

Industry Sector

Division Industry Solutions

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Siemens Water Technologies to Supply System for Treating Flue Gas Desulfurization Scrubber Wastewater at Keystone Power Station

Reliant Energy has selected Siemens Water Technologies to provide a system to treat wastewater from a Flue Gas Desulfurization (FGD) scrubber being constructed at the Keystone Generating Station. Keystone is jointly owned by seven electric companies, including Reliant Energy, which also maintains and operates the station on behalf of all owners. The wastewater treatment system will de-saturate the wastewater and remove suspended solids and heavy metals from the scrubber waste stream so the water can be safely discharged. The project is scheduled to begin operation in 2009.

Scrubbers are used in U.S. power plants to meet emissions standards set by the U.S. Environmental Protection Agency (EPA). Flue gas systems frequently use limestone-forced-oxidation (LSFO) scrubbers to convert SO₂ in the flue gas to gypsum, which can be sold for wallboard manufacturing, cement additive, or agricultural applications, thus turning a waste stream into a usable resource.

The proper design of wastewater treatment systems and the selection of materials of construction are critical. Both of these key items can have a major impact on the treatment plant's operation and reliability. Siemens Water Technologies will provide the new physical/chemical wastewater treatment system on an equipment design-supply

basis, and provide start-up, training and commissioning services. Reliant Energy will contract with a construction contractor to install the equipment.

The wastewater system will include storage tanks, reaction tanks, chemical feed systems, a clarifier, gravity sand filters, and belt filter presses. An equalization tank receives the waste stream and equalizes the flow to eliminate spikes in flow rates and concentration. Next, two reaction tanks in series continue the treatment process to de-saturate the wastewater, reduce heavy metals, and prepare the wastewater for clarification. The treated wastewater then enters the clarifier process, where suspended solids are coagulated and settled. Solids from the clarifier are dewatered in the filter presses. The remaining treated water from the clarifier is sent to a gravity sand filter for final treatment before discharge. The system flow rate is 450 gallons per minute (gpm) (102 m³/h).

The Keystone Generating Station consists of two coal-fired, steam-electric generation units with a generating capacity of 1700 megawatts. The plant is located about 40 miles northwest of Johnstown, Pennsylvania, in Plumcreek Township, Armstrong and Indiana counties.

Reliant Energy, Inc., based in Houston, Texas, provides electricity and energy services to retail and wholesale customers in the U.S. It is one of the largest independent power producers in the nation, with approximately 16,000 megawatts of power generation capacity.

Further information at: <http://www.siemens.com/water>

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