Preparing for a Successful EVMS Certification

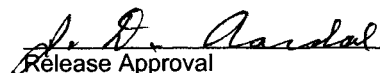Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
Office of River Protection under Contract DE-AC27-08RV14800

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Release Approval _____ 07/09/2011 Date

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January 31, 2011

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Abstract

The client, a government agency, requires its contractor to obtain an Earned Value Management System (EVMS) certification that meets the intent of ANSI/EIA-748-B, *Earned Value Management Systems* [1].

The contractor has extensive experience with certification preparation, having completed two certifications within two years. Information from a previous EVMS certification and internal system surveillances are used to prepare for client-based EVMS certifications and bi-annual surveillances. The contractor also sent members of its group to assist other companies preparing for surveillances and certifications to perform "Black Hat Reviews."

This paper is a lessons learned on preparing a team for EVMS certification. The information is also applicable for surveillances, since the contractor prepares its team for the surveillance in the same manner as the initial certification. Some of the areas covered include required documents, tracing the data through the systems, Control Account Manager (CAM) preparation, and system verification.

Introduction

The Tank Operations Contractor (TOC) is a U.S. Government prime subcontractor tasked with the cleanup of the largest nuclear waste facility in the country. The site is home to 53 million gallons of chemical and radioactive waste, which is the result of more than three decades of plutonium production. The mission is to retrieve and treat tank waste and close the tank farms to protect the environment. The lifecycle baseline for the scope is $61.5B, ending in Fiscal Year 2050.

Purpose

The purpose of this paper is to reflect on the lessons learned and good practices used by the TOC during the two Earned Value Management System (EVMS) certifications performed within 25 months of each other. The authors of this paper believe that contractors in the private sector will benefit from the lessons learned and good practices employed by the TOC in regards to EVMS policies and systems. The ability to demonstrate to a client that an EVMS is American National Standards Institute/Electronic Industries Alliance Standard ANSI/EIA-748-B (ANSI/EIA) compliant provides a level of confidence with the client relative to ensuring strong business acumen [1]. For private contractors, the ability to demonstrate ANSI/EIA compliance, gives them the ability to bid on U.S. Government contracts that require certification.

Background and Fundamentals of EVMS Certification

In accordance with DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, the TOC is required to be ANSI/EIA-748-B compliant and pass an initial EVMS certification by the Office of Engineering and Construction Management (OECM) [2]. This is due to the fact that the TOC is a Government subcontractor, and the Total Project Cost requirement of greater than $50M is met. Certification on contracts below $20M is not required because the additional burden of preparing for the certification may outlast the contract timeframe. The certification does not measure how the project is performing, but whether the EVMS and financial systems measure progress accurately, and whether the contractor is utilizing the systems to meet the intent of ANSI/EIA. The process reviews systems for accuracy and interviews the Control Account Managers (CAMs) to ensure their knowledge of earned value management.

After the initial certification, follow-on surveillances are then performed by OECM in accordance with DOE Order 413.3B. The follow-on surveillances are performed to ensure that the contractor continues to use the earned value systems that were in place during the initial certification and to meet the intent of ANSI/EIA. The surveillance is performed similar to the initial certification, with no set timetable for the surveillance review, but is generally performed within two years.

History

Until October 2008, the tank operations contract was held by another subcontractor, the Tank Farm Contractor (TFC). In June 2007, the initial EVMS certification was performed with the TFC, after an EVMS Readiness Assessment was performed by OECM. On October 1, 2008, the TOC began their contract term. Because DOE Order 413.3B requires a certification by new contractors who may have

replaced a contractor with a certified EVMS or a system requiring EVMS certification, the EVMS has to be certified again. The TOC certification was performed again as if no prior certification had occurred. There is no simplified version, the complete system is reviewed.

Participants

The contractors, agencies, and agency subcontractors involved with the process of EVMS certification included the TOC (the prime subcontractor for the Government) who requires the EVMS certification; OECM (the Government agency who manages the certification); OECM subcontractors; and select Government Headquarters and Field Office personnel.

The TOC personnel involved in the certification included the CAMs, Project Control Engineers, Project Control Managers, Accounting Leads, Procurement Leads, Project Managers, Business Systems Administrators and the EVMS Certification Project Manager.

Certification Process

The EVMS certification is structured to facilitate the exchange of information regarding the EVMS process between the TOC and the OECM. It examines the TOC's implementation of the systems; checks processes; identifies inconsistencies, issues, and potential issues; and then provides solutions and corrective actions. The OECM holds interviews with selected senior management and CAMs to understand the systems that are used to ensure that the CAMs understand EVMS, understand the data, can respond to it, and recognize how it directly relates to their assigned accounts.

