

# BASIC STEPS IN DEVELOPING A FORENSIC DELAY CLAIM

By

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## BASIC STEPS IN DEVELOPING A FORENSIC DELAY CLAIM

### 1) Work Breakdown Structure (WBS)

Project planning and scheduling is one of the most important tools in a project manager's tool kit and it must be in place to ensure the effective control of time, resources and cost control and allow for management of budget over time within the project environment. To develop a detailed work plan of the total project scope, a Work Breakdown Structure (WBS) and activities associated with each element of the work must be identified. **Uncertainty** and **risk** are introduced into a project when the WBS is not fully defined and understood. A WBS at too high a level can leave scope ill-defined not allowing for proper estimates or definition of work to be performed.

### 2) Critical Path Method (CPM) Baseline Schedule

Once the WBS is established and agreed upon, the detailed plan becomes what is known as the Critical Path Method (CPM) Baseline schedule. The basic principles of CPM Scheduling include constructing a list of all required activities to complete the project, the duration they will take, and the sequence in which interdependent tasks have to be performed. The CPM method then calculates what activities are critical to the completion of the project (the critical path) and what activities have some spare or float time, which in turn are less critical. This allows management to prioritize critical activities. This plan is what the project will be measured against throughout its lifespan. As the project progresses, the plan should be statused with the actual progress achieved as well, monitoring the progress being made, ensuring activities are taking place when they should be, and that resources and costs are in line with expectations.

### 3) Critical Path

The critical path is the sequence of activities with the longest overall duration, determining the shortest time to complete the project. Any delay of an activity on the critical path directly impacts the planned project completion date (i.e. there is no float on the critical path).

### 4) Total Float

Float is the amount of time that an activity in a project network can be delayed, without causing a delay to subsequent activities (free float) or project completion date (total float).

### 5) CPM Scheduling Development & Analysis

Balmoral Hill Pty Ltd (BHPL) provides contractors with expert support services to reserve your rights and eliminate the potential for Disputes. Our practice is dedicated exclusively to the planning and scheduling with Forensic Delay Analysis expertise for the construction industry and our support services start from day one and continue throughout the successful completion of your project.

To effectively support requests for equitable adjustments, we rely on the documentation we develop throughout the project. We work closely with project teams to develop detailed CPM baseline schedules incorporating the requirements of your contract.

BHPL can provide an update service to the schedule on a weekly or monthly basis to reflect actual physical progress. We incorporate changes and "Out of Scope" works into the progress updates. We analyse the impact of Changes on project milestones and develop Sub projects to support delay & disruption claims, requests for time extensions and/or equitable adjustments. We also develop recovery plans. We support you with change order management to resolve disputes at the project level.

### 6) Resource Analysis and Scheduling

The construction industry has used various schedule analysis techniques when implementing delay claims. Puzzlingly, resource-related issues are often ignored even though it is well known

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that inability to provide resources on time and when required will affect project completion time, too. BHPL's research has shown that delay analysis without resource allocation practice invalidates the results of schedule analysis. Any delay will cause unrealistic resource allocation in subsequent work, which in turn will further delay the project. The impact of resource allocation will either add to or reduce the severity of some delaying event. Distribution of the sub-contractor delay responsibility may well be inaccurate unless resource allocation is applied in the analysis. Practical and necessary steps are essential to enhance when window analysis technique is applied to the delay. During the delay analysis a study is carried out to compare the resource enhanced window analysis with the usual window analysis. In considering Resource Analysis enables practitioners to make delay analyses and claims more real and dependable. Further analyses may well be required to improve the usability, credibility, and acceptability of schedule analysis considering resource allocation.

### 7) Cost Reporting

Key cost reports can be prepared utilizing the data from the CPM schedule. For work items that have been completed, actual cost to date data can be computed. CPM gives us, at any time during the progress of the work, an estimate of the cost for the work reported as complete, so that effective comparisons can be made. With this report, contractors do not have to wait until the end of the project to discover the "status" of their cost.

This work is performed using Earned Value Performance measurement techniques as per the Australian Standard 4817:2006 and for very large projects, especially in the government arena then ANSI748-C is used

### 8) Delay & Disruption Claims

We utilize the CPM Schedules generated throughout the project to analyse and support entitlement, calculate damages and identify the causes leading to delay and disruption. We are experts in the analysis of delay and disruption claims. We develop accurate and effective project documentation to demonstrate and support entitlement. We negotiate on your behalf to settle dispute. We act as project neutrals in Mediation and Arbitration.

### 9) CPM Scheduling Development & Analysis

- Develop CPM Baseline Schedules utilizing Primavera (P3, P5 and/or P6), Microsoft Project, Micro Planner X-Pert
- Identify Critical Paths
- Identify long lead procurement materials and equipment
- Identify Resource Requirements and Allocations
- Utilize Total Float effectively
- Load schedules with cost and resources
- Perform Earned Value Performance Management
- Monitor and update actual physical progress bi-weekly (As-Built Schedules)
- Develop short term schedules (3 Week Look Ahead) - for planning & coordination by Field Personnel
- Develop Recovery Plans to meet contract milestone dates
- Perform delay analysis - Time Impact Analysis (TIA) - Window Analysis
- Analyse Schedule Compression and/or Constructive Acceleration
- Develop sub projects and supporting documentation to support requests for Time Extensions

### 10) Schedule Analysis Methodologies

As outlined above there are several methods in performing Schedule Delay Analysis and the choice of delay/impact analysis methodology is dependent on very many factors and BHPL provides advice and guidance to our clients to make an appropriate choice. The employment of an appropriate technique will be dependent on the circumstances.

