

~~UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION~~

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Fourth Quarter 2013

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Report

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(List all UCNI guidance used)



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LANL Executive Summary

As part of a required Conduct of Operations review, on June 10, several key PF-4 Operation Procedures were paused halting most SNM operations in PF-4. On June 27, Laboratory Director Charlie McMillan issued a temporary pause of all programmatic activities in PF-4. Resumption criteria, prioritization of resumption activities, procedure walk downs, procedure revisions, and approval are in process and are expected to take several months to complete.

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

- 1) Completed all electrical and mechanical work associated with the electro-refining line.
- 2) Completed (b) (7)(F) installation and functional testing.
- 3) Completed vacuum installation and cold testing for foundry GB-1 in PF-4. Received approval for Foundry GB-1 construction IWD. Completed foundry cold test castings and sample analysis with favorable results.
- 4) Received a Declaration of Readiness memorandum from the Associate Director of Nuclear and High Hazard Operations to proceed with the system startup activities for:
 - o Radioisotope Thermoelectric Generator - Assembly & Testing Facility (RTG-ATF),
 - o (b) (7)(F) and
 - o Analytical Chemistry glove boxes (Pu Assay and Radiochemistry)
- 5) Submitted the initial FY14 budget allocation matrix.

All four FY13 NNSA Level 2 Milestones (MRT 4622-4625) associated with Plutonium Sustainment are 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).

