

SUBJECT:	EVMS Annual Surveillance Plan	NUMBER:	11-IA-QA-006
RESPONSIBILITY:	Head, Office of Quality and Best Practices	REVISION:	A001
APPROVED BY:	EVMS Officer	EFFECTIVE:	02/18/2011

**Fermilab
Earned Value Management System (EVMS)
Annual Surveillance Plan**

March 7, 8, 9, 2011

DRAFT

February, 2010

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1. EVMS SURVEILLANCE PLAN OVERVIEW

Fermilab management maintains an effective and efficient EVMS which includes ensuring that projects with a TPC over \$20 million or projects where EVMS is deemed appropriate, conduct Self-Assessments of continuing compliance with the EVMS requirements. Fermilab continuously improves this EVMS process using the most current management techniques and processes to manage projects most efficiently. This review plan summarizes the approach to be used to complete the 2011 surveillance of the Fermilab certified EVM system to be conducted in March 2011.

2. SURVEILLANCE OVERVIEW

Surveillance is the process of reviewing the implementation and use of the Earned Value Management System (EVMS) process to one or more programs or projects. The purpose of this surveillance is to focus on using EVMS effectively to monitor and manage cost, schedule, and technical performance. An effective surveillance process provides assessment, training, and mentoring of the EVMS process so that the elements of the process are maintained over time and on subsequent applications. Through the process of surveillance, successful practices will be shared as part of the continuous improvement process.

3. OBJECTIVES OF REVIEW

The goal of this EVM system surveillance is twofold. First, it ensures that processes and procedures are being followed appropriately. Second, it confirms that processes and procedures continue to satisfy the guidelines in the American National Standards Institute/Electronic Industry Alliance's (ANSI/EIA) 748-A Standard for Earned Value Management Systems.

An overview of the surveillance process includes a review of each of the ANSI guideline categories:

- 1 Organization
- 2 Planning
- 3 Execution
- 4 Results
- 5 Management control and corrective action

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4. SCOPE OF REVIEW

The attached table lists all projects at that may be required to comply with EVMS criteria either now or in the future. For purposes of the December 2010 self assessment review, the criteria for a project within the scope of this review is:

- 1) Total Project Cost is \$20 Million or greater, and
- 2) The project has an approved CD-2 cost/schedule baseline.

There is one project which currently fit this criteria and is required to comply with the FRA Earned Value Management System, and therefore will be the selected as part of the system surveillance plan. The project to be reviewed is the NOVA project.

5. SURVEILLANCE MEMBERSHIP

Surveillance membership consists of FRA and non-FRA staff to ensure independence of the surveillance process; none of the team members are associated with the NOVA project, which is being assessed. Individuals participating in the 2011 annual EVMS surveillance review include the following:

Team Leader

- Cathy Lavelle – Brookhaven National Laboratory NSLS-II Project Controls Manager

Team Participants

- Julia Chaffin – SLAC – SLAC Project Controls
- Jennifer Fortner – Argonne National Laboratory – Project Controls
- Robert Kennedy – Fermilab - Project Manager
- Thomas King – URS at FNAL – Senior Project Quality Engineer (Facilitator)
- Rich Stanek – Fermilab – Engineer V

6. PROCESS AND GUIDELINE SELECTION

All aspects of EVM will be considered during this system surveillance. A comprehensive surveillance will address the full content of the EVM system description and will also rely on the results of other related reviews as appropriate.

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This EVMS surveillance will be based upon the remaining work and content that is specific to the project being reviewed. The selection of EVM guidelines and processes reviewed will be relevant to the project phase.

Project Surveillance Execution

This surveillance will be organized to provide a structured setting to assess the approach to EVM process implementation and its consistency across the project. This can be facilitated by:

- A clear code of conduct;
- Understanding of how results will be used;
- Including contractor and customer project office personnel as observers on the surveillance team;
- Obtaining out-briefings and discussions of potential findings before a report is generated;
- A clearly defined format for reporting findings and recommendations.

6.1. Code of conduct

Responsibilities

The surveillance team will provide adequate advanced notification of specific control accounts and processes that will be reviewed. It is also the intent of this surveillance to not interfere with on-going work to the extent possible. The surveillance team will not require extensive presentations or preparations, and it can review and interpret data provided in the project's native formats. The review will be conducted in a professional manner and in a spirit of constructive assessment and discovery. The surveillance team leader is solely responsible for the final determination of findings and recommendations and ensuring that the results are communicated to the project and Laboratory management.

