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LANL Executive Summary

In April of 2013 the Plutonium Sustainment program at LANL completed or addressed the following high-level activities:

- 1) (b) (5), (b) (7)(F)
- 2) (b) (7)(F)
- 3) Completed vacuum system installation on the first upgraded foundry glovebox.
- 4) Started construction on the first glovebox (GB1) on the foundry upgrade project..

All four NNSA Level 2 Milestones (MRT 4622-4625) associated with Plutonium Sustainment are on track for success in FY13. MRT 4623 is complete.

The earned value metrics overall for LANL are within acceptable thresholds, so no high-level recovery plan is required.

Each of the four major LANL WBS elements is discussed in detail below with a section at the end that is provided by LLNL (the KCP report is filed separately and directly).

Table 1: April Baseline Change Requests

WBS	BCR #	BCR Description	Date Assigned	Date Approved	Impact	Cost Impact	Change Level
Pit Equipment	PSM-13-032	(b) (7)(F) Procurement & D&D Design	1/24/13	working	Cost/Schedule	TBD	TBD
Pit Equipment	PSM-13-036	Adding GB2 and GB3 Construction to FY13 Scope of Work	2/19/13	5/2/13	Cost/Schedule	\$1,638k	3
Pit Development	PSM-13-043	Gemini Lessons Learned	3/6/13	5/15/13	N/A	N/A	4
Power Supply	PSM-13-048	PSAA: Provide Painting at Entrances, Add Exterior Facility Sign and Repair Bolt on ACB	3/8/13	3/21/13	Cost/Schedule	\$39k	3
Power Supply	PSM-13-055	PSAA: Provide HVAC Control Modifications for Facility Requirements	4/4/13	4/22/13	Cost/Schedule	\$36k	3
Program Management	PSM-13-056	Descope Quality Assessments/ (b) (7)(F) Add Quality Assurance Support Scope	4/10/13	working	Cost/Schedule	\$187k	3
Program Management	PSM-13-065	Close Wing Support WP	4/30/13	working	Cost/Schedule	\$187k	3

Earned Value Metrics

PERFORMANCE S-CURVE

LANL Pu Sustainment



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PERFORMANCE S-CURVE

LANL Pu Sustainment W/O Facility Infrastructure



1.0 LANL - Pit Development

MRT 4622		GREEN	Perform Activities to Sustain Base Pit Material Processing and Fabrication Capability		
1. (b) (7)(F)					
2. Maintain pit manufacturing capability by producing (b) (7)(F) and/or exercising the pit fabrication flow sheet.					
3. Continue to make progress on the Electro-Refining line, Plutonium Foundry, and (b) (7)(F) projects.					
(b) (7)(F)					RGYB
					BLUE
					BLUE
					BLUE
					BLUE
					BLUE
					BLUE
					GREEN
Equipment					
(b) (7)(F)		November 1, 2012		October 17, 2012	BLUE
		March 13, 2013		March 12, 2013	BLUE
		March 21, 2013		March 4, 2013	BLUE
		April 19, 2013		February 27, 2013	BLUE
		June 27, 2013			GREEN
		June 30, 2013			GREEN
		July 19, 2013			GREEN
		July 26, 2013			GREEN
		July 30, 2013			GREEN
		August 29, 2013			GREEN
		September 20, 2013	Completed ahead of schedule.	April 22, 2013	BLUE
		September 30, 2013			GREEN
		September 30, 2013			GREEN
MRT 4623		BLUE	(b) (7)(F)		
(b) (7)(F)					
1. (b) (7)(F)					
(b) (7)(F)					BLUE

1.1 Technical Progress

- (b) (5), (b) (7)(F)
-
- Procured the hoist and produce work authorization documents associated with the replacement of the spindle motor for the (b) (7)(F)

