

Spent Nuclear Stabilization and Disposition, RL-0012

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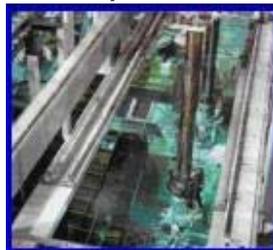
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K East Basins - Fuel Transfer System Operations



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 Project Baseline Summary (PBS) RL-0012, *Spent Nuclear Fuel (SNF) Stabilization and Disposition*.

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

NOTABLE ACCOMPLISHMENTS

Sludge Disposition Alternatives: Based on feedback from presentations delivered to RL on November 18, 2003, and to DOE-HQ's Environmental Management-3 on December 5, 2003, FH has implemented the accelerated schedule for the disposition of the K-Basin sludge to the Central Waste Complex for shipment to the Waste Isolation Pilot Plant (WIPP) rather than retrieving the sludge and placing it in long-term, monitored storage in T-Plant. The revised sludge plan calls for the near-term retrieval of sludge from the K-East North Load Out Pit (NLOP) and transportation to the 325 Radiochemical Processing Laboratory (RPL) for immobilization and packaging for disposal at the WIPP. It also provides for the consolidation and containerizing of the balance of K-East sludge and transfer to K-West Basin to stage for processing, and processing K-East and K-West basin sludge streams into immobilized waste packaging suitable for final disposition at WIPP. The new sludge remedy eliminates the risks and costs of long-term storage of the K Basins sludge at T-Plant, and accelerates sludge disposal to the WIPP by over ten years.

Characterization and treatment test results of sludge from the K-East NLOP show that treatment of the sludge to contact-handled WIPP acceptance criteria will be achieved. Testing was performed at the 325 RPL by the Pacific Northwest National Laboratory. The Sludge and Water System (SWS), Active Inert Ventilation System, and Sludge Transportation System will all be utilized to retrieve and transport the NLOP sludge to the 325 RPL for processing.

A baseline change request outlining the proposed alternative sludge disposition pathway has been submitted to RL for review and approval.

Fuel Transfer System (FTS): SNF achieved its highest FTS production month ever with the completion of 31 FTS shipments (310 canisters) during the month of January. Additionally, SNF has maintained over 90 percent system availability since December 2003. As of February 16, 2004, a cumulative total of 268 FTS shipments (2,678 canisters) have been completed.

Fuel Movement Activities: On January 13, 2004, the SNF project completed Tri-Party Agreement (TPA) milestone M-34-28 (1,619 metric tons of heavy metal [MTHM]) with shipment of the 298th multi-canister overpack (MCO). SNF completed shipment of a total of nine MCOs containing 54.87 MTHM from the K-West Basin to the Cold Vacuum Drying Facility during January. As of February 16, 2004, a cumulative total of 308 MCOs containing an estimated 1,682 MTHM have been shipped.

MCO Welding at the Canister Storage Building (CSB): SNF welded and "N" stamped 13 MCOs during January for a cumulative total of 134 at month end. As of February 16, 2004, a cumulative total of 138 MCOs were welded and N stamped, and SNF which is 14 MCOs ahead of the baseline schedule.

NOTABLE ACCOMPLISHMENTS (CONTINUED)

Deactivation: Preparations are underway for two key FY 2004 activities:

- **Grouting the K-East Basin Discharge Chute:** Discussions are under way with the Environmental Restoration Contractor to reach agreement on the requirements related to the K-East Reactor-side of the discharge chute. FH and RL have discussed the proposed grouting activity with the Environmental Protection Agency (EPA) and received positive feedback.
- **Installation of decontamination station and equipment in K-East (will be integrated with the Sludge sub-project):** Vendor quotes are being evaluated, and the Decontamination and Decommissioning (D&D) sub-project is working with the Central Plateau and Plutonium Finishing Plant (PFP) sub-projects to leverage their decontamination experience.

