

**1. Specifically, calculate and report the following cumulative values for the project (show your work):**

**a. Planned Value:**

Planned Value= they were planned to complete till task 22 i.e. 360 days which means  $360/30=12$  months

Planned Value (PV) =Planned Task1+Planned Task 2+.... +Planned Task 22

So, the actual planned budget is \$5, 28,100.00

**b. Earned Value:**

Earned value is they completed till task 17 i.e., they have taken 161 days

Earned Value (EV) =Planned Task1+Planned Task 2+ ...+Planned Task 17

So, the approved budget is \$3, 76,900.00

**c. Actual Cost:**

The actual cost that they got to complete the task 17 i.e., they have taken 272 days

Actual Cost (AC) = Actual Task1+Actual Task 2+.....+Actual Task17

The actual budget they got is \$4, 26,900.00

**d. Cost Variance:**

Cost Variance is difference between budgeted cost and actual cost

CV (\$) =EV-AC

$\$3,76,900.00-\$4,26,900.00=-\$50,000.00$

The cost is overrun than actual budget

CV (%) =EV-AC/EV\*100%=  $3,76,900.00-4,26,900.00/3,76,900=-13.2\%$

**e. Schedule Variance:**

Schedule Variance is difference between work scheduled and work performed

SV (\$) = EV-PV

$\$3,76,900.00-\$5,28,100.00=-\$1,51,200.00$

This negative sign indicates that behind schedule of the project

SV (%) =EV-PV/PV \*100%

$=3,76,900.00-5,28,100.00/5,28,100.00=-28.6\%$

**f. Cost Performance Index:**

Efficiency at which we are spending money

CPI=EV/AC= $\$3,76,900.00/\$4,26,900.00=0.882876552$

CPI<1 is not good- that we are getting \$0.88 for every \$1 of investment

**g. Schedule Performance Index:**

Efficiency at which we are performing work

SPI=EV/PV= $\$3,76,900.00/\$5,28,100.00=0.713690589$

SPI<1 is not good-we are progressing at 71% of the planned schedule

Here from above CPI<1 and SPI <1, CV<0(Negative), SV<0(Negative) which means that behind schedule and over cost baseline

**h. Budget At Completion for entire project:**

What the total budget that is estimated to complete the entire project

$\$7,70,300.00$ -Total budget allocated for the task

**i. Percent Scheduled vs. Percent Completed:**

Percent scheduled=  $(PV/BAC) * 100$

$\$5,28,100.00/\$7,70,300.00*100=68.55\%$

Percent Completed=  $(EV/BAC)*100$

$3,76,900.00/7,70,300.00*100\%=48.92898871\%$

Only 48% of work is completed

**j. Months ahead of or behind schedule at the end of month 18**

Months ahead of or behind schedule at the end of month 18=  $SV/AMPV$

$=-\$1,51,200.00/AMPV$

To calculate AMPV

Average monthly Planned Value=Cumulative Planned Value at the status date

i.e,  $EV/months=3,76,900.00/18=20,938.888$

So by substituting in above formulae:

$=-\$1,51,200.00/20,938.88$

$=-7.2213200$

**k. Percent Spent at the end of month 18**

Percent spent at the end of month 18 can be calculated as Actual Cost/BAC

$=AC/BAC*100\%$

$4,26,900.00/7,70,300.00*100\%$

$=55.41996625$

**l. Estimate At Completion:**

$EAC=BAC/CPI$

First calculate CPI:  $CPI=EV/AC =\$3,76,900.00/\$4,26,900.00=0.8828765519$

$EAC=BAC/CPI=\$7,70,300.00/0.8828765519=\$8,72,488.90951093$

Currently we expect the task will cost \$8,72,488.90951093

**m. Variance At Completion: VAC is difference BAC and EAC**

$VAC=BAC-EAC$

$\$7,70,300.00-\$8,72,488.90951093=-\$102,188.90951093$

Negative VAC is share are and partial loss

We are over budget by \$1,02,188.9095 given the current status of the task

**n. To Complete Performance Index (BAC):**

Efficiency necessary to complete on budget

$= (BAC-EV)/ (BAC-AC) =\text{Work remaining/Budget Remaining}$

$=\$7,70,300.00-\$3,76,900.00/\$7,70,300.00-\$4,26,900.00$

$=\$393400/\$3,43,400=1.1456027956$

Projection of cost performance that must be achieved on the remaining work

Compare to CPI and TCPI i.e., 0.8828765519 and 1.145602795

**2. Provide an analysis of what these values are telling you about the current and projected health of the project. If there are variances, what could you do to try to bring things back in-line?**

These are the key things to track in this project as listed below

### **1. Do I have any significant cost/schedule variance?**

Ans: Cost and schedule variances are negative which is bad

### **2. What is the variance %?**

Ans: Is also negative

### **3. Is it on the critical path?**

Ans: It is important to note that the project is not on the critical path, as there is slack in the schedule. Is it in an area that has been identified as a risk element? The areas with negative variances have not been identified as risk elements.

### **4. How much is the CPI and SPI?**

Ans: Cumulative cost performance index (CPI) is 0.88 which tells the efficiency is 0.88 which can be used to predict the final range of costs. The schedule performance index (SPI) is \$1, 51,200.00 and this much work has been accomplished. Where the CPI and SPI indices may be combined to statistically forecast the “most likely” final estimate. To Complete Performance Index provides a measure of efficiency required for the future work to achieve either a specified budget or estimate.

### **5. What Is The Trend (Getting Better Or Worse)?**

Ans: The trend for cost and schedule variances is getting worse, as the negative values are increasing over time. This indicates that the project is facing increasing cost and schedule pressures. To address these variances, it is important to determine the causes of the delays and overruns. Corrective actions should be identified and implemented to bring the project back on track. The impact to the project should also be assessed to determine any downstream effects of the delays and overruns.

### **6. What Am I Doing About It?**

Ans: It is important to communicate with the contractor to ensure that they are aware of the issues and are taking appropriate corrective actions. The trend is not expected to improve without intervention, so it is important to act as soon as possible to mitigate the cost and schedule impacts.