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LANL Executive Summary

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

- 1) [REDACTED] (b) (7)(F)
[REDACTED] This completes the NNSA Level Two milestone, MRT 4623.
- 2) A draft of the Dev Series plan was presented at the IPT meeting and refinements will made over the next few weeks with the LLNL DA and LANL PA.
- 3) [REDACTED] (b) (7)(F)
[REDACTED]. Follow-up meetings are scheduled for May. The design agencies presented product plans and tasked the production agencies to produce cost estimates to support a July pit option down selection. The certification plan is beginning to evolve and the NNSA funding model is at this time unclear. Included in this uncertainty are the roles of Superblock and PF-4.
- 4) Phase 3 of the foundry upgrade cold laboratory system testing was completed ahead of schedule on March 4. Input has been provided to the design and installation packages.
- 5) Mechanical and electrical installation for Gloveboxes I, II, III, and IV (ER Furnaces) completed on schedule on March 12.
- 6) Completed the Management Self-Assessment (MSA) for the [REDACTED] (b) (7)(F)

All four NNSA Level 2 Milestones (MRT 4622-4625) associated with Plutonium Sustainment are on track for success in FY13 and MRT 4623 is now completed.

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 are discussed in detail below with a section at the end that is provided by LLNL (the KCP report is filed separately and directly).

