

Spent Nuclear Fuel (SNF) Stabilization and Disposition Storage Operations (HQ-0012X); and SNF Stabilization and Disposition (RL-0012)

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Grouting of the K West Discharge Chute



Overview

This section addresses work in Project Baseline Summary (PBS) HQ-0012X, *Spent Nuclear Fuel Stabilization and Disposition Storage Operations*; and RL-0012, *Spent Nuclear Fuel Stabilization and Disposition*.

NOTE: Unless otherwise noted, all information contained herein is as of the end of September 2005.

Top FY 2005 Accomplishments

Fuel Movement Activities: FH completed removal of loadable fuel on October 15, 2004, completing TPA Milestone M-34-18B, "Complete Removal of All K Basin Spent Nuclear Fuel."

Sludge Disposition: The K Basins Closure Project completed the Readiness Assessment and initiated sludge collection in the K East Basin, thereby meeting Tri-Party Agreement (TPA) Milestone M-34-33A on October 31, 2004.

Upon RL approval of FH's sludge treatment recommendation, a contract was placed with British Nuclear Group America (BNG) on November 2, 2004, completing the Defense Nuclear Facilities Safety Board (DNFSB) Milestone 2001-1-121 ("Select Sludge Treatment Method"), 28 days ahead of its November 30, 2004, due date.

Multi-Canister Overpack (MCO) Welding at the Canister Storage Building (CSB): Welding of all available (379) MCOs was completed on May 17, 2005, and all Shippingport Fuel Canisters (18) on June 16, 2005. Work was completed 14 days ahead of schedule. The "N" stamp welding campaign maintained a flawless record of zero defects throughout the three-year effort.

Decontamination and Demolition (D&D): The grouting of the K West discharge chute was completed, sealing the construction joint and eliminating a potential leak pathway. The placement of 558 cubic yards of grout was completed on September 25, 2005, three months ahead of TPA M-34-21-T01, "Initiate Full Scale K West Basin Water Removal," due December 31, 2005.

Notable September Accomplishments

SNF Stabilization and Disposition (PBS RL-0012)

Sludge Retrieval and Treatment: Removal of fuel racks and debris through the newly installed removal station reached 47 percent of racks (95 of 204) and 8 percent of debris units (124 of 1594). The rate of removal is remaining ahead of the revised plan that was submitted to DOE-RL on September 30, 2005. The K East to K West transfer system installation reached 87 percent complete and the K West floor and pit sludge retrieval system installation reached 75 percent completion. Sludge treatment completed the initial Hazops review for the Imaging Passive-Active Neutron (IPAN) system and completed the Mobile Solidification System (MOSS) drum mixing test and report.

Issues

Sludge Treatment: A review of previously considered options for the stabilization of the K Basins sludge was conducted for the purpose of identifying a fallback option (or options) to the current baseline stabilization process. The review panel issued a preliminary report to the Sludge Treatment Project Manager on October 13, 2005. No new technology for treatment was identified. Technical approaches for sludge treatment exist that could reduce dose consequences and subsequent risks. No final recommendation can be made until a thorough, disciplined engineering study is completed.

KBC Baseline Update: FH submitted an updated lifecycle baseline to DOE-RL on September 30, 2005, in support of a recommendation to change the DNFSB Implementation Plan milestones. Preliminary feedback indicates the revised milestones will be accepted and the forecasted dates are reflected in this report. DOE-HQ and RL review of the proposed life-cycle plan are schedule for November 2005.

FY 2005 Funds vs. Actuals (\$M)

		Projected FY 2005 Funding	FY 2005 Fiscal Year Spend Forecast	Variance
HQ-0012X	SNF Stabilization and Disposition Storage Ops	\$ 0.9	\$ 0.8	\$ 0.1
RL-0012	SNF Stabilization & Disposition	\$ 151.9	\$ 142.8	\$ 9.1
Total		\$ 152.8	\$ 143.6	\$ 9.2

FY 2005 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
HQ-0012X	SNF Stabilization and Ops	\$0.9	\$0.9	\$0.8	\$0.0	0.0%	\$0.1	8.5%	\$0.9
RL-0012	SNF Stabilization & Disposition	\$106.2	\$101.6	\$142.8	-\$4.6	-4.4%	-\$41.2	-40.6%	\$106.2
Total		\$107.1	\$102.5	\$143.6	-\$4.6	-4.5%	-\$41.2	-40.2%	\$107.1

Numbers are rounded to the nearest \$0.1M and include the closure services allocation.

