

EVMS Training Snippet Library: DOE EVMS Review Approach



**Office of Acquisition and Project Management (OAPM) MA-60
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Achieving Management and Operational Excellence

This EVMS Training Snippet, sponsored by the Office of Acquisition and Project Management (OAPM), provides an overview of the types and expectations of reviews relative to Earned Value Management Systems.

DOE EVMS Policy and Procedures



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- **Department of Energy (DOE) Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, 11/29/2010**
- **DOE Guide 413.3-10A, Earned Value Management System (EVMS)**
- **OAPM EVMS Surveillance Standard Operating Procedure (ESSOP)**
- **OAPM EVMS Certification Standard Operating Procedure (ECSOP)**



The policies and procedures that support DOE EVMS reviews include:

- DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets,
- DOE Guide 413.3-10A, Earned Value Management Systems, and
- DOE OAPM's EVMS Surveillance Standard Operating Procedure and EVMS Certification Standard Operating Procedure which provide process level 'how to' instructions.

All of these resources are available on the OAPM EVMS Website.



- **The intent of the EVMS review process is to:**
 - Ensure deployment of an EVMS *compliant* with ANSI/EIA-748
 - Ensure *implementation* of the EVMS to monitor and manage cost, schedule, and technical performance
 - Assess *maintenance* and continued implementation of the EVMS
 - Provide a documented and defensible *record* for both DOE and the Contractor in support of compliance

Certification of EVMS compliance will not occur until full completion of the review process

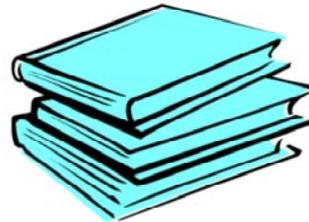
The compliance process is designed to ensure the contractor's system is compliant with the ANSI/EIA-748 Standard as required by DOE Order 413.3B across its applicable DOE Order 413.3B capital asset projects. The system must be implemented in a compliant manner on all EVMS-applicable projects and provide management of cost, schedule, and technical performance. The review process assesses contractor maintenance of the EVM system. Lastly, documentation is a necessity to ensure the DOE can provide a defensible record for not only DOE and the contractor, but also should either be subject to an outside review.

Compliance Determination Resources



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- **NDIA Intent Guide**
- **EVM Implementation Guide (EVMIG)**
- **Bowman Interpretive Guide**
- **Other sources/historical documents**
- **DOD/DCMA interpretation guide and test steps**



DOE OAPM EVMS reviews against the ANSI/EIA-748 requirements are conducted by applying best practices and guidance from several resources. These resources include:

- NDIA Intent Guide
- EVM Implementation Guide (EVMIG)
- Bowman Interpretive Guide
- Other sources/historical documents
- DOD/DCMA interpretation guide and test steps

Types of EVMS Compliance Reviews



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- **Pre-Certification**
 - Certification Review
- **Post Certification**
 - Surveillance
 - Implementation
 - Review for Cause



There are four types of EVMS compliance reviews conducted by the OAPM. The Pre-Certification review is the Certification Review. Post Certification Reviews include Surveillance, Implementation, and Review for Cause. Each one will be explored in the following slides.

EVMS Certification Review



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- **Purpose**
 - A process used to determine if an Earned Value Management System (EVMS) meets the intent of the guidelines found in ANSI/EIA 748
- **Scope**
 - EVM System description and supporting procedures
 - Implementation
 - Tool demonstration and review
- **Certifying Authority and Thresholds (except for firm fixed-price contracts):**
 - OAPM \geq \$100M;
 - Project Management Support Office (PMSO) \geq \$50M < \$100M;
 - Contractor self-certification \geq \$20M < \$50M
 - Major System Project, i.e. \geq \$750M
 - Prior to CD-3 OAPM will conduct surveillance to validate continued compliance if self-certified or PMSO-certified

Certification is the first EVMS review a contractor experiences. It is conducted when the contractor receives an EVMS-applicable project without a previous applicable certification. The purpose of the Certification review allows the contractor the opportunity to demonstrate compliance of its Earned Value Management System to the ANSI/EIA-748 Standard requirements. The scope of the review includes a thorough review of the EVM system description and supporting procedures, an evaluation of the implementation of the procedures on the project, and a demonstration of how the cost and schedule tools' output and reports provide the information used by the contractor to manage and meet the intent of the guidelines. A focus of the review is how contractor's Control Account Managers are using EVM to effectively manage.

