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Fast Flux Test Facility

The Fast Flux Test Facility Project continued preparations to drain sodium and remove fuel as part of the shutdown of FFTF. The Closed Loop Ex-vessel Machine (CLEM) Acceptance Test Procedure was completed, which allowed personnel to begin installing the immersion heaters. One of the immersion heaters has been installed in the reactor; the second one is soon to follow. The immersion heaters keep the primary sodium molten during and after the secondary drain process.

Facility personnel repaired the Interim Examination and Maintenance Cell Sodium Removal System equipment and the system is being tested. This system will be used to remove residual sodium from FFTF fuel before it is placed in dry storage.

Fluor Hanford operator Paul Fernandez inspects one of the immersion heaters in a maintenance glovebox, while health physics technician Bernie St. George (left), also of Fluor Hanford, monitors the level of radiation.

The plateau lies near the center of the Hanford Site and includes the 200 Areas and the 400 Area and is the location of Hanford's longer-term missions of waste treatment, storage and disposal operations.



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Site Fabrication Services and off-site vendors continue to manufacture components required to repair the solid waste cask, which will be used in transferring the fuel from the FFTF to dry storage.

FFTF personnel removed three liquid inert gas dewars (special vessels used to store liquefied gases) from FFTF and one from the Maintenance and Storage Facility. These moves were the first of several planned activities.

Fluor Hanford's FFTF staff, support personnel and experienced decommissioning subcontract personnel submitted the *FFTF Closure Project Management Plan* to DOE. The plan includes an estimated project cost and schedule through deactivation and demolition.



FFTF's rigging crew removes a large liquid nitrogen dewar from the inert gas dewar pad.

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Nuclear Material Stabilization



Personnel worked at gloveboxes to stabilize solutions.

All solutions at the Plutonium Finishing Plant (PFP) were officially “completed” — stabilized — July 29. This Defense Nuclear Facility Safety Board milestone, which eliminated a major risk on the Hanford Site, was completed more than two months ahead of the baseline schedule.

The second set of the 3 metric tons of plutonium-bearing residues was successfully repackaged at PFP, more than six months ahead of schedule. Repackaging prepares the nuclear waste for eventual shipment to the Waste Isolation Pilot Plant (WIPP) for disposal. The Residue Project is ahead of schedule and is now packaging waste that had been scheduled for processing in February 2003.

Several other accelerated decommissioning activities continued in the quarter:

- Demolishing the electrical-pipe-bending shop, on the west side of the PFP complex
- Dismantling the 2715-Z Building
- Demolishing the construction metal shop
- Removing asbestos on the steam line from 241-Z to 2715- Z
- Beginning to remove legacy plutonium in process vacuum systems, duct work, gloveboxes and hoods, and process lines to reduce or eliminate Safeguards-and-Security-protected areas and to protect workers performing follow-on decommissioning and dismantling activities
- Removing large metal storage boxes, an abandoned air tank and wood debris
- Cleaning the construction lay down area.

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Two operators and a radiological control technician seal out a billet can containing plutonium-bearing residues.

The stabilization of plutonium-bearing polystyrene items (polycubes) resumed during this quarter.

Over 400 items of oxides originally thought to require thermal stabilization and packaging have been selected for discard as a result of investigations into their plutonium content. Fluor Hanford is waiting for approval to process this material, which contains less than 10 percent plutonium. The material will be packaged in pipe overpack containers and shipped to the Central Waste Complex for storage until it is shipped to WIPP.

An aid to stabilization

Pacific Northwest National Laboratory studied options to remove corrosive chloride salts from high-chloride plutonium oxides destined for stabilization and storage. A test of the recommended chloride-wash process, which uses idle equipment remaining from earlier solutions processing, proved effective and practical in removing the salts. The new wash process will allow the high-chloride plutonium oxide materials to be stabilized more quickly with less worker exposure.

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Waste Management

Spent Nuclear Fuel Support

Plant personnel continued to prepare T Plant for storing sludge from spent nuclear fuel. T Plant personnel shipped two loads of Shippingport Reactor fuel to the Canister Storage Building. Liner systems were placed in four of the T Plant Canyon cells to store K-Basin sludge. The remaining four cells will be cleared by the end of October.



Shippingport Reactor fuel is being moved out of T Plant.

The Hanford Waste Management Project supports the restoration of the Columbia River Corridor and transition of the Hanford Site central plateau to a long-term operation by managing programmatic Hanford activities related to radioactive solid waste, liquid waste, and cesium and strontium capsules. Activities include retrieval, storage, treatment/processing and disposal.

Transuranic Waste Program

Waste Management personnel focused on shipping transuranic (TRU) waste from Hanford to WIPP in New Mexico for permanent disposal. This year, Hanford's activities were significantly affected by the changes in waste certification and shipping requirements initiated by the Environmental Protection Agency (EPA), Nuclear Regulatory Commission and the New Mexico Department of Environment. Hanford's TRU waste certification program was changed to comply with the revised requirements, and the program was audited by the EPA and the DOE Field Office in Carlsbad, New Mexico to ensure compliance with the new requirements.



A shipment of transuranic waste is on its way to WIPP in New Mexico.

Hanford was the first DOE site to successfully implement and become re-certified under the new requirements, which allowed shipments to WIPP to continue. Certification activities are performed at several Hanford facilities including the Central Waste Complex, Waste Receiving and Processing Facility, T Plant, Waste Sampling and Characterization Facility and the PFP. Since its first shipment on July 12, 2000, Hanford has sent 12 shipments of TRU waste to WIPP by the end of FY 2002.

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The 242-A Evaporator EC-1 Condenser was melted down and recast into shield blocks.

Waste Management

In August, a new contract for the non-thermal treatment of Hanford mixed low-level waste was let with Allied Technology Group, Inc. The first shipments under the new contract were sent to Allied Technology Group in Richland, Washington, and this waste will be treated and returned beginning in October. Additional shipments of debris and radioactive lead solids are planned during FY 2003.

The Hanford Waste Management Project obtained approval and funding to demonstrate a thermal desorption process on Hanford waste. This demonstration, conducted under the broad spectrum contract (a consolidated procurement for waste-treatment services, available for use by DOE sites), will treat about 150 drums of thermally treatable waste, mostly lab-packed organic liquids.

The 242-A Evaporator EC-1 Condenser, shipped to Duratek's Bear Creek Facility at Oak Ridge, Tennessee, was melted down and recast into shield blocks for controlled reuse in DOE projects in high-energy physics.

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What's Next in Transitioning the Plateau?

- Drain the three secondary sodium loops to the Sodium Storage Facility at FFTF.
- Prepare to drain the secondary side of the intermediate heat exchangers at FFTF.
- Complete testing the upgrades to the Interim Examination and Maintenance Cell Sodium Removal System at the FFTF.
- Continue accelerated deactivation and decommissioning activities in accordance with the DOE's plans to accelerate decommissioning the PFP complex.
- Submit the Documented Safety Analysis (Health and Safety Plan) to the Department of Energy Richland Operations Office (DOE-RL) for decommissioning the 232-Z Incinerator.
- Implement a remote canister monitoring system in PFP that will significantly reduce labor costs, limit radiation dose and enhance safeguards for the stabilized plutonium from PFP.
- Continue transferring Shippingport Reactor fuel from T Plant to the Canister Storage Building.
- Complete the 242-A Evaporator campaigns on tank waste scheduled for November and December.
- Continue TRU waste shipments to WIPP.
- Continue preparing to retrieve buried TRU waste in FY 2003.
- Complete the B Plant and PUREX roof installation projects.