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LANL Executive Summary

In December of 2012 the Plutonium Sustainment program at LANL completed or addressed the following high-level activities:

- 1) (b) (5), (b) (7)(F)
The meeting resulted in an agreement to make changes to the drawings and to review them again in January. If (b) (5), (b) (7)(F)
- 2) Attended the successful execution of the Pollux experimental device as part of the Gemini series.
- 3) Meetings:
 - a. Hosted the Plutonium Science and Manufacturing Defense Program Review for NA-12.

All four MRT L2 Milestones (4622-4625) associated with Plutonium Sustainment are on track for success in FY13.

The earned value metrics overall for LANL are within acceptable thresholds, so no high-level recovery plan is required. LANL costs in December account for only 3.2 weeks of a planned 4-week month due to a payroll accounting problem. This has no effect on earned value (S.P.I.) but it does have an effect on actual costs (positive C.P.I. variance for December). This will be accounted for in January, which will have 5.8 weeks.

Each of the four major LANL WBS elements are discussed in detail below with two sections at the end that are provided by KCP and LLNL. KCP input not provided.

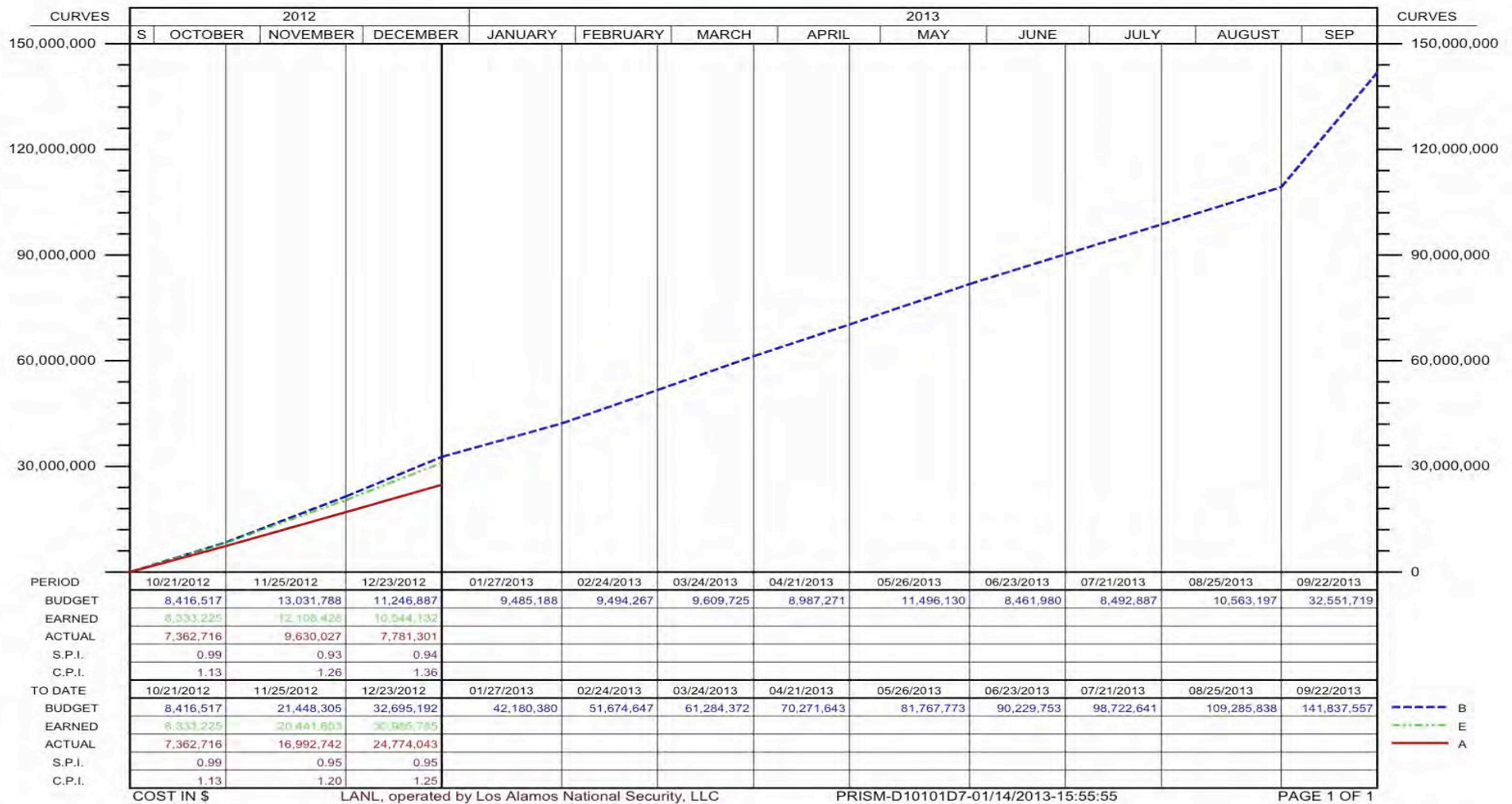
Table 1: December Baseline Change Requests

