

Section A

Nuclear Materials Stabilization and Disposition of PFP (RL-0011)



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January 2012
CHPRC-2012-01, Rev. 0
Contract DE-AC06-08RL14788
Deliverable C.3.1.3.1 - 1

PROJECT SUMMARY

The Plutonium Finishing Plant (PFP) Project continues to maintain PFP facilities compliant with authorization agreement requirements.

American Recovery and Reinvestment Act (ARRA)

Removal of plutonium-contaminated process equipment continued as a top priority in readying the PFP Complex for demolition, with a particular focus on removal of gloveboxes and associated piping and ductwork from the process and lab areas. Glovebox Deactivation, Decommissioning, Decontamination, and Demolition (D&D) is complete in the backside vault rooms, Standards Laboratory, Analytical Laboratory, and the Radioactive Acid Digestion Test Unit (RADTU). A total of 134 gloveboxes have been removed to date with Recovery Act Funds. Of these, 131 have been shipped out of PFP for treatment or disposal and three have been set aside and staged for size reduction and disposal as transuranic (TRU) waste.

Demolition of the buildings in and around the 2736-ZB Vault Support Facility continued. Completed demolition of 2721-Z, with waste load out planned to complete early in the following fiscal month. Demolition of 2736-ZB was initiated by removing the clean security annex.

Key Performance Parameter (KPP) closure documentation was completed for the 47 rooms in the 234-5Z building's three laboratories and the "backside" vaults. The KPP rooms/areas dispositioned under ARRA now total 52.

External isolations, process equipment removal, and decontamination continued on the Remote Mechanical A (RMA) and Remote Mechanical C (RMC) Line gloveboxes. In Room 235-B, the E4 ductwork that previously serviced the bagless transfer system (BTS) gloveboxes was removed and size reduced. Electrical isolation was completed on the Room 235A-2 gloveboxes. In Rooms 230A and 230B, the first cycle of decontamination was completed for gloveboxes HC-21A, HC-21C, and HC-2B. In Room 228A, glovebox HC-1A was placed on a lift table and removal of the flange bolts was initiated in preparation for installing the separation sleeve, which will allow this section to be removed from the HC-1 conveyor for transport to Solid Waste Operations.

Work on removing transfer lines, process vacuum system piping, and asbestos insulation removal is constrained by lack of adequate resources as a result of workforce restructuring and diversion of resources to higher PFP priority efforts. The team was able to complete some setup activities and prepare for removal of piping and asbestos. The total number of highly contaminated process solution transfer lines in the 234-5Z building removed remains at 594 feet. Total process vacuum system piping removed remains at 1,210 feet. Asbestos removed from piping and ductwork remains at 15,228 feet.

As the pace of D&D work has accelerated at PFP, so have waste generation rates. CHPRC has now shipped approximately 3,908 cubic meters of waste from PFP with support from Recovery Act funds, including 3,080 cubic meters of low level and mixed low level waste, 794 cubic meters of TRU waste, and 34 cubic meters of nonradioactive waste.

Base

The first increment for the pencil tank Performance Incentive (PI) was completed with the shipment of the Standard Waste Boxes (SWBs) containing the segments of Pencil Tank Assembly 25 (Tank 25). Size reduction of the pencil tank assemblies continued to make significant progress with the successful size reduction and waste loading of Tank 26 and Tank 28.

EMS Objectives and Target Status

Objective #	Objective	Target	Actions to Achieve Target	Due Date	Status
12-EMS-PFP-OB1-T1	Reduce generation/toxicity of waste through spill reduction	Reduce likelihood of hydraulic spills from D&D work at PFP	Review history of D&D hydraulic failures	12/30/2011	100%
			Identify types of failure and impact	03/29/2012	
			Research improved hydraulic line technology	06/29/2012	
			Report recommendations to management	07/30/2012	
12-EMS-PFP-OB2-T1	Reduce vehicle miles/ green house gas emissions by use of mass transit	Formally request Ben Franklin Transit (BFT) bus service to 200W/PFP	Formally request BFT/CHPRC to implement	10/31/2011	100%
			Conduct tour/employee meetings with BFT	11/01/2011	100%
			Formally request proposal from BFT	11/24/2011	100%
12-EMS-PFP-OB3-T1	Reduce radioactive air emissions from open air demolition of 236-Z	Decontamination of 236-Z Building canyon	Review decontamination methods	12/30/2011	100%
			Evaluate selected method for air emissions	06/30/2012	
			Evaluate method's ability for source reduction	08/31/2012	