Certifying Authority responsibility is based on a hierarchy. A contractor with a project or portfolio of projects where any single project has a TPC equal to or greater than \$100M is certified by OAPM. A contractor with a project or portfolio of projects where any single project has a TPC equal to or greater than \$50M but less than \$100M is certified by the PMSO. A contractor may self-certify if the TPC of all individual projects in its portfolio is equal to or greater than \$20M but less than \$50M.

However, should the initial certification be based on a lower level certifying authority and a project is later awarded in a higher threshold, the applicable certifying authority may conduct a review to ensure compliance. For example, let's say the initial certification was for a project with a TPC between \$20M - \$50M, and the certification was conducted via contractor self-certification. Later the contractor is awarded a project with a \$200M TPC. OAPM may conduct a review of the EVMS. In any case, the higher certification supersedes in any conflict. For example, PMSO certification outweighs that of contractor self-

certification. The EVMS hierarchy highest to lowest is OAPM, PMSO and then contractor self-certification.

For a Major System Project, those being projects with a TPC equal to or greater than \$750M, an OAPM review is mandatory if prior certification was conducted by self-certification or the PMSO.

EVMS Surveillance Review



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- **Purpose**
 - Conducted to demonstrate continued compliance of a certified system to the ANSI/EIA-748 guidelines and approved system descriptions, verify the EVM data is useful, timely, and effective; and assess whether the data is used to make informed decisions
- **Process**
 - Risk-Based and Data-Driven approach; Conducted in up to 3 Stages
- **Surveillance Authority and Thresholds**
 - Consistent with Certifying Authority Thresholds
 - OAPM \geq \$100M
 - PMSO \geq \$50M < \$100M;
 - Contractor self-surveillance \geq \$20M < \$50M
- **Frequency:**
 - Contractors must conduct annual self-surveillance of their EVMS, ideally by an entity independent of the contractor's project team.
 - OAPM or PMSO must conduct surveillance no later than the contract midpoint or every 2 years, during contract extensions, or as directed by the Acquisition Executive



