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Monthly Program Report February 2015

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LANL Executive Summary

The majority of Pu239 operations are undergoing readiness assessments prior to returning to operational status.

Operations (b) (7)(F)

A funding model including programmatic and RTBF support and a resource-loaded schedule has been developed. The readiness project team provides details in a separate report.

In February of 2015 the Plutonium Sustainment program at LANL completed or addressed the following high-level activities:

- 1) The factory acceptance testing has been completed and the first Precision Measuring Machine (PMM #1) has been received at LANL. The machine is being installed at SM-39. In general, the PMM project is 2-3 months ahead of the baseline schedule.
- 2) The new xenon backfill station chamber (delivered in January) has been installed in the Atmosphere Control Box (ACB) line (A3). Installation included adding passive pressure relief in the forms of oil bubblers to the ACB-A3 box, performing all the necessary pressure safety tests, and completing the completing documentation. Testing the backfill station is on going and has achieved the desired 10⁻⁸ Torr vacuum as designed.
- 3) Two surrogate power supplies were assembled using Dev Lot 2 parts. The units function perfectly.

All three proposed NNSA Level 2 Milestones (MRT 5366, 5367, and 5373) associated with Plutonium Sustainment are on track for success in FY15.

The earned value metrics overall for LANL are within acceptable thresholds.

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

LANL Response to October NNSA Comments

In an effort to reduce the length of the LANL Pu Sustainment monthly report (requested by NA-19), this report has been shortened and represents the first attempt to better satisfy NA-19 program management. The readiness section (§4.1) provides additional detail including a brief overview of the interplay between TRP II upgrades and readiness. The integration challenges between readiness and programmatic work (primarily equipment installations) is capture in the pit development risk table.

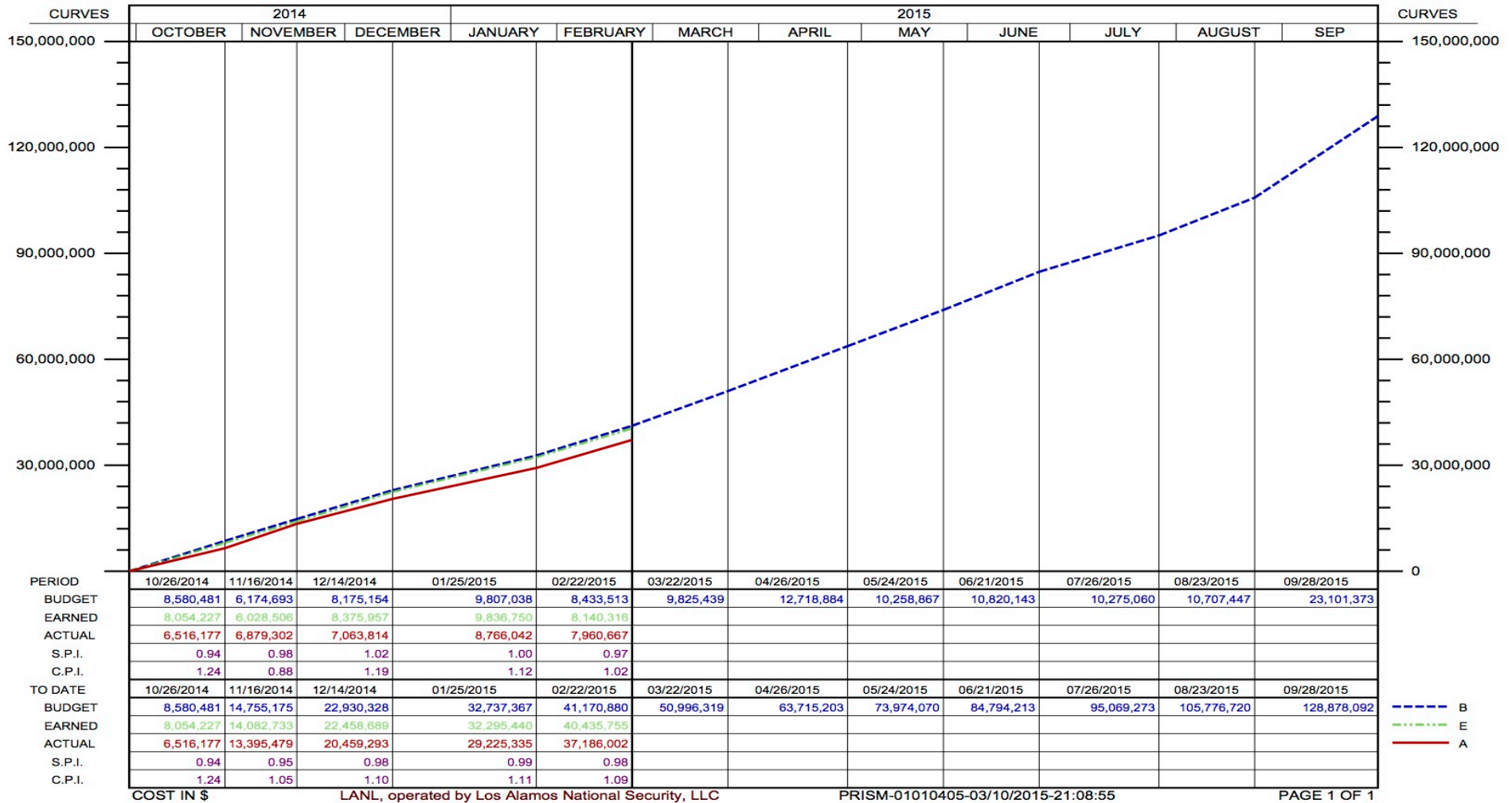
Table 1: February Baseline Change Requests

