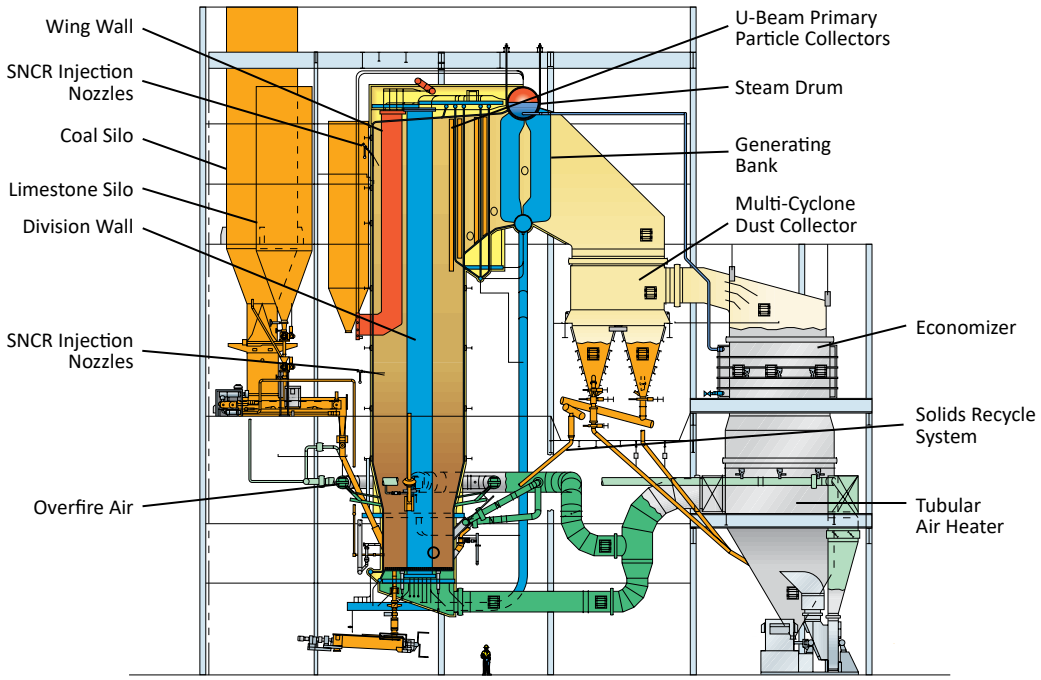
Contract Order
2006

Commercial Operation
2009

(Continued on reverse side)

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 SO_2 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 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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