

Los Alamos National Laboratory
&
Lawrence Livermore National Laboratory
Plutonium Sustainment Monthly Program Report

January 2012

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Executive Summary

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

- 1) Delivered slide set in support of the Plutonium Sustainment Manufacturing Study.
- 2) Entered out-year budget and scope planning into the Enterprise Portfolio Analysis Tool (EPAT).
- 3) Supported NNSA NA123.1 with DSW Budget Planning Summit preparation.

There are currently no major issues associated with achieving MRT L2 Milestones 4195-4198 or the relevant PBIs associated with Plutonium Sustainment.

There are no budget issues associated with the CR or FY12 final budget guidance. Table 1 identifies Baseline Change Requests that were initiated or completed during the month.

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

Each of the 5 major WBS elements is discussed in detail below with a section at the end that is provided by LLNL.

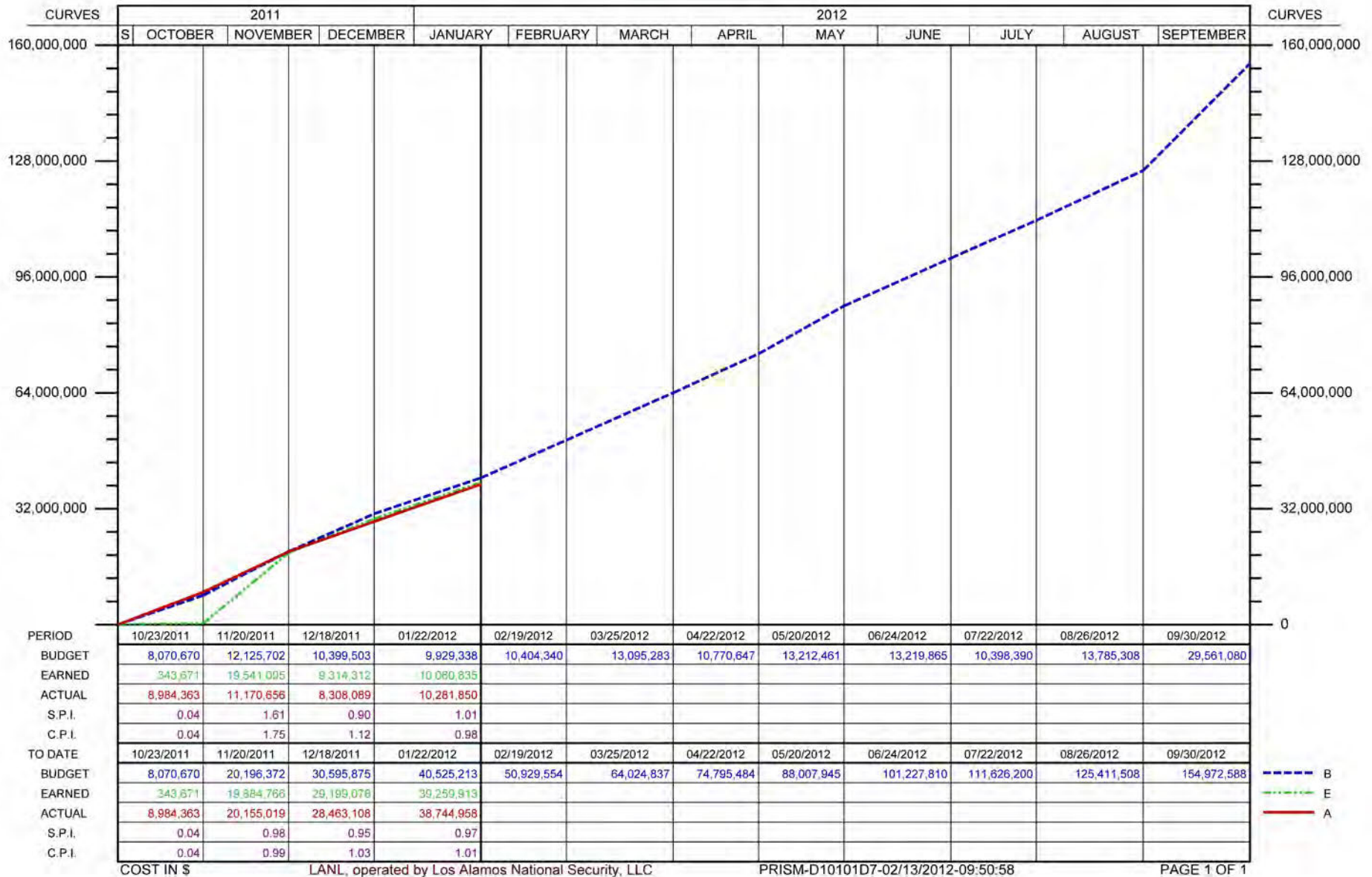
Table 1: January Baseline Change Requests