WBS	BCR #	BCR Description	Date Assigned	Date Approved	Impact	Cost Impact	Change Level
Pit Equipment	PSM-15-002	ER-Line Baseline	11/17/14	In process	Schedule	none	3
Pit Equipment	PSM-15-003	(b) (7)(F)	11/17/14	In process	Schedule/Cost	TBD	3
Pit Equipment	PSM-15-005	Foundry D&D Baseline	11/17/14	In process	Schedule	none	3
Readiness/ Production Support	PSM-15-015	Redistribution of KKRA IFIT Funds in to Pu Sustainment	11/23/14	12/8/14	Scope/ Schedule/Cost	\$1,521k	3
Pit Development	PSM-15-026	MST-16 Casting Technology Road Map	1/20/15	1/26/15	Scope/Schedule	\$750K	3
Pit Equipment	PSM-15-035	D&D XBs	2/11/15	pending	Scope/ Schedule/Cost	TBD	3
Power Supply Development	PSM-15-038	Omnibus Site Split - Power	2/12/15	pending	Scope/ Schedule/Cost	\$500k	3
Production Support	PSM-15-045	Omnibus Site Split for Prev/Corr Maintenance	2/13/15	pending	Scope/ Schedule/Cost	\$500k	3
Production Support	PSM-15-046	Omnibus Site Split for Prev/Corr Maintenance	2/13/15	pending	Scope/ Schedule/Cost	\$500k	3
Pu Sustainment	PSM-15-062	JT29 Realignment	2/18/15	pending	Cost	\$1,146k	3

Earned Value Metrics

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01.01.04.05 - Pu Sustainment



[NOTE: September 2015 includes 5% FY16 carryover holdback of \$6.084M in addition to the five major WBS elements.]

1.0 LANL - Pit Development

MRT 5366	GREEN	Complete FY 2015 Key Equipment Upgrades and Replacement Activities		
Continue equipment upgrade and replacement activities including the following:				
1. Receive Precision Measurement Machines (PMM) #1 and #2 (Infinity) at LANL				
2. Release PMM #1 glove box fabrication design to procurement				
3. Complete factory acceptance testing for (b) (7)(F)				
4. Complete decontamination and decommissioning (D&D) of 2 glove boxes (XB's) (assuming a disposition path is available at LANL)				
5. Start external installation for chlorine supply room				
6. Start glove box fabrication of (b) (7)(F)				
L3 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB
Conduct Factory Acceptance Test on Infinity PMM#1	March 27, 2015	Completed	February 6, 2015	BLUE
Receive PMM#1	May 29, 2015	PMM#1 received at LANL three month ahead of schedule.	February 26, 2015	BLUE
Conduct Factory Acceptance Test on Infinity PMM#2	May 15, 2015	Scheduled to begin two months early in mid-March.		GREEN
Receive PMM#2	July 24, 2015			GREEN
Develop Checklist for Glovebox Mockup for PMM#1	January 2, 2015	Completed	December 15, 2014	BLUE
Approve Final Glovebox Mockup for PMM#1	June 26, 2015	Approval expected three months early in mid-March.		GREEN
Approve PMM#1 Glovebox Fabrication Design for Construction (Release for procurement)	September 11, 2015			GREEN
(b) (7)(F)	May 29, 2015			GREEN
Complete Factory Acceptance Test of (b) (7)(F)	September 11, 2015	FAT currently scheduled for mid-August.		GREEN
Start D&D of 2 XB's (gloveboxes)	January 9, 2015	Started D&D	October 21, 2014	BLUE
2 XB's (gloveboxes) removed from room	May 15, 2015	\$1.1M reduction in funding. Insufficient funds to complete D&D of 2 XB's		GREEN
IBC reports of completion of D&D of XB's	June 19, 2015	\$1.1M reduction in funding. Insufficient funds to complete D&D of 2 XB's		GREEN
Start equipment procurement for Chlorine Supply Room	November 7, 2014	Completed	October 29, 2014	BLUE
Complete equipment procurement for Chlorine Supply Room	February 27, 2015	Procurements expected to be completed in mid-March.		RED
Start Construction for Chlorine Supply Room	March 20, 2015	Completed	January 14, 2015	BLUE
Procurement (ASM) issues request for proposal (RFP) for (b) (7)(F) Glovebox	January 30, 2015	Completed	December 2, 2014	BLUE
Kickoff meeting with vendor for (b) (7)(F) Glovebox	March 13, 2015	Completed	December 19, 2014	BLUE
Start (b) (7)(F) Glovebox fabrication	April 3, 2015	Completed	December 19, 2014	BLUE

1.1 Technical Progress

- The majority of pit manufacturing development is focused on readiness related activities.