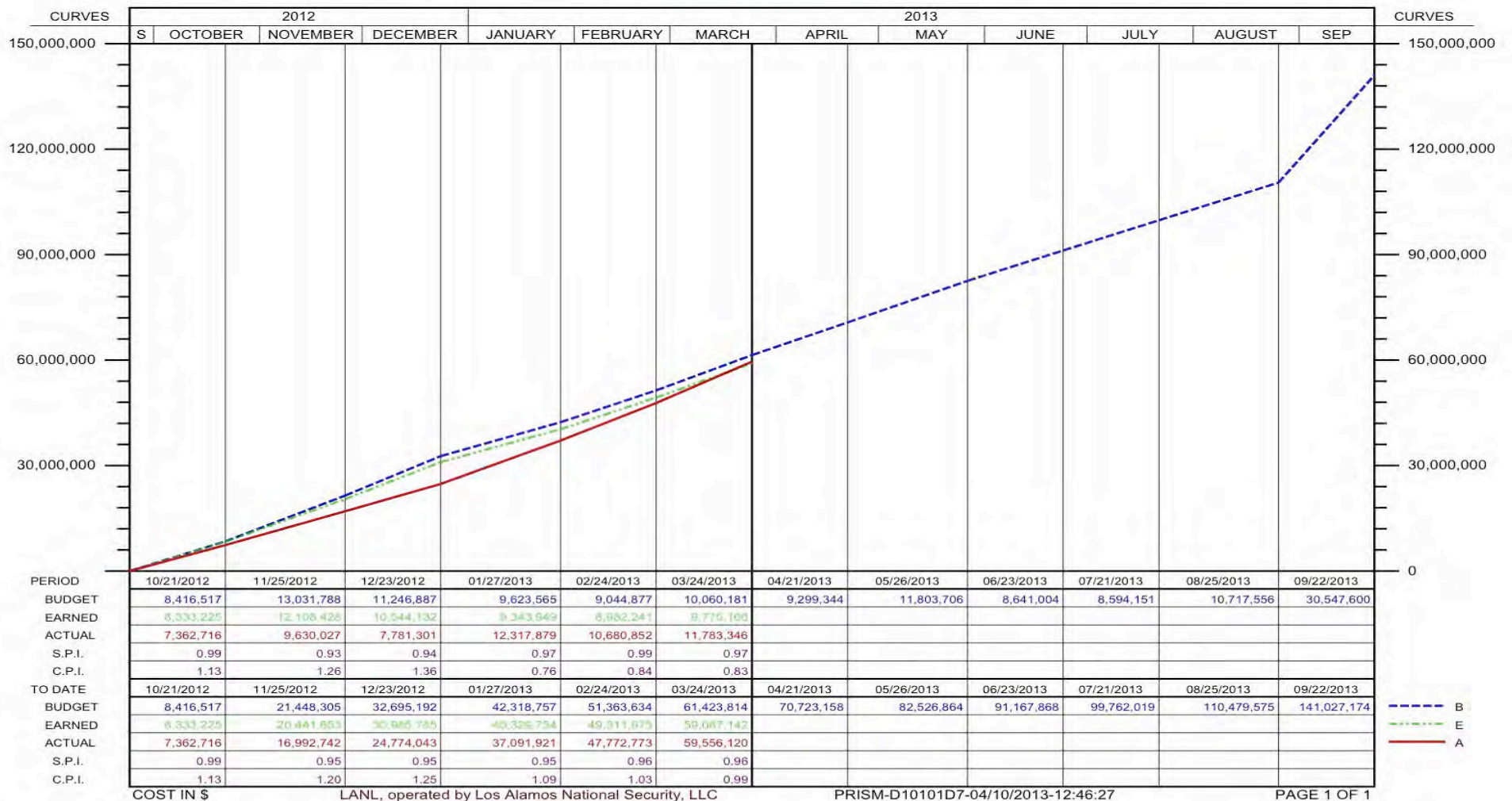
Table 1: March Baseline Change Requests

WBS	BCR #	BCR Description	Date Assigned	Date Approved	Impact	Cost Impact	Change Level
Pit Equipment	PSM-13-032	(b) (7)(F) Procurement & D&D Design	1/24/13	working	Cost/Schedule	TBD	TBD
Pit Equipment	PSM-13-036	Adding GB2 and GB3 Construction to FY13 Scope of Work	2/19/12	working	Cost/Schedule	\$2,464k	1
Power Supply	PSM-13-044	PSAA: Paint Wall and Stairs	3/8/13	3/19/13	Cost/Schedule	\$66k	3
Power Supply	PSM-13-045	PSAA: Modifications to Accommodate the LANL GFE	3/8/13	3/14/13	Cost/Schedule	\$92k	3
Power Supply	PSM-13-046	PSAA: Modifications to Heat Detectors and Fire Dampers	3/8/13	3/19/13	Cost/Schedule	\$45k	3
Power Supply	PSM-13-048	PSAA: Provide Painting at Entrances, Add Exterior Facility Sign and Repair Bolt on ACB	3/8/13	3/21/13	Cost/Schedule	TBD	TBD
Pit Development	PSM-13-052	Pyrochemistry - Scope Definition Refinement	3/27/13	4/4/13	N/A	N/A	4

Earned Value Metrics

PERFORMANCE S-CURVE

LANL Pu Sustainment



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PERFORMANCE S-CURVE

LANL Pu Sustainment W/O Facility Infrastructure



1.0 LANL - Pit Development

MRT 4622		GREEN	Perform Activities to Sustain Base Pit Material Processing and Fabrication Capability		
1. (b) (7)(F)					
2. Maintain pit manufacturing capability by producing (b) (7)(F) and/or exercising the pit fabrication flow sheet.					
3. Continue to make progress on the Electro-Refining line, Plutonium Foundry, and (b) (7)(F) projects.					
(b) (7)(F)				RGYB	
				BLUE	
				BLUE	
				BLUE	
				BLUE	
				BLUE	
				GREEN	
				GREEN	
				GREEN	
Equipment (b) (7)(F)					
		November 1, 2012		October 17, 2012	BLUE
		March 13, 2013	Completed on time.	March 12, 2013	BLUE
		March 21, 2013	Completed ahead of schedule.	March 4, 2013	BLUE
		April 19, 2013		February 27, 2013	BLUE
		June 27, 2013			GREEN
		June 30, 2013			GREEN
		July 19, 2013			GREEN
		July 26, 2013			GREEN
		July 30, 2013			GREEN
		August 29, 2013			GREEN
		September 20, 2013			GREEN
		September 30, 2013			GREEN
		September 30, 2013			GREEN
MRT 4623		BLUE	(b) (7)(F)		
1. (b) (7)(F)					
(b) (7)(F)					
BLUE					

1.1 Technical Progress

- (b) (7)(F)
 - o This completes the NNSA Level 2 milestone (MRT 4623)
- Completed troubleshooting and failure analysis of the (b) (7)(F)
 - o Failure of the motor was likely caused by a manufacturing defect.
 - o The motor hoist is being procured and the maintenance procedure is under review.

