



U.S. DEPARTMENT OF **ENERGY**

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FOR IMMEDIATE RELEASE:

October 22, 2012

HANFORD DETERMINES DOUBLE-SHELL TANK LEAKED WASTE FROM INNER TANK

Testing found no indication of leaks outside the outer tank

RICHLAND -- The Department of Energy's Office of River Protection (ORP), working with its Hanford tank operations contractor Washington River Protection Solutions, has determined that there is a slow leak of chemical and radioactive waste into the annulus space in Tank AY-102, the approximately 30-inch area between the inner primary tank and the outer tank that serves as the secondary containment for these types of tanks. This is the first time a double-shell tank (DST) leak from the primary tank into the annulus has been identified. There is no indication of waste in the leak detection pit outside the DST, which means that no waste has leaked out of the annulus and into the environment.

Since the material in the annulus was discovered in August, ORP has conducted a video surveillance of more than 95% of the walls and floor of the annulus through 10 risers, or pipes, that extend from within the interior of the tank annulus up through the tank dome to ground level. The surveillance video revealed material in two locations near Riser 90 and one location near Riser 83. In addition to the video surveillance, DOE has taken samples from all locations and performed sample analysis.

Through the sample analysis, DOE has confirmed that one of the areas of material located near Riser 90 is a 2 foot by 2 foot by 8 inch mound of soil, and is not waste. The Department suspects the soil fell into the annulus during construction repairs to the ventilation system. The additional analyses have also allowed DOE to confirm that the material in the remaining two locations in the tank's annulus is waste. The waste is primarily crystalline in form and does not include any pumpable liquid.

ORP is continuing to conduct regular visual inspections of the tank. Based on the most recent inspections located near Riser 83, there is indication that the inner tank is slowly leaking.

"We will continue to perform visual inspections twice a week of the material inside the annulus, using cameras. In addition, liquid levels inside the primary tank and annulus will continue to be monitored. Liquid level monitors, although they cannot detect small changes like those that have

occurred in Tank AY-102, would record any significant changes in the liquid levels of the tank,” said Tom Fletcher, Assistant Manager for the Tank Farms Project. “We are working collaboratively with Washington State Department of Ecology to determine the most effective path forward for AY-102 and ensure that we are effectively protecting the public and the environment.”

The material was discovered in the tank annulus space during a regularly scheduled DST Integrity Inspection. The area of the annulus floor is approximately 600 square feet. DOE estimates that the waste near Riser 83 covers an area of about three square feet that is less than ½ inch thick. The waste located near Riser 90 covers an estimated 40 square feet and is less than ¼ inch thick.

The underground DSTs include built-in secondary containment, with the outer shell surrounded by steel-reinforced concrete. There is no indication of waste in the leak detection pit outside the DST, which means that no waste has leaked out of the annulus and into the environment.

Since the discovery of material, ORP has kept the Washington State Department of Ecology and other Hanford stakeholders updated on the status of tank AY-102.

Remote-controlled sampling devices were modified and deployed into the annulus to take several samples of the material. ORP completed analysis of the samples and the results were reviewed by a panel of experts and senior managers who made the determination that the inner shell of tank AY-102 had leaked.

There have been no indications of abnormal events or leaks detected in any of the other double-shell tanks through routine monitoring. ORP monitors liquid level indicators within the primary tank and the annulus of the DSTs and continuously monitors for airborne contamination within the annulus. In addition, DST Integrity Program inspections that already occur will be accelerated and expanded to perform visual inspections on six other tanks that have similar construction as well as operating and process histories. These tanks are located in the AY, AZ, and SY tank farms.

Tank AY-102 was the first double-shell tank constructed at Hanford and has been in operation for more than 40 years. It contains about 850,000 gallons of sludge and liquid waste from the past production of plutonium for the nation’s nuclear arsenal.

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