WBS	BCR #	BCR Description	Date Assigned	Date Approved	Impact	Cost Impact	Change Level
Pit Production	PSM-13-010	(b) (7)(F) Inspection Re-Start	12/5/12	12/22/12	Cost/Schedule	\$130k	3
Pit Production	PSM-13-011	Keith Axler Contract	12/5/12	1/17/13	Cost/Schedule	\$170k	3
Power Supply	PSM-13-013	Adjustment to MR & TCP Due to Overhead Rate Increases	12/5/12	Working	Cost/Schedule	\$673k	1
Power Supply	PSM-13-014	Switchgear Enclosure	12/5/12	12/20/12	Cost/Schedule	\$98k	3
Power Supply	PSM-13-015	Other Construction	12/5/12	12/20/12	Cost/Schedule	\$94k	3
Pit Equipment	PSM-13-016	CMM Replacement	12/5/12	Working	Cost/Schedule	TBD	TBD
Power Supply	PSM-13-020	PSAA: Engineering changes	12/5/12	Working	Cost/Schedule	\$50k	3
Power Supply	PSM-13-021	PSAA: MSA	12/5/12	Working	Cost/Schedule	\$60k	3
Pit Equipment	PSM-13-022	(b) (7)(F) Replacement	12/18/12	Working	Cost/Schedule	TBD	TBD