1.2 Equipment

- The plan to meet the grading criterion #3 for L2 milestone MRT 4622 includes the following:
 1. The (b) (7)(F) Upgrade - complete all planned (b) (7)(F) system upgrades and release both the “cold” and “hot” glovebox for welding operations by September 30, 2013.
 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) Upgrade
 - o Installation of the switch and junction box system in PF-4 progressed.
 - o Initial testing of the motion controls for the Cold Skid in PF-4 progressed. Testing of the (b) (7)(F) system initially indicated beam continuity issues. These were resolved.
 - o The Hot Skid testing in SM-66 successfully completed.
 - o The first glovebox boot has been successfully leak tested.
 - o Preparation of Criticality Safety Evaluation Documents (CSEDs) had progressed but the process is on hold per memorandum AD-NHHO:13-060. This will impact the second part of the L2 milestone. Installation will be complete and operation demonstrated. However, without the CSED, nuclear operations will not be able to start.
- Foundry Upgrade
 - o Phase 3 of the Cold Laboratory System Testing was completed ahead of schedule on March 4. Input has been provided to the design and installation packages.
 - o GB1 95% cooling installation package design review has been completed and comments are being incorporated.
 - o GB1 vacuum installation 80% complete.
 - o The contract for the procurement of the (b) (7)(F) is progressing.
 - o Work on the 60% GB2 vacuum/cooling installation engineering design package continued at a slower rate to focus resources on GB1 activities.
 - o GB2 D&D Integrated Work Documents have been approved.
- Electro-Refining Line Upgrade
 - o Mechanical and electrical installation for Gloveboxes I, II, III, and IV (ER Furnaces) completed on schedule on March 12.
 - o ERCS software contractor briefing on ERCS software and hardware started on March 26.
 - o Presentation to the Operational Safety Board resulted in a level of readiness determination of Management Self-Assessment (MSA).
 - o Progressing on mechanical and electrical installation for Trunklines II, III, and IV to meet L3 milestone in June.
 - o Dri-Train manifold installation progressing.
 - o Hydraulic Press Unit with controller installed.
 - o Breaking Press glovebox backfill assembly installed.

- o Primary Staging glovebox mechanical and electrical activity progressing.
- o Material Transfer System instrumentation and control installation progressing.
- o Preparation of Criticality Safety Evaluation Documents (CSEDs) had progressed to about 90% complete. Process on hold per memorandum AD-NHHO:13-060. Does not impact L2 milestone.

1.3 Issues

- None

1.4 Variance Analysis and Recovery Plan

- None

1.5 BCRs

- PSM-13-036: The BCR to add GB2 and GB3 construction to FY13 scope of work will fund construction activities previously planned for FY14 in FY13.
- PSM-13-052: The engineering development work statement associated with pyrochemical operations has been revised to provide clear definition of scope, roles and responsibilities based on recent lessons learned.

1.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F) upgrades will conflict with the (b) (7)(F) in FY13.	(b) (5), (b) (7)(F)	(b) (5), (b) (7)(F)	(b) (5), (b) (7)(F)
Use of the (b) (7)(F) may not be authorized given the need for an updated Criticality Safety Evaluation Document (CSED) for the process.	Programmatic Criticality Safety Evaluations have been placed hold per Memorandum AD-NHHO:13-060. This could impact the ability to perform welding operations using nuclear material.	This is tracked as a potential impact at a weekly AD-PSM project /program status briefing	(b) (7)(F) Upgrades will be added to priority list for pending CSEDs and tracked
(b) (7)(F)			
Analytical actinide chemistry may lose the support from other programs at LANL.	The NA-26 funded ARIES program is considering the option to transfer chemistry out of LANL. Currently the Program and ARIES are the primary funding sources for this capability. The Program has already reduced the number of samples for chemistry analysis. This potential for an ARIES elimination and Program reduction in funding could result in loss of the chemistry capability altogether for actinide samples at LANL.	1) Senior managers at LANL and LAFO are working to resolve this issue. 2) The Program could increase the amount of chemistry work beyond the minimum required to explore issues of lower importance in order to maintain this competency.	Discussions continue with Chemistry Division managers have resulted in a first pass estimate of approximately \$10M (including CMR RTBF recovery) to maintain core competencies during the next few transitional years.

1.7 Earned Value Metrics

PERFORMANCE S-CURVE

Pit Manufacturing



2.0 LANL - Power Supply

MRT 4624		GREEN	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

o

(b) (7)(F)

- Process Development
 - Continued testing of Government Furnished Equipment (GFE) in the PF-5 basement. Kansas City Plant and other equipment vendor reps (Shocktower, UD-Vibration, (b) (7)(F) Mellon Furnaces, and Thermotron) were on site this month to assist with completion of acceptance testing.
 - Continued to review process flow and travelers to identify Quality Assurance Hold Points.
 - Completed generation of analytical samples from latest shipment for continued review of process and chemical analyses readiness.
 - Developed a draft “The Road Map to Diamond Stamping” plan that will be discussed at the June 2013 PRT.
 - Discussed containers and material compatibility issues for moving liners, strength members, and fuel clads. Material compatibility for packaging will be a future PRT agenda item.

