**Small Construction Project Earned Value Case Study**

**Instructions**: You are preparing a status report for your project sponsor and stakeholders and it's important to share the project progress using the Earned Value technique. You are preparing your status report for the period ending October 28th. Your project started February 27th. Assume that the project is executed 5 days per week and 8 hours per day with some additional hours that amount to 8 hours every Saturday and Sunday. The project manager's table of activities are noted below.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Activity | Original Duration (days) | Actual Duration  (days) | Actual Start Date | Actual Finish Date | %  Complete | Original  Budget | Actual  Budget |
| 10 | Site Prep | 8 | 9 | 2/27 | 4/26 | 100 | $500,000 | $600,000 |
| 20 | Substructure | 12 | 11 | 5/1 | 7/18 | 100 | $1,500,000 | $1,350,000 |
| 30 | Super Substructure | 18 | - | 7/20 | - | 75 | $2,000,000 | $1,450,000 |
| 40 | Exterior | 6 | - | - | - | 0 | $400,000 | - |
| 50 | Interior | 14 | - | 8/31 | - | 50 | $1,800,000 | $1,000,000 |
| 60 | Services | 10 | - | - | - | 0 | $1,000,000 | - |
| 70 | Cleanup | 4 | - | - | - | 0 | $200,000 |  |

**Question 1:** Forecast the duration of the activities that are currently in progress assuming their current rate of progress will continue till the end of the project. Find out the remaining duration as per the forecasted duration.

Step 1 - Determine activities in progress (ID 30 and ID50) - Less than 100% complete

Step 2 - Calculate actual duration from activity start date to status date for each activity in progress. The remaining duration calculation must be computed using the % of work completed to date.

**ID 30 - Activity 30 Super Substructure**

Actual Duration up to status date = \_\_\_\_#weeks to status date (Activity start date -7/20) thru (Project Status Date - 10/28)

% of work Complete = 75% (From Chart above)

New Duration at 100% = 100 \* \_#weeks to status date / 75 (% of work complete) = \_\_\_\_\_\_#weeks to complete 100%

Remaining Duration at 25% = \_\_\_\_\_weeks to complete 100% - #weeks to status date\_\_\_\_\_\_\_\_\_\_

**ID 50 - Activity 50 Interior**

Actual Duration up to status date = \_\_\_\_\_\_#weeks to status date (Activity start date -8/31) thru (Project Status Date - 10/28)

% of work Complete = 50% (From Chart above)

New Duration at 100% = 100 \* \_\_\_\_\_#weeks to status date / 50 (% of work complete) = \_\_\_\_\_\_ #weeks to complete 100%

Remaining Duration at 50% = \_\_\_\_\_#weeks to complete 100% - #weeks to status date\_\_\_\_\_\_\_\_\_\_\_

**Question 2**: Calculate the Planned Value (BCWS) based on the original budget, the original duration, and the number of weeks between the planned early start date and the status date (October 28th for the activities that are in progress. This calculation will provide the amount of money the project has spent up to October 28th?

**Activity 30 - Super substructure**

Original Budget = $2,000,000

Original Duration = 18 Weeks

Number of Weeks between Planned Start Date and Status State =\_\_\_\_\_\_ #Weeks to status date(From Question 1.

BCWS = #Weeks to status date / Original Duration \* Original Budget

BCWS = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Activity 50 - Interior**

Original Budget = $1,800,000

Original Duration = 14 Weeks

Number of Weeks between Planned Start Date and Status State =\_\_\_\_\_\_\_ #Weeks to status date (From Question 1).

BCWS = #Weeks to status date / Original Duration \* Original Budget

BCWS = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 3** - Calculate the BCWP (Earned Value). This is based on the original budget and the actual work completed for the activities that are in progress. This calculation will provide the budgeted cost of the work completed to date.

**Activity 30: Super Sub Structure**

Original Budget: = $2,000,000

Actual Percent Complete = 75%

Earned Value = 75% \* Original Budget \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Activity 50: Interior**

Original Budget = $1,800,000

Actual Percent Complete = 50%

Earned Value = 50% \* Original Budget\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 4** - Calculate the Schedule Performance Index (SPI) and the Cost Performance Index (CPI) based on BCWS and BCWP. Based on these calculations, determine if the project is ahead or behind schedule and if the cost is under or over budget?

SPI = BCWP / BCWS

CPI = BCWP / ACWP

**Activity 30 = Super Substructure**

SPI = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CPI =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ahead or Behind Schedule?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Under or Over Budget?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Activity 50 = Interior**

SPI = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CPI =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ahead or Behind Schedule?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Under or Over Budget?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_