Earned Value Metrics

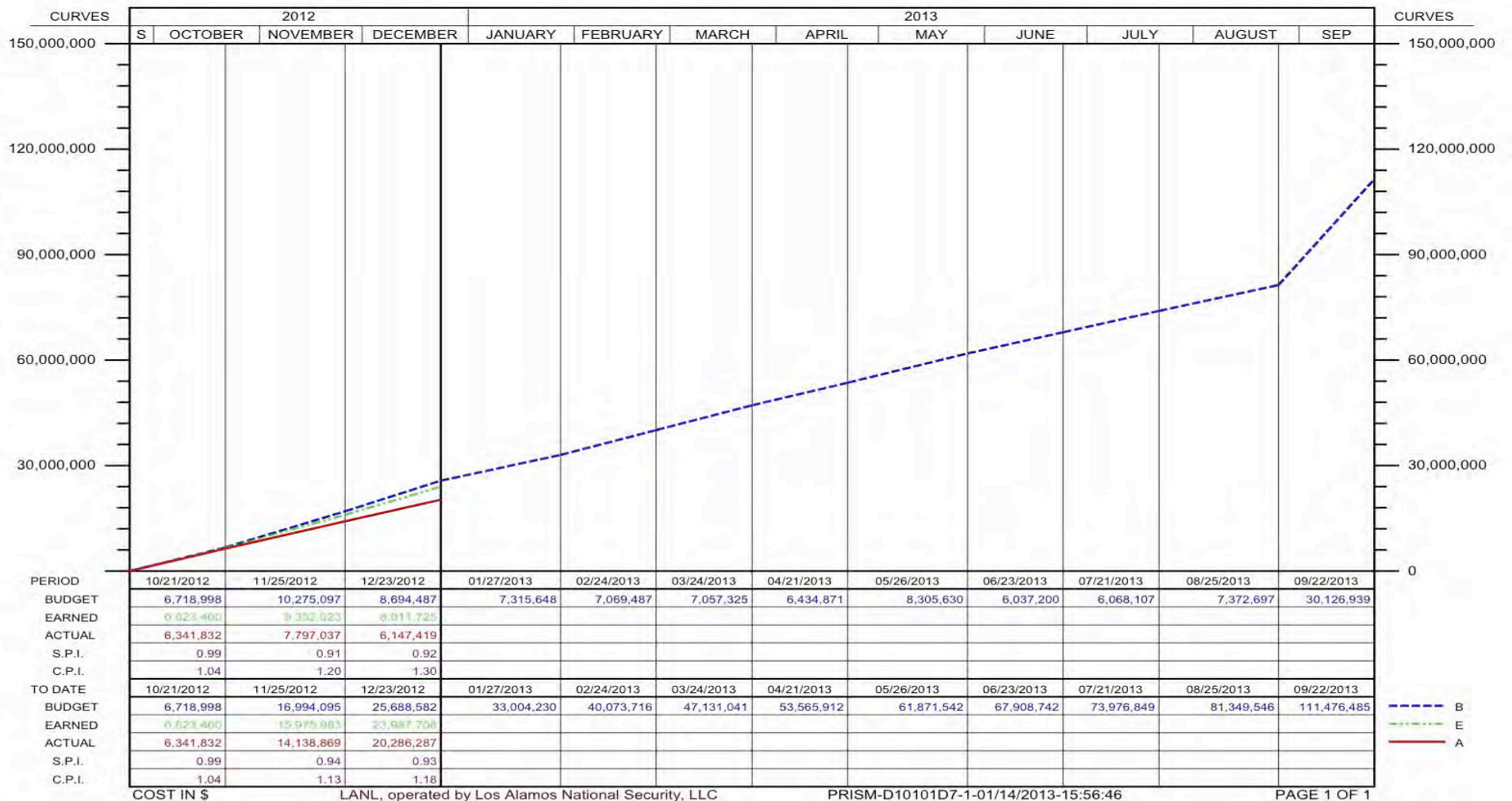
PERFORMANCE S-CURVE

Pu Sustainment



PERFORMANCE S-CURVE

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.				
Builds	Baseline Date	Status/Comments	Completion Date	RGYB	
(b) (7)(F)				BLUE	
				YELLOW	
				BLUE	
				GREEN	
				GREEN	
				GREEN	
				GREEN	
				GREEN	
Equipment					
(b) (7)(F)	November 1, 2012		October 17, 2012	BLUE	
	March 13, 2013	On track to meet milestone		GREEN	
	March 21, 2013	On track to meet milestone		GREEN	
	April 19, 2013	On track to meet milestone		GREEN	
	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			GREEN	
	September 30, 2013			GREEN	
	September 30, 2013			GREEN	
		GREEN	(b) (7)(F)		
MRT 4623		GREEN			
1.	(b) (7)(F)				
(b) (7)(F)	(b) (7)(F)	(b) (7)(F)		GREEN	

1.1 Technical Progress

- (b) (5), (b) (7)(F)
-
- Completed three shape castings. This completes the shape castings planned for FY13 second quarter putting the casting operations 3 months ahead of schedule.
- (b) (5), (b) (7)(F)
- Submitted the draft Process Qualification Plan for the CMM to the IPT.

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 The (b) (7)(F) in the cold testing laboratory at SM-66 is being functionally tested.
 - o Primary construction has started in PF-4.
- Foundry Upgrade
 - o Assembly of the cold test foundry at 100%.
 - o GB1 vacuum system installation at 70%.
 - o Preparation of integrated work document (IWD) for GB1 cooling installation at 75%.
 - o GB2 Decontamination & Dismantlement IWD at 90%.
 - o Containment tent design complete.
- Electro-Refining Line Upgrade
 - o Material Transport System (MTS)/Program Logic Controller (PLC) transported to PF-4, installed and anchored.
 - o Breaking Press Hydraulic Press Unit (HPU) transported to PF-4, anchors flared and unit positioned.
 - o Heat Detectors in furnace gloveboxes installed.
 - o Service Manifolds (3) transported to PF-4 and positioned on Trunkline.
 - o ER controller Request For Proposal (RFP) received. Technical evaluation is in progress.
 - o Inert gas by-pass “Bubblers” (6) installed.

1.3 Issues

- None

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

- (b) (7)(F) BCR submitted to close out action item due December 21, 2012.

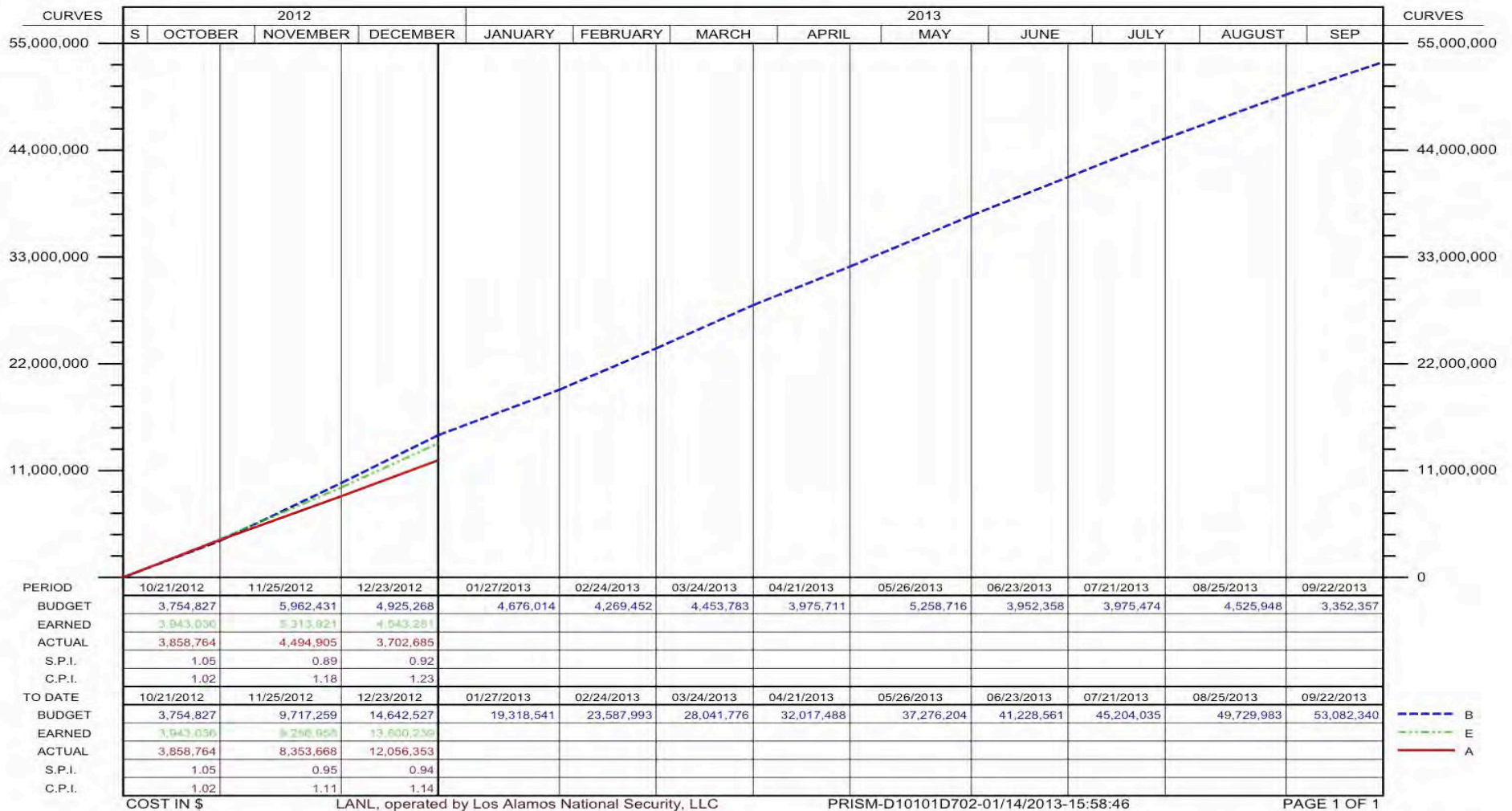
1.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F) upgrades will conflict with the (b) (7)(F) attempt in FY13.	(b) (7)(F)	If possible the subassembly for the (b) (7)(F) ahead of schedule. If this cannot be accomplished, the build might occur in FY14.	
(b) (7)(F) capability will not be available.	The (b) (7)(F) will be used on (b) (7)(F) prior to the completion of the continuous (b) (7)(F) upgrade. This is the least understood of the assembly operations and may require significant process development.	(b) (7)(F)	Having successfully performed (b) (7)(F), this is no longer a risk. This risk will be deleted next month.
(b) (7)(F)			
(b) (7)(F)			
Analytical actinide chemistry may lose the support from other programs at LANL.	The NA-20 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 LASO 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.	The ARIES program has decided to move chemistry analysis outside of LANL. This risk is now an issue for FY14 planning. Actions taken so far include, projectizing the facility operations and maintenance which has reduced cost, and initiating discussions with Chemistry Division managers about how to maintain core competencies during the next few transitional years.