2.2 Equipment

- Radioisotope Thermoelectric Generator - Assembly & Testing Facility (RTG-ATF)
 - Continued to complete punch-list items and supporting vendor testing and calibration.
 - Completed second coat of paint in test rooms.
 - Started exterior painting.
 - Continued to complete changes to address adjustments needed in the facility as a result of vendor testing and calibration.
 - Routed the Facility Safety Plan for signature.
- The (b) (7)(F)
 - Completed the Management Self-Assessment (MSA). The assessment resulted in 4 pre-start findings, 3 post-start findings, and 2 observations.
 - Started working on closing out the identified pre-start findings.
- Analytical Chemistry glove boxes (Pu Assay and Radiochemistry)
 - Continued Zone 1 installation.
 - Continued electrical installation.
 - Started installation of Fire Skirting and Fire Foe tubing. Due to revised design requirements tubing will have to be re-engineered for installation in this glovebox.
 - Continued development of operations and maintenance procedures.
- SM-39 Development Laboratory
 - Continued to (b) (7)(F) for establishing weld parameters.
 - Started welding strength members for establishing weld parameters.
 - Continued the review of non-destructive inspection requirements and equipment status.

2.3 Issues

- None

2.4 Variance Analysis and Recovery Plan

- CPI: Spending deviated from planning basis due to addition of In-Scope scope, which required the utilization of night and overtime shifts to maintain scheduled completion dates. In-Scope scope is any design change, engineering, and/or associated construction that was added after the initial baseline design (FY11) and that was either required for facility occupancy or requested by the operating organization to meet production requirements.

There is not a cost recovery plan provided as part of this report since the additional costs themselves are the result of schedule recovery. The construction completion schedule required 13 of the 26 contingency days

recommended in the risk assessment report for project success. Challenges to the schedule were the fire protection changes, late arrival of the laser ACBs, later arrival of a chiller for the HVAC system and the Argon tank arrived late and damaged causing the need to install a temporary Argon system. The composite of these changes required the addition of night-crews from November through February and overtime added to both day and night crews in February to ensure the facility was prepared for vendor testing started in March and that the PBIs for start production and project closeout remained on track for completion by the end of the fiscal year.

2.5 BCRs

- PSM-13-020 for \$63K: This BCR includes funds specified for engineering design that was determined to be required subsequent to the baseline design to ensure the existing facility ceiling and walls met fire code.
- PSM-13-044 for \$66K: This BCR includes funds specified for painting the exterior of the facility, which was not included in the original scope of work.
- PSM-13-045 for \$92K: This BCR incorporates work scope added to accommodate the as-received GFE. Changes include providing a raceway and control conductors between the Laser Power Supply and the Laser Chiller, providing unistrut near the shock towers, and changes to the 208 VAC from a Phase 1 to a Phase 3 power source.
- PSM-13-046 for \$45K: This BCR incorporated the modifications to Heat Detectors and Fire Dampers at the request of the Fire Protection Engineer, which was not part of the original LANL design or cost estimate.
- PSM-13-048: This BCR includes funds specified for painting the entrances of the facility, adding the exterior facility sign, and repairing a bolt on an Atmosphere Control Box (ACB) that was not included in the original scope of work.

Request for Additional Information – Explanation of the BCR Table and Relationship to Baseline Budget Adjustments

- The Total Project Cost (TPC) consists of the Total Estimated Cost (TEC) in capital funds, Other Project Costs (operational funds), and management reserve and contingency in both TEC and OPC based on a documented Technical and Programmatic Risks (TPR) through LANL's Project Risk Management process. The only BCR that has raised the TPC is PSM-13-013. In accordance with the TA-55 Power Source Assembly Area Project Management Plan (Doc. No: 102492-PLAN-11-0008) contingency and management reserve will be allocated and authorized through the BCP/BCR process. The remaining BCRs have all been considered "In-Scope Scope" and have therefore been funded out of the appropriate management reserve accounts (based on BCR scope) so the TEC may have increased but the TPC has remained unchanged since PSM-13-013 at a point estimate of \$20.3M. It should also be noted that in the Class 3 Cost Estimate dated 10/18/2011, the point estimate was \$19.6M with a total estimated range of \$17.7 - \$22.6M so even with the increase of the TPC to \$20.3M the TPC is still within the original total estimated range.