1.2 Equipment

- The plan to meet the grading criterion L2 milestone MRT 5366 includes the following by September 30, 2015:
 1. Receive Precision Measurement Machines (PMM) #1 and #2 (Infinity) at LANL
 2. Release PMM #1 glove box fabrication design to procurement.
 3. Complete factory acceptance testing for (b) (7)(F)
 4. ~~Complete decontamination and decommissioning (D&D) of 2 glove boxes (XB's) (assuming a disposition path is available to LANL).~~
 5. Start external installation for chlorine supply room.
 6. Start glove box fabrication of (b) (7)(F)
- Precision Measurement Machines (b) (3)
 - Factory Acceptance Testing for PMM#1 was completed on February 6, 2015.
 - PMM#1 was received at LANL on February 26, 2015. The unit is being used for mock glovebox evaluation.
 - Factory Acceptance Testing for PMM#2 is scheduled to start on March 16, 2015.
- PMM#1 glove box procurement
 - Glovebox mockup received December 18, 2014 at SM-39. Weekly mockup glovebox working sessions continue.
- (b) (7)(F) (b) (3)
 - Preparation for HV Tank testing is scheduled for completion on April 25, 2015.
 - Evaluation of location options for (b) (7)(F) (PF-4 or SM-39) is complete. (b) (7)(F) will be installed at SM-39 and (b) (7)(F) will be installed in (b) (3) of the old (b) (7)(F) to begin in FY15 on a limited basis to avoid conflict with readiness activities in rooms (b) (3) D&D and installation of the new system in PF-4 will be completed in FY16.
- Decontamination and Decommissioning of (b) (7)(F) (b) (3)
 - (b) (7)(F) removed from scope.
 - (b) (7)(F) is to be evaluated for possible D&D should it not affect readiness.
- Chlorine Distribution & Detection System (b) (3)
 - Chlorine Supply Room construction has started while the final procurements continue into mid-March.
- Computer Numerical Controlled Lathe (b) (3)
 - The glovebox manufacturer submitted objective evidence to remain on the approved vendor list.
- Foundry Furnace Upgrade, GB-1
 - The original recovery schedule planned installation of the new power supply in first quarter of FY15. During vendor testing in the Detroit facilities prior to factory acceptance testing some performance parameters were not met. Specific components sent back to Norway for replacement and/or modification.
 - The Underwriters Laboratory testing and certification process became iterative and took significantly longer than projected. The UL stamp was obtained on February 17, 2015.
 - The power measurement method has been evaluated and an improved technique will be used to reevaluate the supplies.
 - NPI-8 personnel are visiting the factory in mid-March to evaluate and resolution of FAT testing issues.
 - Receipt at LANL is planned for April 2015.

1.3 Issues

- Due to a \$1.1M reduction in funding to provide additional funding for Pu Sustainment scope at LLNL, insufficient funds are available to complete the D&D of 2 XBs (element #4 of MRT 5366). Every attempt possible will be made to D&D (b) (7)(F) given current Readiness schedule to include working around room evolution activities. Limited remaining funds will be utilized for D&D of (b) (7)(F)

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

- PSM-15-002: This BCR establishes the baseline Primavera schedule for the ER line upgrades project based on the Continuing Resolution budget.
- PSM-15-003: This BCR funds the PF-4 location study for (b) (7)(F) to conclude at the end of January.
- PSM-15-005: This BCR establishes the baseline Primavera schedule for the Foundry D&D project based on the Continuing Resolution budget.
- PSM-15-026: This BCR provides funding from new BA to perform analysis on the current casting furnace/glovebox design and recommend modifications as required to insure that the system will meet the needs of the LANL science community.
- PSM-15-035: This BCR pushes some FY15 scheduled scope into FY16 as a result of a LANL site split reduction and readiness conflicts.