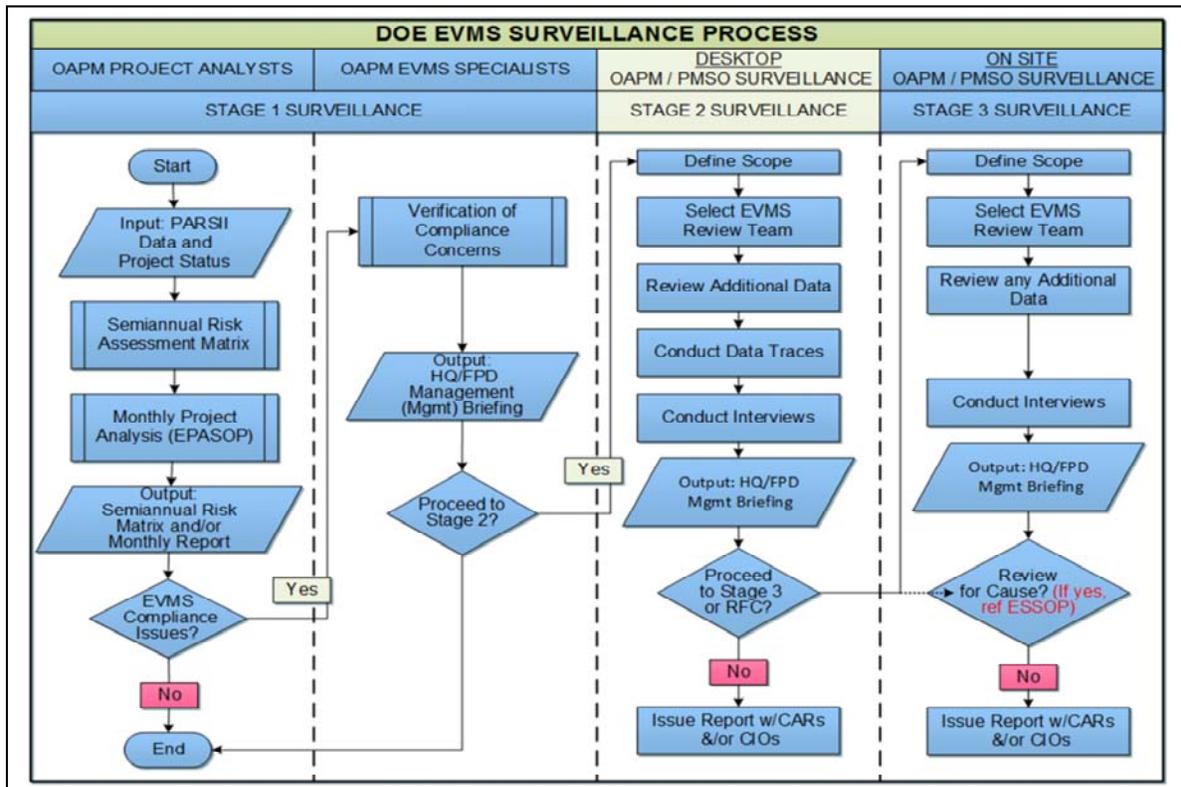
The next type of review is referred to as the Surveillance Review. Surveillance is conducted to demonstrate continued compliance of the contractor's certified earned value management system, ensure the company processes are being followed, verification that the EVM data is useful, timely, and effective, and to assess whether the data is being used to manage the project and make informed decisions.

The OAPM surveillance methodology is risk-based, data driven, which establishes surveillance triggers based on monthly data, and is conducted in three stages. This tiered approach is designed to minimize disruption to the project. The scope of each stage increases in depth and breadth as the stages advance, and is covered in more detail on the next page and in the Surveillance Snippets.

Surveillance thresholds and authorities are consistent with the certifying authority thresholds. Note that consistent with the discussion on the previous slide, it is entirely possible that the certifying authority for surveillance is higher than the certifying authority of the initial project in a contractor's portfolio. For example, if the initial certifying authority was the PMSO, but now the contractor has one or more projects greater than \$100M, OAPM is responsible for the surveillance.

DOE O 413.3B requires each certified contractor to conduct annual self-surveillance of its EVM system. The order recommends that the surveillance be conducted by an entity independent of the contractor's project team to avoid any conflicts of interest. Examples of independent surveillance teams may include an internal audit group or an outside source.

OAPM or the PMSO must conduct surveillance no later than the contract midpoint or every 2 years for multi-year contracts, during contract extensions, or as directed by the Acquisition Executive.



A recommended approach for EVMS surveillance, and the approach used by the OAPM, is to conduct risk based, data driven continual surveillance. The OAPM uses a 3 Stage approach to minimize disruption to the project. Stage 1 is done by the OAPM and includes a risk assessment to identify areas of EVMS risk in each project. Also included are analyses of EV data and other artifacts, including reports from recent project reviews. If the data or risk warrants a deeper look, then a stage 2 desk audit may be conducted to gain more insight and review of additional supporting data that are then requested from the contractor. Should areas of concern arise that cannot be sufficiently addressed off site, then a stage 3 review team is assembled to focus on those remaining areas of concern on-site with the contractor. Interviews with the Contractor and FPD staff can occur in stage 2 or stage 3 depending on where the review process is completed and the report issued.

One key aspect of this approach is that each stage determines the potential scope of the next stage. These stages are discussed in more detail in individual EVMS Training Snippets.



