

Forensic Scheduling Analysis - Recommended Practice or Protocol: What's the Difference?



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The UK's Society of Construction Law's 'Delay and Disruption Protocol' (SCL Protocol) was published in October 2002 and has been the source of considerable debate in the industry ever since. It has achieved judicial recognition in the recent case of *Mirant v Ove Arup*¹ and succeeded in raising awareness and prompting serious debate in the wider construction law community. This awareness has resulted in clearer contract conditions regarding float ownership, concurrent delay and the determination of compensation for prolongation.

Now the US organization, the Association for the Advancement of Cost Engineering International (the AACEI), has issued its own guide which deals with the same topics and issues as the SCL Protocol. The *Recommended Practice for Forensic Schedule* was described as a "how-to" manual on forensic schedule analysis when it was first launched. While the FSA addresses the same topics as the Protocol it is not written with the intention of reducing delay and disruption disputes, which is one of the stated objectives of the SCL Protocol. Rather, the FSA provides guidance on how one should carry out forensic delay analysis, something the SCL Protocol only addresses in passing "if the recommendations for the Protocol are not followed". In that sense, the FSA is complementary to the SCL Protocol. There are recommendations that are however not reconcilable and will be seen as incompatible with the recommendations in the Protocol, particularly in respect of issues concerning float ownership² and compensation for non-critical delay.

The main objective of the SCL Protocol is to:

"... provide useful guidance on some of the common issues that arise on construction contracts, where one party wishes to recover from another an extension of time and/or compensation for the additional time spent and the resources used to complete the project. The purpose of the Protocol is to provide a means by which the parties can resolve these matters and avoid unnecessary disputes³..."

Regarding its use, the SCL Protocol states:

"... The protocol exists to provide guidance to all parties to the construction process when dealing with time delay matters. It recognises that transparency of information and methodology is central to both dispute prevention and dispute resolution."

The FSA is of similar size and detail to the SCL Protocol but acknowledges that the SCL Protocol had a "wider scope"⁴. The FSA is primarily focused on the terminology and application of forensic analysis and is admittedly a much more technical document than the SCL Protocol. Specifically, the stated purpose of the AACEI's FSA is:

"to provide a unifying technical reference for the forensic application of critical path method (CPM) scheduling"

and to

"reduce the degree of subjectivity involved in the current state of the art."

Whereas the SCL Protocol provided guidance to contract administrator and forensic analysts alike, the FSA has an expressed emphasis on "minimizing procedural subjectivity" in forensic scheduling. The FSA focuses on the process of carrying out a quantifying delay analysis, using forensic techniques. The strengths and weaknesses of each approach are explained and would steer even the novice programming analyst towards the as-built methods of analysis.

According to the FSA, while both the Impacted As-Planned and Time Impact Analysis methods are the only methods recommended when asserting constructive acceleration, these are also the only two methods determined to be inappropriate for use when assessing "Compensable Delay" or "Right to Early Compensable Delay". There are proponents of the SCL Protocol that would argue that point on its face value. However, in the US at least, it is recognized that the process is different when carrying out TIA prospectively, as opposed from a TIA that is carried out forensically.

The FSA describes each technique using "taxonomy" which relies on 5 layers of classification (Timing, Basic Methods, Specific Methods, Basic Implementation, and Specific Implementation). These are broken down into two primary branches of analysis, Observational, and Modelled, as set out in **Figure 1**⁵.

The FSA provides both action steps and fundamental points which the analyst must consider when carrying out eight different approaches to forensic delay analysis. These are called "Method Implementation Protocols" (MIP) and are provided for five Observational Methods and three Modelled

Figure 1: Classification of Delay Analysis Techniques

Taxonomy	1	RETROSPECTIVE												
	2	OBSERVATIONAL						MODELLED						
	3	Static Logic			Dynamic Logic			Additive				Subtractive		
	4	3.1 Gross	3.2 Periodic		3.3 Contemporaneous Updates (3.3 As-Is or 3.4 Split)		3.5 Modified/Reconstructed Updates		3.6 Single Base ²		3.7 Multi Base ¹		3.8 Single Simulation	
	5		Fixed Periods	Variable Windows	All Periods	Grouped Periods	Fixed Periods	Variable Windows	Global Insertion	Stepped Insertion	Fixed Periods	Variable Windows or Grouped	Global Extraction	Stepped Extraction
Common Names	As-Planned vs As-Built.	Window Analysis.	Contemporaneous Period Analysis. Time Impact Analysis. Window	Contemporaneous Period Analysis. Time Impact Analysis. Window Analysis.	Contemporaneous Period Analysis. Time Impact Analysis.	Window Analysis. Time Impact Analysis.	Impacted As-Planned. What-If.	Time Impact Analysis. Impacted As-Planned.	Time Impact Analysis.	Window Analysis. Impacted As-Planned.	Collapsed As-Built.	Time Impact Analysis. Collapsed As-Built.		

