The Challenges of Shutdowns, Turnarounds Outages

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The traditional view of operational STOs (shutdowns, turnarounds and outages) holds that they are maintenance and engineering events, which is a simplistic view held by many organizations. A more realistic and holistic perspective, however, recognizes that the impact and scope of STOs extend far beyond the maintenance and engineering functions, and can command significant capital and operating budgets. They attract the attention of shareholders and boards of directors, impact inventory supply chains and customer relationships. Considering all the potential ramifications, well-executed STOs can represent a source of competitive advantage for an organization and are therefore “whole business events,” not simple function-specific events.

STO work is usually — but not always — recurring or cyclic in nature. A STO is unique in that it always involves the plant, unit, or asset being taken offline or out of service and are more complex than other project-based events. Quite simply, they involve both planned activities and unplanned work, which results from inspecting a part of a machine or asset which is not accessible or visible during normal operations. The potential for identifying previously unforeseen or emergent work requirements discovered at inspection — which must be performed within the defined time constraints of the STO — adds the requirement of rapid trouble-shooting and decision-making capabilities.

Take a moment to consider your organization’s current approach to conducting

STOs. Is there a significant reliance on knowledge and experience? Are one or two team members considered critical to STOs because “they were there the last four times and know what happened”? All too often, the execution of a STO rides on one or two highly experienced ”hero” employees “stepping up” to solve the problem or ”get it done” during STOs. But given the demographic shift that is now upon us, many of these individuals are destined to leave the workforce in a relatively short time.

The top challenges in managing STOs lie in the following critical areas:

1. Ensuring workforce safety, whether they are employees or contractors, is the first priority for the STO management team. STOs present numerous challenges for safety. Large numbers of contractors may be working on site for the first time with little knowledge of equipment and processes.
2. The development, deployment, and communication of an effective STO process — which is clearly understood by all stakeholders, and which navigates all concerned parts of the organization through the complex challenges presented — is critical. Too frequently, the STO process is unclear, fragmented, and not shared.
3. Managing project scope creep is typically one of the top challenges for most STO management teams. It is a particular issue in STOs where inspection is only possible when the process or asset is the STO (e.g. opening up a furnace to establish the amount of re-lining required). Managers need prioritization tools to help them make better decisions on managing emerging work to stay within plan and budget targets.
4. The capture, analysis, and availability of relevant information and metrics via management information systems will enable the appropriate managing of activities and identification of future improvements. Measuring the right things, the right way, at the right time — and communicating them appropriately — allows STO leadership to maintain control of the diverse range of activities when work is being executed.
5. The existence of business processes may oftentimes not support the needs of the STO. We know from experience that organizations should continually evaluate (and if necessary adjust and align) their business processes in order to remain competitive, and that misaligned processes will cause inefficiencies. In most organizations, business processes are designed to enable normal day-to-day activities. They are generally not designed to cope with major peak loads, special cause events, and the other unusual demands that an STO places on them.
6. Cost management and control should be maintained throughout executing complex STOs. The existing reporting and control systems do not provide STO budget performance data until sometime after the STO is completed. The STO requires a cost monitoring program that provides timely data throughout the STO, enabling those controlling activities to make more informed choices on course of action.
7. The coordination and management of complex resources is also critical. STOs — and particularly larger ones — typically involve technical staff, corporate engineering, specialists, vendors, contractors, and government

bodies (safety, environmental, etc.) alongside internal employees, whom possess varying degrees of knowledge and experience. It is not uncommon in some operational environments for the number of people on site to grow by 300 percent when contractor resources are used to assist with STO execution. This puts a significant load on processes such as induction, isolation training, material supply, and equipment procurement.

8. Companies can and should transform their organization from reactive to proactive. Shedding a reactive culture and moving towards anticipating and resolving issues before they impact is also critical to STO success. Every organization has a hero or two — people who are remembered for ”saving the day” — and the individual’s reward for this kind of heroism can be great on many levels (job security, advancement, financial incentives, recognition, or self-actualization). The problem is that heroism is only required when the organization is already in trouble.
9. Managing the expectations of diverse stakeholders is a priority. As noted previously, STOs are whole business events, not just function specific engineering events. Yet, in many organizations, indirect stakeholders are rarely involved in the outage management process.

In order to successfully optimize the STO process, it requires a holistic approach to managing the entire set of complex activities and relationships, and addressing the challenges outlined above, which exist in the STO process.

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