

## Expert's Corner Paper 2013-05

### Project Schedule Updates: Basic Good Practices to Ensure Traceability in View of Time Extension Claims

by Hervé Baron

*Applying consistently basic good scheduling practices when updating project schedules is a fundamental factor in ensuring that future claims for Extension of Time can be substantiated, should in effect changes have occurred beyond the control of the Contractor that have impacted the project critical path. These practices are basic but not always applied consistently, later to later debates and claims that could have been avoided by a succession of healthy monthly schedule updates.*

Contracts specify how a Contractor's entitlement to an extension of the project Completion Date due an event attributable to the Owner shall be determined: the completion date can generally be extended by the impact of the event, as demonstrated by the schedule logic, on the completion date.

The calculation of an extension of time is therefore totally dependent on the quality and the maintenance of the integrity of the schedule network.

Let's focus on what comes into this integrity:

- Firstly, the integrity of the initial schedule, submitted for the Owner's review and, once approved, becoming the baseline,
- Secondly, the integrity of each schedule updates.

The first condition is not always met in all projects (this is the subject of several PVD White Papers). We will assume here that it is met, and that the baseline schedule is of a good quality. The object of the present paper is to give insights into the second bullet point: schedule updates.

#### Schedule Update Basic Good Practices

The Contract requires the Contractor to update the project schedule periodically (usually the contractually specified period is a monthly period between pre-determined cut-off points) and bring evidence on whether the project completion date or contractual milestones are met or delayed.

The update comprises the update of the schedule itself; and a narrative report of any change to the logic of the schedule. As we will see later, this narrative is essential to record what happened in case of a future claim.

The update consists of both

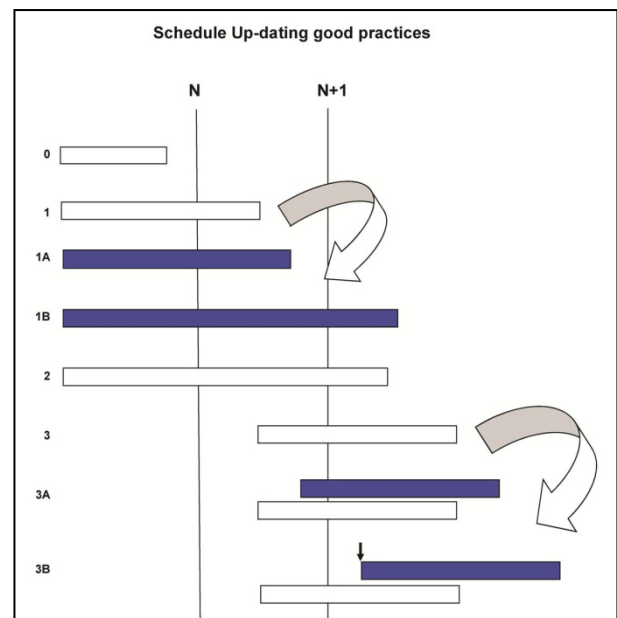
- Adjusting the time schedule according to past and observed performance, and
- Refining the time schedule of the future activities, and densifying that of the coming period.

In practice, at the end of any period, the update of the schedule requires the following steps (refer to illustration):

0. Do nothing for completed activities.
1. Activities that were already started in the previous schedule update and that were forecasted to finish in the reported period: if the activity has actually finished, put the Actual

Finish date. If the activity has not finished, reforecast its finish date.

2. Activities that were already started in the last schedule update and that were not forecasted to finish in the reported period: change the remaining duration, if required, upon advice from the relevant discipline/ owner on the estimated remaining duration and finish date.
3. Activities that were forecasted to start in the reported period: If the activity has actually started, enter the Actual Start date and update, if required, the remaining duration. If the activity has not started in the reported period, put a forecast start as a fixed date (constraint), as advised by the relevant discipline (this constraint should overrule the logic). Modify the original duration if advised by the discipline / owner.



Additionally, the planner shall incorporate in the schedule:

- Any event that has occurred in the period between the 2 cut-off dates and has caused delay or a modification to the schedule network.
- Modifications to the activity network resulting from the better knowledge gained in the period

about the project, such as more precise estimate of quantities, work volumes, sequence etc. allowing to refine the coming plan.

When updating the schedule following the different steps explained above, the planner uses and relies on a variety of information, including:

- Reports of actual work done, such as documents issued, purchase order placed etc.,
- Minutes of meeting, allowing to identify hold-up's and make sure they are reflected,
- Trend register, allowing to identify hold-up's, in particular from Client, and make sure they are reflected,
- Direct discussion with the relevant personnel from all disciplines to ascertain that the schedule effectively reflects what happens in the project.

Once the above schedule activities' update steps have been completed, the scheduler will re-schedule the Project, by making a forward pass, which will give the latest forecasted dates of future activities and the Project Completion Date.

This forecast, in particular that of the Completion Date, is an *estimate* that will change at the next schedule update.

It is important to note that at this stage, no change to the logic of the schedule has been introduced, except possible additional constraints for the start of some future activities.

### What Needs to be Done When the Completion Date Changes Beyond the Expected

Actions do NOT need to be taken systematically at each schedule update even if the Completion Date slips slightly beyond the required date. The Completion Date might indeed revert to the original one at the next update should, for instance, the lead time of an equipment prove shorter than expected etc.

Should the Completion Date remain consistently delayed over few schedule updates (say 3 successive periods), the Planner will then consider a new fundamental step in the schedule update: re-planning. Re-planning is different from re-baselining in that it is an optimization of the current schedule with the aim to protect the critical path, and it is not a full review and re-engineering of the full project schedule and execution strategy.

Re-planning consists of reviewing the critical path and near-critical paths, the sequence and duration of their activities and identifying what optimization changes to the execution, such as doing some activities in parallel, increasing resources to reduce a task duration, changing the work sequence or method etc. are required to revert back to the original Completion Date.

**Actions do not need to be taken systematically if the Completion Date slips. Only if that is a consistent conclusion of the schedule updates over several periods should a review of the schedule be undertaken.**

Should any such changes to the execution be required, it is essential to discuss with the concerned parties (Engineering, Procurement, and Construction) and to get their commitment prior to implementing those changes in the schedule, in particular when they significantly change the expected dates and resource commitment levels.

Such changes shall also be highlighted and explained in the schedule update narrative to keep everyone's confidence in the integrity of the schedule.

The narrative shall explain all changes made: change to the logic, change of duration, in particular for activities not yet started etc.

This monthly narrative, and their collection over the duration of the project, will be key documents in case of any claim. They need to be properly developed, with the right quality and the appropriate approval and diffusion levels.

### How to Leverage Proper Schedule Update Commercially

From a contractual and commercial perspective, the update of the schedule is highly critical as the schedule is the only tool that fully identifies and supports the existence of a causal link between an event and its consequence that is: a delay of activities of the critical path.

Only with such support can contractor firmly establish its entitlement to an Extension Of Time (EOT) and identify the liable party.

If an event caused by the Owner impacts the critical path, updating properly the schedule will permit to quantify the

extent of this EOT and, as a consequence, the cost that contractor may claim (time related costs).

The critical path will become more precisely defined, and may change during the project execution. As impact to the critical path forms the basis for the calculation of an EOT, it is essential that schedule updates properly reflect the current critical path and the other near-critical paths.

This means that the schedule must reflect at all times the up-to-date execution plan of the Contractor, in order to allow assessing the true impact of any event; and that any change to the logic due to circumstances must be carefully documented and recorded.

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