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Monthly Program Report March 2014

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Report

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LANL Executive Summary

As part of a required Conduct of Operations review, on June 10, 2013, several key PF-4 Operation Procedures were paused halting most SNM operations in PF-4 prompting Laboratory Director Charlie McMillan to issue 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 more months to complete. In February 2014, ADPSM produced a detailed baseline resumption schedule and is publishing a bi-weekly resumption status report.

In March of 2014 the Plutonium Sustainment program at LANL completed or addressed the following high-level activities:

- 1) The Request for Quote for the foundry power supplies was issued.
- 2) Removal of the lower lift for foundry GB-1 was completed.
- 3) Final preparations for removal of the existing furnace housing for GB-1 and installation of the new housing were completed.
- 4) Fabricated six mass mock power supplies for use by the DA. These were welded per the SNL DA's design drawings using the (b) (7)(F) in the RTG-ATF. The mass mocks were (b) (7)(F) marked using equipment that will be used in production.

All three NNSA Level 2 Milestones (MRT 4961, 4962 and 4963) associated with Plutonium Sustainment are now on track for success in FY14.

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

Each of the five major LANL WBS elements is discussed in detail below.

LANL Response to February NNSA Comments

At this time, small sample fabrication is intended to be in FY14 only. Scope includes coring and machining of samples for science experiments including Z-machine, 40mm gas/powder gun, Kolsky bar, and Quasi-static load frame. A BCR moving equipment maintenance scope previously funded by Pu Sustainment to stockpile services has provided the funds available for the small sample fabrication scope.

Table 1: March Baseline Change Requests

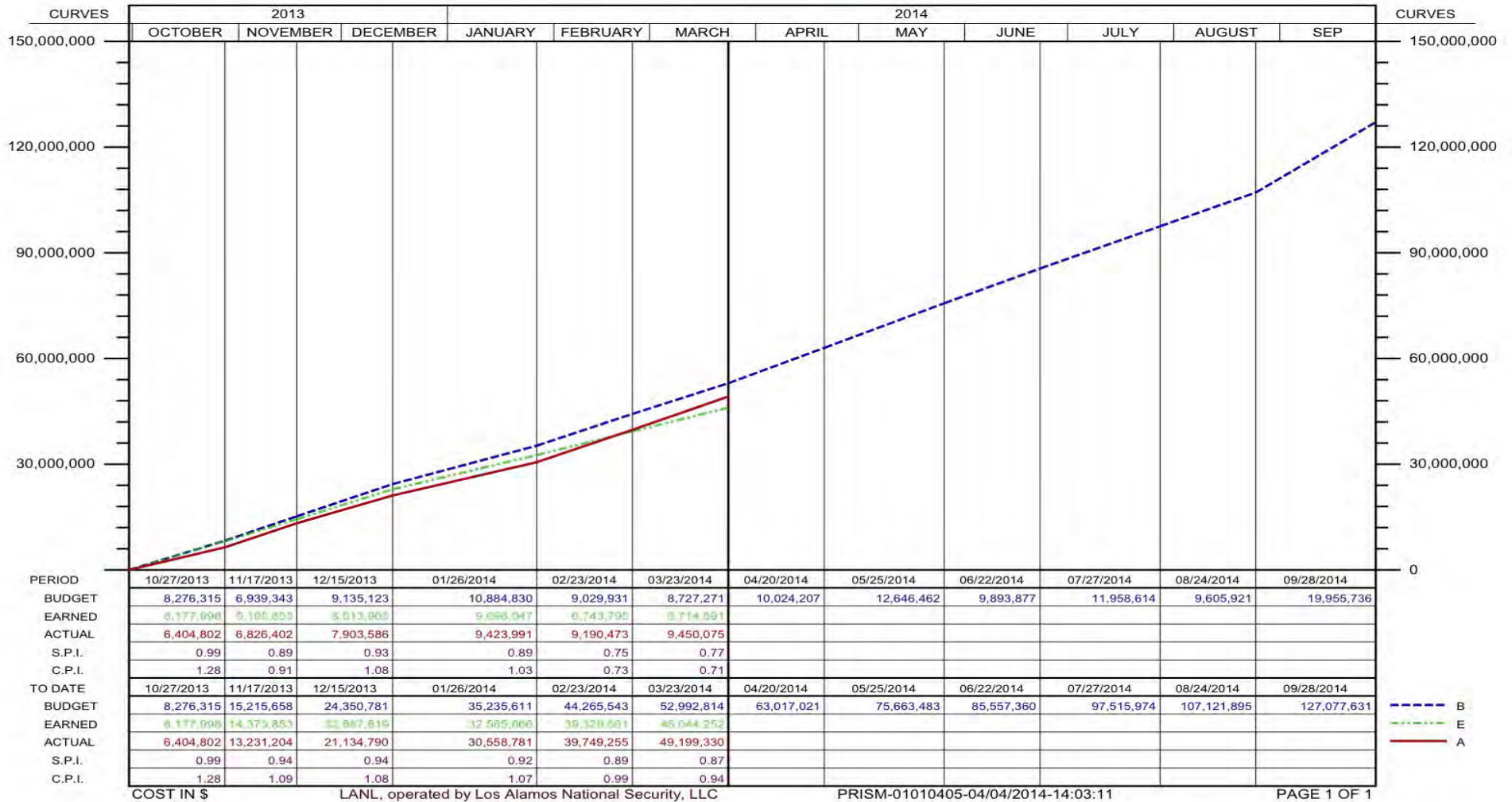
WBS	BCR #	BCR Description	Date Assigned	Date Approved	Impact	Cost Impact	Change Level
Plutonium Experimental Device Fabrication	PSM-14-049	Science Sample Fabrication - Incorporate this scope into the Pu Sustainment portfolio.	2/24/14	3/31/14	Scope and cost	\$1,524k	3

Note: Several equipment BCRs were started in March that will be shown next month in the April BCR table and are not included here due to the preliminary nature of the BCR status.

