



Jefferson Science Associates, LLC

600

Progress Status

Project Control System Manual
Revision 4



600 Progress Status

This chapter of the JSA Project Control System Manual explains how the status of the project is determined during the execution of the project plan. On a monthly basis, actual project work, schedule and cost data are collected and then compared to the Performance Measurement Baseline using an Earned Value Management methodology. Ensuring the collected data are valid and accurate is crucial to producing credible progress status reports. This knowledge of the project status aids all levels of project management in taking proper corrective action when deviations to the project plan surface.

601 Earned Value Management Indicators

There are three basic sets of indicators in an Earned Value Management System. It is through these metrics that a project's current schedule and cost status can be established and a final completion date and cost for the project can be estimated. Data for these indicators are normally measured in dollars (\$).

601.1 Planned Value

The first data set generated by a project is the Budgeted Cost of Work Scheduled (BCWS) or Planned Value. Planned Value is that segment of the total cost estimate planned to be spent on a project activity. This data set is derived from the Performance Measurement Baseline established during the project's planning phase where the work scope is scheduled and budget levels are assigned to the scheduled work. It is calculated cumulative to date by summing the monthly budgeted value of control accounts from the start of the project to the end of the current accounting period.

601.2 Earned Value

A. Data for Budgeted Cost of Work Performed (BCWP) or Earned Value are collected during project execution by measuring the progress of the control account work activities. When measuring Earned Value for a project, there are many methods available to assess the status of each work activity.

Projects at Jefferson Lab normally make use of these methods:

- **50 /50:** In using this earned value method, the Control Account Managers get credit for 50% of the Planned Value when work on an activity has started, and the remaining 50% when work on an activity has been completed. This method is used for activities with less than \$50K budget or less than two months duration.



- **Level of Effort (LOE):** A Level of Effort activity is work that does not readily lend itself to measurement of discrete accomplishment and normally has a duration of one fiscal year. LOE is measured only in terms of resources actually consumed within a given time period. It is generally characterized by a uniform rate of activity over a specific period of time and thus Earned Value is always equal to Planned Value. Earned Value for project management activities is usually determined in this manner.
- **Procurement Pegpoints:** For large procurements, pegpoints are established to assess progress on project procurement activities. Major procurements will use 12-month phased contract place holders and then be replaced with the actual procurement pegpoints at time of award. These pegpoints are a 0/100 Earned Value method; credit is not taken until the pegpoint is accomplished.
- **Percent Delivered:** This method is used for procurement activities where contracted items are delivered.
- **Percent Units Complete:** This method is used for activities where fabrication, receiving, installation, testing, or checkout of multiple units is taking place.
- **Percent Effort Civil Construction:** Civil construction contracts require submission of cost-loaded schedules from the construction contractor prior to the start of on-site work. Each activity on the schedule will be a definable portion of work measurable in the field and the total of the activities will equal the contract value. The approved construction contractor's schedule will be incorporated by change request as the baseline schedule. With monthly payment requests, the construction contractor will provide an updated schedule with the percentage complete of each activity.
- **Special (Percent Complete):** The Control Account Managers assess the progress of each activity in their control accounts and provide a percentage of the work in that activity that has been completed. Objective measurements are used to establish percent complete. Before work starts on a particular work activity, Control Account Managers must develop an objective criteria list for determining percent complete. This list will be approved by the Project Manager.
- **Milestone:** As milestone activities have zero duration and zero budget, there is no earned value claimed for these schedule elements.



- **Zero Budget:** Used for activities that currently have zero budget. As such, there is no earned value claimed for these schedule elements.

B. Effort Codes, as described in the table below, are used for each activity in the Schedule Management System to identify the Earned Value method used.

Code	Earned Value Method
H	50/50
E	Level of Effort
P	Procurement Pegpoints (0/100)
D	% Delivered
U	% Units Complete
C	% Effort Civil Construction
S	Special (Percent Complete)
M	Milestone
Z	Zero Budget

C. Earned Value is the cost originally budgeted to accomplish the work activities that have been completed and can include a percent complete of work activities that are still open. Earned Value is calculated both for the current status period and cumulative to date. When compared to Planned Value and Actual Cost, the Earned Value data provide an assessment of a project’s schedule and cost performance.

601.3 Actual Costs

During project execution, costs are incurred for work accomplished. These transaction data are recorded as Actual Cost of Work Performed (ACWP) or Actual Costs. Actual Costs are determined for the current period and cumulative from the start of the project.

602 Remaining Duration

Another important data item for measuring progress on a project is remaining duration. Remaining duration is a Control Account Manager’s estimate (independent of the percent complete assessment) of the number of working days (or weeks) required to complete the work remaining on an activity. Remaining duration is used by the Schedule Management System in determining the project’s schedule status.



