

Earned Value Management Systems Mock Validation Review



Observations & Recommendations
from a Review of the NOvA Project at
The Fermi National Accelerator Laboratory

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By-

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Agenda

- Scope & Objectives of the Assessment
- Who We Interviewed
- Observations, Findings and Recommendations

Scope & Objectives

- *Assess the conformance* of with the EVMS guidelines as outlined in ANSI/EIA 748A
- *Identify gaps* in conformance with the EVMS standard
- *Identify best practices* already in place
- *Identify opportunities* for project management enhancements
- *Assess readiness to undergo* EVMS Certification

Assessment Approach

- Conduct interviews with key project management personnel and technical/functional contributors
- Review of the implementation of EVMS on the NOvA Project
- Review the project documentation to include any project management related procedures, guides and information flows

21 Personnel Interviewed

■ Directorate

- Peter Garbincius
- Steve Holmes
- Greg Bock
- Roger Dixon
- Cynthia Conger
- Mike Rhoades
- Connee Trimby

■ Support

- Bill Freeman
- Suzanne Saxer
- Bob Cibic

• Control Account Managers

- John Cooper
- Carl Bromberg
- Paul Derwent
- Steve Dixon
- Ken Heller
- Ioanis Kourbanis
- Pat Lukens
- Mike Martens
- Leon Mualem
- Stuart Mufson
- Rich Talaga

Analysis Framework



Some Observed “Best Practices”

- Oversight by the Project Management Group [PMG] is a sign of executive support for the EVMS.
- Acceptance of the role of members of the technical community as CAMs.
- NOvA uses a formal work authorization [WAD] process at the Control Account level.
- The electronic CAM Notebook.
- EVMS Surveillance owned by the Office of Quality and Best Practices.
- Conceptually the accrual accounting approach used on NOvA is sound.

Observations & Findings by...

- EVMS Documentation
- People & Culture
- Systems & Tools
- ANSI Guideline Categories

Observations: Documentation

- The **EVMS System Description**, while for the most part, technically sound, is more generic than the OECM team is used to seeing. If supported by sufficiently detailed operating procedures, this should not be a problem.
- However, the **Project Management Procedures** tend to be policy oriented [“we shall do this”] as opposed to describing the step-by-step process that is used.
- A procedure describing the ETC/EAC process must be developed.
- **Desk-top procedures** to cover a range of activities should be developed.

Note: A separate deliverable provides comments/observation regarding the SD and individual procedures.

Observations: People & Culture

- The Project Management Group [PMG] is a way of life at FNAL.
- The degree of integration of other institutions into the project execution team is unique.
- The Project Controls function is under-staffed for a project of this size.
- FNAL should consider centralizing the project controls function to promote consistency, training, internal consulting capability, etc.

Observations: Systems/Tools

- The tools are capable of supporting an EVMS certification (OpenPlan[®] & Cobra[®]).
- Project Accounting practices for labor varies [hours versus % of time] and **may** affect the accuracy of ACWP for EVMS.

Findings by ANSI Guideline Categories

- Organization
- Planning, Budgeting and Scheduling
- Accounting Considerations
- Analysis and Management Reports
- Revisions and Data Maintenance

Organization

- Control Account appear to be manageable elements of the work and should not be cause for concern.
- WADs are not updated as a routine change control process
- Below the Control Account, referring to “cost account” as “work packages” is causing confusion.
- One alternative is to raise the level of the WP to what has traditionally been called a “cost account,” collect ACWP at that level and use the completion of significant activities as the EV milestones. BCWS would be established at the WP level from a roll-up of OPP activities. Benefits would include the availability of ACWP for natural groupings of activities [new WP] and a reduction of the use of the % complete technique.

Planning, Scheduling, and Budgeting

- The Project Management CA BCWS is inconsistent with project completion date in the baseline schedule.
- Using a single EV technique for WPs with multiple elements of cost may distort schedule and cost variances.
- Linear BCWS tends to distort variances
- Percent complete basis often unsupported

Planning, Scheduling, and Budgeting

- Lack of use of the Planning Package concept may cause extra work during change control.
- No “Control Account Plan” evident.
- Recommend not including Apportioned Effort if you don’t intend on using it.
- Isolated cases:
 - BCWS planned differently from expected ACWP
- Suggest that before the OECM review that the schedule be evaluated for consistency with scheduling “best practices.”

Accounting Considerations

- Lack of appropriate accruals was cited as the cause of several variances for October performance.
- No documented procedure for the accrual process for material or services.
- Planning and control of indirect costs should not be the source of problems.

Analysis and Management Reports

- For the stage of maturity on NOvA, the VARs demonstrate well above industry average understanding by the CAMs.
- EV Progress assessments are sometimes suspect:
 - Undocumented basis for % complete
 - Isolated examples of % complete based on ACWP/Budget
- System generated EAC will be found to be unacceptable.
- Variance thresholds for current period and cumulative are sufficient .The three month moving average basis for variance analysis should be discarded.

Analysis and Management Reports

- In our opinion the VAR threshold are too forgiving [loose] and are applied for both internal and external reporting. Consider tighter threshold for internal reporting so that corrective actions will obviate significant variances at the customer reporting level.
- Adding a dollar value expression to the thresholds will be beneficial.
- No corrective action log was evident.
- CAMs lack sufficient reports from Cobra.

Revisions and Data Maintenance

- WADs not updated as a routine part of the change control process.
- No project budget baseline logs were evident.
- Change Control Log does not identify remaining Contingency balance.

Conclusions

- FNAL should seriously consider a date for the EVMS Validation Review in the May-July period as opposed to March.
- There is likely to be some degree of re-baselining once the CR is over. It would be beneficial to have 2-3 months of EV data from that point in order to support a successful review.
- Regardless of when the review occurs, remember that it's not a pass/fail exercise, there will be findings and Corrective Action Requests

The Way Forward...SM&A Recommendations

■ Scale:

- 1 - Must do
- 2 - Should do to reduce risk
- 3 - Nice to do, but can be deferred

The Way Forward...SM&A Recommendations

- 1a – Develop a procedure for ETC/EAC updates and adjust Cobra accordingly.
- 1a – Develop Accrual procedure covering both material and services.
- 1a - Re-visit the development of the PMB
 - Phasing of BCWS
 - Selection of PMT
 - Basis for % complete
 - Potential use of Planning packages
- 1a - Develop logs:
 - Budget baseline & Contingency balances
 - Corrective Actions resulting from VAR process
- 1a – Provide CAMs with reports that will enhance their insights into schedule and cost performance.

The Way Forward...SM&A Recommendations

- 1a - Settle on the definition of the Work Package
- 1a- Provide CAM training relative to any changes to process, tools, forms, reports, etc.
- 1b – Agree on the elements of a Control Account Plan and make sure there is one for each CA.
- 1b – Re-visit the PM procedures and define steps and responsibilities [a detailed flow would add value]
- 1b – Conduct a “best practices” review of the project schedule.

The Way Forward...SM&A Recommendations

- 2 – Re-evaluate the thresholds for variance analysis.
- 2 - Evaluate the potential for time reporting in hours to each project charge number.
- 2 - Consider whether or not the Project Control staff is adequate.

- 3 – Centralize the Project Control functions

Thank You!

Questions?