Assessing Delay – the SCL Options[1]

Patrick Weaver

Introduction

There are two primary references describing various ways of assessing delay and disruption in construction and engineering projects: The Society of Construction Law ***Delay and Disruption Protocol*** (2nd edition), and the AACE® International Recommended Practice No. 29R-03 ***Forensic Schedule Analysis***. The primary focus of this paper is to review the Society of Construction Law Protocol in the light of several relatively recent court judgements in the UK and Australia. A secondary consideration is to compare the SCL Protocol with the AACEi 29R-03[2].

The Society of Construction Law (SCL) was founded in the UK in 1983, and has grown into SCL-International[3], a world-wide federation of eighteen national or regional Society of Construction Law (SCL) organizations (including Australia and the UK), and three affiliate organizations. One of SCL's more important contributions is the SCL Protocol. It exists to provide guidance on the determination of extensions of time and compensation for delay and disruption to the parties engaged in a construction or engineering project[4].

Overview of the SCL Protocol

The object of the Protocol is to provide useful guidance on some of the common delay and disruption issues that arise on construction projects, where one party wishes to recover from the other an extension of time (EOT) and/or compensation for the additional time spent and the resources used to complete the project. Its primary purpose is to provide a means by which the parties can resolve these matters and avoid unnecessary disputes.

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2 A more detailed assessment of AACEi 29R-03 can be found in ***Assessing Delay and Disruption – Tribunals Beware!*** https://mosaicprojects.com.au/PDF_Papers/P035_Assessing_Delays.pdf

3 See SCL International : https://www.sclinternational.org/home

4 The SCL Protocol is published in English, French and Korean versions and can be downloaded free of charge. More information may be found at https://www.scl.org.uk/resources/delay-disruption-protocol.

Generally, the SCL Protocol and the AACEi 29R-03 take a very similar approach to delay assessment and management in construction projects. The differences are largely in the way the documents are written:

- Both documents are copyright protected; AACEi 29R-03 is available for purchase, the SCL Protocol can be downloaded free of change.
- The SCL Protocol is a principles-based document, with a wider scope than AACEi 29R-03, which is more process focused. Overall, the focus of the SCL Protocol is on helping both parties to a contract avoid disputes related to delay and disruption, whereas AACEi 29R-03 is focused on analyzing the effect of a delay for the purposes of developing expert evidence to use in a dispute.
- Both documents are predicated on the assumption that a well-constructed CPM schedule is the best basis for identifying, analyzing, and resolving delay claims[5].
- AACEi 29R-03 documents nine delay assessment methodologies, each with an extensive set of processes and practices that should be followed. The SCL Protocol provides guidance on six methods.

While both documents are focused on the construction industry, the principles-based approach used on the SCL Protocol makes the document a valuable reference on a wide range of other project types.

Core Principles

The SCL identifies 22 core principles, with extensive guidance on each contained in *Section B*. These principles are sound business practice on almost all projects where there is a commercial contract between the client organization and the organization contracted to deliver the project (many of these concepts are also valuable for internal projects).

1. **Programme and records:**
    a. There should be a clear agreement on the type of records to be kept and the allocation of adequate resources to meet that agreement. Most intractable disputes are underpinned by a lack of adequate information.
    b. A programme should be properly prepared showing the manner and sequence in which the Contractor plans to carry out the works. The programme should be updated to record actual progress, variations, changes of logic, methods and sequences, mitigation, or acceleration measures, and any EOTs granted. If this is done, then the programme can be more easily used as a tool for managing change and determining EOTs and periods of time for which compensation may be due.
2. **Understand the Purpose of EOTs**. The benefits of establishing a defined completion date after an excusable delay event are:

[5] This assumption may be questioned, traditional CPM (Critical Path Method) of schedule development is not an appropriate control paradigm for Agile and Distributed projects: https://mosaicprojects.com.au/PMKI-SCH-010.php#Issues-A+D

a. For the Contractor, relief from liability for damages for delay (usually liquidated damages or LDs) for any period prior to the extended contract completion date and allows for reprogramming of the works to achieve the revised completion.
b. For the Client/Employer is that the EOT establishes a new contract completion date, prevents time for completion of the works becoming *at large* and allows for the coordination and planning of its own activities.

