

Controlling Fouling & Slagging in Coal Fired Utility Boilers: Technology and Experience

Chris R. Smyrniotis

Vice President, Technology & Marketing, Fuel Chemicals, Fuel Tech, Inc., 512 Kingsland Drive, Batavia, IL 60510 ph: 630-845-4461; fax: 630-845-4501; email: csmyrniotis@fueltechnv.com

KEYWORDS: CFD fluid dynamics modeling, Virtual Reality Visualization techniques, slag inhibition, Targeted In-Furnace Injection

ABSTRACT

Paper discusses a method to control fouling and slagging in a PRB coal fueled boiler that entails the injection of certain chemicals through special injection systems guided by both CFD fluid dynamics modeling and Virtual Reality Visualization techniques. Included is a description of the processes, methods of use, explanation of how the technology works and plant experience.

Data from use of the technology on operating boilers, including PRB burners, is also discussed and analyzed. Theory behind mechanisms of operation is covered. Graphics showing how the modeling and VR are derived is also included. A running sample of the Virtual Reality technology is displayed and discussed.

Submitted for consideration in the 2005 World of Coal Ash, April 11-15, 2005, Lexington, Kentucky, USA.