Earned Value Metrics

PERFORMANCE S-CURVE

01.01.04.05 Plutonium Sustainment



[NOTE: September 2014 includes 6% FY15 carryover holdback of \$7.414M in addition to the five major WBS elements.]

1.0 LANL - Pit Development

MRT 4961		GREEN	Perform Activities to Sustain Base Pit Material (b) (7)(F)		
1.	(b) (7)(F)				
2.	(b) (7)(F)				
Activity		Baseline Date	Status/Comments	Completion Date	RGYB
(b) (7)(F)					
MRT 4962		GREEN	Continue Key Equipment Upgrade and Replacement Activities		
1. Complete ER Line Upgrades construction punchlist and execute successful cold test. 2. Complete Pu Foundry GB 1 mechanical and electrical construction. 3. Foundry GB 2 upgrade approved for installation. 4. Complete CMM GB 30% design review and GB installation 30% design review. 5. Complete CDS installation 60% design review. 6. Finish installation (not including FCRs) on PML – Phase 2.					
ER Line Dry Run/Cold Test Complete		April 26, 2014	Material Transfer System Dry Run Completed		GREEN
ER Line Punchlist Complete		August 15, 2014	On schedule		GREEN
Foundry GB1 Cooling Power Supply Received		June 2, 2014	RFQ for power supplies was issued.		GREEN
Foundry GB1 Cooling Furnace Housing Installation Complete		July 3, 2014	Removal of existing and installation of new GB1 furnace housing scheduled. On schedule.		GREEN
Foundry GB2 Approved for Installation		September 30, 2014			GREEN
Complete location study for New GB & CMM		April 15, 2014	On schedule		GREEN
Complete 30% CMM GB Utilities Installation Design Review		July 31, 2014			GREEN
Complete 30% CMM GB Fabrication Design Review		September 30, 2014			GREEN
Start CDS Engineering Development		October 1, 2013		October 1, 2013	BLUE
CDS Engineering Contract Awarded		February 16, 2014		January 9, 2014	BLUE
CDS 30% Installation Design Complete		June 1, 2014		January 28, 2014	BLUE
CDS 60% D&D Design Complete		August 11, 2014		January 9, 2014	BLUE
PML DCP Re-Activation Complete		January 10, 2014		December 12, 2013	BLUE
PML Construction Planning Complete		May 22, 2014			GREEN
PML Cold Testing Complete		July 3, 2013			GREEN

1.1 Technical Progress

- The majority of pit manufacturing development is focused on resumption related activities. Accordingly, most of the budget and scope through January is captured in a “level of effort” activity. With the publishing of the prioritized resumption schedule in February, Earned value tracking has been temporarily suspended for the pit development flowsheet.

1.2 Equipment

- The plan to meet the grading criterion L2 milestone MRT 4962 includes the following by September 30, 2014:
 1. Complete ER Line Upgrades construction punch list and execute successful cold test.
 2. Complete Pu Foundry GB 1 mechanical and electrical construction complete.
 3. Foundry GB 2 upgrade approved for installation.
 4. Complete CMM GB 30% design review and GB installation 30% design review.
 5. Complete CDS installation 60% design review.
 6. Finish installation (not including FCRs) on PML – Phase 2.
- Electro-Refining Line Upgrade (b) (3)
 - o Cold testing of ER (furnace) Control System (ERCS) software (Release 3) continues.
 - o The ERCS cold test bed was moved to a more central location at TA-46.
 - o The walkdowns and approvals for the Negative Pressure Chilled Cooling Water System (NPCCWS) were completed.
 - o The heat detection system tie in was completed.
- Foundry Upgrade (b) (3)
 - o The RFQ for power supplies was issued. Vendor submissions undergoing review and further questions.
 - o Removal of the lower lift for GB-1 was completed.
 - o Final preparations for removal of the existing furnace housing for GB-1 and installation of the new housing were completed.
 - o Fabrication of quadrupole water-cooled feed through was completed and is undergoing cold testing.
- Coordinate Measuring Machine (b) (3)
 - o Engineering evaluation of CMM location environments was completed and approved.
 - o Development of 3-D ergonomic model of the proposed glovebox continues.
 - o Revision of project scope of work and costs to procure the Infinity PMM with enhanced sensitivity. Definition of Infinity PMM machine upgrades to facilitate operation, calibration, and maintenance continued. RFQ for PMM issued.
- Chlorine Distribution & Detection System (b) (3)
 - o 90% D&D design was issued for comment.
- Precision Machining (b) (3)
 - o Installation of the airlock door control box started.
 - o Windows for the dropbox, trunkline and parts staging glovebox were installed.
 - o (b) (7)(F) operator console was installed and installation of associated control wiring inside the glovebox was initiated.
 - o Additional pressure safety issues are being evaluated.
 - o Construction planning continues.
 - o Cable tray modifications continued.

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1.3 Issues

- None

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

- Several equipment BCRs were started in March that will be shown next month in the April BCR table and are not included here due to the preliminary nature of the BCR status.