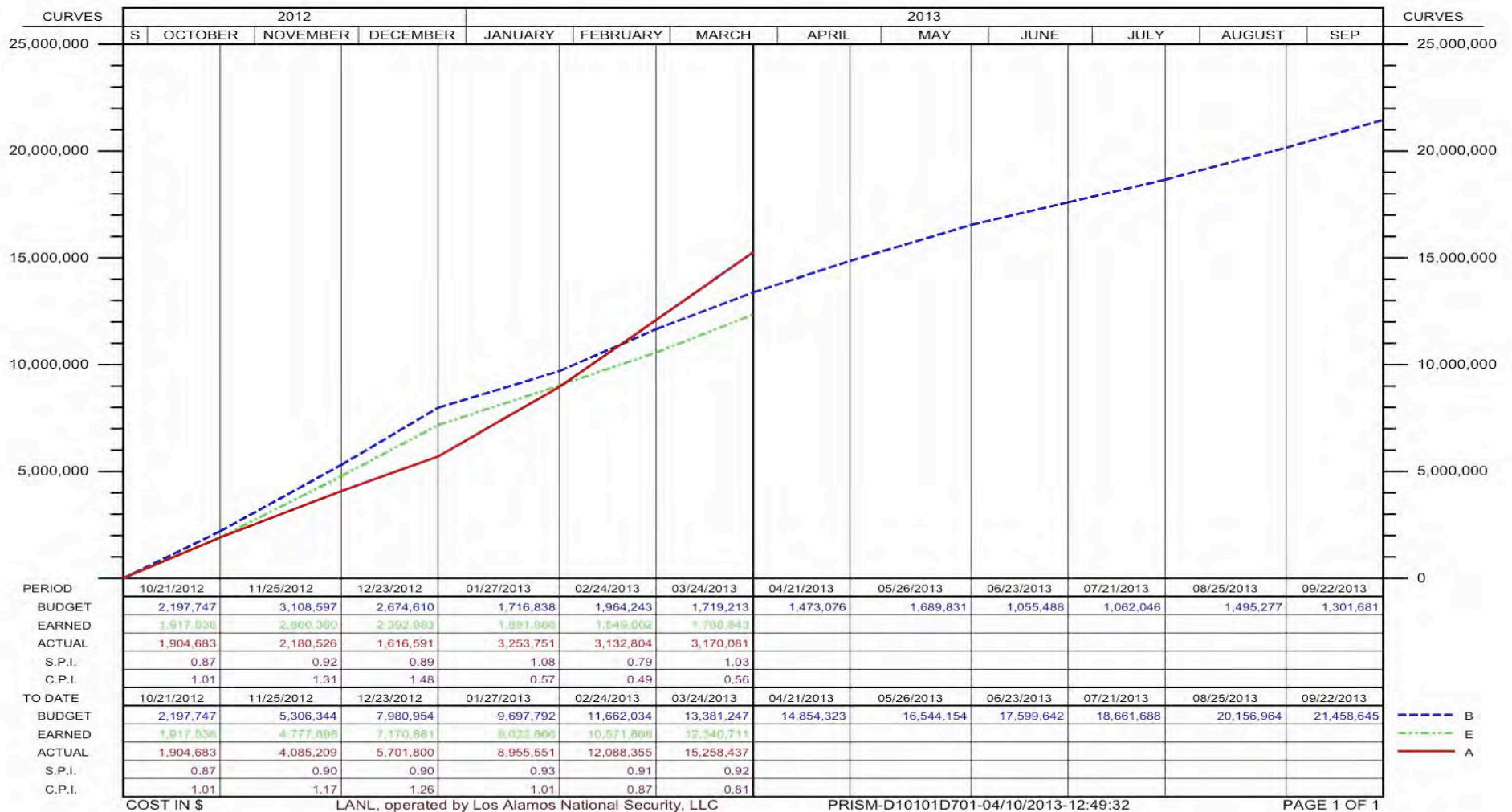
2.6 Risk Table

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 RTG manufacturing development. The plan to start hiring in FY13 for dedicated staffing will 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 RTG surveillance, NE-75, and other programs to make the best use of available staff. 2) Request LANL and LA Field Office management to allow for increase dose in staff assigned to this work. 3) Delay non-critical path activities until they become critical path for FPU.	Daily work planning meetings continue to ensure availability of staffing resources. Continued out year schedule development with Line Management to identify future strategic hires.
(b) (7)(F)	(b) (7)(F)	(b) (7)(F)	

2.7 Earned Value Metrics

PERFORMANCE S-CURVE

Reconstitution of Power Supply Manufacturing



3.0 Program Management and Support

3.1 Program Management

- Supported the Power Supply PRT Meeting in Los Alamos, NM.
- Supported the Pit IPT at Los Alamos, NM.
- Supported the Pit IPT in Livermore, CA.
- Supported the Non-Nuclear PRT in Livermore, CA.
- Continued out-year FYNSP planning for all Pu Sustainment Program elements.
- An Integrated Nuclear Planning (INP) Meeting was held on March 26th with internal participation by programs requiring PF-4 capabilities and resources. Brett Kniss presented the enduring plutonium strategy. Five year plans were presented by programs and the workshop successfully outlined strategies for PF-4 optimization and refocus with respect to CMRR-NF deferral.

