

**Office of Project Management (PM)
Earned Value Management Systems
Compliance Review
Standard Operating Procedure
(ECSOP)**

**Issued by
Office of Project Management (PM)
Project Controls Division**

DOE-PM-SOP-04-2022

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- 1. PURPOSE.** The Office of Management and Budget (OMB) requires federal agencies to implement an Earned Value Management System (EVMS) compliant with the Electronic Industries Alliance Standard 748 (EIA-748), the current version at the time of contract award, or other as required by contract, for major capital acquisitions due to their importance to the agency mission. The Department of Energy (DOE) implements this requirement through DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, which requires the Office of Project Management (PM) to establish, maintain and execute a documented EVMS compliance assessment process. This DOE PM EVMS Compliance Review Standard Operating Procedure (ECRSOP) serves as a primary reference for DOE PM's determination of compliance. This standard operating procedure (SOP) provides guidance for DOE PM staff and support contractors performing EVMS compliance reviews in accordance with established thresholds in DOE O 413.3B to verify and validate full compliance with Federal Acquisition Regulations (FAR) and OMB compliance requirements. Utilization of this SOP by DOE PM staff and support contractors will ensure consistent assessment of compliance and evaluation of the implementation of a contractor's EVMS while minimizing the need and duration for onsite reviews.
- 2. APPLICABILITY.** This SOP applies only to DOE PM personnel and PM-led or initiated review teams responsible for the determination of EVMS compliance of applicable projects and contractors subject to DOE O 413.3B. It is available for use outside of PM.
- 3. RELEASABILITY. UNLIMITED.** This SOP is approved for public release.
- 4. SUPERSEDES.** This SOP supersedes the ECRSOP dated November 28, 2018.
- 5. EFFECTIVE DATE.** This SOP is effective immediately.

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1 POLICY AND AUTHORITY

This Office of Project Management (PM) Earned Value Management System (EVMS) Compliance Review Standard Operating Procedure (ECRSOP) serves as a primary reference for PM in the EVMS compliance determination process. The purpose of this PM SOP is to provide standardized and repeatable processes based on a common understanding of EVMS compliance techniques, methods and practices. All information contained here provides detailed processes for PM to implement the requirements in DOE Order (O) 413.3B, consistent with guidance provided in DOE Guide (G) 413.3-10B, *Integrated Project Management using the Earned Value Management System*¹. The Electronic Industries Alliance Standard 748 (EIA-748)², current version or other as required by contract, establishes 32 EVMS guidelines.

Figure 1 shows the hierarchy of DOE issuances that amplify the compliance determination process.

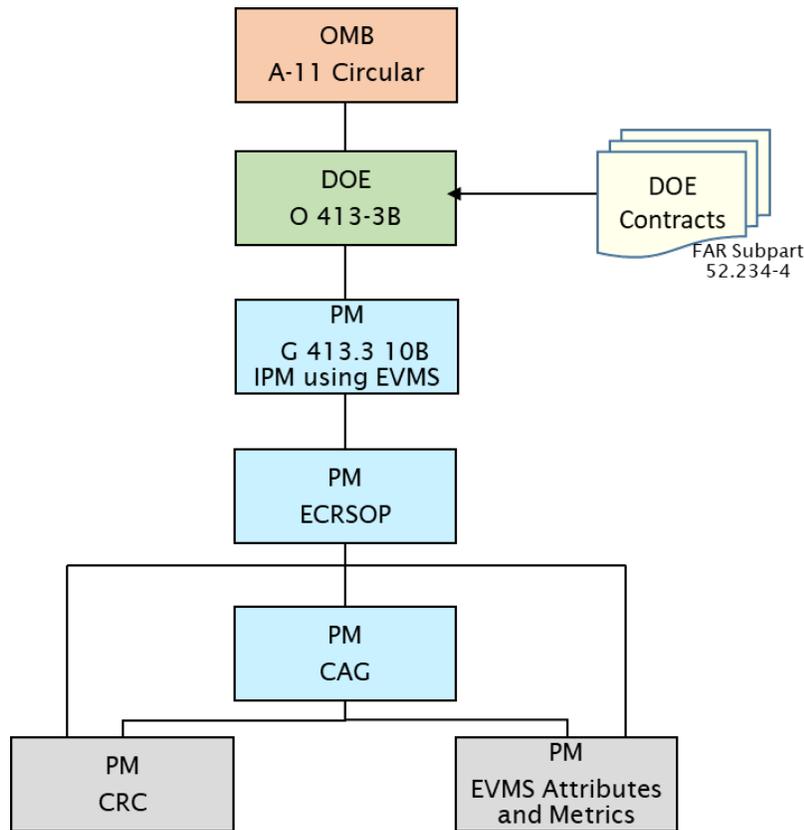


Figure 1. Hierarchy of DOE issuances used in EVMS Compliance Review Process

¹ G 413.3-10B, <https://go.usa.gov/xtmXz>.

² NDIA Guides and Resources, Complementary documents to the EIA-748 Standard for Earned Value Management Systems, <https://www.ndia.org/divisions/ipmd/division-guides-and-resources>.

1.1 FEDERAL REGULATIONS

The Office of Management and Budget (OMB) requires federal agencies to implement an Earned Value Management System on Capital Acquisitions (Reference (f)). As defined in the OMB Circular A-11, Part 7, Capital Programming Guide, major acquisitions are capital assets that require special management attention because of their importance to the agency mission.³

1.2 DOE O 413.3B EVMS COMPLIANCE REQUIREMENTS

As shown in Figure 2, DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*⁴, states that prior to Critical Decision (CD)-2, the contractor is required to employ and maintain an EVMS compliant with EIA-748, or as required contractually (DOE O 413.3B, Appendix A, Section A-11). DOE O 413.3B, Appendix C, Section 8, further defines DOE’s policy for EVMS compliance relative to project threshold values; it also exempts the EVMS requirement for firm fixed-price contracts direct with the government.

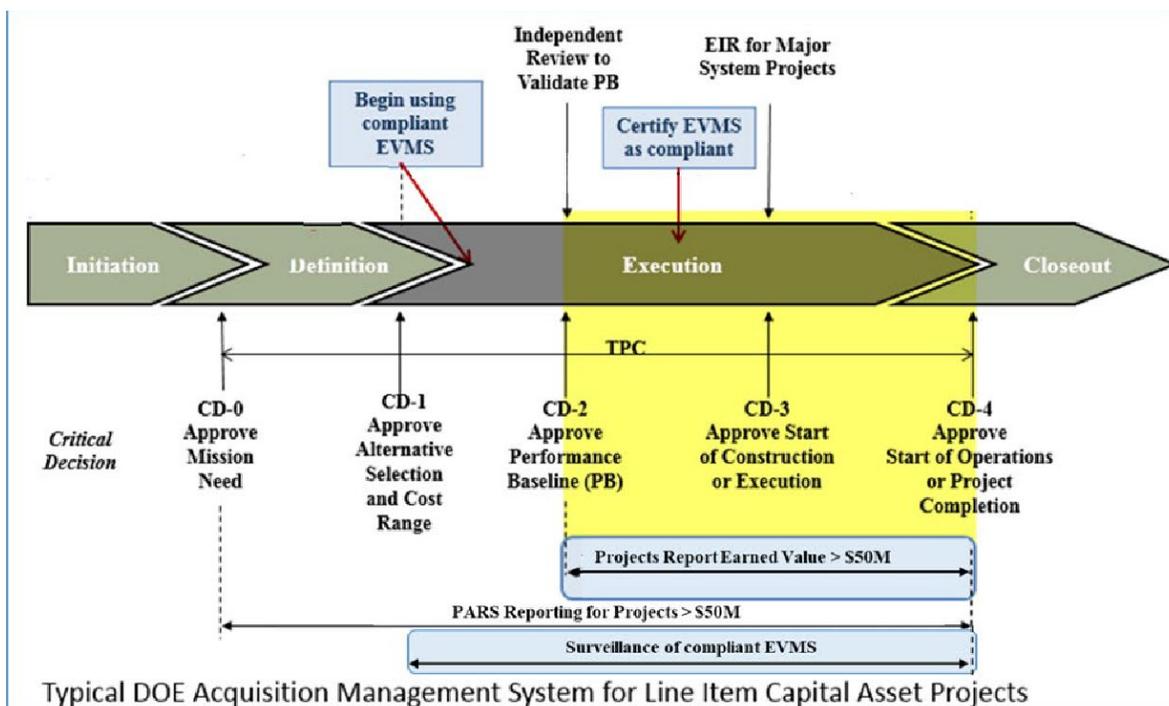


Figure 2. Typical DOE Acquisition Management System for Line-Item Capital Asset Projects

Key EVMS compliance requirements include:

³ OMB Circular A-11, <https://go.usa.gov/xtmU2>.

⁴ DOE O 413.3B, <https://go.usa.gov/xtmXA>.

- Between CD-1 and CD-2, the project uses (or is in the process of implementing) an EIA-748 compliant EVMS, to include initial development of the project’s performance measurement baseline (PMB) through project completion consistent with the approved cost range. The high end of the approved cost range should be considered to determine whether the EVMS threshold applies. The best practice is to implement a compliant EVMS shortly after CD-1, since documented EVMS processes are used in the front-end planning and development of the WBS and IMS (for estimating, budgeting, work authorization, and risk management). This leads to the development of a PMB, which will continue to evolve with progressive development of the design and execution planning as the project moves through successive CD gates. Furthermore, this best practice supports Federal staff’s use of the EVMS data and information to understand the risks for major deliverables and to use an appropriate strategy to manage the project. All parties should consider appropriate use of variance threshold levels, reporting frequency, and content to render the appropriate visibility into emerging issues and timely decision making.
- By no later than CD-2 approval, the performance baseline (PB), including the contractor’s PMB, covers the entire project life cycle, that is, through CD-4, using a fully compliant EVMS.
- Prior to CD-3 (or a combined CD-2 and CD-3) approval, the EVMS is certified as EIA-748 compliant as required by DOE O 413.3B.
- Active post-CD-2 projects with a TPC of \$50 million or more provide EVMS data reporting in PARS.

1.2.1 EVMS Certification

Certification refers to the confirmation of certain characteristics of a contractor’s EVMS. Through certification, DOE PM verifies that the data and information produced by the contractor’s EVMS is current, accurate, complete, repeatable, auditable, and compliant for determining a project’s status. The outcome of the certification process is an assessment of the EVMS capability to provide objective schedule, budget, cost, and technical performance measurements; it does not verify how well projects are performing or progressing. This process assesses a contractor’s EVMS for “compliance” with the intent of the EIA-748 standard.

PM will recognize a contractor’s EVMS certification indefinitely so long as:

- the system remains active at the specified location (i.e., site) where the certification applies;
- the system continues to meet the intent of EIA-748 EVMS standard;
- the system is not changed in a significant manner (see subsection 4.2); and
- the contractor remains the same.

1.2.2 EVMS Certification Thresholds

The certification process assesses the capability of the system to provide an objective measure of cost and schedule progress and the effective use of the system by the contractor. Elements of the EVMS (i.e., the design as reflected by policies, procedures, and processes; and the implementation as reflected by reports and other documents) are evaluated individually and as a whole to verify that they meet the intent of EIA-748.

- **Project TPC of \$100M or greater:** Prior to CD-2, the Order requires that the contractor employ an EVMS compliant with the EIA-748. Prior to CD-3, the Order requires that PM

must conduct an EVMS compliance review to certify that the contractor's EVMS is compliant with the EIA-748, or as defined and required by the contract.

- **Project TPC below \$100M:** Prior to CD-2, the Order requires that the contractor employ an EVMS compliant with the EIA-748. There is no formal determination or 'certification' designation by PM that the contractor's EVMS is compliant with the EIA-748. However, on an exception basis, or at the request of the Project Management Support Office (PMSO), PM may assess EVMS compliance to identify and document system deficiencies and any areas of non-compliance.

1.2.3 EVMS Surveillance Thresholds

The purpose of surveillance is to verify that a contractor's certified EVMS remains in full compliance with the EIA-748, or as required by the contract, on all applicable projects. EVMS surveillance may include an assessment against some or all of the EVMS.

- **Project TPC of \$100M or greater:** For contracts where there are applicable projects having a TPC of \$100M or greater, PM-30 Project Controls Division (PM-30) will conduct risk-based, data-driven surveillance during the performance of the contract, during contract extensions, or as requested by the Federal Project Director (FPD), the Program, or the Project Management Executive (PME). The data-driven approach assesses the reliability of core management processes from initial implementation through project and contract execution thereby reducing the risk of EVMS failure. This approach may include remotely evaluating contractor EVMS data, thus reducing the need and costs for multiple interviews and assessments. The extent of the EVMS surveillance will be tailored as appropriate based on current conditions.
- **Project TPC below \$100M:** PM may, on an exception basis, or at the request of the PMSO, conduct EVMS surveillance reviews to identify and document system deficiencies and any areas of non-compliance.

PM will tailor/adapt the EVMS surveillance approach to the project's specific conditions (risk, complexity, visibility, cost, safety, security, and schedule); it will also take into account the outcomes from the contractor's self-surveillance (see subsection 3.2.7). Tailoring does not imply the omission of essential elements in the compliance process as defined in this document.

In addition, for those EVMS not having certification requirements (for DOE project TPCs between \$50M and \$100M), cost and schedule performance data used to manage the work scope should be derived from an EIA-748-compliant EVMS.

1.3 EVMS REFERENCES

This document provides detailed guidance based on recognized leading sources for establishing, employing, and maintaining a compliant EVMS as referenced in the EIA-748 and DOE O 413.3B, including the DOE G 413.3-10B (Integrated Project Management Using the Earned Value Management System), the EIA-748 EVMS Standard, the Government Accountability Office (GAO) Cost Estimating & Assessment Guide, and the GAO Schedule Assessment Guide.

In addition, a DOE-sponsored Joint Research Study has developed a tool to assess a spectrum of EVMS maturity and environment issues centered around the 32 EIA-748 EVMS guidelines. This

effort was led by Arizona State University and included participation from numerous government and industry organizations (including the Energy Facility Contractors Group (EFCOG)); it defined 56 maturity attributes and 27 environmental factors. A project's compliance with EIA-748 can be assessed and summarized through evaluation of the maturity levels of these EVMS attributes, both individually and collectively.

