

Nuclear Material Stabilization and Disposition (RL-0011)

**D. B. Klos, Vice President of
Plutonium Finishing Plant Closure Project/
(509) 373-3574**



2904-ZB is demolished



2734-ZH is demolished



Plutonium Removal complete on
glove box HC-5 conveyor in 234-5Z



2731-Z and 2904-ZA are next for October and
November



Deactivation and Decommissioning of Ancillary Facilities and Legacy Plutonium Holdup removal at the Plutonium Finishing Plant

Overview

This section addresses work in Project Baseline Summary RL-0011, *Nuclear Material Stabilization and Disposition*.

NOTE: Unless otherwise noted, all information contained herein is as of the end of September 2004.

Top FY 2004 Accomplishments

The Plutonium Finishing Plant (PFP) Stabilization and Packaging Project was selected as the Project of the Year by the Columbia River Basin Chapter of the Project Management Institute on March 9, 2004. This award recognizes projects for superior performance and exemplary execution of project management. In addition, the PFP Stabilization and Packaging Project also won Honorable Mention in the Secretary of Energy's fourth annual Project Management Award program recognizing outstanding performance and management. The certificate for honorable mention was awarded to PFP as the result of a competition for the Secretary's Award of Achievement.

The PFP Closure Project achieved 2,000,000 safe hours without a lost workday injury at the end of July 2004.

Stabilization of Nuclear Materials

Stabilization of nuclear materials was officially completed on February 12, 2004, one week ahead of the baseline schedule, but three and one-half months ahead of the Defense Nuclear Facility Safety Board Recommendation 2000-1 May 2004 milestone. The stabilization project also completed \$1.7M under budget.



In addition, all 358 of the 3013 outer containers identified as having excess weld porosity were opened and repackaged as planned by May 27, 2004.

Top FY 2004 Accomplishments (cont'd)

Disposition Special Nuclear Material (SNM)



All FH-controlled activities for the initial shipment of SNM from PFP to the Savannah River Site (SRS) were completed on October 9, 2003. The initial shipment is on hold pending DOE authorization to ship.

9975 Container being loaded

PFP received the fifth and final Interim Storage Cask (ISC) from the Fast Flux Test Facility (FFTF) in early December 2003. In June 2004 the fuel in these five ISCs was downloaded into interim storage vaults and the empty ISCs were returned to FFTF to support Deactivation and Decommissioning (D&D).

Tri-Party Agreement (TPA) milestone M-83-13, "*Complete Repackaging of PFP Mixed Waste Residues and Ship to the Central Waste Complex*", was completed March 11, 2004, six weeks ahead of schedule.

Disposition the PFP Facility

The final 241-Z Notice of Construction (NOC) was approved by the Washington State Department of Health on November 24, 2003. This NOC supports the tank D-5 pump replacement in addition to follow-on D&D activities.

In FY 2004 42 percent of the total legacy plutonium holdup material at PFP was removed and 41 percent of the total legacy plutonium holdup material was dispositioned. In addition, a total of 49 glove boxes and/or open-faced hoods were declared "legacy and safeguards clean" in FY 2004.



Legacy plutonium holdup removal activities in glove box HC-7C and calciner disassembly in glove box HC-9B

In September 2004, the 2904-ZB and 2734-ZH buildings were demolished bringing the total number of ancillary buildings demolished and/or excessed in FY 2004 to seven. The baseline identifies five buildings each for demolition in FY 2004 and FY 2005. This accomplishment represents a 40-percent acceleration over plan in FY 2004.

Notable September Accomplishments

Disposition SNM

Completed disposition of an additional source/standard of miscellaneous nuclear materials, bringing the total nuclear materials shipped in support of the SNM de-inventory to eighteen.

Disposition the PFP Facility

The 2902-Z Water Tower was isolated from the plant steam supply bringing the tower to the required "cold, dark and dry" state.

The State of Washington Department of Ecology, the Environmental Protection Agency and RL approved the 232-Z Sampling and Analysis Plan on September 21, 2004. This plan provides the rationale and strategy for characterization of debris generated from the demolition of the 232-Z facility. The Data Quality Objective was approved by FH on September 27, 2004.

The Industrial Package 2 container, a Department of Transportation-approved container for shipping radioactive material, was received on September 16, 2004. This container will be used for removal of the 232-Z incinerator glove box once the glove box has been decontaminated.

