SUBJECT:	EVMS Annual Surveillance Plan	NUMBER:	11-IA-QA-006
RESPONSIBILITY:	Head, Office of Quality and Best Practices	REVISION:	A002
APPROVED BY:	EVMS Officer	EFFECTIVE:	02/18/2011

Fermilab
Earned Value Management System (EVMS)
Annual Surveillance Plan

March 7, 8, 9, 2011

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1. EVMS SURVEILLANCE PLAN OVERVIEW

Fermilab management maintains an effective and efficient Earned Value Management System (EVMS) to ensure projects with a total project cost (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 efficiently manage projects . 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.

4. SCOPE OF REVIEW

For purposes of the March 2011 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, NOvA, 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.

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An overview of the surveillance process includes a review of all of the guidelines in ANSI/EIA-748-A standard's EVMS Guidelines categories:

1 Organization
2 Planning, Scheduling, and Budgeting
3 Accounting Considerations
4 Analysis and Management Reports
5 Revisions and Data Management

5. SURVEILLANCE MEMBERSHIP

Surveillance membership consists of FRA and non-FRA staff to ensure independence of the surveillance process. None of the team members is associated with the NOvA project. Individuals participating in the March 2011 Fermilab annual EVMS surveillance 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 Manager
- 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.

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.

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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 avoid or minimize on-going work. The surveillance team will not require extensive presentations or preparations. The team 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 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 project team should coordinate with the surveillance team to ensure that control account managers (CAM) responsible for areas of specific interest are available and results in the least possible disruption of on-going efforts.

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 EVMS agenda and interviews are provided in Appendix A and is balanced between obtaining sufficient data for an opinion and 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 policies, procedures, and processes, and monitors project practices to assess how well they comply with the intent of the EVM guidelines. The interview team be comprised of staff 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 to ensure discussions address the entire 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.

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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 from the project based on the Responsibility Assignment Matrix. Additional interviewees will include the project manager, project controls representative(s), and Fermilab's Chief Financial and Chief Accounting Officers. The assessment interviews may address any or all of the 32 guidelines in 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 the 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 the appropriate level (Guideline 3 & 5 Intent Guide).
    f. Verify indirect account structure and organizational assignment/authority are clearly defined according to approved accounting procedures (Guideline 4 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.

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iii. Critical target/contractual dates are identified in the project schedule and there is a clear definition of what constitutes commencement and completion of each work package.
iv. The project schedule identifies significant interdependencies.
v. Resource estimates are reasonable and consistent with the schedule.
vi. The baseline is reasonable to achieve project requirements as demonstrated through schedule analysis techniques.
vii. The project schedule baseline is established.
viii. The schedule provides current status and forecasts of completion dates for all discrete work.
ix. The project has a critical path.

b. Verify that objective completion criteria are used as a basis to determine achievement (Guideline 7 Intent Guide).
c. Verify that CAM updates schedule status (Guideline 7 Intent Guide).
d. Verify 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 authorized and summarizes the control accounts 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 task durations are meaningful and relatively short (Guideline 10 Intent Guide).
i. Verify longer tasks use objective earned value techniques (Guideline 10 Intent Guide).
j. Verify that schedule and cost variances are collected at control accounts (Guideline 10 Intent Guide).
k. Verify the work packages are uniquely identified, have a budget, and have budget or assigned value in terms of dollars, labor hours or other reasonable units (Guideline 10 Intent Guide).
l. 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).
m. Verify that the control account work packages and planning packages (if any) add to the control account total budget (Guideline 11 Intent Guide).
n. Identify level of effort designated work is appropriately categorized and identifiable (Guideline 12 Intent Guide).
o. Verify there is a document process for managing indirect costs with an organizational structure identifying ownership responsibility and authority levels.

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p. Verify that management reserve and undistributed budget logs reconcile with last two months of Cost Performance Reports (CPR) (Guideline 14 Intent Guide).
q. 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 contract performance reports (CPR) reconcile with books of record (Guideline 16 Intent Guide).
   b. Verify a work order/job-order/task-code charge number structure exists that uniquely identifies costs at the control account level allowing for accumulation of costs to higher levels of the WBS (Guideline 17/18 Intent Guide).
   c. Verify that all indirect costs are recorded and appropriately distributed to the recorded direct costs per Laboratory Policy (Guideline 19 Intent Guide).
   d. Verify, if using unit cost, the accounting system produces actual unit costs for measuring cost performance (Guideline 20 Intent Guide).
   e. Verify that material costs are accurately charged to control accounts using recognized and accepted costing techniques (Guideline 21 Intent Guide).