- **Purpose**
 - Performed in lieu of a Certification Review when EVMS compliance is a requirement.
 - Extends certification of previously certified system
- **Scope**
 - Tailored depending on risks associated with nature of extension
 - It may be conducted on site or as a desk review
- **Extension factors**
 - From one contractor facility to another
 - From one contractor to a replacement contractor using same systems
 - From one project to another project after a period of system non-use
 - For a significantly revised system description
 - From one certifying entity to another (external, e.g. other Federal agency to DOE; internal, e.g. PMSO to OAPM)

Another type of EVMS review is called an Implementation Review. An Implementation Review, which is the responsibility of the applicable DOE Certifying Authority, is a special type of surveillance performed in lieu of a Certification Review when EVMS compliance is a requirement. This type of review extends the certification of a contractor's previously certified system. It may be conducted on site or as a desk review depending on the risks associated with the nature of the extension.

A contractor's certified system may be extended in the following situations:

- From one contractor facility to another,
- From one project to another project after a period of system non-use,
- A previously certified system description to a significantly revised system description, and
- From one certifying entity to another (meaning a Civilian Federal Agency (CFA) or DOD to DOE, or PMSO to OAPM) provided the contracting entity remains the same.



- **Purpose**
 - Conducted when concerns exist that output of EVMS from certified system may no longer meet the intent of the guidelines and is not useable for decision-making
- **Objectives**
 - Determine whether EVMS may be relied upon to provide reliable and accurate project information
 - Determine extent and depth of non-compliance
 - Identify corrective actions required to reaffirm system acceptability
 - Determine if EVMS certification should be suspended or withdrawn

A Review for Cause (RFC) is conducted after EVMS surveillance identifies significant concerns pertinent to whether the EVMS may still be relied upon to provide reliable and accurate project information. The purpose of an RFC is to provide the contractor with an opportunity to demonstrate that a fully integrated and compliant EVMS exists, is implemented, and has been maintained. Considerations should include the contractor's progress against corrective actions plans and accuracy of the performance data generated. The decision to initiate an RFC may occur after Stage 2, however much more frequently as a result of Stage 3 surveillance.

The RFC is conducted on-site. At the discretion of the certifying authority, the scope may focus on those system processes where concerns were identified or it may encompass all EVMS guidelines, contractor's surveillance and maintenance efforts, and re-evaluation of the contractor's EVM System Description and supporting procedures

Upon completion, the Certifying Authority will determine if compliance has been demonstrated, and if not, determine the path forward which may include withdrawal of the Certification of compliance for the contractor's EVMS.

The Certifying Authority works closely with the Government Contracting Officer (CO) through this process given that the withdrawal puts the contractor in a position of non-compliance to the terms and conditions of the contract, and the possibility that sanctions or contractual remedies may result. Nonetheless, the Certifying Authority as the EVMS Subject Matter Expert has final determination on the compliance status of a contractor's EVMS and determination to grant or withdraw a system certification. If a recertification is required, the scope will encompass all areas covered by the certification process. It is

incumbent upon the contractor to assess their entire system during the corrective action phase of the RFC.



- **Expectations:**

- Team

- Arrives on time
- Well prepared
- Professional

- Contractor

- Safety/security
- Facilities
- Responsive
- Available



MUTUAL TRUST AND RESPECT

In order for the on-site review to go smoothly, there are expectations for both the team and the contractor. To allow the team to conduct its work efficiently with minimal disruption to the contractor, the team must be prompt, well prepared and ready to get started, and be polite and professional at all times.

The contractor is expected to provide for the team's safety and security by ensuring the team is briefed, security procedures are handled in advance of arrival to the extent possible, facilities are provided to allow the team to operate comfortably with access to computers, printers, copiers, etc.; the contractor is responsive to requests for directions and any additional materials, and available for scheduled meetings and interviews. The team's mission can be conducted smoothly by working together with a positive spirit of cooperation, open and honest communication, and mutual trust and respect.

Typical On Site Review Format



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- **Welcome/Introductions/Safety**
- **In Brief by Government Review Director**
- **Contractor Presents:**
 - Brief Overview
 - Scheduling and Cost Engines Demonstration
 - Process flow via EVMS Storyboard
- **Interviews Conducted**
 - Control Account Managers (CAMs)
 - Project Controls
 - Contractor Management
 - Government Federal Project Director and CO
- **Out Brief by Government Review Director**

On the first day following the welcome, introductions, and safety briefing, the Government Review Director will provide a formal In brief explaining the purpose, intent, and scope of the review. The contractor will then provide a brief overview and a demonstration of its scheduling and cost engines.