Final chemical adjustments to Tank D-5 in the 241-Z facility were completed to support the next Tank D-5 liquid waste transfer to Tank Farms.

Active Remote Mechanical 'A' and 'C' Line crews finished plutonium holdup removals on glove boxes HA-7A, HC-18M, HC-230-C5 and the HC-5 conveyor glove box. Inactive Remote Mechanical 'A' and 'C' Line crews removed five polyjars of glove box sweeps from high radiation glove box HA-9A. Glove box HA-7A was accepted by Safeguards as legacy clean, and the small remaining residual plutonium material was characterized as Attractiveness Level 'E'.

All field work associated with the Chemical Mitigation Project was completed in September 2004 bringing an end to an effort that began in 1997.

Issues

SNM De-inventory Delay: Authorization to allow shipment of Hanford plutonium to the SRS, due August 30, 2004, has not been received. The continued delay in authorization to ship will result in a delay in completion of the SNM de-inventory of the PFP complex. The Record of Decision, a key document required by DOE prior to issuing an authorization for Hanford to ship SNM to SRS, is not expected until after November 2004.

FY 2004 FH Funds vs. Spend Forecast (\$M)

| | FY 2004 Anticipated Funding w/Carryover | FY 2004 Fiscal Year Spend Forecast | Variance |
|---|---|------------------------------------|----------|
| Nuclear Materials Stabilization & Disposition | \$ 152.1 | \$ 140.2 | \$ 11.9 |

The fiscal year actual cost reflects the behind-schedule progress on selected D&D activities with a corresponding impact to solid waste disposal activities which contributed to the year-end funding variance. This scope, with appropriately adjusted funding, will carry over into FY 2005.

The actual cost reflects a \$1.3M credit due to General and Administrative and labor continuity of service year end variance distribution.

FY 2004 Schedule/Cost Performance (\$M)

| | Budgeted Cost of Work Scheduled | Budgeted Cost of Work Performed | Actual Cost of Work Performed | Schedule Variance \$ | Schedule Variance % | Cost Variance \$ | Cost Variance % | Budget At Completion |
|---|---------------------------------|---------------------------------|-------------------------------|----------------------|---------------------|------------------|-----------------|----------------------|
| Nuclear Materials Stabilization & Disposition | \$151.6 | \$141.2 | \$140.2 | -\$10.4 | -6.9% | \$1.0 | 0.7% | \$151.6 |

Numbers are rounded to the nearest \$M and include the closure services allocation.

Schedule Performance (-\$10.4M/-6.9%):

Primary contributors to the unfavorable schedule variance include:

- Delay in packaging and shipment of 9975s due to lack of authorization to ship;
- D&D activities are behind schedule due to staff shortages in selected skill categories and delayed resolution of decontamination solution disposal method (234-5Z), delays in Tank D-5 liquid waste transfer, delays in sampling and pit entry (241-Z), delays in subcontract scope and material procurements for the Plutonium Reclamation Facility canyon work (legacy plutonium holdup), and delays in characterization sampling and equipment procurements (lab support for transition);
- Earned value on transition operation support apportioned to delayed D&D work scope and being behind schedule on facility modifications; and
- Corresponding delays in solid waste disposal activities from delayed D&D activities.

This negative schedule variance is partially offset by early completion of plutonium stabilization activities.

Cost Performance (+\$1.0M/+0.7%):

Primary contributors to the favorable cost variance include:

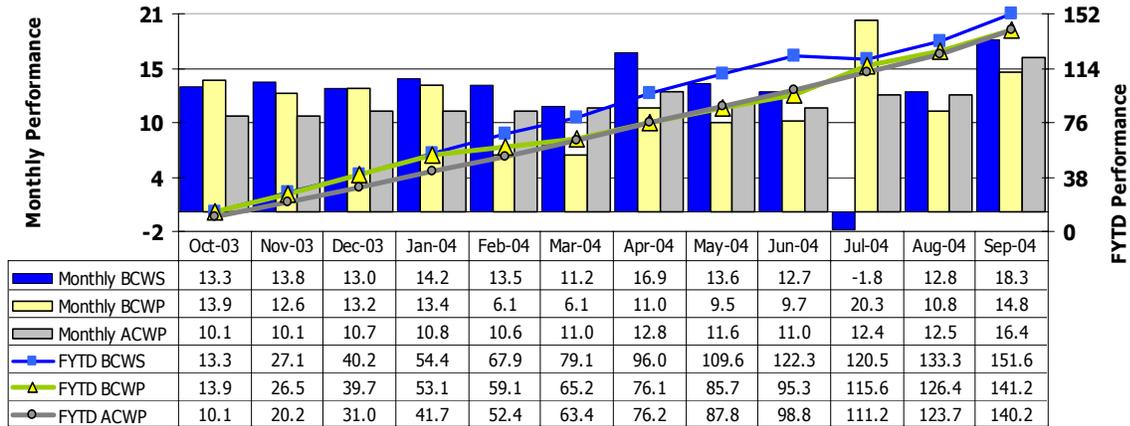
- Early completion of plutonium stabilization and efficiencies in min-safe surveillance operations and corrective/preventive maintenance, solid waste disposal, legacy plutonium hold-up removal;
- Efficient use of existing laboratory and legacy plutonium holdup removal teams and the SNM de-inventory team to support legacy plutonium holdup removal activities within the 234-5Z facility;
- Year-end variance distribution credit; and
- Revenue and work transfers in Closure Services.

