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Executive Summary

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

- 1) Construction activities on the (b) (7)(F) and Analytical Chemistry gloveboxes have started, successfully closing out MRT L2 Milestone 4195.
- 2) Completed installation of the Surface Preparation unit in PF4. The unit will be functionally tested in May.
- 3) (b) (5), (b) (7)(F)
- 4) Delivered Revision 3 of the Plutonium Sustainment and Manufacturing Study.
- 5) Completed machining and inspecting the first set of Pollux parts on (b) (7)(F)
- 6) Attended the Pu Sustainment Second Quarter Mid-Year Review and the Pit Production Integrated Project Team meeting in Livermore, providing technical updates across the Plutonium Sustainment portfolio.
- 7) Analyzed the program impact of the LANL Voluntary Separation Program. The analysis determined an impact of 24.6 FTEs and a budget impact of approximately \$3.2 Million Dollars of pull back.
- 8) The Power Supply Assembly Area project received a LANL Pollution Prevention "Gold" award in the category of Cradle-to-Cradle – Cleanouts. A gold award is presented to the number one project in its pollution prevention category.

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 FY12 final budget guidance. Table 1 identifies all Baseline Change Requests (BCRs) that were initiated, in process, 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 LANL WBS elements is discussed in detail below with a section at the end that is provided by LLNL.