1.2 Equipment

- The plan to meet the grading criterion #3 for L2 milestone MRT 4622 includes the following:
 1. The (b) (7)(F) Upgrade - complete all planned (b) (7)(F) system upgrades and release both the “cold” and “hot” glovebox for welding operations by September 30, 2013.
 2. The Plutonium Foundry Upgrades - complete cold testing, issue an approved design for construction, and start construction on the first of three foundry gloveboxes by September 30, 2013.
 3. The Electro-Refining Line Upgrade - complete all mechanical and electrical construction activity associated with the eleven electro-refining boxes and systems by September 30, 2013.
- (b) (7)(F) Upgrade
 - o Installation of the switch and junction box system has been completed in PF-4.
 - o Initial testing of the motion control for the X, Y, and Z-axes has been demonstrated for the “cold glovebox.”
 - o The “cold glovebox” boot has been successfully installed.
 - o During “cold glovebox” testing, the cooling system common to (b) (7)(F) gloveboxes has shown reduced flow rates. The impact on the (b) (7)(F) upgrade project is being evaluated.
- Foundry Upgrade
 - o GB1 vacuum installation is complete.
 - o GB1 cooling system installation 100% package design has been completed.
 - o GB1 construction started on April 22, 2013. L3 milestone completed ahead of schedule.
 - o The contract was awarded for the procurement of the (b) (7)(F) skid.
 - o Cold Laboratory System functionality testing of the induction heating system performance continues.
- Electro-Refining Line Upgrade
 - o Continued work on mechanical and electrical installation for Trunklines II, III, and IV to meet L3 milestone in June.
 - o Completed Dri-Train manifold installation.
 - o Completed Zone 1 sub-header fabrication.
 - o Completed fabrication and installation of HEPA filter and glovebox supply and return lines.
 - o ERCS software contractor presented project execution plan for software enhancements.

1.3 Issues

- None

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

- PSM-13-036: The BCR to add GB2 and GB3 construction to FY13 scope of work will fund construction activities previously planned for FY14 in FY13. The budget was revised downward from last month’s preliminary estimate.
- PSM-13-043: Resources and funding aligned to perform the Lesson Learned in support of the Gemini project.

1.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F)	(b) (5), (b) (7)(F)	(b) (5), (b) (7)(F)	We have worked out a build schedule that will allow operations to turn over the equipment to the upgrade project before May 20. This is (b) (5), (b) (7)(F)
Use of the (b) (7)(F) may not be authorized given the need for an updated Criticality Safety Evaluation Document (CSED) for the process.	Programmatic Criticality Safety Evaluations have been placed hold per Memorandum AD-NHHO:13-060. This could impact the ability to perform welding operations using nuclear material.	This is tracked as a potential impact at a weekly AD-PSM project /program status briefing	(b) (7)(F) Upgrades will be added to priority list for pending CSEDs and tracked closely.
(b) (7)(F)			
Analytical actinide chemistry may lose the support from other programs at LANL.	The NA-26 funded ARIES program is considering the option to transfer chemistry out of LANL. Currently the Program and ARIES are the primary funding sources for this capability. The Program has already reduced the number of samples for chemistry analysis. This potential for an ARIES elimination and Program reduction in funding could result in loss of the chemistry capability altogether for actinide samples at LANL.	1) Senior managers at LANL and LAFO are working to resolve this issue. 2) The Program could increase the amount of chemistry work beyond the minimum required to explore issues of lower importance in order to maintain this competency.	Discussions continue with Chemistry Division managers have resulted in a first pass estimate of approximately \$10M (including CMR RTBF recovery) to maintain core competencies during the next few transitional years.

1.7 Earned Value Metrics

PERFORMANCE S-CURVE

Pit Manufacturing



2.0 LANL - Power Supply

MRT 4624		GREEN	Complete FY 2013 RTG material recovery activities		
(b) (7)(F)					
L3 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB	
(b) (7)(F)					

2.1 Technical Progress

- Material Recovery

- (b) (7)(F)

-

- Process Development
 - Continued testing of Government Furnished Equipment (GFE) in the PF-5 basement.
 - Continued to review process flow and travelers to identify Quality Assurance Hold Points.
 - Received preliminary chemistry results from the latest shipment for continued review of process and chemical analyses readiness.
 - Discussed containers and material compatibility issues for moving liners, strength members, and fuel clads. Material compatibility for packaging will be a future PRT agenda item.

