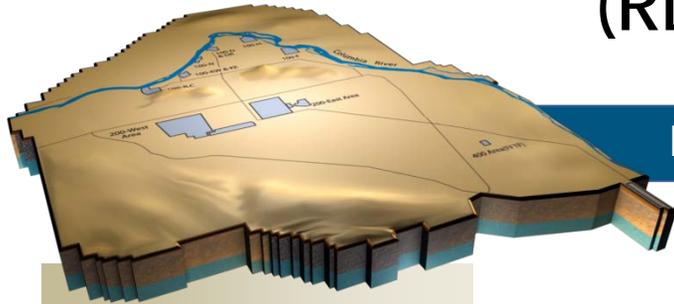
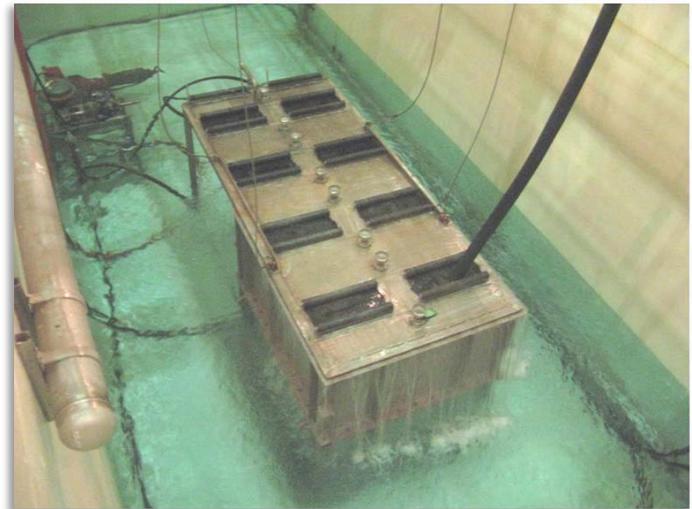


# Section B Spent Nuclear Fuel Stabilization and Disposition (RL-0012)



## Monthly Performance Report

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D&D Project



**Filling the Basin Mockup Pool at the  
Maintenance and Storage Facility**



**Knockout Pot Test Platform**

January 2011  
CHPRC-2011-01, Rev. 0  
Contract DE-AC06-08RL14788  
Deliverable C.3.1.3.1 - 1

## PROJECT SUMMARY

STP and 100K Operations personnel completed the sampling campaign, by shipping the last and final sludge samples from Engineered Container – 210 to Pacific Northwest National Laboratory (PNNL) for characterization and analysis. This completes three years of design, testing, procurement, construction, and operations. The list of organizations and individuals who contributed their expertise to achieve the milestone of sampling and retrieving sludge was extensive. They collectively shared in the success of this first-of-a-kind work that was performed safely, with no accidents, injuries or uptakes incurred.

The KOP subproject has submitted the Fuel Special Packaging Authorization (F-SPA) Shipment Evaluation Checklist (SEC) for the KOP material that will be shipped in the Multi-Canister Overpack (MCO) cask to RL for review and approval. Material was also included to support Type A equivalency determinations for the MCO and the MCO cask; an IP-2 equivalency determination for the copper inserts; the tie down analysis from the existing MCO cask SARP; structural, shielding, thermal, and gas generation analyses; and the Critical Safety Evaluation Report. The subproject personnel also provided the K Basin Engineered Container Sludge and KOP removal Remedial Design/Remedial Action Work Plan (RD/RAWP) to the U.S. Environmental Protection Agency for review and comment. Approval of this document will enable K Basins Operations to proceed with KOP Pretreatment activities and early modification of the K West Basin Annex for the Engineered Container Retrieval and Transport Systems (ECRTS). Thermal calculations for drying KOP product material at the Cold Vacuum Drying Facility (CVDF) were completed by Fauske Associates and delivered to CHPRC as document FAI/10-335. This analysis establishes defensible predictions for the behavior of MCOs containing KOP material for normal, off normal, and accident conditions at CVDF. The results show that MCOs containing KOP product material can be dried effectively and efficiently, that systems are thermally stable with a broad margin, and that hydrogen generation is within expectations. These calculations will support the process technical basis and formal safety documentation. In addition, the KOP testing mezzanine was installed at the MASF and the pre-treatment test hardware and support equipment has been placed and testing initiated. KOP simulant was processed through the wire separations device. Preliminary data is being reviewed by the KOP staff. A curve will be developed that correlates the processing time required to achieve varying levels of separation of the aluminum wire and tungsten simulant. This information will be used to facilitate disposal of the aluminum wire material using accepted K West Basin disposal paths for waste handling. The next phase of testing will involve the density separations equipment.