Other sources include multiple National Defense and Industry Association (NDIA) Integrated Program Management Division (IPMD) Guides including the EVMS Intent Guide, EVMS Surveillance Guide, EVMS Acceptance Guide, EVMS Application Guide, EVMS Scalability Guide, and the Planning and Scheduling Excellence Guide (PASEG).

Users of this procedure should be careful not to take discrete elements or statements in one reference document that may appear on the surface to be contradictory, out of context to or misconstrued with the whole of this procedure. The details contained in these numerous resources have been distilled and coordinated to reflect a comprehensive and holistic EVMS compliance framework based on DOE's project management governance and contracting approaches as well as the type of work DOE performs and manner in which it is performed. In short, use of singular guidance by itself outside the PM ECRSOP – Appendix A: Compliance Assessment Guidance (CAG) should not be construed as EVMS compliant by PM. Thus, this synthesized and uniform approach to evaluate the performance of a contractor's EVMS in the manner described herein ensures consistency of EVMS compliance proceedings by PM in performance of its responsibilities.

2 EVMS COMPLIANCE OVERVIEW

2.1 OBJECTIVE

The purpose of the EVMS compliance review is to assess the compliance of the contractor's EVMS. Determining EVMS compliance involves three steps:

1. Verify the contractor's EVM system description meets contractual and/or EIA-748 requirements (it adequately documents the processes and procedures which support how its system meets the intent of the 32 Guidelines).
2. Verify the contractor is executing their EVM system description (i.e., the contractor's ability to demonstrate the EVMS implementation in accordance with the EVM system description and supplemental procedures).
3. Validate the output of the execution (the EVMS is providing timely, accurate, and reliable data, used as the basis for informed decision-making).

Compliance is determined from the results of all three steps.

Positive results from a DOE PM EVMS compliance review validate the government can rely on the data produced by the EVMS to:

1. objectively determine project status;
2. have confidence in cost and schedule estimates to complete;

3. know issues that require management attention, corrective action or risk mitigation; and
4. make informed decisions at all levels of management.

It is important that the PM-30 leadership be an active participant in EVMS compliance reviews to ensure the timeliness of the assessment, the consistency in the application of required standard operating procedures, including the interpretation of the EIA-748 standard and the determination of compliance considering past precedents (e.g., previous determinations) to ensure consistency from one review to the next.

2.2 TYPES OF EVMS COMPLIANCE REVIEWS

DOE PM EVMS compliance assessments are conducted on a contractor's EVMS at various times, based on contractual requirements, the life cycle of the capital asset project, and/or implementation concerns. The type of EVMS compliance review conducted depends on the situation that initiated the assessment. The four types of EVMS Compliance Reviews are:

- **Certification Review (CR).** A formal review to determine if a contractor's EVMS, on all applicable DOE projects, is in full compliance with EIA-748, or as required by the contract, and in accordance with the applicable contract clause FAR 52.234-4, Earned Value Management System, or other applicable contract requirement necessitating the contractor to use an EVMS that has been determined by the Cognizant Federal Agency (CFA) to be compliant with EIA-748.
- **Implementation Review (IR).** A special type of surveillance performed in lieu of a Certification Review when EVMS compliance is required. This type of review extends the certification of a contractor's previously certified system to another facility or to a follow-on contractor, from one project to another project after a prolonged period of system inactivity, from one certifying entity to another, or when the certified system has been significantly changed.
- **Review for Cause (RFC).** This type of review is only appropriate for a certified EVMS. A review of specific elements of a contractor's EVMS that have displayed a lack of applied discipline in the actual execution of work or deemed at risk of no longer meeting the requirements of the EIA-748. This type of review is used to determine whether a contractor's EVMS certification should be withdrawn.
- **Surveillance Review (SR).** This type of review is only appropriate for a certified EVMS. The ongoing process to continuously review a contractor's EVMS for all applicable projects that require an EIA-748 compliant EVMS.

2.3 DOE AUTHORITATIVE SOURCES

A uniform approach to evaluate the contractor's EVMS in the manner as described above helps to safeguard the fairness and transparency of the EVMS compliance assessment process. The examination of management sub-process groups and maturity attributes facilitates the correct interpretation of the EIA-748 standard. This systematic approach leads to a consistent determination of the maturity and effectiveness of the contractor's EVMS vice just a burdensome costly routine to document compliance as contractually required.

Appendix A contains tools that support the DOE compliance assessment process:

- **PM Compliance Assessment Governance (CAG)**

- The PM CAG provides standard definitions and consistent application of each of the 32 EIA-748 EVMS guidelines through the 56 EVMS maturity attributes as defined in the IP2M METRR.⁵
- For each of the EVMS maturity attributes, it addresses their objective, effectiveness criteria, and impact of non-compliance.
- **EVMS Compliance Reference Crosswalk (CRC)**
 - Used to assess a contractor’s descriptive documents containing EVMS policies and procedures that are used in the actual execution of work. A contractor’s written policies and processes should be documented in an EVM system description which may include or be further supported by guides and aids that are maintained under the contractor’s formal configuration control process.
- **EVMS Attributes and Metrics**
 - Used to assess via automated metrics or manual artifact traces the contractor’s implementation of their EVM system description. To the extent possible, metrics have been developed with identification of typical acceptable outcomes and thresholds. Breached thresholds flag potential issues for evaluation through further analysis, interviews, and/or discussions. The metric thresholds will be reassessed on a periodic basis with EFCOG and other DOE stakeholders to reconfirm their relevance and reliability.
 - Included with the PM EVMS Attributes and Metrics is a summary description, a metric ID, a method description, a crosswalk to the applicable maturity attribute(s), and a detailed metric specification sheet.

Appendix B contains:

- **EVMS Compliance Review Team Toolkit**
 - A compilation of templates used for compliance reviews.
 - A template for the complete data call used during compliance reviews.

Appendix C contains:

- **Acronym List**
 - Defines the acronyms of common earned value terminology.

Appendix D contains:

- **References and Resources**
 - Listing of applicable references and resources containing detailed guidance based on recognized leading sources for establishing, employing, and maintaining a compliant EVMS as referenced in the EIA-748.

2.4 COMPLIANCE FINDINGS

The compliance review team will assess, document, and report instances of EVMS compliance utilizing ten project management sub-process groups that are further defined by 56 maturity attributes. The ten sub-processes are:

⁵ Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS, <http://go.usa.gov/xt8Eq>.

- A. Organizing
- B. Planning and scheduling
- C. Budgeting and work authorization
- D. Accounting considerations
- E. Indirect budget and cost management
- F. Analysis and management reporting
- G. Change control
- H. Material management
- I. Subcontract management
- J. Risk management

The determination of EIA-748 compliance for a management sub-process and maturity attribute is accomplished by assessing associated data and information over a specified time period to determine how well it meets a set of capability limits or thresholds.

The review examines the effectiveness of the EVMS and its compliance with the intent and requirements of EIA-748. This is accomplished via the combined analyses of EVMS data, artifacts, and information; the EVM system description and supporting operating procedures review; and discussions with contractor and government personnel. EVMS compliance assessments may result in non-compliance determinations against the documented processes, the implementation of those processes, or a combination of both as follows:

- **Process** (the written EVM system description or process),
- **Implementation** of the written EVM system description or procedures, or
- **Both the Process and the Implementation.**

A process is non-compliant when the EVM system description and supporting procedures or instructions do not adequately address EIA-748 compliance requirements. The implementation of a process is non-compliant when either a properly designed process is not operating or being implemented as intended or the persons performing a process do not possess the necessary authority or qualifications to execute the process effectively. When an insufficiently defined process results in an implementation non-compliance, the non-compliance addresses both the process and implementation aspects of the finding. A non-compliance determination can range from an inconsequential concern/discrepancy to a material weakness in meeting contractual requirements.

Throughout the review, the team will identify issues and concerns, and document discrepancies (any outputs from the EVMS that are different from the expected output from an EIA-748-compliant EVMS). The determination of EVMS non-compliances consists of the following activities:

- identify issues/concerns from the review (subsection 2.4.1);
- evaluate if the issues/concerns are EVMS deficiencies (subsection 2.4.2);
- assess materiality and impact of the issues/concerns to the project/program (subsection 2.4.3); and
- document findings as an EVMS deficiency as a CARs or DRs (subsection 2.4.4).

2.4.1 Identify Issue/Concern from the Review

The methods used to identify issues/concerns are described in more detail in subsection 4.1.3 Execute Review Phase, **Step 6**. It is important to document and capture the results from the review in order to effectively conduct the review. Responsibilities for the documentation of these activities should be assigned in advance of the review (see Section 3). Templates for documentation can be found in the PM Compliance Review Team Toolkit (see Appendix B). These concerns should be available to the entire review team and maintained in a structured format throughout the entire review.

2.4.2 Evaluate if Issue/Concern is an EVMS Deficiency

The tools that DOE uses to evaluate findings and concerns (the CRC, the CAG, and the EVMS attributes and metrics) are described in subsection 2.3 and can be found in Appendix A; these tools are used to evaluate the contractor's process and implementation for deficiencies (instances of EVMS non-compliance).

2.4.3 Assess Materiality and Impact of the Deficiency

Material impact is a matter of professional judgment influenced by the perception of the needs of a reasonable person who relies on the performance measurement reports and financial statements. Materiality judgments are made in light of surrounding circumstances and involve both quantitative and qualitative considerations, including the number of deficiencies observed, the associated absolute dollar value impact, the importance of item(s) to the accomplishment of contract requirements, and the potential impact on government funding.

An assessment of materiality considers how an EIA-748 non-compliance impacts the ability of the EVMS to produce current, accurate, complete, repeatable, auditable, and compliant (CACRAC)⁶ information needed for project management decision-making. Materiality addresses both process (the written word) and implementation (the act of doing) deficiencies. Similar EIA-748 non-compliances may be widespread yet have a combined minor magnitude while a single EIA-748 non-compliance can be of high magnitude yet a single occurrence.

In assessing the materiality of deficiencies, the review team must consider both the systemic nature of the deficiency, as well as the likely impact of the occurrence(s). Deficiencies can be evaluated for systemic and materiality through evidence gathered through EVMS data analysis; interviews are used to further explore the potential concern(s) and substantiate any basis for a CAR and/or DR. Therefore, it is critical that a representative sample from the data analysis is further investigated to support the pervasiveness of the deficiency. The systemic and material nature of the finding must be considered and explained by the review team as part of developing a CAR and/or DR. These can be evaluated as follows:

- **Systemic Considerations** - deficiencies are considered systemic based on the frequency of occurrence and prevalence across project/program requirements, contract terms and conditions, and/or CAs.

⁶ CACRAC, <https://www.energy.gov/projectmanagement/downloads/cacrac-current-accurate-complete-repeatable-auditable-and-compliant>.

- Is it prevalent across the project, instead of an isolated non-compliance?
- Are there a number of similar non-compliances observed?
- Do repeat findings from prior reviews indicate a continuing pattern?
- Are there a percentage of data elements (e.g., CAs, CAMs, or projects) that have the same non-compliances (for this consideration, it is only effective if all of the data elements are assessed)?
- Do scheduling metrics, calculated by percentage of Work Packages (WPs) or activities, indicate reoccurrence?
- Do interviews with numerous project staff (e.g., CAMs) regarding the same concern yield the same result?
- **Materiality Considerations** – deficiencies are considered material based on the importance or significance of the inaccuracy to the ability of the EVMS to produce CACRAC information.
 - What is the impact of data credibility for use in managerial assessment and decision making?
 - What is the absolute dollar value or absolute schedule duration impact (including potential impact to annual funding and performance baseline breaches)?
 - What is the likely impact associated with the non-compliance (low dollar yet critical item vice high dollar yet non-critical item)?
 - What is the magnitude of the impact, which may be calculated as a percentage of dollar value impact of non-compliance to the total PMB; cost or schedule impacts at an attribute level, or as summed to an attribute level; or risk measurement based on impact of non-compliances to scope, schedule, and budget?

Compliance risk factors also influence the possibility that a deficiency, or a combination of deficiencies, will result in a reporting misstatement (e.g., a performance inaccuracy). The factors include, but are not limited to, the following:

- The nature of the financial or performance measurements, disclosures, and assertions involved;
- The susceptibility of the related statement to loss or fraud;
- The subjectivity, complexity, or extent of judgment required to determine the amount involved;
- The interaction or relationship of the control account with other control accounts, including whether they are interdependent or redundant;
- The interaction of the deficiencies; and
- The possible future consequences of the deficiency.

Compliance risk factors should not be confused with project management risk; they are used to assess the ability of the EVMS to accurately assess performance.

2.4.4 Documenting Non-Compliances

As discussed previously in subsection 2.4, the CR assesses and documents the compliance of the contractor's EVMS. Specific emphasis is placed on the documentation of non-compliances in order to facilitate correction. The Corrective Action Request (CAR) and Discrepancy Report (DR)

are used to document an EIA-748 non-compliance finding. The use, characteristics, and impact of each type of EIA-748 non-compliance are listed below:

- Corrective Action Request (CAR)
 - Used to document material and systemic deficiencies.
 - Characteristics include high dollar, significant schedule slips, or high-risk impact and/or recurring and pervasive/systemic across control accounts (CAs), projects, and/or contracts.
 - Impact could significantly influence performance measurement, currency, accuracy, completeness, repeatability, and auditability of the data.
- Discrepancy Report (DR)
 - Used to document non-material deficiencies.
 - Characteristics include low dollar, schedule slips that don't impact project critical path, minimal risk non-compliances that require minor clarifications to processes, errors or oversights, and non-systemic, isolated, infrequent, and nonrecurring issues.
 - Impact has not significantly influenced performance measurement but may if left uncorrected.

Appendix A is utilized by the review team to assist in the determination of EVMS issues/concerns for the 56 maturity attributes. Each maturity attribute has multiple effectiveness criteria and one or more metrics. Although EVMS deficiencies may be documented citing flagged manual and/or automated metrics, the Team Lead working with the Maturity Review Chief will combine instances of multiple flagged metrics occurring for the same maturity attribute into a single CAR and/or DR (only one per maturity attribute). Consequently, the maximum number of CARs/DRs possible is equal to the total number of maturity attributes (56).

As a result, it is possible for a single CAR/DR to highlight several issues and concerns that require more than one corrective action. The nature of the deficiency and impact(s) are further explained in the CAR and/or DR, and all relevant supporting documentation/artifacts should be attached. The material impact can then be based on the totality of deficiencies for a particular maturity attribute.