BCR #	BCR Description	From	To	Date Initiated	Date Approved	Impact	Cost Impact	Change Level
PSM-12-006	Add MRT Milestones to Pit Dev. schedule	N/A	N/A	1/10/12		Schedule	N/A	2
PSM-12-010	Align BCWS with the approved construction schedule	N/A	N/A	2/1/12		N/A	N/A	3
PSM-12-013	PSAA floor plan revisions to increase production safety efficiencies and reliability of the vacuum venting	P4PS	N/A	2/6/12		N/A	\$65k	3
PSM-12-014	(b) (7)(F) Re-Plan	N/A	N/A	2/6/12		Schedule	N/A	4
PSM-12-015	(b) (7)(F) Re-Plan	N/A	N/A	2/6/12		Schedule	N/A	4
PSM-12-016	Pollux	N/A	N/A	2/6/12		Schedule	N/A	4
PSM-12-017	Foundry Upgrades - FY12 Work Package Standup	New BA	Misc.	2/6/12		New Work Package	\$6,000k	1
PSM-12-018	ER Line - FY12 Work Package Stand Up	New BA	Misc.	2/6/12		New Work Package	\$1,844k	2
PSM-12-019	Tooling - Mold Delivery	N/A	N/A	2/10/12		Schedule	N/A	4

Earned Value Metrics

PERFORMANCE S-CURVE

Pu Sustainment



COST IN \$

LANL, operated by Los Alamos National Security, LLC

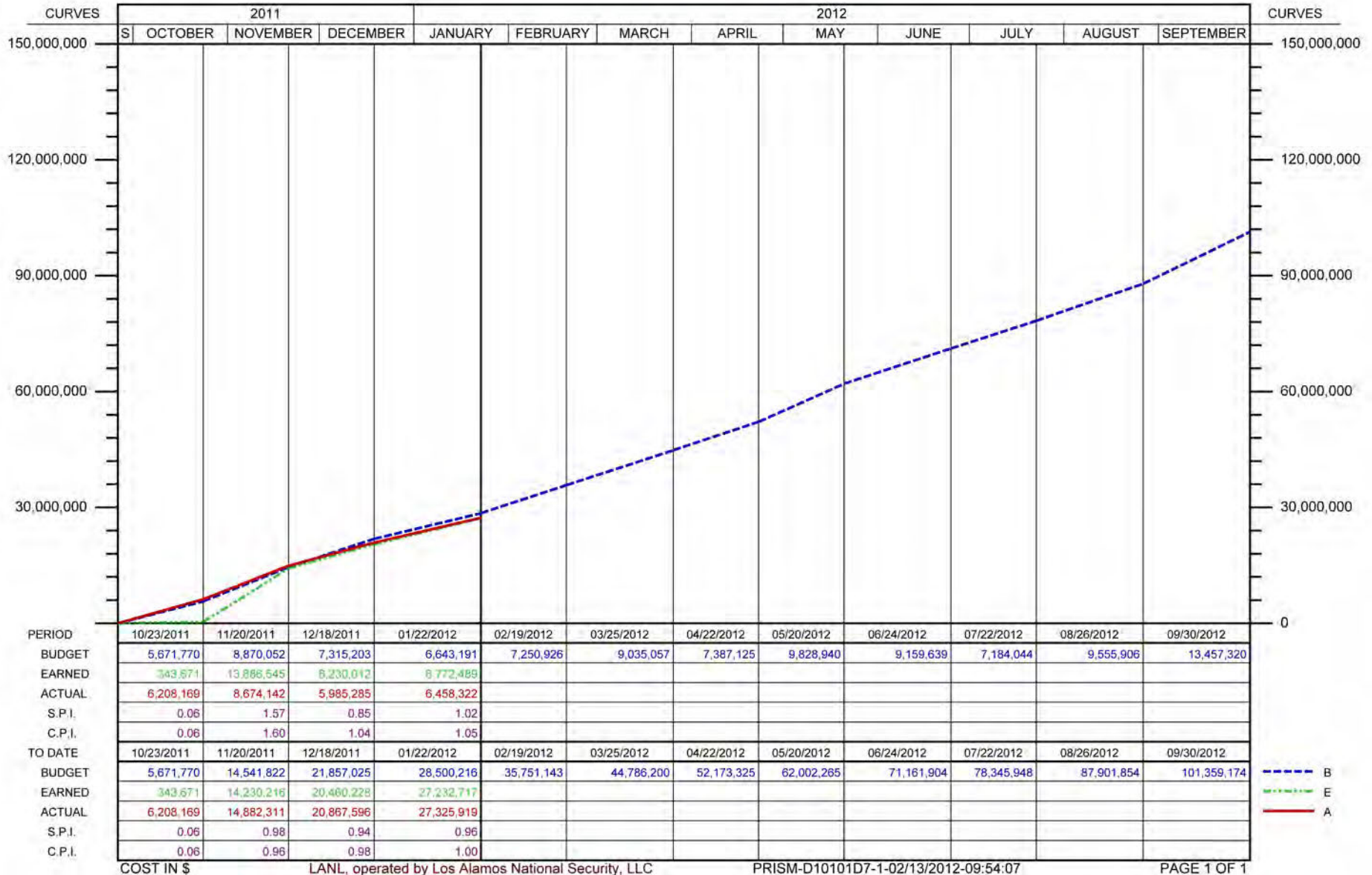
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PERFORMANCE S-CURVE