Schedule Performance (-\$4.6M/-4.5%): The variance is due to:

- North Loadout Pit sludge collection and treatment (-\$0.2M).
- Delays in K East Basin sludge containerization (-\$0.5M).
- Delays in K East to K West Transfer System and Fuel Retrieval (BNGA) (-\$5.1M).
- Delayed hydrolasing, K West Discharge Chute, K East Grout and Dewater and K East Superstructure (-\$4.6M).

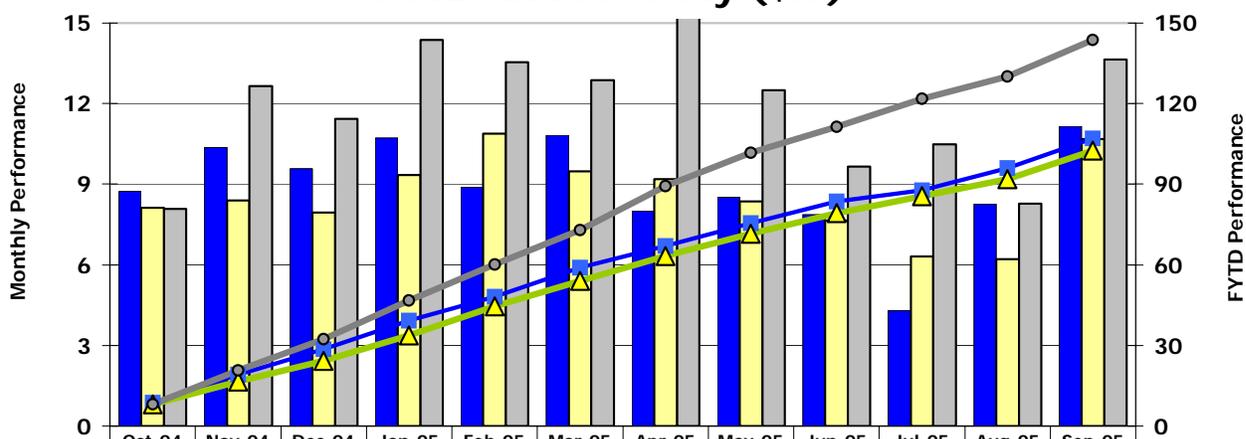
The unfavorable schedule variance is partially offset by a favorable schedule variance for completing MCO movement activities that were budgeted to be completed in FY 2004 (+\$1.7M), completing sludge FY 2004 carryover activities (\$+3.1M), MCO welding ahead of schedule (+\$0.2M), and Sludge Treatment acceleration from FY 2006 (+\$1.2M).

FY 2005 Schedule/Cost Performance (\$M), continued

Cost Performance (-\$41.2M/-40.2%): The variance is due to:

- Overruns developed in completion of fuel movement (-\$1.5M).
- Unplanned Ion Exchange Module procurement required due to water clarity issues requiring increased replacement frequency (-\$0.6M).
- Labor/material overruns in Safe and Compliant activities due to underestimated requirements and the delay in ramp-down from fuel removal activities (-\$3.4M).
- Increased cost in Sludge Retrieval activities (K East Containerization, Sludge Transfer System, K West Retrieval, etc.) due to slower progress resulting in higher labor costs for the work being completed. Procurement of additional materials such as cameras, tools, and filters to resolve water visibility problems (-\$35.2M), and D&D labor rates and technical requirements (-\$3.4M).
- Offset by efficiencies at the Canister Storage Building (CSB) (+\$1.4M) and Closure Services (+\$0.3M), under runs in NLOP due to savings by moving treatment from 325 Building to T-Plant (+\$3.9M), and sludge treatment staffing level lower than plan (+\$0.3M).