When documenting the materiality impact of EVMS non-compliances in a CAR or DR, the review team must clearly document the impact through EVMS data and information, including instances of cost or scheduling reporting errors, EAC miscalculations, erroneous critical path determinations, and inaccurate performance measurement. The Team should document the EVMS deficiency's impact to the ability of the government and contractor to:

- Know the project status in terms of scope, schedule, and budget baseline plan;
- Forecast the project's schedule and cost;
- Take corrective action to address root cause issues driving scope, schedule, and budget impact to bring project back into alignment with baseline plan; and
- Make informed decisions such as to re-baseline to new budget and/or schedule targets in an Over Target Baseline (OTB) and/or Over Target Schedule (OTS) or changing scope requirements.

In evaluating the magnitude of potential cost and/or schedule impacts, the overstated value is usually the specified amount while the understated value could be greater than the amount specified. In addition, in many cases, the probability of a small misstatement will be greater than

the probability of a large misstatement. The Maturity Review Chief should evaluate the effect of compensating issues when determining whether an EIA-748 deficiency or combination of deficiencies is a material weakness. To have a mitigating effect, the compensating issue should be identified using a level of precision that would prevent or detect a misstatement that could be material. Indicators of a material weakness in a contractor's internal control over performance and financial reporting include:

- Updating financial statements with information corrected as a result of finding a material misstatement;
- Identification by the auditor of a material misstatement of financial statements in the current period in circumstances that indicate that the misstatement would not have been detected by the company's internal control over financial reporting; and
- Ineffective oversight of the company's external financial reporting and internal control over financial reporting by the company's audit committee.

After the Team Lead makes an initial determination of the materiality of the findings resulting from the assessment and chooses a CAR or DR, the Team Lead documents the CAR/DR on the prescribed EVMS CAR/DR/CIO Template (see Appendix B). The fields, selections, and narrative guidance is provided:

(1) Review Information

The review information includes the following:

- **Contractor's Name**
- **Site Office Name**
- **Contractor's Location**
- **Type of Review:** Certification, Implementation, Review for Cause, or Surveillance
- **Dates of Review**
- **PMSO**
- **Organization Leading the Review:** PM-30
- **Sub-Process:** Choose one of the following: A. Organizing, B. Planning and Scheduling, C. Budgeting and Work Authorization, D. Accounting Considerations, E. Indirect Budget and Cost Management, F. Analysis and Management Reporting, G. Change Control, H. Material Management, I. Subcontract Management, or J. Risk Management
- **Contractor EVM System Description and Revision Number**
- **EVM System Description Dated:** Date of contractor's latest revision
- **Date of Preparation:** Date CAR/DR/CIO was initiated
- **Review Director**
- **Date Sent to Contractor**
- **Requested Contractor Response Date**

(2) CAR/DR/CIO Information

The CAR/DR/CIO Information required includes the following:

- **CAR, DR, or CIO: Select one**
- **CAR/DR Type:** Choices include Process, Implementation, or Process and Implementation
- **Attribute:** One attribute per CAR/DR/CIO.

- **Subject Title:** A short subject title that describes (a) the specific issue of the failure for CARs and DRs, or (b) the nature of the CIO.
- **The CAR/DR/CIO Control Number:** The control number and the file name are one in the same. The control number is coordinated with the person responsible for maintaining the CAR/DR/CIO log during the Compliance Review process. The control number and file name convention follow these rules:
 - CARs/DRs
 - Abbreviation of Contractor's Name, e.g., ZZNL
 - Year and Month of review (YYMM)
 - CAR or DR
 - Attribute Number
 - Example: ZZNL2208_CAR_A01, ZZNL2112_DR_C12
 - CIOs: The naming convention for a CIO is sequential, e.g. ZZNL2203_CIO01, ZZNL2203_CIO02. (Add a leading zero for the first nine.)
- **EVM System Description:** Provide quotations from the contractor's EVM system description supporting the non-compliance finding. This information is mandatory for CARs and DRs to document and support that the process is non-compliant, or that the process is correct, however the implementation was faulty. For process issues, a quote from the contractor's EVM system description containing the non-compliant verbiage for each attribute affected must be included as evidence. If an attribute is not addressed, an explanation of the gap shall be noted. For implementation issues, a quote will be included from the EVM system description describing the process not properly implemented, where applicable and/or available, as there may be gaps where appropriate guidance is not provided within the contractor process documents.
- **Attribute Discussion/Intent:** Based on the maturity attribute identified, this information can be found in the EVMS CAG (Appendix A) and must include exhibit(s) as evidence of the non-compliance and to support the Review Director/Maturity Review Chief's decision of materiality.
- **Findings:** Provide a concise explanation, supported by exhibits. Exhibits are snapshots copied into the CAR/DR/CIO to clearly show the EVMS deficiency as identified from data analysis, artifact traces, and/or interviews. Exhibits must provide self-explanatory screenshots of the problem, include a title describing the exhibit, and an annotation of the area of interest by circles, arrows, or any other indicator (typically Red in color, Pt. 3 Width) to assure understanding of the non-compliance. The explanation should include a discussion of the environment factors observed that contributed to the EVMS deficiency. This explanation should be separated from that of the maturity attribute.
- **Impact:** The CAR/DR will contain an impact statement that addresses the affected EVMS attribute. Describe the impact the non-compliance has on the CACRAC and usefulness of the EVMS data for management purposes. Refer to the EVMS CAG (Appendix A) for impact language that may be useful in writing this section.
- **Prepared by:** Include the first initial and last name of the author.
- **Date the CAR/DR/CIO was written**

- **Reviewed by:** Include the first initial and last name of the person reviewing the CAR/DR/CIO (usually the Review Director unless delegated to the Maturity Review Chief).
- **Reviewed date:** Indicate the date the CAR/DR/CIO was approved by the Review Director.
- **Out-brief Date:** Indicate date of contractor out-brief by Review Director.

CARs/DRs issued to a contractor require a formal response using the CAMP format (see Section 5).

2.5 CONTINUOUS IMPROVEMENT OPPORTUNITY (CIO)

While reviewing a contractor’s EVMS, the EVMS Compliance Review Team may detect procedures and practices that while compliant, can be improved to strengthen the EVMS. A listing of CIOs should be generated and used to identify and document process improvement areas. CIOs share suggested best practices, lessons learned, or other efficiency or effectiveness measures to streamline EVMS core management processes. While CIOs do not require a written response from the contractor or approval by the government review team, dialog is encouraged to share thoughts and plans pertaining to the recommended suggestions.

2.6 INTEGRATING THE EVMS COMPLIANCE PROCESS WITH PM-LED EXTERNAL INDEPENDENT REVIEWS (EIR) AND INDEPENDENT COST ESTIMATES (ICE)/INDEPENDENT COST REVIEWS (ICR)

The evaluation of the EVMS implementation as part of other PM-led reviews (e.g., EIRs, ICEs, and ICRs) focuses on whether the contractor has placed an adequate level of emphasis on the principles and importance of earned value management (EVM). These assessments are not intended to be a formal EVMS compliance review, but rather a validation of the executability of the Performance Baseline (PB) and Performance Measurement Baseline (PMB). The assessments also verify that management strategies are in place emphasizing the full use of the EVMS including, but not limited to, thorough front-end planning, scheduling, and budgeting, change control, risk management, funding requirements, portfolio analysis, performance-based acquisition management, and stewardship and accountability to achieving desired outcomes (e.g. performance goals) at designated dates (e.g. time goal) for a specific amount of resources (e.g. cost goal). EVMS issues found during the course of these assessments should be documented and further examined following the steps described in this PM SOP. With regard to EVMS and the PB and PMB, the EIR and ICE/ICR assessments should determine whether the contractor emphasizes the importance of EVM as a viable project management methodology to plan and control work, and to confirm that the contractor has followed its compliant EVM system description and associated procedures (hereafter referred to as the EVM system description).

3 EVMS COMPLIANCE REVIEW ROLES AND RESPONSIBILITIES

An effective EVMS compliance assessment involves all stakeholders to include PM, PMSO, FPD, CO, and the contractor, working in an integrated, transparent manner. The roles and responsibilities of each participant vary based on the type, scope, and length of the review, team assignments, composition of subject matter experts (SMEs), and other factors that may arise during

the multi-month effort. These must be considered when planning the EVMS compliance review and forming the team. A listing of typical experiences and/or competencies for each of the defined team member roles is shown in Appendix B.

Senior leadership sets a “tone from the top,” demonstrating strong support for the importance of the EVMS compliance review process (see page 1, Federal Regulations) to both the Department and to industry as a priority. An important role of senior leadership is to promote an environment and culture which values EVMS as the preferred project management methodology to support objective, fact-based decision-making. An EIA-748 compliant EVMS provides for the generation of CACRAC contractor performance and progress information, permitting the government to evaluate the contractor’s progress and assess the likelihood of meeting project and contractual requirements for cost, schedule and technical viability. The EVMS is, by federal regulation and contract, the project management tool of choice on cost reimbursable/time and material contracts. EVM is a project management methodology that effectively integrates the project scope of work with cost, schedule and performance elements for optimum project planning and control. Success depends on the reliability of the contractor’s EVMS and an environment that promotes its use. EIA-748 describes the qualities and operating characteristics of a compliant EVMS.

The long-term stability of a project is jeopardized by an undisciplined project management approach; this can be readily determined by evaluation of the EVMS implementation. On the other hand, an EIA-748 compliant EVMS is necessary for Department stakeholders to rely on CACRAC performance measurement data and information intended for effectively managing projects and contracts. Consequences of an undisciplined approach may include:

- Managers unable to identify problems and take immediate corrective action; and
- Managers unable to assess the magnitude of problems.

3.1 PRIMARY EVMS COMPLIANCE REVIEW TEAM ROLES

3.1.1 PM-30 Project Controls

One of the missions of PM is to serve as the single voice for all matters involving EVMS compliance. As CFA, PM-30 develops and maintains all EVMS related policy and procedures, training, and making final assessments of EIA-748 EVMS compliance for DOE capital asset projects. Responsibilities include:

- Serves as EVMS SME assisting employees and customers;
- Develops and maintains EVMS related procedures and templates;
- Serves as the lead for EVMS compliance review team activities;
- Develops and maintains a standardized data call to support EVMS compliance reviews;
- Coordinates compliance processes with all stakeholders to avoid duplication of effort, minimize cost, and maximize communication;
- Plans and conducts EVMS Compliance Reviews in accordance with DOE O 413.3B requirements and as further defined in this PM SOP;
- Assesses contractor management of subcontractors in accordance with EVMS attributes;
- Evaluates and provides formal concurrence on all contractor proposed alterations to the certified EVMS, including changes to documented processes and supporting procedures;

- Monitors Corrective Action Management Plan (CAMP) activities and verifies final closure; and
- Uploads all reports and supporting documentation to document the compliance review.

3.1.1 The EVMS Compliance Review Team

PM-30 organizes, plans, and leads EVMS compliance reviews (the CR, IR, RFC, and SR) previously described in Section 3. The key positions, roles and responsibilities of EVMS compliance reviews are as follows:

Review Director. The Review Director is the PM-30 Division Director responsible for ultimate approval of EVMS findings and reports. The Review Director assigns the Maturity Review Chief and the Environmental Review Chief and approves the selection of the Review Deputy and Review Assistant. The Review Director is responsible for all decisions of EVMS non-compliance.

Maturity Review Chief. The Maturity Review Chief (typically a PM-30 Project Analyst) is responsible for the overall conduct of the maturity assessment and review and for leading the review team in the execution of its duties and responsibilities before, during, and after the compliance review. The Maturity Review Chief identifies and nominates the Review Deputy, Review Assistant, Sub-Process Team Leads and the Review Team (for maturity assignments) to the Review Director for approval. The Maturity Review Chief is also responsible for obtaining non-disclosure agreements from non-federal team members (as appropriate) prior to receiving access to contractor data and information. The Maturity Review Chief will work closely with the Environmental Review Chief to ensure that the two assessments will be conducted independently; if Team Members have roles supporting both assessments, care will be taken to segregate the assignments to maintain objectivity. The Maturity and Environmental Review Chiefs must approve contractor and government ‘observers’ (e.g. non-participating members) considering physical/virtual accommodations with the intent to avoid undo pressure on the interviewee.

Environmental Review Chief. Assigned by the Review Director, the Environmental Review Chief is responsible for the overall conduct of the environmental assessment. Activities include the planning, scheduling, conducting, and accurate reporting of the interviews and discussions held to support the environmental assessment. The Environmental Review Chief identifies and nominates the Review Team members (for the environmental assessment) to the Review Director for approval. The Environmental Review Chief is also responsible for obtaining non-disclosure agreements from non-federal team members (as appropriate) prior to receiving access to contractor data and information. The Environmental Review Chief identifies and nominates Review Team members (for environmental assignments) to the Review Director for approval. The Environmental Review Chief will work closely with the Maturity Review Chief to ensure that the two assessments will be conducted independently; if Team Members have roles supporting both assessments, care will be taken to segregate the assignments to maintain objectivity.

The Environmental Review Chief will provide the Review Director an assessment of the four environmental factors (culture, people, practices, and resources) and the 27 supporting environmental factors.

Review Deputy. The Review Deputy supports the Maturity Review Chief and is responsible for the operation of the Review Team and the EVMS compliance review process. An Environmental Review Deputy may also be appointed. This position is typically filled by an EVM SME on the PM-30 staff or obtained through contract support.

Review Assistant. The Review Assistant assists the Maturity Review Chief and Environmental Review Chief in handling all administrative details of the review with a focus on document control. This position is typically filled by an EVM SME on PM-30 staff or obtained through contract support. One of the most critical tasks for the Review Assistant is to maintain the Compliance Review logs (e.g. CAR/DR/CIO, IFF, and Document Request). This requires close coordination with both the Maturity Review Chief and team members.