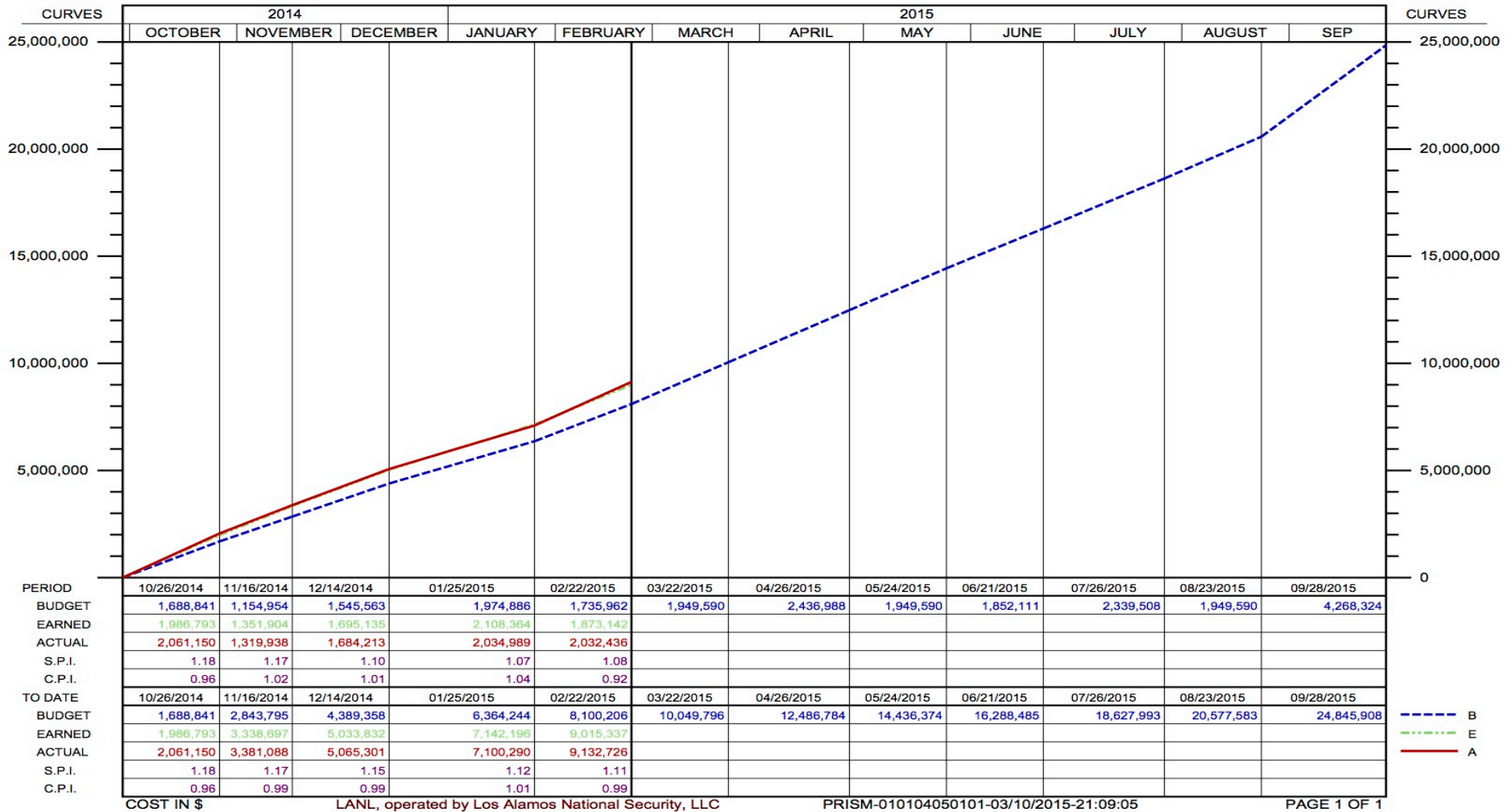
1.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F)	(b) (7)(F)	Risk has been realized. The Pit Flowsheet is not scheduled to complete readiness until January 2016.	(b) (7)(F)
(b) (5)			
Installation of equipment in PF-4	Readiness activities could take conflict with D&D and installation of equipment in PF-4. Since readiness, in general, is a higher priority than equipment installation, equipment schedule delays could occur.	Prioritize installation work to emphasize areas of limited conflict (ie. PF-4 basement, SM-39, areas not subject to readiness, etc.).	(b) (7)(F) and PMM are slowed in FY15. A BCR will be generated once the magnitude of the impact is known.
(b) (7)(F)			

1.7 Earned Value Metrics

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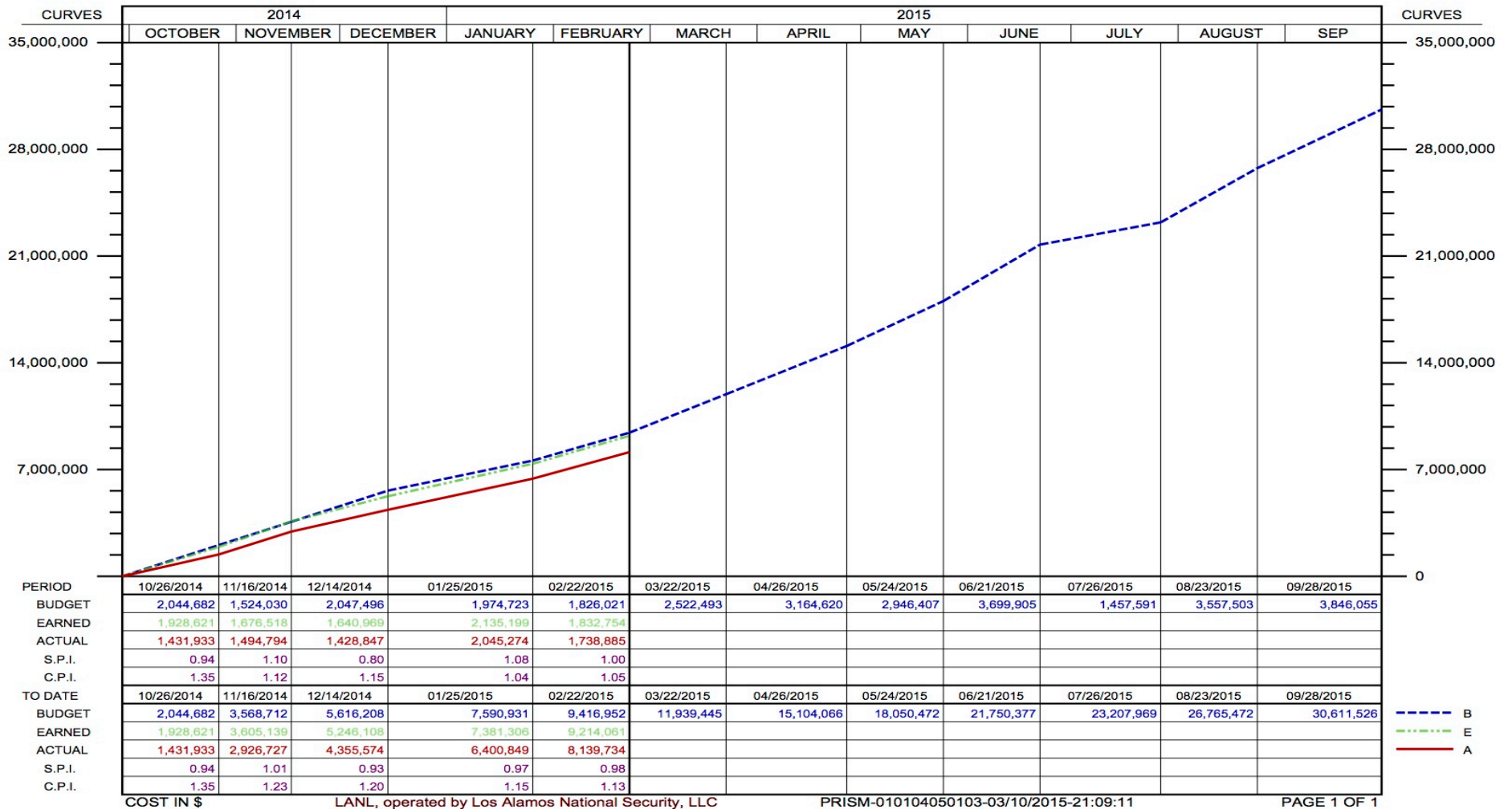
01.01.04.05.01.01 - Pit Manufacturing and Design D



