xylem
Let's Solve Water

Case Study
Coal Ash Remediation • Monitoring & Controls

A temporary pre-treatment solution for a remote coal basin

MEETING NEW DISCHARGE LIMITS WHILE CONTROLLING COSTS

Challenge

When state regulators issued new discharge permits for a major power utility's ash basin, the remote location and its lack of permanent power made it extremely challenging to comply. The utility needed a system that could remove water from an ash basin where precipitation continued to enter, as well as meet the new water quality requirements for TSS and PH. A dewatering system that offered pre-treatment was needed to maintain water quality until a full-scale water treatment facility was required. This system had to be able to monitor several variables such as pond level, TSS, and PH limits, and daily discharge limits. In addition, the entire system had to be fully automated and monitored continuously during operation with data recorded automatically and retained for record keeping requirements.

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Solution

To provide complete control of the system, Xylem built a custom control panel with an HMI (human-machine interface). To eliminate the need for a generator, a solar powered skid was added with three chemical injection pumps to provide pretreatment when needed. The addition of automated valves to the system eliminated the need for an operator except for daily starting and stopping of the system. If water quality limits were approached, the system would begin dosing the needed chemical to adjust the water quality. If the limit continued to climb, the system would send out an alarm, actuate the valves, and go into recirculation mode back to the raw water source until water quality improved. Once levels returned to normal the system would switch valve positions and start discharging again. MJK Flowmeters on both sides of the valves provided verification that valves changed position,

Godwin diesel powered pump used to remove ash pond water from clear pond and pump to outfall with Xylem pre-treatment control system ensuring water being discharged meets site permit limits.

Xylem custom control panel with solar array and chemical injection pumps at remote ash pond site.

PRODUCT LIST:

- Godwin CD Series Automatic Self-Priming Pumps
- MJK Flowmeters
- YSI IQ SensorNet Sensors for TSS and PH
- Godwin Custom Control Panel with solar panels
- Level transducers
- Chemical injection pumps
- Automated valves
- Static mixers

while YSI TSS and PH probes ensured water quality of the effluent. For greater peace of mind, the Godwin custom control panel also provided remote viewing of the system's run status, as well as the required data recording and storage this project demanded.

Result

Xylem's dewatering and pretreatment solution allowed our customer to meet their regulatory permit requirements while controlling labor and fuel costs – eliminating the need for a complicated, expensive water treatment system for several years. Remote system status and

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data recording and storage provided peace of mind for the power utility. The custom control panel with solar skid reduced the need for any operators onsite to monitor multiple variables. And because all of these products were manufactured and rented by Xylem, our cross-product engineering support ensured seamless integration and reliable performance.

Chemical injection points, flowmeters and automated valves along the Xylem pre-treatment system to operate without the need for an operator.