603 Collection of Project Data

- A. Schedule and cost data are collected each month from the Control Account Managers and the Jefferson Lab financial system, respectively, to establish the performance of the project. The Project Management & Integration Division will schedule a status update session with each project Control Account Manager or identified responsible person to review the progress made on each relevant activity. Project schedule data may be collected via e-mail from the Control Account Managers using the Status Update Report (Exhibit 13). This MS Excel spreadsheet is available for use by the Control Account Managers to update their control account progress. The report contains a list of the work package activities within a control account. Control Account Managers annotate in the report those activities that have started with the start date; those activities that have been completed with the finish date; and those activities that are still ongoing with a percent complete (or Level of Effort) and remaining duration assessment. Alternate status input methods, compatible with the Scheduling Management System such as Primavera “Contractor,” may be used.

- B. After the Status Update Reports for all control accounts are completed, PM&I updates the Working Detail Schedule in the Schedule Management System and conducts a time analysis of the logic network. New early/late start and finish dates, float and the critical path are calculated. Additionally, the project’s incurred costs are imported from the accounting system into the Cost Management System. With this collected project data, the PM&I generates monthly reports that highlight important Earned Value Management indications of the project’s schedule and cost health.

604 Exhibits

- 13. Status Update Report Example



Exhibit 13. Status Update Report Example

12 GeV JUNE 2007 STATUS UPDATE												
WBS Name	Activity ID	Activity Name	BL Project Start Date	Calc Start Date	Actual Start Date	Expect to Start Date	BL Project Finish date	Calc Finish Date	Actual Finish Date	Expect To Finish Date	Prev Status % Comp	New Status % Comp
1.15.2 DETECTOR	1152005	Drit chamber prototyping (DTCTR)	2-Oct-06	1-Nov-06	1-Nov-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.2 DETECTOR	1152005A	Drit chamber prototyping (DTCTR)	2-Feb-07	1-Feb-07	1-Feb-07		28-Sep-07	28-Sep-07			50%	
1.15.2 DETECTOR	1152010	BCAL prototyping (DTCTR)	2-Oct-06	1-Nov-06	1-Nov-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.2 DETECTOR	1152010A	BCAL prototyping (DTCTR)	2-Feb-07	1-Feb-07	1-Feb-07		28-Sep-07	28-Sep-07			50%	
1.15.2 DETECTOR	1152010E	BCAL postdoc (DTCTR)	2-Oct-06	2-Oct-06	2-Oct-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.2 DETECTOR	1152010EA	BCAL postdoc (DTCTR)	2-Feb-07	1-Feb-07	1-Feb-07		30-Mar-07	1-May-07	1-May-07		100%	
1.15.2 DETECTOR	1152020	UPV prototyping (DTCTR)	2-Oct-06	1-Dec-06	1-Dec-06		28-Sep-07	28-Sep-07			0%	
1.15.2 DETECTOR	1152025	CER prototyping (DTCTR)	2-Oct-06	1-Dec-06	1-Dec-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.2 DETECTOR	1152025A	CER prototyping (DTCTR)	2-Feb-07	1-Feb-07	1-Feb-07		28-Sep-07	1-May-08			0%	
1.15.4 ELECTRONICS	1154005	FADC development (ELECTRONICS)	2-Oct-06	1-Nov-06	1-Nov-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.4 ELECTRONICS	1154005A	FADC development (ELECTRONICS)	2-Feb-07	1-Feb-07	1-Feb-07		28-Sep-07	28-Sep-07			0%	
1.15.4 ELECTRONICS	1154010	Trigger development (ELECTRONICS)	2-Oct-06	2-Oct-06	2-Oct-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.4 ELECTRONICS	1154010A	Trigger development (ELECTRONICS)	2-Feb-07	1-Mar-07	1-Mar-07		28-Sep-07	28-Sep-07			80%	
1.15.5 BEAMLINE	1155005	Hodoscope prototyping (BEAMLINE)	2-Oct-06	2-Oct-06	2-Oct-06		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.5 BEAMLINE	1155005A	Hodoscope prototyping (BEAMLINE)	2-Feb-07	30-Mar-07	30-Mar-07		28-Sep-07	1-May-08	1-May-08		15%	
1.15.5 BEAMLINE	1155010	Conduct Diamond studies (BEAMLINE)	2-Oct-06	15-Jan-07	15-Jan-07		1-Feb-07	1-Feb-07	1-Feb-07		100%	
1.15.5 BEAMLINE	1155010A	Conduct Diamond studies (BEAMLINE)	2-Feb-07	2-Feb-07	2-Feb-07		28-Sep-07	1-May-08			20%	