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01.01.04.05.01.03- Pit Manufacturing Equipment



2.0 LANL - Power Supply

MRT 5367		GREEN	Complete FY 2015 Power Supply Development Activities		
Continue the development of Power Supply production capability by completing one functional Atmosphere Control Box (ACB) Line in Assembly Test Facility (ATF) including the following:					
1. Install prototype Xenon backfill station in ACB line					
2. Install prototype Xenon leak check station in Assembly Test Facility (ATF)					
3. Manufacture surrogate Power Supply using KCP provided (b) (7)(F) components					
L3 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB	
Install prototype Xenon backfill station in ACB line	September 30, 2015	Completed	February 3, 2015	BLUE	
Install prototype Xenon leak check station in ATF	September 30, 2015			GREEN	
Manufacture surrogate Power Supply using KCP-provided DEV 2 components	September 30, 2015	Completed	February 5, 2015	BLUE	

2.1 Technical Progress

- Two PRT meetings were held (February 12th at LANL, and February 24th at SNL). The first focused on the progress of the Live Unit. Complete results of the analytical chemistry (aqueous Demo Batch-1) were discussed at the LANL PRT meeting. It was decided to start a second aqueous batch to confirm the findings of the first batch. It appears that a single dissolution is good enough to meet the fuel specifications and the second demonstration batch will help confirm this finding. The Live Unit is scheduled to be completed and tested by the first week of July 2015. The SNL PRT was a more conventional meeting where the results of several technical studies were presented. The heat source moved to a design revision D05 status to correct possible stack up issues with the strength member and clad, and retaining spring.
- The new xenon backfill station chamber (delivered in January) has been installed in the Atmosphere Control Box (ACB) line (A3). Installation included adding passive pressure relief in the forms of oil bubblers to the ACB-A3 box, performing all the necessary pressure safety tests, and completing the completing documentation. Testing the backfill station is on going (b) (3)
- A second oxide production demonstration run (Demo Batch-2) has been completed through dissolution and fuel fabrication. Analytical chemistry on the batch is on going. The second demonstration was done to gather more data on cleanup factors, isotopic ratios, calorimetry versus analytic chemistry, and to create small standards for measurement use. Procedures are also being completed to support a PPI and QER set of batches scheduled for the late summer.
- Reports have been submitted to Safety Basis for final approval of the heat source liner design revision D04. D04 passed all the tests for Department of Transportation special forms sealed source certification (49CFR 173.469). The DA has issued a set of drawings defining D05 to fix some possible stack up tolerance issues, but the liner was not affected by this revision; only the strength member and clad were altered. Because of this, the Cognizant System Engineer at LANL has determined that DOT testing of the D05 liner is not required.

2.2 Equipment

- Testing and debugging of the new (b) (7)(F) controllers (for heat source fabrication) has been completed and arc has been achieved. There is an issue (b) (3) that is being corrected.
- Modifications to the thermal chamber room to force more cool air into the room during operations have been completed. All three chambers can now run without the temperature rising above the manufacturer suggested 80°F. It is winter and a complete bill of health will have to wait for the summer temperatures.

2.3 Issues

- NNSA and SNL systems have provided LANL with a challenge to produce a live unit by Baseline Design Review (BDR). LANL has agreed to give their best effort to meet the challenge. All groups at LANL that have a role have been contacted and a comprehensive activity list has been developed. The unit to be produced and the tests to be accomplished have been defined in a joint SNL-LANL-KCP document (GE2A3752) published by SNL.

2.4 Variance Analysis and Recovery Plan

- None

2.5 BCRs

- PSM-15-038: This BCR provides \$500k of new Budget Authority (BA) to add funding to work packages that were initially underfunded (\$150k) and add a dedicated Radiological Control Technician to improve operational efficiency (\$350k).