3.2 Support

- Document Control, Records Management, and Training
 - A total of 127 document requests were received in March.
 - A total of 81 document action requests were completed in March.
 - Supported the MSA for Power Supplies (b) (7)(F) by providing Training and Qualification system support and providing a MSA review team member.
- Production Control
 - Continued development of Power Supply Electronic Travelers. Met to discuss potential of the RTG-ATF utilizing a wireless network with electronic data entry.
 - Provided M&TE and classified parts coordination support.
 - Continued to provide shop floor control and daily schedule status to Enduring Stockpile and Power Supply projects.
- Maintenance
 - Corrective Maintenance: Worked on electrical replacements, several process repairs, and Dry Vacuum system.
 - Preventative Maintenance: Completed preventative maintenance on six systems.
 - Work Management & Control: Continued to collect specific history and determine how to view, report, and analyze. Worked on Auto-Cad installation issues (supports Configuration Management plans) and provided procurement engineering support.
- Calibration
 - Perform Monthly Calibrations: The Standards & Calibration Laboratory (S&CL) has calibrated approximately 155 Pu Sustainment items through March 29th.
 - Customer Liaison Support: The S&CL continued working with the dimensional inspection team at TA-55 to develop a process for re-certifying surface roughness measurement systems in glove boxes that most benefits the Laboratory in regards to minimizing waste and maximizing the useful life of surface roughness M&TE.
- Warehousing and Procurement
 - Continued to effectively procure and manage material for multiple Pu Sustainment projects (ER, Pu Assay and Radio Chemistry, Foundry cold testing and Foundry Vacuum upgrades, and (b) (7)(F) upgrades.)

- o The NPI-8 procurement team successfully processed over 230 procurement requests for TA-55 in March and was able to work through the period without the development of a substantial (> 1 week) and permanent backlog.
- o The NPI-8 procurement POC is attending weekly meetings and working with ASM to manage the FY13 PADWP Procurement Forecast list for ADPSM.

