

22 November 2011

PU-PPPL Corrective Action Plan

This document is the PU-PPPL corrective action plan submitted in response to the Department of Energy/Office of Science OPA Earned Value Management System (EVMS) of the PU-PPPL EVMS conducted on October 4-6, 2011, at the Princeton Plasma Physics Laboratory.

If further information is required, please contact Ron Strykowski at rstrykow@pppl.gov

CAR-01: Acceleration of schedule and added scope without formal baseline change

Recommendation: Summary, the NSTX project received authorization to perform and accelerate work and procurements from DOE and elected to authorize the CAMs to execute the work without formal change control which is intended to provide a mechanism to document baseline changes, authorize the execution of the work and provide for a performance measurement baseline for the NSTX project to accurately measure performance and forecast project trends.

- The project should measure against a realistic baseline,
- Project is managing to an accelerated schedule not baseline,
- Follow formal change control processes and procedures,
- Document changes to the performance baseline,







Response: Agreed.

Action plan;

1. Near term. The NSTX-U project has submitted an Engineering Change Proposal (ECP) to change the performance measurement baseline to reflect the DOE-OFES approval to accelerate selected tasks and was approved by the FPD on November 10, 2011. This ECP documents OFES authorization to proceed with critical path/high value procurements and begin select outage removal tasks in advance of receiving CD-3 approval.

STATUS: Complete

EVIDENCE DOCUMENTATION ATTACHED

 CAR_1_111107 ACC TASK SCHED	11/22/2011 10:03 AM	PDF File	23 KB
 CAR_1_Accel_Email	11/22/2011 10:03 AM	PDF File	32 KB
 CAR_1_CCB ECP004	11/22/2011 10:03 AM	PDF File	39 KB
 CAR_1_ECP004 P3SCHEDAFTER	11/22/2011 10:03 AM	PDF File	230 KB
 CAR_1_ECP004_Cobra_after	11/22/2011 10:03 AM	PDF File	242 KB
 CAR_1_NSTXU ECP-004 11_07_11	11/22/2011 10:04 AM	PDF File	557 KB

2. The entire performance measurement baseline (PMB) will be assessed in concert with DOE-PSO and DOE-OFES mid fiscal year once the following prerequisites are met:
 - CD-3 approval received (January 2012 target);
 - Fiscal 2012 funding received and reconciled with other NSTX Program (non-project) objective;s;
 - A reasonable and achievable accelerated plan is prepared that provides:
 - Adequate contingency set-aside;
 - Detailed accelerated procurement planning including identification of risk and availability of procurement staff to support the plan, and;
 - Critical skills resource leveling.
 - The decision to change the PMB will be approved by DOE-PSO and DOE-OFES.

CAR-02: Variance Analysis Reports (VARs) must be written at the Control Account Level as a minimum.**Recommendation:**

1. *That PPPL establish a consistent control account level based on the WBS (Level 4 or Lower) and ensure that analysis is prepared at that level, with reference to the appropriate WBS element on CPR Form 5, such that their managers and others impacted by the control account can understand the variance root cause, associated impacts on project scope, schedule, and budget, and the corrective action plan.*
2. *That the EVMS System Description and other necessary documentation include VAR examples that show a well written VAR that describes variance root cause associated impacts on scope, schedule, and budget and corrective action plan.*
3. *That PPPL develop a procedure for preparing variance analyses to ensure consistency across the project.*
4. *That the upper WBS Level 2 SV/CV variance analysis thresholds be lowered to +15% and that the thresholds be rewritten to change "and" to "or", i.e., SV +15% or -10% OR >\$50K and >10% of BAC or any impact on a DOE Level 1 or 2 Milestone and CV +15% or -10% OR >\$50K and >10% of BAC.*

Response:

1. Agreed. When a WBS Level II variance threshold is triggered a variance analysis report will be written at the control account level. Target: In place;
2. Agreed. The PPPL Project Management System Description (PMSD), section 2.3.2 on Variance Analysis, will be updated to indicate that "when a variance threshold is triggered the variance analysis report must be written at the control account level". Target January 2012;
3. Agreed. A procedure will be prepared to demonstrate the proper method for preparing a variance analysis report. Target: January 2012;
4. Agreed. An updated PEP will be submitted for DOE approval with the following thresholds:
 - a. SV +15% or -10% or > \$50K and > 10% of BAC or any impact on any DOE Level 1 or 2 Milestone;
 - b. CV +15% or -10% or > \$50K and > 10% of BAC.

