PINNACLEONE
The cornerstone of confidence™

December 2003

The following is a five-part article addressing concurrent delay.

Article 2 of 5

SEMINARS
PinnacleOne Institute

P1/Lorman Seminars

SERVICES
Program & Project Management

Dispute Avoidance & Resolution

Real Property Advisory Services

Headquartered in Phoenix, PinnacleOne regional operations are located in Irvine, Los Angeles, Sacramento, and Hartford.

To view a specific back-issue of this newsletter, please <Click Here>

# DISSECTING THE DOCTRINE OF CONCURRENT DELAY

The concept of *Concurrent Delay* is one of the most hotly contested topics in the industry. Both Owners and Contractors invariably use Concurrent Delay as an excuse to avoid responsibility for claims of extended overhead claims or liquidated damages assessments. Unfortunately, there is no uniform application of the Doctrine of Concurrent Delay. Contracts seldom address it. Courts can't seem to agree on what it is or how it is measured. This five part discussion of Concurrent Delay is intended to help provide you with an understanding of the confusion and controversies arising from Concurrent Delay and ways you can proactively address Concurrent Delay to avoid costly disputes of uncertain outcome.

## Criticality and Multiple Work Paths

While it is common for project participants on a delayed project to toss the term Concurrent Delay around freely, it is rare that the construction contract actually defines what it means. Furthermore, there is a divergence of opinion on the net effect of concurrent Excusable, Non-Excusable and Compensable delay events when the contract is silent on the topic [1]. If this issue is not addressed clearly in the contract documents, it is virtually certain that the parties will disagree over who should bear the cost of time during Concurrent Delay periods.

The answer to the Concurrent Delay riddle is further complicated because it is rooted not only on contractual and legal principles but also on a technical assessment of the project schedule. Fortunately tools currently exist, in particular critical path method (CPM) scheduling, which can assist with this task. A layman description of CPM scheduling is as follows:

Mr. Tom Peters, P.E., is a Sr. Claims Analyst for PinnacleOne's Los Angeles operations.

With 23 years of experience in construction claims assessment, dispute resolution, program and project controls, CPM scheduling, cost control, construction and program management, document management, general contracting and design engineering. He is a registered civil engineer in the State of California. Mr. Peters' experience is both domestic and international and includes the design and construction management of commercial, industrial, petrochemical, institutional, off-shore & sub-sea, water and wastewater facilities.

"*A network analysis technique used to predict project duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float)…*[2]."

This sequence of activities is known as the "Longest Path" or "Critical Path" and determines the earliest date of project completion.

This network analysis technique also calculates the earliest and latest dates that an activity can start and finish without delaying the end of the project. An activity is said to have positive total float if the early finish date is earlier than the late finish date. Conversely, if delays in a sequence of activities result in a network that projects early finish dates later than the late finish dates, those activities are said to have negative total float. An activity whose early and late dates are identical is said to have zero total float.

While CPM succeeds as a mathematical determinant of a network's Longest Path at a given point in time, there are further underlying aspects of its use that must be considered when analyzing Concurrent Delay.

What is Criticality?

The construction industry has at least two schools of thought when it comes to defining whether a specific work activity is "critical." In practice, answering the question "*What is Critical?*" is a function of whether you subscribe to:

**A. The Longest Path Theory**

"*Under the Longest Path theory, if an activity has float, with respect to the longest path, in excess of a given delay, it can absorb that delay and, thus, no time extension will be required. The mere fact that an activity has negative float will not be determinative of its criticality* [3]." Or,

**B. The Negative Float Theory**

*"Under the Negative Float theory…all activities that have negative float are critical* [3]*."*

On delayed projects, there may be activities with negative total float that are not on the Longest Path. Consequently, the definition of *Criticality* is imperative in analyzing Concurrent Delay and should appear conspicuously within the contract documents. If your contract is like most and does not address *Criticality*, bring the management teams together early in the project and decide for yourselves! Draft a Project Delay Charter and adhere to it for the life of the project.

Is There One "True" Critical Path?

