Hanford Reach
Hanford Site Employee News
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Cleanup in K Area begins ahead of schedule

Edye Jenkins, *Bechtel Hanford*

Bechtel Hanford began work ahead of schedule in December to excavate and remove 700,000 tons of low-level and hazardous wastes, soil and other debris and nearly 18,000 feet of piping at the 100 K Area along the Columbia River.

KW Reactor operated from 1955 to 1970, and KE Reactor operated from 1955 to 1971. “During operation, reactor cooling water was discharged to retention basins to cool and allow time for the short-lived radionuclides to decay before distributing it to cribs and trenches or returning it to the river,” said Mark Buckmaster, Bechtel Hanford resident engineer for the K Area work.

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The sides of the K East and K West retention basins were removed in the mid-1990s. Now, Environmental Restoration Project workers are removing the bottoms of the six basins as well as surrounding contaminated soil and debris.

The retention basins and reactor water effluent pipelines leaked, contaminating the surrounding soil. Cribs and trenches, which work on the same principle as septic tanks and drain fields, also contributed to soil contamination.

“Our job is to remove the K Area retention basins, cribs, trenches, pipelines, and surrounding soil and waste materials and ready them for transport to the Environmental Restoration Disposal Facility for permanent disposal,” Buckmaster said. The disposal work is expected to fill 38,000, 20-ton containers and be completed in 2005.

The team will use experience gained from similar work conducted at Hanford’s B/C, D, F, H and N areas, as well as at burial grounds and waste sites across Hanford.

“The difference here is that piping used in the K reactors to transport cooling water is a foot larger in diameter than the 60-inch piping used at F and H areas, and it was buried several feet deeper,” said Buckmaster. “This means we will have to bench the deeper areas of the excavations as we remove materials so they do not cave in. We also will have to remove more soil, rock and other debris because we will be digging several feet deeper than at other sites.”

In addition, the K Area includes several culturally sensitive sites located in the vicinity of the cleanup activities. Protection of these sites requires special care and poses additional challenges to the team. Cultural resource protection training has been provided to all employees who work in the area on a daily basis to aid them in monitoring excavations for the presence of cultural artifacts (see sidebar).

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Beating schedules

This is the third time the Bechtel-led Environmental Restoration Contractor's "Group 4" team has beat a scheduled Tri-Party Agreement milestone. The team began remedial action in the H Area in March 1999, two weeks ahead of schedule, and completed the work nine months early. Cleanup started in the F Area in August 2000, one month ahead of the scheduled TPA milestone, and that work is scheduled to be finished next September.

The team includes staff members of Bechtel Hanford and pre-selected subcontractors CH2M HILL Hanford and Eberline Services Hanford. At K Area, Duratek Federal Services provides soil remediation services under subcontract to Bechtel.

Since its remedial-action work started in 1999, the 46-person team has maintained a zero-lost-time safe record. "The employees have been able to achieve the exceptional safety record because of their dedication to the zero-accident philosophy and looking out for each other," said BHI's Tom Kisenwether.

"As the contractor team cleans up the K Area, the risk to workers, the public and the environment will decrease," said Jamie Zeisloft of the Department of Energy Richland Operations Office. "There's a lot of work yet to be done, but the contractor team is off to a good start." ■

K Area offers unique cultural opportunity

People had been using what is now the K Area for thousands of years before the federal government acquired the Hanford Site lands.

"K Area is one of the most culturally significant locations at Hanford and is a site of significant overlapping cultural interests," said Tom Marceau, Bechtel Hanford cultural resources supervisor. "At K Area, we have documented an archaeological site, a Native American village and cemetery, and a projectile point (arrowhead or spear point) between 8,000 and 11,000 years old. In addition, remnants of the historic Hanford irrigation canal also are located in K Area."

While the exact age of the nearly one-acre village is unknown, Marceau said pit houses, which began appearing about 5,000 years ago, have been found at the site. "Pit houses were generally used as winter camps from late fall through early spring," he said. They are circular structures that typically had a living area sunk a few feet into the ground, four main timbers at the corners to support the roof, a fire pit with an air deflector and an area that might contain bins or pits to store household goods.

"The village is believed to have been used by the Wanapum Band in the mid-1800s," Marceau said. "It is believed that this is the site where Smowhalla, a Wanapum prophet, established the Washani religion, the current Native American religion of the Columbia Basin, making the village an important site for local Native American tribes."

A projectile point was discovered in 2001 on an older terrace in K Area during an archeological excavation that was part of well-drilling preparations for the 100-KR-4 pump-and-treat project. It is the

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oldest of the projectile points or fragments of points found at Hanford, and the only one of its style, the "Windust" type. The Windust phase, the earliest period of documented occupation of the Columbia Plateau, was 8,000 to 11,000 years ago. Kennewick Man, by comparison, is believed to have lived 8,000 to 9,000 years ago.

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Bechtel Hanford employees Tom Marceau (left) and Sweetser Poon stand on the site of a Native American village near Hanford's 100K Area on the Columbia River. The village is adjacent to a cemetery where members of the Wanapum Band were buried as late as the 1920s.

The relatively large point was probably used on a spear to hunt large animals. "During the time when we believe the point was created, people relied on a semi-nomadic lifestyle that included hunting large mammals, collecting plants, fishing and using other aquatic resources," Marceau said.

All the relics excavated by the Environmental Restoration Contractor's cultural resources staff have been photographed, measured, analyzed and documented. They're being maintained in a secure location until the Department of Energy determines their final disposition.

A Native American cemetery where remains were buried as late as the 1920s provides another challenge. "The cemetery is in a part of K Area that might be contaminated from disposed liquid waste materials," Marceau said. "However, this will not be confirmed until after waste-site characterization is completed to determine the presence or extent of a plume." Characterization within the waste site is planned to begin this spring.

"If we confirm that Hanford contaminants spread into the cemetery, it will be the first time DOE, regulators and Native American tribes have had to protect or handle contaminated human remains," Marceau said, adding that his team is working with the tribes on protecting any remains found in the cemetery or elsewhere.

As a first step in addressing sensitive areas, Marceau said a cultural resources mitigation action plan was prepared, and workshops are under way with Native Americans to develop procedures that will be incorporated in the plan.

Remnants of the old Hanford irrigation canal built between 1905 and 1909 can also be found in K Area. The canal brought water to crops until 1943, when the Manhattan Project began.

Field personnel doing remedial action in K Area have received special cultural resources training. "The training is required for anyone who will be working on the ground in a culturally sensitive area," Marceau said. "The training provides information about ways to prevent cultural resources from being disturbed during cleanup work, as well as the steps to take if an artifact is found." ■