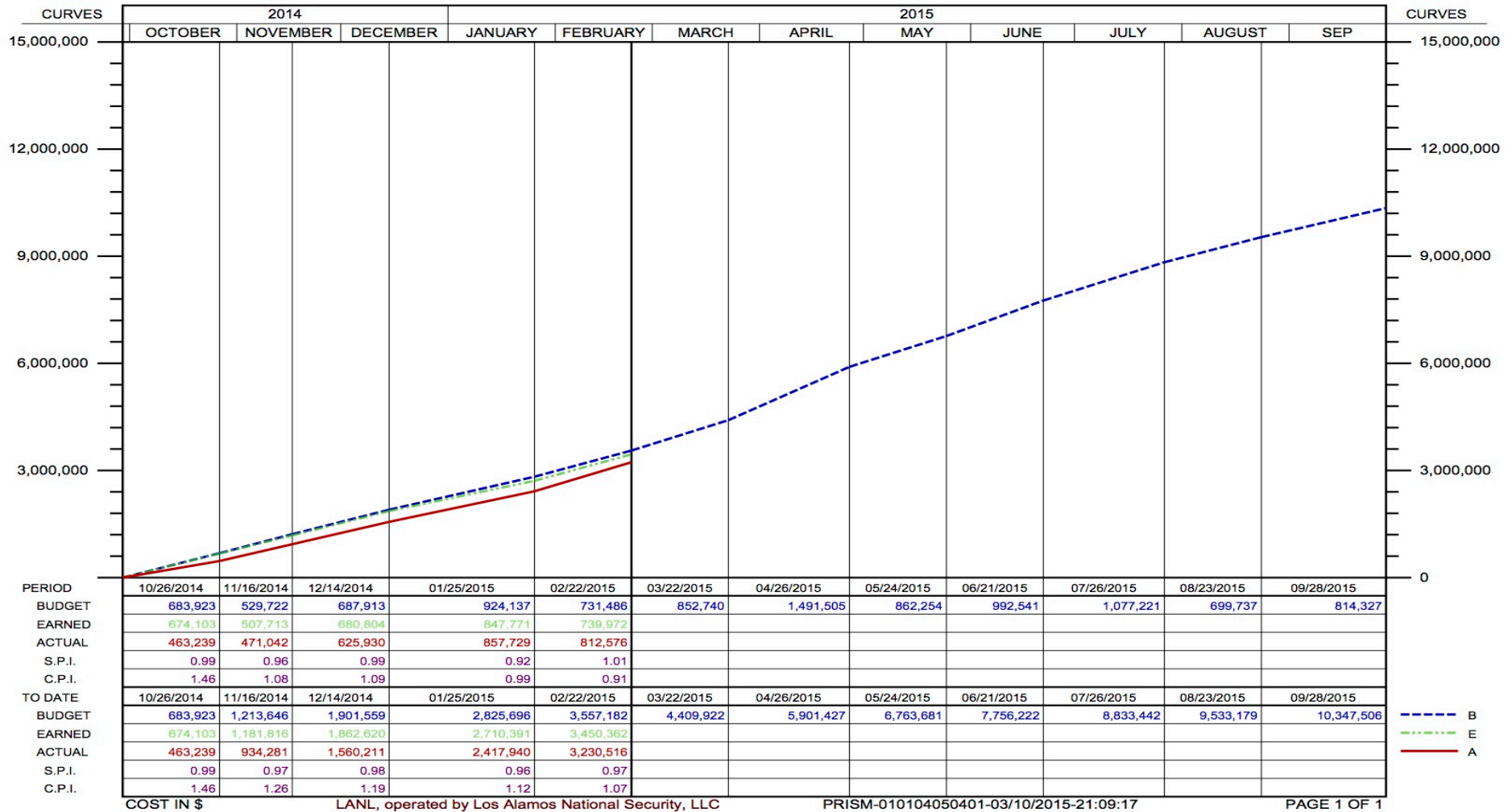
2.6 Risk Table

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 that LANL and LAFO management allow for increase in dose to staff assigned to this work. 3. Delay non-critical path activities until they become critical path for FPU.	Working closely with other Programs to maintain adequate personnel coverage for all, and optimize use of resources.
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 delivery of 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 formally manage any delays.	LANL continues to provide input at the monthly PRT meeting.
(b) (7)(F)	(b) (7)(F)	(b) (7)(F)	
UT Cold Development	Develop and install a cold UT inspection station at SM39 that will be used for S (b) (7)(F)	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; funding for development and installation has resumed in FY15.

2.7 Earned Value Metrics

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01.01.04.05.04.01 - Power Supply Production