Pu Sustainment W/O Facility Infrastructure



1.0 LANL - Pit Development

MRT 4196	GREEN	Perform Activities to Sustain Base Pit Material Processing and Fabrication Capability	
1. (b) (7)(F)			
2. Continue installation and upgrade to pit capability equipment per PEP			
3. (b) (7)(F)			
L3 Milestone	Baseline Date	RGYB	Status/Comments
Non-nuclear components necessary for an (b) (7)(F) are available for use.	July 13, 2012	GREEN	Date change from June 27, 2012 to current date of July 13, 2012 reflects typo correction. July 13, 2012 is the date baselined in P6 project schedule.
Suitable nuclear material is available as ER	September 21, 2012	GREEN	
(b) (7)(F) Upgrade Complete	August 10, 2012	YELLOW	Although the L3 is at risk, it is not yet critical path to affecting L2 completion date.
(b) (7)(F) Operational	January 3, 2012	RED	Although the L3 is past due, it is not yet critical path to affecting L2 completion date.
Preparation Unit Installed	August 14, 2012	GREEN	

1.1 Technical Progress

- (b) (7)(F) is in independent QA assessment of the build package for product acceptance.
- Assembly and NDE of (b) (7)(F) were completed.
- Additional detail on procedure revisions has been added to the baseline schedule.

1.2 Equipment

- (b) (7)(F)
 - o Essential technical staff has been lost due to attrition. Replacement staff is being detailed to the project, but completion of TA-55 site specific and process specific training be required resulting in a schedule delay.
 - o A facility water pipe leaked onto and around the cold laser glovebox. The impact on systems is being evaluated.
- (b) (7)(F)
 - o Established a planning baseline for (b) (7)(F) Readiness Assessment activities with Facility Operations Management.
 - o Began design and component procurement for chamber ventilation to HEPA vacuum system.
 - o Drafted a detailed operating procedure for (b) (7)(F) operation at TA-55 based upon previous operations.
 - o Commenced worker training on (b) (7)(F) activities.
 - o Refined work scope for (b) (7)(F) maintenance activities.
 - o Requested extension for the expired (b) (7)(F) support contractor purchase order.
- Surface Preparation
 - o The Design Change Form has been approved.

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- o Work Instructions have being drafted and walked down.
- o The glovebox feed-through panel has been received at LANL and is undergoing receipt inspection.

1.3 Issues

- Product acceptance support will be available on a limited basis as resources have been diverted to support an ARIES delivery. Therefore, Diamond stamping of (b) (7)(F) has been delay until Q3FY12.

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

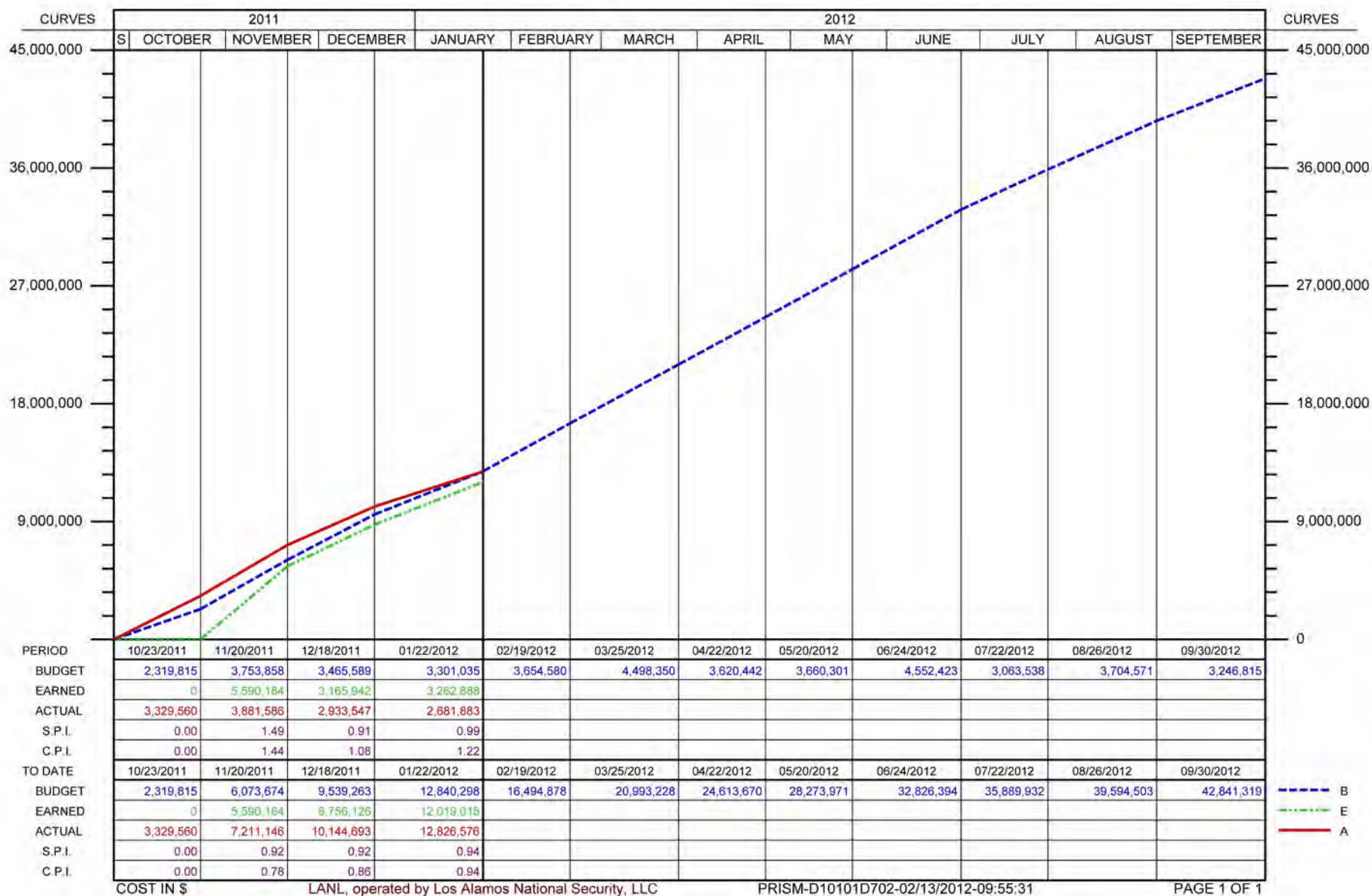
- A BCR to address the impacts to the (b) (7)(F) schedule will be completed in March.
- A BCR to further refine tasks for evaluation and refurbishment of the (b) (7)(F) will be completed in March.
- A BCR to provide further detail and fidelity to the mold scope and schedule is also scheduled to be completed in March.