Sub-Process Team Lead(s). Assigned by the Maturity Review Chief, the Sub-Process Team Lead(s) are responsible for assessment and documentation of one or more of the 10 project management sub-processes for the EVMS attributes noted in Section 2.4. They consider the adequacy of the ten core project management sub-processes associated with an integrated project management approach (i.e., organizing, planning and scheduling, budgeting and work authorization, material management, subcontract management, analysis and managerial reporting, change control, accounting considerations, indirect cost management, and risk management). This will be accomplished by assessing the ability of a project management sub-process and practice to meet prescribed EIA-748 compliance criteria. The final determination of EVMS compliance is accomplished by evaluating, over a specified period time, how well sub-process attributes meet a set of specification limits (further defined in the CAG, CRC, and metrics in Appendix A). A review team member may be assigned to more than one sub-process pending the results of the data analysis and ultimate review scope. The Sub-Process Team Lead's tasks begin at the data acceptance step and continue through the documentation of any deficiencies (see Figure 3). Output documents include, but are not limited to, providing analysis results of concerns to the respective Interview Team Leads and the associated CARs, DRs, and CIOs. The Sub-Process Team Lead assigns team members early in the data analysis step to ensure the team is involved, prepared, and diligently executes their duties associated with the EVMS compliance review process.

In addition, the Sub-Process Team Lead is responsible for planning, scheduling, conducting, and accurate reporting of any interviews held to support the maturity assessment of the sub-process. Interview candidates are determined by the Review Director and Maturity Review Chief; other responsibilities include:

- verify that the Interview Findings Form (IFF) are populated;
- prepare the interview team members prior to the interviews;
- review team members' work; and
- provide the Maturity Review Chief with completed IFFs, CARs, DRs, and CIO documentation upon completion of assigned interviews.

Review Team Members. Review team members are federal employees, contractor staff, and contracted resources with EVMS compliance assessment experience responsible for performing detailed evaluations of a contractor's EVMS within their assigned sub-process. Review Team members typically serve cross-functional roles as both sub-process and interview team members

supporting a sub-process analysis as well as conducting/documenting interviews. A sub-process team member should be assigned when the IFF includes questions related to the sub-process.

The Maturity Review Chief and Environmental Review Chief will consider team member credentials, working knowledge, and practical EVMS implementation and use when assembling the team. EVMS Compliance Review Team members may include Project Controls Analysts (PCA)/EVM SMEs (both from DOE PM and other DOE project personnel), and direct contract support. Members from other federal agencies (e.g., NASA, DCMA) and EFCOG EVMS/PCA SMEs may participate in reviews; members of non-government organizations are subject to completion of a non-disclosure statement. All EVMS Compliance Review Team members will be assigned specific responsibilities throughout the EVMS compliance review.

3.2 SUPPORTING REVIEW TEAM ROLES

An important aspect of a contractor's EVMS continued compliance relies on the stakeholders, i.e. senior leadership, project analysts, and designated EVMS compliance staff, to hold the contractor accountable to performing defined roles and responsibilities. As part of an EVMS self-governance plan (see Appendix B, Self-Governance Review Checklist) and/or general surveillance, each function should 'check' the performance of the other to make sure that the EVMS is operating both effectively and efficiently. Note: Roles noted below of individuals and organizations outside of PM are for discussion purposes only and do not constitute direction. These are suggested roles to assist the PM team in conducting its EVMS compliance mission.

3.2.1 PM-1 Office of Project Management

PM-1 is the certifying authority for EVMS as well as the authority to decertify. Accordingly, PM-1 provides the resources and budget for executing the EVMS compliance review process as described herein, and specifically for conducting EVMS Compliance Reviews, and is kept current by briefings from the PM-20 Project Assessment Division (PM-20) and PM-30 staff relative to all matters relating to EVMS compliance, policy, and training.

3.2.2 PM-30 Project Controls

PM-30 serves as the EVMS compliance mission lead, responsible for development and maintenance of EVMS compliance guides, training, SOPs, and for leading EVMS compliance assessments. In advance of a compliance assessment, PM-30 conducts a data integrity and quality review of the contractor's data to verify it is suitable for use in a compliance review.

3.2.3 PM-20 Project Assessment

The PM-20 Project Analyst is responsible for participating in the EVMS Compliance Review process for assigned projects. Information provided by the Project Analyst includes in-depth knowledge of the project scope, technical requirements, constraints, and specific concerns or impacts of current and future project risks that will aid the EVMS Compliance Review team. While conducting project level analysis, the PM-20 Project Analyst plays a key role in providing an early warning of, and assessing issues that may involve EVMS processes and implementation. The PM-20 Project Analyst is responsible for coordinating with PM-30 EVM SMEs, and for

working collaboratively towards resolving data integrity issues which may trigger a risk based, data-driven SR.

3.2.4 Project Management Support Office (PMSO)

PMSO insights are helpful in the EVMS Compliance Review process. A PMSO EVM SME is encouraged to participate as a team member in EVMS Compliance Reviews and accept assignments offered by the Review Director and Maturity Review Chief.

3.2.5 Federal Project Director (FPD)

The FPD prior to, during, and after the EVMS Compliance Review process can provide insight into project level direction given to the contractor, past and planned baseline modifications, and performance impacts. The review leadership involves the FPD in collaborative discussions to ensure field or site office direction does not inadvertently compromise EVMS compliance.

As stated in DOE Order 413.3B, the FPD ensures, on capital asset projects with a TPC of \$50M or more, the integration of CACRAC contractor performance data into the project's scheduling, accounting, and performance measurement systems, to include the Project Assessment and Reporting System (PARS). DOE Order 413.3B Appendix A, Table 2.3, Post CD-3, states the contractor must conduct an EVMS surveillance annually. The FPD (and staff) also shares in the responsibility to ensure annual EVMS surveillance is conducted and the system remains compliant. The FPD provides the contractor's internal surveillance reports to the CO, PMSO, and PM.

The FPD (and staff) support EVMS compliance reviews by:

- Communicating to PM-30 (the EVMS Compliance mission advocate) those actions and matters that could/may affect system compliance;
- Assisting in the resolution of problems cited in the review reports;
- Reviewing, evaluating, and analyzing performance reports and schedules;
- Communicating system and implementation concerns, and data integrity issues to the attention of PM-30;
- Participating as members of the review team as requested; and
- Participating on environmental interviews to assess project culture/environment.

3.2.6 Contracting Officer (CO)

The CO is responsible for ensuring all applicable EVMS regulatory and contractual requirements, FAR clauses, deliverables as listed in Attachment 1 of DOE O 413.3B, and language relating to EVMS are included in contracts for capital asset projects with a TPC greater than \$50M. The CO also ensures that contractor performance is integrated with the contract award fee determinations and other mechanisms to ensure pay for performance, including the assessment of EVMS health as supported by EVMS Compliance Reviews. Methods such as establishing award fee on EVMS cost and schedule metrics has proven to be flawed when it drives unintended behavior. It is incumbent upon the CO, PM, PMSO, and FPD to work together to ensure government needs are met and understood, and that contractor incentives are based on project outcomes/objectives.

Formal determination of compliance is provided to the CO by PM-1, and the CO notifies the contractor of contractual compliance to the EVMS Certification requirement. At the completion of all formal EVMS Compliance Reviews, PM will provide copies of reports to the CO. Should a contractor fail to maintain their system, PM may determine a RFC is necessary. Following a Surveillance Review or RFC, PM may withdraw EVMS certification. The CO would then officially notify the contractor via letter and may pursue appropriate contractual remedies.

3.2.7 Contractor

The contractor is responsible for developing, implementing, and maintaining an EIA-748-compliant EVMS as stated in DOE O 413.3B, Attachment 1. The contractor is also responsible to

- ensure that its EVMS is implemented on a consistent basis,
- execute its EVMS effectively on all applicable projects,
- maintain an environment that promotes the use of its EVMS to control the project, and
- flow down appropriate EVMS clauses or cost and schedule reporting requirements to subcontractors.

EIA-748 also states that the contractor is responsible for conducting surveillance of their management systems to ensure continued implementation of a compliant EVMS. DOE O 413.3B Attachment 1, Section 1 states that the contractor must conduct EVMS surveillance annually. The contractor is required to provide documentation of the EVMS surveillance results to the CO, PMSO, and PM-30.

The responsible PM-30 analyst should work with the contractor throughout the ongoing surveillance process to provide input into the evaluation of the EVMS. Based on the project's environment and the maturity of the EVMS, the PM-30 analyst should assist in the development of the appropriate plan.

In general, all 56 attributes will be evaluated at least once during the year; in consultation with PM-30, attributes deemed lower risk may be evaluated less often (but at least once in a two-year period). When non-compliances are noted and corrective actions are identified, it is incumbent upon the contractor to monitor implementation of the corrective actions to ensure that the applied corrective actions have been successful. The contractor's EVMS surveillance should be conducted by a team independent of the contractor's project team, such as an internal audit group to avoid potential conflicts of interest. In accordance with the EVMS certification letter from PM-1 through the CO, the contractor is also responsible for notifying PM-30 through the CO in writing of any changes to their previously accepted certified EVM system description. EVMS improvements such as implementation of corrective actions from internal surveillance or the enhancement of a core management process may trigger this reporting requirement.

4 EVMS COMPLIANCE REVIEW PROCESS

4.1 EVMS COMPLIANCE REVIEW PROCESS PHASES AND STEPS

The DOE compliance review process may be executed utilizing both in-person (on-site) or virtual collaboration using tools to support mission continuity in a cost-effective manner. Both Review

Chiefs and Review Director will work with the contractor and all federal stakeholders (to include PMSO, FPD, and the CO) to develop and coordinate the plan (and any subsequent changes). This will typically be captured in the review charter (**Step 2**).

Figure 3 provides an overview of each phase of the EVMS compliance review process.

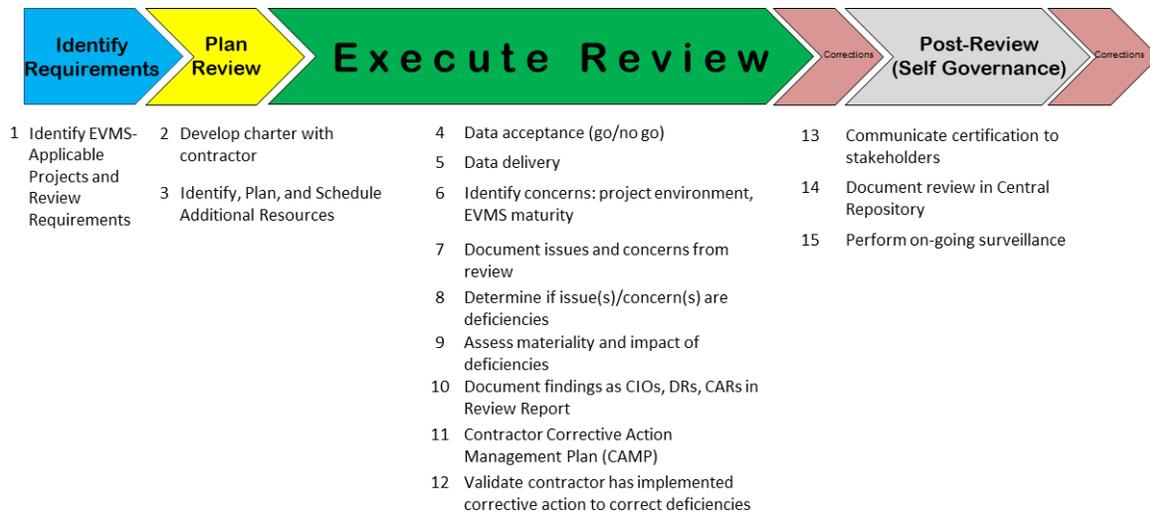


Figure 3. EVMS Compliance Review Phases

The EVMS compliance review process is further defined by phases and steps in the following subsections. The structure of the following tables covers the phases and steps required for an EVMS CR and those steps may be adjusted to fit the other types of EVMS compliance reviews (i.e., IR, RFC, and SR). The duration of each phase and step of an EVMS compliance review will vary depending on the size of the project, the maturity of the contractor’s EVMS, etc., with a notional timeline established upon identifying the need to proceed with the assignment. EVMS certification will nominally take between 12 and 15 months to complete both the Plan Review and Execute Review phases; this timing is dependent on the contractor’s timely execution of any required CAMP. This PM SOP is designed to help the government and contractor navigate the EVMS compliance review process.

4.1.1 Identify Requirements Phase

As indicated by Figure 4 below, there is a single step in the Identify Requirements phase.

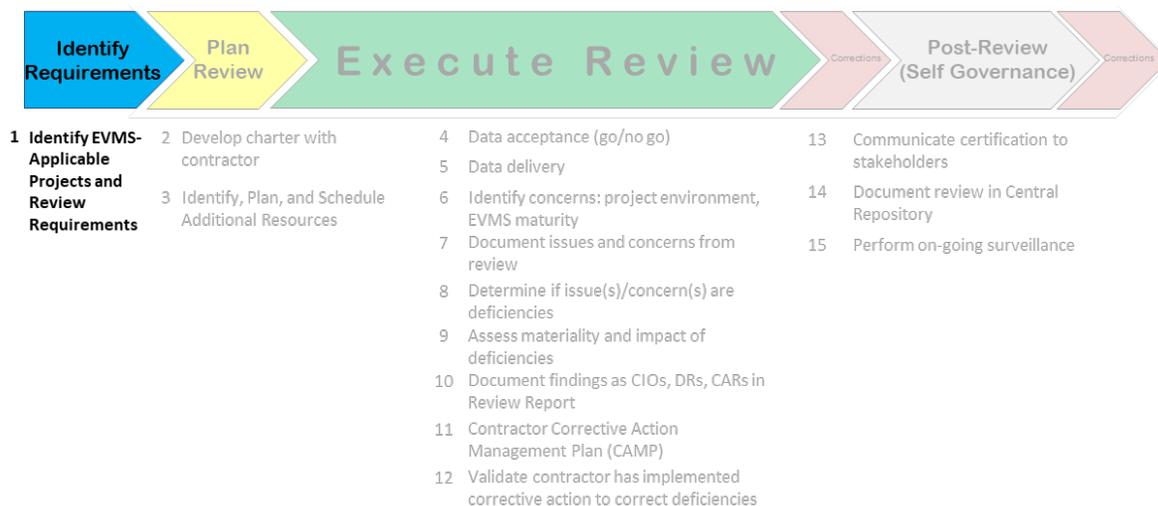


Figure 4. EVMS Compliance Review Phases – Identify Requirements

Step 1. Identify EVMS-Applicable Projects and Review Requirements; communicate decision to stakeholders. PM-20 and PM-30 will work collaboratively to identify new capital asset projects with EVMS compliance requirements using PARS. For active projects, a variety of methods may be used to identify projects with data integrity and quality concerns, as well as potential compliance issues. Sources may include:

- PARS performance analytics reports;
- PARS summary dashboards;
- Contractor Self-Governance documentation/reports (see Step 15 below);
- Impending CD-3 (or combined CD-2/3) decisions (as part of the EIR process);
- Notification of existing contract award to a different (uncertified) contractor.

