

# Keephills Unit 3 Spray Dryer Absorber, Pulse Jet Fabric Filter and Mercury Control Systems

Project Case History

## Contract Order

2007

TransAlta and Capital Power

Wabamun, Alberta, Canada

## Commercial Operation

2011

## Overview

Babcock & Wilcox (B&W) spray dryer absorber (SDA) systems feature a combination of design components to provide a level of reliability and sulfur dioxide (SO<sub>2</sub>) removal efficiencies that are among the highest in the industry.

B&W is the exclusive North American licensee of GEA Process Engineering A/S, Denmark, for the GEA Niro SDA process. The GEA Niro SDA is globally recognized by the power generation industry as the dry scrubber technology of choice.

Features of the system include a unique flue gas dispersion system for optimal gas and reagent mixing, a low maintenance rotary atomizer with a slurry capacity that is among the highest in the industry, large SDA chambers, and a complete reagent recycle system. Benefits include high SO<sub>2</sub> removal efficiency, low capital cost, high system availability, and low operation and maintenance costs.

## Boiler/Plant Information

Unit 3: 495 MW

Boiler type: Hitachi supercritical pulverized coal with natural gas for startup

Design fuel: Western subbituminous



*Spray dryer absorbers and pulse jet fabric filter for Keephills Unit 3.*

## Project Summary

B&W's project scope includes an SDA system to limit SO<sub>2</sub> emissions, consisting of 2 x 50% SDA vessels and reagent preparation system (for lime and recycle ash), a pulse jet fabric filter (PJFF), and a sorbent injection system using powdered activated carbon (PAC) to limit mercury emissions.

- Eight compartment plenum style PJFF with integral bypass
- PPS/P84 filter bags
- Pulse air cleaning system
- Sorbent injection system for mercury control using PAC reagent

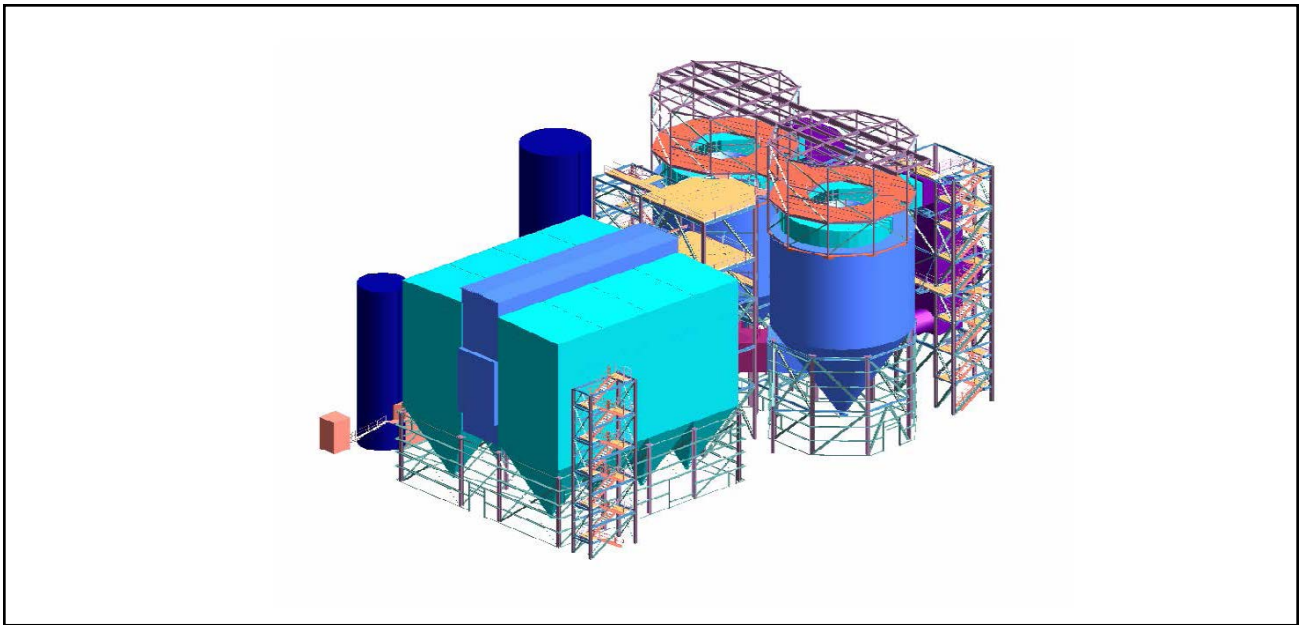
## Results

- Met all performance and reliability run guarantees
- Project was structured using a variable price/fixed price arrangement and was executed on budget and below the original price estimate

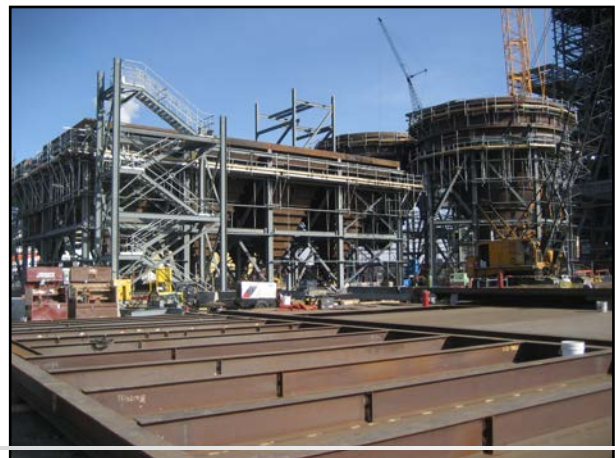
## B&W Scope

- Two SDA modules, size 10000 (16 meter)
- Two Niro F800 rotary atomizers
- SDA inlet and interconnecting flues
- Lime preparation system with paste slakers
- Recycle solids preparation system

*(Continued on reverse side)*



3D projection of Keephills Unit 3 SDAs and pulse jet fabric filter.



Environmental equipment construction at Keephills Unit 3.

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