

# Section A

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



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## 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, Decommission, 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 132 gloveboxes have been removed to date with Recovery Act Funds. Of these, 123 have been shipped out of PFP for treatment or disposal and one has been set aside and staged for size reduction and disposal as transuranic (TRU) waste.

The 2736-ZB complex ready for demolition crews grouted penetrations, removed other regulated materials and staged heavy equipment in preparation for demolition of the facilities. CHPRC D&D plans to demolish the four-building PFP Vault Complex and two ancillary structures and complete waste load-out by the end of December.

Final area cleanout is continuing throughout 234-5Z. To date, 35 of the 69 lab, vault and process area rooms in the 234-5Z building have been declared ready for demolition in accordance with the Key Performance Parameter completion criteria.

External isolations, process equipment removal, and decontamination continued on the 47 Remote Mechanical A (RMA) and Remote Mechanical C (RMC) Line gloveboxes, where work has been constrained by the significant turnover in NCOs and RCTs. Gloveboxes HA-14S and HA-14P were separated from the rest of the RMA process line, removed from building ventilation, and are being turned on their sides so they can be removed from Room 235A-1.

This period, two feet of highly contaminated process solution transfer lines in the 234-5Z building were removed, bringing the total removed to date to 594 feet. Work on process vacuum system piping removal and asbestos insulation removal is constrained by lack of adequate resources as a result of workforce restructuring. 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 3,731 cubic meters of waste from PFP with support from Recovery Act funds, including 2,949 cubic meters of low level and mixed low level waste, 706 cubic meters of TRU waste, and 31 cubic meters of nonradioactive waste.

### **Base**

236Z Plutonium Reclamation Facility – Due to the workforce restructuring, trained and qualified Radiological Control Technicians (RCTs) to support field work were extremely limited during the first part of October which significantly affected canyon entries to continue the repairs to the crane. Troubleshooting on the canyon crane the end of September confirmed that the trolley cable had failed. Six canyon entries were made to replace the trolley cable reel and install the parts to prevent a reoccurrence.

The Statement of Work (SOW) was prepared and approved for the pre-conceptual design for the use of pressurized liquid nitrogen system for cleaning the canyon.

## 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	
			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	
			Conduct tour/employee meetings with BFT	11/01/2011	
			Formally request proposal from BFT	11/24/2011	
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	
			Evaluate selected method for air emissions	06/31/2012	
			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	1	N/A
Total Recordable Injuries	0	1	N/A
First Aid Cases	2	85	<b>Base</b> – 10/25 - Employee bumped into pipe with left shoulder causing abrasion. (22406) <b>Base</b> – 10/27 - Unidentified. (22408)
Near-Misses	0	0	N/A

## KEY ACCOMPLISHMENTS

### 11.05 Disposition PFP (234-5Z) Facility – ARRA

- In Remote Mechanical A Line Room 235B, the final NDA of glovebox HA-23S was completed and work was started to remove adjacent mechanical lines that are in the way of glovebox removal.
- RMA Line Room 235A-1, gloveboxes HA-14S and HA-14P were removed from Room 235A-1 and the floor area beneath these gloveboxes was decontaminated and fixed.
- In RMA Line Room 235A-3 the mechanical isolation of glovebox HA-7A continued.
- In RMC Line Room 230A, the initial internal wipe downs of gloveboxes HC-21C and HC-2 were started.
- In RMC Line Room 230B, the external isolation of glovebox HC-21A was completed. Also, the team finished removing both the internal conveyor guide rails and the external sweep arm motor assembly from HC-21A.
- In RMC Line Room 228B, the work team continued the size reduction of the guide rails in the Room 228B sections of Glovebox HC-1.
- Due to work force restructuring, all RMA/RMC teams were integrating new team members during the month of October.

### Analytical Laboratory

- Bulk Area Cleanup activities for the lab are substantially complete; all identified contaminated piping and E4 ducting systems have been removed. The only items remaining for disposition are removal of a contaminated-equipment storage area and removal of a few legacy chemicals. Work is now scheduled for completion by the middle of November, 2011.

### PPSL

- Bulk Area Cleanup activities for the lab is substantially complete; all identified contaminated piping and E4 ducting systems have been removed. The only remaining work is the removal of the final legacy chemical items, and removal of loose equipment from Rooms 183 and 185. Work is now scheduled for completion by November 6, 2011.

### Standards Lab

- Bulk Area Cleanup activities for the Standards Lab are complete; final verification reviews are the only actions left to be completed. This review is scheduled for completion the week of November 7.

