

“The M-I SWACO customized treatment solution converted this significant liability into a sizeable profit.”

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The Situation

An open pit of 300,000 bbl of viscous sludge needed to be treated and then disposed. A compromised geomembrane liner in the pit had allowed hydrocarbons to leach into the soil, and the company was facing internal and external pressure to find a solution to the problem.

The sludge was made up of complex oil and water emulsions chemically bound by metal-carboxylate soaps and included various mixtures of stabilizing fine sand, scale and wax. Previous contractors had failed to treat the sludge using standard separation systems based on centrifuges and chemical demulsification. The result of the failed efforts was an even greater environmental liability.

The Solution

Production waste management specialists at M-I SWACO*, in conjunction with demulsification specialists from M-I PRODUCTION CHEMICALS*, designed a mechanical treatment system and a specific program of chemical surfactants and strong demulsifiers that was able to break the sludge into its constituent components of oil, water and solid particles.

The first step of the process screened raw sludge to remove large debris, then applied heat before homogenizing it for chemical injection. Continuous, careful analysis ensured the dosing rate was controlled for each sludge batch.

Once the sludge was processed, it was allowed to settle so the clean bulk phases of oil, water and solids could be removed. Centrifuges were used to resolve the residual oil/water/fine-solids interfaces, producing clean outlet phases that met the client's process quality specifications.



The Problem

A major operator in Indonesia owned a terminal sludge pit containing more than 300,000 bbl of viscous oily sludge from offshore platforms that required treatment and disposal. It was hoped that some oil might be recovered to cover a portion of the cleanup cost.

The Situation

Previous failed attempts to clean oily sludge generated at the terminal resulted in an even greater environmental liability than originally caused by the sludge alone. Unrecovered oil within the pit represented significant lost revenue for the operator.

The Solution

M-I SWACO production and management specialists sampled and analyzed the sludge, then designed a mechanical system to work with specific surfactants and demulsifiers to clean the sludge. Oil recovery produced enough revenue to generate a substantial profit after paying for the treatment process.



Customer-focused, solutions-driven

The Results

The M-I SWACO solution not only paid for itself, but generated more than \$500,000 profit. The system treated the sludge sufficiently to produce clean crude oil for export, water that was sent for disposal via the operator's waste-treatment plant, and solids that were disposed of through onsite bioremediation.

M-I SWACO manages and monitors every component of the contract at the highest level of QHSE standards, meeting all of the client's specifications as well as national legislation requirements.

Summary

This unique solution allows the operator to continuously process sludge while resolving environmental liability concerns and generating a significant profit.

The Results

Sludge is no longer an environmental concern. The M-I SWACO solution converted sludge to profit for the operator.

- This unique treatment process handled up to 2,000 bbl of sludge daily
- The cleaning process returned water with an oil content of less than 1,000 ppm, which was within the specification at the inlet of the onsite water-treatment plant
- The solids resulting from the cleaning process were <5% TPH, allowing bioremediation and eliminating the need for hazardous waste disposal
- In the course of the project, the cleanup process recovered over 50,000 bbl of oil, which not only covered the entire cost of the project, but generated more than \$500,000 in profit for the operator

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