Interviews will follow as previously scheduled by the Review Team. At the end of each day, the Review Team will provide an out brief regarding any additional needs (facilities support, data, etc.). At the conclusion of the Review, the Review Director will conduct a formal Out Brief.

What to Expect During Interviews



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- Contractor Management, Project Controls, and Control Account Managers are interviewed as well as some DOE Site Personnel
- CAM interviews will be conducted where the CAM has **access to the cost and schedule tools** used to manage the control account(s)
- Interviewees must be able to **show, prove, demonstrate** that they are using the system to manage their projects
- Interviewers will **drill down, trace, analyze** to make sure the data is accurate
- The team will **conduct a critical assessment** of the tools, procedures and processes, and how they are used to manage the work

The team will conduct interviews during all on-site reviews, and may conduct some via conference call or VTC on desk top reviews. Interviewees include the contractor's management, Project Controls staff, and Control Account Managers (CAMs).

Although the focus is on the contractor's compliance, DOE site personnel, such as the FPD and CO, may be interviewed to assess use of the EVM data.

The team's focus is to verify compliance. Therefore CAMs must have live access to the cost, schedule, and any other systems required to demonstrate, show, and prove compliance. It also allows the interviewers to drill down, trace, and analyze data. CAMs must have access to MS Power Point to copy and save screen shots from these systems, as requested by the review team, for review documentation purposes.

The team conducts a critical assessment of the tools, procedures, and processes. Also assessed is how the interviewee has implemented the processes and demonstrates not just basic cost and schedule tracking, but how the work is managed based on variances, trends, and projections.



- **Corrective Action Request (CAR):**
 - A CAR is a systemic or limited occurrence of an ANSI/EIA 748 non-compliance or a significant impact to reporting
 - A CAR requires a Corrective Action Plan (CAP), approval, and closeout
- **Continuous Improvement Opportunity (CIO):**
 - A CIO is a recommended improvement or expansion of good practices for wider application
 - CIOs do not require implementation or response; dialog is encouraged

Non-compliances identified during EVMS Reviews will be documented via a Corrective Action Request, also called a CAR. The purpose of a CAR is to formally notify the contractor of process or implementation deficiencies. All CARs require a documented course of action (i.e., corrective action plan) prepared by the contractor, and approved by the Review Director. All CARs will be documented and tracked to closure. Verbal CARs are not acceptable.

CIOs may be issued to identify areas for process improvement. These may include suggested best practices, lessons learned, or other efficiency or effectiveness measures to streamline processes. CIOs do not require a written response from the contractor and approval by the team; however, they are encouraged to share their thoughts and plans pertaining to the ideas provided.

Corrective Action Plan (CAP)



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- **CAP approval criteria**
 - Thoroughness of root cause analysis; need for formal causal analysis
 - Adequacy of corrective action to prevent recurrence
 - Review for repeat non-compliances; assessment of metrics
 - Verify guideline compliance
 - Closure criteria, e.g. clear activities required to be successfully accomplished before the CAR can be closed out
 - The surveillance team documents the status of these activities and is responsible for ensuring that the statuses of activities are documented
- **CAP / CAR verification and closure**
 - Verification of completion of CAP activities may include any or all of the following:
 - Review evidence packages
 - Conduct additional CAM interviews
 - Data sampling and analysis

The contractor prepares and submits a Corrective Action Plan (CAP) addressing the CARs. A CAP clearly documents assumptions, constraints, and the commitment dates for (a) completion of corrective actions, and (b) submittal of any documentation of completion.

If the certifying authority's CAP analysis concludes that the CAP logically outlines in sufficient detail the proposal to remedy the ANSI/EIA 748 non-compliance or a significant negative impact to reporting, the CAP is approved. It may take more than one CAP submission before acceptance to ensure all concerns are addressed.