The ECRTS subproject initiated the Preliminary Design Control Decision meetings this month. Also the draft F-SPA Checklist for the transport of the K East Basin containerized sludge is going through internal CHPRC review. The F-SPA checklist and supporting documents evaluated the transport of the KE Basin sludge (assuming current design basis values) within the Sludge Transport System/Sludge Transfer Storage Cask with the addition of an IP-2 cover. The checklist concludes that up to three cubic meters of K East Basin sludge can be transported safely within the F-SPA's limitations. The draft checklist will be sent to the Assist Team at Savannah River National Laboratory for an external review prior to issuance to RL. In addition, the focus of the MASF Engineers supporting this subproject has been on the preparations/installation of the half EC and Bredel pump into the K West Basin pool mockup, leading to the start of Technology Readiness Level – 6 Integration testing, which is expected to start next month.

The Phase 2 Technology Evaluation contracts are nearing completion. This month Ceradyne Boron Products submitted their final laboratory report on pre-oxidation of uranium metal with peroxide plus iron catalyst. AREVA started work on comment resolution from earlier discussions regarding the description and basis for the remote operations and maintenance concepts required in the pre-conceptual facility design and the Technology Readiness evaluations. AREVA is also still monitoring the 100-gram Uranium prototypic PNNL test and incorporation of comments on remote operations and maintenance. In addition, the first draft of supplemental engineering information for hydrogen mitigation using nitrate addition, oxidation by carbonate/peroxide, and oxidation by Fenton's reagent was developed for review.

Members of the STP staff provided briefings this week to several staff members from the Defense Nuclear Facility Safety Board (DNFSB). Topics included all aspects of STP but focused on the upcoming activities associated with KOP pretreatment and KOP processing system. Additionally, items raised in a recent Board letter, discussing staff reviews of STP, were also addressed. The review included a tour of testing activities currently being conducted and future planned tests at MASF. Closing comments indicated that the presentations were complete and the conversations were candid and helpful in the evaluation of the status of the project. STP believes that further discussions will be necessary, but an accurate foundation has been laid for those discussions.

### EMS OBJECTIVES AND TARGET STATUS

Goal #	Goal	Target	Due Date	Status
1	Reduce use of copier paper by 3 percent at 825 Jadwin and MASF during FY2011	Present goal to STP employees in a memo. Include 2010 usage and 2011 target for Room 301-C and 356 copy machines at 825 Jadwin and copy machine S/N31012668 at MASF	12/31/10	Complete
		Issue quarterly status to all employees	03/31/11, 06/30/11	On Schedule
		Issue year-end status to all employees	09/30/11	On Schedule
2	Recycle/reuse test simulant and basin mockup water at MASF	Outline plan for recycling/reuse of test simulant and Basin mockup water at MASF	12/31/10	Complete
		Issue quarterly status to all employees	03/31/11, 06/30/11	On Schedule
		Assess effectiveness of reuse program and evaluate if continued reuse in FY2012 is warranted.	09/30/11	On Schedule

## TARGET ZERO PERFORMANCE

	CM Quantity	Rolling 12 Month	Comment
Days Away, Restricted or Transferred	0	1	N/A
Total Recordable Injuries	0	4	N/A
First Aid Cases	0	19	N/A
Near-Misses	0	0	N/A

## KEY ACCOMPLISHMENTS

### Sludge Treatment Project (STP)

- Management Assessment DD-2011-MA-9299, *MCO Components Material Storage*, was completed and entered into the CHPRC Tracking System. This assessment documents the acceptability of current storage conditions and identifies MCO subcomponents that must be procured in support of the disposition of KOP product material. Additionally, this assessment documents the conclusions from the inspection of MCO scrap baskets and identifies those baskets that are acceptable for use in KOP Material disposition. Corrective actions were identified.
- In addition to the DNFSB staff review, the STP External Review Panel conducted a meeting this month to review ECRS and KOP subprojects activities, and the Phase 2 Technology Evaluation progress. No new issues were identified during these discussions.
- Preliminary design of the ECRS process equipment continued this month
- Design of the existing K West Annex modifications continued this month
- AREVA, the design agent for the K West Annex final modification, continued to advance the preliminary design this month
- Planning for the cost estimating and schedules to support the Phase 2 Technology Evaluation recommendation has been completed
- An annotated outline of the summary recommendation report and the supporting technical appendices has been developed to finalize planning for the alternatives evaluation process

## MAJOR ISSUES

None identified.