1.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F)	(b) (7)(F)	(b) (7)(F)	(b) (7)(F)
Completion of DCP	Equipment projects all require new or revised CSEs and procedures. Without CSEs these DCPs cannot be closed.	Identify all installation project CSEs & related DOPs, and prioritize by schedule/complexity. Complete supporting activities and request project resources available when needed. If resources are unavailable due to conflict with PF-4 Resumption, then the DCP closure will be removed for the L2 milestone requirement.	
Equipment Upgrades	The resumption process and related demands on criticality engineering and other project support create significant uncertainties for the FY14 equipment execution. - ER Line activities that may be impacted include cold testing, Zone 1 tie-in, and NPCCW tie-in. - Foundry Upgrade activities include criticality design/construction support and waste management processes.	Equipment project resource requirements will be reviewed and prioritized by Program. The projects will alternate work methods as contingencies. If necessary the milestone may be renegotiated.	

(b) (5)

(b) (7)(F)

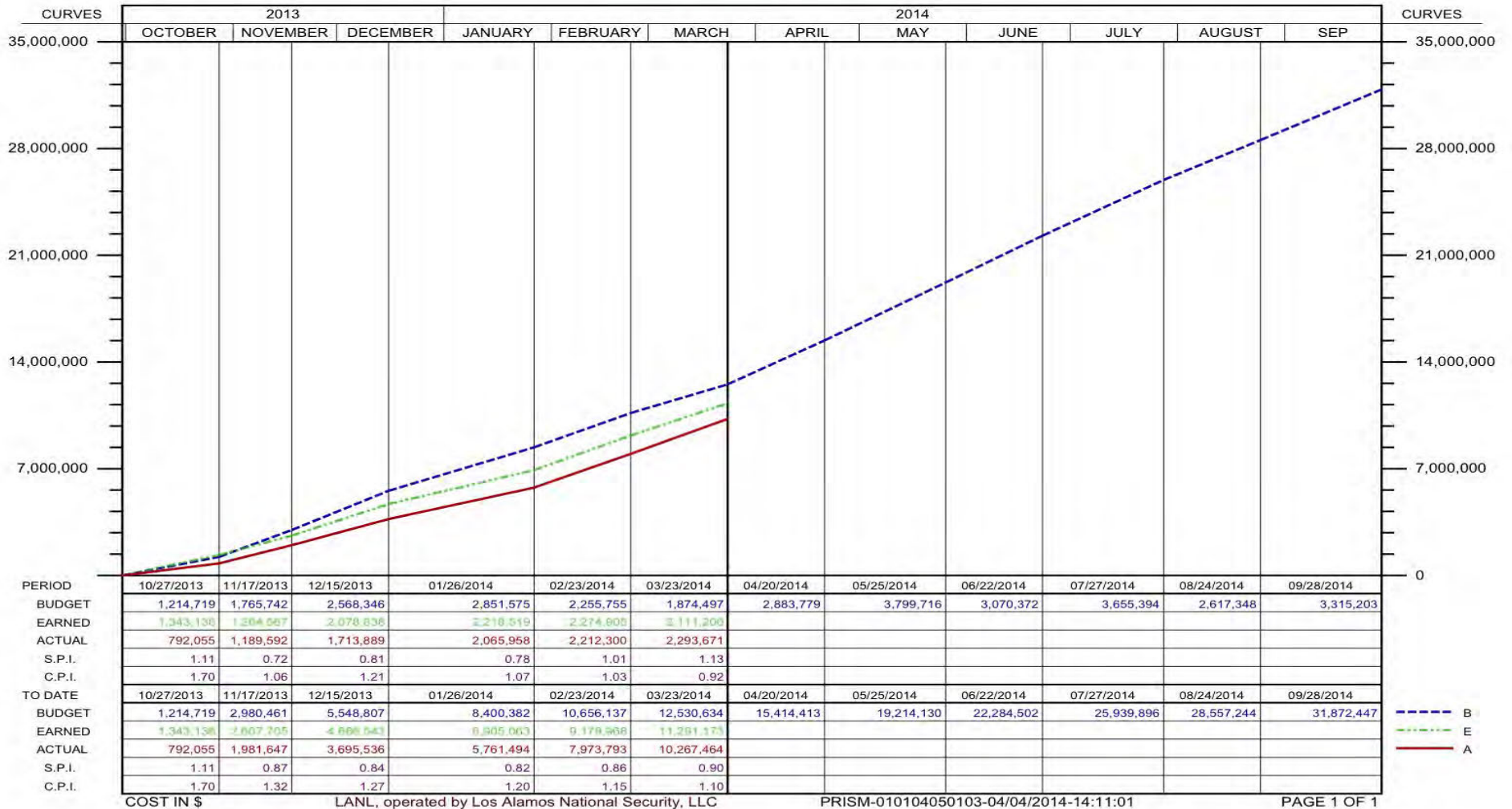
CURVES		2013						2014						CURVES	
		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEP		
30,000,000														30,000,000	
24,000,000														24,000,000	
18,000,000														18,000,000	
12,000,000														12,000,000	
6,000,000														6,000,000	
0														0	
PERIOD		10/27/2013	11/17/2013	12/15/2013	01/26/2014	02/23/2014	03/23/2014	04/20/2014	05/25/2014	06/22/2014	07/27/2014	08/24/2014	09/28/2014		
BUDGET		2,592,514	1,863,218	2,356,568	2,915,411	2,204,028	2,162,939	2,412,728	3,003,807	2,426,476	2,871,821	2,385,396	2,494,442		
EARNED		2,501,036	1,788,305	2,238,776	2,174,584	341,333	962,283								
ACTUAL		2,554,407	1,718,916	2,304,442	2,975,507	2,493,940	2,373,699								
S.P.I.		0.96	0.95	0.95	0.75	0.15	0.17								
C.P.I.		0.98	1.03	0.97	0.73	0.14	0.15								
TO DATE		10/27/2013	11/17/2013	12/15/2013	01/26/2014	02/23/2014	03/23/2014	04/20/2014	05/25/2014	06/22/2014	07/27/2014	08/24/2014	09/28/2014		
BUDGET		2,592,514	4,455,732	6,812,300	9,727,711	11,931,739	14,094,678	16,507,406	19,511,213	21,937,688	24,809,510	27,194,906	29,689,348		
EARNED		2,501,036	4,270,847	6,510,625	8,686,309	9,026,542	8,386,825								
ACTUAL		2,554,407	4,273,323	6,577,765	9,553,271	12,047,211	14,420,911								
S.P.I.		0.96	0.96	0.96	0.89	0.76	0.67								
C.P.I.		0.98	1.00	0.99	0.91	0.75	0.65								