Project personnel should be prepared to demonstrate through objective project information that they are complying with applicable policies and procedures. The project team should coordinate with the surveillance team to ensure that control account managers (CAM) responsible for areas of specific interest are available and cause the least possible disruption of on-going efforts. The project personnel should also ensure that adequate data and project policies are available to the surveillance team sufficiently in advance of the review to allow for meaningful analysis.

The surveillance team leader will ensure that the review focuses on system compliance and does not become involved with non-system-related issues. Documented findings and corrective action plans are available and used to close out issues identified during the review.

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Project Information

Successful surveillance is predicated upon demonstration of compliance with procedures through explanations and illustrations using objective project information consisting of documents, computer files, working papers, notes, or other forms of data and communication which demonstrate compliance/non-compliance with a policy, procedure, or process. Objective project information is created in the normal conduct of business and is not prepared solely for the review of a surveillance team. This surveillance team will be located in a central location that facilitates access to project information within the Laboratory. Examples of objective project information include work authorizations, cost and schedule status databases, variance analysis reports, and estimate-to-complete rationale.

Orientation

Orientation time will be established to introduce members of the surveillance and project teams and to discuss key EVMS-related forms and procedures. A brief overview of the nature of the projects will be beneficial to understand its unique language and goals and any unusual organizational relationships. The surveillance team will use the orientation period to explain the goals and scope of the review, the code of conduct, the disposition of finding/concerns, and the resolution process.

Data Gathering

The surveillance review will be conducted both through interviewing CAMs and project staff and verifying the integrity of objective project information. The initial number and scope of interviews is defined in Appendix A and is balanced between obtaining sufficient data for an opinion, without overburdening the project. Based on surveillance results, additional interviews may be conducted.

Interviews will generally be conducted in a location close to the CAM's office, which will facilitate ease of access to objective project information. During each interview, the surveillance team assesses the level of understanding and compliance with company policies, procedures, and processes, and monitors local practices to assess how well they comply with the intent of the EVM guidelines. The interview team be comprised of staff from internal and external to FRA and will be divided between two surveillance teams. None of the surveillance team members are associated with the NOVA project.

The surveillance review will be thorough and structured. This involves developing a list of subject areas to facilitate scheduled interviews, ensuring that discussions address the complete

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EVMS process. The content of review topics and questions will be provided to appropriate project personnel prior to the review to facilitate responses and documentation availability.

CAM interviews are a key component of EVMS surveillance because CAMs are the source of much of the EVMS information. CAM interviews are supplemented with data integrity tests performed independently. The ultimate objective is to determine the CAMs' use of the information derived from the EVMS as an effective management tool. Seven CAMs will be interviewed per project based on the Responsibility Assignment Matrix. All reviews will incorporate common attributes based on the **National Defense Industrial Association (NDIA) Program Management Systems Committee (PMSC) Intent Guide, November 2006 edition**. The purpose of the interview is to assess the CAMs' understanding and implementation of the following subjects:

1. Organization
 - a. Verify that the Work Breakdown Structure (WBS) contains (Guideline 1 Intent Guide)
 - i. All project work, including revisions for authorized changes.
 - ii. All contract line items and end items.
 - iii. All external reporting elements.
 - iv. Extended to the control account level.
 - v. Map to WBS dictionary.
 - b. Verify that a Work Authorization with scope, schedule, and budget exists at control account level (Guideline 2 Intent Guide).
 - c. Verify that the Organizational Breakdown Structure (OBS) is documented (Guideline 3 Intent Guide).
 - d. Verify that the same WBS is linked between schedules, work authorization, and control account plans (Guideline 3 Intent Guide).
 - e. Verify that Responsibility Assignment Matrix or equivalent documents control accounts at appropriate level (Guideline 3 & 5 Intent Guide).
2. Planning, Scheduling and Budgeting
 - a. Ensure Project Schedule specifics (Guideline 6 Intent Guide)
 - i. WBS/OBS identifiers exist in the project schedule at activity level for summarization.
 - ii. Project schedule reflects entire WBS Dictionary.
 - iii. Critical target/contractual dates are identified in the project schedule.
 - iv. The project schedule identifies significant interdependencies.
 - v. Task durations are meaningful and relatively short.
 - vi. Longer tasks use objective earned value techniques.
 - vii. Resource estimates are reasonable and consistent with the schedule.