These positive cost variances are partially offset by:

- Dedicated partial staffing for 241-Z with slowed progress due to the Tank D5 liquid transfer delay, unplanned scope associated with 241-Z tank hazards analysis and waste consolidation;
- Costs for D&D facility modifications pending resolution of technical problems;
- Increased documented safety analysis implementation and engineering evaluation/cost analysis costs; and
- Apportioned D&D project management activities due to overall delays in D&D.

FY 2004 Schedule/Cost Performance, continued

Performance Analysis FYTD and Monthly (\$M)



Milestone Achievement

| Number | Milestone Title | Type | Due Date | Actual Date | Forecast Date | Status/Comments |
|--------------------------|---|-----------|------------------------|-------------|---------------|---|
| TRP-05-501 TRP-05-506 | Discontinue Waste Discharges from the 241-Z Tanks to Tank Farms | TPA PI | 6/30/05 | | 6/30/05 | On Schedule |
| TRP-05-503 | Complete Deinventory of DOE-STD-3013 Containers & Unirradiated Fuel by Shipment to SRS or Other Approved Location | PI | 9/30/06 | | TBD | Behind Schedule Awaiting Authorization to Ship |
| TRP-05-504 | Remove and Disposition Pu Holdup in Process Equipment at PFP | PI | 9/30/05 | | 7/31/05 | Ahead of Schedule |
| TRP-05-505 | Transition 10 Facilities to Slab-on-Grade | PI | 9/30/05 | | 7/31/05 | Ahead of Schedule |
| TRP-06-500 | Decontaminate Glovebox HA-20MB | PI | 3/31/06 | | 12/31/04 | Ahead of Schedule |
| TRP-06-501 | Complete 100% Legacy Pu Holdup Removal and Disposition | TPA | 9/30/06 | | 7/31/05 | Ahead of Schedule |
| TRP-06-502 TRP-06-507 | Transition 232-Z Bldg Incinerator to Slab-on-Grade | TPA PI | 9/30/2006 3/31/2006 | | 11/30/05 | Ahead of Schedule |
| TRP-06-503 | Remove Remaining SNM From PFP Such That Protected Area Not Required | PI | 9/30/06 | | TBD | Behind Schedule Awaiting Authorization to Ship |
| TRP-06-507 | Transition 232-Z Bldg Incinerator to Slab-on-Grade | PI | 3/31/06 | | 11/30/05 | Ahead of Schedule |
| TRP-06-509 | Disposition Miscellaneous PFP Nuclear Materials | PI | 9/30/06 | | TBD | Behind Schedule Awaiting Authorization to Ship |
| TRP-06-510 | Transition 241-Z/ZA Facility to Demolition Ready | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-511 | Remove or Decontaminate 236-Z Pencil Tanks | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-512 | Remove or Decontaminate the 236-Z Process Equipment in Rooms 50 & 60 | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-513 | Remove or Decontaminate the Remaining 236-Z Process Equipment | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-514 | Remove or Decontaminate 189 Gloveboxes and Hoods in 234-5Z | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-515 | Complete 242-Z Initial Entry & Characterization | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-516 | Cleanout Pu & Am Contaminated Gloveboxes and Tanks in 242-Z | PI | 9/30/06 | | 9/30/06 | On Schedule |
| TRP-06-517 | Dispose of Approximately 600 Pu Nitrate Containers at PFP | PI | 9/30/06 | | 9/30/06 | On Schedule |