

# SPENT NUCLEAR STABILIZATION AND DISPOSITION (RL-0012)

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***K East Basins - Fuel  
Transfer System Operations***



***K West Basins***

***Fuel Retrieval  
System***



***Canister Storage Building –  
Multi-Canister Overpack Welding***



***Canister Cleaner  
Operations***



***Loading Cask on  
Trailer at K West***

***Sludge Retrieval and Disposition***  
- Test loading large diameter  
container into casks at K Basins



***Cold Vacuum  
Drying Facility –  
Multi-Canister  
Overpack Processing***

## OVERVIEW

This section addresses work in Project Baseline Summary RL-0012, *Spent Nuclear Fuel Stabilization and Disposition*.

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

## NOTABLE ACCOMPLISHMENTS

**Sludge Disposition Alternatives:** Sludge activities associated with the accelerated disposition pathway continued. Safety authorization basis changes were implemented for the KE Basin North Loadout Pit (NLOP) sludge retrieval, and the NLOP Readiness Plan of Action was approved by DOE-HQ. The Contractor Operational Readiness Review (ORR) was conducted; fabrication of the KE sludge consolidation bulk containers was initiated; and work was initiated to put together the competitive bid strategy for the basins sludge removal, stabilization, and packaging (excluding NLOP sludge). The stabilization and packaging will be required to meet the draft Waste Isolation Pilot Plant remote-handled transuranic waste acceptance criteria.

**Tri-Party Agreement (TPA) Milestones:** RL and FH have successfully negotiated proposed changes for the TPA milestones associated with sludge retrieval and basin disposition. The negotiated milestones reflect current proposed contract changes associated with the accelerated sludge disposition approach and the basins grout and remove approach. The milestone change packages have been issued for public review and comment prior to final approval by the three parties (the U.S. Environmental Protection Agency Region 10, State of Washington Department of Ecology, and RL).

**Fuel Transfer System (FTS):** Spent Nuclear Fuel (SNF) completed 18 FTS shipments (180 canisters) during the month of April. As of May 11, 2004, a cumulative total of 309 FTS shipments (3,088 canisters) have been completed.

**Fuel Movement Activities:** SNF completed 11 multi-canister overpack (MCO) shipments containing 58.0 metric tons of heavy metal (MTHM) from the K West Basin to the Cold Vacuum Drying Facility during April. As of May 11, 2004, a cumulative total of 331 MCOs containing an estimated 1,801 MTHM have been shipped.

**MCO Welding at the Canister Storage Building (CSB):** SNF welded and "N" stamped 15 MCOs during April. As of May 11, 2004, a cumulative total of 185 MCOs were welded and "N" stamped, which is 17 MCOs ahead of the baseline schedule.

**Deactivation:** The procurement was awarded for the KE Discharge Chute grout mix design and test pour to demonstrate vendor capability. Documentary evidence to confirm that the KE Discharge Chute meets accepted waste disposal criteria has been assembled. Revisions to the K Basins Remedial Design Report/Remedial Action to incorporate the planned actions for the Discharge Chute have been transmitted to RL. Specific items of the debris reduction and removal equipment associated the KE wash/load-out station have been received and installed, and are currently undergoing testing in the KE Basin.

## ISSUES

**Sludge Retrieval and Disposition:** Preliminary sludge process/packaging study results indicate that separation of uranium metal from sludge will be necessary to minimize the number of waste packages. The Request for Proposal (to be issued in May 2004) will require bidders to identify treatment alternatives to address the uranium metal; current budget estimates include some provision for a metal separation process.

**Fuel Production:** As of May 14, 2004, SNF is approximately one week behind the revised FTS and MCO production schedules. FH has obtained approval to revise its overly-conservative airborne radiological control limits to be 30 percent of the DOE limit. This will enable most remaining underwater work in the basins to be performed without respiratory protection, thus improving the current FTS production rates. FH is also planning to implement a revised shift schedule for MCO workers which should result in improved MCO production rates.

