

“Project Management Using Earned Value”
Case Study Solution 25.1

25.1

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Estimate

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History

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“Project Management Using Earned Value,
“Solution to Chase Study 25.1

SOLUTION

1. See attached Estimate History Form.
2. Cost overrun factors not related to estimate development include:

1)	Late project completion	\$4.6 million
2)	Escalation rate variation	\$1.7 million
3)	Internally approved scope changes	<u>\$16.0 million</u>
	Total	\$22.3 million

Cost overrun factors attributable to estimating:

1)	Productivity rates	\$7.9 million
2)	Estimate omission	\$2.1 million
3)	Purchase order variation	<u>(\$0.5) million</u>
	Total	\$9.5 Million

Therefore, about 30% of the total cost increase was related to estimating efforts.

3.

Original estimate:	Price	\$142 million
Internal approved scope changes		<u>\$ 16 million</u>
Estimate basis:		\$158 million
Actual cost:		\$158.8 million
Accuracy:		99.5% (0.5% overrun)

If allowances are made for assumptions that were not accurate but beyond the responsibility of estimating (delayed project completion and higher escalation rates), we see that the actual cost of \$158.8 million was actually lower than the \$164.3 million that might have been anticipated for the set of circumstances actually encountered by the project. On a “fair comparison” basis, the estimate was underrun for the set of assumed circumstances.

4. Specific recommendations:
 - a. Implement a feedback loop to ensure that actual productivity rates are reported back to estimating. This will allow estimating to stay current with valid rates and will confirm the accuracy of their estimating standards.
 - b. Provide an approach for better estimate review, requiring a team review of all assumptions and input. The overlooked piece of equipment in this estimate would have been caught if it had been properly reviewed by Production. There should have also been some question about using standard productivity rates for a new process during the estimate review. This likely would have resulted in more accurate rates in the original estimate.

**Project ABC
Estimate History Form (\$ x 1000)**

Category	Original Estimate (1)	Revised Estimate (2)	Total Variance (3)	Schedule Changes (4)	Escalation Rate Changes (5)	Scope Changes (6)	Estimate Refinement	Estimate Versus Actuals	Estimate Omission or Duplication	Profit
Major Equipment	60,000	62,500	2,500	0	0	4,500	0	(2,000)	0	0
Material & Other Equipment	12,000	17,900	5,900	0	0	2,300	0	1,500	2,100	0
Construction/ Production	36,000	52,500	16,500	600	0	8,000	7,900	0	0	0
Engineering	6,000	7,200	1,200	0	0	1,200	0	0	0	0
Owner's Cost	5,000	6,000	1,000	1,000	0	0	0	0	0	0
Escalation	8,000	12,700	4,700	3,000	1,700	0	0	0	0	0
Profit	15,000	0	(15,000)	0	0	0	0	0	0	(15,000)
Grand Total	142,000	158,800	16,800	4,600	1,700	16,000	7,900	(500)	2,100	(15,000)

Notes:

- (1) Original estimate dated January 5, Yr.1
- (2) Reflects July 31, Yr. 1 estimate update
- (3) Column (2) – Column (1)
- (4) Completion date slipped 6 months on planned 2-year project
- (5) Reflects revised corporate guidelines dated March 15, Yr. 1
- (6) Includes all scope changes processed through August 15, Yr.1