

# Fluor Hanford Groundwater Protection Program delivers

Karin Nickola, *Fluor Hanford*

In 2002, the U.S. Department of Energy developed the *Performance Management Plan for the Accelerated Cleanup of the Hanford Site*. The plan draws on recommendations from DOE's environmental-management "Top-to-Bottom Review" conducted early in 2002, and on ideas emerging from a yearlong process by the "C3T" (Cleanup, Constraints and Challenges) Team made up of representatives of DOE, the U.S. Environmental Protection Agency, the Washington State Department of Ecology and contractors.

The plan comprises six initiatives, driven in part by the need to protect Hanford's groundwater. Most importantly, it calls for eliminating by 2012, rather than 2024, those conditions of highest risk to further contaminate the groundwater. In each case, the initiatives identify work required by the Tri-Party Agreement, and invest additional resources in those projects to achieve early completion.

Fluor Hanford's Groundwater Protection Program, established in mid-2002, champions Initiative 6 — which calls for actions to "Accelerate Groundwater Cleanup and Protection." The program focuses on specific cleanup activities based on years of study. Many of the cleanup activities take place on Hanford's central plateau, where remediating high-risk waste sites like those found in the U Plant area is a high priority.

## U Plant risks

The U Plant and the Uranium Oxide Plant, in the southwest corner of the central plateau, were used to recover uranium from tank waste and produce uranium oxide, which was shipped off site for reuse. These processes created liquid waste containing high concentrations of uranium and technetium-99 that was discharged to the soil through engineered structures such as cribs and trenches in the U Plant area.

Today, elevated levels of both uranium and technetium-99 are present in Hanford groundwater in the U Plant area at concentrations that exceed regulatory limits. Data also suggest only a portion of the inventory has migrated into the groundwater, while the majority of the contaminants still reside in the soil called the vadose zone, between the top of the water table and the ground's surface. Preliminary investigations indicate that installing engineered caps (also called surface barriers) over the tops of waste sites that may continue to contaminate groundwater will reduce the release of contaminants to the water table.

## Accelerating cleanup

Cleanup work in the U Plant area will be based on a "geographic closure" concept. With workscope shared by the Groundwater Protection Program and the Central Plateau Remediation Project, the plan for accelerated cleanup activities calls for the following order of priorities:

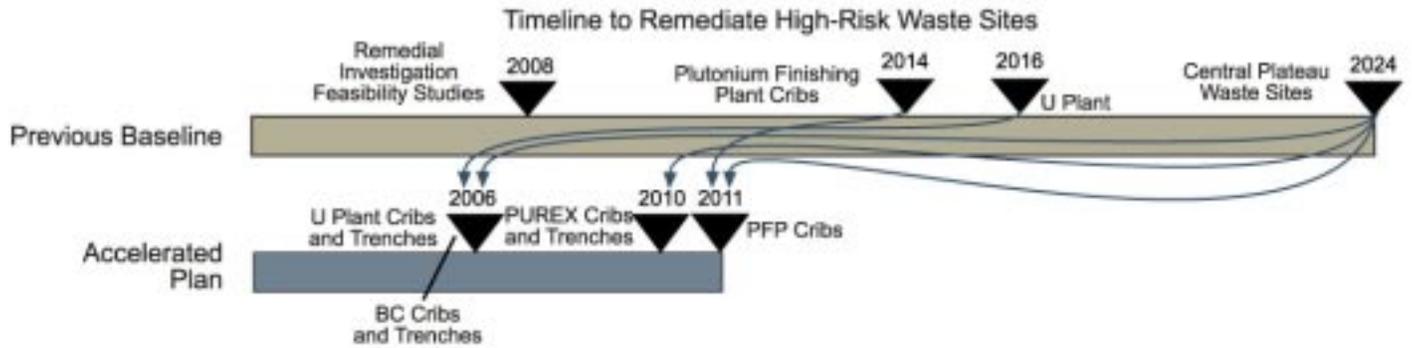
- Waste sites where contamination was released to the soil
- Pipelines connecting waste sites to process facilities
- Major process facilities
- Ancillary buildings
- Groundwater remediation.



In the U Plant area, elevated levels of uranium and technetium-99 are present in the groundwater.

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As shown in the comparative timelines (see above), under the Groundwater Protection Program's accelerated plan, much of the cleanup work at U Plant will be completed by 2006, rather than 2016.

### Fluor steps up

Fluor Hanford's Ron Jackson leads waste-site remediation efforts toward closing the U Plant area. His team has already drafted a *Focused Feasibility Study for U Plant Closure Area Waste Sites* and a *Proposed Plan for U Plant Closure Area Waste Sites*.

When released in June to regulators, tribal nations and the State of Oregon for review, documents will follow a timesaving "CERCLA integrating RCRA" path. CERCLA and RCRA are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 and the Resource Conservation and Recovery Act of 1976. By mid-August, the Groundwater Protection Program plans to begin incorporating comments generated by these reviews into the study, and the plan will be released for general public review by Oct. 1. Once a record of decision is in place, CERCLA requires cleanup to begin within 18 months. The Groundwater Protection Program will start its efforts much sooner, to support accelerated cleanup deadlines.

According to Jackson, having a vision and associated "roadmap" for getting there are paramount to Fluor Hanford's accelerated groundwater cleanup and protection plan.

"As director of the Groundwater Protection Program, I have called upon my Fluor Hanford staff members to work with Pacific Northwest National Laboratory, tank-farm and Environmental Restoration Contractor team members as well as representatives of DOE, the regulatory agencies, tribal nations, stakeholders and the general public to define end states and move as rapidly as possible towards them," said Fluor Hanford's Dick Wilde. "In every decision we make, we consider the bottom line — does the action protect groundwater? Does the action move us closer to closure?"

As an example, Wilde pointed to past pump-and-treat technology, which has

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been used at Hanford high-risk waste sites to remove contaminants from groundwater but does not represent an appropriate final remedy. “By eliminating sources, contaminant migration will cease and the need to pump and treat groundwater will come to an end — which will benefit the environment and free up cleanup dollars to be used elsewhere,” he said.

### More about the program

The Groundwater Protection Program’s cleanup master plan can be found in *Hanford’s Groundwater Plan: Accelerated Cleanup and Protection*. The document has been formally transmitted by Fluor Hanford to DOE-RL and is accessible through the Groundwater Protection Program’s new Internet Web site at [http://www. hanford.gov/cp/gpp/](http://www.hanford.gov/cp/gpp/) under “Program Library.”

“The groundwater plan developed by Fluor Hanford provides a realistic and practical approach to the groundwater issues on the Hanford Site,” said DOE-RL program lead John Morse. “It is a tremendous effort by Dick Wilde and the Groundwater Protection Program team and will serve as a living document and roadmap for the accelerated cleanup and protection of groundwater at Hanford.” ■