3. **Comply with the contract.** All parties to the contract should comply with the contractual procedural requirements relating to notices, particulars, substantiation, and assessment in relation to delay events. The terms of the contract take precedence in most situations.
4. **Be proactive.** Applications for an EOT should be made and dealt with as close in time as possible to the delay event that gives rise to the application, both in terms of EOT and compensation.
5. **Granting of EOTs.** Subject to the requirements of the contract, the EOT should be granted to the extent that the employer risk event is reasonably predicted to extend the current contract completion date. This assessment should be based upon an appropriate delay analysis, and the conclusions must be sound from a common-sense perspective.
6. **Timing of EOT decision**. For an EOT to be granted, it is not necessary for the delay to have begun to affect the Contractor's progress with the works, or for the effect of the delay to have ended.
7. **Incremental review of EOT**. Where the full effect of a delay cannot be predicted with certainty at the time of initial assessment, an EOT for the predictable effect of the delay as at that time should be approved, and reconsidered at intervals as the actual impact becomes known. Previously approved EOTs should not be reduced.
8. **The use of float.** Where there is remaining total float in the programme at the start of a delay, an EOT should only be granted to the extent that the delay extends the project completion date, after all the available float has been consumed.
9. **The identification of float** requires a properly prepared and regularly updated CPM programme[6].
10. **Concurrent delay**. Concurrency involves two separate delays affecting the project completion date in the same time period. If one delay is a contractor risk, and the other a client risk the general rule is the contractor is entitled to an

[6] ***Float*** is a concept created by the way the CPM schedule is developed and maintained rather than a tangible asset. For more on float see: https://mosaicprojects.com.au/PMKI-SCH-012.php#Process5

EOT for the duration of the client delay, but is not entitled to delay costs during the period of concurrency[7] - see 14 below.

11. **Delayed assessment**. Where an EOT application is assessed after completion of the works, or significantly after the effect of a delay, then the prospective analysis of delay referred to in the guidance to Core Principle 4 may no longer be appropriate.

12. **No Link between EOT and compensation**. Entitlement to an EOT does not automatically lead to entitlement to compensation for the delay (and vice versa).

13. **Planned early completion as it relates to compensation**. If as a result of a client / employer delay, the contractor is prevented from completing the works by the contractor's planned completion date (being a date earlier than the contract completion date), the contractor should in principle be entitled to be paid the costs directly caused by the delay, notwithstanding that there is no delay to the contract completion date (and therefore no entitlement to an EOT).

14. **Concurrent delay – effect on entitlement to compensation for prolongation**. Where an employer delay to completion and contractor delay to completion are concurrent and, as a result of that delay the Contractor incurs additional costs, then the Contractor should only recover compensation if it is able to separate the additional costs caused by the employer delay from those caused by the contractor delay.

15. **Mitigation of delay and loss.** The contractor has a general duty to mitigate the effect on its works of employer risk events that cause a delay. This has two aspects: first, the contractor must take reasonable steps to minimize its loss; and secondly, the contractor must not take unreasonable steps that increase its loss. In this context, 'reasonable' does not extend to spending contractor funds on additional resources or working extended hours.

16. **Acceleration**. Where the contractor and the employer agree that accelerative measures should be undertaken, the basis of payment should be agreed before the acceleration is commenced. Where the Contractor is considering implementing acceleration measures to avoid the risk of liquidated damages as a result of not receiving an EOT that it considers it is due, the employer must be kept informed[8].

17. **Global claims.** Composite, or global claims, made without attempting to substantiate cause and effect is discouraged by the SCL Protocol.

18. **Disruption claims**. The objective of a disruption analysis is to demonstrate the loss of productivity and hence additional loss and expense over and above that

[7] ***Concurrency*** is a complex issue, for an overview of this topic see: https://mosaicprojects.com.au/PMKI-ITC-020.php#Concurrent

[8] ***Acceleration costs***, and particularly constructive acceleration costs require detailed records. For more on this subject see: ***Delay, Disruption and Acceleration Costs***: https://mosaicprojects.com.au/PDF_Papers/P035_Disruption.pdf

which would have been incurred were it not for the disruption events for which the employer is responsible[9].

19. **Valuation of variations**. Where practicable, the total likely effect of a variation should be pre-agreed to arrive at a fixed price that includes both the direct costs (labour, plant and materials) and any time-related and disruption costs, plus an agreed EOT and the necessary revisions to the programme.
20. **Compensation for prolongation**. The basis of calculation of compensation for prolongation is the actual additional cost incurred by the contractor as a result of the delay. The objective is to put the contractor in the same financial position it would have been if the employer risk event had not occurred.
21. **Relevance of tender allowances**. Tender allowances have limited relevance in the evaluation of the cost of prolongation and disruption caused by breach of contract or any other cause that requires the evaluation of additional costs.
22. **Period for evaluation of compensation**. The evaluation of the sum due is made by reference to the period when the effect of the delay was felt, not by reference to the extended period at the end of the contract.