2.2 Equipment

- Radioisotope Thermoelectric Generator - Assembly & Testing Facility (RTG-ATF)
 - Prepared for the Management Self-Assessment. Assessment is scheduled for early May.
 - Continued development of operations and maintenance procedures.
 - Continued to complete punch-list items and supporting vendor testing and calibration.
 - Continued to complete changes to address adjustments needed in the facility as a result of vendor testing and calibration.
 - Initiated changes to the Facility Safety Plan to include more detail of item locations and quantities.
- The (b) (7)(F)
 - Completed closure of 3 of 4 pre-start findings.
 - Continued Software Quality Assurance validation of the software.
- Analytical Chemistry glove boxes (Pu Assay and Radiochemistry)
 - Continued Zone 1 installation.
 - Continued installation of Fire Skirting and Fire Foe tubing.
 - Continued development of operations and maintenance procedures.
- SM-39 Development Laboratory
 - Continued to (b) (7)(F) for establishing weld parameters.
 - Continued welding strength members for establishing weld parameters.

2.3 Issues

- None

2.4 Variance Analysis and Recovery Plan

- CPI: Spending deviated from planning basis due to addition of In-Scope scope within the RTG-ATF project, which required the utilization of night and overtime shifts to maintain scheduled completion dates. In-Scope scope is any design change, engineering, and/or associated construction that was added after the initial baseline design (FY11) and that was either required for facility occupancy or requested by the operating organization to meet production requirements. There is not a cost recovery plan provided as part of this report since the additional costs themselves are the result of maintaining schedule. The Program will continue to carry this variance through project completion. The RTG-ATF is currently on track for completion of the June 3, 3013 Release for Operations Level 3 milestone. At that time all construction related codes for the RTG-ATF will be closed.

2.5 BCRs

- PSM-13-048 for \$39K: This BCR includes funds specified for painting the entrances of the facility, adding the exterior facility sign, and repairing a bolt on an Atmosphere Control Box (ACB) that was not included in the original scope of work.

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- PSM-13-055 for \$36K: This BCR includes funds specified for HVAC control features necessary for the proper temperature control engineering design that was determined to be required subsequent to the baseline design to ensure the existing facility ceiling and walls met fire code.
- PSM-13-056:

