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Delay Analysis Methodologies

Delay is a common and often unavoidable occurrence in complex projects. Project delay refers to any event or series of events that extends the planned completion date of the project or key milestones. Delays may arise from multiple sources such as changes in scope, unforeseen site conditions, land Acquisition issues, variations, force majeure, resource shortages, design issues, weather impacts, or external factors beyond the control of project stakeholders. A delay may be excusable or non-excusable, compensable or non-compensable, and may affect one or multiple parties depending on contractual provisions and responsibility.

Delay Analysis is a step-by-step process to find out why the project got delayed, how much delay happened, and who is responsible. It checks project documents like baseline schedule, updated schedules, progress reports, and site records to see when the delay started, how long it lasted, and how it affected the critical path and completion date. Modern delay analysis also considers that projects keep changing, so it looks at overlapping delays (concurrency), slow working (pacing), actions taken to reduce delay (mitigation), and changes in sequence or planning over time.

Today's project professional should have strong analytical skills and good knowledge of accepted delay analysis techniques to assess delays correctly and fairly. The main purpose is to determine entitlement for Extension of Time (EOT), fix responsibility for delay, and calculate related costs such as prolongation or disruption, while keeping within the contract requirements and project goals of Scope, Time, Cost, and Quality.

Modern Delay Analysis methods provide a structured and defendable way to evaluate schedule impacts throughout the project using commonly accepted prospective and retrospective methods.

A proper delay analysis framework helps stakeholders to identify delay events, check whether they affected the critical path, assess concurrent delays, and assign responsibility clearly and transparently. This supports dispute prevention and resolution, better decision-making, and fair contract management in complex projects.

YOU WILL LEARN HOW TO:

- ✓ Establish a logical linked baseline schedule suitable for delay analysis and claims.
- ✓ Identify delay events and determine their cause, timing, and responsibility.
- ✓ Differentiate between excusable, non-excusable, compensable, and concurrent delays as per contract Agreement responsibility Matrix.
- ✓ Analyze how delays affect the Critical Path and project completion/ milestone completion using accepted methods.
- ✓ Understand the difference between prospective and retrospective methods.
- ✓ Prepare/Assess concurrency, pacing, mitigation, and acceleration effects on timelines.
- ✓ Evaluate entitlement for Extension of Time (EOT) and related prolongation impacts.
- ✓ Industry-accepted techniques with case studies from Real projects.
- ✓ Core principle of SCL Protocol & AACE RP 29R-03 + 52R-06

BENEFITS:

- ➢ Ability to identify and measure delays affecting milestones and project completion.
- ➢ Learn to prepare strong and defendable delay analyses for meetings, audits, or during ADR.
- ➢ Better decision-making by understanding the real reasons for schedule slippage.
- ➢ Help in fair allocation of delay responsibility based on actual facts and records.
- ➢ Improve contract management by timely identification of EOT entitlement and mitigation actions.

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- Reduce chances of disputes by using clear and accepted delay analysis methods.
- Strengthen skills for claims preparation, review, and reporting.
- Learn how to reassess delay impact as project conditions change.
- Establish proper monitoring to control ongoing delays and reduce future risks to project completion.

This workshop on Delay Analysis Methodologies helps to identify delays, assess their impact, reduce time risk, and support EOT decisions using actual project data.

This workshop will cover the following key activities with practical examples:

1. **Review of Contract and Baseline Schedule**
   Study of contract time clauses, milestones, EOT provisions, and approved baseline programme to set the reference for analysis.

2. **Collection of Project Records**
   Gather and verify documents such as progress reports, schedules, letters, instructions, drawings, site records, and photos for accurate analysis.

3. **Identification of Delay Events, making chronology & Delay Attribution**
   Determination of events that affected progress, land Acquisition issues, variations, force majeure, design changes, late approvals, site issues, unforeseen conditions, resource problems, or external factors along with timing and duration.

4. **Impact on Critical Path and Completion**
   Check whether delays affected critical activities, used up float, or pushed milestone/completion dates.

5. **Selection of Suitable Analysis Method**
   Apply the appropriate method based on project stage and data availability, such as:
   - Time Impact Analysis (TIA)
   - Impacted As-Planned (IAP)
   - As-Planned vs As-Built (APAB)
   - Window slice analysis (WSA)
   - Collapsed As-Buit (CAB)
   - Retrospective Longest path Analysis

6. **Assessment of Concurrency and Responsibility**
   Evaluate overlapping delays, mitigation or acceleration actions, and assign responsibility as per contract.

7. **EOT Entitlement and Reporting**
   Determine Extension of Time entitlement and prepare clear, logical, and defendable findings for contract use or dispute resolution.