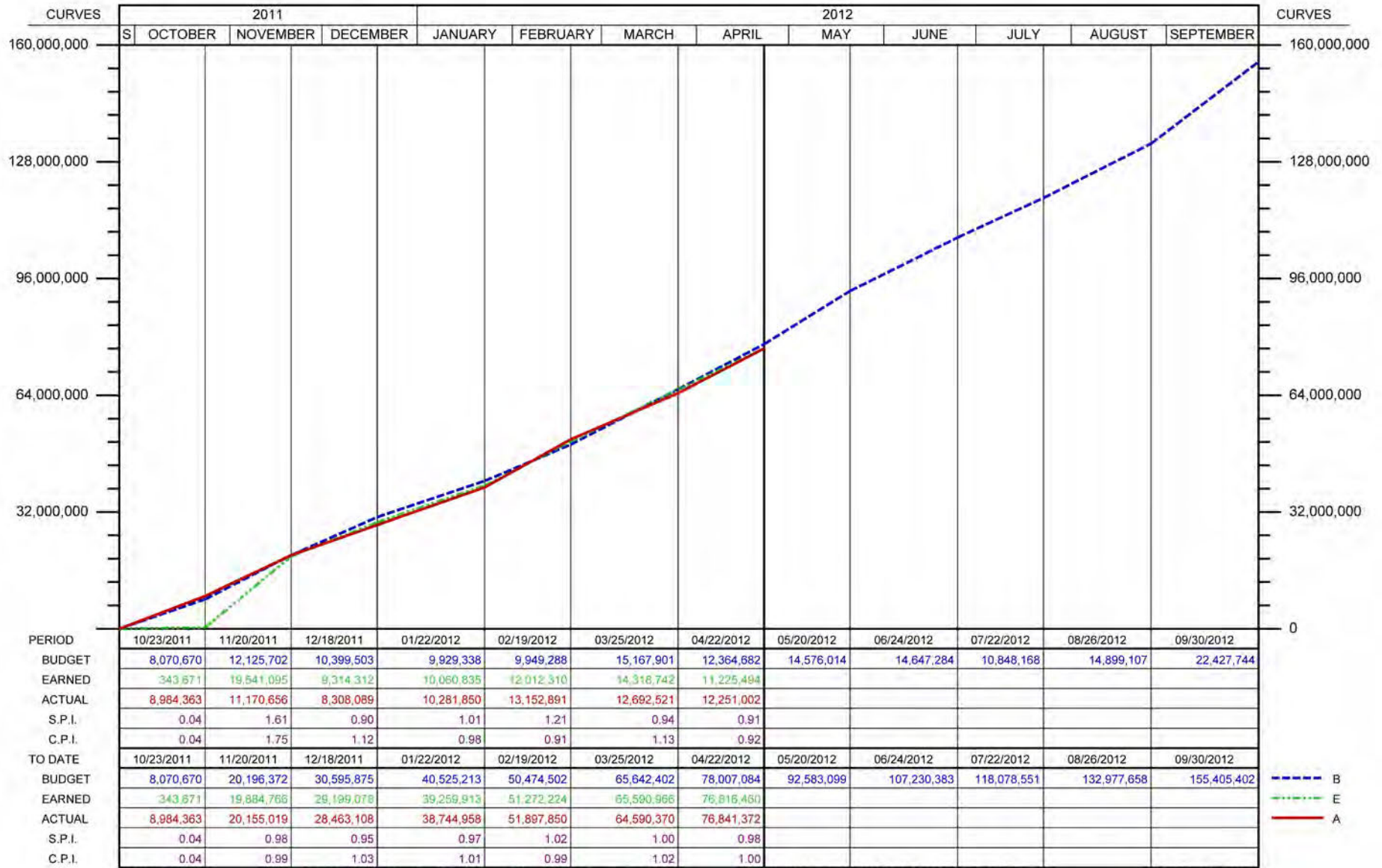
Table 1: April Baseline Change Requests

BCR #	BCR Description	Date Assigned	Date Approved	Impact	Cost Impact	Change Level
PSM-12-027	Addition of KK05 0001 0000 Cost String to Program Mgmt. WP	3/27/12	3/27/12	N/A	N/A	4
PSM-12-028	JT29 Alignment	3/28/12	3/29/12	N/A	N/A	4
PSM-12-030	Electrical Install - In scope Scope changes	4/20/12		Scope	N/A	
PSM-12-031	Mechanical Install - In scope Scope changes	4/20/12		Scope	N/A	
PSM-12-032	Civil/Structural/Architectural - In scope Scope changes	4/20/12		Scope	N/A	
PSM-12-033	Demolition - Mechanical	4/20/12		Scope	N/A	
PSM-12-034	Scope Modification for Pu Separation & Granule Production	5/1/12		Scope	N/A	3
PSM-12-035	Scope Modification for Heat Source, Fabrication & Inspection	5/1/12	5/9/12	Scope	N/A	3

Earned Value Metrics

PERFORMANCE S-CURVE

Pu Sustainment



COST IN \$

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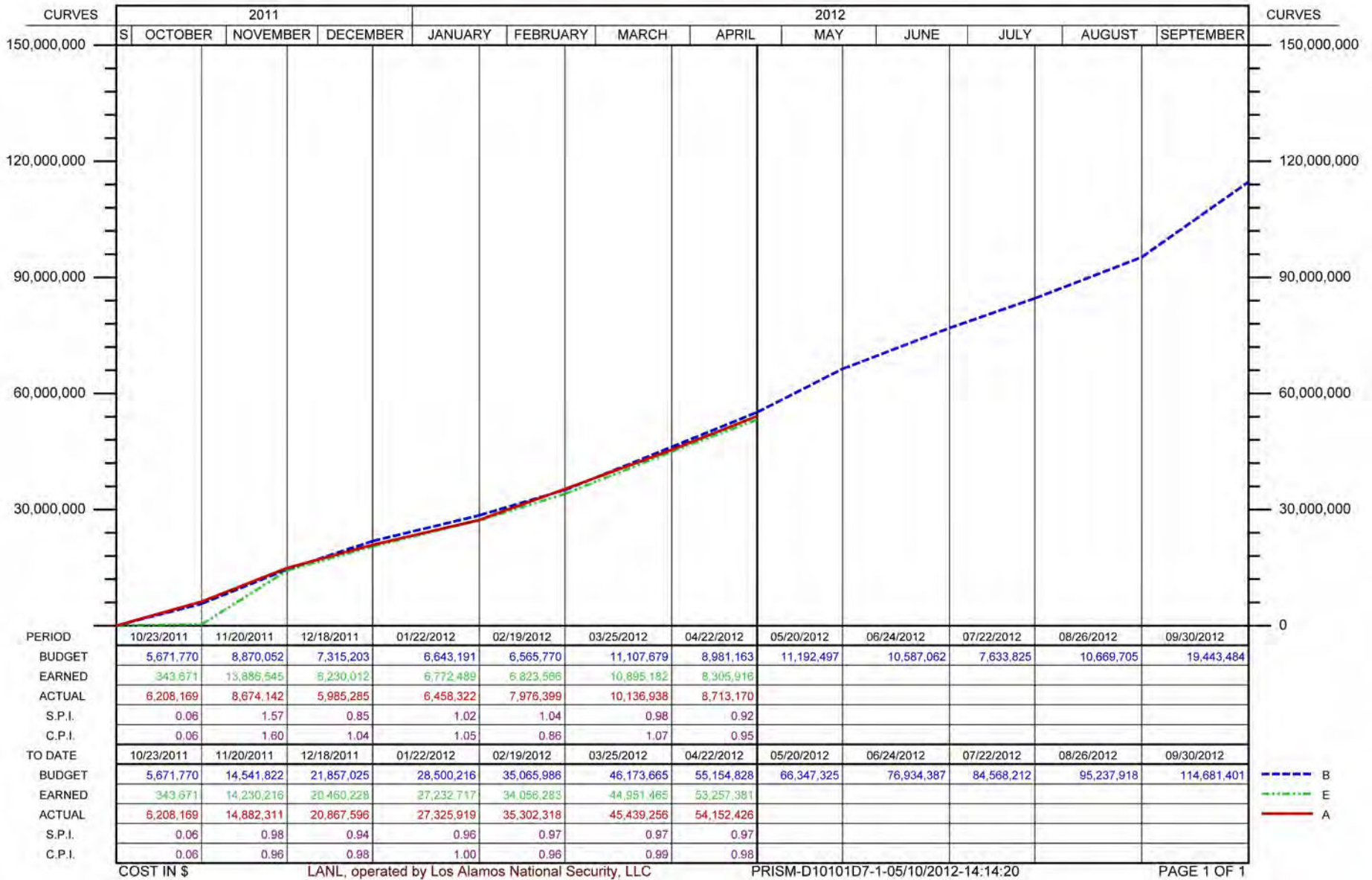
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PERFORMANCE S-CURVE