COST IN \$
LANL, operated by Los Alamos National Security, LLC
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PERFORMANCE S-CURVE

Pit Manufacturing Equipment



2.0 LANL - Power Supply

MRT 4963		GREEN	Progress Power Supply Development		
1. Complete (b) (7)(F) of inert heat sources. 2. Start (b) (7)(F) of assembled Power Supplies.					
L3 Milestone (b) (3)	Baseline Date	Status/Comments	Completion Date	RGYB	
	January 13, 2014		November 15, 2013	BLUE	
	February 17, 2014		November 15, 2013	BLUE	
	March 10, 2014	6 of 10 completed.		GREEN	
	June 20, 2014			GREEN	
	August 29, 2014			GREEN	
	May 25, 2014		October 15, 2013	BLUE	

2.1 Technical Progress

- ☐ (b) (7)(F) development and refinement continues. Development of the (b) (7)(F) parameters for the strength member nears completion. Additional work to ensure the machine produces a quality beam each use includes:
 - Working with vendor on evaluation/fine tuning of recently procured Beam Measurement Tooling and software.
 - Performing detailed analysis of (b) (7)(F) Profile. Working issues real time with vendor.
- ☐ Quality documentation has begun for the equipment in the RTG-AFT. This includes Process Qualification Plans (PQP) and the subsequent Process Qualification Reports (PQR). The draft PQPs were sent to the DA for signature and will serve as a basis for the QERs later in the program. Next month will have the results of many of the tests needed to fill out the PQR.
- ☐ LANL fabricated six mass mock power supplies for use by the DA. These were welded per the SNL DA's design drawings using the (b) (7)(F) system in RTG-ATF. The mass mocks were (b) (7)(F) marked using equipment that will be used in production.
- ☐ The (b) (7)(F) development for the (b) (7)(F) strength member is nearing completion. A design of experiments has focused the work on a set of parameters that produce reliable and repeatable welds. Metallography is being performed on a final set of welds and no great surprises are expected.

2.2 Equipment

- ☐ New accelerometers are being purchased from the vendor (Lansmont) using WR MT&E protocols. This will serve as the pilot for obtaining all necessary MT&E using the quality standards required to sell product.
- ☐ An E-Tester report has been generated and sent to KCP to help in the development of the production units. The report has several ergonomic and data display changes identified and as well as a status of the functionality of the prototype. It appears one channel is not functioning.
- ☐ The furnaces suffered a breaker switch failure. Breakers are a special category of procurement and the multistep process has been completed. New breakers are on site and repairs are scheduled for March.

2.3 Issues

- The continued Pause in PF-4 operations coupled with procedural activities for resumptions, is affecting power supply production in the following areas:
 - FY14 Demo Fuel Run (Aqueous Processing and Fuel Fabrication)
 - Harvesting support activities: FSI opening and location/identification of fuel to increase current amounts
- FY14 funding cancellation for AMET Controller replacement in PF-4 and UT Development for installation at SM-39 will delay weld development activities.