3.3 Issues

- None

3.4 Variance Analysis and Recovery Plan

- None

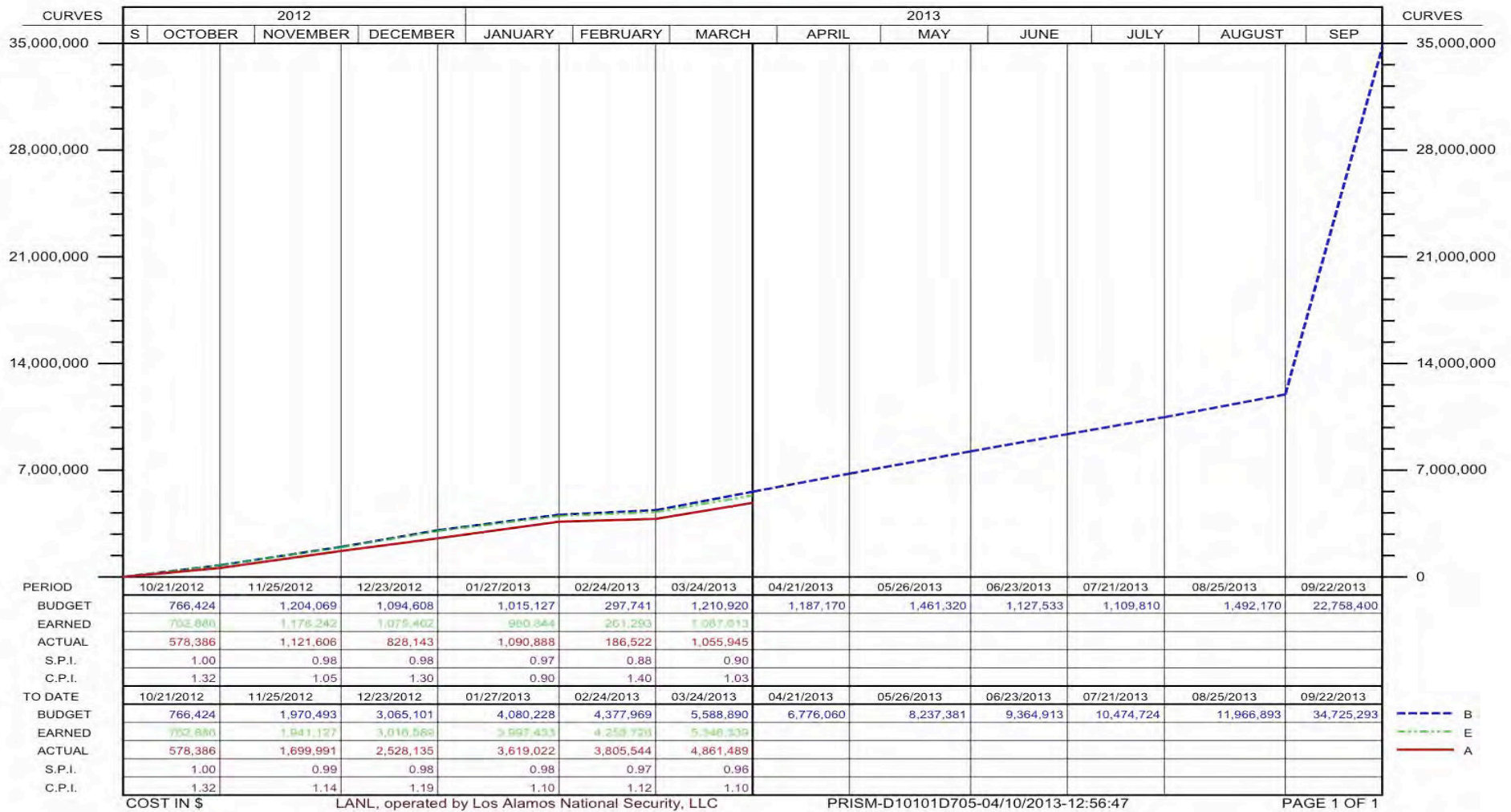
3.5 BCRs

- None

3.6 Earned Value Metrics

PERFORMANCE S-CURVE

Program Office



4.0 Facilities, Waste and Institutional Support

4.1 Technical Progress

- AD-NHHO:13-079 March 2013 Progress Report on PF-4 Seismic/Structural Analyses and Facility Upgrades Transmitted to NA-00-LA.
- The TA55 warehouse team made considerable progress in cleaning out the PF-5 space savers.
- Rooms 210 and Mezzanine 503 were cleaned out. All removable items were dispositioned with the support of the low-level waste team.

4.2 Equipment

- The Liquid Nitrogen fill station has been returned to service with seven new 160L dewars in the basement by the fill station for use.