TARGET ZERO PERFORMANCE

	Current Month	Rolling 12 Month	Comment
Days Away, Restricted or Transferred	0	2	N/A
Total Recordable Injuries	1	3	Base - 1/18/2012 – While wearing hard hat, employee had a 16 foot ladder fall and hit them in the head causing pain. (22609)
First Aid Cases	4	68	Base - 1/5/2012 - Employee tripped and fell on the ground, experiencing pain in their hands wrists forearms and elbows. (22598) Base - 1/5/2012 - Employee experienced pain in left forearm coming into contact with object. (22599) Base – 1/12/2012 – Employee experienced neck pain due to hitting head. (22605) Base - 1/16/2012 – Employee slipped and fell hurting right knee/hip. (22616)
Near-Misses	0	0	N/A

KEY ACCOMPLISHMENTS

ARRA

11.05 Disposition PFP Facility – ARRA

- Removed 90% of the E4 duct in Room 235B that interfered with the installation of gantry cranes for glovebox separation. The methodology for assembling the gantry cranes was verified in the 212-Z yard to support planning.
- The electrical isolation of the Room 235A-2 gloveboxes was completed. The Polychlorinated Biphenyl (PCB) contamination area in the Room 235A-2 pit was cleaned and fixed.
- The planning was completed and the work was started to disposition the glovebox hold up material in Room 235A-3
- Completed the removal of mechanical systems near conveyor HC-1A in Room 228A
- Applied internal fixative to HC-10, HC-1A, HC-1K, & HC-1B in Room 228A
- Completed Aspigel decontamination of glovebox HC-21C and conveyor HC-2B in Room 230A and started Aspigel decontamination on HC-21A in Room 230B

Backside Rooms (Rooms 158-172) D&D

- Issued first work package and commenced Room 166 D&D effort.

Disposition PFP (234-5Z) Facility

- Process vacuum piping removal remains at 30 percent complete with 1,210 total feet removed.
- A total of 594 feet of chemical piping transfer line has been removed.
- No asbestos-containing material was removed during the month of January. The total remains at 15,228 feet of asbestos removed.

2736Z/ZB Vault Complex

- Demolition continued on two 2736-ZB complex buildings, 2721-Z and 2736-ZB. 2721-Z was completed and removed, while 2736-ZB demolition and load out continued.

11.02 Maintain Safe & Compliant PFP - Base

- A ventilation flow reversal in 234-5Z from the RMC Line Control Room Zone 3 through Door 281 to Corridor 2 Zone 1 was identified. In response, TSR Limiting Condition for Operations (LCO) Conditions for deficient filtered exhaust and differential pressure were entered, thus placing the facility in a “Terminate Activities” condition. The ventilation reversal was corrected late Sunday, January 29 and the Terminate Activities restriction removed approximately mid-day Monday January 30.
- PFP Maintenance continues to perform work activities designed to enhance the condition of the exhaust ventilation system for the facility.

11.05 Disposition PFP Facility – Base

Plutonium Reclamation Facility (PRF)

- The SWBs containing the segments of Tank 25 was shipped on Wednesday, December 28th, completing the first increment for the pencil tank Performance Incentive (PI).
- Size reduction and seal out of Tank 26 was completed.
- Electrical isolation of the MT gloveboxes was completed.
- Size reduction and six seal-outs of Tank 28 was completed.
- Tank 27 was transferred to the maintenance cell and NDA completed.

MAJOR ISSUES

Issue - On August 29, Exhaust Fan #1 in the 291-Z facility catastrophically failed and caused a small fire when a hot bearing made contact with the drive belt. The facility implemented required casualty response actions and the fire was extinguished. Normal ventilation for the facility was shut down and backup steam turbine driven exhaust fans were placed in service. Per Technical Safety Requirement (TSR), the facility was placed in a "Terminate Activities" mode which halted all D&D activities.

Corrective Actions - A thorough evaluation of the 291-Z exhaust fans was performed. The evaluation identified additional mechanical issues with most of the remaining exhaust fans. A positive Unreviewed Safety Question (USQ) determination was declared and Evaluation of Safety of the Situation (ESS) was prepared and submitted to RL for approval. The ESS was approved by RL on September 15, 2011 (Letter #11-SED-0165). Normal ventilation fans were restarted and the Terminate Activities condition was exited. Normal D&D activities were authorized to commence. A JCO was submitted to RL via letter CHPRC-1104667 R1 on November 28 as directed by the ESS.

Status - Exhaust Fan 3 and 5 weld repair preparations are continuing. The containment tent for EF-5 is being installed and welding is scheduled to begin in late March. The exhaust ventilation system Enhanced Maintenance Program procedures have been completed and will be implemented upon return of EF-5 to service.

