

ABMet[®] Technology

ABMet[®] (Advanced Biological Metals Removal Process) is a simple, cost-effective technology to protect the environment from excess levels of nitrate, selenium and other heavy metals found in wastewater streams from power plants, mines, and agricultural sites.

The Environmental Challenge

Many coal-fired power plants employ flue-gas desulfurization (FGD) using dedicated scrubbing systems to remove contaminants from boiler exhaust gases. Such contaminants, including sulfur dioxide are generated by the combustion of coal. Although the FGD process provides a solution that reduces air pollutant emissions, it also produces the challenge of removing selenium and other metals from the FGD wastewater. For many plants striving to meet government-imposed selenium discharge limits the main option for treatment was constructed wetlands. These constructed wetlands provided marginal results and used more than 65 acres of much-needed land.

GE's innovative solution

Coal-fired power plants needed a cost-effective, low-maintenance solution capable of consistently producing treated water within the limitations imposed by the regulator. The solution is the GE supplied ABMet[®] treatment facility, which is capable of meeting and even surpassing water quality objectives. After flowing through settling ponds to remove gross solids, the discharge from the scrubbers is treated by the ABMet[®] system to bring selenium, arsenic and mercury to discharge conforming concentrations. The ABMet[®] solution provides confidence in the quality of the produced water, a much smaller footprint, and does not create a potentially dangerous habitat as constructed wetlands can.

ABMet[®] is the simplest and most cost-effective technology available to protect the environment from harmful levels of nitrate, selenium and other heavy metals found in wastewater streams from power plants, mines, and agricultural sites. This simple, low-energy system 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.

Environmental Impact

The ABMet[®] system provides unprecedented effluent water quality for a solution of its size, simplicity and cost-effectiveness. ABMet[®] systems reduce the concentration of selenium in coal power plant flue gas desulfurization blow-down by up to 1000-fold versus untreated water. Water treated by ABMet[®] systems contain even less selenium than allowed under some of the worlds toughest drinking water standards. ABMet[®] is the only stand-alone technology that can consistently reduce selenium concentrations in water to below 10 parts per billion.

Cutting costs

ABMet[®] is simpler and more cost-effective than other technologies: Compared to nanofiltration systems, a typical ABMet[®] system requires 79 percent less energy to operate, saving more than \$24,000 in electricity costs per year or enough energy to power 21 homes. Compared to ferrous-iron systems, a typical ABMet[®] system requires far fewer chemicals, saving more than 77 percent or more than \$225,000 in chemical costs per year. Compared to wetlands treatment systems, an ABMet[®] uses 90 percent less land area and reduces the amount of water-borne selenium discharged into the environment.



imagination at work