

Salt Mantis Does the Job

The remote water lance known as the Salt Mantis, used to demonstrate its ability to break up hardened waste at the bottom of single-shell tank S-112, is nearly finished with its work. The Salt Mantis performed beyond even the most optimistic expectations. In fact, it performed so well that portions of the tank bottom are already visible for the first time since the tank was put into service in 1952.

"This has been an exciting project to work on and the Salt Mantis has more than demonstrated its capabilities and worth," said Rick Raymond, Senior Director of S-Farm Closure Project Operations.

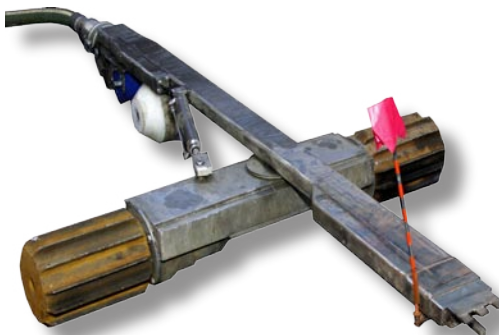
Liquids and most of the saltcake in S-112, located in the 200 West Area, were removed last year. But a hardened layer of waste on the tank bottom would not yield to available retrieval technologies. To resolve this problem, CH2M HILL worked with the Office of River Protection and the Washington State Departments of Ecology and Health to establish a demonstration project to test this new technology. A small Lakewood, Colorado firm experienced in operating high-pressure cleaning devices in radioactive environments had a technology with great potential. TMR Associates developed the Salt Mantis, which shoots a stream of water at up to 35,000 pounds per square inch with a flow rate of just 6 gallons per minute. By comparison, a fire hose shoots water at about 125 pounds per square inch at a flow rate of 150-250 gallons per minute.

"From the beginning of this demonstration project, the Salt Mantis performed flawlessly and accomplished far more than we could have anticipated," said Raymond. Raymond said at the beginning of the project they expected the Salt Mantis to break up about 15-20 percent of the 30,000 gallons of hardened material. Instead, it not only broke it all up, but it is now helping to mobilize it so it can be pumped from the tank.

The outstanding performance of the equipment is only part of the story. Raymond said this effort required outstanding teamwork between CH2M HILL and TMR employees who worked side-by-side in the field and in the control room on a daily basis. The Salt Mantis was inserted in S-112 on November 17. By January 4, it had completed phase I of the demonstration and was still going strong, leading the team to continue on to phase II to demonstrate the ability to mobilize the waste.

This cooperation and coordination did not go unnoticed by DOE Facility Representative Courtney Blanchard, who wrote in a recent report: "Both management teams have fostered a teaming atmosphere by not segregating successes but showing all employees how they contributed in the success of S-112 retrieval."

Raymond said the success of this project has given everyone involved confidence in the ability of the Salt Mantis to help us meet similar challenges that we expect to face in other single shell tanks as we continue our retrieval program.



After extensive training and rehearsal, tank farm workers inserted the Salt Mantis into single-shell tank S-112 on November 17. The Salt Mantis is being tested to determine its ability to break up and mobilize the hardened waste material at the bottom of the tank.

