An explosion during a maintenance outage on February 17, 1999, destroyed the original Hawthorn Unit 5 boiler. In August 1999, B&W was released to design, supply, erect and commission a complete replacement boiler on an accelerated schedule. The new boiler began generating electricity in June 2001, only 22 months from project commencement.

**Plant Owner**
Kansas City Power & Light

**Plant Name**
Hawthorn Unit 5

**Location**
Kansas City, Missouri

**Owner’s Consulting Engineer**
Burns & McDonnell

**B&W Scope**
- Complete boiler island from coal-conveying system to stack, including:
  - structural steel
  - dry FGD
  - fabric filter
  - ash systems
  - electrical, including motor control centers, switchgear, and wiring
  - auxiliary piping systems
  - critical piping to the turbines

Pollution control equipment on Hawthorn Unit 5 includes an SCR system for NOx reduction, dry FGD for SO2 control, and a pulse jet fabric filter for particulate control.

**Boiler Specifications**
- Type: Pulverized coal-fired radiant drum boiler (RB Carolina-Type)
- Design fuel: Low sulfur Powder River Basin coal
- Capacity: 550 MW net
- Steam flow: 4,000,000 lb/h (504 kg/s)
- Superheater outlet pressure: 2600 psig (17.9 MPa)
- SH/RH outlet temperature: 1005/1005 F (541/541 C)

The Hawthorn Unit 5 rebuild project achieved commercial operation in only 22 months.
Environmental Equipment
- DRB-4Z® low NOₓ burners and overfire air
- Selective catalytic reduction (SCR) NOₓ removal system
- Dry flue gas desulfurization (FGD) system
- Pulse jet fabric filter (PJFF)

Other Equipment Supplied by B&W
- B&W Roll Wheel® pulverizers, Series 89
- Diamond Power boiler cleaning system (sootblowers and waterwall blowers)

Contract Order
1999

Commercial Operation
2001

Project Facts
- Rebuilt unit’s capacity uprated from 476 MW to 550 MW
- PJFF was built on the foundation of one of the original electrostatic precipitators (ESP) and adapted the existing hoppers and support steel.
- Even with a compressed schedule and the constraints of rebuilding within an existing site, the project achieved every major milestone.

Sectional side and plan views of Hawthorn Unit 5.