4.3 Issues

- None

4.4 Variance Analysis and Recovery Plan

- None

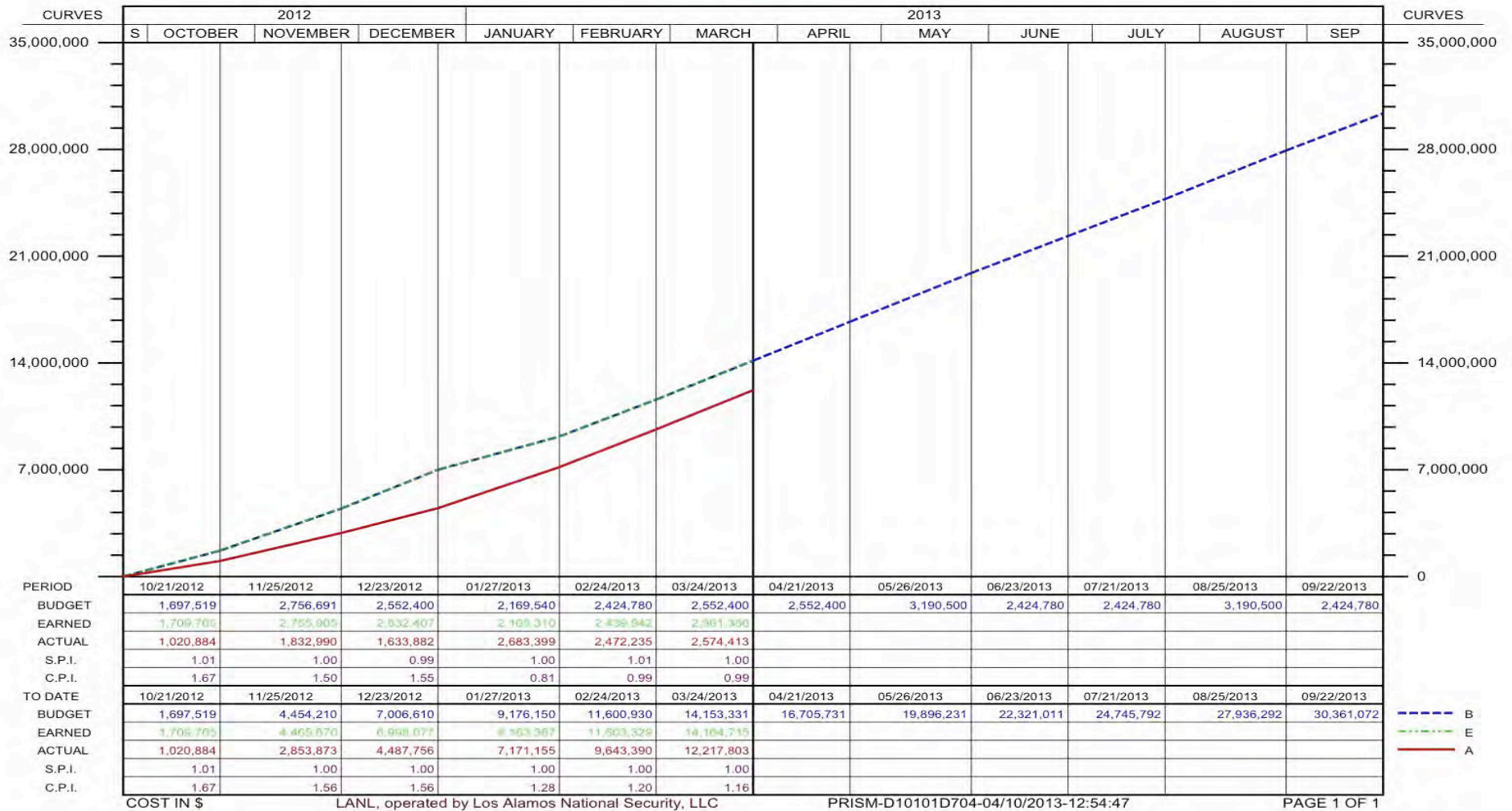
4.5 BCRs

- None

4.6 Earned Value Metrics

PERFORMANCE S-CURVE

Facility Infrastructure



COST IN \$

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5.0 LLNL

MRT 4749		GREEN	Perform Activities to Enable Plutonium Sustainment Goals		
1. (b) (7)(F)					
2. In coordination with LANL PA, maintain (b) (7)(F) measuring device for process qualification					
3. (b) (7)(F)					
4. (b) (7)(F)					
5. (b) (7)(F)					
L2/L3 Milestone	Baseline Date	Status/Comments	Completion Date	RGYB	
(b) (7)(F)	9/30/2013	Complete	February 2013	BLUE	
(b) (7)(F)	7/30/2013	Testing and analysis of samples continued		GREEN	
Complete (b) (7)(F)	3/31/2013	Complete	March 2013	BLUE	
Initiate readiness review for compatibility tests	9/30/2013	Still evaluating location and cost for tests. Initiating a review in FY13 unlikely.		YELLOW	
(b) (7)(F)					
Complete initial demonstration of purification and recovery of desired materials	6/30/2013	Awaiting NNSA approval for equipment installation		GREEN	
(b) (7)(F)	12/31/2012	Complete	November 2012	BLUE	
In conjunction with LANL PA, complete (b) (7)(F)	9/30/2013	Currently scheduled as fourth build		GREEN	

5.1 Technical Progress

- ☐ The (b) (7)(F) were completed in March.
- ☐ (b) (7)(F)
- ☐ Y-12 Contractor informed program that MD-2 shipping packages will not be available until at least early FY14 due to manufacturing specification issues. This is make receipt of special item from NNSS not possible this year.
- ☐ Livermore Field Office (LFO) review of the MD-2 Shipping Package procedure is complete, and the procedure is being processed through the LLNL Information Management system before being transmitted to Office of Packaging and Transportation. Work began on inspecting and repairing, as necessary, Cargo Restraint Transports (CRTs) prior to shipment to NNSS. The forklift attachment for lifting the MD-2 shipping package has been delivered to NNSS.
- ☐ Blending and fabrication of test specimens continued for the updating the W87 material specification.

5.2 Equipment

- ☐ None

5.3 Issues

- ☐ We have been informed that LANL does not have funding to support the compatibility testing and thus proceeding with the readiness review is not likely this FY.

5.4 Variance Analysis and Recovery Plan

- None

5.5 BCRs

- None

5.6 Risk Table

Work	Description	Handling Strategy	Status
(b) (7)(F)			
(b) (7)(F)	Design incompatible with LANL welding and assembly hardware	Adjust design or provide equipment fixtures as needed	(b) (5)
(b) (7)(F)	Fabrication of initial components to support PF-4 schedule for placing required equipment out of service	Expedite either commercial or LLNL fabrication of components and delivery to LANL	(b) (5)

5.7 Earned Value Metrics

PERFORMANCE S-CURVE LLNL

