

Project will demonstrate solid waste dissolution in tank

The Office of River Protection and tank-farm contractor CH2M HILL Hanford Group have begun a proof-of-concept demonstration of a technology to dissolve deposits of solid radioactive waste in Hanford underground tanks.

The demonstration project is being conducted in Tank U-107, a single-shell tank that had originally contained more than 410,000 gallons of waste, approximately 320,000 of which are in a non-liquid form. About 90,000 gallons of liquid waste have been pumped from the tank since the fall of 2001. Now, CH2M HILL will demonstrate a method for removing the remaining solid waste.

“This demonstration project is an important step in our efforts to develop technologies and processes that will allow us to accelerate waste retrieval to get the waste out of the tanks, as we partner with our regulators to determine how to close Hanford tanks,” said Delmar Noyes, director of ORP’s Tank Farms Programs and Projects.

Waste in Hanford’s 177 underground tanks is in three forms — liquid, saltcake and sludge. ORP’s highest priority is removing the liquid waste from the aging single-shell tanks to prevent further leaks. CH2M HILL has already removed more than 2.7 million gallons of liquid waste and is continuing an aggressive program to transfer about 390,000 gallons of liquid remaining to newer, safer double-shell tanks by October 2004.

The solid waste is also radioactive, and ORP is working with its contractors to develop technologies for its removal. Saltcake, which is the subject of the U-107 demonstration, has the consistency of wet beach sand. The technology being tested involves dissolving the saltcake with gentle sprays of water and pumping it out of the tank until the demonstration is completed. CH2M HILL plans to remove approximately 100,000 gallons of waste in this proof-of-concept demonstration.

When the original equipment was installed in 2001, crews installed sprinkler assemblies in addition to a pumping system. The demonstration project will give tank-farm engineers and DOE managers additional information in several areas.

“In addition to achieving additional risk reduction by removing long-term constituents of concern during pumping operations, this activity will provide input as we move forward to other single-shell tank-waste retrieval projects,” explained Joel Eacker, CH2M HILL’s vice president of Projects.

The Tri-Party agreement calls for retrieving waste from, and closing, seven Hanford single-shell tanks by 2011. The saltcake dissolution technology is one of the methods being considered for retrieving the waste before the tanks are closed. ■



About 100,000 gallons of solid waste, or saltcake, will be dissolved by using gentle sprays of water from a sprinkler assembly. Once in solution, the material will be pumped from single-shell Tank U-107. This task is part of a larger effort to deploy simple, proven methods of retrieving Hanford tank waste.