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- viii. The baseline is reasonable to achieve project requirements as demonstrated through schedule analysis techniques.
 - ix. The project schedule baseline is established.
 - x. The schedule provides current status and forecasts of completion dates for all discrete work.
 - xi. The project has a critical path.
 - b. Verify that objective completion criteria are used as basis to determine achievement (Guideline 7 Intent Guide).
 - c. Verify that CAM updates schedule status (Guideline 7 Intent Guide).
 - d. Verify that the integration of scope, schedule and budget at the control account level (Guideline 8/9 Intent Guide).
 - e. Verify that the time-phased Performance Measurement Baseline (PMB) equals the work authorization and summarizes above the control account to the contract value (Guideline 8/9 Intent Guide).
 - f. Verify that control account budgets identify elements of cost including subcontractor (Guideline 9 Intent Guide).
 - g. Verify that management reserve and undistributed budget, if any, track to logs (Guideline 9/14 Intent Guide).
 - h. Verify that schedule and cost variances are collected at control accounts (Guideline 10 Intent Guide).
 - i. Verify the work packages are uniquely identified, have a budget, and have an earned value technique (Guideline 10 Intent Guide).
 - j. Verify that planning packages are not in the current month and reflect the manner in which the work will be performed (Guideline 10 Intent Guide).
 - k. Verify that the control account work packages and planning packages (if any) add to the control account total budget (Guideline 11 Intent Guide).
 - l. Identify level of effort designated work is appropriately categorized and identifiable (Guideline 12 Intent Guide).
 - m. Intent Guideline 13 is generally omitted in project surveillance.
 - n. Verify that management reserve and undistributed budget logs reconcile with last two months of Cost Performance Reports (CPR) (Guideline 14 Intent Guide).
 - o. Verify that baseline control logs reconcile with performance measurement baseline Guideline 15 Intent Guide).
- 3. Accounting Considerations
 - a. Verify that Actual Cost of Work Performed (ACWP) in the CPR reconcile with books of record (Guideline 16 Intent Guide).
 - b. Verify that WBS and OBS summarize direct costs from one control account (Guideline 17/18 Intent Guide).
 - c. Verify that indirect costs are applied to the direct costs per Laboratory Policy (Guideline 19 Intent Guide).

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- d. Verify that unit cost are identified when needed (Guideline 20 Intent Guide).
 - e. Verify that effective performance measurement is assessed on material no earlier than point of receipt and consistent with the method budgeted (Guideline 21 Intent Guide).
 - f. Verify that an established process exists for reporting subcontractor costs and material actual costs (Guideline 21 Intent Guide).
4. Analysis and Management Reports
- a. Verify that variance analysis is performed to the project thresholds as required (Guideline 22 Intent Guide).
 - b. Verify that variance analysis contains cause, impacts, and corrective action as appropriate (Guideline 22/23 Intent Guide).
 - c. Verify that corrective actions are assessed and closed in a timely manner (Guideline 23/26 Intent Guide).
 - d. Intent Guideline 24 is normally omitted in project surveillance.**
 - e. Verify that variance analysis as reported to the customer reconciles with the analysis at the control account level (Guideline 25 Intent Guide).
 - f. Verify the Estimate to Complete (ETC)/Estimate at Complete (EAC) (Guideline 26 Intent Guide)
 - i. Verify that Comprehensive EACs are updated per requirements and take into account efficiencies.
 - ii. Verify that CAMs review achievability of control account EAC monthly.
 - iii. Verify that time-phased ETC reconciles with the EAC as reported externally.
 - iv. Verify that risks and opportunities are integrated into summary schedule and ETC resource plans.
5. Revisions and Data Maintenance
- a. Verify that work authorization plus any baseline change documentation equal current control account budget (Guideline 28/29 Intent Guide).
 - b. Trace last change proposal authorized. Verify schedule and cost integration at control account level and that the WBS is updated as appropriate (Guideline 23/29 Intent Guide).
 - c. Verify that change logs reconcile and contain justification (Guideline 28/29 Intent Guide).
 - d. Verify that retroactive changes are made only for correction of errors, accounting adjustments, effects of customer management directed changes to improve accuracy of data. If any have been made, verify that they are consistent with disclosed EVMS policy (Guideline 30 Intent Guide).

