ERC aids in halting Columbia River corridor contaminants

George Rangel, BHI

Earlier this month, the Environmental Restoration Contractor team capped off one of its 2001 groundwater cleanup challenges by decommissioning 90 wells in the Columbia River corridor.

The effort was led by Bechtel Hanford and its subcontractor, Jensen Drilling Company. The work spanned nearly nine months and was safely completed a month ahead of schedule.

The well sites included different types of wells, from former groundwater-monitoring wells to seismic-data collection wells drilled from 10 to 500 feet into the ground. The majority of the wells decommissioned were in the 600 Area between the Hanford townsite and the 300 Area, with most surrounding Energy Northwest. For historical preservation purposes, the project bypassed the old Hanford townsite.

Five wells were decommissioned between the Vernita Bridge and the 100 B/C Area. Completion of those wells also marks the cleanup of the first section of the Columbia River corridor land, a 14-square-mile parcel known as Phase 1A.

Although the ERC team has decommissioned 252 wells at Hanford since 1997, the wells completed in fiscal year 2001 represent a fraction of more than 6,800 wells drilled at Hanford.

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After crews section off the work site, they fill the well with sand to the top of the water table. A three-person crew uses a diesel-driven drilling rig, and a 2,000-gallon water truck is on the site to wet down vegetation and provide fire protection. INSET: A typical abandoned well at Hanford before decommissioning.

Crews cut rectangular-shaped holes in the sides of the well casing with a perforator bit. The perforation sequence allows wet cement to seep through the holes and solidify the well and casing inside concrete.

Stewardship is key

"Decommissioning wells along the Columbia River is part of being a good steward of the land," said Greg Mitchem, Bechtel's senior project lead for groundwater operations. "We can't remove the wells, but we can decommission them in a manner that protects the environment and maintains the scenic beauty of the Hanford Reach."

"The well decommissioning project is part of the cleanup vision that includes restoring the Columbia River corridor," said Marv Furman, DOE's project coordinator for groundwater monitoring. "The no-longer-used wells provided a potential pathway for surface contamination to reach groundwater. By decommissioning the wells near the river we have eliminated the wells as a pathway for contaminants to reach groundwater."

After the well is perforated, crews begin the grouting process. The well is filled with cement to three feet below ground level. Once the well is encased, the top portion of the well is removed and capped with a brass survey marker. The concrete enclosure ensures that potential contaminants will not migrate along the well casing, contaminating groundwater or soil.

Weather a challenge

This summer's temperatures and Hanford's dry vegetation provided the ERC team with additional challenges, according to Ron Jackson, Bechtel task lead for well decommissioning. "We took a little different approach on this job," Jackson said. "With fire being a real threat, we used diesel-engine equipment instead of gasoline-run equipment with catalytic converters that might spark a fire.

"In addition, we stationed a 2,000-gallon water tanker at every work site. We also kept in mind all of the Washington State Department of Ecology regulatory standards in bringing the project to completion."

Bechtel's environmental technologies well coordinator, Dick Biggerstaff, agreed. "The Department of Ecology played a key role in completing the project a month early," he said. "In working with Ecology, they were very responsive in approving new field modifications."

Although each decommissioned well is eventually buried three feet below the surface, every well is clearly identified, according to Chris Wright, technical lead for CH2M HILL Hanford, Inc.

With the well encased and capped, crews replace the excavated soil and level the ground.

"Each well is capped with a brass disk labeling the well identification, the position of the well and the day it was decommissioned," Wright said. "The caps provide a reference for anyone who may run across the wells in the future." ❖

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ERC team member discovers pre-Hanford well

Bob Jones picked up a stone and tossed it into a pile of frostbitten sagebrush resting at the bottom of a shallow dune. The rock knifed through the dry vegetation, knocked repeatedly against a wooden frame before a final *plunk* echoed from what seemed a mile below.

An old well concealed, above, and uncovered by the ERC team, below.

"I knew there was something down there," said Jones, a Bechtel Hanford field technical representative for well decommissioning. "From the surface it didn't seem like much was there, but then I realized what it was."

Jones had discovered a hand-dug well constructed sometime between 1900 and 1943 before development of the Hanford Site. Jones found the well in the 600 Area behind Energy Northwest in early spring, while he was surveying land for the Environmental Restoration Contractor team's upcoming well decommissioning project along the Columbia River corridor.

In fact, the pre-Hanford well found by Jones reached more than 60 feet below the surface, deeper than most old homestead wells discovered at Hanford.

"Most of the wells that we have found have not been deeper than 45 feet, which is what makes Bob's discovery unusual," said Jim Sharpe, a CH2M HILL Hanford cultural resource specialist. "Right now, based on our findings, we're not sure what the well was used for."

The majority of pre-Hanford wells, used for homestead or irrigation purposes, have been found near the Hanford Irrigation Canal, Cold Creek and the White Bluffs area. The wells discovered in these places were dug or drilled by hand. Water was pumped to the surface using wind, electricity, gas or diesel engines.

Aside from the discovery of a potential historic relic, Jones' discovery is a reminder that risks still remain at the site.

"I'm glad I found the well before anyone stumbled into it," Jones explained. "If someone would have fallen into the well, they could have been seriously hurt with nobody around to help. Not even a cell phone would work that far down. It just goes to show that there are still some hazards to be aware of when you're working on this land."

"We occasionally run across pre-Hanford wells and suspect others remain undiscovered," said Sharpe. "Those we find are documented with a Global Positioning System reading, logged into a site-wide database and evaluated for historical significance."

For now, the well has been roped off and entered into the ERC team's database until a plan is developed for the well. ✦