

ENGINEUITY TUTORIAL



Completing A Job That Overruns



Completing a Job that Overruns

Ideally all jobs progressed will be completed either early or on time.

However, this is not always the case, and if a job overruns beyond its planned duration there are a number of affects :-

- A **penalty** will be incurred from the client for late completion, expressed as a % of the tender value for each period the job overruns. This can have a severe affect on the company's cash account, and company value.
- Additional **resources will be needed** to complete the job (labour, project manager), diverting them from elsewhere.
- It **reflects badly** on the industry's perception of the company, reflected in the 'contract completion' and 'client satisfaction' key performance indicators used to measure the progress of the company.

If a job overruns, it is imperative that the Construction Manager allocates enough labour to complete the job in its first overrunning period.



Completing a Job that Overruns

MAKING Job progression decisions (Labour) for period 10 in the Early Years

[Change period](#)
[Key information](#)
[Help](#)

IDLE LABOUR POOL

START OF THE PERIOD
 Number in the idle pool:
 Number to layoff:
 Number available for jobs in progress:

AFTER DECISIONS
 Net transfers:
 Number left in the idle pool:

JOBS IN PROGRESS

Job	Country	Sector	Plan Dur	Remaining planned periods	Progress so far	This period		Own Labour					Subcontract Labour					Total	
						Status	Plan lab	Last per	To site		From site			On site	End last	Take on	Lay off	On site	
									From ILP	New	To ILP	Paid off							
110	UAE	Energy	3	OVERRUN by 1 periods	Behind schedule	4th period	Over	23	0	0	0	0	0	23	0	0	0	0	23
118	UK	Building & Commercial	4	FINAL planned period	Ahead of schedule	4th period	37	76	0	0	0	0	0	76	0	0	0	0	76
137	UK	Water & Sewage	3	FINAL planned period	Behind schedule	3rd period	41	104	0	0	0	0	0	104	0	0	0	0	104
167	US	Energy	3	2 planned periods remaining	Behind schedule	2nd period	77	46	0	0	0	0	0	46	0	0	0	0	46
181	UK	Water & Sewage	3	2 planned periods remaining	Ahead of schedule		59	35	0	0	0	0	0	35	0	0	0	0	35
192	UK	Building & Commercial	4	4 planned periods remaining			61	0	0	0	0	0	0	0	0	0	0	0	0

[Display details for job 110](#)

Consider the following example.

Job 110, planned to be a 3 period job, has **overrun** into its 4th period.

There are currently 23 of the company's own labour on site, but with no planned labour as a guide, **what level of labour is required to complete the job this period ?**



Completing a Job that Overruns

Job 110 (In progress)

Management consultants report Risk analysis

JOB SUMMARY

JOB PROGRESS

Job progression											Profit analysis			
Planned schedule			Actual progress								By period		Cumulative	
Job period	Planned labour	Cumul % complete	Period	Status	Actual labour	Ineffect due to delays	Ineffect due to overman	Effective labour	Actual % complete	Completion status	Profit	Profit % of cost	Cumul profit	Cumul profit % of cost
1	43	30 %	7	Past	43	0.8	0.0	42.2	29.93 %	Behind schedule	239,238	7.4 %	239,238	7.4 %
2	72	80 %	8	Past	73	0.0	0.0	73.0	81.56 %	Ahead of schedule	493,179	9.0 %	732,417	8.4 %
3	29	100 %	9	Past	23	0.0	0.0	23.0	97.91 %	Behind schedule	167,566	9.7 %	899,983	8.6 %
			10	Current						OVERRUN, and will complete late				

Total planned labour needed to complete the job is 144.

The **Job progress** for the job shows that the job is currently 97.91% complete, and has overrun.

There is 2.09% of the job left to complete, or 2.09% of the total labour required for the job, 144 man periods, equating to 3 labourers ($.0209 \times 144$).

Delays caused by risks striking are not an issue when jobs overrun, since risks will only strike during the planned duration of a job.

To ensure that the job completes 3 labourers should be allocated to the job.

If a job overruns you can allocate as much labour as is required to complete the job, and the normal overmanning rules do not apply, since there is no planned labour as a guide.



Completing a Job that Overruns

Job 110 (Completed late)

Navigate to "Main menu/Measuring performance/Assessing performance/Job performance"

Management consultants report Risk analysis

JOB SUMMARY

JOB PROGRESS

Job progression											Profit analysis			
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Job period	Planned labour	Cumul % complete	Period	Status	Actual labour	Ineffect due to delays	Ineffect due to overman	Effective labour	Actual % complete	Completion status	Profit	Profit % of cost	Cumul profit	Cumul profit % of cost
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2	72	80 %	8	Past	73	0.0	0.0	73.0	81.56 %	Ahead of schedule	493,179	9.0 %	732,417	8.4 %
3	29	100 %	9	Past	23	0.0	0.0	23.0	97.91 %	Behind schedule	167,566	9.7 %	899,983	8.6 %
			10	Past	3	0.0	0.0	3.0	100 %	Completed late	-194,824	-44.6 %	705,159	6.5 %

Once the period has been completed, the **Job details** shows the penalty incurred for late completion.

