



Closeout Presentations

Director's/DOE FSO's

Earned Value Management System
(EVMS) Review

of

the DECam Project

December 18-19, 2007

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Executive Summary

The DECam project has satisfactorily implemented the bulk of the elements required for a “self-certified” EVMS. In general, the elements of the system that are lacking can be made compliant via straightforward administrative actions to formally capture existing processes in the system description and clarify others to more clearly describe noteworthy practices. Additionally, existing system capabilities, such as producing EAC’s, need to be applied to project activities in order to have robust, fully compliant system. Lastly, the project would greatly benefit by freezing their baseline in the near future and begin operating under formal change control prior to receiving CD-2 as a means of exercising the system and providing the project team with a clear understanding of those constraints.

The performance management system consists of the software tools, Earned Value Management System (EVMS) descriptions, project management documents, and many processes which satisfy DOE Order 413.3A, DOE Manual 413.3-1 requirements, and the ANSI/EIA 748-A-1998 objectives. The financial aspects of the system are currently being fully and successfully exercised, and applied to project activities. The committee interviewed all seven DECam Control Account Managers (CAMs) and found that while their level of knowledge varied on earned value and the DECam EVMS Implementation Plan, the level of knowledge was generally appropriate for the DECam project. The CAMs demonstrated ownership of their work breakdown structure (WBS) scope, schedule and budget, and had a good understanding of their roles and responsibilities. Some training on change control and associated processes will enhance the CAMs ability to fully understand and benefit from this system.

The DECam project team has successfully addressed performance measurement issues associated with project effort performed by non-FNAL organizations, whether funded via FNAL, or effort performed “in-kind”. Such effort funded by FNAL includes direction to those organizations via MOU’s on reporting requirements necessary to support earned value reporting. “In-kind” effort, while not reflected in the project TPC, is identified in the schedule, with appropriate logic ties, and a process for identifying the status of those activities is in place.

On a broader note, because the FRA “site-wide” EVMS description, with supporting documentation is not yet in place, smaller projects such as DECam are forced to develop their own plans. While it is intended that the DECam EVMS be consistent with the future “site-wide” system, there will undoubtedly be discrepancies when the site-wide system is finally in place. Additionally, expending the effort to complete a site-wide EVMS with supporting documentation would seem much more efficient than having individual project prepare such documentation. Lastly, developing and implementing a site-wide EVMS would better emphasize and support the project management culture necessary for successful execution of projects at FNAL.

Finally, to verify complete and successful EVMS implementation, a follow up EVMS review similar to this review, should be conducted approximately three months following CD-2 approval to validate implementation of recommendations identified.

1.0 Introduction

A Fermilab Director's and Department of Energy Fermi Site Office's Earned Value Management System Review of the DECam Project was held on December 18-19, 2007. The charge included a list of topics and questions to be addressed as part of the review. The assessment of the Review Committee is documented in the body of this closeout presentation.

Each section in this closeout presentation is generally organized by Findings, Comments and Recommendations. Findings are statements of fact that summarize noteworthy information presented during the review. The Comments are judgment statements about the facts presented during the review and are based on reviewers' experience and expertise. The comments are to be evaluated by the project team and actions taken as deemed appropriate. Recommendations are statements of actions that should be addressed by the project team. A response to the recommendations is expected prior to the DOE/NSF Review of DES scheduled for January 29-31, 2008 and actions taken will be reported on during future Working Group Meetings and reviews.

2.0 Management

Primary Writer: Elaine McCluskey

Contributors: Tim Barr, Ed Temple

Findings

- The DECam project has a comprehensive work breakdown structure that includes all project work scope.
- The project scheduling (MS Project) and project controls (COBRA) tools are capable of providing earned value and actual cost data.
- The project is producing monthly status reports, including a narrative and cost performance reporting.
- CAMs are aware that a change control process exists and that it will be implemented when the project is baselined.
- The project is not calculating estimates at completion and reporting these as part of their cost performance reporting.
- The project plans to analyze variances between planned and actual schedule and cost and report on them on a monthly basis, but does not have variance thresholds documented at this time.
- EVMS implementation is described in the DECam EVMS Implementation Plan. The CAMs were familiar with how this is to be implemented.