The certification process can consume multiple resources for an extended period of time. The EVMS certification project required planning, scheduling, and coordinating activities for approximately 150 TOC employees from multiple organizations. Many months of preparation are required by the contractor, depending upon the size of the company and the contract. In addition to the use of company resources, outside consultants are often utilized to help prepare the team by performing practice interviews with CAMs and reviewing earned value systems that are in place.

By using such resources, the goal is to achieve the completion of the EVMS certification process with minimal to no Corrective Action Requests (CARs) or Continuous Improvement Opportunities (CIOs). A CAR is a systemic or limited occurrence of an ANSI/EIA-748-B noncompliance or a significant impact to reporting, and requires a Corrective Action Plan. A CIO is a recommended improvement or expansion of good practices for wider application and does not require a Corrective Action Plan.

The process begins with notification of the need for certification from the Government Field Office, at which time the OECM meets with the contractor for a Readiness Assessment. If the OECM believes that the contractor is ready after the assessment, they will schedule the full onsite EVMS certification review. Once a certification is granted, ongoing surveillances will be performed, approximately every two years, to ensure that the EVMS is still being utilized and meets the intent of the 32 ANSI/EIA-748-B guidelines.

Preparation

Readiness Assessment

A Readiness Assessment was performed by OECM to determine the contractor's readiness for the certification. The OECM required the TOC to submit all performance measurement baseline data, including all EVMS-related policies, procedures, and supporting documents. During the Readiness Assessment meeting, the contractor was required to prepare and present information on EVMS policies, procedures, and systems. To effectively display the complexity and integration of the EVMS processes, 12 storyboards were created and placed in the meeting room. These storyboards became a successful tool, because the Readiness Assessment team was able to visually see the complete EVMS data trace. After the Readiness Assessment, the review team concluded that the TOC was ready for a formal onsite EVMS certification.

Data Preparation

Thirty days prior to the certification, a package of data used during the certification was provided (Table 1) to OECM. The data included three months of cost, schedule, earned value, progress reporting, detailed schedules, baseline schedules, cost account plans, and baseline change request logs. The data covered the project scope for items, such as the Responsibility Assignment Matrix, but detailed control account plans and performance data were only submitted for selected scope. Based on information provided in the Responsibility Assignment Matrix, the OECM then notified the TOC which control accounts/CAMs they would interview during the certification. Normally, these accounts are the large projects with discrete work packages and large dollar values; however, level-of-effort accounts may also be selected.

Control account plans (CAPs)	Disclosure Statement
Variance analysis reports –*LAST THREE MONTHS*	Rate tables, rationale for projected rates
Management reserve log	Cost Performance Report – *LAST THREE MONTHS* (*Earned Value Management Reports*)
Undistributed budget log	Estimate at completion procedures and supporting documents

Table 1 – Example List of Items Sent Prior to Certification

Several accounting data trace demonstrations were also prepared for the OECM team, in accordance with their request (Table 2). These demonstrations provided the certification team an opportunity to become familiar with the systems, reports, and how the data was processed.

Subcontracts	Accruals
• Invoice – Accounting to EVMS • Accrual – Accounting to EVMS	• Material • Subcontract
Material	Direct Labor – Accounting to Earned Value System
• Invoice – Accounting to EVMS • Accrual – Accounting to EVMS	• Timekeeping system • Accounting system • EVMS • Percentage of exempt (unpaid overtime) employees • Potential for not charging to correct projects and distortion of overhead
Indirect Labor – Accounting to EVMS	Overhead Pools
• Timekeeping system • Overhead pool	• Fringe • General and Administrative • Site • Corporate • Construction
Overhead Allocations	Calendar – Effective/Productive Hours
• Rates • Bases	• FY08 productive hours by labor category • Possible days – calendar, by month • Productive hours are calculated by month considering holidays, weekends • Tie to CAP

Table 2 – Accounting Data Traces

CAM Preparation

Every CAM is required by procedure to receive CAM training, which includes an initial training session and refresher classes every two years. The purpose of the CAM training is to provide new and existing CAMs with the tools required to effectively manage assigned work scope within EVMS guidelines. The training took approximately two months to complete prior to the first certification and required one-on-one training sessions with approximately 20% of the CAMs.

All CAMs are provided a CAM notebook and participate in a mock interview held with their Project Control Engineer for proper preparation (Table 3). The EVMS Manager developed a CAM question list for the team to use, mirroring the questions that the certification team would ask. The CAM will need to demonstrate that he/she can track data all the way from work authorization to performance reports. The CAM should be able to demonstrate knowledge of the scope and earned value methods, systems, and processes, as well as knowledge of materials, subcontracts, labor charging, and baseline changes.

