

BIOCHEM show case

Coal-fired power plants needed a cost-effective, low-maintenance solution capable of consistently producing treated water within the limitations imposed by the regulator

Problem

Many coal-fired power plants employ flue-gas desulfurization (FGD) using dedicated scrubbing systems to remove contaminants such as sulphur dioxide from boiler exhaust gases generated from burning coal. This method reduces air pollutant emissions but requires the removal of selenium and other metals from the wastewater. Currently this is achieved by constructing wetlands however this uses large amounts of land and is not particularly effective.

Technical solution

GE developed ABMet®(Advanced Biological Metals Removal Process) which, after removing gross solids, removes selenium, arsenic and mercury to acceptable concentrations. The technology can be applied to lowering harmful levels of nitrate, selenium and other heavy metals found in wastewater streams from power plants, mines, and agricultural sites. The simple, low-energy systems uses beds of granular activated carbon, inoculated with selected strains of naturally occurring, non-toxic and non-pathogenic microorganisms, to produce treated water that exceeds the world's most stringent regulatory standards for selenium removal.

Benefits

- **Reduces the concentration of selenium in coal power plant flue gas desulfurization blow-down by up to 1000-fold**

- Treated water contains even less selenium than allowed under some of the worlds toughest drinking water standards
- Only stand-alone technology that can consistently reduce selenium concentrations in water to below 10 parts per billion

Compared to nanofiltration systems:

- Requires 79% less energy to operate
- Saves enough energy to power 21 homes

Compared to ferrous-iron systems:

- Requires fewer chemicals
- Saving more than 77% in chemical costs per year

Compared to wetlands treatment systems:

- Uses 90% less land area
- Reduces the amount of water-borne selenium discharged into the environment

Additional information

GE Power & Water

Website

http://www.gewater.com/products/equipment/other_equipment/ABMet.jsp