Comments

- The scheduling tool is being used for in-kind activities including resource loading and planning, even though these are at zero cost, a good management practice.
- The project financial officer is commended for producing very useful monthly cost performance reports separating M&S and labor for more effective analysis.
- The project CAMs should include producing up-to-date estimates to complete as part of the statusing process; or at least make management aware of impending changes and that these are documented in the monthly progress report.
- CAMS do not have a clear understanding of the change control process and thresholds, which will be utilized after freezing the schedule.
- The project intends to use DocDB signoffs for controlled project documents as part of its configuration management process, but has yet to implement it.

Recommendations

1. "DECam Performance EVMS Implementation Plan" document needs to be identified as a controlled document, approved and put under configuration control before the DOE/NSF Review of DES at the end of January.
2. Make Estimates at Completion (EAC) a part of the regular monthly cost performance reporting. In addition, a comprehensive bottoms-up EAC should be periodically performed, at least annually.
3. The CAM's should undergo brief training on change management to ensure proper procedures will be followed after baselining.
4. The project should freeze the schedule several weeks before the DOE/NSF Review of DES in order to implement change control and fully exercise the EVMS process.
5. The EVMS Implementation plan should address
 - Variance analysis, including thresholds for monthly reporting of performance indicator variances and how related corrective actions will be addressed. These thresholds need to be negotiated with the Federal Project Director.
 - Ability to manage project contingency in the event of cost savings.
 - The process to perform an annual EAC.

3.0 Schedule

Primary Writer: Fran Clark

Contributors: Dean Hoffer, Jeff Sims

Findings

- The Level 2 managers all have a good working knowledge of the scheduling tool.
- Schedule is linked sufficiently between L2 WBS elements.
- Task durations, dictionaries, and BOE/resource loading are well documented in the MSP schedule notes field.

Comments

- Schedule is in good shape; freezing the schedule should be done as soon as possible.
- Formal Work Authorization documents have not been completed.

Recommendations

6. Completion of Work Authorization documents is necessary prior to the DOE review in order to be in compliance. These documents are produced at the cost account level and include a signed agreement between the project manager and the cost account manager stating the scope of work, budget for each cost account, and the start date and completion date for each cost account. Recommended supplemental information includes a copy of the schedule after freezing formatted with appropriate columns and a total-cost table from COBRA can be attached to the signature page.

4.0 Earned Value

Primary Writer: Steve Neus

Contributors: Fran Clark, Elaine McCluskey

Findings

- The DECam project is capable of providing earned value data via the project schedule and the financial information system through COBRA.
- The DECam project uses appropriate performance measuring techniques (PMT). The L2 managers use 0-100%, 50%-50%, % complete, and Level of Effort. Primarily they use % complete to determine performance for tasks longer than four weeks.
- Some of the L2 managers have better defined and documented criteria for determining the % complete than others. The WBS 1.5 control account manager has a good description in DocDB of how % complete is applied to his tasks. The L2 managers are very good at reporting the PMT data, which is fed into the schedule.
- The PMT data and schedule are linked to the Laboratory accounting system in COBRA. Cost accounts, work packages, budgeted resources, and PMTs are maintained in COBRA at the work package level to produce a monthly cost performance report.

Comments

- The DECam good practice of statusing the schedule of “in kind” effort should be described in the EVMS Implementation Plan.

Recommendations

7. % complete PMTs needs to document specific deliverables at set points or steps. For example, the PMT definition for WBS 1.4.4.2 Design of Prototype Cell, could identify a deliverable for a 30% design (x number of drawings), 60% design (x number of drawings), 90% design (x number of drawings), and delivered prototype.