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1.6 Earned Value Metrics

PERFORMANCE S-CURVE

Pit Manufacturing



2.0 LANL – Experimental Component

4198	GREEN	<i>Perform activities to sustain base pit material processing and fabrication capability through Experimental Component Fabrication</i>	
1. Experimental Component Fabrication and Shipment of Gemini / Pollux in accordance with PEP but no later than September 30, 2012			
L3 Milestone	Baseline Date	RGYB	Status/Comments
Start Cold Machining	January 10, 2012	BLUE	November 18, 2011 actual start.
Start Hot Machining	February 8, 2012	YELLOW	Delay to 2/14 due to Pit Surveillance delay on Precitech lathe.
Casting Complete	February 14, 2012	YELLOW	Projecting 2/27 completion date due to casting 4 delay.
Start Mock Assembly	April 17, 2012	GREEN	Assembly development plan is part of a February BCR.
Tooling, Procedures & Authorization Complete	June 6, 2012	GREEN	
Start Assembly	June 13, 2012	GREEN	

2.1 Technical Progress

- Completed third casting yielding improved dimensions and preliminary density measurements within specification.
- Performed first two mock builds to develop assembly tooling and procedures.
- Received chemistry results for Casting Lot 2.

2.2 Equipment

- Developed a plan to refurbish the DMU-35 mill controller to provide more stable operation and address controller overheating problem.

2.3 Issues

- Fourth (and final planned) casting is delayed until February.
- Finalization and acceptance of requirements is ongoing. Projected requirements finalization date is now end of February having been delayed by Gemini project re-baseline effort.

2.4 Variance Analysis and Recovery Plan

- SPI – Since this is a small project, a schedule variance of less than \$550k has resulted in an SPI of 0.81.
 - The fourth (final) casting is 3 weeks behind schedule, however, as of this report, casting 4 has been completed. This accounts for one quarter of the variance. No impact to critical path schedule.
 - Tooling design and fabrication has been delayed due to final design delays. The final design is now complete and tooling schedule is being aggressively recovered. This accounts for the remaining three quarters of the variance. While (b) (7)(F) is on the critical path, completion of this tooling is expected in February in time to support the machining schedule.
- CPI – The cost variance of \$323k is largely due to a pending cost correction from the first quarter. The line organization is aware of this and has been working on the correction for several months.