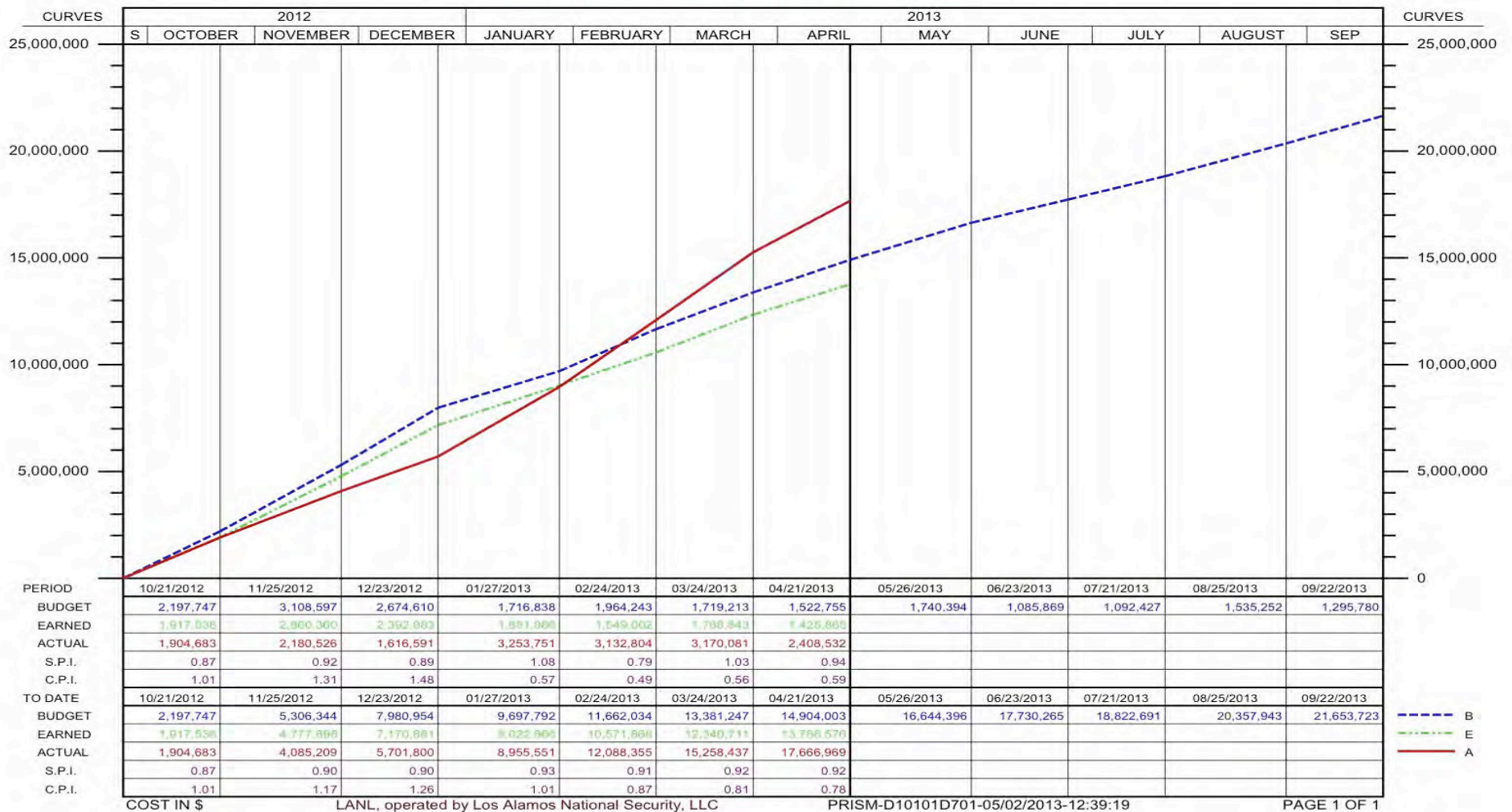
2.6 Risk Table

Work	Description	Handling Strategy	Status
Workforce development and recruiting	Dedicated staffing and depth of trained operators are both at risk to support the Development, PPI, and Qual series for RTG manufacturing development. The plan to start hiring in FY13 for dedicated staffing will not occur. Staffing is shared with other programs and may not always be available as scheduled. Note that the increase in staff also was planned to maintain lower dose rates in the staff as part of LANL ALARA goals.	1) Communicate and integrate frequently with RTG surveillance, NE-75, and other programs to make the best use of available staff. 2) Request LANL and LA Field Office management to allow for increase dose in staff assigned to this work. 3) Delay non-critical path activities until they become critical path for FPU.	Daily work planning meetings continue to ensure availability of staffing resources. Completed out-year resource loaded schedule through FY20. This schedule will be used for strategic hiring.
(b) (7)(F)	(b) (7)(F)	(b) (7)(F)	

2.7 Earned Value Metrics

PERFORMANCE S-CURVE

Reconstitution of Power Supply Manufacturing



3.0 Program Management and Support

3.1 Program Management

- Supported the Power Supply PRT Meeting in Albuquerque, NM.
- Supported the NNCMT Meeting in Albuquerque, NM.

3.2 Support

- Industrial Engineering
 - Completed a first draft of a 300 Area reconfiguration analysis to support 30 pits/y new fabrication that included proposed layouts, cost estimates, and a proposed schedule.
- Document Control, Records Management, and Training
 - A total of 143 document requests were received in April.
 - A total of 131 document action requests were completed in April.
 - Reduced the records backlog holdings during the month by 27 cubic feet.
 - Supported the MSA for Power Supplies RTG-ATF by providing Training and Qualification system support.
- Production Control
 - Provided M&TE and classified parts coordination support.
 - Continued to provide shop floor control and daily schedule status to Enduring Stockpile and Power Supply projects.
- Maintenance
 - Corrective Maintenance: Worked on welder repair and several additional process repairs.
 - Preventative Maintenance: Completed preventative maintenance on five systems.
 - Work Management & Control: Continued to collect specific history and determine how to view, report, and analyze.
- Warehousing and Procurement
 - Continued to effectively procure and manage material for multiple Pu Sustainment projects (ER, Pu Assay and Radio Chemistry, Foundry cold testing and Foundry Vacuum upgrades, and (b) (7)(F) upgrades.)
 - The NPI-8 procurement POC is attending weekly meetings and working with ASM to manage the FY13 PADWP Procurement Forecast list for ADPSM.
 - The Procurement team prepared procurement documentation and submissions for end-of year procurement requests. Currently working with the line organization to ensure all end of year procurements are in place prior to system closure.
- Calibration
 - Perform Monthly Calibrations: The Standards & Calibration Laboratory has calibrated approximately 160 Pu Sustainment items through April 10, 2013.
 - Quality Engineering/Continuous Improvement: With engineering support, there have been the following activities: a) Gas flow calibration datasheets are being created using Excel worksheets to allow for a more streamlined process. The goals of the effort are to provide a simple means to set up a gas flow meter calibration using standard critical flow valves, to automate the selection of a critical flow nozzle for a desired flow rate, to allow calibration using a select number of gases rather than just air, and to automatically calculate the standard gas flow rate for a given nozzle, gas species, and stagnation pressure and temperature. This is expected to increase efficiencies and throughput in this calibration area. b) As previously reported, datasheets for temperature calibrations continue to be written for use within the new