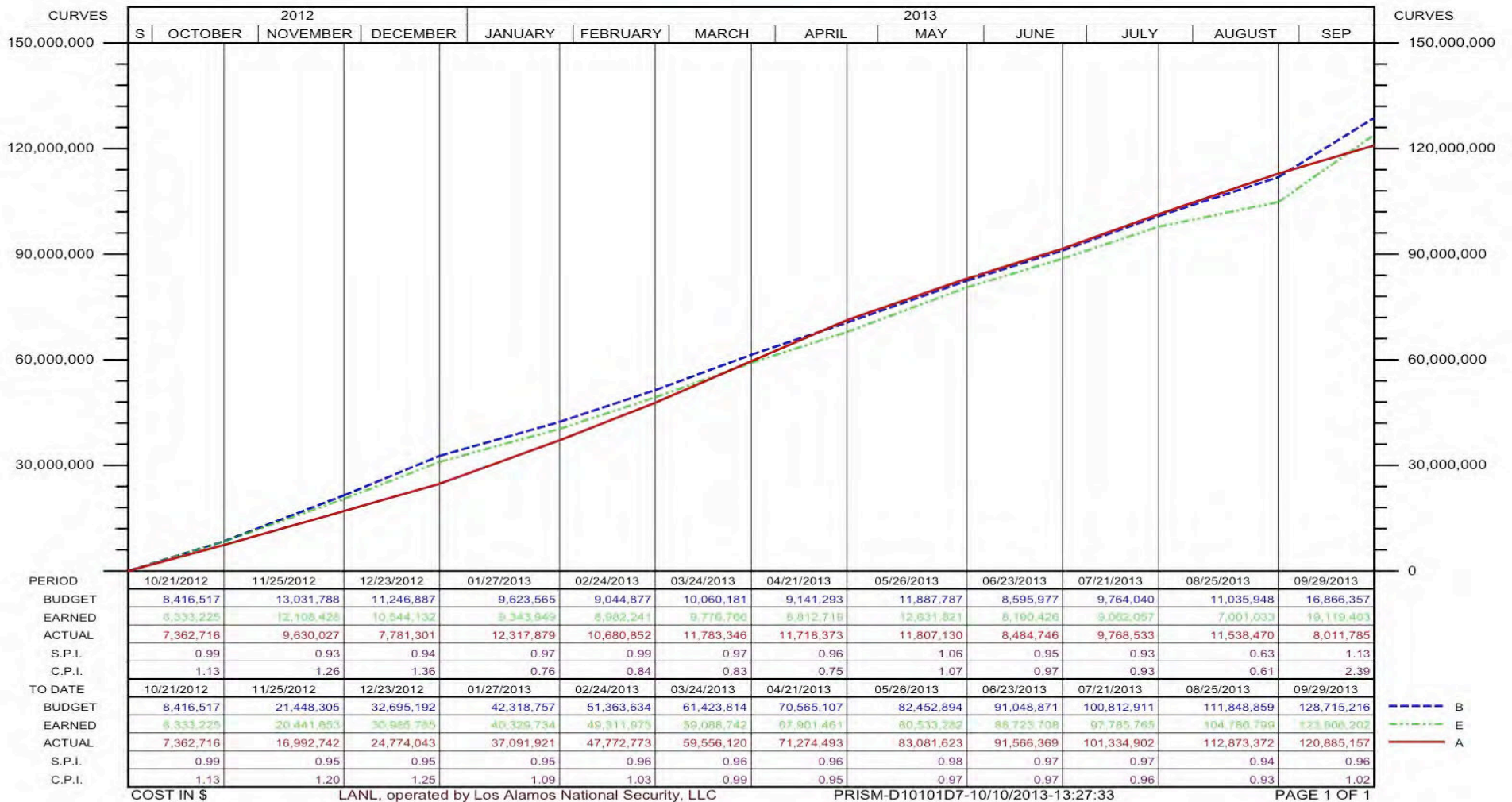
LANL Response to June NNSA Comments

none.

Earned Value Metrics

PERFORMANCE S-CURVE

LANL Pu Sustainment



PERFORMANCE S-CURVE

LANL Pu Sustainment W/O Facility Infrastructure



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1.1 Technical Progress

- (b) (7)(F)
- o The PF-4 operational pause resulting in an inability to move the part. Special permission to move the part was granted putting the glovebox in a safe configuration.
- Pit manufacturing procedures and work authorization documents were evaluated, revised, and submitted for operational and criticality safety review subject to the current policy and processes.

1.2 Equipment

- The plan to meet the grading criterion #3 for L2 milestone MRT 4622 includes the following:
 1. (b) (7)(F)
 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) (b) (3)
 - o The cooling line was installed from the chiller unit to the (b) (7)(F) power supply to meet code requirements.
 - o The installation of the control skids for the cold and hot gloveboxes in PF-4 and functional testing was completed.
 - o (b) (7)(F)
- Foundry Upgrade (b) (3)
 - o Furnace and other components removed out of glovebox.
 - o GB-1 vacuum installation in PF-4 completed.
 - o GB-1 construction IWD approved.
 - o GB-2 vacuum & cooling design 60% package completed.
 - o Completed procurement specification of the GB-1, 2, 3 Limited Volume Chilled Water System (LVCWS) skid.
 - o Completed Factory Acceptance Testing of the GB-1, 2, 3 LVCWS.
 - o Cold test vacuum testing complete.
 - o Cold Test castings completed; sample analysis completed with favorable results.
 - o Started and completed GB-1 furnace housing fit up; prepping for hydro testing.
 - o Functionality testing continues in the Cold Laboratory.
 - o Issues with performance of the power supply were addressed.
 - o Power transfer systems are being addressed.
- Electro-Refining Line Upgrade (b) (3)
 - o Electrical & mechanical installation for MTS Conveyor, Dri-Train, and Trunklines I & V was completed.
 - o Electrical & mechanical installation for Braking Press, HPU, and the Primary Staging Glovebox was completed.