**Performance Analysis
FYTD and Monthly (\$M)**



	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05
Monthly BCWS	8.7	10.4	9.6	10.7	8.9	10.8	8.0	8.5	7.9	4.3	8.2	11.2
Monthly BCWP	8.1	8.4	8.0	9.3	10.9	9.5	9.2	8.4	7.6	6.3	6.2	10.7
Monthly ACWP	8.1	12.7	11.4	14.4	13.5	12.9	16.2	12.5	9.7	10.5	8.3	13.6
FYTD BCWS	8.7	19.1	28.6	39.3	48.2	59.0	67.0	75.5	83.5	87.7	95.9	107.1
FYTD BCWP	8.1	16.5	24.3	33.7	44.6	54.0	63.2	71.5	79.3	85.6	91.8	102.5
FYTD ACWP	8.1	20.7	32.3	46.6	60.2	72.9	89.2	101.7	111.4	121.7	130.0	143.6

Milestone Achievement

Number	Milestone Title	Type (TPA/PI/DNFSB)	Due Date	Actual Date	Forecast Date	Status / Comments
M-034-18B (S00-00-902) (S10-05-012)	Complete removal of all K Basin SNF	TPA/DNFSB/ PI	07/31/04	10/15/04		Complete
DNFSB 2001-1 (S10-05-012)	Remove SNF from K Basins	DNFSB	07/31/04	10/12/04		Complete
RL-12-1.aa (S10-99-960)	Complete SNF Removal from K West	PI	08/31/04	10/15/04		Complete
RL12-1.cd (S10-99-977)	Initiate Full Scale K East Water Removal	PI	09/30/04	09/19/04		Complete
M-034-33A (S10-05-009)	Initiate Sludge Containerization	TPA	10/31/04	10/31/04		Complete
DNFSB 121 (S10-05-013)	Select Sludge Treatment Method	DNFSB	11/30/04	11/15/04		Complete
RL-12-1.c (S10-99-966)	Complete K East Discharge Chute Immobilization	PI	12/30/04	08/20/04		Complete
DNFSB 119E (S10-05-014)	Complete K East Sludge Consolidation	DNFSB	12/31/04		10/31/06	Behind Schedule
RL-12-1.ba (S10-99-083)	Treat 1 Cubic Meter of Sludge	PI	02/28/05		11/30/05	Behind Schedule
M-034-33B (S10-05-018)	Complete K East Sludge Containerization	TPA	03/01/05		13/31/6	Behind Schedule
S10-99-80	Complete MCO Welding	PI	06/30/05	06/16/05		Complete
DNFSB 120E (S10-05-015)	Complete K East Basin Sludge Removal	DNFSB	07/31/05		05/31/07	Behind Schedule
RL-12-1.b (S10-99-082)	Transfer K East Sludge to K West Containers	PI	11/30/05 *		05/31/07	Behind Schedule
RL-12-1.bb (S10-99-963)	Transfer Found Fuel and Fuel Scrap from K East to K West	PI	11/30/05 *		11/09/06	Behind Schedule
M34-21-T1 (S10-99-951)	Initiate Full Scale K West Basin Water Removal	TPA	12/31/05	09/26/05		Complete
RL-12-1.cg (S10-99-973)	Immobilize K West Discharge Chute	PI	12/31/05	09/26/05		Complete
M-034-34 (S10-05-010)	Complete Removal of K East Sludge	TPA	01/31/06		05/31/07	Behind Schedule
RL-12-1.ch (S10-99-976)	Complete Removal of Contaminated Fuel Canisters	PI	01/31/06	06/21/05		Complete
RL-12-1.ce (S10-99-978)	Complete K East Water Removal	PI	01/31/06		11/02/07	Behind Schedule
DNFSB 119W (S10-05-016)	Complete K West Sludge Containerization	DNFSB	02/28/06		07/31/07	Behind Schedule
RL-12-1.ca (S10-99-967)	Encapsulate 3 K East Bays	PI	02/28/06		11/02/07	Behind Schedule
RL-12-1.bd (S10-99-965)	Commencement of Floor and Canister Sludge Treatment	PI	07/31/06 *		10/27/08	Behind Schedule
RL-12-1.cb (S10-99-968)	Remove K East Superstructure	PI	06/30/06		08/14/08	Behind Schedule
M-034-35 (S10-05-011)	Containerize K West Sludge	TPA	06/30/06		07/31/07	Behind Schedule
RL-12-1.cc (S10-99-969)	Complete First K East Basin Section Disposal	PI	07/31/06		12/12/08	Behind Schedule
RL-12-1.ci (S10-99-971)	Decon/Immobilize K West Basin Wall (7600 sq. ft.)	PI	08/31/06		12/28/09	Behind Schedule
RL-12-1.bc (S10-99-081)	Remove Found Fuel and Scrap	PI	09/30/06		06/06/08	Behind Schedule
RL-12-1.cf (S10-99-972)	Complete K East Basin Removal	PI	09/30/06		07/07/09	Behind Schedule

NOTE: HQ-0012X has no milestones.