4. Analysis and Management Reports
   a. Verify that variance analysis is performed and reporting conforms to the project defined control thresholds as required (Guideline 22 Intent Guide).
   b. Verify that significant schedule and cost variance analysis is performed at least monthly and contains a narrative of the cause, impacts, and corrective action as appropriate (Guideline 22/23 Intent Guide).
   c. Verify that corrective actions are assessed, implemented and closed in a timely manner (Guideline 23/26 Intent Guide).
   d. Verify indirect costs are budgeted and applied with variances reported at a level and frequency needed for management control (Guideline 24 Intent Guide).
   e. Verify that variance analysis as reported to the customer reconciles with the analysis at the control account level (Guideline 25 Intent Guide).
   f. Verity the Estimate to Complete (ETC)/Estimate at Complete (EAC) and compare this to the PMB to identify variances at completion (Guideline 27 Intent Guide)
      i. Verify that Comprehensive EACs are updated monthly per requirements and take into account performance to date efficiencies.
      ii. Verify that CAMs compare estimates to budgets at work package frequently enough to avoid adverse impact.
      iii. Verify that time-phased ETC reconciles with the EAC as reported to the customer.
      iv. Verify that risks and opportunities are integrated into summary schedule and ETC resource plans.

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5. Revisions and Data Maintenance
   a. Verify that work authorization plus any baseline change documentation is recorded in a timely manner and equals the current control account budget (Guideline 28/29 Intent Guide).
   b. Verify any changes to budgets are authorized by tracing the 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).
   e. Verify, in at least one control account, that last month's changes/adjustments 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 30 Intent Guide).
   g. Verify that all baseline changes within a month are authorized, follow the baseline management control process, and reconcile to baseline control requests (BCRs) or the equivalent (Guideline 31/32 Intent Guide).

7. SURVEILLANCE RESULTS

Concerns Identified During the Surveillance

The surveillance team will gather data by reviewing documentation and interviewing members of the project team. The assessment is conducted in accordance with the plan and schedule. Team members obtain and document the information needed to satisfy the purpose and scope of the assessment. Activities performed may include any of the following:

- Conduct interviews
- Examine documents and records to determine compliance
- Examine work products
- Notify management of the responsible organization of potential noncompliance with requirements or opportunities for improvement

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

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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 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.

Surveillance Final Out-Brief

The assessment team leader conducts a closing meeting with the assessed organization and assessment team to:

- Inform them of the assessment results including any non-conformances or opportunities for improvement
- Allow the assessed organization to provide feedback on potential non-conformances and discussion of opportunities for improvement
- Respond to questions

The surveillance team will evaluate what they have observed and the information received during the surveillance 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 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 process owner (Fermilab Office of Project Management Oversight (OPMO)) must be able to explain the impact of deviating from

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policy and the benefits to the project and management team of compliance with the intent of the EVMS guidelines.

Final Report

A surveillance team develops the final report for Fermilab by the following process:

- A preliminary report is provided to allow Fermilab and the reviewed project the opportunity to give any additional feedback in a reasonable timeframe.
- Any feedback received will be evaluated to determine if corrections or additions are required in the final report.
- The final report will be issued by the surveillance team leader to the director of OPMO, the director of OQBP, and the QA Manager.

When preparing the final report, the assessment team members review information obtained and draw conclusions about any non-conformance, opportunities for improvement or commendable practices observed. Observations will be examined to determine if collectively, they indicate more significant problems.

Problem areas identified during the assessment that are determined to be non-compliant with management system requirements or the organization's implementing requirements will be reported as findings, documented on Corrective Action Plans (CAPs), and processed in accordance with the Fermilab Corrective & Preventive Action Procedure, 1004.1001. Areas that are potentially non-compliant but are not within the agreed upon scope or are compliant but present opportunities for improvement, are reported as recommendations.

Corrective Action Plan

The Fermilab EVMS process owner 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:

- Who is responsible and who is designated to managed the resolution
- The estimated completion dates
- The root cause, if controls need to be updated or if the activity has the correct controls under current operating conditions
- Mitigation actions, if any, until the appropriate controls are in place
- A schedule with realistic dates for when the corrective actions are to be completed.

The CAP will be tracked by OQBP. The surveillance team will receive a copy of the CAP for information only; no further actions are required by the surveillance team.

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Surveillance Review Close-out

Fermilab EVMS process owner is to insure that CAP has been acceptably completed. OQBP will ensure the close-out of the CAP and any follow-up verification and validation is documented and retained for future EVMS surveillances.