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The following reviews each of the major recognised delay/impact analysis methodologies, provides details of their implementation, potential operational problems and their various strengths and weaknesses.

The Association for the Advancement of Cost Engineering (AACE) International Recommended Practice No. 29R-03, "Forensic Schedule Analysis" (FSA RP) provides a taxonomy of forensic analysis methodologies in an effort to identify and describe unique methods that often are called by different names. This taxonomy identifies a first broad division in forensic methods between "observational" and "modelled", which provides some clarity. The methods are identified by what the FSA RP calls the Method Implementation Protocols (MIP) necessary for a reasonable analysis process. It is probably fair to say that this RP 29 is probably the best recommended practice to follow in most cases.

The observational methods in the Forensic Schedule Analysis Recommended Practice include one typically known as the As-Planned vs. As-Built (APAB- probably the method most used) and several versions of another group of analyses called Contemporary Period Analysis (CPA), based on whether the CPA is bifurcated (split) to isolate the effects of status only, and whether the analysis schedules are used substantially as they exist or recreated.

The modelled methods include two general types based on modelling fragnets to represent delays, and those are called "additive" and "subtractive".

With the additive methods, these represent methods that add fragnets to the network and use those to depict delay; these are typically known as the Impacted As-Planned (IAP) and the Time Impact Analysis (TIA). The TIA is not to be confused with the prospective method of modelling delays before the impacts from the delays have been absorbed into the schedule. This method of analysis is described in the Planning & Scheduling Standard of Practice as it is a contemporaneous method

### 11) Claims Preparation & Analysis - Damage Calculation

- Prepare claims
- Calculate damages
- Analyse delay - Window Analysis
- Develop Sub Projects
- Support requests for time extensions
- Prepare constructive acceleration claims
- Assess damage due to wrongful termination

### 12) Change Order Evaluation

- Develop methodologies and tactics to expedite issuance of "Formal" change orders to ensure timely payments
- Identify "Constructive Changes". Analyse cost and schedule impacts.
  - A constructive change is sometimes called a "change by implication" and occurs when the Government, by its actions, changes the contract without specifically adhering to the requirements of the "Changes" clause. A constructive change order has been defined as an oral or written act or omission by the Contracting Officer or other authorized Government official which is of such a nature that it has the same effect as a formal written change order under the Changes clause.
- Identify and analyse "Cardinal Changes"
  - A cardinal change has been defined as one which cannot be redressed within the contract by an equitable adjustment to the contract price. *Allied Materials & Equipment Co. Inc. v. United States*, 569 F.2d 562, 215 Ct. Cl. 406 (1978). The purpose of the "cardinal change" doctrine is to provide a remedy for contractors who are directed by the government to perform work which is not within the general scope of the contract. *Edward R. Marden Corp. v. United States*, 194

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- Develop requests for Equitable Adjustments
  - **An equitable adjustment, in government contracting, is a contract adjustment pursuant to a changes clause, to compensate the contractor expense incurred due to actions of the Government or to compensate the Government for contract reductions. An equitable adjustment includes an allowance for profit; clauses that provide for adjustments, excluding profit, are not considered "equitable adjustment"**
- Develop sub projects to support Requests for Time Extensions due to changes
- Negotiate change orders
- Resolve disputes at the project level

### 13) Claims Prevention & Avoidance

BHPL has a track record of bridging the gap between contractors and clients, relative to their disputes. We conduct site visits to gather data and meet with project teams. We analyse projects' history, which could span a year or two or more, in a relatively short period of time.

BHPL provides the analysis, in the form of a detailed "*Status Report*", highlighting critical issues and developing clear and precise "*Next Steps*" to help resolve disputes at the project level. As well as appropriate Dashboards to provide clarity of the solution

### 14) Earned Value Performance Management (as per AS 4817:2006)

- Measure project performance in terms of budget and schedule
- Develop work breakdown structure (WBS)
- Develop budgeted cost of work scheduled (BCWS), or planned value (PV)
- Monitor budgeted cost of work performed (BCWP), or earned value (EV)
- Monitor cost variances (CV)
- Monitor schedule variances (SV)
- Monitor cost performance index (CPI)
- Project Estimate at completion (EAC)

### 15) On-Site Observation & Documentation

BHPL supports contractors every step of the way. We work closely with the project team to develop and supplement your project documentation.

On site camera's provide photographic evidence which prevents misunderstanding as and when specific tasks which may be in contention were actually completed

We believe that most disputes may not materialize into either claims or trials if supporting documentation provides insufficient grounds for entitlement. Project documentation is often in the form of effective project correspondence, timely notices, issuance of schedule progress updates and recovery plans. All documents are generated in accordance with the contract requirements and shall reserve your rights and clearly illustrate damages suffered and support entitlement to your claim(s).