MudCats metrology software. Measurement uncertainty calculations were integrated into the software. These will improve the Standards & Calibration Laboratory's turnaround time in the temperature area and improve formality.

- o Customer Liaison Support: The Standards & Calibration Laboratory continues to work with dimensional inspection at TA-55 to develop processes for re-certifying various M&TE in glove boxes that most benefits the Laboratory in regards to minimizing waste and maximizing the useful life of the M&TE.

3.3 Issues

- None

3.4 Variance Analysis and Recovery Plan

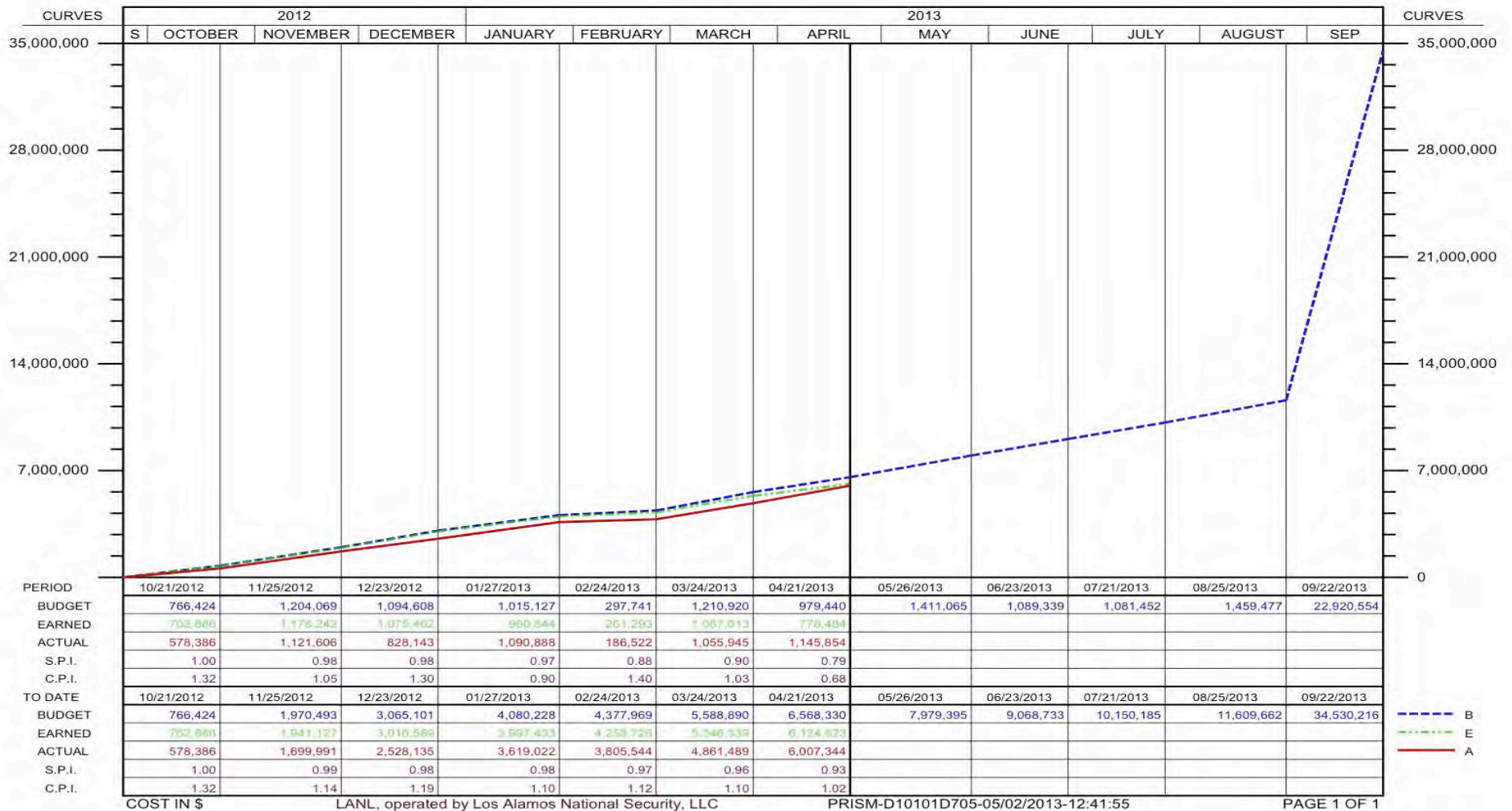
- None

3.5 BCRs

- PSM-13-056 for \$187K: This BCR includes funds specified for transfer of scope and funds from the institutional quality assurance organization to the directorate specific quality organization.
- PSM-13-065 for \$187K: This BCR includes removal of funds specified for the PF-4 Wing Controller position. This position was scheduled to be filled in FY13, but due to organizational changes will be funded through the current operational work packages of all PF-4 programs.

3.6 Earned Value Metrics

PERFORMANCE S-CURVE Program Office



4.0 Facilities, Waste and Institutional Support

4.1 Technical Progress

- 2013 Pollution Prevention Award Winners: Pu Sustainment Contributors
 - o Cradle to Cradle – Recycling
 - Gold Award: Streamlining a Pu Operation: Reducing Volumes of Contaminated Waste
 - o Sustainable Acquisition
 - Bronze Award: Bromobenzene to FC-43 Completion
 - o Pollution Prevention Awards: More than 250 employees on 47 teams or individually will be recognized at the 2013 Pollution Prevention Awards Ceremony.

4.2 Equipment

- None.

4.3 Issues

- None

4.4 Variance Analysis and Recovery Plan

- None

4.5 BCRs

- None

4.6 Earned Value Metrics

PERFORMANCE S-CURVE

Facility Infrastructure



5.0 LLNL

MRT 4749		GREEN	Perform Activities to Enable Plutonium Sustainment Goals		
1. C (b) (7)(F)					
2. In coordination with LANL PA, maintain (b) (7)(F) measuring device for process qualification					
3. (b) (7)(F)					
