



Part 2 – Float Mapping, Concurrency and Compensation

In Part 1, we considered float mapping against a set of facts with regards to delay and extensions of time. In this part 2 we will use the same facts to consider concurrency and compensation. In reality we are only interested in concurrency where one delay is caused by E and one delay is caused by C because it gives rise to the question as to who pays who for its losses, if at all.

When it comes to compensation there are two options as to how we view concurrency. The first is on a 'true concurrency' basis and the second is on a 'concurrent effect' basis. If we first consider 'true concurrency' and the facts from Part 1, the situation looks like the float map (Fig 1) below. The cells shaded red indicate when the delays occurred 'in time' and show that there were in fact no 'in time' concurrent delays in each week. The 'first in time' delays are shown with a bold border and it can be seen that the Employer would be liable to compensate the Contractor for prolongation for the delay E1, E3 and E4. The Employer might also need to compensate the Contractor for 'non prolongation' costs for E2; perhaps disruption. The Contractor would be liable for LAD's for C2 and C4, but not C1 or C3 as these follow E3 and C2 respectively (E3 and C2 effectively create 1 week float on Path 1).

Contact:

To discuss in further detail the issues raised please contact:-

Bob Cooper

Director of Disputes
 bob.cooper@systemch-int.com
 +44 (0) 20 7940 7656



Contract XX - Float Map - Chronological Effect (True Concurrency)															
Activity	Week														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Path 1	E1														
1	-1	-1	-1												
2	-1	-1	-1	-1	-1	-1	-1			C1					
3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2			C3		
4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-2	-3		
Path 2															
5	1	1	1	1			E2	E3							
6	1	1	1	1	1	0	-1	-2			C2				
7	1	1	1	1	1	0	-1	-2	-2	-2	-3			E4	C4
8	1	1	1	1	1	0	-1	-2	-2	-2	-3	-3	-3	-4	-5
9															

Figure 1: True Concurrency - Delays considered chronologically

Contract XX - Float Map - Liability for Compensation															
Activity	Week										EoT >				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
True Concurrency	Path 1										E1				
											1				
Concurrent Effect	Path 1										E1	C1	C3		
											1	1	1		
	Path 2										E3	C2	E4	C4	
												1	1	1	1
	Path 2										E2	E3	C2	E4	C4
											1	1	1	1	1

Figure 2: Concurrent Effect – cells linked by red arrows are causes the same effect on the Completion Date and are therefore described as concurrent

If we consider the same facts on a 'concurrent effect' basis the results are different. Concurrent effect means considering delays by E and C according to their effect on the Completion Date irrespective of when they actually occurred in time. In figure 2 the first week of delay to the Completion Date (float -1) is caused solely by the Employer (E1) and (E2), the second week of delay to the Completion Date (float -2) is caused by both the Employer (E3) and Contractor (C1), the third week (float -3) solely by the Contractor (C2/C3), the fourth only by the Employer (E4) and the fifth only by the Contractor (C4). Therefore in figure 2 where the delays are considered using a 'Concurrent Effect' basis it can be said that there was in fact only one incidence of concurrent delay effect (caused by both E and C) for C1 and E3 with float -2.

If we compare the two scenarios graphically we can see the difference i.e. no concurrency or 1 week concurrency.

Contract XX - Float Map - Concurrent Effect															
Activity	Week														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Path 1	E1														
1	-1	-1	-1												
2	-1	-1	-1	-1	-1	-1	-1								
3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2					
4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2		-2	-2		
Path 2															
5	1	1	1	1	1	0									
6	1	1	1	1	1	0	-1	-2							
7	1	1	1	1	1	0	-1	-2	-2	-2					
8	1	1	1	1	1	0	-1	-2	-2	-2		-3	-3	-3	
9															

Figure 3: Showing the Different Results between True Concurrency and Concurrent Effect

The SCL Protocol advances the argument that 'concurrent effect' is the correct approach because 'true concurrency' rarely occurs. In our true concurrency example the compensation to C would be 3 weeks (week 11, 12, 14), so the Contractor would receive 3 weeks EoT and 3 weeks compensation. In our concurrent effect example the compensation period is reduced to 2 weeks (Week 11 and 14). Here the Contractor is awarded 3 weeks EoT and 2 weeks compensation. The Contractor loses one week of compensation due to his concurrent delay effect in week 12.

Conclusion

Float Mapping is a CPM method of delay analysis which requires reasonably accurate programmes, logic and progress reporting. Although this method aids the analysis of the as-built programme it could still suffer the same criticism as the traditional methods of computer based analysis methods i.e. rubbish in = rubbish out. However, if the underlying information (logic and progress) is accurate then float mapping is a viable method for establishing the as-built critical path through a project. It also has the distinct advantage that a 15 month windows analysis, such as our example above, can be analysed and presented from a single spreadsheet rather than 15 separate programmes.