These reports should be reviewed continuously by the assigned PM personnel to determine if additional compliance actions are necessary.

For surveillance purposes, the PM-30 EVM SME will, subject to available resources, conduct initial data review (based on automated metrics only) of all projects greater than \$100M (greater than \$50M upon request), and provide a report that ranks projects and contractors according to flagged metric results. Based on the trends and concerns identified by the data review, the EVM SME may conduct a deeper investigation on particular projects beyond the automated metrics, evaluating additional artifacts. When the results of the annual surveillance analysis determine that further action is not needed, the SME will document the decision and the rationale (including any supporting data) as an EVMS SR action in the PARS document management system.

A post-certification compliance review can be requested by other enterprise stakeholders for any number of reasons including the loss of confidence in reported EVMS data and information. When a request for an SR or RFC comes from an outside stakeholder, e.g., PMSO, the PM-30 EVM SME will meet with the stakeholder to discuss their concerns and may perform the next level of analysis of the contractor’s EVMS data before moving forward to **Step 2**.

After the review of available data, the PM-30 SME will meet with the PM-30 Director to determine the type and priority of EVMS compliance review needed. The priority for a SR is normally a risk-based and data-driven decision.

Once the need for a review has been established the PM-30 SME should communicate this to the contractor and appropriate stakeholders (e.g., FPD, CO, PMSO) to begin the planning phase.

4.1.2 Plan Review Phase

As indicated by Figure 5 below, there are two steps in the Plan Review phase, and they are explained in detail following the figure.



Figure 5. EVMS Compliance Review Phases - Plan Review

Step 2. Develop charter with contractor. An introductory meeting designed to prepare a contractor for the DOE EVMS compliance review should take place (virtually or in person) as soon as the decision to conduct a review is made. The purpose for this meeting is to provide an opportunity for early dialogue with the contractor on the overall CR process and set review expectations among the stakeholders. PM should provide the contractor an overview of the DOE EVMS compliance review process, including contractor requirements, desired end state, and benefits of a collaborative approach. Standard briefing templates are listed in Appendix B. If the contractor is prepared, this is also a good time for the contractor’s overview briefing (described later in this step as an objective/deliverable).

While the briefings and ensuing discussion may identify some areas of non-compliance or potential problems with the contractor’s EVMS processes and procedures, the key outcome from this meeting is the development of a charter that will describe the review, its rationale, its goals, and its participants.

The charter should be customized to the specific requirements of the review, the project, and the contractor. While the execution of the charter may vary from effort to effort, the charter should contain the following required sections:

- **Review Scope** – should document expected content of the review, to include (as applicable):
 - a. evaluation of the EVM system description using the CRC
 - b. data integrity and quality (DIQ) checks prior to data acceptance (and analysis)
 - c. evaluation of the maturity attributes using the CAG and metrics
 - d. evaluation of the project environment
- **Plan of Action and Milestones (POAM)** – documenting the timeline expected for the completion of the review. Timeline should include the expected time for CAMP and certification communication (if applicable); it should include effort duration and expected time commitment. While specific dates will change due to the success of the evaluation results, a working schedule should be maintained to allow all parties to plan and schedule all supporting resources. If practical, the POAM should specify a maximum time period for successful completion of the review (to include the CAMP process), as well as any consequences (e.g., an RFC, decertification) for failure to meet the time period.
- **Team Members Roles & Responsibilities** – to include both contractor and government support personnel. Appropriate contact information (email, phone) should be documented. If additional resources are required, the PM-30 EVMS SME will document the need and provide them in a timely manner (see **Step 3** below).
- **Objectives/Deliverables** – the charter should define the purpose of the review and the expected contractor and government deliverables that will support a successful conclusion/certification, to include:
 - a. current copy of the EVM system description and associated procedures (collectively referred to as the EVM system description);
 - b. a copy of the contract, including the Statement of Work (SOW), EVMS clause listings, the Performance Evaluation and Measurement Plan (PEMP), and other related requirements;
 - c. a contractor’s overview briefing, to include but not limited to: organizational structure, an overview of the project(s) for which the EVMS is implemented, status for the EVM system description and associated procedures, status for training material development and delivery, the governance plan, and a demonstration of the contractor’s EVMS integration and process flows. The contractor is encouraged to use a best practice “storyboard” approach to define authorities, responsibilities, and ownership. The storyboard is an appropriately sized, stratified flow chart of EVMS processes, artifacts, and subsystems. Storyboards are extremely useful for contractors in designing their EVMS; they identify handoffs and integration points between the various systems, toolsets, processes, documents, artifacts, and functions. Storyboards are also useful for training, continuous improvement strategies, and process flow demonstrations through the various subsystems and tools. In addition, the contractor should identify any recent EVMS changes and disclose potential areas of EVMS non-compliance, as well as any open CAR, DR, and CAMP actions found during internal (self-governance) EVMS surveillance or compliance reviews.

- **Data requirements** (including acceptance go/no go and data delivery) – the charter should define contractor data delivery requirements (content, number of consecutive periods required, and timeline). If separate data delivery dates are used, the charter should call out the requirements for each date. The Maturity Review Chief should explain to the contractor that the dates in the charter are dependent on the contractor’s preparedness and progress made towards completing Phase 3, **Step 4** (Data acceptance go/no go) and **Step 5** (Data Delivery). A comprehensive list of data call requirements is included in Appendix B. In the case of an SR or RFC (which may be limited to specific sub-processes due to risk), the data call requirements may be reduced.
- **Identification of risk areas** – this should include conditions (both internally and externally) that could jeopardize the successful execution of the charter. Examples may include availability of resources, government funding, or unforeseen reallocation of key resources.
- **Method(s) of engagement** – expected use of on-site and/or virtual meetings is documented, as well as the planned meeting frequency/duration. If any portion of the review will take place on-site, both Review Chiefs with the assistance of the Review Deputy and Review Assistant will coordinate with the site office and contractor’s security office in advance of the team’s arrival. This may include, but is not limited to, providing a list of team members who do not have DOE badges, bringing non-government laptops, and completion of non-disclosure statements as necessary. The security office may require completion of pre-visit forms and training such as security and safety awareness. Both Review Chiefs will ensure that all team members are informed of onsite security measures, including acceptable forms of identification, if personal laptops and cell phones are allowed, and if site-specific safety attire is required. Both Review Chiefs will also ensure that sufficient time is planned for security in-processing. A checklist for In-processing Considerations is included in Appendix B, EVMS Compliance Review Team Toolkit.
- **Communication/reporting plan** – the charter should assign responsibility for the team to communicate status to stakeholders and to document the review process. A Communication Plan Checklist and pro-forma documents are detailed in Appendix B, EVMS Compliance Review Team Toolkit. Meeting minutes (list of attendees, copies of presentations, pertinent discussions, and any agreements made for CR schedule) should be kept as part of the official CR files and uploaded to the PARS document management system.

The charter should document the method to handle existing/prior contractor-identified non-compliances (resulting from the contractor’s ongoing self-assessments). If the contractor has demonstrated an effective self-governance process and is collaboratively sharing information/outcomes, the Review Director may choose to allow the contractor to manage these non-compliances utilizing their internal process (to include the CAMP). If the contractor is allowed to manage these prior non-compliances internally, the identified non-compliances will not be subject to **Step 10** and **Step 11** of this procedure). Upon completion of the CAMP, the contractor must demonstrate that the non-compliance has been corrected (see **Step 12**).

The charter should also document the approach to be taken by the review team when conducting the review. A review can be conducted with a single multi-day event or can be managed in an iterative approach; it should be adapted to best meet the unique situation of the project and the

supporting resources. Consideration should be given to reduce the entire compliance process timeframe; timely identification/resolution of non-compliances can significantly impact the overall schedule. Examples of acceptable approaches could include:

- A three-phased approach as follows:
 - An initial collaborative review for some portion (or all) of the contractor’s data through automated metrics to identify gaps;
 - A pre-assessment, to identify low-risk metrics that don’t require additional attention; and
 - a final assessment with documented non-compliances;
- A multi-phased approach that divides the sub-processes (and associated attributes) over time to stagger the resource load.

An example of an iterative approach is shown in Figure 6 below:

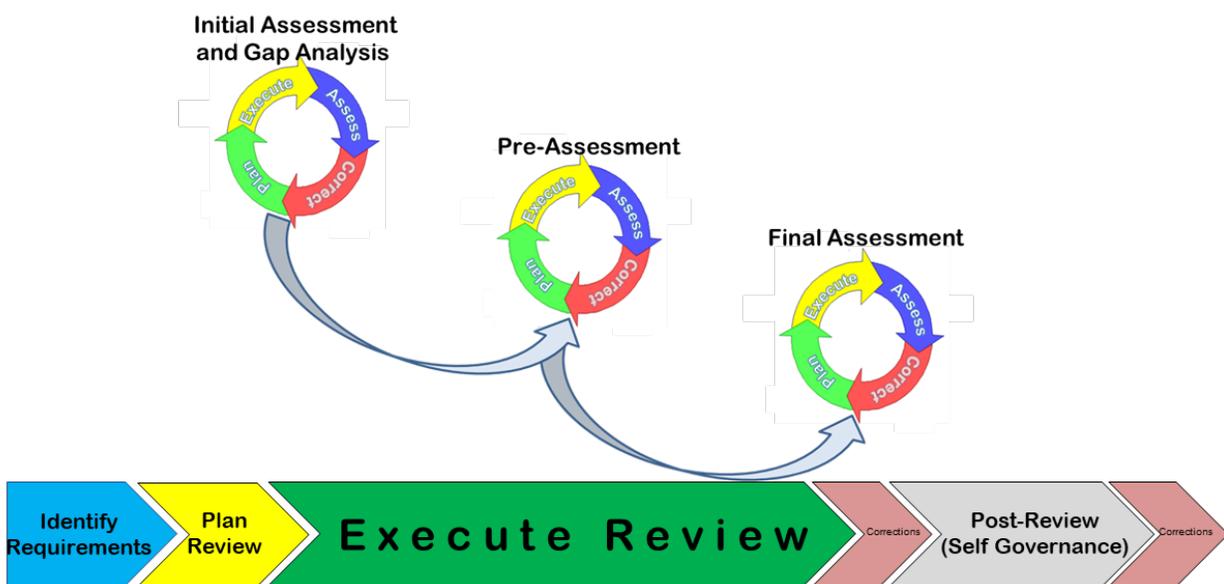


Figure 6. Iterative Approach to a Compliance Review

When developing the charter, emphasis should also be given to the contractor’s data acceptance and delivery (further discussed in **Step 4** and **Step 5** below), as they are critical to the timely completion of the review. The charter is expected to be a living document and may need to be updated as the certification effort proceeds. The charter should be reviewed and approved by leadership in all participating groups (DOE PM, DOE Operations, and the contractor) at a level commensurate with the scope of the review. The final requirement of this step is for the Review Team to jointly publish the charter and minutes from the introductory meeting.

Step 3. Identify, Plan, and Schedule Additional Resources. Based on the needs of the review and the participation of the contractor’s personnel, the Review Director and both Review Chiefs determine the additional resources needed to perform all of the activities defined in the charter. Based on the estimated review timeframe and urgency of need, budget, and resource availability, the Review Chiefs identify and schedule the resources needed to fully support the planned review.

This schedule will include the expected participation timeframe for each of the additional resources. This schedule and the charter will support the development of a review plan (a template is shown in Appendix B) which will resource load and schedule the activities defined in the charter’s POAM. In addition, the review plan should include:

- Logistical information (as applicable, to include maps, lodging information, rental car assignments);
- Background of project(s) under review; and
- Any additional team member roles/responsibility information not included in the charter that will facilitate the execution of the review.

The Review Chiefs will make the necessary arrangements for contractual support by composing and executing task orders through appropriate channels. The Maturity Review Chief will provide the EVMS Compliance Review Team with the PM-30 Assessment Toolkit (see Appendix B) and this document. The Review Chiefs will ensure that all team members are provided access to the data and information required to conduct their assigned sections of the review. New team members are notified of the charter, the review plan, and all assignments (including any information required to make travel plans).

4.1.3 Execute Review Phase

As indicated by Figure 7 below, there are nine steps in the Execute Review phase, and they are explained in detail following the figure.

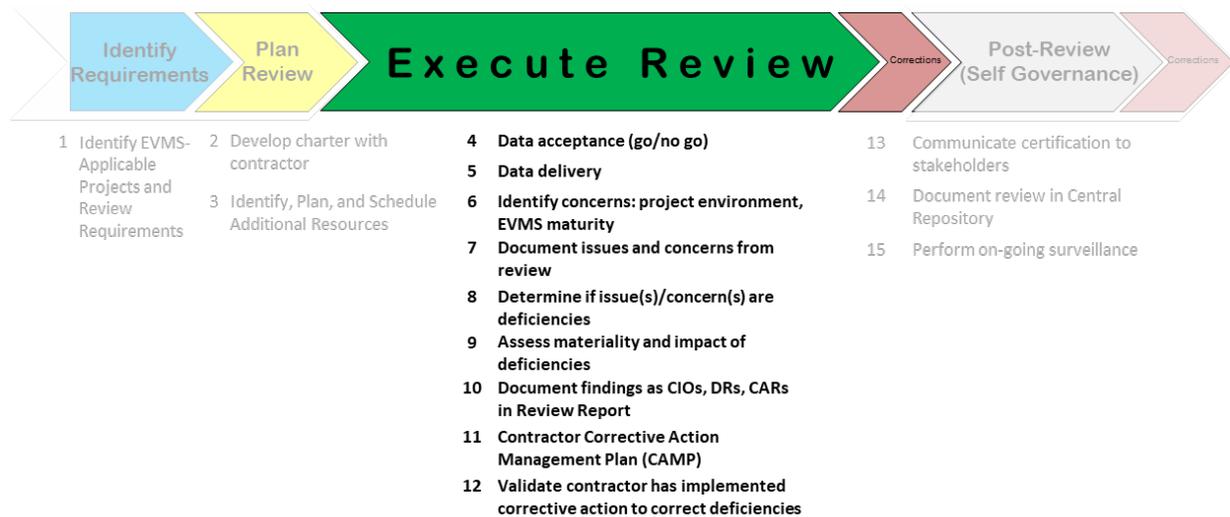


Figure 7. EVMS Compliance Review Phases - Execute Review

The purpose of this phase is to assess the compliance of the contractor’s EVMS and involves three steps:

- Verify the contractor’s EVM system description meets contractual and/or EIA-748 requirements (it adequately documents the processes and procedures which support how its system meets the intent of the 32 Guidelines).