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	
Suitable nuclear material is available as ER	September 21, 2012	GREEN	
(b) (7)(F) documentation approved • Technical Specifications & Requirements • Functional & Operations Requirements • Cold System Test Plan	September 21, 2012	GREEN	A BCR addressing scope and staffing issues has been approved.
(b) (7)(F) Corrective Maintenance Complete	June 29, 2012	GREEN	
Preparation Unit Installed	August 14, 2012	GREEN	
Production Strategy and TRL/MRL assessment	September 30, 2012	GREEN	

1.1 Technical Progress

- (b) (5), (b) (7)(F).
- Continued machining and inspection operations for (b) (7)(F)
- Completed (b) (7)(F) LASO customer product acceptance process and the build is ready for Diamond Stamping.

1.2 Equipment

- (b) (7)(F)
 - o Drafted portions the Technical Specifications and Requirements and started preparation of the Functional and Operational Requirements.
 - o Resolved Software Quality Assurance issues associated with equipment.
 - o Evaluated the options for replacement of the old controllers and encoders.
- (b) (7)(F)
 - o Completed approval of the work authorizing document for operational and maintenance activities.
 - o Performed testing and received the annual certification for a radiation generating device.
 - o Revised post-maintenance acceptance test criteria.
 - o Scheduled vendor visit review of trouble shooting issues and corrective maintenance
- Surface Preparation
 - o Completed installation and assembly of the new unit in the glovebox.