1.3 Issues

- None

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

- None

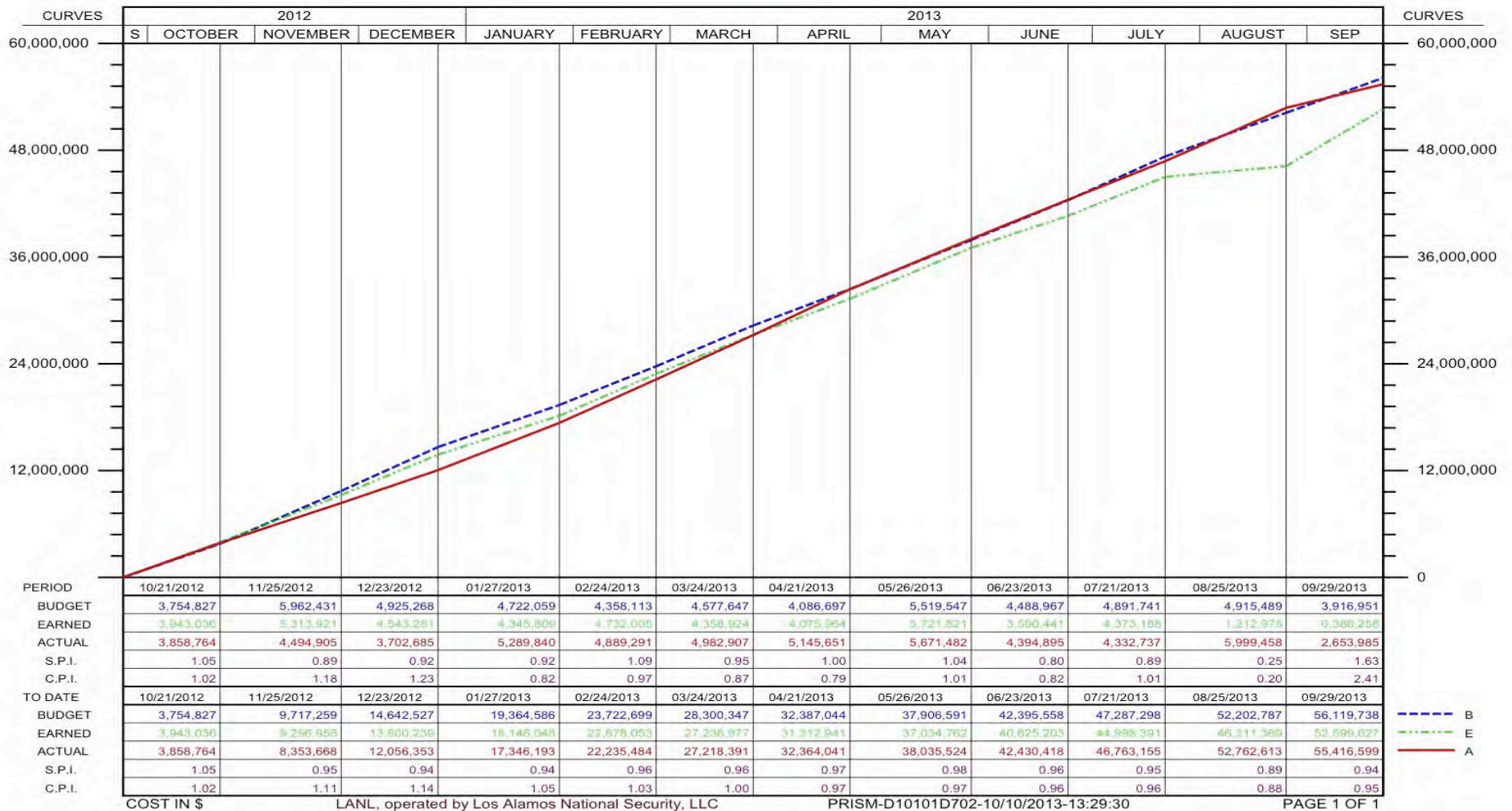
1.6 Risk Table

- None

1.7 Earned Value Metrics

PERFORMANCE S-CURVE

Pit Manufacturing



2.0 LANL - Power Supply

MRT 4624		BLUE	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)
- The Electronic-Traveler has been prepared to open non-standard material storage containers. Recovery of this material will commence once PF-4 has been release for operations. Material recovered from these non-standard containers will assist in meeting the required end-customer fuel requirements.

☐ **Process Development**

- ☐ Completed 100 D02 and 180 of D01 Strength Members. A sampling of parts will be sent to KCP for inspection and design validation.
- ☐ Fuel Sub-PRT met in August at LANL to discuss method of fuel processing and whether batch or Just in Time (JIT) was the preferred mechanism for manufacturing. (b) (7)(F)

- Continued operations training on the shock towers and thermal chambers located in the RTG-ATF. Matrices of runs are being made to show reliability and repeatability of all of the environmental testing pieces of equipment in the facility.
- Sent Heat Source liners to Pacific Northwest National Laboratory (PNNL) for Department of Transportation (DOT) Sealed Source Certification. Liners have successfully completed all of the required DOT tests. This certification was required to be able to be moved heat sources from PF-4 into the Radioisotope Thermoelectric Generator Assembly and Test Facility (RTG-ATF).