CAR-03: Schedule Integrity

Recommendation: *Schedule logic and excessive constraints degrades the integrity of the schedule and critical path. In summary, the NSTX project schedule needs to be reviewed for schedule integrity. Schedule integrity is necessary in order to ensure the schedule accurately represents the project activity sequence, the correct forecast of schedule start and finish dates for all activities, milestones, and project early start finish dates. A review of all activities and logic will ensure that the project schedule provides an effective and valuable management tool for assessing and analyzing schedule progress; and will ensure that the project schedule represents the true critical path and near critical activities to assist project management in effectively managing the project schedule.*

Response: Agreed. Accuracy and completeness of the project's master schedule is necessary to ensure correct and timely information to all levels of the project team. The Project's Master Resource Loaded schedule is the key document used for performance measurement, milestones and lower level working schedules. This master schedule is statused each month during a group meeting consisting of the CAM, Project Manager, Project Controls, CSU and NBI Managers, and Associate Director for Engineering and Infrastructure. As well as reviewing each task for progress, the CAM and Project Controls manager validate the logical sequences of tasks and add additional links if warranted. Furthermore, criticality of each task is noted by reviewing the total float value remaining on each task. To ensure work is prioritized properly, logically linked and consistent with budgetary guidance the project control office performs QC checks to ensure all ECP's are properly included, and that there are no unexplained hanging ends, unnecessary constraints or tasks without predecessors.

In addition to the master schedule the project also makes use of more detailed planning documents as shown below. Schedule dates for these documents are derived from the master project schedule.

Additional planning documents:

- A) Project Critical Path
The project's critical path is generated from Primavera by filtering tasks with float values of zero or less. (See attached CAR_3_Critical_Path).
- B) Critical Activities List
The purpose of this document is to provide visibility into tasks which are within 3 months of the critical path. This identifies opportunities for acceleration should additional funds become available. (See attached CAR_3_Critical_Activities_Schedule).
- C) 4 week look ahead
Used to access progress of near term tasks each week at the weekly project team meeting. (See CAR_3_Four_week_lookahead).
- D) Procurement Schedule
Identifies all procurement actions, the source (i.e., purchase order, subcontract, in-house fabrication, blanket purchase agreement, credit card, etc), and tracking log through the procurement process. (See CAR_3_Procurement_Schedule).
- E) Work Request List
A detailed listing of parts and drawings for critical parts. (See CAR_3_Work_request_list).
- F) PPPL Rollover Schedule
The purpose of this document is to ensure that project needs are integrated with PPPL planned maintenance and infrastructure schedules. (See CAR_3_PPPL_Rollover_schedule).

CAR-04: Inconsistent identification and application of LOE vs. Discrete across control accounts.

Recommendation: *The Committee recommends that policies and procedures be documented and enforced to require ALL CAMs to use the LOE EV method for their Project Management non-measurable activities and not simply let PM be absorbed in the overall discrete method used – or not accounted for at all. The issue is not one of too much LOE or not defining LOE accurately; it is that lack of consistency across the CAM's in either using LOE or not and how it is measured. The recommendation of this CAR is to have PPPL focus on a consistent and documented approach that is enforced across all control accounts by all CAMs.*

Response:

Agreed. Each of the work packages that are identified in the PMB will be reviewed to determine if level-of-effort (LOE) scope is inadvertently included in a work package that is identified as using discrete effort for EV technique. If instances are found where LOE and discrete scope is included in a work package an ECP will be generated to separate the LOE work from the discrete work so that the EV technique applied to the work package is appropriate. As a best practice the amount of LOE work included in a control account that is dominated by work packages that use discrete effort for EV technique is kept to a minimum (<15%) so as not to mask variances. Target: January 2012.