### FY 2004 FH FUNDS VS. SPEND FORECAST (\$000)

	FY 2004 Anticipated Funding w/Carryover	FY 2004 Fiscal Year Spend Forecast	Variance
SNF Stabilization & Disposition	\$ 180,531	\$ 192,297	\$ (11,766)

The current funding allocation includes \$2M for moving the Fast Flux Test Facility (FFTF) un-irradiated fuel from the Plutonium Finishing Plant (PFP) to the CSB. It has now been determined that the FFTF un-irradiated fuel will be stored at PFP and shipped directly from PFP to the Savannah River Plant. The FY 2004 funds associated with FFTF fuel movement will be reallocated to other Hanford work priorities.

SNF will utilize the projected under run within the 2012 Accelerated Completion Control Point to offset the forecasted over run above.

### FY 2004 SCHEDULE/COST PERFORMANCE (\$K)

	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
SNF Stabilization & Disposition	95,308	58,142	109,828	-37,166	-39%	-51,687	-89%	161,739

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

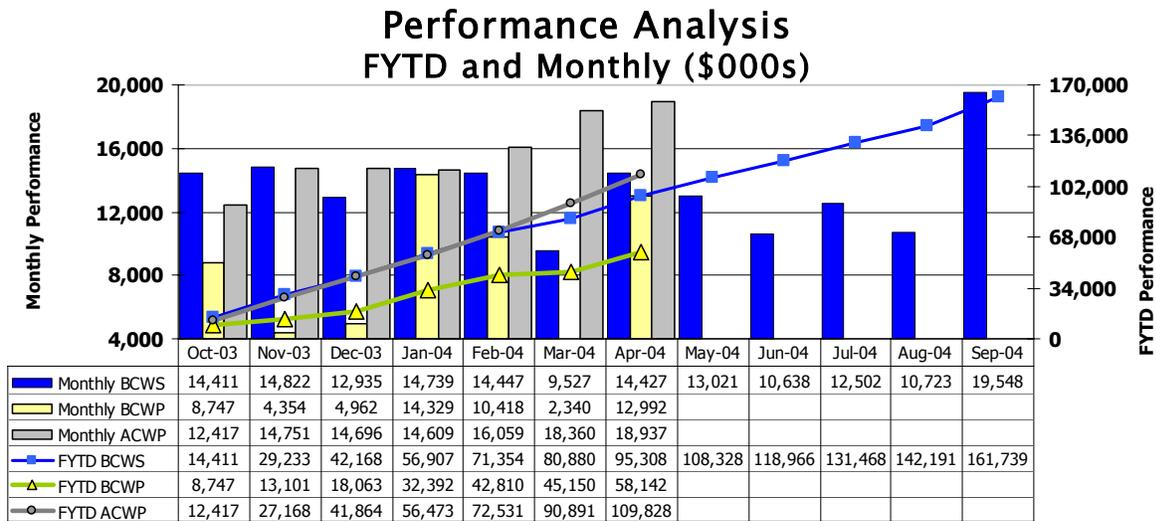
**Schedule Performance (-\$37,166K/-39%):** The unfavorable schedule variance is due to:

- FTS and MCO shipment delays (-\$14,658K);
- Ceasing deactivation work not required for the grout and remove option (-\$4,220K);
- Ceasing work associated with the baseline sludge retrieval plan that is inconsistent with the accelerated sludge retrieval and disposition approach (-\$12,516K);
- Value of general support activities that are apportioned to the overall project progress for earned value measurement purposes (i.e., surveillance and maintenance, engineering, project management, etc.) (-\$5,940K); and
- The unfavorable schedule variance is partially offset by a favorable performance for MCO welding (+\$218K).

