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DOE releases results of structural integrity analysis of PUREX tunnels

RICHLAND, Wash. – Today, the U.S. Department of Energy (DOE) provided engineering reports on the waste tunnels (Tunnels 1 and 2) associated with the Plutonium Uranium Extraction Plant (PUREX) at the Hanford Site. The reports conclude that PUREX Tunnels 1 and 2 do not meet current structural codes and standards.

DOE and its contractor, CH2M HILL Plateau Remediation Company (CH2M), will be preparing a draft report detailing corrective actions to ensure the safe storage of the waste to be submitted to the Washington State Department of Ecology (Ecology) for review and approval.

“We will work closely with Ecology to determine how best to stabilize Tunnel 2 and ensure the safe storage of the waste until it can be remediated,” said Doug Shoop, Manager, DOE Richland Operations Office.

The reports were submitted to Ecology today as a corrective action in response an administrative order issued on May 10. Ecology issued the order after the May 9 discovery of a partial collapse at PUREX Tunnel 1.

Potential factors contributing to the collapse are speculated to include heavy rainfall on May 4 and 5, deterioration of tunnel wood timber structural support members due to aging and prolonged environmental exposure.

DOE notified Ecology on May 31 that Tunnel 1 will be filled with engineered grout. This will stabilize the tunnel; reduce risk to workers and the environment; and enable future remediation of the equipment and materials in the tunnel. This approach was selected after analyzing stabilization alternatives and aligns with contingency plans to manage emergency situations under the Hanford Site Wide Dangerous Waste Permit; furthermore, DOE will communicate and consult with the Washington State Department of Ecology during the planning and implementation of these actions.

According to the report for Tunnel 2, a review of tunnel's 1960s design showed that it does not meet current codes for structural integrity, and that it may not be able to bear the weight of the soil above the tunnel. The report finds that Tunnel 2 is identified as presenting a high potential for localized collapse.

Tunnel 2 was built of metal and concrete in 1964 and is approximately 1,700 feet long with 28 rail cars stored inside. The waste on these rail cars is similar to the waste in Tunnel 1, including equipment from Hanford's plutonium processing facilities and other plutonium processing waste. The waste includes both radioactive elements and chemicals such as lead, cadmium, and barium.

"We are evaluating options for using a remote capability to get a look at the general condition of the inside of the tunnel as well as to take radiological readings," Shoop said. "We have increased our monitoring of the tunnels, including daily walk-downs and cameras that overlook both tunnels."

The administrative order from Ecology also directed DOE to deliver by August 1 a draft report detailing corrective actions for Ecology review and approval to ensure safe storage of the waste in both tunnels. As part of the preparation of that draft report, DOE intends to reach out to area stakeholders to contribute to the decision-making process.

"I appreciate the talented and committed workers dedicated to addressing the concerns and contributing to solutions at the PUREX tunnels," Shoop said.

Copies of the reports are available on the Department's website at www.hanford.gov.

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The Department of Energy's (DOE) Richland Operations Office is responsible for the federal government's cleanup of the legacy of more than 40 years of plutonium production at the Hanford Site near Richland, Wash. Except for a tank waste mission managed by the DOE Office of River Protection, the DOE Richland Operations Office is responsible for all remaining Hanford cleanup and is currently focused on cleaning out and demolishing the high-hazard Plutonium Finishing Plant, excavating and disposing of contaminated soil and waste, treating contaminated groundwater, moving radioactive sludge out of the K West Basin and away from the Columbia River, and configuring Hanford Site infrastructure for the future. The office oversees Hanford Site work that is conducted by a federal and contractor workforce of approximately 4,000 personnel. Visit www.hanford.gov.