Record keeping

Core Principle 1 (above) focuses on good record keeping. Achieving this requires an appropriate investment of time, cost, and the commitment of staff resources by all of the project participants. The SCL Protocol recommends that in seeking to reach a clear agreement on the record keeping required, the parties should consider:

- The types of records to be produced and the information each record type should contain
- Who is responsible for both producing and checking those records
- The frequency with which those records are to be updated or produced
- The distribution list for those records
- The format of those records (for example, to ensure compatibility with any project-wide database or BIM system[10]), and
- The ownership (including any relevant intellectual property rights) and storage of, and access to, those records.

Appendix B to the SCL Protocol lists the typical records within each of the six categories of records relevant to delay and disruption identified in the guidance to *Core Principle 1*. Both common sense and the SCL Protocol recognize that transparency of information and methodology is central to both dispute prevention and dispute resolution and good record keeping is central to this objective. However, the challenge of maintaining

[9] See: ***Delay, Disruption and Acceleration Costs***: https://mosaicprojects.com.au/PDF_Papers/P035_Disruption.pdf

[10] ***BIM*** = Building Information Modelling, for more information on BIM see: https://mosaicprojects.com.au/PMKI-ITC-011.php

adequate records, at the standard recommended by the SCL Protocol should not be underestimated[11].

Assessing Delay

The SCL Protocol defines six methods for assessing delay:

Method of Analysis	Analysis Type	Critical Path Determined	Delay Impact Determined	Requires
Impacted As-Planned Analysis	Cause & Effect	Prospectively	Prospectively	• Logic linked baseline programme. • A selection of delay events to be modelled.
Time Impact Analysis	Cause & Effect	Contemporaneously	Prospectively	• Logic linked baseline programme. • Update programmes or progress information with which to update the baseline programme. • A selection of delay events to be modelled.
Time Slice Windows Analysis	Effect & Cause	Contemporaneously	Retrospectively	• Logic linked baseline programme. • Update programmes or progress information with which to update the baseline programme.
As-Planned versus As-Built Windows Analysis	Effect & Cause	Contemporaneously	Retrospectively	• Baseline programme. • As-built data.
Retrospective Longest Path Analysis	Effect & Cause	Retrospectively	Retrospectively	• Baseline Programme. • As-built programme.
Collapsed As-Built Analysis	Cause & Effect	Retrospectively	Retrospectively	• Logic linked as-built programme. • A selection of delay events to be modelled.

Impacted as-planned analysis. This is the same approach as AACEi MIP 3.6[12]. The method involves introducing an activity, or subnetwork representing the delay event into

[11] The information required to support an update to the project schedule is discussed in Section 5.3 of ***Easy CPM***: https://mosaicprojects.com.au/shop-easy-cpm.php

[12] A summary of each of the AACEi MIP (Method Implementation Protocols) is contained in ***Assessing Delay and Disruption – Tribunals Beware!*** https://mosaicprojects.com.au/PDF_Papers/P035_Assessing_Delays.pdf

a logic-linked baseline programme and its recalculation using CPM programming software in order to determine the prospective impact these events have on the predicted contract completion dates. The baseline program should be an approved contract document, and before embarking upon the analysis, the analyst needs to confirm that the baseline program is technically correct[13]. This method has material limitations, principally because it does not consider actual progress or subsequent changes to the original planned intent.

Time impact analysis. This is the same approach as AACEi MIP 3.7. The method involves introducing an activity, or subnetwork representing the delay into an updated, logic-linked baseline programme and recalculation of this updated programme using CPM programming software in order to determine the prospective impact the delay event would have on the then predicted completion dates. The baseline programme for each analysis can be either a contemporaneous programme or a contemporaneously updated baseline programme[14]. Before embarking upon the analysis, the analyst needs to confirm that the baseline program being used is technically correct, and represents the actual status of the work at the time of the delay. This method is ideal for the contemporaneous assessment of a delay (as required by most contracts), but may not accurately capture the delay to project completion caused by the delay events as subsequent project progress is not considered.