3.0 Program and Manufacturing Support Services

MRT 5373	GREEN	<i>Complete and submit a monthly report to NA-123.1 detailing the programmatic status of the Plutonium Sustainment Program by Site</i>		
Provide program status on technical, cost and schedule, funding, milestones and risk to NNSA on a monthly basis				
1. All participants must submit a site specific monthly status report to NA-123.1 no later than the 24th day of each month. 2. The monthly report should be a word document in report type format using the FY14 reporting template and include submission of excel spreadsheet supporting financial data. 3. Minimum topics include (extracted from FY14 format): a. Executive Summary, Milestone Status (Level 2 and Level 3), Technical Progress, EVMS charts (where available), Issues, Variance Analysis and Recovery Plan and Risk Table. b. The financial portion includes: Cost and schedule, funding (FY15 budget authority and FY14 carryover), time phased spend plan by month, actual to date expenditures, estimates to complete, commitments (liens or encumbrances)				
Activity	Baseline Date	Status/Comments	Completion Date	RGYB
October Report	November 24, 2014	Issued	November 24, 2014	BLUE
November Report	December 24, 2014	Issued	December 22, 2014	BLUE
December Report	January 24, 2015	Issued	January 23, 2015	BLUE
January Report	February 24, 2015	Issued	February 23, 2015	BLUE
February Report	March 24, 2015	Issued	March 24, 2015	BLUE
March Report	April 24, 2015			GREEN
April Report	May 24, 2015			GREEN
May Report	June 24, 2015			GREEN
June Report	July 24, 2015			GREEN
July Report	August 24, 2015			GREEN
August Report	September 24, 2015			GREEN

3.1 Program Management

- Supported the resumption scheduling effort with priority assignments and procedure list review.
- Increasing maintenance work to match increased funding.

3.2 Support

- Working with other programs to insure shared scope, like preventive and corrective maintenance, are equitably portioned across programs.

3.3 Issues

- None

3.4 Variance Analysis and Recovery Plan

- None

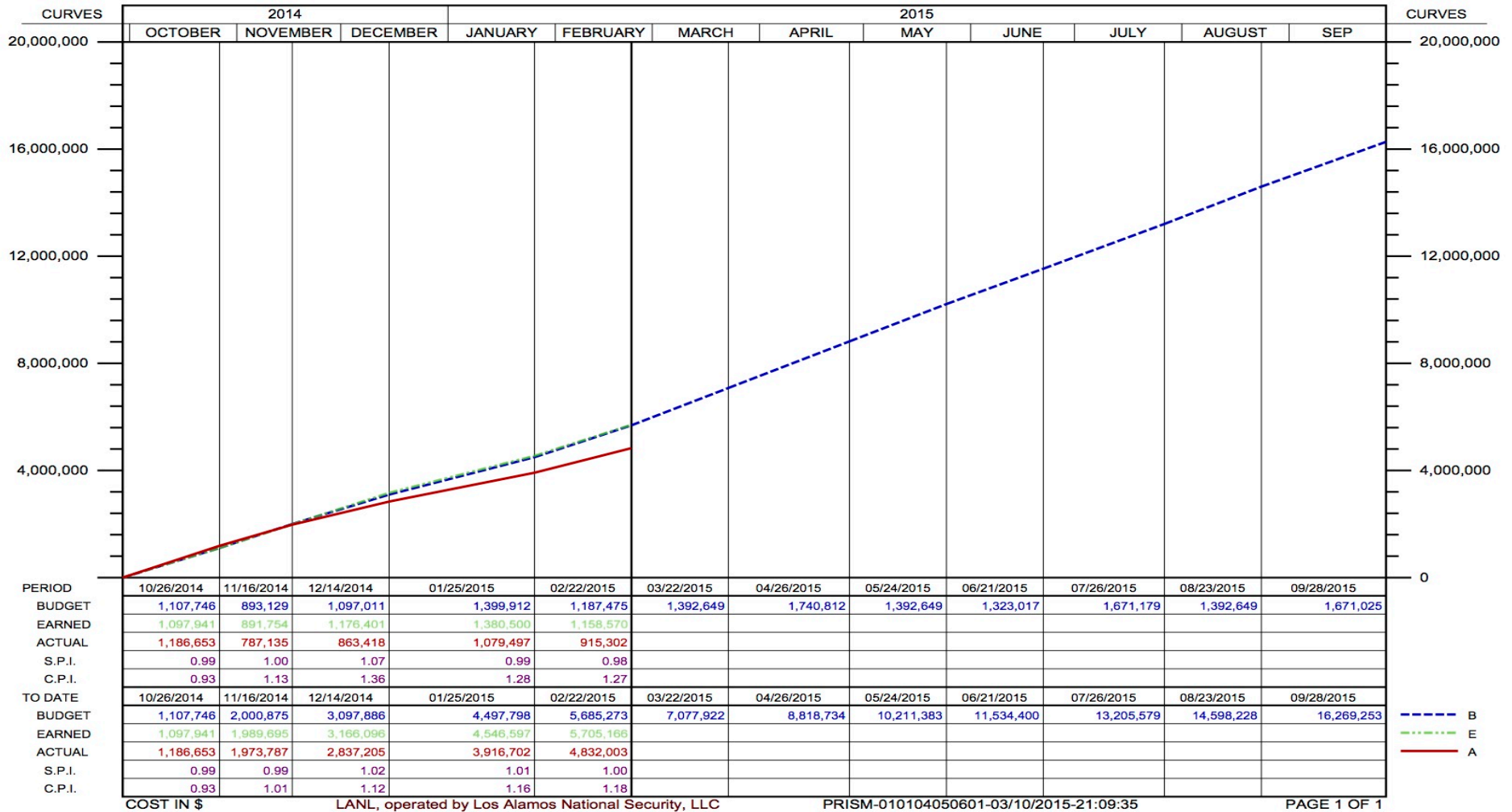
3.5 BCRs

- PSM-15-015: This BCR eliminates the IFIT readiness scope (this will be funded by another program) and reduces industrial engineering scope (resource lost to readiness support) and adds funding to preventive and corrective maintenance supporting pit production. \$1,521k was redirected to maintenance (\$1,050k) and the rest was added to the 6% carryover reserve (\$471k).
- PSM-15-045: This BCR provides \$500k of new BA to maintenance to support pit operations. Maintenance is severely underfunded in FY15.
- PSM-15-046: This BCR provides \$500k of new BA to maintenance to support power supply production operations. Maintenance is severely underfunded in FY15.
- PSM-15-062: This BCR realigns the carryover holdback to 5% of the new budget (post-omnibus bill).

