



Project Contact:
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Project Value:
\$1.4 Million

SHF Process Water Basin Project West Paducah, KY

Overview

Power plants across the U.S. are under government regulatory deadlines to address their waste streams associated with CCR (Coal Combustion Residue). CCR typically includes several forms of ash, generated from combustion and air cleaning processes for the generation of electricity. Beginning in 2020, strict deadlines must be met or hefty fines will be assessed. Most medium to large contractors in the country are working on, or have CCR projects in their backlog. MERSINO is currently working with one of the country's largest contractors, Kiewit Constructors, headquartered in Omaha, Nebraska.

Kiewit Power Constructors of Lenexa, Kansas was contracted by TVA (Tennessee Valley Authority, a large government-owned power utility), to install two 8-acre Process Water Basins (PWB). MERSINO is working with Kiewit and TVA to install a groundwater control system with the primary aim at preventing movement of an elaborate liner system, supporting the PWB's contents in Paducah, Kentucky.

The Process Water Basins allow the utility provider to separate water from ash as part of their waste management system. This capability is vitally important because the ash is a vital by-product for the cement industry and the water can be treated and reused. The ash by-product is known as Class C Flyash, which is sold to Portland cement suppliers who add the ash as part of their design mixtures for concrete sales. Historically, water and ash were mixed and stored in large impoundments with concerns for heavy metal contamination of groundwater. Naturally occurring coal contains very small amounts of over a dozen heavy metals, proven to be a hazard to human health and the environment. The new PWBs are, therefore, vital to protecting our air, land and water resources.

Methodology

In addition to the groundwater control system, MERSINO installed a groundwater monitoring system comprised of vibrating-wire piezometer wells that are wired to MERSINO solar-powered messenger stations. The client will be able to monitor groundwater elevations several times per day, with the ability to turn the groundwater control system on and off as needed.

Additionally, MERSINO is constructing a series of separate geotechnical wells and installing sensitive inclinometers surrounded by grout. The grout is very low strength and formulated to emulate existing soil conditions. The inclinometers serve several purposes, including the monitoring of ground deformation over time. A series of inclinometer wells surrounding the top of the basins allow TVA to prove the viability of the impoundments; separate geotechnical wells at the basin floor measure ground deformation to prove the performance of the basin liner materials.

MERSINO installed shallow conduit and wiring between the wells, across the basin floors and side slopes to connect the network of geotechnical instruments. MERSINO also installed lateral pea stone collection trenches across the basin floors with our Inter-Drain 6050 and 8080 trenchers. The trenches include HDPE slotted sock-sleeved pipe near the trench floor. Vertical wells (piezometers and geotechnical) were also installed with a rubber-tired CME drill rig. This project included several mobilizations to accommodate the Kiewit Construction schedule. The project began after Labor Day and was completed before Thanksgiving.





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