Hanford Update

Tri-Party Agreement

U.S. Department of Energy - Washington State Department of Ecology - U.S. Environmental Protection Agency

Summer 2008

The U.S. Department of Energy Selects Two New Contractors for the Hanford Site

Evening view of the tank farms.

Tank Operations Contractor

The U.S. Department of Energy (DOE) announced in May that Washington River Protection *Solutions* (WRPS), LLC, was selected as the new tank operations contractor to store, retrieve and treat Hanford tank waste and close the tank farms. The contract is valued at approximately $7.1 billion over ten years.

The Hanford Tank Operations Contract is part of DOE's contracting strategy for the Central Plateau, which calls for three new cleanup contracts in 2008. These three contracts cover mission support, tank farm operations and closure, and waste and facility disposition. The scope of the tank operations contract includes day-to-day operations of the tanks, analytical laboratory support, single-shell tank retrieval and

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New Contractors

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closure, Waste Treatment Plant support, and supplemental treatment for tank waste. Hanford's tanks contain 53 million gallons of residual radioactive and chemical waste that resulted from more than three decades of plutonium production. The waste is stored in 177 large aging underground tanks. The new contractor will begin transition this year on July 1, and full operation on October 1.

Central Plateau Remediation Contractor

The DOE has selected CH2M HILL Plateau Remediation Company as a new contractor for Hanford. The contract is valued at approximately $4.5 billion over 10 years.

The Hanford Plateau Remediation Contract (PRC) will clean up the central portion of the Hanford Site, known as the 200 Area or the Central Plateau. This area once housed five chemical separations buildings and other facilities which recovered plutonium and other materials for use in nuclear weapons. The scope of the PRC contract includes completion of the facility decontamination and decommissioning efforts, cleanup of soil sites (non-tank farm), groundwater restoration and long-term surveillance. The transition period of the new contractor will begin this year on or after July 1, with full operation on October 1. re information, visit http://www.em.doe.gov or http://www.hanford.gov.

Pretreatment Engineering Platform being Constructed in Richland

Construction on the Pretreatment Engineering Platform (PEP) is continuing in north Richland.

In May, sixteen equipment skids were designed, constructed, and assembled to test the Waste Treatment and Immobilization Plant pretreatment process. The PEP is the size of a basketball court and stands up to 18 feet high. The PEP was assembled by the Pacific Northwest National Laboratory and its subcontractors.

The U.S. Department of Energy Office of River Protection (ORP) and contractor Bechtel National, Inc., plan to use the test platform to answer key technical questions about how efficiently the pretreatment facility ultrafiltration system will separate radioactive waste into high-level and low-activity waste streams. The PEP is a one-quarter scale test of the Pretreatment facility ultrafiltration system. The project's budget is $75 million including building and operating the test platform through Phase 1 testing.

The tests will answer questions about leaching process effectiveness and how quickly the ultrafilters can concentrate the waste. Process effectiveness and capacity directly influence the time needed to treat Hanford's tank waste.

ORP expects to start tests using the PEP by the end of the year and complete the tests by the end of 2009.

Hanford's Landscape Continues to Change

Change continues to occur at Hanford's 100 N Area as two stacks were brought down using explosive charges. The stacks and the N Area Powerhouse were removed as part of the ongoing demolition work at Hanford.

Burial Ground Workers Plan for High-Risk Chemicals

Hanford's 618-7 site, near Richland and the river, requires extensive safety plans for removing the buried high-risk waste.

Work at Hanford's 300 Area 618-7 Burial Ground officially began on January 23, 2008, but the work was preceded by months of planning and practicing retrieval scenarios of high-risk wastes buried at the site. A Tri-Party Agreement milestone requires that the remediation activities be completed by December 31.

It is anticipated that hundreds of sealed drums buried in the 618-7 Burial Ground contain waste that would ignite when exposed to air. Processes will be used to minimize exposure and risk. Only five drums within the excavation will be exposed at a time. Of these, only one drum will be removed at any time to have the contents identified and, if need be, stablized.

"We've reviewed historical documents, interviewed workers, used ground-penetrating radar and dug exploratory pits," said John Darby, Washington Closure Hanford Project Manager for the 300 Area Field Remediation project. "Past remediation experience says we should plan to find waste that could spontaneously ignite, plutonium-contaminated objects and other potentially hazardous materials," said Darby. He went on to say, "We have to be prepared to deal with the worst-case if we are to adequately protect our workers, the public and the environment during cleanup."