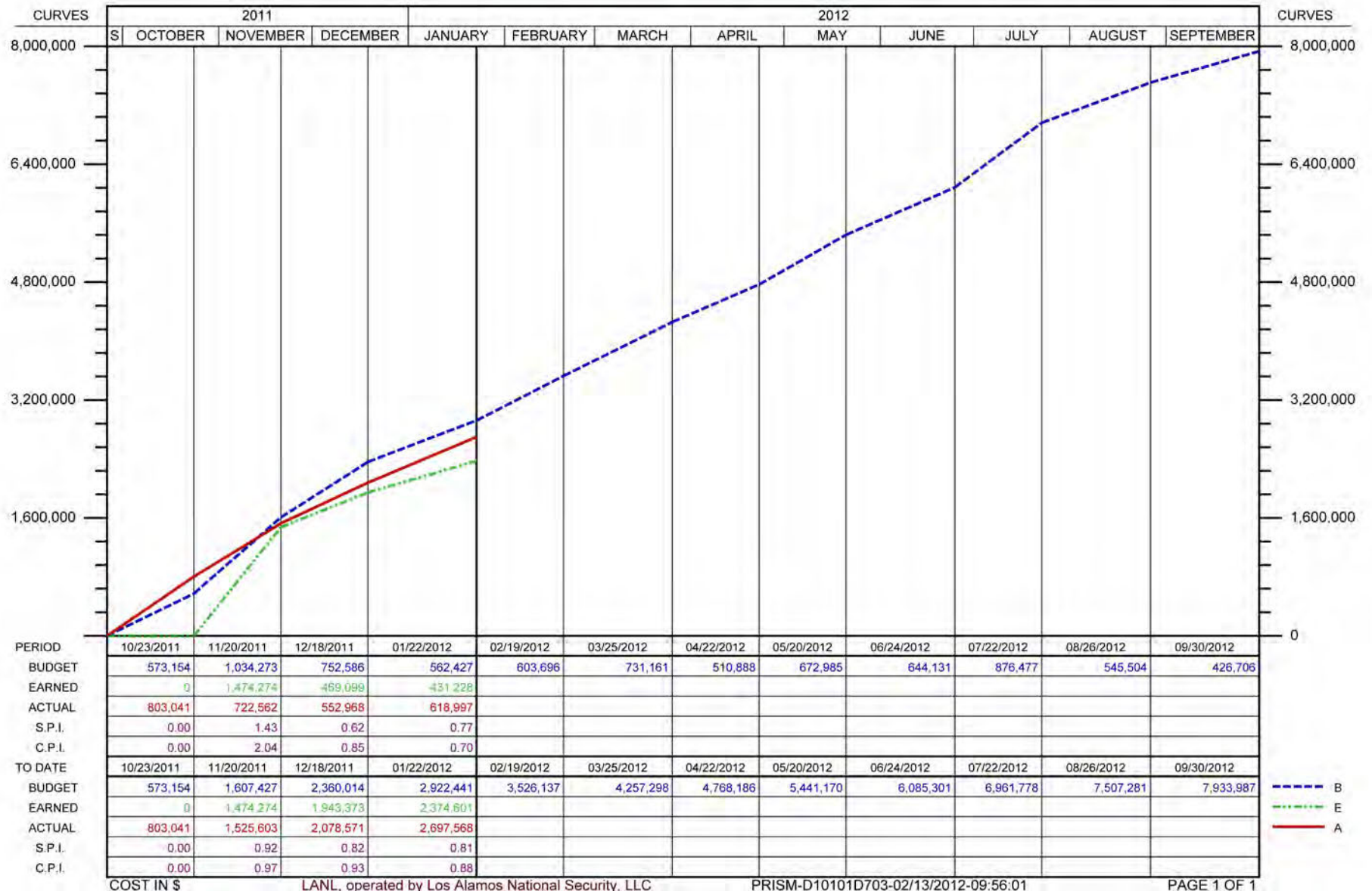
2.5 BCRs

- A BCR for Pollux is in process and will be completed in February. The BCR is limited to schedule changes and reflects the impact of the overall Gemini scope and schedule changes. Namely, the Leda experiment was dropped while the Castor and Pollux experiment execution dates were shifted. There will be no overall budget nor MRT level 2 milestone changes for Pollux from this BCR.

2.6 Earned Value Metrics

PERFORMANCE S-CURVE

Experimental Component Manufacturing



3.0 LANL - Power Supply

4195	GREEN	Install the Power Supply Assembly Area Equipment and Upgrades per the FY2012 Power Supply PEP	
1. Begin construction on the PSAA by March 31, 2012. 2. Start installation of the Analytical Chemistry GBs by June 30, 2012. 3. Start installation of the low voltage (b) (7)(F) by June 30, 2012.			
L3 Milestone	Baseline Date	RGYB	Status/Comments
Start Construction – Capital (PSAA)	December 15, 2011	BLUE	
Start Construction – Facility (PSAA)	December 15, 2011	BLUE	
GB-1240 - Construction Field Start (Pu Assay)	March 1, 2012	GREEN	
GB-1241 - Construction Field Start (Radiochemistry)	March 9, 2012	GREEN	
Mobilize and Field Start (LVEBW)	June 14, 2012	GREEN	

4197	GREEN	Complete FY 2012 Power Supply material recovery activities IAW the Plutonium Sustainment PEP	
1. Dismantle lesser of 480 units or 95% of the (b) (7)(F) ems received by June 30, 2012 2. Recover and store the oxide by Sept 30, 2012			
L3 Milestone	Baseline Date	RGYB	Status/Comments
Material Recovery Complete Shipment #1	October 18, 2011	BLUE	
Material Recovery Complete Shipment #2	January 4, 2012	BLUE	
Material Recovery Complete Shipment #3	March 8, 2012	GREEN	
Material Recovery Complete Shipment #4	April 25, 2012	GREEN	
Material Recovery Complete Shipment #5	June 27, 2012	GREEN	
Material Recovery Complete Shipment #6	August 22, 2012	GREEN	

3.1 Technical Progress

- Material Recovery
 - o Completed recovery of shipment #2 (received in October).
 - o Received shipment #3 (delayed by weather from December).