Methods. "Observational" methods are those which do not require the computer software to calculate a delay by "hitting a button". Observational may sound like a passive term, but it entails in-depth analysis, evaluation, and comparison of CPM programmes and underlying data. Many of these methods rely on frequently updated programmes, or at a minimum, a base programme as well as a properly prepared as-built programme. "Dynamic" methods are those which rely on programming software to calculate, or simulate, certain scenarios using a fully linked Critical Path Method programmes which considers the additive effect of delays on a base model (as-planned) or the deductive effects of delays on an as-built model. In the Modelled methods, the analyst compares the same model in its "before" and "after" states to quantify the impact of culpable (Contractor Risk) events or entitling (Employer Risk) events. The FSA provides Method Implementation Protocols for the following approaches:

1. Observational/Static/Gross;
2. Observational/Static/Periodic;
3. Observational/Dynamic/As-Is;
4. Observational/Dynamic/Split;
5. Observational/Dynamic/Modified or Recreated;
6. Modelled/Additive/Single Base;
7. Modelled/Additive/Multiple Base; and
8. Modelled/Subtractive/Single Base.

The titles are actually quite intuitive and precise at the same time. For example, the "Modelled/Additive/Single Base", despite sounding relatively scientific and a complex name, is better known as an Impacted As-Planned approach. Like the SCL Protocol, the FSA also provides guidance on the factors one should consider when choosing the most appropriate methodology, or methodologies, depending on the purpose of the analysis.

The FSA also provides MIP's for determining both concurrent delay and near-critical delay. These are all technically sound methods of carrying out programme analysis, however, while the bulk of the FSA is written in highly technical terms, targeted at competent programmers, it veers into contentious contractual/legal territory when it addresses the effect of concurrency, pacing, float ownership, early completion programmes and acceleration. These are relevant and fundamental to the purpose of any delay analysis. However, the FSA guidance is in direct contradiction to the SCL Protocol and UK case law regarding issues such as Float Ownership, the notion of dominant delay and a contractor's right to early completion. I will address these very briefly.

Float Ownership

The FSA states that:

"Project Float is the time between the last schedule activity on the baseline schedule and the contractual completion date ... in the absence of contrary language, project float is owned solely by the contractor."

This interpretation of float ownership is not consistent with the SCL Protocol's recommendation that project float is a shared resource, to be determined on a 'first-come, first-serve' basis in the absence of express provisions in the contract stating otherwise. The SCL Protocol does recognize that direct costs related to delays to non-critical activities may be compensable, but not time related costs typically quantified as 'prolongation'. The FSA approach is consistent with both the NEC2 and NEC3 form of contract which bases EOT and compensable delay upon the contractor's "planned" completion date, which may include a period of 'project float'.

Dominant Delay and Pacing

Pacing is an issue which has not hit the UK or Hong Kong shores as hard as it has in the US. Pacing is effectively a delay to a non-critical chain of events as a result of a conscious decision to "pace progress against" a pre-existing dominant delay. While Pacing is often argued by both owners and contractors, in an attempt to demonstrate their delay was not the dominant or controlling delay, pacing is often seen as simply another form of concurrent delay. Pacing is not treated as such by the FSA, which holds that when pacing is present, concurrently with a compensable delay, that the period in which the contractor was pacing could be treated as a compensable delay, as if there were no concurrent contractor delays in that period. This is consistent with those who successfully argue the dominant delay, or Devlin approach to concurrent delay. In order to demonstrate pacing however, the FSA requires proof of:

- The existence of a Parent Delay;
- The contemporaneous ability to resume normal Pace; and
- Evidence of contemporaneous intent to Pace.

Concurrency

The FSA recognizes that "this is the most contentious technical subject in forensic schedule analysis" and that the analysts appointed by both sides should "agree on the theory employed in the identification and quantification of concurrency." Such agreements are rare. The FSA recognizes several types of concurrency, but importantly, states that if the contract does not specify that concurrent delay can be a critical delay, then "absent such contract definition, non-critical delays can be used to offset compensable delay on a day-for-day basis, after the expenditure of relative float against the critical path". Even the staunchest supporters of the Boot-Malmaison approach would have a hard time finding favour with Tribunals in attempting to argue this definition of concurrent delay. In the UK the most acceptable and salient definition of concurrent delay I've come across is "a period of project over-run which is caused by two or more effective causes of delay which are of equal causative potency."⁶

Due to the difficulty, and rarity, of demonstrating two events of "equal causative potency" the Technical Construction Court (TCC) has tended to award time based on the dominant delay, identified by one or both of the parties' programming experts, or by apportioning delay along the critical path, as in the recent case of *City Inn v Shepherd Construction (2007)*. The underlying principle is simply;

"... concurrent delay theory is that neither the employer nor the contractor can recover damages from one another when they contribute to the delay ..."

While the TCC has historically applied a good dose of common sense to its awards for time and money, many feel that concurrent delay is still a topic that has not been sufficiently dealt with to date. For further information see *Delay Analysis in Construction Contracts*, Wiley/Blackwell 2009, or contact the author directly. ↩

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Footnotes:

- 1 See Mirant [2007] EWHC 918 (TCC)
- 2 The FSA defines network float as a shared resource, with project float being owned solely by the Contractor.
- 3 *Society of Construction Law Delay and Disruption Protocol*, page 3 - Introduction.
- 4 AACEI RP-FSA 29R-03, footnote/acknowledgement, page 9.
- 5 Ibid, page 11 of 105.
- 6 *Concurrent Delay*, John Marrin QC, February 2002. A paper given at a meeting of the Society of Construction Law on February 5th 2002.