(b) (3)

2.2 Equipment

- Radioisotope Thermoelectric Generator - Assembly & Testing Facility (RTG-ATF)
 - Received a Declaration of Readiness memorandum from the Associate Director of Nuclear and High Hazard Operations to proceed with the system startup activities.
 - Commenced startup activities: Exercising the furnaces and the suite of environmental testing equipment.
- The (b) (7)(F)
 - Received a Declaration of Readiness memorandum from the Associate Director of Nuclear and High Hazard Operations to proceed with the system startup activities.
 - Commenced startup activities: Beam measurement data being analyzed with input from external electron beam expert.
- Analytical Chemistry glove boxes (Pu Assay and Radiochemistry)
 - Completed Construction
 - Completed the Management Self-Assessment and closed all Pre-Start findings.
 - Received a Declaration of Readiness memorandum from the Associate Director of Nuclear and High Hazard Operations to proceed with the system startup activities.

2.3 Issues

- None

2.4 Variance Analysis and Recovery Plan

- None

2.5 BCRs

- None

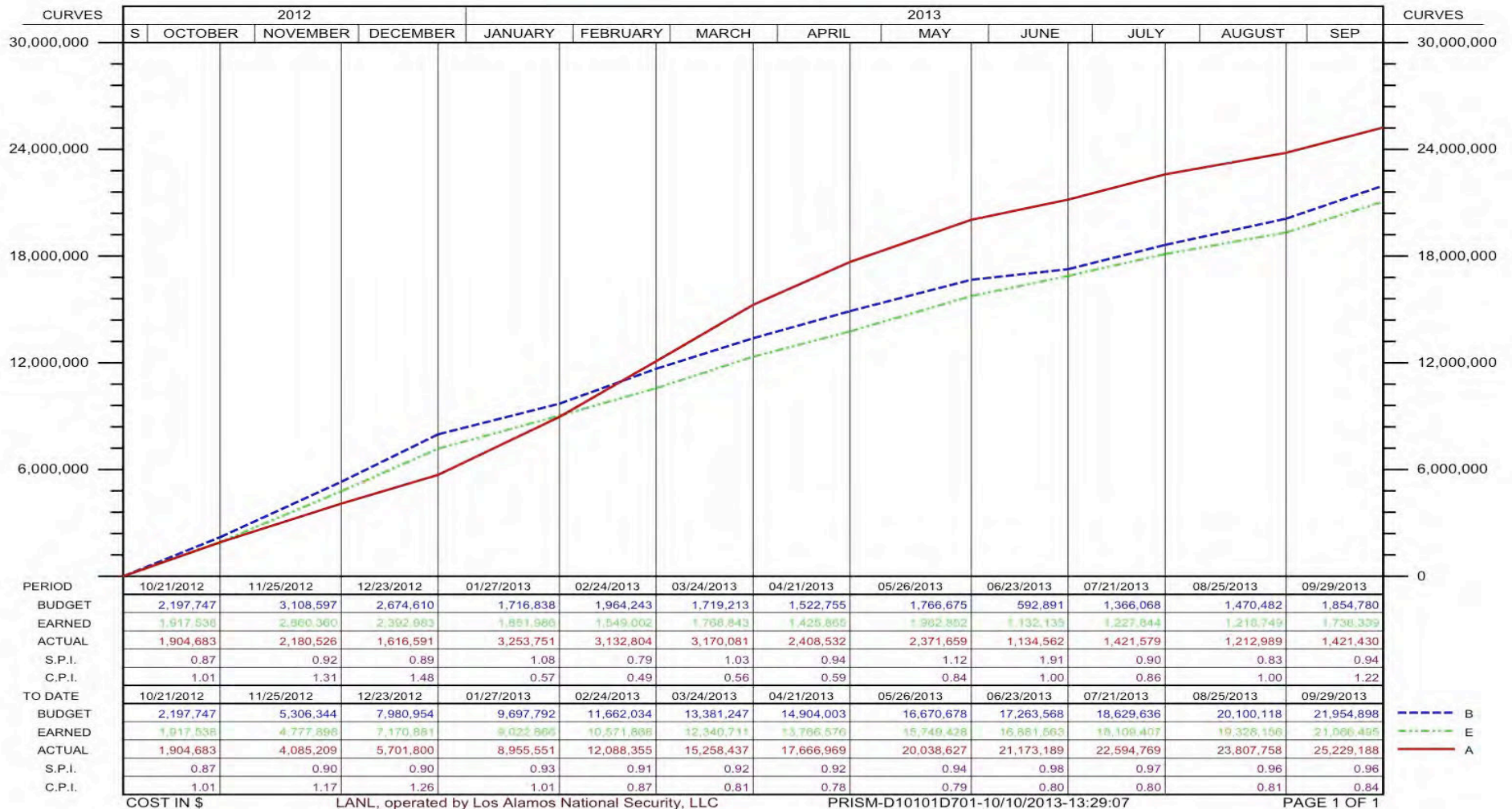
2.6 Risk Table

- None

2.7 Earned Value Metrics

PERFORMANCE S-CURVE

Reconstitution of Power Supply Manufacturing



3.0 Program Management and Support

3.1 Program Management

- All FY13 Pu Sustainment Level 2 milestones were completed and evidence packages with supporting documents were submitted.
- Supported the PRT and Sub-PRT meetings for Power Supply.
- Supported FY14 Planning Schedule revisions to align with expected FY14 initial allocation.
- Developed the Draft Program Implementation Plan for FY14.

3.2 Support

- PF-4 Resumption: activities continue with progress on revisions of procedures and supporting criticality safety documents. Resumption efforts are the primary focus of Pu Sustainment's workforce. The Director approved the release of:
 - TA55-AP-522, Criticality Safety Program
 - TA55-DOP-016, TA55 Material Transfer Procedure
 - 9 Pu-238 procedures and reviewed
 - 4 ADPSM-approved TRU waste procedures. With the approval of TA55-DOP-016, the TRU waste procedures, and previous approval of shipping procedures, waste operations are now fully resumed.
 - There are now a total of 21 procedures that have been approved for resumption.
 - Progress has been made in procedure development across all resumption task areas. There are now 329 procedures in revision.

3.3 Issues

- The temporary pause of all programmatic activities in PF-4 remains in effect.