1.3 Issues

- None

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

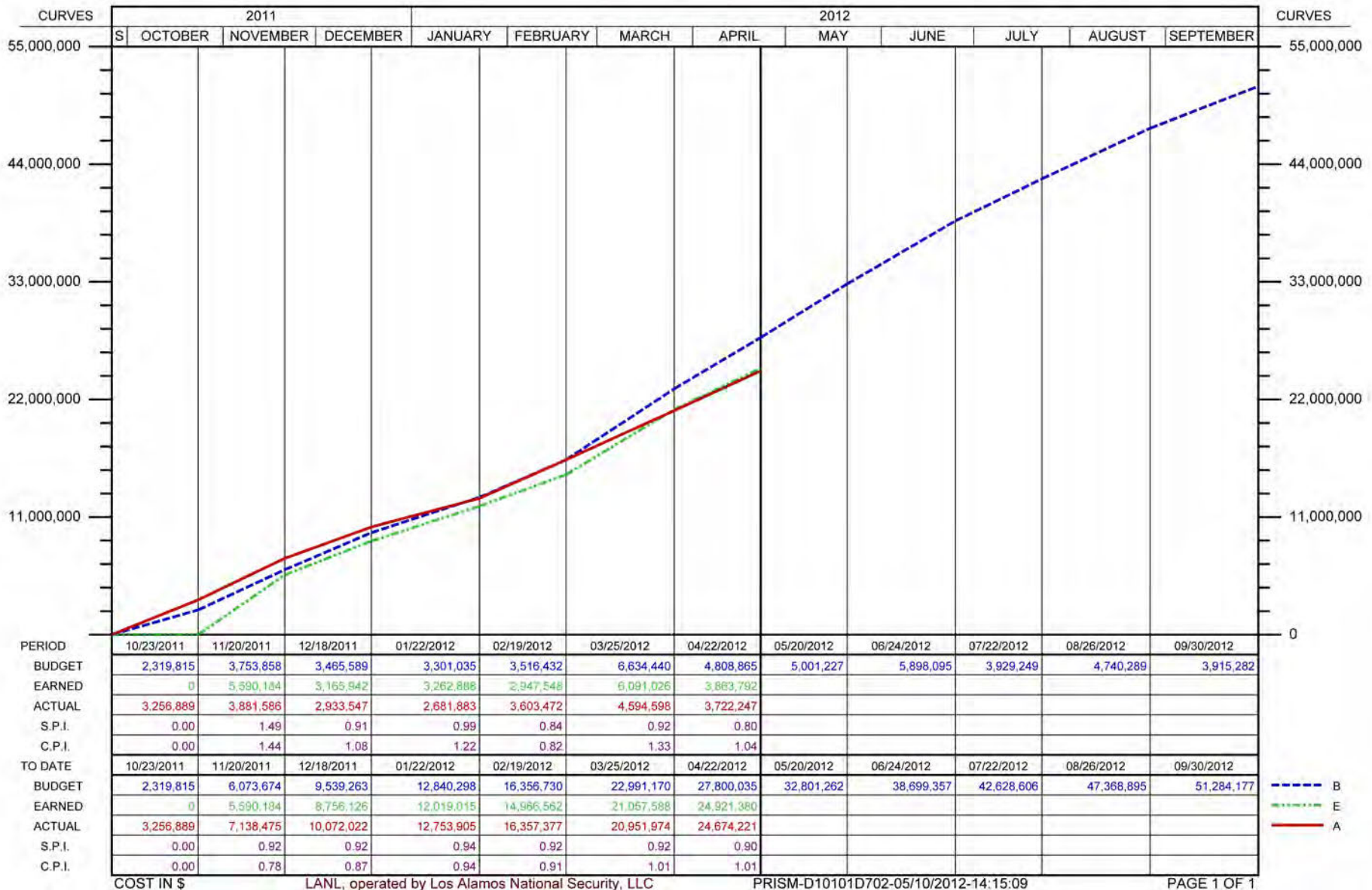
- None

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1.6 Earned Value Metrics

PERFORMANCE S-CURVE

Pit Manufacturing



2.0 LANL – Experimental Component

4198	GREEN	Perform activities to sustain base pit material processing and fabrication capability through Experimental Component Fabrication	
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	
Start Hot Machining	February 21, 2012	BLUE	
Casting Complete	February 27, 2012	BLUE	
Complete Castor Sub-Assembly	May 3, 2012	GREEN	Castor sub-assembly will likely be delayed until June per Gemini schedule.
Start Hot Development Assembly	May 7, 2012	GREEN	
Complete Machining Lot 1 – DEV	June 14, 2012	GREEN	
Complete Machining Lot 2 – Pollux	August 1, 2012	GREEN	
Start Pollux Assembly	August 13, 2012	GREEN	
Pollux Complete	September 6, 2012	GREEN	

2.1 Technical Progress

- Completed machining and inspecting the first set of hot parts on (b) (7)(F). These parts were used to prove-in hot machining routines. One part will be inspected using the CMM and the other will be used to validate the density and radiography fixtures.
- Completed heat treatment of the second (and final) part from Casting Lot 1.
- Received shipping fixtures, mill tooling, and radiographic fixtures.
- Set up mock assembly for shipping “shake test.”
- Gluing, assembly, and gas operations procedure continue and are on track.

2.2 Equipment

- Completed refurbishment of the DMU-35 mill controller to provide more stable operation and address the overheating problem.
- Continued constant feed cutting and on machine probing development on cold (b) (7)(F).
- Repaired the hot CMM system.

2.3 Issues

- There is concern that mandatory contractor separations will result in the loss of a (b) (7)(F) programming resource responsible for on-machine probing and constant feed cutting routines that may be required for Pollux machining. This concern has been elevated to the Associate Director’s office.

2.4 Variance Analysis and Recovery Plan

- CPI – Despite requesting cost corrections and recovery plans by the end of April, cost overruns persist. The issue has been elevated to the group and division leads and several recovery options have been proposed for consideration. We expect a plan to be agreed upon in May.
- SPI – The schedule lags due to hardware issues with the CMM and personnel restructuring due to the VSP and Dimensional Inspection group reorganization. Overall, the milestone remains on track, despite the schedule variance.