This drum-opening facility is designed to safely identify contents within an enclosed drum and minimize potential worker exposure.

The other hazardous materials that may be found include thorium, which was used to produce uranium-233 in the 1960s, uranium, Zircaloy chips, lead, beryllium and cadmium. The burial ground operated from 1960 to 1973.

The burial ground contains three trenches. By mid-June, 420 barrels had been recovered and more than 16,000 tons of material had been retrieved for safe disposal away from the river. Currently, the project is adding staff and equipment for excavating and transporting the waste so it can meet the cleanup deadline.

Waste from the burial ground will be treated and disposed of at the Environmental Restoration Disposal Facility, or sent to EPA-approved, off-site treatment facilities in Washington and Tennessee.

The three-acre site contains some of the most hazardous materials retrieved to-date along the river corridor.

K East Basin Draining Complete

The K East Basin was dewatered on March 19, 2008, and paved the way for demolition of the basin. This work is critical to completing the cleanup of the River Corridor. It eliminates the risk posed to the Columbia River by the contaminants in the K East Basin.

Workers began draining the basin in February, working around the clock to transport the contaminated water in 5,000-gallon tanker trucks to a treatment facility on the Hanford Site. More than 220 trips were made to complete the cleanup effort. The large concrete K East Basin once held approximately one million gallons of water that had provided shielding for over 1,100 tons of uranium metal fuel rods, or spent nuclear fuel, from Hanford reactors.

Tanker trucks transported water from the K East Basin.

During the draining of the K East Basin, every precaution was taken to protect the safety and health of the workers performing this important task. Work was done remotely, minimizing the need for workers to enter the basin. As the water was removed, a thin coating of fixative was applied to the basin walls to fix residual contamination in place. The basin is now being filled with a sand-like material, which provides a working platform for heavy equipment to be brought in to tear down the basin building, or superstructure, this summer. Ultimately, the basin itself will be removed to access soil contaminated by water leaks from the basin in the 1970s and the 1990s.

Hanford's Site-wide Permit

Ecology is working hard to issue the new Hanford Site-wide permit, also known as the "Hanford Facility Dangerous Waste Permit." This permit regulates all treatment, storage, and disposal of dangerous waste at Hanford.

As permit writers and reviewers work on the permit, Ecology is working to help the public understand the permit and how to participate in the decision-making process.

Ecology and the U.S. Environmental Protection Agency (EPA) jointly issued the original permit in 1994. The permit requires Hanford to follow the federal Hazardous and Solid Waste Amendments and the state's Dangerous Waste regulations to treat, store and dispose of dangerous waste. In 1994, the state was not fully authorized to apply the Resource Conservation and Recovery Act (RCRA) and issue the permit on its own. Because EPA had the authority for some of the requirements, the permit was issued jointly. The new permit will be issued solely by Ecology based on the latest regulations.

The permit is organized into six parts:

- Part I has standard conditions. These are conditions common to all dangerous waste permits in the state. The types of items covered by these conditions include the effect of the permit, duty to provide information, and reporting requirements.
- Part II has the general conditions that apply to the entire Hanford facility. These conditions address items such as training and facility record-keeping for the overall site.
- Part III has specific conditions for the operating units that treat, store, or dispose of dangerous wastes. Examples of these units are the Waste Treatment Plant and the Central Waste Complex.
- Part IV has specific conditions for corrective action areas to clean up spills and releases from sites no longer in use. These areas consist of soil cleanup sites and cleanup of groundwater.
- Part V has specific conditions for units undergoing closure. Units in Part V are those that cannot meet the minimum technical standards required in WAC 173-303-600. Examples of these units are ponds, cribs, and ditches.
- Part VI has specific conditions for closed sites that require long-term monitoring.

For more information, visit Ecology's website at **www.ecy.wa.gov/programs/nwp.**

Waste Treatment Plant hits 37 percent completion mark

Work on Hanford's Waste Treatment Plant Project continues to move forward, with 37 percent of the facility construction complete, and 73 percent of the design and engineering completed. Design and engineering of the Low-Activity Waste Facility and Analytical Laboratory are approximately 90 percent complete.

In November 2005, facility construction was slowed in some areas as seismic concerns were resolved. Construction resumed last summer following the approval and certification by the Secretary of Energy.

An aerial view of the Waste Treatment Plant.