### Disposition PFP (234-5Z) Facility

- Process vacuum piping removal is 30 percent complete with 1,210 total feet removed.
- A total of 592 feet of chemical piping transfer line has been removed.
- A total of 0 feet of asbestos-containing materials on piping was removed during the month of October bringing the total to 15,228 feet of asbestos removed to date.

### 2736Z/ZB Vault Complex

- Preparations to commence demolition of the 2736-ZB complex were initiated.

**Base****11.05 Disposition PFP Facility – Base****Maintain Safe & Compliant PFP**

- Continued preparation of work documents to repair/upgrade exhaust fan components in 291-Z (e.g. welding of wheel fins on EF-3/EF-5, bearing replacements, etc). Completed preparation of the work documents to facilitate inspection of the hubs which connect the wheels of exhaust fans EF-3 and EF-5 to the drive shaft. This inspection is a predecessor step in determining the failure mode for the EF-1 catastrophic failure. Inspection is planned for second week of November. Based on inspection results of EF-3/EF-5, a path forward for other operating plans is being finalized.

**Plutonium Reclamation Facility (PRF)**

- Troubleshooting on the canyon crane the end of September confirmed that the trolley cable had failed.
- Six canyon entries were made to replace the trolley cable reel and install the parts to prevent a reoccurrence.
- During one of the entries, the mounting bracket for the crane hook cable reel was re-adjusted to allow the reel to clear the maintenance cell enclosure.

## 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 oil made contact with the drive belt. The facility implemented required casualty response actions and the fire was extinguished. Normal ventilation for the facility was shutdown 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 comprehensive causal analysis is in progress to determine the cause of EF-1 failure and to identify additional corrective actions.

**Issue** – On Sunday, July 24, 2011, the trolley on the PRF canyon crane failed during movement to retrieve the counter balance to install the Tank 23 strongback. A loud noise was heard from inside the canyon when the crane motion switch was moved to either the east or west directions.

**Corrective Actions** – A canyon entry was made on Wednesday, September 28, to troubleshoot the failure of the canyon crane trolley. Just prior to entering, the electrician checked the resistances on the trolley motor wires. It was found that the “B” phase had a normal resistance rather than the “Open” resistance previously identified. While in the canyon, the electrician verified a normal continuity check on the trolley motor and determined that the trolley motor was not the problem of the open “B” phase. While pulling up and down on the trolley cable, the electrician was able to observe the continuity of the “B” phase going back and forth from an open to closed state validating the previous Time Domain Reflectometer (TDR) results that the trolley cable reel had failed. It is unsure where the trolley cable has failed. Engineering had previously identified the location of a bumper support bracket as a location

where the cable continuously rubs over a 6 foot span of cable as the trolley moves back and forth to the east. It is expected that the failure could be anywhere in that span. Cutting the cable reel back past the area where rubbing would occur would cause the cable to be too short to perform its function. Therefore, the cable reel will need to be replaced. A spare cable reel is available for installation. Engineering has completed a design and fabrication has been initiated on a part to install to address the rubbing of the cable.

### 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	
<b>RL-0011/WBS 011</b>				
PFP-004, Risk of PRF Canyon D&D cost/schedule growth; PFP-009: Problems with Aging Building Systems/Components Impacts D&D	Complete detailed planning/engineering for D&D of PRF canyon, particularly pencil tank removal and canyon decontamination. Perform critical system reliability assessments; procure critical spares; maintain existing redundancies; repair or replace equipment as failures occur and complete planned facility modifications.			The PRF canyon crane remains out of service pending repairs. In mid-September, the crew completed a manned entry into the canyon and verified that the cause of the failure was the electrical feed to the trolley motor. Subsequently, a number of key personnel trained for high-risk entries into the PRF Canyon were lost from the project as a result of workforce restructuring. A newly formed PRF crew is now completing advanced training in preparation for the resumption of manned entries into the canyon to effect repairs. As many as 8- to 12-entries may be needed to effect repairs, perform functional tests of the PRF Canyon crane bridge and trolley, install a bridge retrieval system (in the event of future failure), and declare operational readiness for continuing Pencil Tank size reduction and sealout activities. Pencil Tank size reduction and sealout activities are expected to resume in mid-November.  Following a catastrophic failure of one of the 291-Z ventilation exhaust fans on August 29, all of the fans were inspected and maintained, and four fans were returned to service; investigation is underway on cracks detected in the fan blades of two others. With concurrence from RL, compensatory measures were placed in effect and intrusive D&D work has been resumed.
PFP-036: Loss of Contamination Control	Rigorous routine radiological surveillance program and contamination control measures.			Only a few, relatively minor contamination events have been experienced since more conservative radiological controls were implemented in PFP's D&D work packages and RMA/RMC Line area access requirements. Reporting on this risk will be discontinued unless and until additional impacts are experienced.
PRC-025: Workforce Disruptions; PFP-035: Jurisdictional Issues Impact Planned Labor; PFP-042, Increased Attrition Impacts Availability of Qualified Resources	Risk has historically been accepted without mitigation.			During September, approximately 300 staff were released from PFP as a result of workforce restructuring to align with FY 2012 funding levels. Sixty of these positions will be backfilled with higher seniority bargaining unit staff from other projects and contractors, however up to three months will be required before they are fully trained and qualified to perform work at PFP. Nearly 25% of the Nuclear Chemical Operators and almost 50% of the Radiological Control Technician positions at PFP are affected.

