Groundwater Protection Program accelerated cleanup

The past year was a turning point for the Hanford Groundwater Protection Program. In partnership with the U.S. Environmental Protection Agency and the Washington State Department of Ecology, the Department of Energy and its contractors initiated a comprehensive groundwater remediation and monitoring program.

"We're finally getting our arms around this complex, critical cleanup program," said John Morse, manager of the Groundwater Protection Program for the Department of Energy Richland Operations Office. "We're continuing the activities we know protect the groundwater — like fixing broken water lines and capping contaminated areas — but also aggressively cleaning up the highest-risk waste sites and developing a timely, effective and comprehensive program."

"Our overarching mission is to clean up groundwater contaminants, avoid future groundwater contamination and prevent groundwater contaminants from migrating to the Columbia River," said Dick Wilde, Fluor Hanford's Groundwater Protection Program manager. The Groundwater Protection Program, managed by Fluor Hanford's Central Plateau Remediation Project, incorporates and builds upon capabilities of the former Groundwater/Vadose Zone Integration Project, which was managed by Bechtel Hanford.

During fiscal year 2002, the combined efforts of the Groundwater Protection Program and the Groundwater/Vadose Zone Integration Project (transferred from Bechtel to Fluor in July 2002 as part of DOE's plan to geographically consolidate work at Hanford) produced significant accomplishments. Jointly, the programs accomplished the following:

- Operated Hanford's five pump-and-treat systems at nearly full capacity (97.8 percent), processing more than 1.2 million gallons of groundwater. Pump-and-treat stations extract contaminated groundwater, treat the water to remove the contaminants of concern, and then re-inject the treated water back into the ground. Since 1994, when the first pump-and-treat system was initiated, contaminants have been processed from more than 1.65 billion gallons of Hanford groundwater, preventing contaminants from reaching the Columbia River.

- Removed 1,384 pounds of carbon tetrachloride from the soil between April and September through the soil vapor extraction process. Since 1991, this process has removed 171,478 pounds of carbon tetrachloride from Hanford soil. Carbon tetrachloride is a suspected carcinogen, which, once it reaches groundwater, is extremely difficult to remediate.

- Installed the third and final phase of the in-situ redox manipulation technology, used to convert chromium in Hanford groundwater near the 100 Area. In-situ redox manipulation uses a chemical "curtain" or treatment zone to transform a hazardous chemical in the groundwater to a non-hazardous form.

- Sampled more than 700 Hanford groundwater- monitoring wells. This sampling serves one of two purposes — either helping determine compliance with environmental protection requirements or charting the movement of contaminants in the groundwater.

- Completed an initial assessment of Hanford contaminants to evaluate remediation alternatives. The accomplishment demonstrated that an assessment for a broad range of risks could be conducted for all Hanford waste sites containing radiological and hazardous chemical contaminants.

"In fiscal year 2003, the Groundwater Protection Program at Hanford will remain focused on remediating waste sites, shrinking the contaminated area, reducing recharge conditions, implementing final groundwater remedies and integrating groundwater monitoring needs," Wilde said. ■