Time slice analysis. This is a 'windows' analysis, applying the same approach as AACEi MIP 3.3. The method requires the analyst to verify (or develop) a reliable series of contemporaneously updated baseline programmes reflecting an accurate status of the works at various times throughout the course of the works (usually monthly), thereby dividing the contract period into time slices. For each time slice, the programmes reveal the contemporaneous critical path as the works progressed and the critical delay status at the end of each time slice, thus allowing the analyst to determine the extent of actual critical delay incurred within each window, and to identify the events that may have caused the delay. As part of the assessment of any claim for an EOT, it is important for the analyst to demonstrate the delay in a period continued through to cause a delay the project completion[15].

As-planned versus as-built windows analysis. This is a 'windows' analysis, applying the same approach as AACEi MIP 3.2. In this method the duration of the works is broken down into windows framed by revised contemporaneous programmes, updated

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[13] For more on ***assessing the technical competence of a schedule*** see: https://mosaicprojects.com.au/PMKI-SCH-020.php

[14] For more on ***statusing and updating a schedule*** see: https://mosaicprojects.com.au/PMKI-SCH-014.php#Process6

[15] The England and Wales High Court in *Costain Limited v Charles Haswell & Partners Limited [2009] EWHC B25 (TCC)* both sides' experts had used a 'windows' analysis and found a critical delay occurred during the 'window' (differing only on the quantum of the delay). However, the Court found *'no evidence has been called to establish that the delaying events in question in fact caused delay to any activities on site apart from the RGF and IW buildings. That being so, it follows, in my judgment, that the prolongation claim advanced by Costain based on recovery of the whole of the site costs of the Lostock site, fails for want of proof'*. For more discussion on this judgement see ***Delivering Expert Evidence is Becoming Harder***: https://mosaicprojects.com.au/Mag_Articles/AA028_Delivering_Expert_Evidence.pdf

programmes, milestones, or significant events. The analyst determines the contemporaneous or actual critical path in each window by a common-sense and practical analysis of the available facts. As this task does not substantially rely on programming software, it is important that the analyst sets out the rationale and reasoning by which criticality has been determined. The incidence and extent of critical delay in each window is then determined by comparing key dates along the contemporaneous or actual critical path against corresponding planned dates in the baseline programme. The critical delay incurred and the mitigation or acceleration achieved in each window is accumulated to identify critical delay over the duration of the works. This approach is usually applied where there are too few contemporaneously updated programmes, and/or when there is concern over the validity or reasonableness of the available programs.

Retrospective longest path analysis. This approach is similar to AACEi MIP 3.1. The method involves the analyst verifying or developing a detailed as-built programme. Once complete, the analyst traces the longest continuous path backwards from the actual completion date to determine the as-built critical path. The incidence and extent of critical delay is then determined by comparing key dates along the as-built critical path against corresponding planned dates in the baseline programme, and using the project records to determine what events may have caused the identified critical delay.

Collapsed as-built. This is the same approach as AACEi MIP 3.8. The method requires a detailed logic-linked as-built programme followed by the extraction of delay events from the as-built programme to provide a hypothesis of what might have happened had the delay events not occurred. However, a detailed logic-linked as-built programme would rarely exist on the project, meaning the analyst is usually required to introduce logic to verified as-built data (from diaries, etc.) to create the programme; the subjectivity of this process is always open to challenge[16].

Given the limitations in all of the methods outlined above, the SCL Protocol recommends: *In order to avoid or at least minimize disputes over methodology, it is recommended that the parties try to agree an appropriate method of delay analysis before each embarks upon significant work on an after the event delay analysis*.

Assessing Disruption

There is no absolute linkage between establishing an entitlement to an EOT and being entitled to be compensated for the additional time that the EOT allows for the completion of the contract. Not all delays give rise to compensation.

The types of delay can be summarized as:

- **Non-excusable delays** are the responsibility of the contractor and the contractor bears the consequences, including liability to pay damages if the overall project finishes late.

[16] In *White Constructions Pty Ltd v PBS Holdings Pty Ltd [2019] NSWSC 1166* the Judge rejected the findings of both experts based in large part on the way the as-built schedules had been constructed. For more discussion on this judgement see ***Delivering Expert Evidence is Becoming Harder***: https://mosaicprojects.com.au/Mag_Articles/AA028_Delivering_Expert_Evidence.pdf

- **Excusable delays** are those against which the contractor is entitled to extension of time under the terms of the contract. Excusable delays are either:
    - Ones for which the employer is responsible and compensation will be paid in addition to an authorized extension to the contract completion date (EOT). For example, the additional time needed to complete a variation required by the employer.
    - Are delays that are outside the control of both parties for which the contractor will receive an appropriate EOT, but no compensation. For example, exceptionally adverse weather conditions.