3.2 Equipment

- Power Supply Assembly Area (PSAA)
 - o Construction continues with D&D of Permacon structure in PF-5 basement.
 - o Start of electrical demolition.
- The (b) (7)(F)
 - o Started acceptance testing planning for 3rd quarter vendor acceptance visit (3 LANL staff to Germany).
- Analytical Chemistry gloveboxes (Pu Assay and Radiochemistry)
 - o The glovebox delivery is on track.

3.3 Issues

- None

3.4 Variance Analysis and Recovery Plan

- None

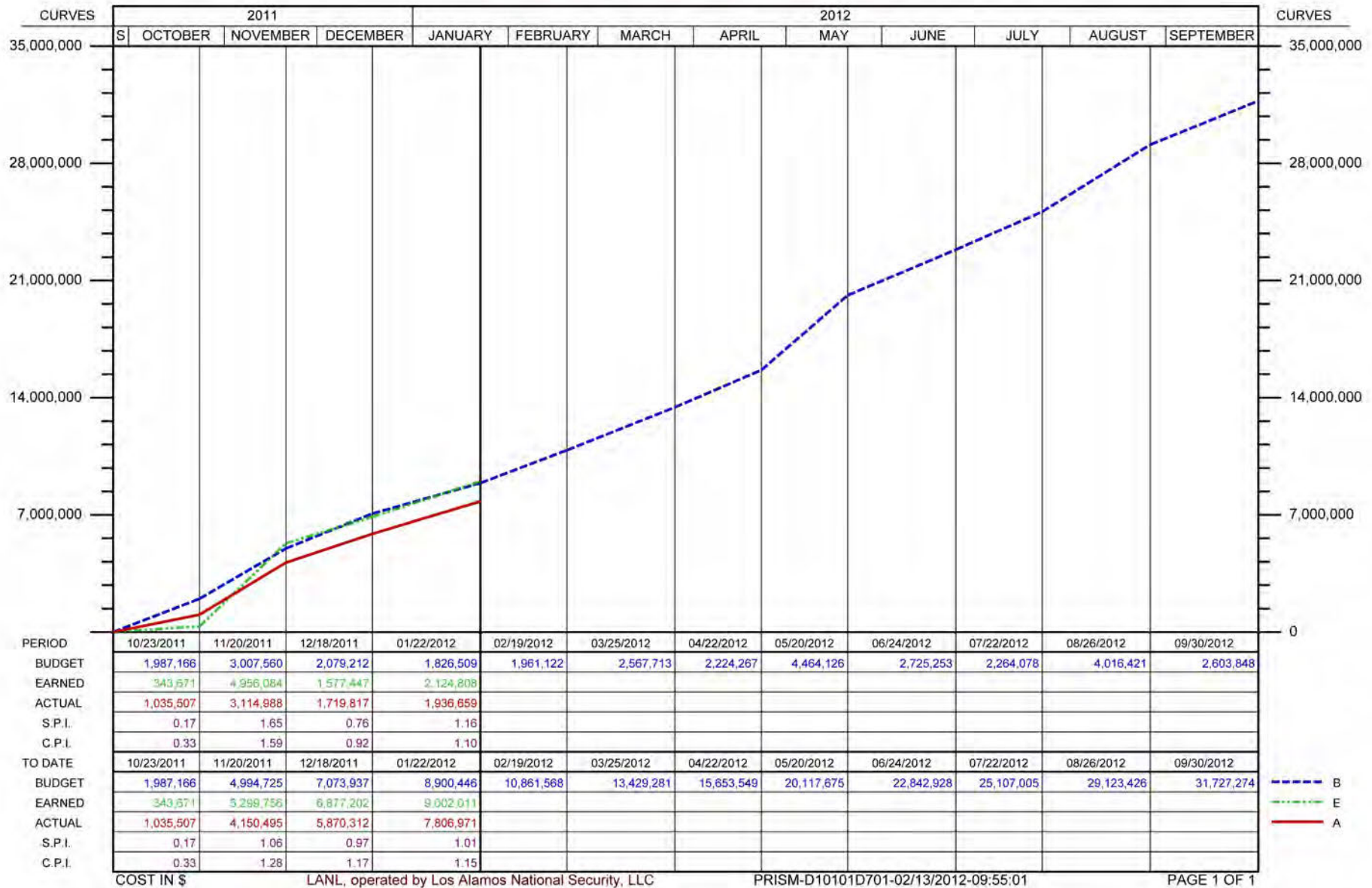
3.5 BCRs

- A BCR to incorporate PSAA floor plan revisions to increase production safety efficiencies and reliability of the vacuum venting will be completed in February.