2.4 Variance Analysis and Recovery Plan

- None

2.5 BCRs

- None

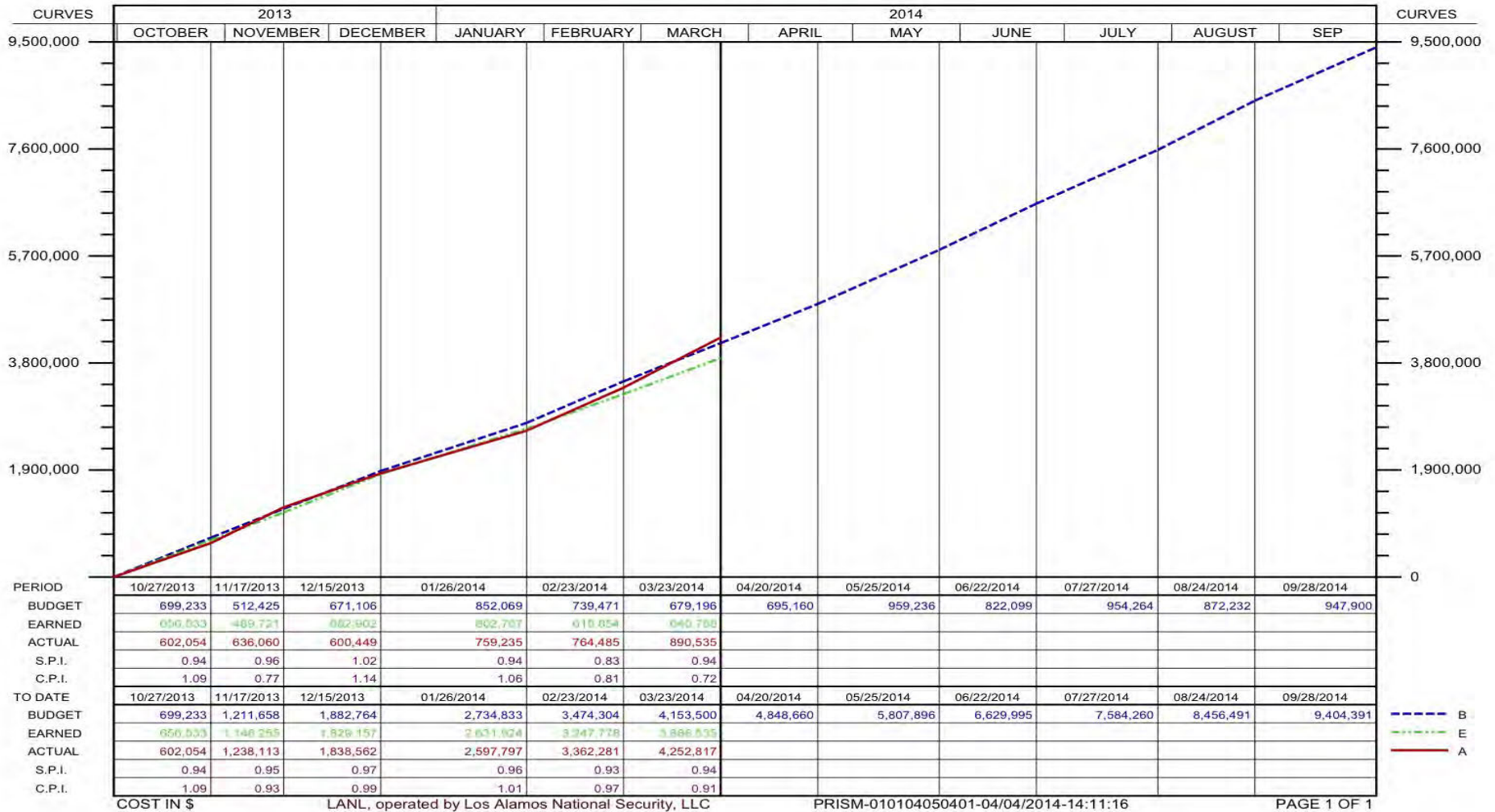
2.6 Risk Table

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 Power Supply manufacturing development. The plan to start hiring in FY13 for dedicated staffing did 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 Power Supply surveillance, NE-75, and other programs to make the best use of available staff. 2. Request LANL and LAFO management to allow for increase in dose to staff assigned to this work. 3. Delay non-critical path activities until they become critical path for FPU.	LANL performed a cross-program review in October of the baselined P6 schedules with NE-75.
Design Maturation beyond PRT Schedule	Delays in the delivery of the various required design phases (AERs, BDR, etc) will lead to a delay in LANL's delivering the FPU.	1. Communicate and integrate frequently with the PRT on LANL design needs. 2. Provide monthly input into the PRT's Integrated Schedule to manage formally any delays.	LANL continues to provide input at the monthly PRT meeting. Topics of the October meeting included review of the most recent fuel specification.
(b) (7)(F)	(b) (7)(F)	(b) (7)(F)	
AMET Controllers Replacement	(b) (7)(F)	1. Delay until FY15 unless funding becomes available in FY14 (will not effect FPU schedule).	LANL to procure hardware, let contract for reps to be on-site and start disassembly/re-assembly and testing activities. Funding cancelled for FY14.
UT Cold Development	Develop and install a cold UT inspection station at SM39 that will be used for (b) (7)(F) development.	1. Working with other LANL groups to determine if equipment and resources are available to inspect (b) (7)(F) at another LANL location.	Hardware bought and on-hand. Equipment delivered at SM39 but installation/integration on-hold due to cancelled of FY14 funds.

2.7 Earned Value Metrics

PERFORMANCE S-CURVE

Power Supply Production



3.0 Program and Manufacturing Support Services

3.1 Program Management

- Developed out year planning strategy that put product support costs in DSW.
- Supported the resumption scheduling effort with priority assignments and procedure list review.

3.2 Support

- The NPI-8 procurement team successfully processed 187 procurement requests for TA55 in February. The team was able to work through the period without the development of a substantial (> 1 week) and permanent backlog.
- Soliciting input for the ADPSM-FY14 Procurement Forecasting Plan. Each Division needs to complete and submit their procurement template by Friday March 21st.
- TA-55 Main Warehouse Transactions
 - o 1,499 Warehouse distributions at a cost of \$61,505.
 - o 833 Warehouse receipts at a cost of \$83,560.
 - o \$22,055 change in warehouse valuation.
- Calibration
 - o The Standards and Calibration Laboratory (S&CL) supported the development of a causal analysis to determine underlying causes behind the low rate of submission of measurement and test equipment (M&TE) for recalibration. The factual accuracy comments have been submitted and discussions are underway to refine proposed corrective actions.
 - o The S&CL continues to work with dimensional inspection as requested 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.
 - o Continued working with detonator project leads to ensure the availability of calibrated M&TE to meet production needs. This collaboration has been successful in meeting production requirements.
 - o Continued progress on two Lean Six Sigma process improvement projects to address chronic underperformance in completing calibrations of dimensional measuring and test equipment and to improve the quality of calibration report packages.
 - o A total of 18 M&TE items were expected for February and 53 items were actually received. Calibrated 44 M&TE items in February. Successfully and consistently achieved target cycle time rates for equipment turn around to avoid mission and deliverable impacts.
 - o Records Management
 - o Document Control Results
 - New DARs received by the team 105
 - New DARs received for MET-1 31
 - New DARs received for MET-2 5
 - Completed DARs by the team 50
 - Completed DARs for MET-1 10
 - Completed DARs for MET-2 4
 - o Records Management Metrics
 - Boxes of records indexed and shipped out during month 6
 - Boxes of records indexed and stored locally in VTR during month 12.25
 - Boxes of records received during month 0.0