The classification of risk types, and the apportionment of the risks between the parties is usually defined in the contract. Where compensation is due, there are three general aspects to consider:

1. The daily cost of running the project during the time of the delay. These are the 'standing costs': the costs of productive workers, plant and equipment, engaged in the work of the project are excluded.
2. The additional costs or running the organization (off site and overhead costs).
3. The costs associated with any disruption or reorganization caused by the delay event.

It is up to the contractor to demonstrate that it has suffered actual loss and/or expense before it becomes entitled to compensation[17].

Conclusion

The original version SCL Protocol was published in 2005, the current 2nd Edition in February 2017.

In most respects, the current editions of the Society of Construction Law ***Delay and Disruption Protocol*** (2nd edition), and the AACE® International Recommended Practice No. 29R-03 ***Forensic Schedule Analysis*** (2011 Ed.) take a very similar approach to assessing delay and disruption on construction projects. The fundamental difference is in the focus of the documents, the objective SCL Protocol is to provide useful guidance on some of the common delay and disruption issues that arise on construction projects, with a view to minimizing disputes whereas AACEi 29R-03 focuses on forensically analyzing delays after the dispute has arisen.

The focus of both documents is construction projects, with an expectation there is a well-developed and maintained CPM schedule (or one can be developed to support the claim). In one respect, this focus limits their usefulness. The approach to contract administration and EOT assessment defined in the documents can be applied to any type of project where the use of a well-developed and maintained CPM schedule is appropriate – not just construction projects. For this class of project[18], the use of the SCL

[17] For more on assessing the cost of delay, see ***Delay, Disruption and Acceleration Costs***: https://mosaicprojects.com.au/PDF_Papers/P035_Disruption.pdf

[18] The classification of projects into 4 classes based on the suitability of CPM scheduling to their management is included in ***Scheduling Challenges in Agile & Distributed Projects*** (only Class 1 and 2 projects are suitable for

Protocol, and/or AACEi 29R-03 is recommended both as an aide to avoiding disputes and resolving those that do arise.

Conversely, there are an increasing recognition that many projects, including some construction and engineering projects do not fit the CPM paradigm – there are many equally effective ways the work of the project can be accomplished. This type of distributed, adaptive, and/or agile, project requires a different approach to planning the work, controlling the work, and assessing the effect of delays and changes in the scope of work that is beyond the current scope of either document[19].

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the use of CPM scheduling), see:
https://mosaicprojects.com.au/PDF_Papers/P208_Scheduling_Challenges_in_Agile_+_Distributed_Projects.pdf

[19] For more on ***the management of distributed and agile projects*** see:
https://mosaicprojects.com.au/PMKI-SCH-010.php#Issues-A+D

About the Author

Patrick Weaver

Melbourne, Australia

Patrick Weaver, PMP, PMI-SP, FAICD, FCIOB, is the Managing Director of Mosaic Project Services Pty Ltd, an Australian project management consultancy specializing in project control systems. He is a Fellow of the Chartered Institute of Building, Australasia (FCIOB) and a Fellow of the Australian Institute of Company Directors (FAICD). He is a member of the PMI Melbourne Chapter (Australia), as well a full member of AIPM, and the Project Management College of Scheduling (PMCOS).

Patrick has over 50 years' experience in Project Management. His career was initially focused on the planning and managing of construction, engineering and infrastructure projects in the UK and Australia. The last 35 years has seen his businesses and experience expand to include the successful delivery of project scheduling services and PMOs in a range of government, ICT and business environments; with a strong focus on project management training.

His consultancy work encompasses: developing and advising on project schedules, developing and presenting PM training courses, managing the development of internal project control systems for client organizations, and assisting with dispute resolution and claims management.

In the last few years, Patrick has sought to 'give back' to the industry he has participated in since leaving college through contributions to the development of the project management profession. In addition to his committee roles, he has presented papers at a wide range of project management conferences in the USA, Europe, Asia and Australia, has an on-going role with the PGCS conference in Australia and is part of the Australian delegation to ISO TC258.

Patrick can be contacted at patw@mosaicprojects.com.au or at www.mosaicprojects.com.au.