The project now employs about 3,300 workers made up of craft workers, engineers, and other professional staff. Forecasts call for peak staffing of about 3,500 to 4,000 employees in 2009.

TPA Milestone Met Along the River

At Hanford, the once-operating nuclear reactors used the Columbia River's cold water for cooling and disposing toxic chemicals and radioactive material into the nearby soil. One of these extensively contaminated sites was cleaned up in late December and met a Tri-Party Agreement milestone.

Since the project's inception in 2005, over 600,000 tons of contaminated material and debris from 39 sites were removed from the river corridor 100-B/C Burial Ground.

To complete the milestone, contractors removed contamination, backfilled the sites and revegetated the area near B Reactor to restore it to its native condition.

Contaminated sites along the river corridor ready for cleanup.

"Removing the hazards posed by these burial grounds is a key component in protecting the river, said Joe Franco, Assistant Manager for the River Corridor, U.S. Department of Energy, Richland.

One of the biggest challenges the crew faced was the lack of information on what they could expect to unearth during the remediation process. "Literally, every scoop was an adventure," said Dean Strom, 100-B/C Project Manager, Washington Closure. "We just had to plan for the worst, and in the process, we developed some innovative, remote techniques for sorting radioactive waste to limit potential radiation exposure to workers," said Strom.

The burial grounds contained waste from the B and C reactors. The waste consisted of 16 highly radioactive spent nuclear fuel fragments, more than a ton of mercury, thousands of feet of contaminated piping, and 9,000 gallons of liquid waste. In addition, there were containers full of hydraulic oils, carbon tetrachloride and other hazardous liquids, as well as tons of assorted laboratory glassware, construction debris, and radioactive reactor hardware.

Hanford Advisory Board Update
by Susan Leckband, Chair

The Hanford Advisory Board and agency representatives at the February 2007 meeting when Todd Martin turned over the chairmanship to Susan Leckband.

For over a decade, the Hanford Advisory Board has been advising the U.S. Department of Energy (DOE) to request full funding for Hanford cleanup to keep our region safe. The Hanford Advisory Board (HAB) is disappointed that yet again the Hanford cleanup budgets for the next two years will not meet legal cleanup obligations. In April, the HAB issued two pieces of advice on the fiscal years 2009 (Advice #205) and 2010 (Advice #206) DOE budgets for Hanford cleanup activities. The advice details some priorities that need additional funding to help protect workers, families, groundwater and the environment.

Broken promises undermine the faith of the public in their government. Failing to meet cleanup obligations agreed to in the Tri-Party Agreement (TPA) threatens the credibility of DOE. Trust is the residue of promises kept.

HAB members thanked the TPA agencies in Advice #207 issued June 6th "for early, collaborative, and interactive discussion employed in the April 15th workshop" that was an open dialogue on cleanup alternatives for waste sites near the Plutonium Finishing Plant. The agencies were provided with board values and detailed suggestions that the agencies could consider when developing the Proposed Plan for wastes sites 200-PW-1, 3, and 6. Participation early in this cleanup decision process provided good feedback to the agencies and further cemented the HAB's preference for "retrieve, treat and dispose" as the preferred alternative for buried waste. The HAB looks forward to continuing our early involvement in discussions regarding the disposition of other buried waste across Hanford.

Additionally in June, the HAB issued DOE advice (#208) that encourages Uniform Site-Wide Safety Standards. Many of the Hanford workforce move from project to project and contractor to contractor. When requirements, training and procedures are not uniform the potential for uncertainty can put workers in jeopardy as hesitancy can lead to mistakes as work is being performed.

Tri-Party Agreement: The TPA is the backbone and ribs of Hanford cleanup. The U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology and DOE are currently negotiating changes to the TPA that have the potential to push out Hanford tank waste retrieval and other cleanup milestones far into the future. The HAB is very concerned about delaying Hanford cleanup for decades and has expressed that concern to the TPA agencies. Adequate funding could help shorten that timeline to meet TPA and regulatory requirements.

***Some TPA history*:** After the decision to change the Hanford Site mission from defense production to remediation and cleanup in the mid 1980's, the federal government, via DOE, negotiated with regulating agencies (EPA and Ecology), to clean up the Hanford site. These original negotiations culminated in the TPA that contains descriptions of the work to be done and a schedule for doing the work. The TPA was agreed to and signed by all three agencies. All of these agencies understood that for technical reasons some cleanup decisions and milestones would be decided later. In the years since the TPA was first signed more than 400 changes have been agreed to by the three agencies using a process that included getting public input for major changes.