1.7 Earned Value Metrics

PERFORMANCE S-CURVE

Pit Manufacturing



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2.0 LANL - Power Supply

MRT 4624	GREEN	<i>Complete FY 2013 RTG material recovery activities</i>
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(b) (7)(F)

L3 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB
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(b) (7)(F)

MRT 4625	GREEN	<i>Install the RTG-ATF equipment and upgrades</i>
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1. Complete construction of the RTG-ATF by September 30, 2013
2. Turnover RTG-ATF facility to Operations by September 30, 2013

L3/L4 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB
Duct bank Installation Complete	October 12, 2012	Asphalt installation tied to milestone.	October 18, 2012	BLUE
Process Equipment Ready for Delivery to PF-5 Basement	November 19, 2012	Equipment delivery to basement of PF-5 started on 11/19/12. However final delivery of equipment to PF-5 will not be complete until the week of 1/14/13 due to: a) fire barrier upgrades delivered late in the project, b) electrical and architectural upgrades more labor intensive than planned, and c) final two ACBs do not arrive until week of 1/14/13.		RED
HVAC Installation Complete	November 21, 2012	Condenser delivery from vendor was delayed to 12/21/12, inspection of condenser found it damaged; replacement condenser scheduled to arrive the week of 1/14/13.		RED
Installation of Process Equipment Complete	December 13, 2012	Installation of process equipment to follow receipt of final two ACBs scheduled for arrival the week of 1/14/13.		RED
Construction Complete	February 19, 2013	Expected to be complete in late February to early March depending upon final delivery of equipment and hardware.		Yellow
Release to Operations	June 3, 2013			GREEN

2.1 Technical Progress

- Material Recovery
 - Received FY13 Shipment #1, #2 and #3 (received in July, August and October).
 - All units from the shipments are dismantled.
 - Completed fuel recovery and storage of all shipments in FSOs.
 - Completed leak check of FSOs from all shipments received.
 - FSO radiography delayed due to equipment failure.
- RTG Process Development
 - Started weld development of the strength member for the Design of Experiment.
 - (b) (7)(F) vendor representative on site to assist with the repair of the (b) (7)(F) focus that was discovered during welding development.
 - (b) (7)(F) vendor representative was on site to align and calibrate welder.
 - Finalized the Bill of Materials for RTG manufacturing. LANL will continue to procure parts for development activities.
 - Continuing to revise the LANL Production Strategy with Design Agency input.

