

Computational Fluid Dynamics Study on Water Soot Blower Direction in Tangentially Fired Pulverized-Coal Boiler

Authors : Teewin Plangsrinont, Wasawat Nakkiew

Abstract : In this study, computational fluid dynamics (CFD) was utilized to simulate and predict the path of water from water soot blower through an ambient flow field in 300-megawatt tangentially burned pulverized coal boiler that utilizes a water soot blower as a cleaning device. To predict the position of the impact of water on the opposite side of the water soot blower under identical conditions, the nozzle size and water flow rate were fixed in this investigation. The simulation findings demonstrated a high degree of accuracy in predicting the direction of water flow to the boiler's water wall tube, which was validated by comparison to experimental data. Results show maximum deviation value of the water jet trajectory is 10.2 percent.

Keywords : computational fluid dynamics, tangentially fired boiler, thermal power plant, water soot blower

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020