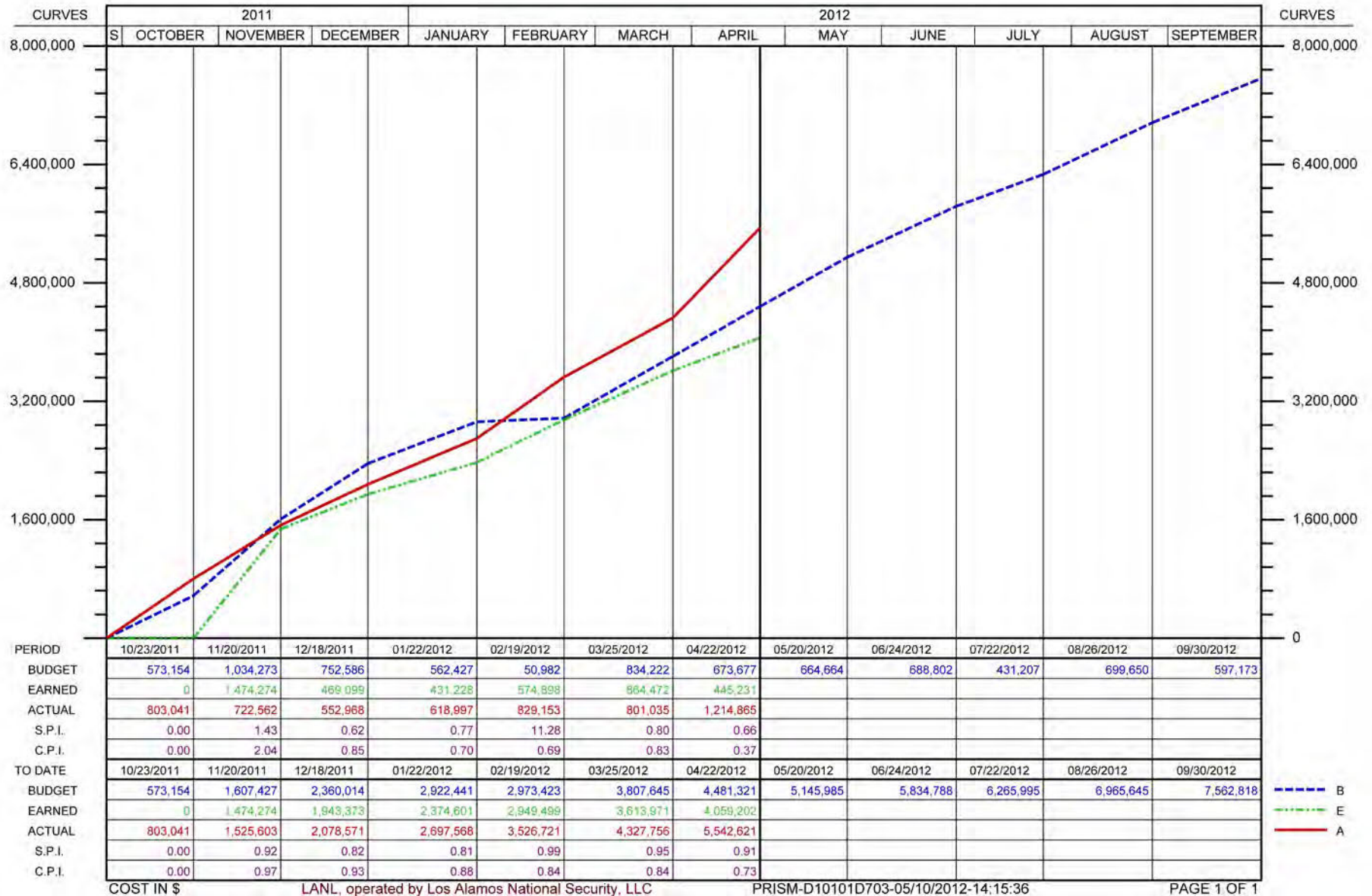
2.5 BCRs

- None

2.6 Earned Value Metrics

PERFORMANCE S-CURVE

Experimental Component Manufacturing



3.0 LANL - Power Supply

4195	BLUE	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	BLUE	
GB-1241 - Construction Field Start (Radiochemistry)	March 9, 2012	BLUE	
Mobilize and Field Start (b) (7)(F)	June 14, 2012	BLUE	

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) items 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	BLUE	
Material Recovery Complete Shipment #4	April 25, 2012	BLUE	
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 Received shipment #5 (received in April).
 - o The (b) (7)(F) requires field modification to the gas pressure line (limiting valve). A new has been requested.

3.2 Equipment

- Power Supply Assembly Area (PSAA)
 - o The project received a Pollution Prevention “Gold” award in the category of Cradle-to-Cradle – Cleanouts. A gold award is presented to the number one project in its pollution prevention category.
 - o Construction continues and on track.
 - o Completed concrete saw floor cutting and started rebar and new concrete placement (ACB pads).

- o Completed potholing, road milling and the installation of the (b) (7)(F)
- The (b) (7)(F)
 - o Construction activities started for April.
 - o Vendor on track for acceptance visit planned for 3rd quarter (3 LANL staff to Germany).
- Analytical Chemistry gloveboxes (Pu Assay and Radiochemistry)
 - o The glovebox delivery is on track.
 - o Construction activities started for April.