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- Preventive and Corrective Maintenance
 - Completed preventative maintenance on systems requiring maintenance while in pause.
 - Glove inspections
 - Status and Condition inspection of all Plant HEPA's
 - PF-4: Continued HEPA Filter Change tool design, He gas line leak check plan, liquid utility line leak repair plans.
 - Corrective Maintenance
 - Continued GB Door (pass-through chamber) gasket replacement
 - Glovebox bubbler adjustments
 - Electrical outlet replacements.
 - Project Support
 - (b) (7)(F) Design – D&D and Maint Plan reviews
 - Design of 300 area house vacuum system
 - Design of 300 area Dri- Train installation
 - New Work (planning and work package development)
 - Develop standing IWD for Magnehelic test assembly installation and calibration
 - Planning IWD for the removal of (b) (7)(F) system connected to (b) (3)
 - Testing new XM replacement controller supporting the (b) (7)(F)
 - Developing IWD for the replacement of all tuna can filter with a Nuc-fil filter
 - Work Management & Control: Continued to collect specific equipment history.
 - Supported MEL entries and label creation for HEPAs and Service Agreements
 - CMMS upgrade to include new brief type (ISSUES)
 - History and Equipment Briefs entered

3.3 Issues

- Metrology
 - Funded to meet anticipated M&TE calibration requirements, however, aging calibration equipment is beginning to fail (one item failed in November) and replacement will be required to avoid impacts. Equipment replacement is not currently funded. Not all needed service contracts and equipment replacement needs are funded this FY. This will continue to be an on-going issue.

3.4 Variance Analysis and Recovery Plan

- Through month end March under spending relative to planned. Multiple work packages are spending at a rate higher than planned. Recovery plans are being developed address overspending areas.

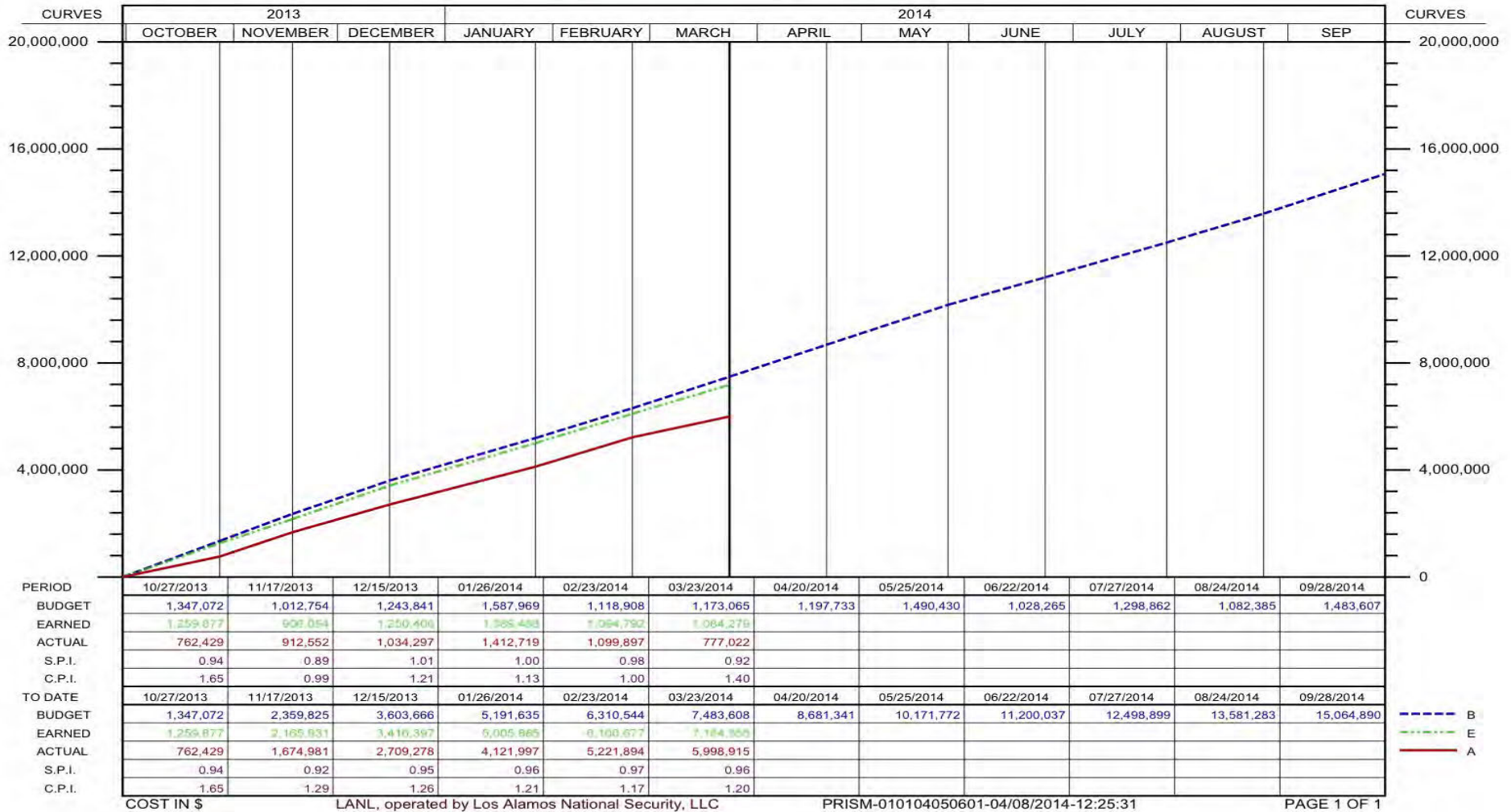
3.5 BCRs

- PSM-14-049: This BCR moves scope for equipment maintenance to stockpile services/production support funding. This is part of a "scope swap" that provides funding for small sample fabrication (see section 5.5).