2.2 Equipment

- Radioisotope Thermoelectric Generator - Assembly & Testing Facility (RTG-ATF)
 - Continuing installation of the HVAC system. Condenser delivery from vendor was delayed to 12/21/12, inspection of condenser found it damaged; replacement condenser scheduled to arrive the week of 1/14/13.
 - Completed fire suppression punch-list.
 - Continued installation of the vacuum pipe.
 - Continued ridge ceiling in the testing rooms.
 - Continued installation of Yellow-Net raceways.
 - Installing HVAC duck between outside unit and building.
 - Continued termination of conductors in switchgear and panel-boards.
 - Received replacement 1,600 AMP circuit breaker, it passed all testing.
 - Continuing equipment delivery. Final delivery of equipment to PF-5 will not complete until the week of 1/14/13 due to: a) fire barrier upgrades delivered late in the project, b) electrical and architectural upgrades more labor intensive than planned, and c) final two ACBs do not arrive until week of 1/14/13.
- The (b) (7)(F)
 - Updated Master Equipment List and priority drawings.
 - Identified the participants of the Technical Assist Team. The Assist Team has been granted access to the project files and has started their review.
 - Completed writing the operations procedure and initiated the technical peer review.
- Analytical Chemistry glove boxes (Pu Assay and Radiochemistry)
 - Continuing to work on the Zone 2 ductwork.
 - Completed installation of mechanical piping on top of glovebox.
- SM-39 Development Laboratory
 - Pin studies continuing. The leak test results from the studies were very favorable.
 - All electrical, from switchgear to fusebox (Phase I) is complete.
 - LANL engineers participated in E-Tester review with supplier and Design Agency.

2.3 Issues

- None

2.4 Variance Analysis and Recovery Plan

- None

2.5 BCRs

- BCP-019-13-013 for \$673K: Adjustment to MR & TPC Due to Overhead Rate Increases - This BCP replaces \$672.9K in the Management Reserve account that was previously used to fund impacts from the FY12 LANL VSP and the FY13 LANL institutional directed rate change.
- BCP-020-PSM-13-014 for \$98K: Contractor Bids Replacing Cost Estimate for Switchgear Walk-in Enclosure - Changes in this BCP incorporated the fully enclosed, walk-in type switchgear enclosure with definitive options revealed during the submittal process that were inadvertently not included during development of the cost estimate.
- BCP-021-PSM.13.015 for \$94K: Contractor Bids Replacing Cost Estimate for Vacuum Exhaust System and Relocating Panel-boards – The changes in this BCP incorporate the installation labor required for the vacuum exhaust system that was not included in the cost estimate. In addition, this BCP addresses the additional labor and materials to rearrange the location of new panel-boards and lengthen a new wall from the original design layout because the original space available could not accommodate the panel-boards. Field adjustments necessary for the panel-boards were not included in the cost estimate.
- BCP-022-PSM-13-020 for \$63K: AE Title III Services Mod for Fire Barrier Upgrades and Cable Tray Revision - Subsequent to the baseline design it was determined the existing facility ceilings and walls required fire protection enhancements to meet fire Codes. To that end, rerouting the cable tray below the new acoustical ceiling improved the fire protection barrier capability of the ceiling by reducing the quantity of penetrations in it.
- BCP-023-PSM.13.021 for \$60K: MSA is In-Progress: Changes in this BCP will address additional expense funds estimated for the management self-assessment.