3.3 Issues

- None

3.4 Variance Analysis and Recovery Plan

- None

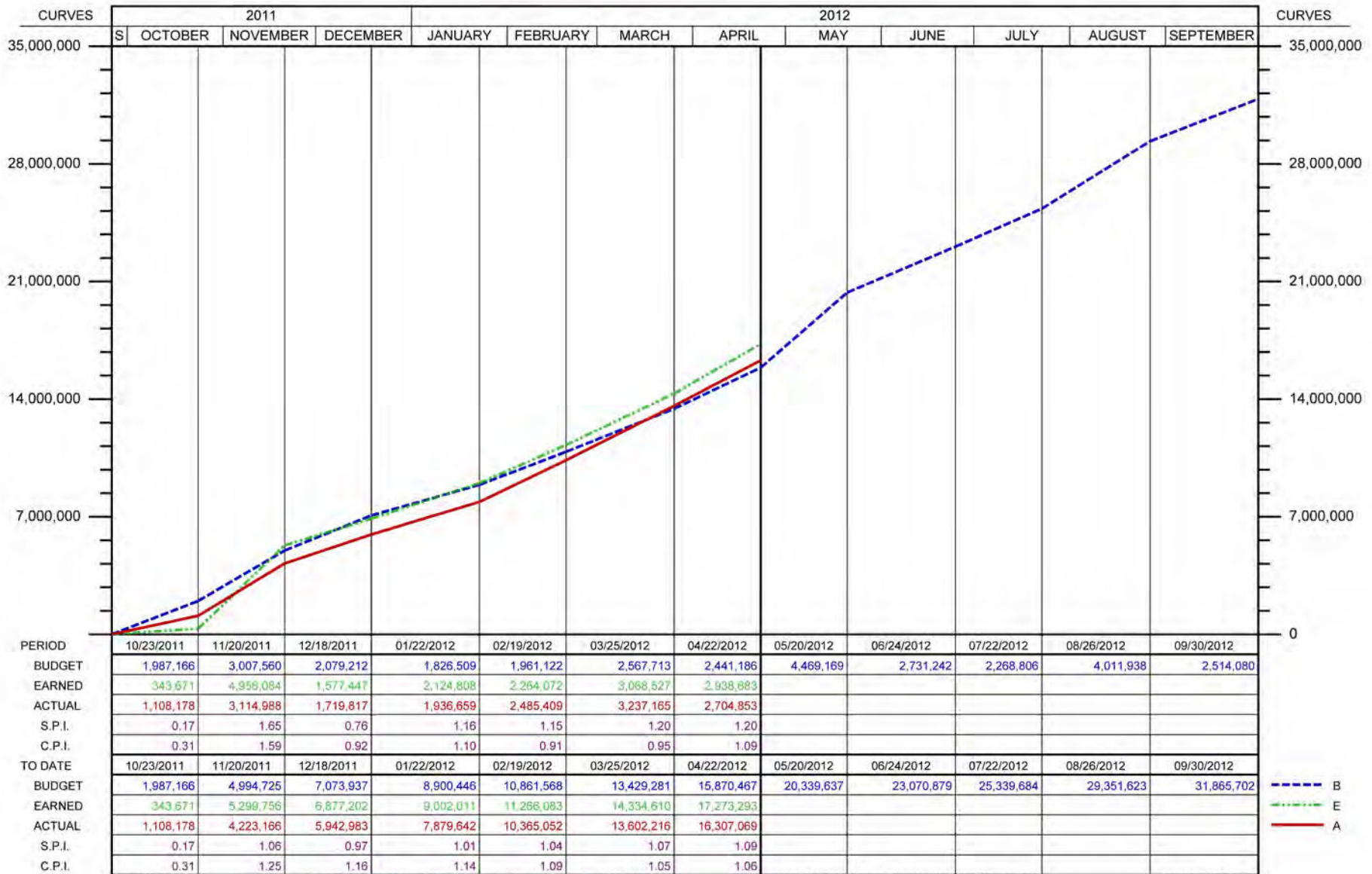
3.5 BCRs

- None

3.6 Earned Value Metrics

PERFORMANCE S-CURVE

Reconstitution of Power Supply Manufacturing



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4.0 Program Management and Support

4.1 Technical Progress

- Analyzed the program impact of the LANL Voluntary Separation Program. The analysis determined an impact of 24.6 FTE, which equates to a budget impact of approximately \$3.2 Million Dollars of pull back. Approximately \$1.3 Million Dollars is tied to RTBF.
- Delivered Revision 3 of the Plutonium Sustainment Manufacturing Study, which incorporated changes needed due to the release of the FY2013 President's Budget and the delay in the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRRNF).
- Attended the Pu Sustainment Second Quarter Mid-Year Review providing technical updates across the Plutonium Sustainment portfolio.
- Attended the Pit Production Integrated Project Team meeting in Livermore. Significant effort was focused on reviewing drawing and specification requests, made by LANL, based on preparations for the (b) (7)(F) builds. Both LANL and Kansas City Plant presented on their capabilities for fulfilling the non-nuclear component mission.