The penalty for completing a job late is a % of the overall tender (bid) value to be paid each period the job overruns, and varies by client.

VIEW THE DETAILS FOR EACH PERIOD THE JOB HAS BEEN PROGRESSED

VALUE AND PROFIT ANALYSIS

Measured value: 241,951 ?

Early completion bonus: 0

Total value: 241,951

Total cost: 436,775

Total profit: -194,824 (-44.6 % of costs)

Effective labour limit (ELL): n/a

181,532 ?

Site cost: 44,961 ?

Risk cost: 0

Late completion penalty: 196,945

LABOUR ALLOCATED

Own: 3

Sub: 0

Total labour allocated: 3

(less) labour lost by delays: 0 (ineffective)

ADDITIONAL LABOUR COSTS

Ineffective labour due to overmanning: 0

Ineffective labour due to completing the job: 337 ?

PROGRESS TO DATE

Amount of the job completed: 100 %

Progress comment: (Late completion)

Client information

[R]

[ALL]

[ALL]

				Procurement restrictions		Payment terms		
Name	Base country	Type	Current relationship	From period	Minimum relationship required to continue bidding	Retention	Late completion penalty	Early completion bonus
AeroPower	United States	Private sector	satisfactory		no restriction	1.0 %	1.2 %	0.4 %
Al Mahran Developments	United Arab Emirates	Private sector	No relationship		no restriction	1.0 %	1.2 %	0.4 %
American Steel Corporation	United States	Private sector	satisfactory		no restriction	1.0 %	1.2 %	0.4 %
Amrail	United States	Public sector	satisfactory		no restriction	1.0 %	1.2 %	0.4 %
ANZ Water	New Zealand	Private sector	satisfactory		no restriction	1.2 %	1.3 %	0.5 %
Auckland City Developments	New Zealand	Private sector	satisfactory		no restriction	1.0 %	1.2 %	0.4 %



Completing a Job that Overruns

Job 110 (Completed late)

Management consultants report Risk analysis

JOB SUMMARY

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Job period	Planned labour	Cumul % complete	Period	Status	Actual labour	Ineffect due to delays	Ineffect due to overman	Effective labour	Actual % complete	Completion status	Profit	Profit % of cost	Cumul profit	Cumul profit % of cost
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3	29	100 %	9	Past	23	0.0	0.0	23.0	97.91 %	Behind schedule	167,566	9.7 %	899,983	8.6 %
			10	Past	23	0.0	0.0	23.0	100 %	Completed late	-549,835	-69.4 %	350,148	3.1 %

Total planned labour needed to complete the job is 144.

PERIOD 10

CLICK ON A LINE IN THE THE SUMMARY ABOVE TO SHOW THE DETAILS FOR EACH PERIOD THE JOB HAS BEEN PROGRESSED

LABOUR ANALYSIS		COST ANALYSIS		VALUE AND PROFIT ANALYSIS	
PLANNED SCHEDULE		BUILD RELATED		Measured value: 241,951 ?	
Required labour:	n/a			Early completion bonus:	0
Overmanning of:	n/a % permitted	Build cost:	181,779 ?	Total value:	241,951
Effective labour limit (ELL):	n/a	Site cost:	287,247 ?	Total cost:	791,786
		Risk cost:	0	Total profit:	-549,835 (-69.4 % of costs)
LABOUR ALLOCATED		Late completion penalty:	196,945		
Own:	23	ADDITIONAL LABOUR COSTS		PROGRESS TO DATE	
Sub:	0	Ineffective labour due to overmanning:	0	Amount of the job completed:	100 %
Total labour allocated:	23 ?	Ineffective labour due to completing the job:	112,815 ?	Progress comment:	(Late completing)
(less) labour lost by delays:	0 (ineffective)	Training new recruits (Own):		Cumulative profit:	350,148 (3.1 % of costs)
Effective level after delays:	23.0	Labour payoffs (Own):		Completion ratio:	0.128
(less) overmanning above the ELL:	0 (ineffective)	Subcontractor cost:			
Effective labour on site:	23	PROJECT MANAGER			
		Allocated:	Ron Garv		
		Overall performance:	excellent		

If the planned level of 23 labourers had been allocated, the **job would have completed very early in the period**, as shown by the completion ratio of 0.128 (the nearer to 1 the more efficient the job completion), with :-

- A **massive increase in costs** as labour was retained until the end of period, incurring 112,815 additional labour costs
- A significant amount of **unnecessary site cost** with the unnecessary additional labour
- **Inefficient use** of labour that could have been used elsewhere