Biological Wastewater Treatment System

GE announced that American Electric Power (AEP) is installing GE's ABMET® wastewater bioreactor system at the utility's Mountaineer coal-fueled power plant in New Haven, W.Va. GE's proprietary biological treatment system uses a special molasses-based product as a nutrient for microbes that reduce selenium, a constituent found in many coal-fired power plant water emissions.

GE's ABMet technology utilizes special strains of common, non-pathogenic microbes that facilitate the conversion of soluble selenium into elemental selenium, which is removed from the system during periodic backwashing. The microbes, which are fed the molasses-based nutrient, are seeded in a bed of activated carbon that acts as a growth medium for the microbes to create a biofilm. Selenium-laden wastewater passes through this bioreactor and a reduction reaction occurs. Other than the addition of the nutrient, the system will be self-sustaining once it is established.

Selenium is an element found in coal that is not consumed in the combustion process and typically can be found in several of a plant's post-combustion waste streams.

AEP is installing GE's system to allow its 1,300-megawatt Mountaineer generating station to comply with a new discharge limit for selenium. Construction of AEP's treatment facility began in July 2010. The system is scheduled to become operational by the end of 2011.

AEP is the third U.S. utility to deploy GE's pioneering wastewater treatment process. The installation is GE's fifth in the coal-fired power industry and 10th overall. While GE's process also is capable of removing other constituents such as nitrate and a variety of metals, AEP's focus at Mountaineer is selenium reduction.

"AEP's deployment of our ABMet technology underscores the importance of partnerships between coal plant operators and service providers to develop and commercialize the latest cleaner energy and water technologies," said Jeff Connelly, vice president, engineered systems—water and process technologies for GE Power & Water. "If coal is going to continue serving as a major energy source, it is essential for the industry to support the deployment of new technologies that can help to dramatically reduce its environmental footprint."

The team of GE, Indianapolis-based Bowen Engineering, HDR Engineering of Omaha, Neb., and River Consulting of Columbus, Ohio, is supporting AEP's project team under a single agreement.

The U.S. Environmental Protection Agency first established a national water quality standard for selenium in 1987. In 2011, the agency is expected to propose a revised limit based on current selenium levels in fish and also is developing revised effluent limitation guidelines for the steam-electric power industry that are expected to be released in draft form in 2012.

For more information, please visit www.ge.com *[1].*

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