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Hanford Advisory Board Update

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Where we are now: There is good cleanup work being done at Hanford. The risk from the K Area basins is greatly reduced with the removal of sludge and dewatering completed at the K East Basin. At the 100N area, demolition of the stacks and powerhouse has been initiated. Attention to groundwater remediation has increased significantly. Tank retrieval technologies are being developed and deployed. Transport of plutonium off site is another leap forward and there are many more cleanup actions being taken every day. Construction on the Waste Treatment Plant is progressing very well. Chemically and radiologically contaminated groundwater is moving steadily to the Columbia River. There is more than 275 thousand cubic yards of radioactive and toxic waste in decaying barrels and boxes. More than 170 underground tanks holding more than 53 million gallons of hazardous and high level radioactive liquid waste at Hanford. Sixty-seven of these tanks have already leaked more than 1,000,000 gallons of waste to the ground. Some of the waste has reached the groundwater and is on the way to the Columbia River. Some of the 53 million gallons remaining are stored in tanks aged well beyond their design life and may leak in the future. Future leaks will follow the previous million gallons into the ground and to the Columbia River.

Fences will not stop these nuclear and chemical wastes in their inexorable flow to the Columbia River. Only by providing adequate funding, employing a skilled Hanford work force, and providing the necessary tools, technologies and equipment, will this vital cleanup work be completed.

Although cleanup progress happens daily, the problems we still face are huge. The HAB pledges continuing commitment to provide the Tri-Party Agencies with well researched, values-based advice on Hanford cleanup.

There are many public meetings on Hanford cleanup held throughout the year – locally and around the Pacific Northwest. I hope you take the opportunity to attend some of them to ask questions and voice your opinions – **Hanford is your site, too**.

I encourage everyone to visit the HAB website at www.hanford.gov/hab and review HAB advice to the Tri-Party agencies and other information including the HAB and other Hanford-related public meeting schedules.

Tank closure at Hanford

The Hanford Site has 177 single- and double-shell tanks containing high-level chemical and radioactive waste. About one third of them are known or expected to have leaked more than one million gallons of hazardous and radioactive waste into the ground. Eventually, this waste may reach the Columbia River.

While the primary remediation focus is on emptying the tanks and building the plant to immobilize the tank waste in a glass form, the vitrification plant won't handle the tanks themselves. It will not handle pipes, diversion boxes, catch tanks, or contaminated soil. Additional work is required for closure of these sites.

The closure of tank farms and the associated equipment must comply with general closure performance standards in Washington law and regulation. Dangerous waste treatment, storage and diposal units must meet general closure performance and unit-specific closure standards.

In addition, closures must achieve standards specific to the type of dangerous waste unit being closed, for example, tank systems must comply with standards at WAC 173-303-640(8).

Washington Administrative Code 173-303-610(2) requires that all closures:

- Minimize the need for further maintenance.
- Control, minimize, or eliminate to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated run-off, and dangerous waste decomposition products to the ground, surface water, ground water, and air; and,
- Return the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

In addition to the general conditions, there are two main types of unit-specific closure standards: Clean Closure and Landfill Closure.

Closure is coming. Difficult or not, we must start thinking about it now. Closure decisions will be based on information in the Tank Closure and Waste Management Environmental Impact Statement, closure plans in the Site-wide permit, and work to fulfill Tri-Party Agreement milestone M-45. *For more information, contact Ginger Wireman at gwir461@ecy.wa.gov.*

Hanford Update

The *Hanford Update* newsletter provides general information about Tri-Party Agreement cleanup and compliance activities. The newsletter also contains information on public meetings, workshops, and other opportunities to participate in Hanford Site decisions. The newsletter is available on the Internet at www.hanford.gov/tpa/updates.html.

2008 Hanford Happenings Calendar

State of the Site Meetings

October 7	Tri-Cities, WA
October 9	Seattle, WA
October 21	Portland, OR
October 22	Hood River, OR

Upcoming Hanford Advisory Board Meeting

September 4-5
Double Tree Guest Suites
26500 South Center Parkway
Seattle, WA

Public Comment Period

The 30-day public comment period for the Cleanup Plan for Central Plateau Groundwater 200-ZP-1 Groundwater Operable Unit is expected to begin July 14.

Hanford Cleanup Line: 800-321-2008

Summer 2008

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