4. (b) (7)(F)					
5. (b) (7)(F)					
L2/L3 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB	
(b) (7)(F)	9/30/2013	Complete	February 2013	BLUE	
(b) (7)(F)	7/30/2013	Testing and analysis of samples continued		GREEN	
Complete (b) (7)(F)	3/31/2013	Complete	March 2013	BLUE	
Initiate readiness review for compatibility tests	9/30/2013	Still evaluating location and cost for tests. Initiating a review in FY13 unlikely.		YELLOW	
(b) (7)(F)					
Complete initial demonstration of purification and recovery of desired materials	6/30/2013	Awaiting NNSA approval for equipment installation		GREEN	
(b) (7)(F)	12/31/2012	Complete	November 2012	BLUE	
(b) (7)(F)	9/30/2013	Currently scheduled as fourth build		GREEN	

5.1 Technical Progress

- (b) (7)(F)
 - Multiple test specimens fabricated and tested
 - Two additional specifications made for machining and testing
- (b) (7)(F)
- Purification demonstration
 - LFO reviewed OSP and agreed that controls were sufficient using the current DSA
 - Performed a test demonstration using WG material and achieved desired purification
 - MD-2 Shipping Package procedure provided to the Office of Packaging and Transportation for their review and approval
- Design Definition Unit (DDU) build
 - Design Definition Unit (DDU) non-nuclear parts are being fabricated and shipped to LANL in support of the build schedule
 - The Pen assemblies were shipped in April

5.2 Equipment

- None

5.3 Issues

- Compatibility testing
 - Sequestration funding limitations required that this milestone be eliminated

5.4 Variance Analysis and Recovery Plan

- None

5.5 BCRs

- None

5.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F)			
(b) (7)(F) fabrication at LANL	Design incompatible with LANL welding and assembly hardware	Adjust design or provide equipment fixtures as needed	(b) (5)
(b) (7)(F) fabrication at LANL	Fabrication of initial components to support PF-4 schedule for placing required equipment out of service	Expedite either commercial or LLNL fabrication of components and delivery to LANL	(b) (5)

5.7 Earned Value Metrics

PERFORMANCE S-CURVE LLNL