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- e. Verify, in at least one control account, that last month's changes as reported to the customer and this month's Performance Measurement Baseline (PMB) reconcile to entries in the contractual baseline log (Guideline 30 Intent Guide).
- f. Verify that negative earned value status, if any, has been adequately explained (Guideline 31/32 Intent Guide).
- g. Verify that all baseline changes within a month reconcile to baseline control requests (BCRs) or the equivalent (Guideline 31/32 Intent Guide).

Additional interviewees will include the project manager, project controls representative(s), and the accounting/financial management.

7. SURVEILLANCE RESULTS

Concerns Identified During the Surveillance

The surveillance team will gather data by reviewing documentation and interviewing members of the project Team. A key component of surveillance is communicating timely, pertinent, and candid feedback. Surveillance team members and project personnel should seek clarification to fully understand questions asked, the data sought, and the responses provided. If, after fully understanding the information provided, a surveillance team member believes that there may be a question of compliance; the surveillance team will discuss the observation. If the surveillance team agrees that observation is still a question of compliance; Fermilab and the project will be notified by the surveillance team of the concern no later than during Out-Briefs at the end of each day. This gives the FRA project the opportunity to supply the surveillance team additional information to clarify the observation. This may result in the concern of the observation being resolved, or may result in a Recommendation, or could be a Finding of non-compliance. Findings and Recommendations are defined as:

Findings

Findings fall into two broad categories: 1) non-compliance with the accepted EVMS description and 2) non-compliance with the ANSI/EIA 748 EVMS guidelines. Failure to resolve findings reduces confidence in the ability of project management to effectively use the EVMS process to achieve project goals and objectives of the stakeholders.

Recommendations

The team members may recommend EVM implementation enhancements such as sharing of successful practices, tools, or other items that come to their attention. Recommendations, however, are not the same as findings and, therefore, need not be tracked for closure.

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Surveillance Final Out-Brief

The Surveillance Team will evaluate what they have observed and the information received during the surveillance by participants from FRA, ANL and BNL facilities to come to a consensus if any Findings or Recommendations should be issued. Also, the Surveillance Team should identify if the Findings are systemic rather than implementation issues. Any Findings and Recommendations are to be presented by the Surveillance Team Leader or by participants from FRA, ANL and BNL facilities at the Final Out-Brief.

It is possible that the project team may disagree with the final surveillance results. When a finding is not due to a team's misunderstanding, the EVMS Officer must be able to explain the impact of deviating from policy and the benefits to the project and management team of compliance with the intent of the EVMS guidelines.

Final Report

A Surveillance Team will develop a preliminary report and give Fermilab and the project that was reviewed the opportunity to give any additional feedback in a reasonable timeframe. The Surveillance Team will take in consideration of any feedback received when developing the final report. The final report will be issued by the Surveillance Team Leader to the Fermilab EVMS Officer.

Corrective Action Plan

Fermilab EVMS Officer will develop a Corrective Action Plan (CAP) to address any Findings or Recommendations identified in the Final Report from the Surveillance Team. The CAP should include a schedule with realistic dates for when the corrective actions are to be completed. The project personnel will provide input regarding corrective actions, including estimated completion dates. The Surveillance Team will receive a copy of the CAP for information only; no further actions are required by the Surveillance Team.

Surveillance Review Close-out

Fermilab EVMS Officer is to insure that CAP has been acceptably completed. The close-out of the CAP and any follow-up verification performed should be document and retained for future EVMS surveillances.

