Badger Meter Europa

Application brief

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Flow measurement in coal power plant emission scrubbing

When coal is burned, it emits gases, such as sulfur oxide, carbon dioxide, nitrogen oxide, and as well as other gases and particulates. These emissions, if untreated, can cause negative effects on the environment by polluting water and air. For coal-burning power plants, it is critical to remove harmful gases and particulates from coal-burning emissions. Not only is this important from an environmental responsibility standpoint, but also for complying with federal and state clean air regulations.

A common method for removing or neutralizing harmful emissions from burning coal is known as “scrubbing” - illustrated below. Scrubbing is a process that uses a wet limestone slurry to filter and neutralize gas emissions. The limestone slurry is sprayed through nozzles into the scrubber system as coal emissions pass through the exhaust stream before being released into the atmosphere as clean gas. Byproducts of this type of scrubber system include fly ash and gypsum, both of which are extracted from the coal emissions and remarketed for other uses, such as the manufacturing of wallboard and as a soil amendment in agriculture.

As with any process, you cannot manage what you cannot measure. Because the limestone slurry used in scrubbing, as well as the fly ash and gypsum byproduct slurries are naturally abrasive, measuring the circulation of these slurries can be challenging for many types of flow metering technologies.