

## **Earned Value Analysis and Reporting**

### **(a) *Basic Requirement.***

(i) The Contractor shall manage this contract with the use of an earned value management system (EVMS) that is compliant with the guidelines in ANSI/EIA Standard 748 (current version at time of award).

(ii) If the Contractor's EVMS has not been recognized by the Department of Housing and Urban Development (HUD) as complying with ANSI/EIA Standard 748 (or the Contractor does not have an existing cost/schedule contractor system that is compliant with the guidelines in ANSI/EIA Standard 748), the Contractor shall apply the system to the contract and shall be prepared to demonstrate to HUD that the EVMS complies with the ANSI/EIA Standard 748.

### **(b) *Analysis and Reporting.***

(i) The contractor shall provide monthly earned value reports after the issuance of the award beginning no later than the fifteenth workday after the reporting calendar month. The level of detail in the project Work Breakdown Structure (WBS) shall accommodate the reporting frequency. Reports shall at a minimum be at WBS Level 3.

(ii) The contractor shall provide earned value analysis and reporting that includes the following elements:

Data:	Budget at Completion (BAC) Budgeted Cost of Work Performed (BCWP – also known as Earned Value (EV)), Actual Cost of Work Performed (ACWP), Budgeted Cost of Work Scheduled (BCWS).
Variances:	Cost Variance (CV) Schedule Variance (SV) Time based Schedule Variance [SV(t)] Variance at Completion (VAC)
Indices:	Cost Performance Index (CPI) Schedule Performance Index (SPI) Time based Schedule Performance Index [SPI(t)] To Complete Performance Index (TCPI)
Forecasts:	Estimate at Complete – EAC1 Estimate at Complete – EAC2 Estimate to Completion - ETC

(iii) Current period values and cumulative values for data, variances, indices, and forecasts shall be provided in numerical format showing values and in graphical format showing trends.

(iv) Any schedule variance on the critical path shall be identified and its impact on subsequent milestones and the project cost and schedule quantified.

(v) Causal analysis shall be conducted on all variances. Each month a summary of variance causes for that reporting period and variance causes to date shall be provided. The summary shall include a breakdown of causes that identifies:

- the size of the variance by cause (some variance may have multiple causes)
- where in the systems development life cycle the variance occurred.
- corrective actions either taken or recommended in reaction to the variance
- the success or expected success of any corrective actions
- recommended changes for future project plans and risk management plans that might prevent the causes or mitigate the impacts of each variance.

**(c) *Integrated Baseline Reviews (IBR).***

(i) HUD may require IBRs as early as practicable after contract award, but not later than 60 days after contract award. The Contracting Officer may also require an IBR before exercise of significant options or the incorporation of major contract modifications. Additionally, an IBR may be scheduled when monthly Earned Value analysis and reporting indicates a variance or trend of variances that suggests the project may be at risk.

(ii) The objective of the IBR is for HUD and the contractor to jointly assess technical areas, such as the contractor's planning (to include cost and schedule estimates), to ensure complete coverage of the statement of work, logical scheduling of work activities, adequate resources, methodologies for claiming BCWP, and identification and management of inherent risks.

(d) ***EVMS Changes.*** Unless a waiver is granted by HUD, any Contractor proposed changes to its EVMS require HUD approval prior to implementation. HUD shall advise the Contractor of the acceptability of such changes within 30 calendar days after receipt of the notice of proposed changes from the Contractor. If HUD waives the advance approval requirement, the Contractor shall disclose EVMS changes to HUD at least 14 calendar days prior to the effective date of implementation.

(e) ***Access to Records and Data.*** The Contractor agrees to provide access to all pertinent records and data requested by the Contracting Officer or a duly authorized representative. This access permits Government surveillance to ensure that the EVMS conforms, and continues to conform, with the performance criteria in ANSI/EIA Standard 748.

(f) ***Subcontractor Compliance.*** The Contractor shall require the subcontractors specified below to comply with the requirements of this clause: [Insert list of applicable subcontractors.]

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(g) ***Guidance.***

(i) Guidance on performing earned value management is available from the Project Management Institute's *Practice Standard for Earned Value Management (2005)*.

(ii) HUD project managers use Microsoft (MS) Project 2002 and may upgrade to MS Project 2003. Other firms with software tools using Earned Value data include but are not limited to: Primavera, Planview, Welcom, ProSight, and Artemis.

(iii) The following definitions are provided to help guide earned value reporting and analysis:

- ACWP (Actual Cost of Worked Performed): Total cost incurred (direct or indirect) in accomplishing work during a given time period.
- BAC (Budget At Completion): The sum of all budgets established for the work to be completed on the project; the total planned value for the project.
- BCWP (Budgeted Cost of Work Performed): The sum of the approved cost estimates (including any overhead allocation) for activities (or portions of activities) completed during a given period (usually project-to-date).
- BCWS (Budgeted Cost of Work Scheduled): The sum of the approved cost estimates (including any overhead allocations) for activities (or portions of activities) scheduled to be performed during a given period (usually project-to-date).
- CPI (Cost Performance Index): The ratio of budgeted cost to actual cost (BCWP/ACWP). CPI is often used to predict the magnitude of a possible cost overrun using the following formula:  $\text{original cost estimate}/\text{CPI} = \text{projected cost at completion}$ .
- CV (Cost Variance): (1) Any difference between the estimated cost of an activity and the actual cost of that activity. (2) In earned value, BCWP less ACWP.
- EV (Earned Value): (1) A method for measuring project performance. It compares the amount of work that was planned with what was actually accomplished to determine if cost and schedule performance is as planned. (2) The budgeted cost of work performed (BCWP) for an activity or group of activities.
- EAC (Estimate At Completion): The expected total cost of an activity, a group of activities, or the project when the defined scope of work has been completed. Most techniques for forecasting EAC include some adjustment of the original cost estimate based on project performance to date. Often shown as  $\text{EAC} = \text{Actuals-to-date} + \text{ETC}$ .
- ETC (Estimate To Completion): The expected additional cost needed to complete an activity, a group of activities, or of the project when the defined scope of work has been completed. Most techniques for forecasting ETC include some adjustment of the original cost estimate based on project performance to date.

- SPI (Schedule Performance Index): The ratio of work performed to work scheduled ( $BCWP/BCWS$ ).
- SV (Schedule Variance): (1) Any difference between the scheduled completion of an activity and the actual completion of the activity. (2) In earned value,  $BCWP$  less  $BCWS$ .
- WBS (Work Breakdown Schedule) level 3: The hierarchical level of project task management, e.g. Level 1 is the project or system, Level 2 is the life cycle, and Level 3 is the action or deliverable.