Additionally, the EPA approved the Sampling and Analysis Plan for the hydrolased concrete wastes generated during the demonstration at K-East last month. The D&D sub-project is working with SNF sub-project staff to ship hydrolased samples to the 222-S laboratory for analysis. This analysis will be used to characterize the wastes for proper disposal.

ISSUES

Sludge Retrieval and Disposition: The TPA milestone (M-34-08) to begin K-East sludge movement by December 31, 2002, was missed. FH and RL have conducted several briefings to the EPA on the proposed sludge remedy. A Time Critical Remediation Action has been prepared to allow the disposition of the NLOP sludge retrieval and treatment prior to a permit modification. Additional discussions, including a new set of TPA milestones set to the new accelerated sludge disposal schedule (if necessary), are in process.

Fuel Production: Removal of all K-East Basin fuel is based upon improved reliability of FTS equipment. As of February 16, 2003, SNF is approximately six shipments behind the production schedule to complete removal of all K-East basin fuel at the end of April 2004. To achieve the current production schedule, SNF will need to complete an average of approximately eleven shipments per week. Implemented sub-project improvements have resulted in improved equipment availability of over 90 percent since December, and increased production performance. Improvements implemented during January include:

- A pre-approved maintenance package for traveling-nut replacement; and
- Finalized the pre-approved recovery plans for upset conditions.

The degraded fuel condition is impacting MCO production efficiency. The degraded fuel requires additional washing cycles and causes the Primary Clean Machine to jam frequently. There are fewer fuel assemblies per can that are suitable for a fuel basket. Also, water treatment filters are plugging more frequently, and back-flushing takes the Primary Clean Machine out of service. A Process Focus Group has been established to identify process improvements that can improve production efficiency.

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

	FY 2004 Anticipated Funding w/Carryover	FY 2004 Fiscal Year Spend Forecast	Variance
RL-0012 SNF Stabilization & Disposition	\$ 180,556	\$ 178,982	\$ 1,574

Funding includes moving the Fast Flux Test Facility (FFTF) un-irradiated fuel from the 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 priorities.

FY 2004 SCHEDULE/COST PERFORMANCE (\$000)

	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	56,907	32,392	56,473	-24,515	-43%	-24,081	-74%	162,394

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

Schedule Variance Analysis (-\$24,515K/-43%): The unfavorable schedule variance is due to:

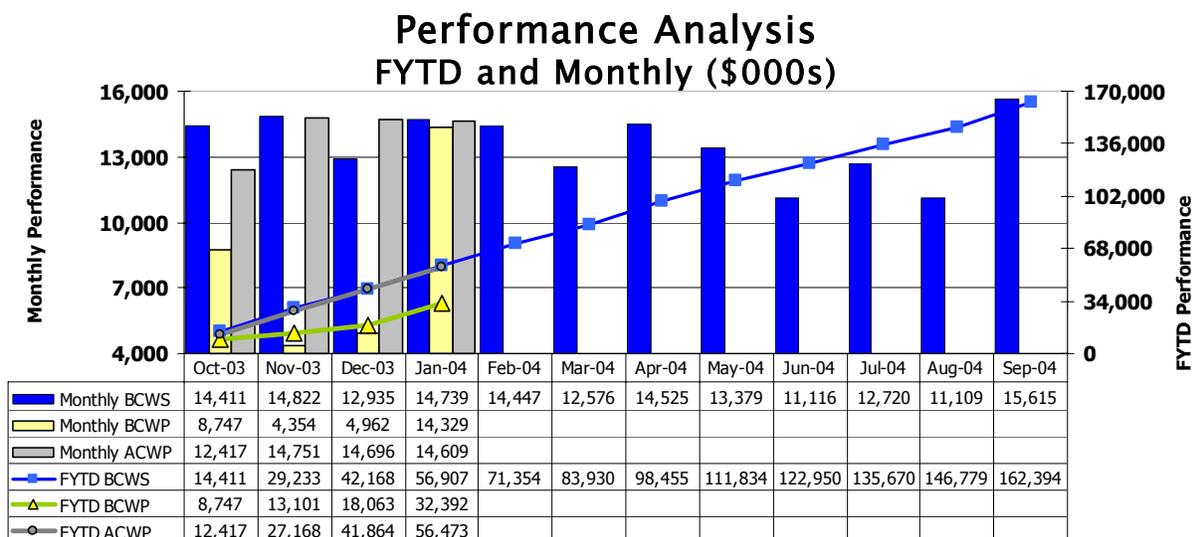
- Fuel movement from FTS and MCO shipments are behind schedule (-\$12,044K).
- Welding continues ahead of schedule (+\$184K).
- Performing only that planning work required for both the baseline approach and the revised Grout and Remove approach. In accordance with guidance received from RL, actual basin and ancillary facility deactivation scope is not being performed pending approval of the baseline change request to implement the Grout and Remove approach, and to defer the ancillary facility deactivation to FY 2007 (-\$4,995K).
- MCO fabrication vendor problem with failed leak testing in the final MCO is causing late delivery (-\$23K).
- Halting the baseline approach to sludge retrieval pending a final decision regarding implementation of the accelerated sludge disposal alternative in accordance with informal discussions between FH and RL (-\$3,360K).
- The balance of the schedule variance is attributed to support activities (i.e., maintenance, engineering, project management, etc.), which are tied to fuel shipment, deactivation, and sludge retrieval schedules for earned-value purposes (-\$4,273K).