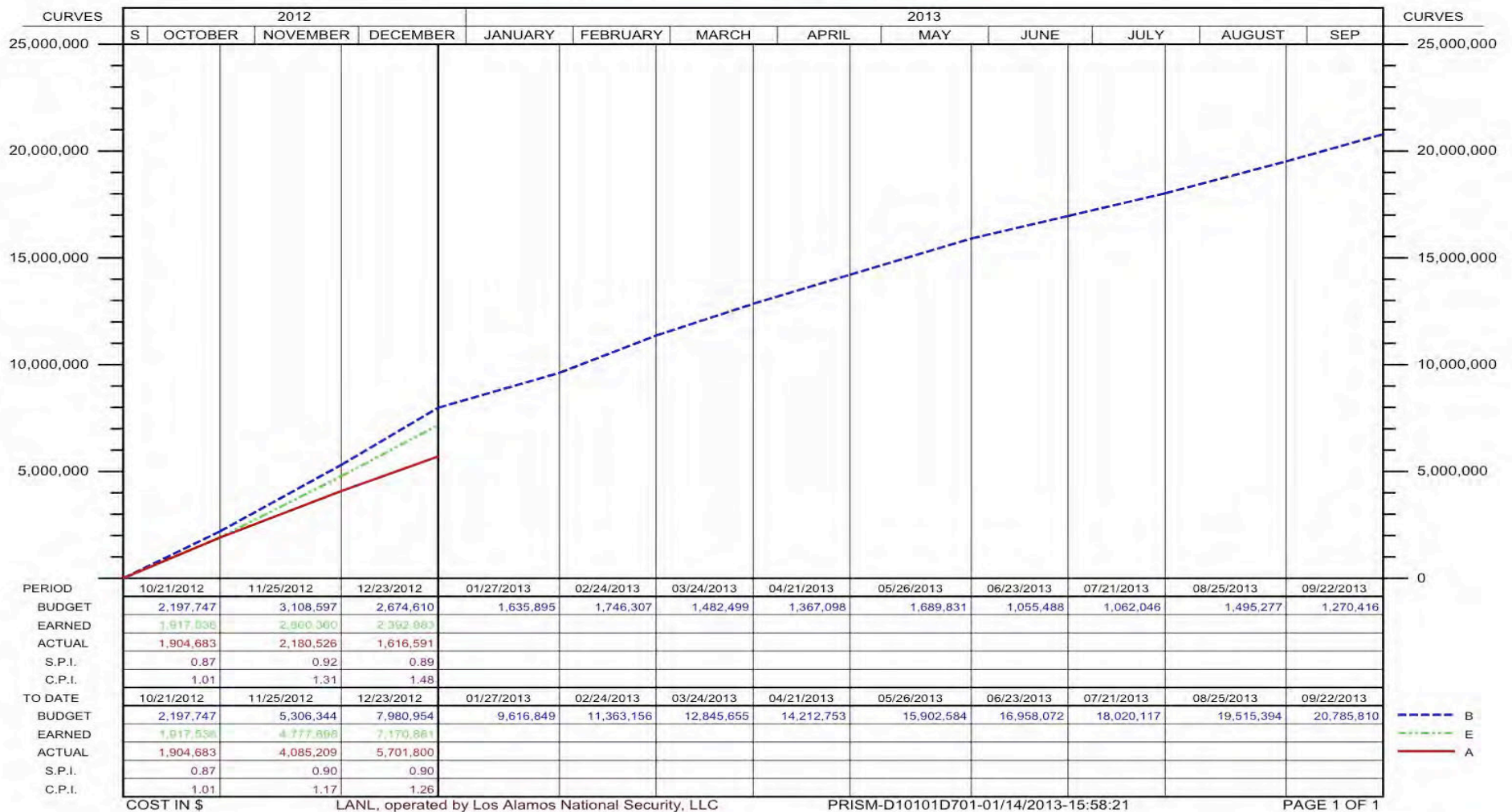
2.6 Risk Table

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 LASP management to allow for increase dose in staff assigned to this work. 3) Delay non-critical patch activities until they become critical path for FPU.	Daily work planning meetings continue to ensure availability of staffing resources. Started working with Line Management to plan future strategic hires.
(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

- Reviewed Earned Value and actual cost reporting for December.
- Supported the Defense Programs Review that occurred at LANL on December 18, 2012.

3.2 Support

- Document Control, Records Management, and Training
 - Created controlled document requests for Power Supply, Aqueous Processing, and Welding operations.
 - Initiated operator training development for (b) (7)(F) in support of operations.
- Maintenance
 - Completed corrective maintenance and replacement on the (b) (7)(F) 300 Area glovebox solenoid valve, an airlock purge gas gate valve, and nitric acid piping in support of Pit Development activities.
 - Completed scheduled preventative maintenance activities on (b) (7)(F) Bostomatic, Manual Hardinge 1, Manual Hardinge 2, Manual Hardinge 3, 300 Area Bubblers.
- Warehousing and Procurement
 - Continued to procure and manage material for multiple Pu Sustainment construction projects (ER, PU Assay, Foundry cold testing and Foundry Vacuum upgrades, and (b) (7)(F) upgrades.)
 - Developed a training video (beta testing) to be used with the new consolidated bill of material tracking system (CBOM) to standardize the way we manage material for all TA55 projects.
 - The NPI-8 procurement team successfully processed over 180 procurement requests for TA55 in December and was able to work through the period without the development of a substantial (> 1 week) backlog.
- Performed inventory accuracy checks and conducted major housekeeping efforts in all controlled storage areas.