3.4 Variance Analysis and Recovery Plan

- None

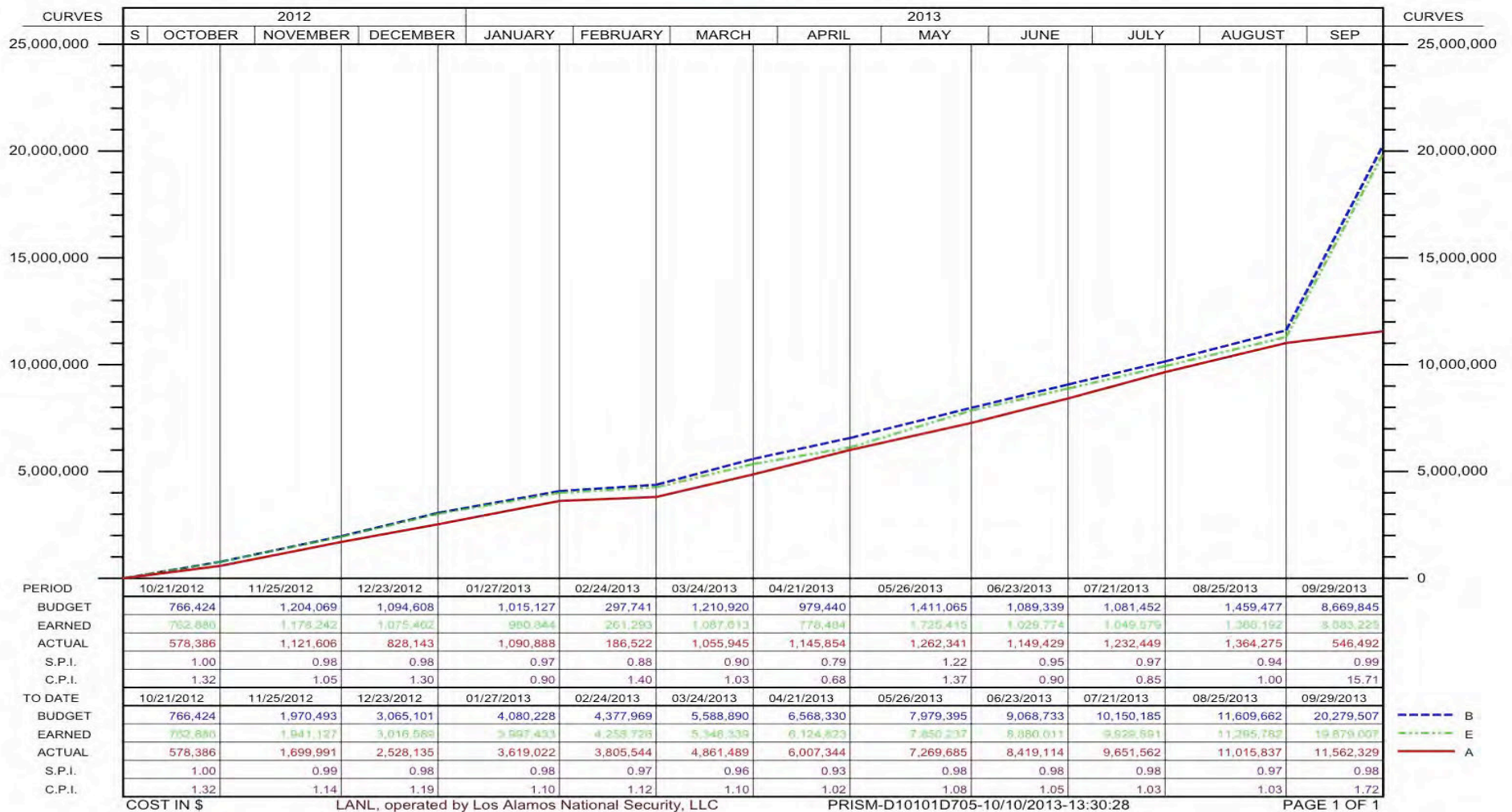
3.5 BCRs

- None

3.6 Earned Value Metrics

PERFORMANCE S-CURVE

Program Office



4.0 Facilities, Waste and Institutional Support

4.1 Technical Progress

- DSESH-TA-55 September Highlights
 - IH/Safety technicians attended Exposure Assessment training and Fall Protection Refresher training.
 - RLUOB Start-Up Exposure Assessments have been completed ahead of schedule on all C-AAC activities.
 - Cross Training: RCTs attended Industrial Hygiene Technician Training class.
 - Initiated the development of OJT (On the Job Training) related to Noise Dosimetry sampling in order to cross train selected TA-55 RCTs.
 - Annual RMIs 100% complete.
 - Examples of New Labeling on Transition Pieces Due as Corrective Action from PF-4 Skin Contamination: Spool piece between the dropbox and the “cold” glovebox
 - Performed air quality pre-inspection of permitted units with ENV-CP in preparation for NMED-AQB inspection.
 - Title V Air Quality inspection of RLUOB standby generators by NMED-AQB, no issues were identified.
- Transmittal of AD-NHHO: 13-213 Quarterly Update on Office of Inspector General Recommendations for Mitigation of Natural Disasters at LANL. Includes PF-4 Seismic Upgrades Completion Status. Transmitted September 3, 2013