RISK MANAGEMENT STATUS

Unassigned Risk
Risk Passed
New Risk

● Working - No Concerns ↑ Increased Confidence
● Working - Concern ↔ No Change
● Working - Critical ↓ Decreased Confidence

Risk Title	Risk Strategy/Handling	Assessment		Comments
		Month	Trend	
RL-0011/WBS 011				
PFP-003: More Extensive Cleanout/Decon Required	Develop and implement a detailed process facility characterization plan. Determine and obtain approval for ready-for-demolition criteria (contamination removal/cleanup endpoints prior to building demolition). Early characterization provides an opportunity to avoid project schedule impact; however, cost impacts remain.	●	↔	There have been no new discoveries since submittal of PMB-3, which incorporated the impacts of significantly higher than expected holdup and contamination levels discovered in the 234-5Z gloveboxes/hoods, deactivated process vacuum piping in 291-Z, a transfer line from 242Z to 234-5Z, and the ductwork downstream of HEPA filters in 2736-ZB. Development and implementation of a detailed facility characterization plan was also incorporated in PMB-3 to proactively investigate other areas where facility contamination levels are not well understood. The characterization planning continued during January, and staffing actions are scheduled to begin in February for RCT support for the characterization activities.
PFP-004: Risk of PRF Canyon D&D cost/schedule growth	Complete detailed planning/engineering for D&D of PRF canyon, particularly pencil tank removal and canyon decontamination. Perform critical system reliability assessments for all of the PFP safety and essential systems; procure critical spares; maintain existing redundancies; repair or replace equipment as failures occur and complete planned facility modifications.	●	↑	The PRF canyon crane has experienced no recent problems, and Pencil Tank disposition continues to accelerate.
PFP-009: Problems with Aging Building Systems/Components Impacts D&D		●	↑	Following the failure of one exhaust fan in 291-Z and inspection/repair of others, implementation of the enhanced preventative maintenance program for Vital Safety Systems and VSS support systems is continuing. Preparations for completing the final repairs are continuing, which involve welding to repair minor cracks observed on the blades of two of the fans.
PFP-008: Unexpected High Concentration TRU Material Holdup Discovered	Utilize supplemental NDA and other characterization techniques to identify areas of concern early in the project. Discuss potential response actions and administrative controls with Safeguards and Security, and proceduralize them as needed to guide the project in responding in the event unexpected material is identified.	●	↑	Disposition of the higher holdup material discovered in one of the former process gloveboxes has been completed and the D&D team has resumed work on their scheduled D&D scope. Approximately one month of planning and one month of D&D field team work was lost as a result of the discovery. Management reserve will be requested to accommodate the cost impact, however no schedule contingency is available to offset the delayed field work.
PFP-042: Increased Attrition Impacts Availability of Qualified Resources	Risks have historically been accepted without mitigation.	●	↑	Training and qualification has been completed for nearly all of the personnel transferred to PFP in early October to backfill for lower seniority personnel released during workforce restructuring, and the impacted teams have resumed planned work. Training of personnel transferred to PFP following layup at WRAP is proceeding ahead of schedule and it is likely that the second process vacuum system removal team can begin work prior to April.
PRC-021A: Workforce restructuring caused by funding changes				
PFP-006: Overall D4 Schedule Impacts from Interferences Between Subprojects	Ensure that activity schedules for all subprojects are integrated and are detailed enough to identify and avoid possible conflicts, and maintain coordination between closely related efforts that could overlap or that use the same resources.	●	↑	Bulk area cleanout in the Analytical Laboratory has been completed and demolition of the PFP vault complex is well underway, with three of the six buildings demolished and the crew well into the large 2736-ZB vault support facility. Staffing forecasts by craft/discipline are being extracted from the Field Execution Schedules to better anticipate and avoid future resource conflicts.
PFP-061: Experienced Demolition Crews/Equipment Not Available				
PFP-064 OPP: Reduced Size Reduction Required Consistent With SLB2 Packaging	Implementation of the use of SLB-2s has been identified as a sitewide initiative by CHPRC and RL. A specific plan of action was developed and is being executed to support this opportunity.	●	↑	Two gloveboxes have now been direct-loaded into the larger SLB-2 containers, and will be shipped in February. New containers are being received from the vendor in regular shipments for future use. The scope, schedule and cost reductions that will result from the use of SLB-2 packages at PFP have been assessed and incorporated in the updated PMB-3.
PRC-014: Site-Wide Occurrence	None	●	↓	Recent site-wide notifications regarding asbestos abatement area concerns could result in additional work scope and increased/modified requirements for asbestos abatement. Specifically at PFP, concerns have been expressed regarding pieces of transite siding likely originating from a 1940's vintage construction debris trench.
PRC-029: Unforeseen Facility Conditions	None	●	↓	During January, two such occurrences were experienced. During demolition of the PFP vault complex, the CHPRC demolition crew exposed a previously unidentified drain, and water used for dust suppression with higher than normal pH entered the drain line to TEDF. Work was suspended while TEDF managed the higher pH liquids and the location of all drains within or near the demolition zone were researched, walked down, and visibly marked prior to resumption of the work. In the 234-5Z building, it was discovered that unfiltered air was flowing in reverse from the Zone 3 RMC Line Control Room back into the Zone 1 frontside corridor. Intrusive work was suspended while air flow adjustments and system changes were implemented.