3.3 Issues

- None

3.4 Variance Analysis and Recovery Plan

- None

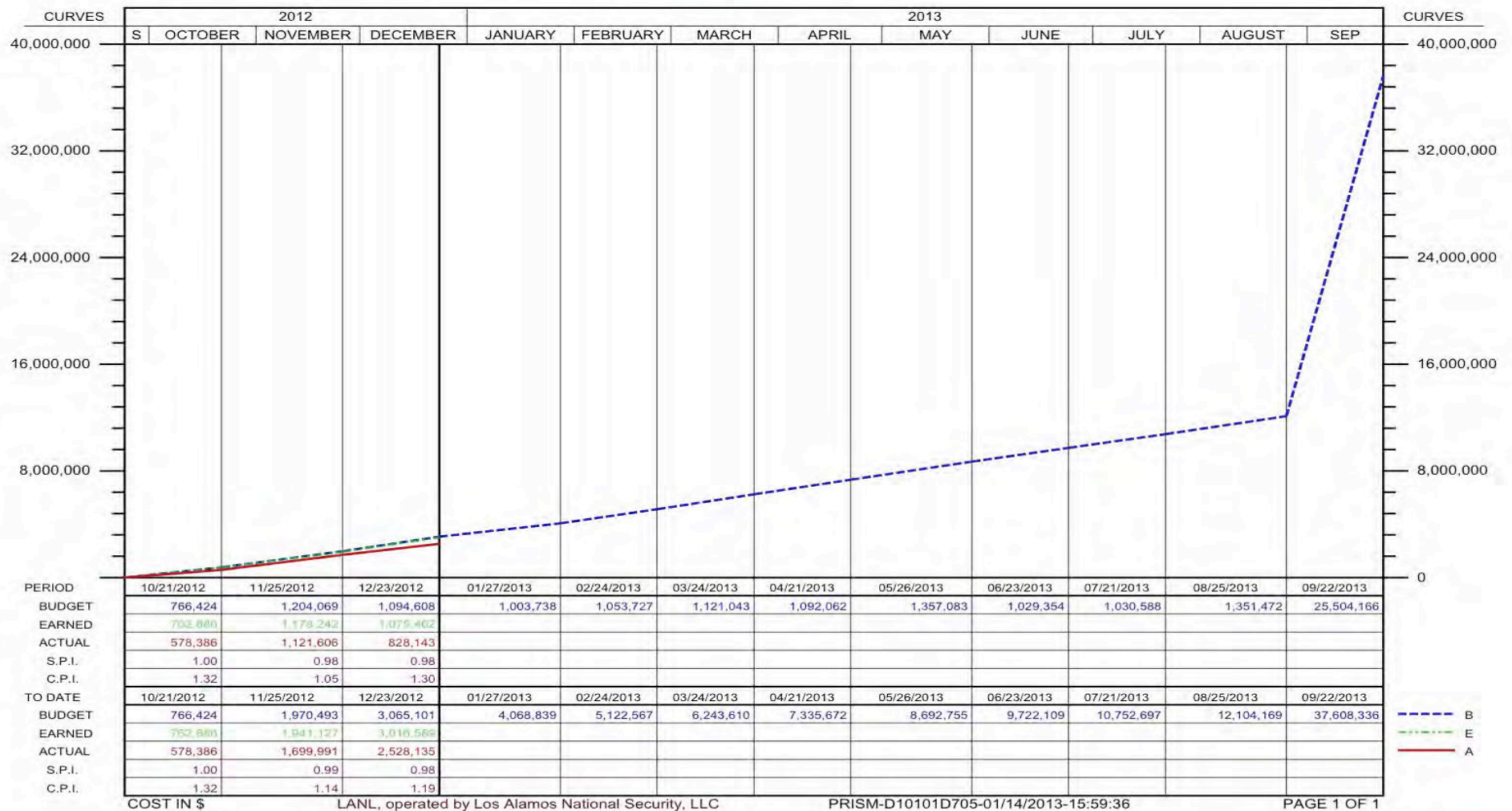
3.5 BCRs

- None

3.6 Earned Value Metrics

PERFORMANCE S-CURVE

Program Office



4.0 Facilities, Waste and Institutional Support

4.1 Technical Progress

- PF-4 Facility Availability: December 94.08%
 - o 100 Area: 95.83%
 - o 200 Area: 93.73%
 - o 300 Area: 92.57%
 - o 400 Area: 94.17%
- Rad-Con and LASO Training Assessment and Operations Center Certifications

4.2 Equipment

- N/A

4.3 Issues

- N/A

4.4 Variance Analysis and Recovery Plan

- Note that the actual costs are well below the planned costs. This is an artifact of the monthly billing by RTBF. The costs came in after the financial end of the month. There is no concern at this time nor is there an expectation that this will under run and provide budget for other scope.