Company organization charts (show direct report Work Area Manager level to CAM level)	Responsibility Assignment Matrix with Analyst/Scheduler
Funding authorization – Original plus all revisions	Work charge authorizations
Risk list – Identify risks affecting control accounts, if any	Baseline schedule – Current with status (include column showing earned value method for each activity)
Change control log (copies of baseline change requests affecting Control Accounts)	Rules of performance documentation (backup data for budgeted cost of work performed calculation, including detail schedule)
Variance thresholds: Current month +/-10% and >$100K Contract to date +/-10% and >$250K	Last three months of project management reporting input (accomplishments, issues, variance explanations)
Latest CAM monthly performance details (Work package performance, staff labor charging reports, contract performance reports, material order reports, and cost)	Spend forecasts / estimate at completion summaries and backup documentation

Table 3 – Items Included in the CAM Notebook

Depending on the CAM's knowledge and level of comfort, the mock interview process may be repeated several times, and during these sessions, immediate feedback is provided. Examples of the CAM practice questions are shown in Table 4. During the certification interview, support staff may not be allowed in the room, depending on the certification team requirements. If they are in the room, the CAM may solicit some help with a particular item, but the Project Control Engineer does not offer active support. This is why the CAM must be fully prepared to answer questions on all of the material.

Discuss the CAM's responsibilities.	How did you arrive at your proposal estimates? Do you have the backup or worksheets from which you derived your estimate(s)?
Please show me how you fit into the organization and to whom you report? What are your responsibilities to this person?	How do you status your control accounts? How does the performance status of your accounts get into the system?
How are you authorized to begin work?	What reports do you receive that identify control and schedule status of your control accounts?
How do you receive schedule information? How do you provide schedule information?	What is the process for making changes to your budgets? Can you re-phase or re-plan work? Under what circumstances?
What process do you use to ensure that your schedules are aligned with the schedules of other CAMs and with the program schedule?	What earned value technique is used for material? When is earned value taken for material?
Are your technical responsibilities for the control account compromised by reporting progress to schedule or cost goals?	How was the budget determined and planned for the subcontracted effort?

Table 4 – Examples of CAM Practice Questions

To assist the CAMs in successfully passing an EVMS certification interview with the review team, the TOC subcontracted EVMS subject matter experts from affiliate companies to conduct detailed, formal mock interviews with selected CAMs. These are known as "Black Hat Reviews." Members of the Black Hat team have either been through the process or are consultants. These team members all have experience on the questions to be asked, the type of responses required, and how to trace a data source. This interview is the final dry run, using the same format as the official certification team. Feedback is provided to the CAM only after the interview.

Accounting/Procurement Preparation

Detailed reviews of the accounting and procurement systems were also conducted. These preparations ensured that the Accounting, Procurement, and Central Project Controls teams were ready for all questions, that the systems were in place, and all data could be traced between each system. The OECM team reviews the data and wants to be able to trace data through the entire system, from the origination of a cost item to the reporting of the cost. A piece of data (e.g., a specific resource located in a work package activity) will be chosen and then checked in the various systems to determine whether it reports correctly. The team wants to ensure that the costs are charged to the correct work packages. Also, a check is made to ensure that the accounting system is performing in accordance with the Contract Disclosure Statement and that actual costs reported equal actual costs incurred.

Systems and Procedures Preparation

Some of the systems used by the TOC (Figure 1) are wInsight for data analysis and reporting; Primavera for scheduling; Cost Manager for integrated resource/cost data; Passport for procurement; and PeopleSoft for accounting. The TOC also uses proprietary systems for progress reporting, work charging authorizations, online timecard entry, rules of performance creation, estimate-to-complete data entry, baseline change request and management reserve log, Cost Estimating Input Sheets, and end-of-month performance input. Systems were checked to ensure that they all reported correct and consistent data, and that the data was maintained by administrators under a method of configuration management. A detailed system review and example data trace was provided to the entire team, which was beneficial because the team arrived with some knowledge of the systems. Key systems considered 'best in class", were the estimate-to-complete and progress reporting systems, which provide consistent reporting and detailed estimate at completion online input. The Baseline Change Logs with the ability to track Baseline Change Requests by change number, work breakdown structure number, management reserve, contingency, etc. And the online accrual system which allows vendors to input accruals directly along with the project control staff.

The project required the review and update of 15 EVMS-related policies, procedures, and supporting documents. These documents contained the requirements for numerous support organizations within the TOC that are necessary to meet EVMS requirements. Organizations affected by these updated documents included Project Controls, Accounting/Finance, Procurement and Materials Management, Risk Management, Human Resources, External Affairs, Training, and Estimating. Coordinating the document updates for the support organizations to ensure overall compliance to EVMS requirements was a significant accomplishment.