4.2 Equipment

- None

4.3 Issues

- None

4.4 Variance Analysis and Recovery Plan

- None

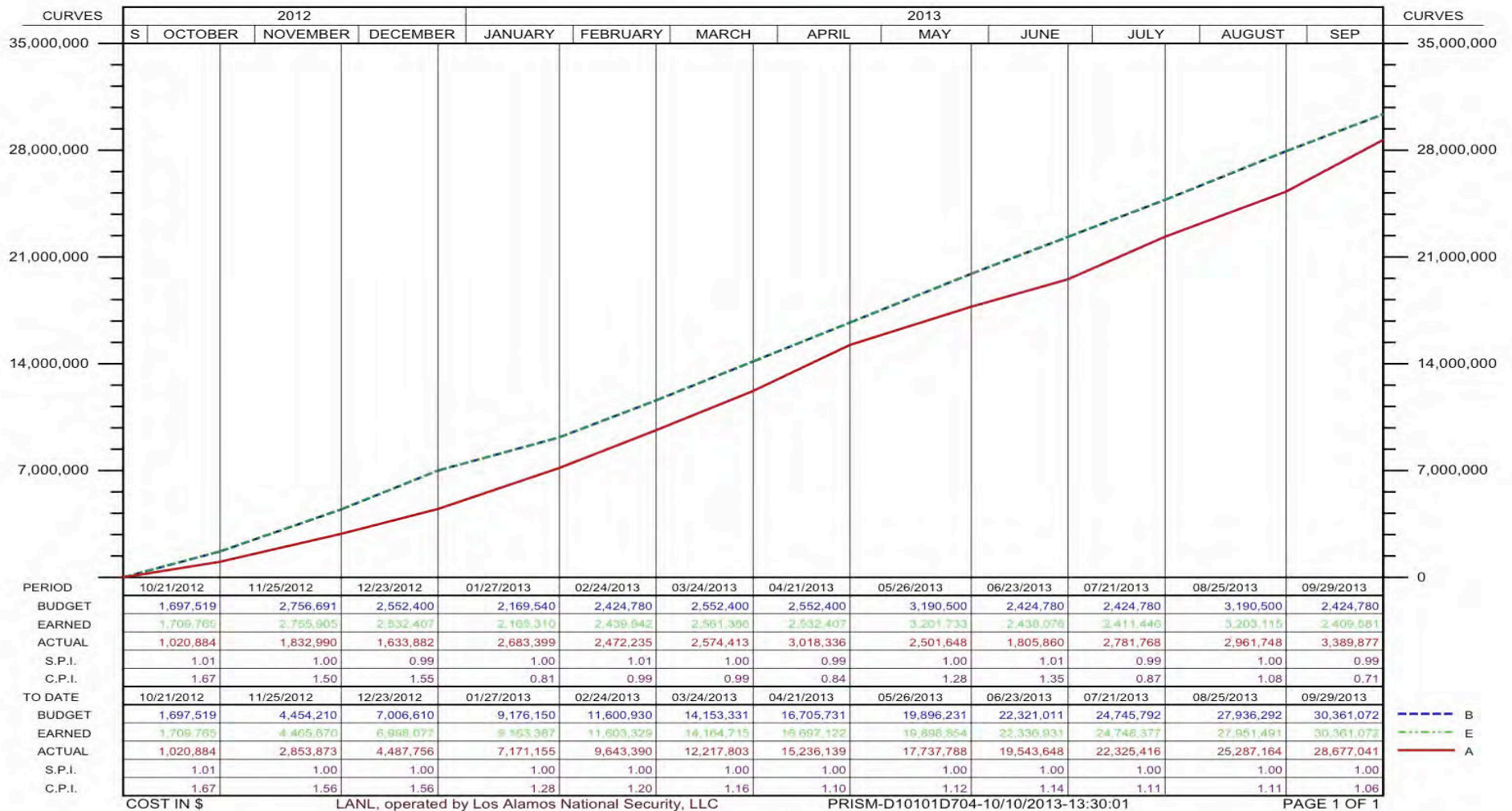
4.5 BCRs

- None

4.6 Earned Value Metrics

PERFORMANCE S-CURVE

Facility Infrastructure



5.0 LLNL

MRT 4749		BLUE	Perform Activities to Enable Plutonium Sustainment Goals		
1. Lead and manage the LLNL Plutonium Sustainment Program.					
2. (b) (7)(F)					
3. (b) (7)(F)					
4. (b) (7)(F)					
5. Sustain minimal “cold testing” on the Modern Foundry system to retain technology and staff for later deployment by NNSA programs.					
Work Package	L3 Milestone	Date	Completion Date	RGYB	
(b) (7)(F)	(b) (7)(F)	9/30/2013	February 2013	BLUE	
	(b) (7)(F)	7/30/2013		BLUE	
	(b) (7)(F)	3/31/2013	March 2013	BLUE	
	Begin setup of compatibility tests	9/30/2013		BLUE	
(b) (7)(F)					
(b) (7)(F)	(b) (7)(F)	12/31/2012	November 2012	BLUE	
	(b) (7)(F)	9/30/2013		BLUE	
Modern Foundry cold testing	Complete integrated test of material transport system	6/30/2013	December 2012	BLUE	

5.1 Technical Progress

- ☐ (b) (7)(F)
- Completed testing at LLNL and issued report.

- (b) (7)(F)
 - o This milestone is considered complete, however, processing will continue as funding permits.
 - o Processing continued on special items.
 - o Final authorization to begin IX Process for U-234 recovery.
 - o Processing for U-234 recovery was initiated.
- Continued declassification of special item non-nuclear parts using the LLNL declassification furnace.
- Compatibility testing
 - o NNSS has agreed that work is consistent with DAF's mission.
 - o NNSS has selected a building and is working toward startup. LANL has selected a building and is working to clear space for chambers.
- (b) (7)(F)

5.2 Equipment

- None

5.3 Issues

- Compatibility testing
 - o Setup of compatibility testing hardware at LANL will be delayed due to the pause.

5.4 Variance Analysis and Recovery Plan

- None

5.5 BCRs

- None

5.6 Risk Table

- None

5.7 Earned Value Metrics

PERFORMANCE S-CURVE LLNL