In Essence, this workshop provides practical guidance to identify causes of delay, analyze their impact on the schedule, and prepare strong assessments that can stand technical and contractual review. Participants will gain the ability to support EOT submissions, evaluate claims, and assist in resolving delay-related disputes in complex projects.

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Detailed Workshop Outline

Day 1

Session – 1 **(10.00 AM to 11.30 AM)** ➢ Team Introduction ➢ Interactive Discussion / Brainstorming/ Collaborative Thinking – - Why EOT determinations by Engineer is always disputed by the Contractor? - Was the purpose of EOT, merely provide relieve to the Contractor for Engineer's default? - Was the purpose of EOT, merely providing time extension without any cost compensation? **Tea Break** **(11.30 AM TO 11.45 AM)**	**Session – 2** **(11.45 AM to 01.15 PM)** **Revising - Fundamentals & Core Concepts** ➢ Key terminologies & definitions ➢ Conceptual Understanding of SCL's Core Principles ➢ Conceptual Understanding of AACE's Taxonomy ➢ Common Challenges and Misinterpretations **Lunch** **(01.15 PM TO 02.00 PM)**
Session – 3 **(2.00 PM to 3.30 PM)** ➢ Selection of Delay Analysis Method ➢ Cause and Effect vs Effect and Cause approach ➢ Comparison of Commonly Used Methods ➢ Interactive Discussion / Brainstorming/ / Collaborative Thinking – - Why SCL recommends TIA a prospective analysis ? - Why AACE recommends retrospective analysis ? - What is contemporaneous delay analysis ? **Tea Break** **(03.30 PM TO 03.45 PM)**	**Session – 4** **(03.45 PM to 05.15 PM)** **Delay Analysis & Baseline Review** ➢ Importance of Baseline Schedule ➢ Importance of As-Planned critical path ➢ Importance of As-Built critical path ➢ Critical Path vs Longest Path ➢ Critical Path vs Critical Activity (or event)

Note:- Prerequisite - The online module on Planning to Billing must be completed before attending this workshop.

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Detailed Workshop Outline

Day 2

Session – 1 **(10.00 AM to 11.30 AM)** **Impacted As-Planned (IAP)** ➢ Concept and Principles of the IAP Method ➢ How IAP method works ? ➢ Examples and illustrations ➢ Advantages and Limitations of the method **Tea Break** **(11.30 AM TO 11.45 AM)**	**Session – 2** **(11.45 AM to 01.15 PM)** **Time Impact Analysis (TIA)** ➢ Concept and Principles of the TIA Method ➢ How TIA method works ? ➢ Examples and illustrations ➢ Advantages and Limitations of the method **Lunch** **(01.15 PM TO 02.00 PM)**
Session – 3 **(2.00 PM to 3.30 PM)** **As-Planed vs As-Built (APAB)** ➢ Concept and Principles of the APAB Method ➢ How APAB method works ? ➢ Examples and illustrations ➢ Advantages and Limitations of the method **Tea Break** **(03.30 PM TO 03.45 PM)**	**Session – 4** **(03.45 PM to 05.15 PM)** **Window slice analysis (WSA)** **Collapsed As-Built (CAB)** **Retrospective Longest Path** ➢ Concept and Principles of the Methods ➢ How methods works ? ➢ Examples and illustrations ➢ Advantages and Limitations of the method

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Detailed Workshop Outline

Day 3

Session – 1 **(10.00 AM to 11.30 AM)** **Case Studies** ➢ Issue#1 –Delay in Completion of Tunnel Works ➢ Issue#2 –Delay in Completion of Bridge Works ➢ Issue#3 –Delay in Completion of Earth Works **Tea Break** **(11.30 AM TO 11.45 AM)**	**Session – 2** **(11.45 AM to 01.15 PM)** **Case Studies (cont.)** ➢ Issue#1 –Delay in Completion of Tunnel Works ➢ Issue#2 –Delay in Completion of Bridge Works ➢ Issue#3 –Delay in Completion of Earth Works **Lunch** **(01.15 PM TO 02.00 PM)**
Session – 3 **(2.00 PM to 3.30 PM)** **Primavera P6 for Delay Analysis** ➢ Usage of Primavera P6 in Delay Analysis ➢ Extraction of Critical Path and Activity Data ➢ Common Errors and Best Practices ➢ Review of Contracts Delay Analysis **Tea Break** **(03.30 PM TO 03.45 PM)**	**Session – 4** **(03.45 PM to 05.15 PM)** ➢ Wrong Industry practices ➢ Summary of Key Learning Points ➢ Feedback and closer

Notes

- **The Speaker will co-relate every topic with real life challenges in EPC environment**
- **Every session will involve Question / Answer Session on the topics covered.**

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Thank you for your time and interest in our endeavor.....
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