3.6 Earned Value Metrics

PERFORMANCE S-CURVE

Program & Manufacturing Support Services



4.0 Facilities, Waste and Institutional Support

4.1 Technical Progress

- PF-4 Facility availability in December 95.03%
 - Submitted (Engineering Service Request) ESR #19472 for the Installation of Fall Protection on PF-1, PF-2, PF-3, PF-4, PF-5 and PF-20 Roofs.
 - Completed 14 Exposure Assessment reassessments
 - A presentation on the LANL Exposure Assessment process will be presented to the March (b) (7)(F) at TA-55.
 - Developed a TA-55 Annual Beryllium Sampling Schedule and updated the local and institutional Beryllium Inventory.
 - Assisted Security in the evaluation of the necessary controls, postings and indications for the new PIDAS pedestrian access gates.
 - Completed audit of 2013 RMIs (Routine Monitoring Instructions).
 - All RMIs were completed for the month of March.
- Maintenance Modifications
 - Bleed-off Sewer Vent Consolidated Bill of Materials Submitted for Procurement
 - Un-reviewed Safety Question (USQ) and Design Change Form (DCF) Submitted for PF-10 Re-configure TA-55 Diesel Fire Pump Coolant Drain System Piping
 - Un-reviewed Safety Question (USQ) and Design Change Form (DCF) Submitted for Detroit Diesel Day Tank Replacement
 - Design Change Form (DCF) Submitted for the Diesel Fire Pump Coolant Drain System Piping and Completed.

4.2 Equipment

- Missed one preventive maintenance activity (PM), due to access issues and 1 PM due to engineering not having an Attachment A ready. STO missed 3 PMs due to lift availability, 1 PM due to pest control resources, and 1 PM due to access issues.

4.3 Issues

- Lack funding to complete Red Network upgrade work. This work will cost more and take longer to complete once the plant is back in operations.