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EVMS Surveillance Team Assignments

Team Leader – Cathy Lavelle

Team Members	Responsible Area	Guidelines
Cathy Lavelle	Organization	1-5
Julia Chaffin	Analysis & Management	22-27
Jennifer Fortner	Planning & Budgeting	6-15
Robert Kennedy	Reporting and Accounting	16-21
Tom King (Facilitator)	Revisions	28-32
Rich Stanek		

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APPENDIX A

<p align="center">FNAL Earned Value Management System (EVMS) Self Assessment Review March 7-9, 2011</p>						
<p align="center">Interviews are preferably held in or near the interviewees office</p>						
<p align="center">Monday, March 07, 2011</p>						
<i>Time</i>	<i>Subject</i>	<i>Name</i>	<i>Location</i>	<i>Subject</i>	<i>Name</i>	<i>Location</i>
8:00 - 9:00	Review Team Orientation Meeting	Review Team	room large	<p align="center">LEGEND</p>	Team Interviews	
9:00 - 9:10	Welcome Remarks	Young-Kee or Pier	room large		Team Activity	
9:10 - 9:55	NOvA or EVMS Overview	Cooper/Hoffer	room large		All Attend	
9:55 - 10:40	NOvA or EVMS Overview	Cooper/Hoffer	room large		Team Data Trace	
10:40 - 11:00	transit to interview					
11:00 - 12:00	Controls - Freeman/Saxer	Review Team #1 & #2	room w access to controls apps		room large may = room1	
12:00 - 1:00	Lunch - working					
1:00 - 2:00	Interview #1	Review Team #1	room 1	Interview #2	Review Team #2	room 2
2:00 - 2:30	Review & Documentation	Review Team #1	room 1	Review & Documentation	Review Team #2	room 2
2:30 - 3:30	Interview #3	Review Team #1	room 1	Interview #4	Review Team #2	room 2
3:30 - 4:00	Review & Documentation	Review Team #1	room 1	Review & Documentation	Review Team #2	room 2
4:00 - 4:45	Review Team Meeting	Review Team	room 1			
4:45 - 5:00	Outbrief	Review Team Lead	room large			
6:00	Team Dinner					

**FNAL Earned Value Management System (EVMS)
Self Assessment Review
March 7-9, 2011**

Tuesday, March 08, 2011

<i>Time</i>	<i>Subject</i>	<i>Name</i>	<i>Location</i>	<i>Subject</i>	<i>Name</i>	<i>Location</i>
8:00 - 9:00	Team Preparation	Review Team	room 1			
9:00 - 10:00	Interview #5	Review Team #1	room 1	Interview #6	Review Team #2	room 2
10:00 - 10:30	Review & Documentation	Review Team #1	room 1	Review & Documentation	Review Team #2	room 2
10:30 - 11:30	Interview #7	Review Team #1	room 1	Interview #8	Review Team #2	room 2
11:30 - 12:00	Review & Documentation	Review Team #1	room 1	Review & Documentation	Review Team #2	room 2
12:00 - 1:00	Lunch			Lunch		
1:00 - 2:00	Interview #9	Review Team #1	room 1	Interview #10	Review Team #2	room 2
2:00 - 2:30	Review & Documentation	Review Team #1	room 1	Review & Documentation	Review Team #2	room 2
2:30 - 3:15	Review Team Meeting	Review Team	room 1			
3:15 - 3:30	Outbrief	Review Team Lead	room large			

**FNAL Earned Value Management System (EVMS)
Self Assessment Review
March 7-9, 2011**

Wednesday, March 9, 2011

<i>Time</i>	<i>Subject</i>	<i>Name</i>	<i>Location</i>	<i>Subject</i>	<i>Name</i>	<i>Location</i>
8:00 - 9:00	Data Trace	Review Team #1	room 1	Data Trace	Review Team #2	room 2
9:00 - 12:00	More Data Trace Additional Interviews (if needed) Documentation	Review Team #1	room 1	More Data Trace Additional Interviews (if needed) Documentation	Review Team #2	room 2
12:00 - 1:00	Lunch			Lunch		
1:00 - 3:00	Writing Documentation	Review Team	room 1			
3:00 - 3:30	Out-Brief	Review Team Lead	room large			

Currently rooms are being reserved with projectors and access to copier/printer

These are interviewees:

- Controls - Freeman/Saxer
- CAMs - Carl Bromberg, Rich Talaga, Stuart Mufson, Ken Heller, Pat Lukens, Leon Mualem, Paul Derwent, Steve Dixon,
- Project Manager - John Cooper,
- Accounting/Finance - Rhoades/Conger