- Verify the contractor is executing their EVM system description (i.e., the contractor's ability to demonstrate the EVMS implementation as described in the EVM system description and supplemental procedures).
- Validate the EVMS output (i.e., the EVMS is providing timely, accurate, and reliable data, used as the basis for informed decision-making).

Compliance is determined from the results of all three steps. Depending on the charter that is drawn up by the team (during **Step 2**), this phase may be executed in different manners (e.g., in iterations, in a defined sequence).

Step 4. Data Acceptance (GO/NO GO). The purpose of this step is to verify that the contractor's data complies with contractual data item description (DID) requirements and is in a format that can be evaluated. An integral first step in the compliance review process is to verify the contractor's data integrity and quality (DIQ). DIQ verification confirms that the data that is being reported to the government in the contractor's upload to PARS aligns with the contractor's native tool data (cost/schedule). The team should review the PARS DIQ reports, Schedule Health reports (when available), and the Baseline Volatility report under Trends to identify areas of concern with the DIQ. It is not the intent of this step to evaluate project performance or the compliance of the EVMS; it is rather to look at the stability of the project to proceed with the compliance review.

This step is critical to the timely completion of the compliance review, as the data is required to verify execution and validate outputs, and it must be provided in a suitable format. PM-30's DIQ assessment verifies that the upload file is uploadable to PARS and in compliance with the DOE O 413.3B upload requirements. The complete list of data requirements is detailed in Appendix B: PM Compliance Review Data Calls.

In most cases, some of the data call items (in Appendix B) will be available in advance of other items (e.g., the EVM system description). These items should be made available at the earliest timing possible to support the timely completion of the review. Furthermore, one of the evaluations is independent of the data acceptance step: the evaluation of the over-arching project environment (see **Step 6** below). This evaluation should be scheduled at the earliest practicable timing, independently of the data acceptance step.

Step 5. Data Delivery. After the successful completion of Step 4, the Maturity Review Chief coordinates with the contractor to establish the timeframe for the delivery of all of the data call items (Appendix B). The Maturity Review Chief composes the contractor notification memorandum (see Appendix B) for PM-1/2 signature to the project/program's Head of Contracting Activity (HCA) or CO as the formal notification to be sent the contractor. The notification should be sent to the contractor within 14 calendar days after the successful completion of Step 4. The notification memorandum specifies the EVMS Compliance Review type and data call. The Data Call (see Appendix B) consists of the request for the following:

- Data (cost and schedule) files in the format specified to support automated and manual tests and artifacts as requested;
- Contractor independent assessment or past internal surveillance reports; and
- EVM system description and supporting procedures maintained by the contractor's configuration control process. If the contractor provides supporting procedures that are not

under configuration control, they will not be considered as part of the contractor's EVMS and will not be considered during the EVMS compliance review.

The notification will also explain where to publish the requested data (e.g., PARS, PM MAX, contractor FTP site, or other electronic media) and the recommended folder structure for organizing the data and information.

All of the data requested must be delivered in its required formatting to PM-30 in order to proceed to the next step; the contractor should provide the review team a schedule of expected delivery timing. Based on the charter (**Step 2**) and review plan (**Step 3**) that were developed, the review team (both contractor and DOE PM) should revisit the POAM and schedule based on the planned data delivery date(s).

At the conclusion of this step, PM-30 and the contractor should agree on an EVMS compliance review schedule and communicate this to the stakeholders.

Step 6. Identify Concerns: Project Environment, EVMS Maturity. The purpose of this step is to assess the project environment and the maturity of the contractor's EVMS and to identify any concerns. The EVMS is an integrated set of sub-processes, and these sub-processes must work in concert as a total system. Each sub-process of the system requires input from another process and provides outputs to other processes. Tracing the data flow between processes is a critical element of the review process for the review team. Disconnects between core project management sub-processes indicate that the EVMS is not functioning as intended and that the contractor's processes and procedures must be examined and tested further.

Based on the approach documented in the review charter (**Step 2**) this may be an iterative process, or the order of execution may be modified. Regardless of the method of execution (e.g., in sequence, in subsets, in an iterative process), it is critical that the different steps are carried out in their entirety. It is also important to ensure that the assessments of the environment and maturity are done in an independent manner, so as not to let the results from one influence the assessment of the other.

Key activities include:

a) **Review EVM System Description.** The Maturity Review Chief and Sub-Process Team Leads review the contractor's EVM system description and supporting procedures for EIA-748 compliance using the EVMS Compliance Reference Crosswalk (CRC) found in Appendix A. If the contractor has adopted self-governance, they should also review the EVM system description against the Self-Governance Review Checklist in Appendix B. Prior to evaluation, the Maturity Review Chief may request that the Sub-Process Team Lead for the contractor demonstrate EVMS processes, procedures and toolsets to include the results of the contractor's CRC mapping of the EVM system description to the EVMS attributes for the entire Compliance Review Team. The contractor's EVM system description (and any supporting procedures maintained under the contractor's configuration control process) must be assessed for adequacy and completeness and to verify that:

- Descriptions include the associated policies, procedures, and methods designed to satisfy the EIA-748;

- Descriptions are in the form and detail necessary to permit attribute evaluation for EIA-748 EVMS compliance; and
- Descriptions delineate roles & responsibilities of operating personnel, and internal authorizations and controls required.

The reviewer should provide specific rationale for identified non-compliant text in the contractor's EVM system description but should not recommend revised language to the contractor as this could interfere with the contractor's business practices.

- b) **Review Contractor Independent Assessment and/or Past Surveillance.** The contractor's independent assessment and/or past internal surveillances is reviewed by the Sub-Process Team Leads to assess completeness and compare with the team's results running the DOE metrics independently (to include any open CARs/DRs).
- c) **Analyze Contractor Data and Artifacts Using DOE Metrics.** The Maturity Review Chief will assign a team member(s) to analyze the contractor's data using the automated tools and manual templates defined in the EVMS Attributes and Metrics Excel spreadsheet (see Appendix A). The team should also review the PARS data integrity and quality reports, Schedule Health reports, and particularly the Baseline Volatility report under Trends for the same periods to identify areas of concern. A report will be provided to the Review Director and Maturity Review Chief to document assumptions or context commentary, so the compliance review team can properly interpret the results. Because this data is used to determine issues of non-compliance and materiality, the order-of-magnitude metrics must be included in the report that is provided to the compliance team (see **Step 9**).
- d) **Conduct Additional Deep Dive Analysis if Required.** Based upon the outcome of b) or c), the EVMS Sub-Process Teams may conduct additional analysis for specific areas of concern (resulting from an identified concern) on a limited basis. Examples include:
 - trace a baseline change from the initial request through the baseline control logs and determine if changes were made properly to the CA plan and schedule; or
 - run a Baseline Volatility report.

This additional analysis will help the Sub-Process Teams finalize questions for any necessary interviews. Concerns found in the additional analysis/traces must be documented to ensure they are discussed with the PM, CAMs, and functional personnel during the interviews.

- e) **Conduct and Document Interviews.** This technique is used to gather information during personal interaction (virtual or in person) and/or evaluate the interviewee's knowledge and understanding of the subject. Interview logistics (e.g., schedule, duration, logistics, ground rules) must be discussed during the development of the review charter and review plan and updated throughout the review to avoid conflicts; the review team will strive to ensure that enough time is given for the interviewee to respond. The contractor should be made aware as soon as interviewees are identified. During all interviews an IFF (for maturity issues) template or a line of inquiry (LOI) template (for environmental issues) will be used to provide structure. A checklist for interview logistics (to include templates) can be found in the PM Compliance Review Team Toolkit (see Appendix B). During the review it will be appropriate to conduct interviews for the following purposes:
 - **Environmental Assessment:** An assessment of the project's environmental factors will demonstrate to the contractor and the federal project team the efficacy of the project's EVMS to support integrated project/program management. It will also assist in the development and execution of a CAMP (if required). This is accomplished through a series of structured interviews of key project personnel (both contractor and government project

team members). Interview candidates are determined by the Review Director and the Environmental Review Chief and may include:

- contractor: senior leadership, CAMs, project controls personnel, and other contractor personnel;
- government: FPD, contracting officer, and other senior project leadership.

An example of how to structure this assessment can be found in the PM Compliance Review Team Toolkit (see Appendix B). If possible, these interviews should be conducted using an impartial facilitator to avoid any bias from the review team. In addition to the structured interviews, this technique may be supported by the use of:

- a pre-interview questionnaire to identify key project environmental factors; and
 - attendance (virtual or in-person) during a real-time project engagement(s) that are identified during the interview process to better assess environmental factors.
- **Maturity Assessment - Follow-up to Metrics, Data Analysis or Artifact Traces.** The purpose of this type of interview is to follow up on any concerns identified during the analysis of contractor data and artifacts. The intent is not to ask questions that have already been satisfied through data analyses, but rather to facilitate discussion to assess key personnel's involvement and knowledge of the concern and EVMS procedures and their implementation. Key personnel to interview may include the contractor's senior executives, project manager, business manager, functional managers, major subcontractor manager, indirect manager, master scheduler/planner, accounting manager, risk manager, in addition to CAM and Project Controls.

Throughout **Step 6**, it is important that open communication exists between the review team and the contractor relating to data issues, concerns, questions, or clarifications to facilitate a common understanding of the data. For example, if a CAM provides incorrect or bad information, clarification should be sought to see if it is a single occurrence or systemic. In addition, the review team will request electronic copies of artifacts displayed and referenced during interviews. Screen shots of artifacts displayed should be inserted into a blank PowerPoint presentation and provided to the review team upon completion of the interview. There should be one artifact per slide and each should include reference to a specific IFF test ID. Templates to document the activities in **Step 6** are located in Appendix B.

Step 7. Document Issues and Concerns from Review. The purpose of this step is to document concerns as a result of the activities in **Step 6**. The output from this step is the documentation of all concerns that are identified. The template used to document findings is the draft CAR, DR, and CIO form; it can be found in the PM Compliance Review Team Toolkit (see Appendix B). These concerns should be available to the entire review team and maintained in a structured format throughout the entire review.

Step 8. Determine if Issue(s)/Concern(s) are Deficiencies. The purpose of this step is to determine if the documented issues/concerns from the activities in **Step 6** are deficiencies. Should non-compliance and material data validity issues be found, it may be necessary for the Sub-Process Team Leads to provide preliminary CARs and/or DRs to the Maturity Review Chief and Review Director to facilitate the timely correction of the concerns.

Step 9. Assess Materiality and Impact of Deficiencies. The purpose of this step is to document non-compliance and assess the materiality of the deficiencies. Materiality is defined in subsection 2.4.3 **Assess Materiality and Impact of the Deficiencies.**

The sub-process teams document non-compliance and identify the order-of-magnitude metrics when documenting any non-compliances that have been identified. Examples of how to quantify order-of magnitude metrics can be found in the PM Compliance Review Team Toolkit (see Appendix B). In short, order-of-magnitude metrics are critical to determining materiality and must be established at the DA step.

Because all CARs and DRs align to an attribute assigned to a specific sub-process team, the Sub-Process Team Lead working with the CAR or DR author will make an initial determination of materiality which is reviewed and confirmed (or changed) by the Maturity Review Chief. The Sub-Process Team Lead will also consider the CARs and DRs issued to arrive at a materiality determination at the attribute level by asking “do the CARs and DRs indicate that the attribute is non-compliant and why?” That determination is subject to review and approval by the Maturity Review Chief and Review Director.

The Sub-Process Team Leads will begin drafting maturity attribute summaries within their assigned area, incorporating the specific issues, concerns, and status of each maturity attribute by listing applicable CARs, DRs, and CIOs. These summaries are a significant part of the final report (see **Step 13**). An initial determination of materiality is made at the attribute level; however, final determination is made after coordination among the Review Director and Maturity Review Chief after all CARs, DRs, and CIOs are finalized.

When determining initial attribute compliance, the general rule is:

- **Red/Yellow/Green:** Maturity attributes that are assigned a CAR are rated red while attributes assigned a DR are rated yellow. Attributes that do not have a CAR or DR assigned are rated green. CIO’s do not impact the red/yellow/green rating.
- **Materiality.** The sub-process team will describe the material nature of the discrepancies in the CARs/DRs including their impact on the accuracy, validity, reliability, and timeliness of performance measurement data. Refer to subsection 2.4.3.
- **Significant Deficiency.** Materiality considerations and impact statements documented in DRs may support the Maturity Review Chief’s determination of a significant deficiency causing a DR to be upgraded to a CAR. A significant deficiency is a shortcoming in the system that materially affects the ability of officials to rely upon management information produced by the system.

Based on the Maturity Review Chief’s feedback, the responsible team members will incorporate any updates, finalize their CAR, DR, and CIO documents and submit them to the Review Assistant. The Review Assistant will log each document as complete.

The Review Director and Maturity Review Chief will issue the CARs and DRs to the contractor for the purposes of a factual accuracy review. The contractor may provide comments relating to the accuracy of the facts and exhibits stated in the CAR and/or DR that led to the determination; however, the intent is not to debate the overall conclusion of non-compliance.

Step 10. Document Findings as CARs, DRs, and CIOs for Review Report. After the completion of the factual accuracy review, the contractor's comments are reviewed by the Review Director and Maturity Review Chief, and changes to the draft CARs/DRs are made, if needed. Once changes to CARs/DRs are finalized, necessary updates are made to the maturity attribute summaries, which are consolidated into the review report (as defined in the charter's communication/reporting plan, **Step 2**). The Maturity Review Chief, with concurrence from the Review Director, will report the findings to the stakeholders as defined in the review charter (**Step 2**). Normally, this is transmitted in a letter and a report through the CO; it will identify the contractor's next steps and will identify the timeframe for submittal of a CAMP.

In the case of an RFC, the decision may be to de-certify the contractor's EVMS with or without proceeding through the CAMP process. If so, proceed to **Step 13**.