4.4 Variance Analysis and Recovery Plan

- None

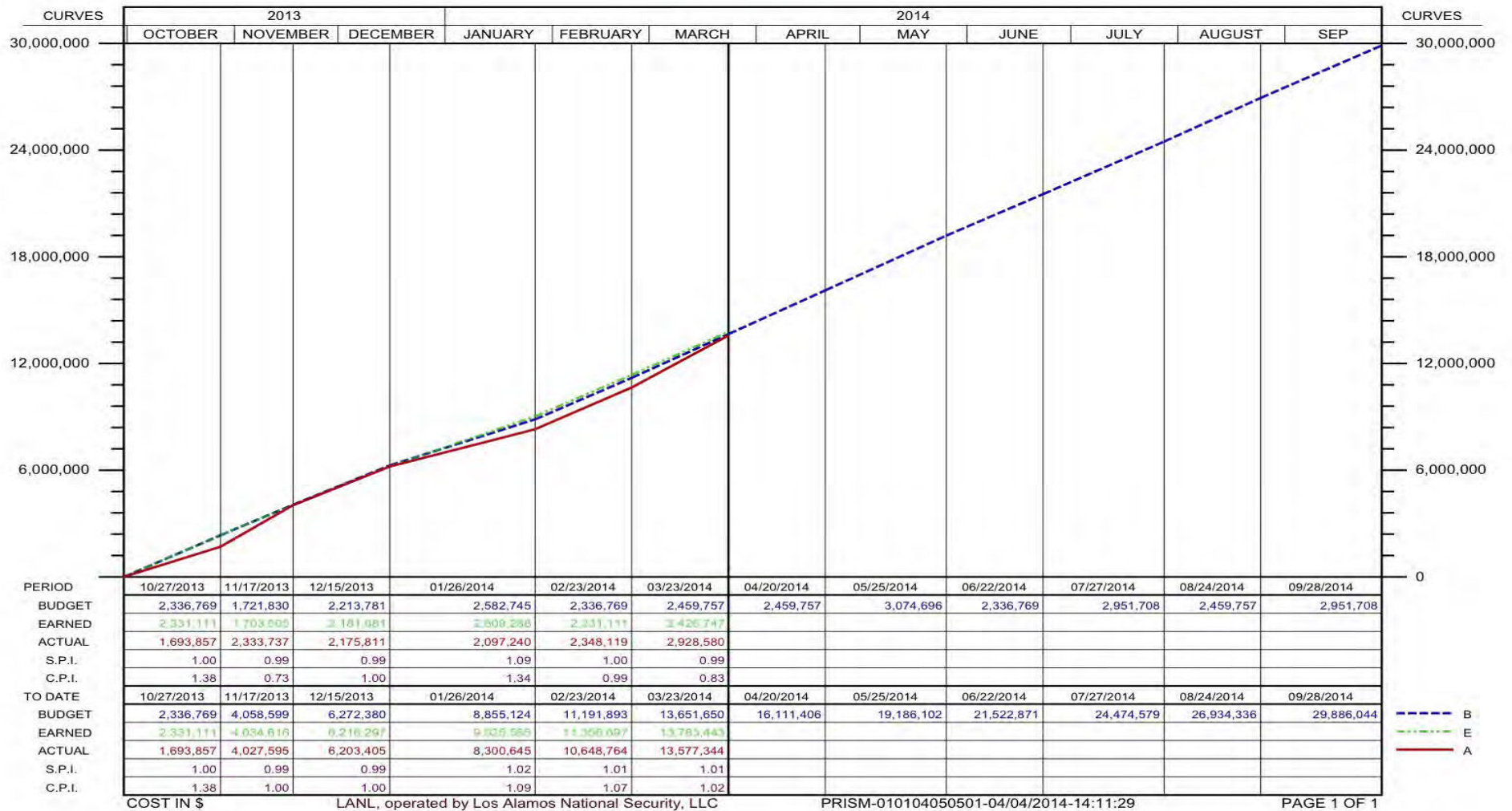
4.5 BCRs

- None

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4.6 Earned Value Metrics

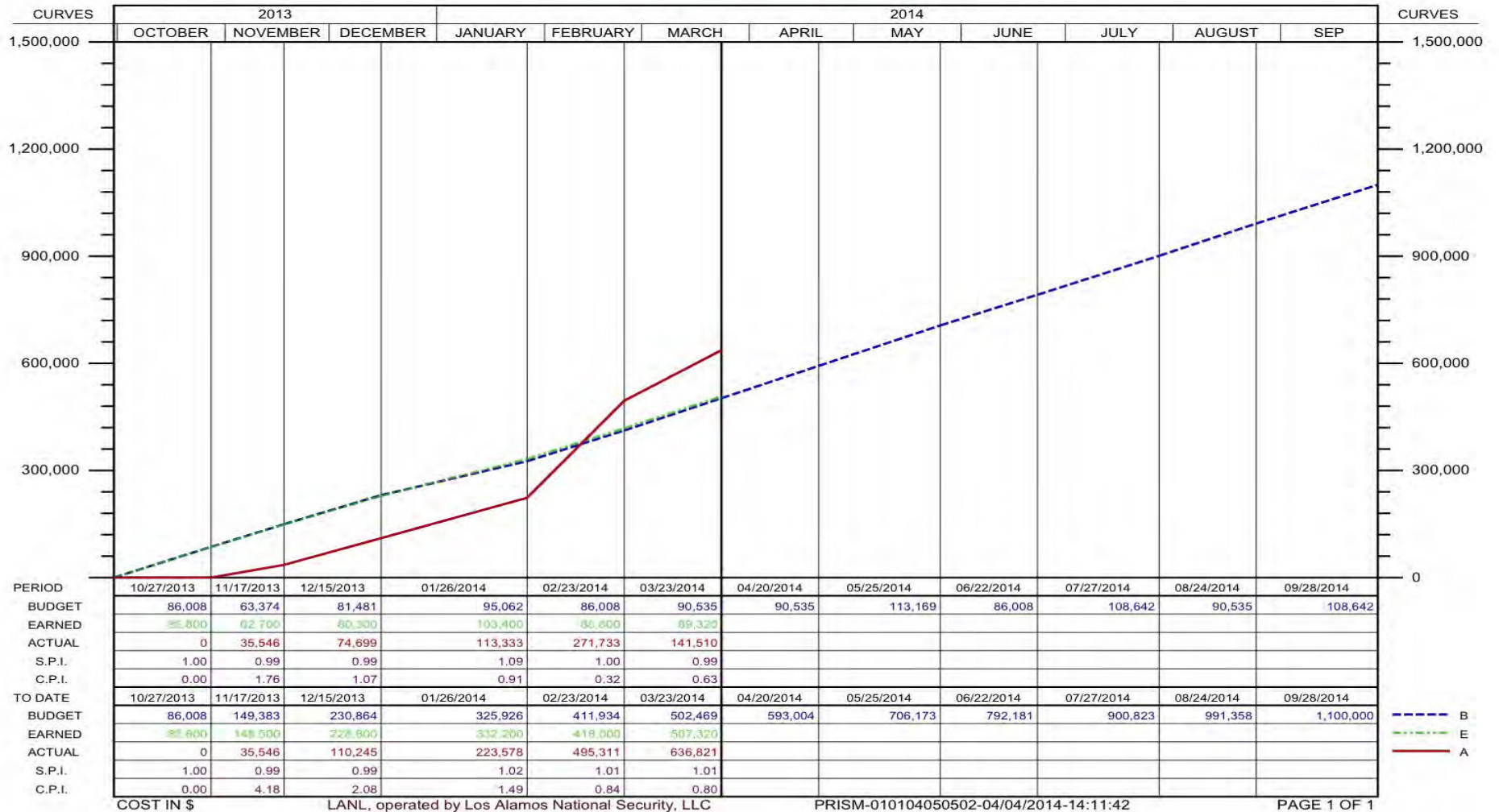
PERFORMANCE S-CURVE RTBF Recovery



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PERFORMANCE S-CURVE

Waste & Other Landlord Recovery



5.0 Plutonium Experimental Device Fabrication

5.1 Technical Progress

- A scope swap arrangement was executed for FY14 moving small sample fabrication scope to Pu Sustainment.

5.2 Equipment

- None.

5.3 Issues

- None

5.4 Variance Analysis and Recovery Plan

- None

5.5 BCRs

- PSM-14-049: This BCR provides funding for small sample fabrication. This is part of a “scope swap” that includes various elements moving to stockpile services/production support funding (see section 3.5)

5.6 Earned Value Metrics

PERFORMANCE S-CURVE

Plutonium Experimental Device Fabrication