4.2 Equipment

- None

4.3 Issues

- None

4.4 Variance Analysis and Recovery Plan

- None

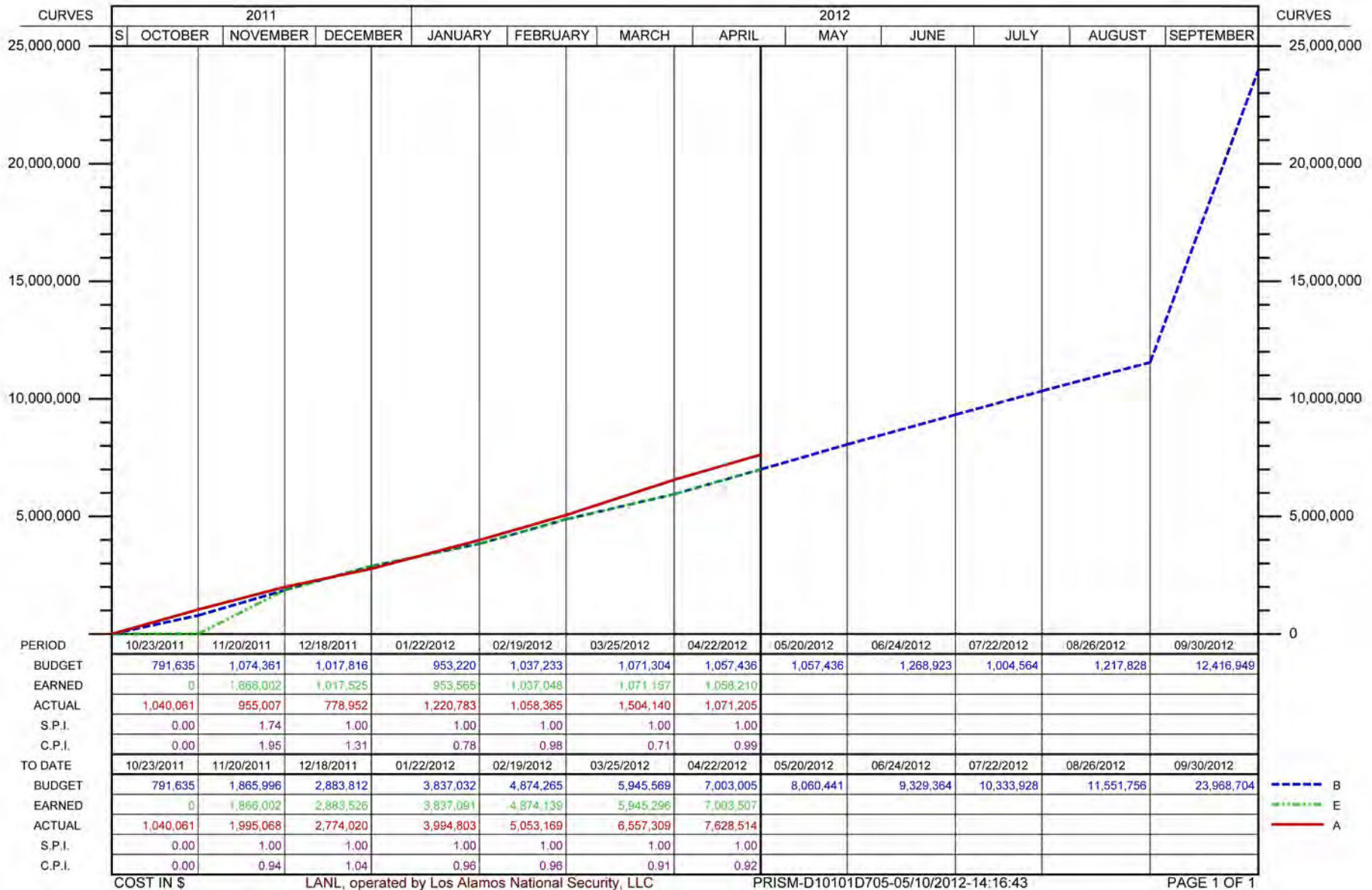
4.5 BCRs

- 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: April 93.43%

- 100 Area: 93.72 %
- 200 Area: 91.67 %
- 300 Area: 94.71 %
- 400 Area: 93.63 %

The PF-4 Facility went to MODE-2 (standby) on April 19, 2012 due to a missed TSR required Surveillance