3.6 Earned Value Metrics

PERFORMANCE S-CURVE

Reconstitution of Power Supply Manufacturing



4.0 Program Management and Support

4.1 Technical Progress

- Slide set for Plutonium Sustainment Manufacturing Study submitted.
- Plutonium Sustainment Manufacturing Study meeting held in Albuquerque to discuss and finalize scope of the report due March 2012.

4.2 Equipment

- None

4.3 Issues

- None

4.4 Variance Analysis and Recovery Plan

- None

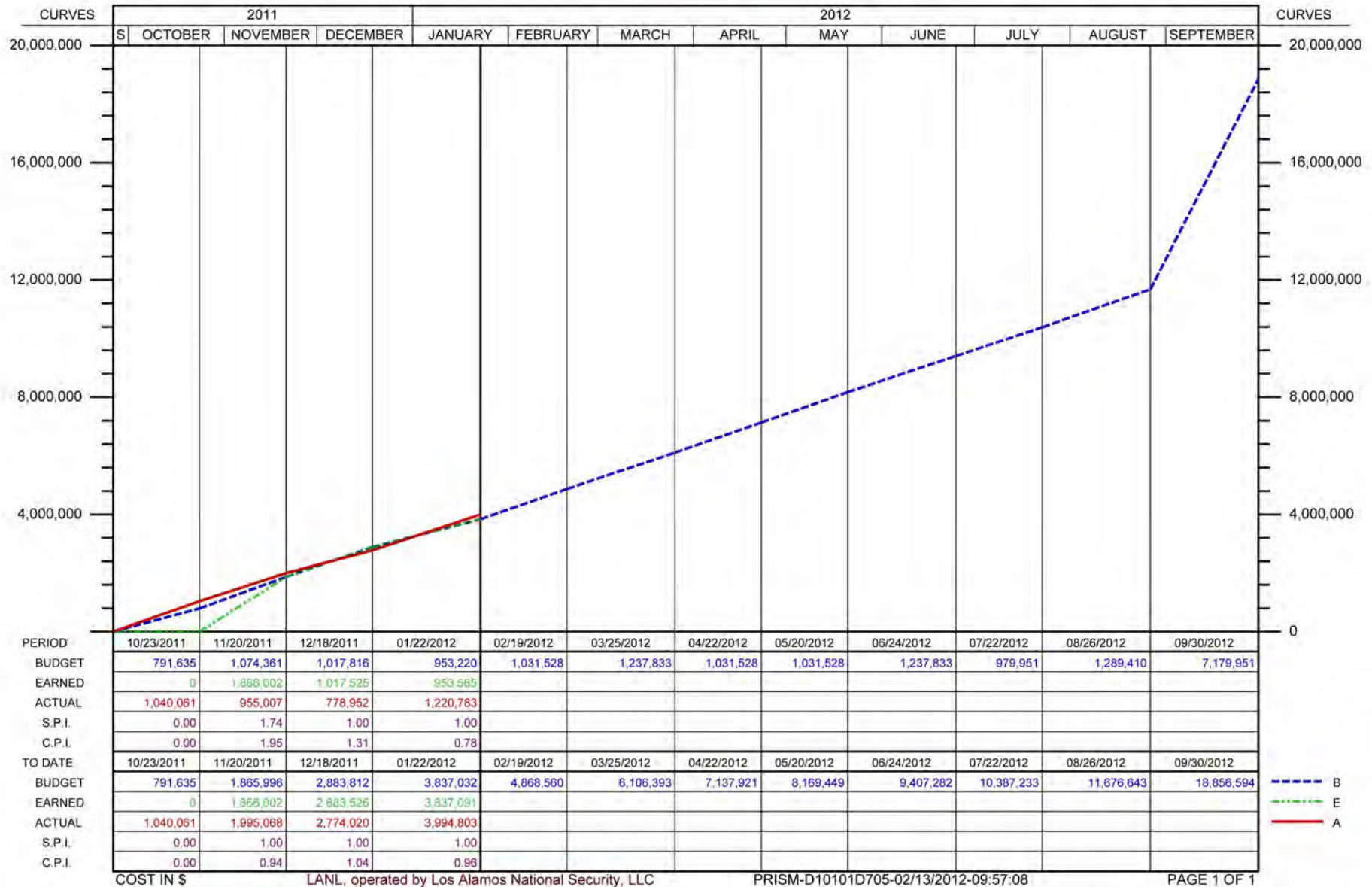
4.5 BCRs

- None

4.6 Earned Value Metrics

PERFORMANCE S-CURVE

Program Office



5.0 Facilities, Waste and Institutional Support

5.1 Technical Progress

- PF-4 Facility Availability: January 97 39%
 - o 100 Area: 99.51 %
 - o 200 Area: 98.18%
 - o 300 Area: 98.76%
 - o 400 Area: 93.13%