Cost Variance Analysis (-\$24,081K/-74%): The unfavorable cost variance is due to the following:

- Cost continues to be incurred to maintain qualified project staff while fuel shipments lag (-\$13,876K).
- K-East SWS continues design finalization towards an Operational Readiness Review for sludge retrieval (-\$3,556K).
- Work on the new "alternative" method of Sludge disposition continues against no budget (-\$807K).
- Inaccurate time-phasing of Sludge Operations budget (-\$1,696K).
- The balance of the cost variance is attributed to support activities (i.e., maintenance, engineering, project management, etc.), which are tied to fuel shipment schedules, deactivation, and sludge retrieval schedules for earned-value purposes.

FY 2004 SCHEDULE/COST PERFORMANCE (CONTINUED)

- The cost variance for the spent nuclear fuel portion will slowly self-correct as the fuel continues to be moved. The expected variance upon completion of fuel is expected to be about \$8 million, which is directly attributable to the additional three months of management, operations, maintenance, and engineering staff to support completion of the fuel movement. The sludge and deactivation portion will be adjusted upon approval of Baseline Change Request FH-2004-007.



Milestone Achievement

Number	Milestone Title	Type (TPA/DNFSB/PI)	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	09/30/02	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/DNFSB/PI	12/31/02	1/7/03		Complete
M-34-08 (S04-02-205)	Initiate full scale K-East Basin sludge removal	TPA/DNFSB/PI	12/31/02		3/22/04	Missed. Will initiate with NLOP on 3/22/04.

MILESTONE ACHIEVEMENT (CONTINUED)

Number	Milestone Title	Type (TPA/ DNFSB/PI)	Due Date	Actual Date	Forecast Date	Status/ Comments
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	11/1/03		4/04	Missed. Working to complete 4/04.
M-34-18B (S00-00-902)	Complete removal of all K Basin SNF	TPA/DNFSB/PI	2/28/04		7/04	Working to complete 7/04.
S04-00-205, CD4	Complete ORR sludge transfer from K Basins		12/31/02		3/15/04	Missed. Will initiate with NLOP on 3/15/04.
M-34-10 (S04-01-215)	Complete sludge removal from K Basins	TPA/DNFSB/PI	8/31/04		8/31/04	Scope and schedule for completing interim milestone subject to change based on revised sludge remedy involving treatment and packaging for WIPP disposal.
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 (S10-99-952)	Complete K-West Basin water removal	TPA	9/30/05		8/31/06	See note below
M-34-21-T01 (S10-99-951)	Initiate full-scale K-West Basin water removal	TPA	2/1/05		10/31/05	See note below
S06-06-005	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.