3.6 Earned Value Metrics

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01.01.04.05.06.01 - Program Support



4.0 Facilities and Readiness/Waste and Institutional Support

4.1 Technical Progress

- TA-54 has indicated (b) (7)(F) safety basis-mandated composite source term limit.
- PF-4 Readiness

- (b) (7)(F)
-
-
-
-
-
-
-
-
-
-
-

4.2 Equipment

- None

4.3 Issues

- (b) (7)(F)
- No 55-gallon drums can be shipped to TA-54 as a result of a recently declared PISA

4.4 Variance Analysis and Recovery Plan

- None

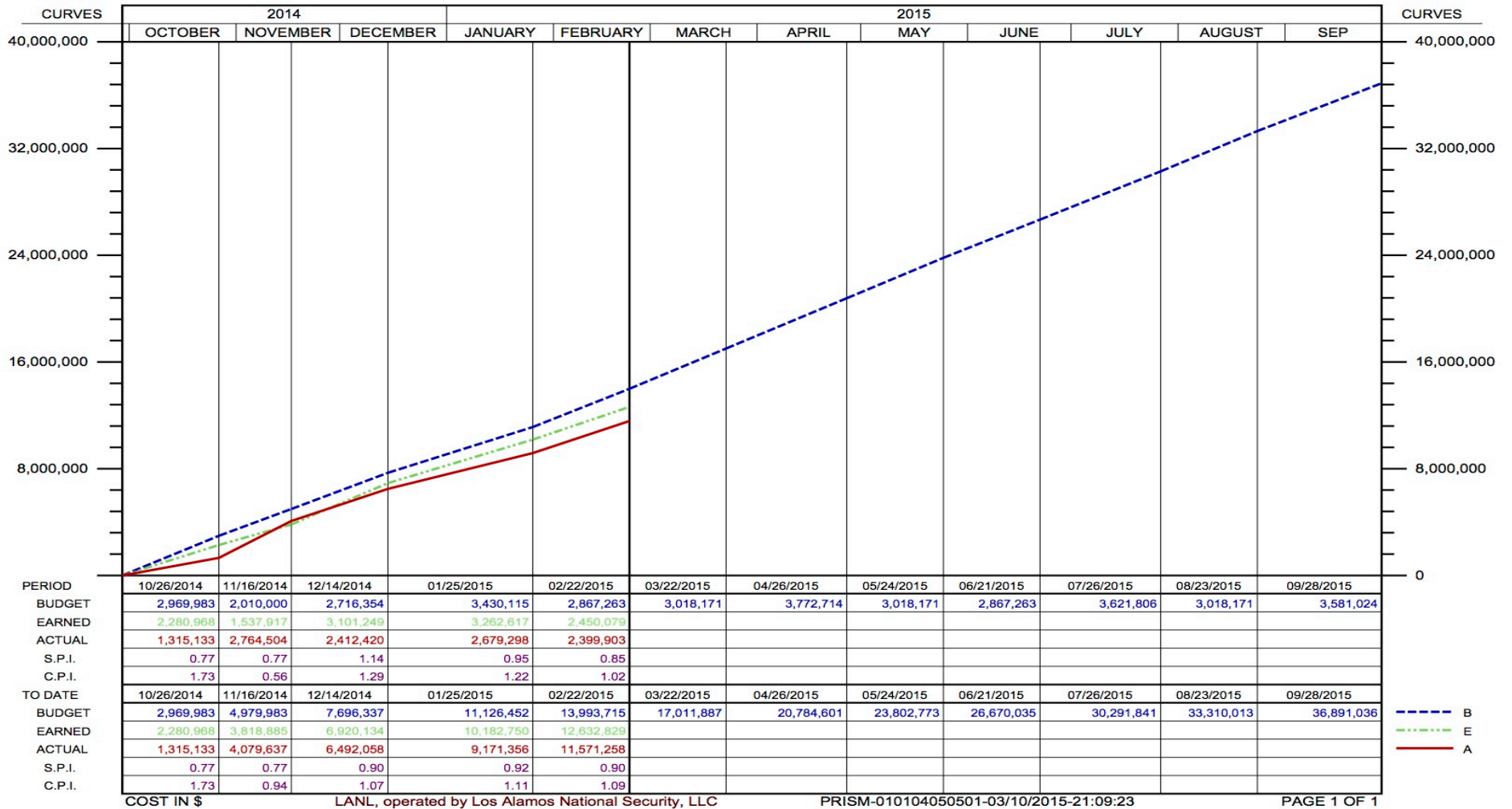
4.5 BCRs

- None

4.6 Earned Value Metrics

PERFORMANCE S-CURVE

01.01.04.05.05.01 - RTBF Recovery



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