5.2 Equipment

- None

5.3 Issues

- None

5.4 Variance Analysis and Recovery Plan

- None

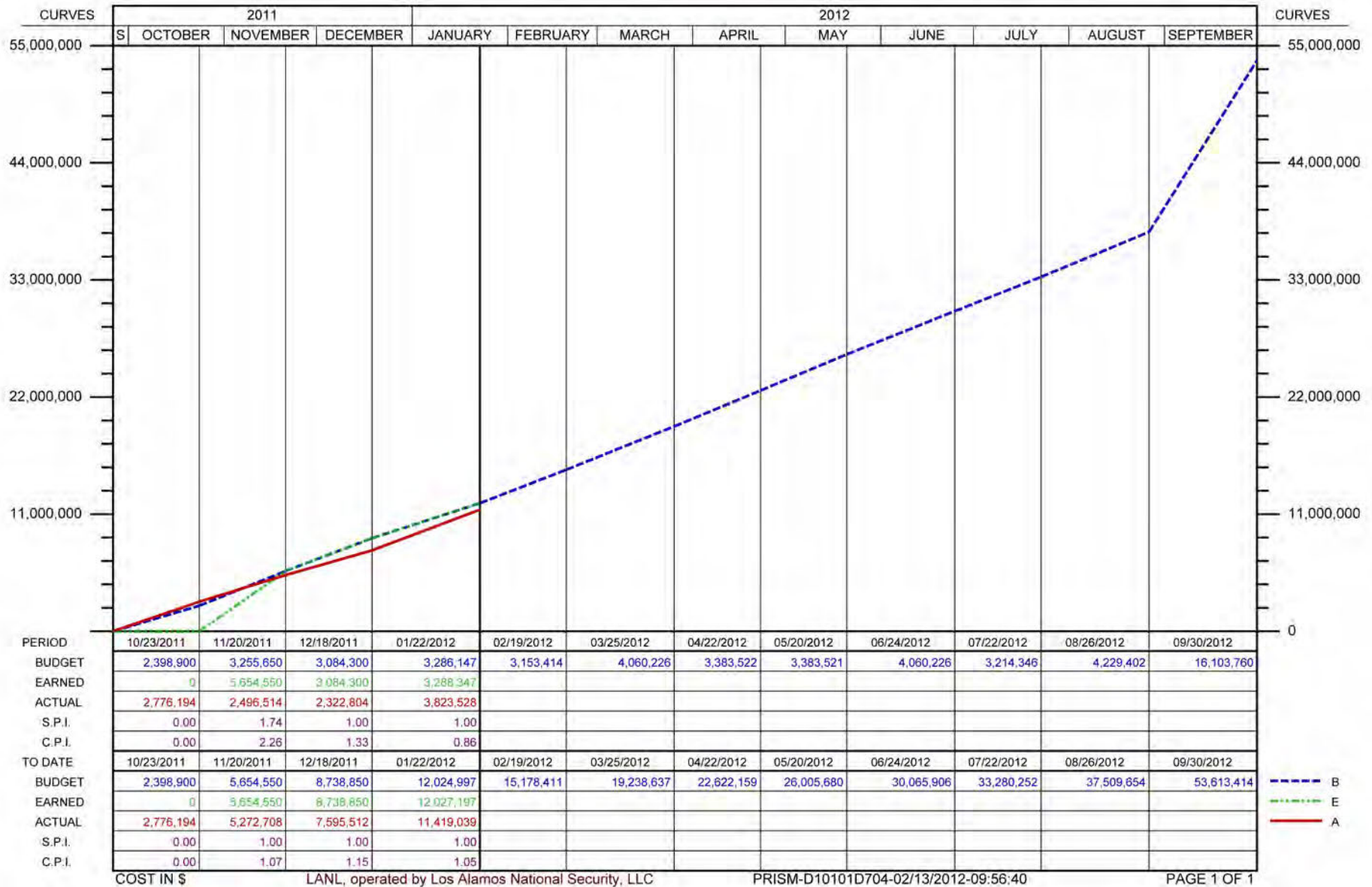
5.5 BCRs

- None

5.6 Earned Value Metrics

PERFORMANCE S-CURVE

Facility Infrastructure



6.0 LLNL

6.1 Technical Progress

- (b) (7)(F)
- LLNL prepared and analyzed metal for (b) (7)(F)
- (b) (7)(F)
-
-
- Tubes received for braze testing. After LLNL (b) (7)(F) repairs completed should start testing in February.
- Ten ingots prepared.
- One (b) (7)(F) run completed. (b) (7)(F) repaired after bolt failure.

6.2 Equipment

- Modern Foundry cold testing progressed
 - o Automatic transfer of three different cartridges demonstrated (feed, shape, and mold and die)
 - o Vacuum demonstrated in shape and feed furnace

6.3 Issues

- None

6.4 Variance Analysis and Recovery Plan

- None

6.5 BCRs

- None