5.2 Equipment

- None

5.3 Issues

- None

5.4 Variance Analysis and Recovery Plan

- None

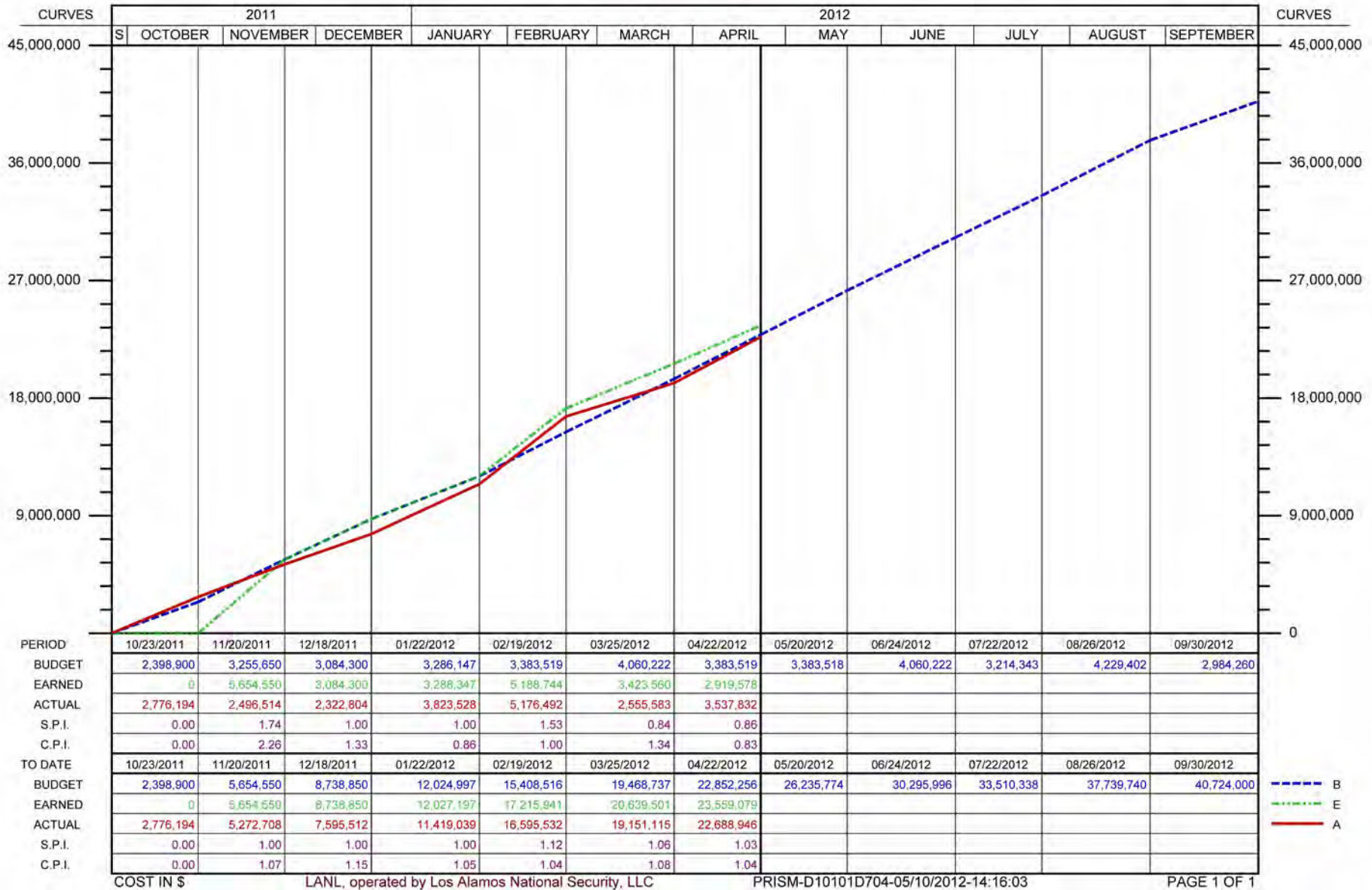
5.5 BCRs

- None

5.6 Earned Value Metrics

PERFORMANCE S-CURVE

Facility Infrastructure



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6.0 LLNL

MRT 4196	GREEN	Perform Activities to Sustain Base Pit Material Processing and Fabrication Capability	
1. (b) (7)(F)			
2. Perform initial cold testing of modern foundry			
3. (b) (7)(F)			
4. No later then June 30, 2012, Package and Ship Pu metal to LANL			
L3 Milestone	Baseline Date	RGYB	Status/Comments
LLNL Tasks to supports FY2013 (b) (7)(F)	9/30/2013	GREEN	Design Definition complete for (b) (7)(F) Working chemistry specification
Initial cold testing of modern foundry	9/30/2012	GREEN	Several systems have been cold tested
(b) (7)(F)	9/30/2012	YELLOW	Slow progress in getting procedures approved. Initial weld testing underway Fixtures delivered
Package and Ship Pu metal to LANL	6/30/2012	GREEN	First shipment completed

6.1 Technical Progress

- Hosted the Pu Sustainment Mid Year Review providing technical updates and tours.
- The Pit Production IPT met on 4/23 and 4/24 in Livermore. A number of topics were discussed including status of LANL transition builds, plans and criteria for (b) (7)(F) and the non-nuclear component mission assignment. Both LANL and Kansas City Plant presented on their capabilities for fulfilling this mission. Additionally, during this meeting, significant effort was focused on reviewing drawing and specification requests, made by LANL, based on their current preparations for transition and (b) (7)(F). LLNL will review the requests and issue drawing and specification updates where appropriate. LLNL will provide an update on a QC-1 maintenance plan for the (b) (7)(F) at the next Pu Sustainment Review.
- (b) (5), (b) (7)(F)
- (b) (7)(F)
- The (b) (7)(F) inspection procedure is in USQ review and should be approved within a week.
- Procedure now in place for LANL to complete repackaging and confirmatory NDA of nuclear parts so that LLNL can begin datum machining parts on (b) (7)(F).
- Work continues on building (b) (7)(F) inspection fixture and mock shell.
- Metal for LANL. All processing has been completed. (b) (7)(F) Remainder will be sent to meet milestone.

- (b) (7)(F) operations are continuing.

6.2 Equipment

- Modern Foundry :
 - o Continued cold testing the transport system and verifying TC and control system wiring. Cold testing primarily involves software programming and the associated program nuances and error identification. TC and control system wiring involves verification of signal generation to control computer interface.

6.3 Issues

- (b) (7)(F)
- Need LANL to complete NDA of nuclear parts so that datum machining can begin.

6.4 Variance Analysis and Recovery Plan

- None

6.5 BCRs

- None

6.6 Earned Value Metrics

PERFORMANCE S-CURVE

LLNL