## RISK MANAGEMENT STATUS

Unassigned Risk

Risk Passed

New Risk



Risk Title	Risk Strategy/Handling	Assessment		Comments
		Month	Trend	
STP-030: 100K KOP system operations	Refurbish IWTS, FRS, CLS to minimize operational downtime	●		Baseline includes refurbishment.
STP-007: Competing K Basin Priorities	Integrated, detailed working schedules/plan-of-the-week meetings	●		MCO Dry Runs completed, Engineered Container Sampling campaign have all completed. The next STP activity in KW is Pretreatment operations in April/May.
KBC-010: Unexpected TRU Debris or Other Waste	Develop characterization & blending/packaging strategy; establish alternate waste disposition pathways	●		No issues at this time.
KBC-011: DSA/FHA Limits Impact Waste Staging	Modify DSA/FHA to increase combustible loadings	●		Work in this area is proceeding without impact.
KBC-018: Discovery of Additional Sludge or SNF	Ensure SNF handling capabilities and WCH agreements are in-place	●		Current fuel free validation activities have found no additional fuel elements.
STP-039: KOP Separations Process Qualification	Test the mechanical separations process in a relevant environment at MASF	●		Testing being conducted at MASF has identified changes required to optimize the process.
STP-075A: ECRTS Technology Maturation Testing	Continue technology testing at MASF to demonstrate TRL-6 maturity by March 2012 TRA.	●		Component level testing is being conducted. Full Integrated Testing will commence in January 2011.

## PROJECT BASELINE PERFORMANCE

### Current Month

(\$M)

RL-0012 Spent Nuclear Fuel Stabilization and Disposition	Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)
<b>Base</b>	6.1	6.2	5.4	.1	2.2	.8	13.1

Numbers are rounded to the nearest \$0.1M

#### CM Schedule Performance (\$0.1M/2.2%)

The positive variance is within reporting thresholds.

#### CM Cost Performance (0.8/13.1%)

The positive cost variance in STP is due to four factors: 1) an accrual adjustment to the HiLine costs for the test articles for the ECRTS to close the contracts to actual (+\$293K); 2) an accrual adjustment from PNNL to adjust to actual for the month of December (over accrued) (+\$108K); 3) Estimate to Complete evaluation on the Phase 2 Technology Evaluation scope, adjusting performance to reflect contract to date status (+\$390K); and 4) Performance on the installation of the KOP mezzanine installation this month (+\$130K), offset by a small cost overrun in 100K Facilities Operations account (-\$111K).

## Contract-to-Date

(\$M)

RL-0012 Spent Nuclear Fuel Stabilization and Disposition	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 (BAC)	Estimate at Completion (EAC)	Variance at Completion (VAC)
<b>Base</b>	194.8	191.1	196.1	(3.7)	-1.9	(-5.0)	-2.6	580.1	595.3	(15.2)

Numbers are rounded to the nearest \$0.1M

#### CTD Schedule Performance (-\$3.7M/-1.9%)

The combined 100K and STP variances are within reporting thresholds.

#### CTD Cost Performance (-\$5.0M/-2.6%)

The combined 100K and STP variances are within reporting thresholds.

**Contract Performance Report Formats are provided in Appendix A.**

## FY2011 FUNDS VS. SPEND FORECAST (\$M)

RL-0012 Spent Nuclear Fuel Stabilization and Disposition	FY2011		Spend Variance
	Projected Funding	Spending Forecast	
<b>Base</b>	83.8	86.1	-2.3

Numbers are rounded to the nearest \$0.1M.

### Funds/Variance Analysis

Funding includes FY2010 carryover and FY2011 new Budget Authority. The BASE negative variance reflects a projected PMB overrun of \$3.5M partially offset by \$1.2M of reserve funds. Continued implementation of a site integrated work scope prioritization plan will further address the variance.

### Critical Path Schedule

Critical Path Analysis can be provided upon request.

### Estimate at Completion (EAC)

The BAC and EAC now include FY2009 through FY2018, the PRC contract period.

### Baseline Change Requests

BCR-012-11-002R0, Knockout Pot Project Update, RL-12

## MILESTONE STATUS

Tri-Party Agreement (TPA) milestones represent significant events in project execution. DOE Enforceable Agreement milestones were established to provide high-level visibility to critical deliverables and specific status on the accomplishment of these key events. The PRC Baseline Revision 2 Update, implemented in September 2010, defines CHPRC planning with respect to TPA milestones. The following table is a one year look ahead of key milestones.

Number	Title	Type	Due Date	Actual Date	Forecast Date	Status/ Comment
DNFSB 120W	Complete Sludge Treatment	DNFSB	11/30/09			Letter dated 30 June 2010, from Ms Triay to DNFSB, notifying the board of a pending Implementation Plan update that will address this missed milestone.
M-016-140	Submit Revised RD/RAWP for 100K RODs with New Milestones	TPA	03/31/11			On Schedule

## SELF-PERFORMED WORK

The Section H.20 clause entitled, Self-Performed Work, is addressed in the Monthly Report Overview.

## GOVERNMENT FURNISHED SERVICES AND INFORMATION (GFS/I)

None currently identified.