## 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 (%)
<b>ARRA</b>	(20.9)	(1.7)	2.1	19.2	-91.9	(3.8)	223.1
<b>Base</b>	0.6	2.0	4.8	1.3	203.2	(2.8)	-143.9
<b>Total</b>	<b>(20.3)</b>	<b>0.3</b>	<b>6.9</b>	<b>20.6</b>	<b>-101.4</b>	<b>(6.6)</b>	<b>N/A</b>

Numbers are rounded to the nearest \$0.1M

#### ARRA

##### CM Schedule Variance: (+\$19.2M/-91.9%)

Current month schedule variance is primarily a result of implementation of BCR-PRC-11-042R0, *FY2012 and Lifecycle Update (RL-0011 PFP)*. Replanned work resulted in single point adjustments of BCWS, causing negative current period BCWS. Application of rates to adjusted FY2011 activities resulted in negative current period BCWP.

##### CM Cost Variance: (-\$3.8M/+223.1%)

Current month cost variance is primarily a result of the implementation of BCR-PRC-11-042R0, and the negative current period BCWP caused by a point adjustment. In addition, late in the accounting period, it was decided ARRA scope would be extended through February 29, 2012; therefore, budget reflects this decision. However, actual cost for the majority of the month was charged to the base-funded work packages; to be moved to the ARRA funded work packages in November 2011.

#### Base

##### CM Schedule Variance: (+\$1.3M/+203.2%)

Current month schedule variance is due to implementation of BCR-PRC-11-042R0, *FY2012 and Lifecycle Update (RL-0011 PFP)*. Replanned PRF work resulted in single point adjustments of BCWS, causing negative current period BCWS. Application of rates to adjusted FY2011 PRF activities resulted in negative current period BCWP.

##### CM Cost Variance: (-\$2.8M/-143.9%)

Current month cost variance is primarily due to the implementation of BCR-PRC-11-042R0, and the negative current period BCWP. In addition, late in the accounting period, it was decided ARRA scope would be extended through February 29, 2012; therefore, budget reflects this decision. However, actual cost for the majority of the month was charged to the base-funded work packages; to be moved to the ARRA funded work packages in November 2011.

## 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)
<b>ARRA</b>	261.9	259.8	267.6	(2.1)	-0.8	(7.8)	-3.0	289.9	296.5	(6.6)
<b>Base</b>	159.7	158.8	164.7	(0.9)	-0.6	(5.9)	-3.7	686.9	692.3	(5.4)
<b>Total</b>	<b>421.6</b>	<b>418.6</b>	<b>432.3</b>	<b>(3.0)</b>	<b>-0.7</b>	<b>(13.7)</b>	<b>-3.3</b>	<b>976.8</b>	<b>988.8</b>	<b>(12.0)</b>

Numbers are rounded to the nearest \$0.1M

### ARRA

#### **CTD Schedule Performance: (-\$2.1M/-0.8%)**

The schedule variance is within reporting thresholds.

#### **CTD Cost Performance: (-\$7.8M/-3.0%)**

The cost variance is within reporting thresholds.

### Base

#### **CTD Schedule Variance (-\$0.9M/-0.6%)**

The schedule variance is within reporting thresholds.

#### **CTD Cost Variance (-\$5.9M/-3.7%)**

The cost variance is within reporting thresholds.

#### **Variance at Completion (-\$12.0M/-1.2%)**

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 September to October, 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
<b>ARRA</b>	33.4	33.4	0.0
<b>Base</b>	97.3	92.7	4.6

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.