NPT and ILT definitions

1. NPT:

Several oil companies have a very good definition for NPT

NPT = any occurrence that interrupts the progression of a planned operation, resulting in a time delay. It includes the total time required to resolve the problem until the operation is back to the point or depth at which the NPT event occurred.

As you know, the equation for ILT is:

- Technical Limit Time + ILT + NPT = Total Time

The only thing that can't be 'massaged' is Total time. It is what it is.

However, as we know (and see all the time) the other numbers can be fudged, and are open to some degree of interpretation.

The 'Clear Leader' article on NPT, by Peter Rushmore explains some of the pitfalls of using NPT metrics.

2. Technical Limit Time:

This is intended to indicate the time that would be required if the operation were performed flawlessly, with no non-productive or trouble time, no delays, no mistakes, no inefficiencies. The Perfect Job.

The early pioneers of Technical Limit, Woodside and Shell, defined Technical Limit as "the best possible performance, limited only by technology and nature".

Others, including bp, adopted "The Technical Limit is what could be achieved in a flawless operation using the best people, planning and technology."

It can be derived several ways, the most common being "the engineering method" as below:

1. Choose appropriate offset / analogue wells - the more wells the better
2. Break the well down into small activity sets- the more the better
3. Determine the best offset task times for each set
4. Assemble 'Composite' best well... "Best of the best (BoB)"
5. Remove documented Non-Productive Time (NPT)
6. Remove apparent Invisible Lost Time (ILT) - see below
7. Apply new technologies and techniques to predict T-L

Another method, and infinitely more powerful is "ask the experts", where items (3)-(7) above are determined by the people who actually do the work, the "operatives" e.g. casing crew. We have found that the times are typically 10-15% lower than the engineering times and whilst difficult to "pin down" they allow the operatives to feel greater sense of ownership. Moreover, in the discussion that leads up to the determination of a "number", people start to build a powerful vision of success and that breeds an appetite to close the performance gap.

One method we have used at rp^2 is to measure the rate of progress towards Technical Limit. We have also found that setting aggressive team goals (not to be confused with "promises") quickly differentiates a team and, whilst painful at the outset, quickly materialises into improved total times.

3. Invisible Lost Time:

ILT is generally associated with inefficiencies that occur in operations that are classified as normal (no NPT) and so can be difficult to detect and correct. Usually, the operation is making progress, but not as quickly as might be possible with a change in procedure, equipment, or technology. For example, limping out of the hole with a faulty iron roughneck, drilling ahead with reduced parameters due to pump failure and so on.

But, taking a look at the bp definition of TL, it could be any time that we did not have the best people, planning or technology.

However this leaves it open to interpretation and those who are inclined to fudge the figures for whatever reason.

A sub-set of ILT is something referred to as Known Invisible Lost Time (KILT). KILT can be readily identified in several ways, the most common being

i. Observed time difference between 'best ever' and 'actual' trouble-free. For example it takes 12 hours to test the BOP, 1 hour recorded NPT (gives 11 hours trouble free) vs. 8 hours best observed .. yields 3 hours KILT.
ii. Operative reports that it could be done better. This is the where the operative notes that despite all that went well, there was still scope for improvement and they are able to quantify it in some way. e.g. Whilst N/U a flange it becomes obvious that having additional personnel or tools would save 30 minutes.

This is often drawn out in a properly facilitated After Action review (AAR).

4. Removable time:

We have often explained that it doesn't really matter whether an event is coded NPT or ILT, it is undesirable and needs attention. Record it, note it and then let others fight over the classification. The last thing we should do is brush it under the carpet, no matter how well-intentioned that might be. Just like safety !!

At rp^2, we use our Excel-based Work Breakdown Structure (WBS) to add the degree of definition required. It is populated by our wellsite coaches, using the morning report input, but it is often "tweaked" to include a degree of rigour sometimes missing in the morning reports.

Recommendation:

Any time that robs the team of it's potential should be recorded as such. The more determined organisations and teams will attempt to maximise these figures as NPT. Just like safety statistics, the more rigour applied in reporting (and the more draconian it seems) then the more likely it will attract the attention and focus it deserves. Then it gets fixed.

It's important that these concepts are understood by everyone in the team, which is why training in Technical Limit thinking is an essential part of every successful application.