

Award winning mine pond closure design demonstrates WSP's innovation and saves client millions

Central Florida, US

Client: Confidential Client

Date: 2004 - present

WSP Contact

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Overview

100 years of operation at a 1,000-acre site in Central Florida's phosphate mining region came to an end, leaving behind production facilities, mining pits, and more than 400 acres of process and holding ponds containing phosphatic clay slimes and processing solids. WSP Environment & Energy worked in cooperative efforts with the owner, the Florida Department of Environmental Protection (FDEP), and the U.S. Environmental Protection Agency (EPA) Region IV to investigate and remediate environmental conditions at the site.

Our client's challenge

Record rainfall for the region had the potential to create unsafe water levels at the contaminated ponds in the short term. Additionally, geotechnical challenges of capping soft sediments called for an innovative solution to long term closure.

Our approach/services

WSP implemented a surface water management solution which incorporated the blending of treated effluent from the process ponds with the surface water pumped from the unaffected holding ponds, resulting in lowering the ponds to safe levels while enabling the facility to reduce treatment costs and meet FEDP's discharge limits.

WSP was retained to continue to provide surface water management during site investigation and an interim action to close one of the process ponds. We

completed a comprehensive site investigation under an Amended Consent Order negotiated with the U.S. EPA Region IV and the FDEP. As part of the site investigation, an innovative sediment analyses was conducted to characterize leaching potential and categorize pond sediments as process solids, process-enriched sediments, or naturally occurring sediments. An evaluation of the relationship between sediment quality, surface water quality, and groundwater quality was completed.

WSP's expertise in the deployment of geotextiles to reinforce soft sediments enabled capping one of the process ponds as an interim action. High-strength woven geotextile was deployed over 55-acres of semi-solid, low shear strength process sediments in four large panel segments, the largest known deployment of its type.

Outcome

The innovative design was awarded the *Outstanding Achievement Award by the Industrial Fabrics Association International*, and resulted in cost savings by allowing completion of capping operations using conventional earthmoving equipment. WSP's design resulted in construction bids received at up to \$3 million less than the government agencies' cost estimate.

In 2007, the site entered the Superfund program. WSP is now working with the client to characterize mining-related and mineral processing impacts, including radionuclide activity concentrations. WSP is providing technical solutions for demonstrating that radionuclides are not migrating from the site. A Record of Decision is scheduled for 2012, and WSP is working with the client to identify cost-effective containment and consolidation approaches for remediation of the various affected media.