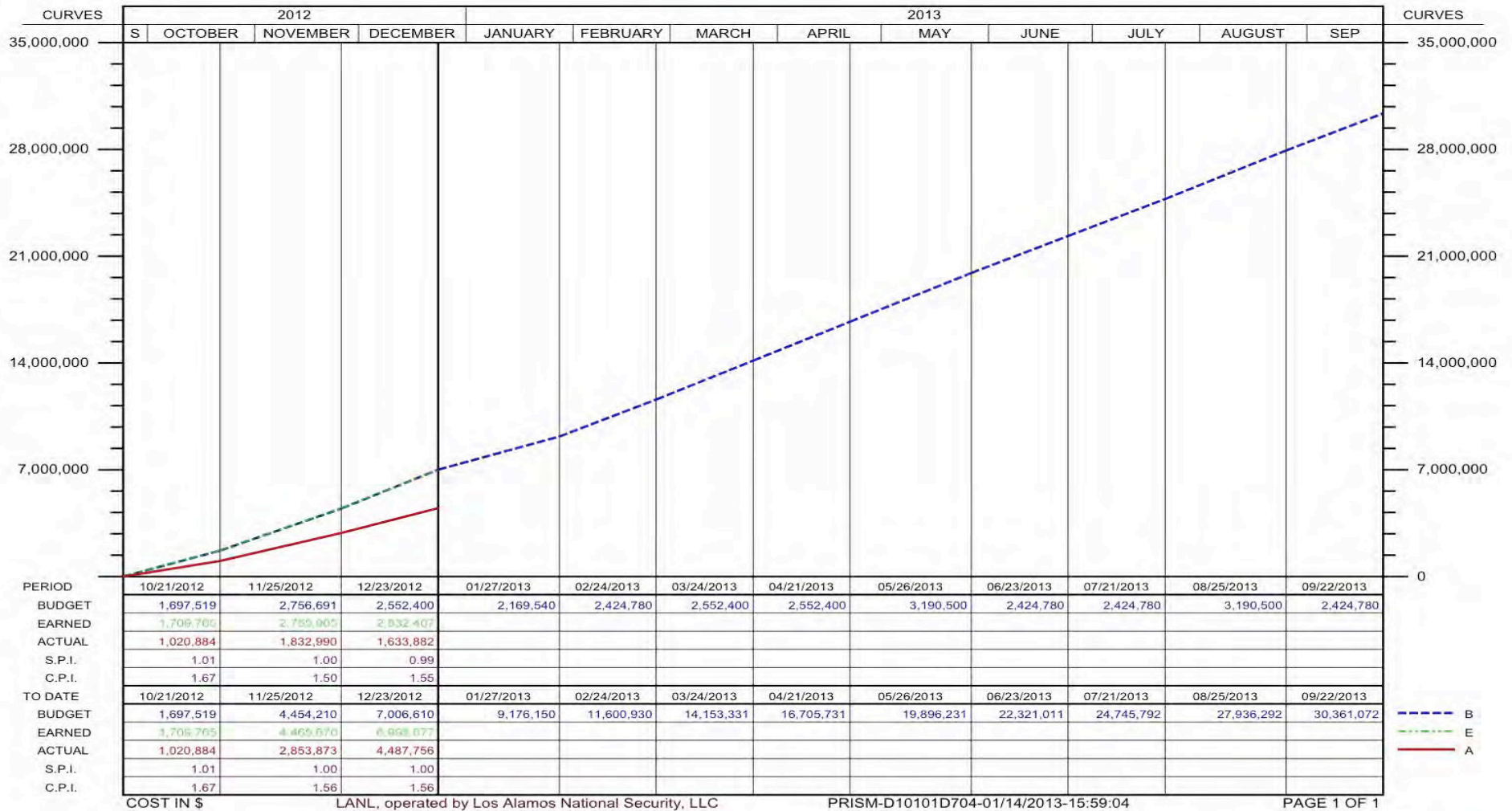
4.5 BCRs

- N/A

4.6 Earned Value Metrics

PERFORMANCE S-CURVE

Facility Infrastructure



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5.0 KCP

No Input received

6.0 LLNL

MRT 4749		GREEN	Perform Activities to Enable Plutonium Sustainment Goals		
1.	(b) (7)(F)				
2.	In coordination with LANL PA, maintain (b) (7)(F) measuring device for process qualification				
3.	(b) (5), (b) (7)(F)				
4.					
5.	(b) (7)(F)				
L2/L3 Milestone		Baseline Date	Status/Comments	Completion Date	RGYB
(b) (7)(F)		9/30/2013	Continued to provide EDU development support		GREEN
(b) (7)(F)		7/30/2013	Microprobe analysis of samples continued		GREEN
Complete	(b) (7)(F)	3/31/2013	Brazing and welding studies continued		GREEN
Initiate readiness review for compatibility tests		9/30/2013	Identified LANL work scope and equipment needs		GREEN
(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	Design provided to NNSA and LANL.	11/30/12	BLUE
(b) (7)(F)		9/30/2013	Currently scheduled as third or fourth build		GREEN

6.1 Technical Progress

- ☐ Worked primarily with KCP to establish their production capability. Multiple VTCs were conducted to discuss requirements and drawing changes. A vendor site visit was also conducted to discuss preliminary spec modifications.
- ☐ Non-nuclear shells sent to KCP for inspection purposes.
- ☐ (b) (7)(F) A VTC was conducted after LANL's review to receive their comments regarding compatibility with equipment and fixtures.
- ☐ (b) (7)(F) . Site visits and conference calls were conducted with NSTec, NSO, and LSO personnel to coordinate project activities.
- ☐ (b) (7)(F)
- ☐ Coring for additional material was completed for fabricating FY13 test specimens.
- ☐ A meeting was conducted at LANL for scoping the work and use of equipment for the compatibility test. A LLNL design review for the compatibility test was conducted. LANL shipped test chamber to LLNL to support test preparations.

6.2 Equipment

- ☐ None

6.3 Issues

- None

6.4 Variance Analysis and Recovery Plan

- None

6.5 BCRs

- None

6.6 Risk Table

Work	Description	Handling Strategy	Status
All work packages	Availability of required unit operations at LANL or LLNL	Work to integrated schedule and adjusts as needed	Not realized
(b) (7)(F)			
(b) (7)(F)			
(b) (7)(F)	Design incompatible with LANL welding and assembly hardware	Adjust design or provide equipment fixtures as needed	(b) (5)
(b) (7)(F)	Loss of key personnel due to medical issues or retirement	Adjust schedule if loss is temporary or adjust staff to critical needs if loss is permanent	Not realized
Modern Foundry Cold Testing	Loss of key personnel due to medical issues or retirement	Adjust schedule if loss is temporary or adjust staff to critical needs if loss is permanent	Not realized

6.7 Earned Value Metrics

PERFORMANCE S-CURVE LLNL