EVMS Surveillance Team Assignments

name	team	area of responsibility
Cathleen Lavelle (Team Lead)	1	organization
Julia Chaffin	2	analysis & mgmt
Jennifer Fortner	2	planning & budget
Robert Kennedy	2	reporting & acctng
Rich Stanek	1	revisions
Thomas King	1	reporting & acctng

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APPENDIX A

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

Monday, March 07, 2011

Time	*Subject*	*Name*	*Location*	*Subject*	*Name*	*Location*
8:00 - 9:00	Review Team Orientation Meeting	Review Team	One North WH1NW	**LEGEND**	Team Interviews	
9:00 - 9:10	Welcome Remarks	Young-Kee or Pier	One North WH1NW		Team Activity	
9:10 - 9:55	EVMS Overview	Dean Hoffer	One North WH1NW		All Attend	
9:55 - 10:40	NOvA Overview	John Cooper	One North WH1NW		Team Data Trace	
10:40 - 11:00	transit to interview		One North WH1NW			
11:00 - 12:00	Controls Interview - Freeman/Saxer	Review Team #1 & #2	**room w access to controls apps??**			
12:00 - 1:00	**Lunch - working**					
1:00 - 2:00	PM Interview John Cooper	Review Team #1	John Cooper's Office	CAM Interview Steve Dixon	Review Team #2	Steve Dixon's Office
2:00 - 2:30	Review & Documentation	Review Team #1	John Cooper's Office or 1 N	Review & Documentation	Review Team #2	Steve Dixon's Office or FishTank
2:30 - 3:30	CAM Interview Pat Lukens	Review Team #1	One North WH1NW	CFO/CAO Interview C.Conger/	Review Team #2	Cindy Conger Office
3:30 - 4:00	Review & Documentation	Review Team #1	One North WH1NW	Review & Documentation	Review Team #2	Cindy Conger Office or FishTank
4:00 -4:45	Review Team Meeting	Review Team	One North WH1NW	**NOTE - Fish Tank (WH13X) is scheduled from 1:00 PM to 4:00 PM**		
4:45 - 5:00	Outbrief	Review Team Lead	One North WH1NW			
6:00	**Team Dinner**					

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

Tuesday, March 08, 2011

Time	Subject	Name	Location	Subject	Name	Location
8:00 - 9:00	Team Preparation	Review Team	One North WH1NW			
9:00 - 10:00	CAM Interview Stuart Mufson	Review Team #1	One North WH1NW	CAM Interview Paul Derwent	Review Team #2	Req. Room WH4NW
10:00 - 10:30	Review & Documentation	Review Team #1	One North WH1NW	Review & Documentation	Review Team #2	Req. Room WH4NW
10:30 - 11:30	CAM Interview Ken Heller	Review Team #1	One North WH1NW	CAM Interview Leon Mualem	Review Team #2	Req. Room WH4NW
11:30 - 12:00	Review & Documentation	Review Team #1	One North WH1NW	Review & Documentation	Review Team #2	Req. Room WH4NW
12:00 - 1:00	**Lunch**					
1:00 - 2:00	NO ONE SCHEDULED #1	Review Team #1	One North WH1NW	NO ONE SCHEDULED #2	Review Team #2	Quarium WH8SW until 3:30
2:00 - 2:30	Review & Documentation	Review Team #1	One North WH1NW	Review & Documentation	Review Team #2	Quarium WH8SW until 3:30
2:30 - 3:15	Review Team Meeting	Review Team	One North WH1NW	**NOTE - interviews for CAM scheduled at 10:30 AM could just as esialy be changed to 1:00 PM**		
3:15 - 3:30	Outbrief	Review Team Lead	One North WH1NW			

Wednesday, March 9, 2011

Time	Subject	Name	Location	Subject	Name	Location
8:00 - 9:00	Data Trace	Review Team #1	One North WH1NW	Data Trace	Review Team #2	Snake Pit WH2NE
9:00 - 12:00	More Data Trace Additional Interviews (if needed) Documentation	Review Team #1	One North WH1NW	More Data Trace Additional Interviews (if needed) Documentation	Review Team #2	Snake Pit WH2NE
12:00 - 1:00	**Lunch**					
1:00 - 3:00	Writing Documentation	Review Team	One North WH1NW			
3:00 - 3:30	Out-Brief	Review Team Lead	One North WH1NW			

Rooms are reserved with projectors and access to copier/printer (this needs to be arranged)

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

CAMs - Carl Bromberg, Rich Talaga interviews will occur the week before and arrangements are still pending

Note on availability from J Cooper –

Rich Talaga reports that he could do an interview and be at Fermilab on Tuesday March 1 at noon or 1PM, or anytime on Wednesday March 2 (give him time to drive out from ANL).

Carl Bromberg reports that he could do an interview and be at Fermilab any day except Monday (Feb 28) of the previous week. That is, he could do anytime on Tues - Fri, March 1 - 4.

You would have to find a video room here at Fermilab for the interview.