## FY 2004 SCHEDULE/COST PERFORMANCE, CONTINUED

**Cost Variance (-\$51,687K/89%):** The unfavorable cost variance is due to:

- FTS and MCO shipment delays, i.e., staffing requirements remain unchanged regardless of fuel production levels until fuel production is complete (-\$23,844K);
- Unbudgeted K East sludge retrieval readiness preparations (-\$4,130K);
- Implementation of the grout and remove option per RL direction pending completion of contract negotiations and implementation of adjusted baseline (-\$914K);
- Implementation of the accelerated sludge disposition path per RL direction pending completion of contract negotiations and implementation of adjusted baseline (-\$17,651K); and
- Value of general support activities that are apportioned to the overall project progress for earned value measurement purposes (i.e., surveillance and maintenance, engineering, project management, etc.) (-\$5,149K).
- The schedule variance for the spent nuclear fuel portion will slowly self-correct as the fuel continues to be moved. The expected cost variance upon completion of fuel is expected to be about \$30.3 million, which is directly attributable to the additional six months to support completion of the fuel movement. The majority of the sludge and deactivation variances will be resolved once a baseline change to incorporate the revised scope and schedule is implemented, currently planned for July 2004.



## MILESTONE ACHIEVEMENT

Number	Milestone Title	Type (TPA/PI/ DNFSB)	Due Date	Actual Date	Forecast Date	Status/ Comments
M-34-29 (S15-02-001)	Complete K East Basin and K West Basin facility modifications for Alternate Fuel Transfer System casks transportation system	TPA	3/31/02	9/12/02		Complete
M-34-12-T01 (S15-02-001)	Complete construction of SWS (Construction Completion Document Section IIA)	TPA	9/30/02	3/4/03		Complete
M-34-17 (S00-02-901)	Initiate K East to K West fuel transfer	TPA/Performance Incentive (PI)	11/30/02	11/25/02		Complete
M-34-18A (S03-03-068)	Complete removal of 957 MTHM of SNF from the K West Basin	TPA/PI/DNFSB	12/31/02	1/7/03		Complete
M-34-08 (S04-02-205)	Initiate full scale K East Basin sludge removal	TPA/PI/DNFSB	12/31/02		8/1/04	Missed. See note below
M-34-27-T01 (S03-03-069)	Complete removal of 1,252 MTHM of SNF from K West Basin	TPA	5/31/03	5/28/03		Completed 5/28/03, 3 days ahead of schedule
M-34-28 (S03-03-070)	Complete removal of 1,619 MTHM from the K West Basin	TPA	12/31/03	1/13/04		Complete
M-34-25-T01 (S03-04-001)	Complete transfer of K East Basin SNF to K West Basin	TPA/PI	5/31/04		6/30/04	Working to complete by 6/30/04
M-34-18B (S00-00-902)	Complete removal of all K Basin SNF	TPA/PI/DNFSB	7/31/04		8/31/04	Working to complete by 8/31/04
S04-00-205, CD4	Complete ORR for sludge transfer from K Basins		12/31/02		5/15/04	Missed. See note below
M-34-10 (S04-01-215)	Complete sludge removal from K Basins	TPA/PI/DNFSB	8/31/04		TBD	See note below

## MILESTONE ACHIEVEMENT, CONTINUED

<b>Number</b>	<b>Milestone Title</b>	<b>Type (TPA/PI/ DNFSB)</b>	<b>Due Date</b>	<b>Actual Date</b>	<b>Forecast Date</b>	<b>Status/ Comments</b>
M-34-23 (S10-99-953)	Start K East water removal	TPA	9/30/04		9/30/04	See note below
S07-04-005	Consolidate spent fuel in the 200 Area	PI	9/30/04		9/30/04	On schedule
M-34-09-T01 (S04-05-516)	Complete K Basins rack and canister removal	TPA	1/31/05		1/31/05	See note below
M-34-24 (S10-99-954)	Complete K East Basin water removal	TPA	6/30/05		9/30/05	See note below
M-34-22-T01 (S10-99-952)	Complete K West Basin water removal	TPA	9/30/05		8/31/06	See note below
M-34-21 (S10-99-951)	Initiate full-scale K West Basin water removal	TPA	2/1/05		10/31/05	See note below
S04-06-005	Transfer of K Basins to the River Corridor Contractor	PI	10/30/05		10/30/05	On schedule
M-34-00A (S10-99-955)	Complete removal of K Basin fuel/sludge/debris/water from K Basins	TPA (Major)	7/31/07		7/31/07	See note below

NOTE: Milestone subject to possible change based on accelerated K Basin sludge disposal and basin deactivation approach.