5.0 Charge Questions

5.1 Is the system effectively documented?

Yes, if the recommendations from this review are implemented

5.2 Will the system produce timely and accurate reports in a readable and meaningful format?

A process is in place that will produce both standard and manager-defined performance reports. Examples of these reports were shown to the committee. For compliance purposes, the CPR should include Estimate at Completion/Variance at Completion columns. Monthly reports were provided to the committee, but it was noted that they did not include a variance analysis section.

5.3 Will the system satisfy Fermilab's and DOE's information needs?

Yes the team believes the EVMS Implementation Plan will satisfy Fermilab's and DOE's information needs if they follow the above recommendations.

5.4 Are the relevant personnel adequately knowledgeable about operation of the system and do they make use of the information?

Some of the CAMs were not yet familiar with how the EVMS will operate once the project is baselined and MIE activities are authorized. DECAM has been "trying out" this process on the R&D funded activities for about 3 months, but has not yet implemented their change control process as documented in the DECAM Configuration Management Plan, the Project Management Plan, and the Project Execution Plan.

5.5 Does the DECAM Project meet the objectives of the ANSI/EIA-748-A-1998 EVMS Guidelines under the:

a. Organization category?

I-1 The review committee believes the project complies with the criteria.

I-2 The review committee believes the project complies with the criteria.

I-3 The review committee believes the project will be in compliance with the criteria once a formal work authorization process has been put in place.

I-4 The review committee believes the project will be in compliance with the criteria, when the issue of how to control indirect costs from collaborating institutions is addressed.

I-5 The review committee believes the project is in compliance with the criteria.

b. Planning, Scheduling and Budgeting category?

2-1 The review committee believes the project complies with this criteria.

2-2 The review committee believes the project complies with this criteria.

2-3 It is the committee's understanding that FNAL does not use planning packages. The description should contain a statement to this effect.

2-4 The review committee believes the project complies with this criteria. However, the review committee believes the response to the criteria was inappropriate because budgets are established in the schedule and cost modules. This criteria does not relate to the opening of cost accounts in the financial system.

2-5 The review committee believes the project complies with this criteria.

2-6 The review committee believes the project complies with this criteria. However, the review committee believes the response to the criteria was inappropriate because the schedule does not burden or escalate values. COBRA should be used to sum budgets.

2-7 The review committee believes the project complies with this criteria.

2-8 The review committee believes the project complies with this criteria.

2-9 The review committee believes the project complies with this criteria. The description should indicate that FNAL does not maintain management reserves and undistributed budget. Contingency values should be identified in the CPR.

2-10 The review committee believes the project complies with this criteria. This should be done in the CPR, where the $BAC + contingency = TPC$.

c. Accounting Considerations category?

3-1 The Review Committee believes the project complies with this criteria.

3-2 The Review Committee believes the project complies with this criteria.

3-3 The Review Committee believes the project complies with this criteria, but disagrees with the response from the project because FRA is the contractor.

3-4 The Review Committee believes the project complies with this criteria.

3-5 The Review Committee believes the project complies with this criteria.

3-6 The Review Committee believes the project complies with this criteria.

d. Analysis and Management Reports category?

4-1 The review committee believes the project complies with the criteria.

4-2 The review committee believes the project will comply with the criteria when variance thresholds are established and variance analysis is documented.

4-3 The review committee believes the project complies with the criteria.

4-4 The review committee believes the project complies with the criteria.

4-5 The review committee believes the project complies with the criteria.

e. Revisions and Data Maintenance category?

5-1 through 5-5. In their DECam document labeled “Earned Value Management Systems 32 Criteria,” that documents how they meet the criteria there is a consistent description of the Revisions and Data Maintenance plans for operation once the project is baselined. When change control and configuration control processes are implemented, the system will meet the ANSI / EIA 748 criteria for DECam.

5.6 Does the proposed performance management system meet current DOE Earned Value Management System (EVMS) assessment and reporting requirements?

While the DECam project has satisfactorily implemented the bulk of the elements required for a “certified” EVMS, the system does not currently meet DOE EVMS assessment and reporting requirements. In general, the elements of the system that are lacking can likely be made compliant prior to the current timeframe for achieving CD-2.