

Turnaround Quality Assessment

So you got yourself involved in the inspection, maintenance, repair and overhaul (IMRO), or turnaround activities of your pipeline station machinery! You should perhaps take the time to step back and look at how your crew is doing. There is always room for “continuous improvement”.

The format shown below in Table 1¹ was used to assess maintenance effectiveness on a couple of major pipeline compressor stations in Eastern Europe.

Table 1.

| Criteria | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|----|
| Historical Record Keeping - Equipment cv (what, when, where why, how, who) incl. cost records | | | | | | | | | X | |
| Assembly Data Taking - fits and clearances etc. Quality of inspection forms | | | | | | | X | | | |
| Maintenance Instructions - Quality of written procedures, i.e. books or manuals; general adherence to OEM recommended procedures | | | | | | | | | X | |
| Organizational Effectiveness - Role distribution, conflict resolution etc. | | | | X | | | | | | |
| Safety Practices - Injury prevention, safety equipment | | | | X | | | | | | |
| Planning & Preparation - The T/A | | | X | | | | | | | |
| Spare Parts Organization - Parts staging and availability, decision making on reparability or re-use of questionable parts | | X | | | | | | | | |
| Work Practices - Quality & skills, quality of rigging practices, cleanliness, protection of dismantled components etc. | | | | | | | X | | | |
| Tools & Fixtures - Condition of tools, supplies, fixtures, rigging & lifting equipment | | | | | X | | | | | |
| Inspection Practices - NDT practices, defect assessment / "defectoscopy" | | | | | | | | X | | |
| Overall Job Co-Ordination | | | X | | | | | | | |

Total Score: 5.33

It served the purpose of getting everybody involved to focus on the issues that are important to the success of machinery inspections and overhauls. At the time, we

¹ The numbers in the horizontal line indicate score or assessment numbers: 10 is the best.

were also interested in gas supply reliability promised by our East European pipeline operations partners: The assessment helped us to understand how they were executing their self-directed machinery turnarounds without the help of an OEM representative.

We were particularly impressed by a machinery inspection activity our partners called “defectoscopy”, something that we would term non-destructive testing or NDT. This activity was supported by a group of highly qualified experts who examined every single machinery part being disassembled. They performed a hands-on failure analysis and formally judged each part’s serviceability. There can never be enough said about the need for such an activity because it is connected to the adage that every maintenance occasion should be considered an opportunity for improvement: There is no improvement possible if we do not understand the nature and cause of our machinery component deterioration or faults.

As to the formal side of Table 1, somebody might say: “The order of your criteria is wrong! We would decidedly put *Safety Practices – Injury Prevention and Absence of Unsafe Conditions and Acts* as our most important criterion. Then we would let perhaps *Maintenance Instructions – Adherence to Written Procedures* follow.”

“After that we would go on with ranking the remaining criteria from 1 to 10, ten being the criterion of the highest importance. We would then multiply our ranking number by the score number, put the product into a separate column, add this column up and make the sum our final score.”

The above will result in yet some more sophistication which would nevertheless be needed if we wanted to arrive at an objective assessment - especially, if we wanted to compare IMRO activities at Station A to those at Station B and so forth. However, we

believe that for many maintenance professionals the table above is a sufficiently accurate snapshot of what this particular operation was like: namely, not good and not bad. Would *you* be satisfied with such an assessment result?

The reason for why we did not want to present Table 1 in a more sophisticated fashion is the fact that our opinions about the ranking of its criteria may vary. There are people who contend, why make the safety issue paramount? If all the other criteria are addressed by training, practice and reinforcement the safety concern will eventually become less pervasive.

A good beginning would be to discuss the above criteria - and probably others contributing to the success of our turnarounds - in our safety meetings instead of engaging in generalities relating to personal injury prevention. You might want to try this approach and be surprised by the response and input from your people who will support the idea of “continuous improvement“ when it comes to the organization and execution of their machinery turnarounds.

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