PROJECT BASELINE PERFORMANCE

Current Month

(\$M)

WBS 011/RL-0011 Nuclear Matl Stab & Disp PFP	Budgeted Cost of Work Scheduled (BCWS)	Budgeted Cost of Work Performed (BCWP)	Actual Cost of Work Performed (ACWP)	Schedule Variance (\$)	Schedule Variance (%)	Cost Variance (\$)	Cost Variance (%)
ARRA	6.1	5.0	5.4	(1.1)	-18.5	(0.4)	-8.8
Base	<u>3.3</u>	<u>3.1</u>	<u>2.7</u>	<u>(0.3)</u>	-8.7	<u>0.4</u>	12.2
Total	9.5	8.1	8.1	(1.4)	-15.1	(0.1)	-0.9

Numbers are rounded to the nearest \$0.1M

ARRA

CM Schedule Variance: (-\$1.1M/-18.5%)

Current month schedule variance is a result of inability to work planned shifts in RMA/RMC process lines due to key resource absence during holiday week, lack of work package backlog, and D&D work restriction. Delays in demolition of the ZB Complex result from more effort required to ready 2736-ZB for demolition and time lost recovering from an un-sampled waste water incident. The Hanford site closure for inclement weather also contributes to the unfavorable variance.

CM Cost Variance: (-\$0.4M/-8.8%)

The cost variance is within reporting thresholds.

Base

CM Schedule Variance: (-\$0.3M/-8.7%)

The schedule variance is within reporting thresholds.

CM Cost Variance: (+\$0.4M/+12.2%)

The cost variance is within reporting thresholds.

Contract-to-Date (\$M)

WBS 011/ RL-0011 Nuclear Matl Stab & Disp PFP	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)
ARRA	285.2	281.3	290.0	(3.9)	-1.4	(8.6)	-3.1	293.7	295.8	(2.1)
Base	<u>169.6</u>	<u>168.7</u>	<u>170.4</u>	<u>(0.8)</u>	-0.5	<u>(1.7)</u>	1.0	<u>595.5</u>	<u>594.6</u>	<u>0.8</u>
Total	454.8	450.1	460.4	(4.7)	-1.0	(10.3)	-2.3	889.2	890.5	(1.3)

Numbers are rounded to the nearest \$0.1M

ARRA

CTD Schedule Performance: (-\$3.9M/-1.4%)

The schedule variance is within reporting thresholds.

CTD Cost Performance: (-\$8.6M/-3.1%)

The cost variance is within reporting thresholds.

Base

CTD Schedule Variance (-\$0.8M/-0.5%)

The schedule variance is within reporting thresholds.

CTD Cost Variance (-\$1.7M/+1.0%)

The cost variance is within reporting thresholds.

Variance at Completion (-\$1.3M/-0.1%)

The variance at completion is within reporting threshold.

Contract Performance Report Formats are provided in Appendix A and Appendix A-1.

Estimate at Completion (EAC)

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

The EAC changes from December to January, for both ARRA and Base, are within reporting thresholds.

FUNDS vs. SPEND FORECAST (\$M)

WBS 011/RL-0011 Nuclear Matl Stab & Disp PFP	FY2012		
	Projected Funding	Spending Forecast	Spend Variance
ARRA	33.4	33.4	0.0
Base	99.4	93.7	5.7

Numbers are rounded to the nearest \$0.1M

Funds/Variance Analysis

Funding includes FY2011 carryover and FY2012 new Budget Authority.

Critical Path Schedule

Critical Path analysis can be provided upon request.

Baseline Change Requests

None.

MILESTONE STATUS

None at this time.

SELF-PERFORMED WORK

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

GOVERNMENT FURNISHED SERVICES AND INFORMATION (GFS/I)

None identified at this time.