While CPM is a valid technique for determining the Longest Path through a network at a given point in time, it fails to address certain practical considerations inherent in most time impact analysis techniques. Namely, which Longest Path governs? Is it the Longest Path on the Baseline Schedule? Is it the Longest Path on a Schedule Update? Is it the As Built critical path? If it is the As Built Critical Path, how will it be calculated? [4]

Be aware that the Critical Path can be influenced by preferential logic, work activity estimated durations and calculation methods used by the CPM software and that the Critical Path routinely changes as a project evolves. Courts have long recognized the dynamic nature of the Critical Path:

"….*there are numerous side paths for subordinate tasks which normally can be performed without affecting the critical path. However, these subordinate tasks, if improperly scheduled or unduly delayed in performance, can on occasions become critical and thus change the critical path for the entire project* [5]."

Consider also that because CPM scheduling looks forward, not backward, it will likely take significant effort to establish the As Built Critical Path once your project is complete. Furthermore, this process can be very subjective and if not done properly, can be skewed in accordance with the varied interests of the practitioners. Actual durations and logic are a function of the integrity and completeness of the practitioner's information and as a result, will likely be disputed. Subordinate Paths can quickly become the subject of heated debate.

**What about Other Work Paths?**

Since the fundamental function of a CPM Schedule is to calculate the network's Longest Path at a given point in time, it seems counterintuitive to calculate and analyze shorter work paths that by definition contain excess Total Float. Should you be concerned with any path of work activities in the schedule shorter than the Longest Path? The answer is yes. Why? Consider the observation:

"*The only thing constant in life is change.* [6]"
Francois De La Rochefoucauld

Remember, the Critical Path is a dynamic phenomenon so it is unlikely that your current perception of the Longest Path will remain constant as the project progresses. The result – criticality of individual work activities will usually vary with status until the project is complete.

Setting aside more obvious discussions associated with discrete, sequential delays along the network's Longest Path, consider the effect of changes generated by multiple parties. These parties often generate Secondary and Tertiary Path Delays that have the capacity to become Concurrent, if not Critical. If you are unaware of these Subordinate Paths and concentrate only on the Longest Path, it is likely that the lesser paths will overtake the Longest Path. Even if they don't, disputes regarding Concurrent Delay will likely follow.

Protect yourself! Know the location of the Subordinate Paths in the CPM schedule and keep in mind that forward scheduling techniques are estimates by their very nature. Track and trend progress on the Subordinate Paths noting delays that affect those paths. Mitigate *your* delays on Subordinate Paths and flag *other party* delays to Subordinate Paths. Know the Total Float calculation on each of your Subordinate Paths. If you can't accurately place a specific activity on a specific path, it will be extremely difficult for you to present a convincing case that delays on someone else's path were concurrent with your own!

References

1. Peters, Thomas F., *Concurrent Delay – What is It and Why is It so Important, Dissecting the Doctrine of Concurrent Delay, Part 1 of 5*, PinnacleOne E-Newsletter, November 2003

2. Guide to the Project Management Body of Knowledge (PMBOK Guide), 2000 Edition

3. Jentzen P.E., Gary H., Spittler, Philip and Dr. Ponce de Leon P.E., Gui, Responsibility for Delays After the

Expiration of the Contract Time, 1994 AACE Transactions

4. The use of Total Float as a measure for assigning activities to their representative paths can become problematic when analyzing As Built Schedules. CPM is unable to calculate Total Float in an As Built schedule in which estimated dates have been replaced by actual dates.

5. Wickwire, Jon M., Driscoll, Thomas J., Hurlbut, Stephen B., *Continental Consolidated Corp., ENGBCA No.s 2743, 67-2 BCA, ¶. 6624 (1967)*, Construction Scheduling, Preparation, Liability and Claims, 1991, The Construction Law Library

6. Goodman, Ted (Editor), The Forbes Book of Business Quotations, 1997, Black Dog & Leventhal Publishers

**To remove your name from this mailing, please e-mail DAR@PinnacleOne.com with "Remove" in the subject line.**