Step 11. Contractor CAMP: After the report has been released, the Maturity Review Chief will ensure the contractor understands the CARs, DRs and the requirements of the CAMP process. As detailed in **Section 5**, the key elements of a CAMP include:

- root cause analysis (RCA),
- explanation of contributing factors,
- explanation of corrective action approach,
- corrective action exit criteria, and
- timeline for CAMP development, implementation, and close-out.

The preparation of the CAMP is an iterative effort, led by the contractor but monitored by the Review Director, the Maturity Review Chief and the Environmental Review Chief. As detailed in **Subsection 5.1**, during the CAMP process the Review Director will:

- Establish a submission deadline for the contractor,
- Receive and review the draft CAMP,
- Provide comments and accept a final CAMP, and
- Monitor progress made by the contractor toward completing corrective actions through regular progress meetings with the contractor, typically via webinar or phone.

Step 12. Validate Contractor has Corrected Deficiencies. The Maturity Review Chief in consultation with the Review Director will plan, schedule, and approve all verification follow-up actions and closure of CARs and/or DRs. This may be done on-site or remotely depending on the nature of each EVMS issue.

The contractor will provide the evidence package for each CAR or DR closeout in accordance with this procedure. The CAMP will identify verification methods, objective measures, metrics, artifacts, and evidential products documenting the completion and effectiveness of corrective actions. Closure of data-related findings often involves reviewing data from multiple accounting periods, typically three consecutive months, to obtain evidence of the effectiveness of corrective actions. Plotting the data to discern a trend will provide evidence of how well corrective actions have addressed the root cause of the issue. The Review Director and Maturity Review Chief will jointly examine the evidence packages and discuss any questions with the contractor.

CARs and DRs are closed upon verification by the Maturity Review Chief that the root cause(s) have been properly identified and corrected.

4.1.4 Post-Review Activities Phase

As indicated by Figure 8 below, there are three steps in the Post-Review phase, and they are explained in detail following the figure.



Figure 8. EVMS Compliance Review Phases - Post-Review

Step 13. Communicate Certification to Stakeholders. For a CR, after all CARs and/or DRs have been closed, the Review Director will inform PM-1 that the CAMP process has been completed. The Review Director working closely with both Review Chiefs will prepare the final report and review determination to the applicable project/program HCA or the CO with distribution to the appropriate PMSO and FPD. The report includes any findings during the review (CARs, DRs, and CIOs), and documents the determination of compliance for each maturity attribute.

The documented assessment report should include the following parts:

- Table of Contents;
- Executive Summary;
- Background;
- Purpose;
- Objectives, Scope, and Methodology;
- Summary Findings;
- Environmental Summary;
- Maturity Attribute Summaries and Findings;
- Conclusions and Recommendations; and

- Appendices (as applicable) – typically, the detailed environmental assessments will be included as appendices and only shared with the appropriate stakeholders.

Successful completion of a CR results in a PM-1 memorandum of certification (see Appendix B) which includes a list of projects reviewed, the EVM system description version and date, and EVMS maintenance requirements (e.g., self-governance plan to include annual contractor surveillance requirements) to the CO for transmittal to the contractor.

In some RFCs with findings, the Maturity Review Chief and Review Director may recommend to PM-1 to de-certify the contractor's EVMS with or without proceeding through the CAMP process (from **Step 10**). If so, the memorandum may be to convey the de-certification of a contractor's EVMS, and a listing of steps to be followed after de-certification. In this case, the Maturity Review Chief should go back in the process to Phase 1/**Step 1** (Identify EVMS-Applicable Projects and review requirements) to make sure that a CR is planned for the project in the future (after the findings are addressed). For all other reviews, a memorandum is sent from PM-1 acknowledging the review closure and CAR/DR/CAMP completion to the CO.

Step 14. Post Documentation to Central Repository. The Maturity Review Chief will ensure that all documentation supporting the EVMS compliance review and final determination is submitted to PARS, and that all CARs, DRs, and CIOs are appropriately archived.

Step 15. Perform On-Going Surveillance. The purpose of this step is to validate that the project remains compliant to the EIA-748 standard on an on-going basis (post-certification) until project completion. Certified DOE contractors with active EVMS projects are expected to annually surveil their EVMS. Contractors without certified systems (projects with a TPC between \$50 million and \$100 million) are also expected to assess whether their EVMS remains EIA-748 compliant.

After the review process is completed, the Maturity Review Chief, working with the review team, should discuss/document the possible integration of the contractor assessment (self-governance) and DOE PM surveillance. While this annual evaluation is the contractor's responsibility, a collaborative approach can ensure an effective maintenance of the certified EVMS. In the case of a collaborative approach, the contractor and PM-30 EVMS SME should document the approach to be taken.

Regardless of approach taken, the PM-30 EVMS SME should actively engage to identify areas of Maturity and Environment high risk until project completion. The PM-30 EVMS SME should utilize all data and information available to monitor the on-going implementation compliance. If the PM-30 EVMS SME determines that there is a non-compliance, the contractor should be made aware of the concern. If the contractor's actions do not correct the non-compliance in a timely manner, the PM-30 EVMS SME should take the appropriate action (to include the virtual issuance of a CAR/DR and/or scheduling of the appropriate level of a compliance review).

4.2 CHANGES TO APPROVED EVM SYSTEM DESCRIPTION AND SUPPORTING PROCEDURES

All changes (including administrative updates) to a contractor's certified EVM system description and supporting procedures must occur under formal contractor configuration control but not before PM-30 review and PM-1 approval per FAR 52.234-4(e) which DOE O 413.3B, Attachment 1 incorporates. The CO should submit proposed changes to PM for approval. Examples of changes to the EVM system description include (but are not limited to):

- Replacing the core cost process or schedule system;
- Replacing a supporting system, such as the tool used to conduct an SRA or Monte Carlo analysis used to quantify MR and Contingency; and
- Change in the parent company owning the EVMS.

PM-30 will review the appropriateness and adequacy of the proposed changes using the EVMS Compliance Reference Crosswalk to determine EIA-748 compliance. PM-30 will notify the CO within 30 calendar days after receipt of the proposed change of its acceptance or rejection. Changes deemed substantive may pose a risk to the project necessitating PM-30 to conduct an IR or SR for those areas the changes may affect before PM-30 accepts the change; in this case, the PM-30 EVMS SME must identify the requirement as articulated in Phase 1, Step 1 (Identify EVMS-applicable projects and review requirements). If the proposed changes are not considered compliant, PM-30 will work directly with the contractor to reach agreement. If agreement is not reached, then a letter of non-consent is provided to the project/program HCA/PMSO and applicable CO to forward to the contractor. Any deviation by the contractor to proceed with alternative practices or processes deemed outside the parameters of those recognized by the PM-1 certification letter jeopardizes the standing of the contractor's EVMS compliance status.

5 EVMS CORRECTIVE ACTION MANAGEMENT PLAN (CAMP) PROCESS

5.1 CAMP CONTENT

The contractor documents its CAMP process in the EVM system description and supplemental procedures, using a disciplined, standardized approach for responding to documented EVMS deficiencies. This section describes the content of the CAMP required to sufficiently close-out CARs/DRs.

For each CAR or DR addressed in the CAMP, include:

- statement of issue(s) and deficiency details,
- formal RCA (described below),
- explanation of contributing factors,
- explanation of corrective action approach,
- corrective action exit criteria, and
- timeline for CAMP development, implementation, and close-out.

Any changes caused by corrective actions, such as re-planning or changes to the estimate at completion (EAC), must be appropriately documented within the CAMP (and if appropriate, within the EVM system description).

The expectation is that the Review Director and/or Maturity Review Chief and the contractor have open communication during the creation and evaluation of the CAMP. As the contractor develops the CAMP, the Review Director and/or Maturity Review Chief will generate a written evaluation of the contractor's draft CAMP to ensure all elements have been satisfactorily addressed. This is an iterative effort. Some corrective actions may be straightforward responses to simple findings, others may be more complex. Either way, it is important to reach a mutual agreement of the CAMP contents and timeline. The contractor delineates which EVMS artifacts and data sets it will deliver as well as when it will deliver them to support the CAMP verification process.

The CAMP's entrance and exit criteria represents the initial understanding of what led to the documented non-conformances. As understanding of each non-conformance increases its drivers may become clearer. This may result in the need to revise the CAMP. The CAMP process entails:

(1) Initial Post CAR/DR Discussions

Prior to developing a corrective action in response to a CAR/DR, the first step is to ensure that both the contractor and the review team have a mutual understanding of the EVMS non-compliance. The Review Director and/or Maturity Review Chief will offer assistance, either via telecom or visit, to facilitate this understanding. Well-written CARs/DRs with sufficient exhibits of EVMS attribute non-compliances provide clarity and minimize these discussions. The intent is not to engage in a debate or to imply consensus is a requirement, but rather to ensure the contractor understands the context of the documented non-compliance in order to focus its efforts to identify the root cause(s) and appropriate corrective action(s). If the contractor questions the basis for a CAR or DR, the contractor submits additional artifacts or relevant facts to the Review Director, supporting the reason for the questions.

(2) Organize for successful CAMP

Once the contractor understands the basis of a non-compliance determination, the contractor assigns responsibility for resolving the CAR or DR in the CAMP. It is critical that the process of corrective action has the support at the highest levels of the organization. The role of senior management is not to "steer" the effort but rather to facilitate dialogue, provide resources as required, remove roadblocks and champion the CAMP process and attainment and/or re-attainment of EVMS compliance and its importance to the organization. Each organization may decide the manner which best fits its management style to facilitate the CAMP to success. The CAMP should:

- Include a structured CAR/DR resolution process;
- Assign an individual from the responsible organization to lead and champion the corrective action effort; and,
- Include a closure timeline and monitoring progress.

The Maturity Review Chief will:

- Review the CAMP timeline, and monitor progress towards its closure;

- Review and accept all CAR/DR root cause assessments and proposed corrective action(s) including the closure criteria; and
- Serve as the primary point of contact with the contractor PM for CAR/DR resolution and closure.

The acceptance of the CAMP does not constitute approval or certainty that this will resolve the root cause, just that it appears to be an acceptable approach.

(3) **Root Cause Analysis (RCA)**

The contractor should approach the root cause analysis from the perspective of the EVMS. This should include a focus on what in the EVMS allowed the incident to happen, e.g., what processes were insufficient, did not exist, or allowed for circumvention from otherwise sufficient processes.

The output (and any conclusions) from the Environmental Review (described in **Subsection 4.1.3, Step 6**) is a starting point for the contractor's RCA. There is a strong relationship between the maturity of an EVMS and the environment and culture in which it operates. The environment is a measure of both internal and external factors in which the project must function, including a culture of EVMS compliance (equal to that of quality and safety) as a priority/necessity for fiscal stewardship and project success. Weaknesses in the environment will often lead to deficiencies in the EVMS.

The Review Director and/or Maturity Review Chief's review of the CAMP, both the development and execution of the contractor's strategy towards EVMS compliance, including the contractor's RCA process, provide the framework from which a collaborative environment is critically important to provide a platform for success. The contractor must demonstrate that it has

- conducted a gap analysis to determine whether EVMS implementation requirements are being met, and
- performed a root cause analysis to discover the root cause(s) of EVMS implementation issues in order to identify appropriate solutions.

The use of appropriate tools (e.g., "The 5 Whys", Ishikawa Fishbone Diagrams, or other methods recommended by International Organization for Standardization 9000 trained advisors) must be used to prevent recurrence; a single individual's poor judgement does not constitute a root cause.

RCA is the identification of people, process, and tools that if fixed would prohibit the error from reoccurring. This is the opposite of just fixing the error. Some examples of inadequate root cause identification that have been submitted in the past are:

- Incorporation of an OBS was excluded in the EVMS graded approach.
- CAM did not identify the issues.
- The root cause for this CAR is that CAM information was not clearly stated.

The common themes in the above examples are blaming the data, people, or how the review was conducted, with no mention of inadequate root cause analysis and corrective actions being addressed.

Better examples, if justified in the RCA process and tools, include:

- Variances for performance related trends resulted in BCPs to request additional budget. The CAM and Project Controls team were retrained that additional budget requests are only for unplanned scope. The BCP request form is being modified to address whether the variance/trend is caused by performance or new scope. Project Controls will verify all CAM justifications for additional budget.
- Inadequate formal review of the EAC occurred on a regular basis. Tools were not used to trigger mandatory EAC reviews. CAMs failed to monitor and update their EACs in accordance with procedures. The Project Manager failed to monitor CA level EACs. Corrective actions include creating reports from project management system to identify when variances between BAC and EAC exceed threshold limits. Procedures on how to use the report will be created. CAMs will be re-trained on the importance of monitoring their CAs and using the monthly reports. The Project Manager will address EACs with CAMs during monthly meetings.
- The IMS was non-compliant because of inadequate and uninformed review of the IMS baseline, failure to use and understand common schedule health metrics, and the lack of routine and systematic monthly schedule reviews. Corrective action is to improve the schedule baseline development, the monthly schedule statusing process, and the forecast schedule updates. The procedures are being updated with more granularity, monthly review of schedule health metrics report has been initiated, with team meetings to review results and address concerns.

Common themes noted in the better examples indicate that when the problem is addressed in more detail, and if fixed, would prevent error recurrence. All elements are considered, i.e. people, process, and tools.

The intent of the root cause analysis is to address the proper corrective action and be able to eliminate the problem from recurrence. A weak RCA process will not drive adequate root cause identification and most likely lead to future EVMS compliance failures.

The RCA process is more than just initial identification. If the RCA stops there, repeat failures are inevitable. Effective RCA is identified as being formal and closed loop; that is the process and methodologies, to include support tools as identified above, are defined and utilized, and the process is monitored through time. It is the resampling or revisiting of the finding(s) through time as part of the contractor's EVMS compliance self-governance.

It is often the case that when a root cause analysis is conducted by the contractor team, they may uncover additional issues that need to be addressed and corrected. The contractor's obligation is to provide full visibility/transparency regarding the corrective actions associated with those findings identified in the CAR/DR. All information, even if it is unfavorable to the project, contractor, or government, should be considered; the nature of the information in and of itself does not justify its exclusion (or elimination during a review edit).

To determine what happened and why it happened, the contractor will:

- Identify the problem statement (specific problem(s) or issue(s) to be analyzed);
- Select RCA trained individual(s) to perform the analysis;
- Identify the RCA method, tools, and approaches it plans to use;
- Identify the contributing factors
- Identify the root cause(s);
- Document analysis results;
- Maintain all working papers;
- Fact check the results;
- Distribute draft results for review to all impacted parties;
- Finalize the RCA with any appropriate review edits and use as the basis for the CAMP development; and,
- Establish, modify, and revise as required a means to identify, store, prioritize, control, analyze, and document the CAR/DR corrective action process.