The contractor is cautioned about implementing CAPs prior to the DOE acceptance as it may result in the need for further systemic changes.

The surveillance team is responsible for ensuring that the closure criteria are followed, and that a mutual understanding has been reached.

Verification may consist of reviewing the completeness of any of the products and data that are required for each of the guidelines.

Documenting Review Results



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- **EVMS Review reports are issued to document the review actions**
- **Contents:**
 - Executive Summary Scope of Review
 - Health of the EVMS
 - Assessment and Findings
 - System deficiencies identified
 - Best Practices Identified
 - Conclusion
 - Attachments include CARs and CIOs

The Review Team documents the results of EVMS Reviews in a written report that is issued by the OAPM Director. The report includes an overall assessment of the contractor's implementation of the EVMS, scope of the review, and findings of deficiency or non-compliance that resulted in CARs. A report template is available from the OAPM or on the OAPM EVMS home page.

EVMS Review Reports should include at a minimum:

- An Executive Summary of the Scope of Review and highlight the overall health of the contractor's EVMS as assessed by the review.
- The report also includes an Assessment and Findings, which includes summarizations of trends and systemic issues identified during the review with a table of the Corrective Action Requests and Continuous Improvement Opportunities issued, as well as any Best Practices identified during the review.
- The last section of the report is a Conclusion.

Attachments to the report include the CARs and CIOs. Supporting documentation from the review, such as the data trace documentation and PARS II reports, are kept on file at the OAPM.

Closing the Review



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- **All Corrective Actions for the issued CARs have been reviewed, verified as complete, and closed**
- **Final Report documenting closeout is issued via memorandum to the CO; copies to internal stakeholders**
- **The Certifying Authority makes all determinations regarding system compliance**
- **The CO will issue formal notification to the contractor**



For documentation purposes, a final report is issued after closure of all CARs and provided to the CO for transmittal to the contractor along with a letter if necessary, noting compliance status. As previously noted, the DOE Certifying Authority makes all determinations regarding system compliance.



- **ESSOP and ECSOP describes surveillance and certification processes**
- **Standard templates, tools, forms, briefings, reports, and requests**
 - Risk assessment and data trace templates and tools
 - Review plan/report, In/out briefs, data/document requests
 - Interview Findings Form (IFF), CAR/CIO Form, CAP Format

**Available on OAPM's EVM Home page
or by request**

OAPM has developed standard processes, tools, templates, and forms supporting the EVMS review process. These are available on the OAPM EVM Home page or by request.

DOE OAPM EVM Home Page

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Earned Value Management (EVM) is a systematic approach to the integration and measurement of cost, schedule, and technical (scope) accomplishments on a project or task. It provides both the government and contractors the ability to examine detailed schedule information, critical program and technical milestones, and cost data.

- EVMS Surveillance Standard Operating Procedure (ESSOP) - 26 Sep 2011 (pdf)
- EV Guideline Assessment Templates - (MS Word)
- DOE EVMS Cross Reference Checklist - (pdf)
- DOE EVMS Risk Assessment Matrix - (MS Word)
- Formulas and Terminology "Gold Card" - Sep 2011 (pdf)
- Slides from the DECM Road Show: Earned Value (EV) Analysis and Project Assessment & Reporting System (PARS II) - May 2012 (pdf)
- DOE EVM Guidance

EVM TUTORIALS

Module 1 - Introduction to Earned Value (pdf 446.86 kb) July 17, 2003

This module is the introduction to a series of online tutorials designed to enhance your understanding of Earned Value Management. This module's objective is to introduce you to Earned Value and outline the blueprint for the succeeding modules. This module defines Earned Value management. It looks at the differences between Traditional management and Earned Value management, examines how Earned Value management fits into a program and project environment, and defines the framework necessary for proper Earned Value management implementation.

<http://energy.gov/management/office-management/operational-management/project-management/earned-value-management>

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History

For information relative to EVMS procedures, templates, helpful references, and training materials, please refer to OAPM's EVM Home page. Check this page periodically for updated or new information.

Thank you