(4) Assess and Update the CAMP

This step is iterative as it may evolve as actions are taken. Therefore, the Review Director or Maturity Review Chief will coordinate with the contractor as necessary to provide feedback along the way.

Contractor considerations in developing the CAMP include several elements. For example, a single CAR/DR may lead to numerous corrective actions. A single problem may necessitate changes to processes, training, tools, or management approach, or a combination of these. Corrective actions prevent recurrence of similar outcomes while avoiding the introduction of additional problems. Even where a particular project has a specific deficiency, the contractor checks how the non-compliance might impact its entire portfolio to ensure that a remedy is not specific to a particular project when it needs to be applied across the site. Involve contractor senior management to influence others in the organization to incorporate corrective actions and ensure the provision of all required resources necessary to produce a successful outcome.

In addition to items mentioned previously, the contractor's CAMP should also address:

- Corrective action resolution assignments;
- Listing of repeated or similar non-compliances from past CARs or DRs; and
- A description of the nomenclature for tracking CARs, DRs, root causes, and corrective actions.

Individual corrective actions must remain linked to the finding, the root cause, the CAMP, and the associated deliverable/exit criteria. The contractor must track individual item status through completion and share the status with the review team. A template for CAMP closure status tracking is provided in the Toolkit in Appendix B.

(5) Develop / evaluate verification closure steps

The contractor develops the CAMP and the Review Director or Maturity Review Chief evaluates it for identification of verification methods, objective measures, metrics,

artifacts, and evidential products that will verify efficiency and efficacy of the corrective actions. This includes exit criteria for all activities in the CAMP timeline schedule. For data related findings, the criteria for verification typically involves producing a minimum of three consecutive performance periods of results as evidence that the corrective actions were effective. In these cases, trending the data will provide evidence that corrective actions have targeted the root cause, are effective, and are producing improving results. The contractor is responsible for reviewing the status of the exit criteria and verifying that the required objective measures have been satisfied prior to notification to the Review Director and/or Maturity Review Chief. Set a deadline for data corrections.

(6) Develop / evaluate a detailed RCA Timeline Schedule for CAMP implementation

A critical component of any project, including corrective action development and implementation, is a method to establish and document the plan. Typically, this would be accomplished within a detailed timeline schedule containing the scope and the required dates of completion. The contractor should identify a unique timeline schedule for each CAMP that includes: 1) Root Cause Analysis; 2) Changes to processes, tools, training, and other required system adjustments; 3) Management Review and regular team meetings; 4) Responsibility assignment for each activity; 4) Development of products and artifacts which will demonstrate effectiveness; and 5) Validation and Verification steps with Closure Criteria. The PM issued CAR/DR provides the initial entrance criteria; the contractor's CAMP and timeline schedule should provide the exit or closure criteria. One deviation would be where, as part of the RCA, the contractor review team in executing the process identifies the breadth of the issue permeates into areas not identified by the review team and/or not part of the original CAR/DR. In these cases, the CAMP is expanded and formally revised to document the additional time and steps needed. Increases in scope may push closure of the CAMP to the right, so it is important to capture, document, and forecast effects within the timeline schedule.

In instances where a contractor requires a robust CAMP due to multiple CAR/DR activities, resource loading the timeline schedule is an important process, as it communicates to the management team the required personnel to accomplish implementation of the CAMPs and can serve as a commitment on its part to support the process until closure. The concept here is that resource assignments should be made and documented to provide clear ownership of responsibility and performance. The contractor may choose several methods to accomplish. If there is a lack of available resources to support the process, this may impact the completion dates established for the corrective actions. All activities should be logically networked (with predecessors and successors) without any constraints. Progress should be clear and without subjective interpretation. As mentioned above, data validation normally requires several months of data submittals, and these deliveries should be milestones in the timeline schedule driven by the requisite fixes. Completion milestones should include notification of corrective action implementation and confirmation by the Review Director and/or Maturity Review Chief that the implementation is complete. Each activity should also have fields which identify the CAR/DR number, the EVMS Process,

the attribute, the responsible manager for the CAMP, and a unique ID number for each activity. The Review Director and/or Maturity Review Chief will evaluate the timeline schedule and provide feedback as necessary.

(7) Implement CAMP and track progress to successful completion

PM-30 will monitor the progress made against the accepted CAMP via regularly scheduled conference calls and/or on-site working group meetings, data sampling, etc. The contractor will track progress through the timeline schedule. Many organizations discover that the actual implementation of the accepted corrective actions is the most difficult part of the process. Sometimes a successful plan will include interim modifications or fixes in the short term, with long term changes identified as well. It is important to have CAMP solutions that not only resolve the findings but can also be implemented in an acceptable period of time (per **Step 12**, the closure of the CAMP is a required step prior to certification). In addition, it is important that the contractor meets interim commitments (including data or artifact delivery). If the execution of a CAMP will be delayed for any reason, the contractor should communicate this quickly to the Review Director and/or Maturity Review Chief and is part of the statusing of the CAMP timeline schedule when used to track CAMP activities to completion.

A key component in determining completion is the understanding that CAM knowledge and technological improvements may progress at different rates. It is important to measure success with both components in sync and in support of each other. In many cases one component may outpace the other, the contractor team may feel they are ready for the review only to find out that CAM knowledge and the supporting data are not in phase.

(8) CAR/DR closure and follow-up

All corrective actions must be verified through follow up actions. The Maturity Review Chief (and others as designated) will plan, schedule, and accept all verification actions before closing CARs and DRs. Verification of corrective action is based on the following:

- Inspection of supporting documentation and/or on-site visual inspection of corrective actions; and,
- Compliance of the corrective action in satisfying the attribute(s).

This may involve just review of the specific CAR/DR CAMP artifacts, or a follow-on review of all or elements of the EVMS based on the CR issues originally identified.

As part of the CAMP verification, the Maturity Review Chief (and others as designated) will review the CAR or DR closure criteria. The Review Director or Maturity Review Chief is responsible for ensuring that the closure criteria are satisfied, and a mutual understanding has been reached. As part of closure criteria verification, the team should consider the following:

- Is the attribute being met?
- How is this different from when the attribute was not being met?
- Are internal controls in place to prevent attribute non-compliance from recurring?

- If applicable, have fixes been implemented beyond a particular project?
- Is the contractor performing analysis from within its RCA tools to prevent or mitigate future non-compliance issues?

If the Review Director and/or Maturity Review Chief determine that verification is not necessary, then the Maturity Review Chief (and others as designated) will document the status of the closure verification. If the verification follow-up results in continued non-compliance or new deficiencies outside of the defined CAMP, then the Review Director and/or Maturity Review Chief will evaluate the effectiveness of CAMP closure and completion and recommend other courses of action which may include immediate certification withdrawal.

When the Review Director and/or Maturity Review Chief is satisfied that the contractor's corrective actions are appropriate to prevent recurrence of the non-compliance, and the solutions have been verified to be effective, the Review Director and/or Maturity Review Chief will notify the contractor that the CAR or DR is closed. Even after closure, the areas identified as needing improvement are often targeted for periodic follow-on reviews. The Review Director's or Maturity Review Chief's closure of a CAR or DR may be done remotely or on-site, depending on the nature of the verification.

6 APPENDIX A: PM EVMS COMPLIANCE TOOLS

Below is a hyperlink to access documents used to assist in determining compliance.

[ECRSOP Appendices Materials | Department of Energy](#)

To view these files, click on it and when you are on the linked page, click on the appropriate filename.

The documents in Appendix A include:

1. CAG – the Compliance Assessment Governance (CAG) for use in understanding the aspects of compliance to support the EIA-748 guidelines.
2. CRC - The EVMS Compliance Reference Crosswalk (CRC) Excel file for use in documenting the review of the contractor's EVM system description and supporting procedures under configuration control.
3. Metrics (various) - The EVMS Attributes and Metrics files for use in identifying and documenting the results of the automated and manual tests.

7 APPENDIX B: EVMS COMPLIANCE REVIEW TEAM TOOLKIT

Additional guidance, templates, and forms referred to or supporting the PM ECRSOP are available at:

<https://www.energy.gov/projectmanagement/services-0/earned-value-management> or
<https://community.max.gov/display/DOEExternal/PM+EVM+Home>.

Instructions for use of the templates are contained therein, and/or described in **Section 4** of this document. The templates below (accessible by the hyperlinks above) may change or be updated as needed; a revision date is maintained for each document.

PM-30 compliance related toolkit files:

- CAR/DR/CIO Form
- CAR/DR/CIO Log
- Cert Review Notification
- Charter Template
- Data Call (see note below)
- Document Request Log
- EVMS Cert Memo
- EVMS Compliance Review In Brief
- EVMS Compliance Review Out Brief
- EVMS Compliance Review Plan template
- EVMS Compliance Review Reports
- Analysis Master Template
- IFF Interview Template
- IFF Log
- IFF Questions Template
- Self-Governance Review Checklist
- CAMP Deliverable and Metric Closure Logs
- Technology for Review Presentation
- VAR Quality Checklist
- Virtual Review Technology Considerations
- ASU IP2M METRR tool

For the Data Call, please note that the EVMS certification review examines data produced following the approved PMB (except when a replacement contractor takes over an active project post-CD-3). While some requested data in this file will include data generated prior to CD-2/3 approval (e.g., CBB/PBB logs, etc.), in general all monthly data and detailed PMB documentation, including related change documentation, work authorization, and Cost Performance Reports (CPRs) must be from the CD-2/3 approval documentation or post-CD-2/3 monthly data. Requests in the data call for three months of data (example B11) should correspond to the last three months of data reported.

8 APPENDIX C: ACRONYM LIST

CACRAC	Current, Accurate, Complete, Repeatable, Auditable, and Compliant
CAG	Compliance Assessment Governance
CAM	Control Account Manager
CAMP	Corrective Action Management Plan
CAR	Corrective Action Request
CD	Critical Decision
CFA	Cognizant Federal Agency
CIO	Continuous Improvement Opportunity
CO	Contracting Officer
CPR	Contract Performance Report
CR	Certification Review
CRC	Compliance Reference Crosswalk
DID	Data Item Description
DIQ	Data Integrity and Quality
DOE	Department of Energy
DR	Discrepancy Report
EAC	Estimate at Completion
ECRSOP	EVMS Compliance Review Standard Operating Procedure
EFCOG	Energy Facility Contractors Group
EIA	Electronic Industries Association
EIR	External Independent Review
EOC	Elements of Cost
EPASOP	EVMS Project Analysis Standard Operating Procedure
ETC	Estimate to Complete
EVM	Earned Value Management
EVMS	Earned Value Management System
EVMSIG	Earned Value Management System Interpretation Guide
FAR	Federal Acquisition Regulation
FPD	Federal Project Director
G	Guide
GAO	Government Accountability Office
HCA	Head of Contracting Activity
ICE	Independent Cost Estimate
ICR	Independent Cost Review
IFF	Interview Findings Form
IPMD	Integrated Program Management Division (NDIA)
IPT	Integrated Project Team
IR	Implementation Review
NDIA	National Defense Industry Association
O	Order
OMB	Office of Management and Budget
OTB	Over Target Baseline
OTS	Over Target Schedule
PARS	Project Assessment and Reporting System

PASEG	Planning and Scheduling Excellence Guide (NDIA IPMD)
PB	Performance Baseline
PCA	Project Controls Analyst
PEMP	Performance Evaluation and Measurement Plan
PM	Office of Project Management
PM-20	Project Assessment Division
PM-30	Project Controls Division
PMB	Performance Measurement Baseline
PME	Project Management Executive
PMSO	Project Management Support Office
POAM	Plan of Action and Milestones
RCA	Root Cause Analysis
RFC	Review for Cause
SME	Subject Matter Expert
SOP	Standard Operating Procedure
SOW	Statement of Work
SR	Surveillance Review
WP	Work Package

9 APPENDIX D: REFERENCES AND RESOURCES

- Department of Defense. DOD Earned Value Management System Interpretation Guide (EVMSIG), March 14, 2019.
https://www.acq.osd.mil/asda/ae/ada/ipm/docs/DoD_EVMSIG_14MAR2019.pdf
- Project Management Earned Value Management website.
<https://community.max.gov/display/DOEExternal/PM+Library>
 - PM, *EVMS & Project Analysis Standard Operating Procedure* (EPASOP)
 - PM, *External Independent Review (EIR) Standard Operating Procedure (EIRSOP)*
 - PM, *Independent Cost Review (ICR) and Independent Cost Estimate (ICE) Standard Operating Procedure* (ICRICESOP)
 - DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets, Washington, DC: Approved: 11-29-2010, updated 4-12-2018
 - DOE Guide 413.3-10B, *Integrated Project Management using the Earned Value Management System*
 - DOE Guide 413.3-20, *Change Control Management*
 - PM, DOE Project Management Terms & Acronyms, <https://go.usa.gov/xtA44> or <https://go.usa.gov/xzKmM>.
- Electronic Industries Alliance (EIA)-748.
<https://www.sae.org/standards/content/eia748d/>
- Federal Acquisition Regulations 34.2 and 52.234, Earned Value Management Systems.
<http://farsite.hill.af.mil/>
- GAO. *GAO Cost Estimating and Assessment Guide*, GAO-20-195G, March 2020, <http://www.gao.gov/products/GAO-20-195G>.
- GAO. *GAO Schedule Assessment Guide*, GAO-16-89G, Dec 22, 2015, <http://www.gao.gov/products/GAO-16-89G>.
- NDIA Guides. <https://www.ndia.org/divisions/ipmd/division-guides-and-resources>
 - Planning & Scheduling Excellence Guide (PASEG) V4.0, EIA-748 Intent Guide, EVMS Acceptance Guide, EVMS Application Guide, Integrated Baseline Review (IBR) Guide, Surveillance Guide
- OMB Circular A-11, Part 7, *Capital Programming Guide Supplement to Office of Management and Budget Circular A-1, Part 7: Planning, Budgeting, and Acquisition of Capital Assets*, <https://go.usa.gov/xtmU2>. https://www.whitehouse.gov/wp-content/uploads/2021/01/capital_programming_guide.pdf