



Shutdown, Turnaround, and Outage Safety Solutions





Turnarounds and shutdowns are essential to normal operations for petrochemical plants and power generation facilities. A temporary halt to operations is necessary to perform routine maintenance and facility upgrades to ensure vital equipment's longevity. Shutdowns and turnarounds keep facilities compliant with changing regulations and competitive within their industries.

But powering down a facility means temporarily shutting down the revenue it generates as well. Mobilizing for a turnaround starts the timer that counts down the hours you have to get all of the work done and get the plant re-started within the timeframe and budget you've set.

To ensure the success of your next turnaround or shutdown, find out how SITEX's STO Safety Solutions can deliver everything you need to make safety and environmental solutions the drivers of efficient, cost-effective STO execution.

What's at Stake During STO's?

During Shutdowns, Turnarounds, and Outages (STOs), no expense is more cost-prohibitive than downtime.

With up to 1,000 workers from dozens of different vendors spread across large areas and engaged in safety-sensitive tasks, the potential causes of work delays are too numerous to count. Depending on the scope of work, an STO can take a few weeks to several months to complete, meaning there is plenty of opportunity for something to go wrong.

Successful STOs avoid downtime and delays. That requires planning, communication, and especially safety. Making safety a top priority in every project phase makes a noticeable difference in the outcome.



The Numbers Don't Lie

T.A. Cook, a global leader in asset performance excellence, estimates that¹:

80%

of STOs **exceed
planned costs**
by 10% or more

90%

of STOs **don't
reach** their
expected goals

95%

of post-STO
recommendations
**never get
implemented**

Combine those statistics with the observation from Solomon Associates that an average turnaround project lags behind its plan by more than 20%. At the same time, top performers wrap STOs up as much as 14 days ahead of schedule².

Accruent has observed that "more than half of all turnarounds experience significant delays." And that "those delays lead to significant revenue reduction" for the affected plants. The same study states that "almost 50% of work-related accidents in manufacturing plants occur during plant maintenance outages."³

Set **Higher Expectations** to Realize **Bigger Returns**

If most STOs fail to achieve their goals despite going over budget and running behind schedule, you might be tempted to set the bar for your project accordingly. And, since work-related accidents are common during STOs, you could accept them as an unfortunate but unavoidable part of the process.

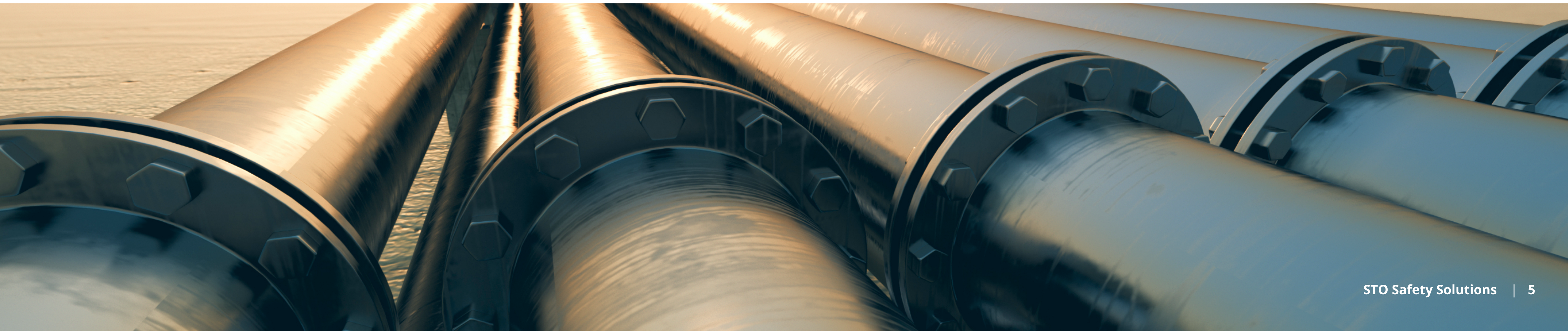
Facilities get **average results** when they set **average goals** for a shutdown or turnaround.

Setting goals that will put your project in the top 10% is a challenge. Re-starting your plant ahead of schedule, under budget, and incident-free has benefits beyond the bottom line. Bringing safety and environmental experts into a project's scoping and planning phases is one of the most impactful decisions you can make.

SITEX's STO solutions give clients access to consulting, environmental hazard and industrial hygiene assessments, streamlined training and orientation, highly-skilled safety and rescue personnel, equipment, and PPE.

SITEX Adds Value in **Every Phase** of a Turnaround

Most facilities use a phased approach to shutdowns and turnarounds.



Scoping

The scoping phase of a turnaround should begin **at least 12 months before the project's anticipated mobilization.**

During project scoping, the time frame, budget, and scope of work should be set. Stakeholders from Engineering, Maintenance, and Management should be involved. A Turnaround Manager should be designated, and decisions about technology should be made.

SITEX STO Solutions adds value during the scoping phase of a turnaround by ensuring that safety and environmental challenges that could lead to delays or incidents during the execution phase are identified and addressed in the earliest stages of the process.

Once a scope of work has been defined, environmental hazard assessments, industrial hygiene analyses, and process safety management inspections can be performed on the areas where turnaround work will occur.

During the scoping phase, SITEX focuses on Identifying and Addressing the hazards that would cause delays.

Planning

In the planning phase of a turnaround, the stakeholders do the exacting work of turning the broad outline from the scoping phase into a detailed action plan. Planning can take anywhere from **6 to 18 months, so it's vital to allow enough time for the work to be completed.**

During this phase, work orders are generated, contractors and vendors are selected, logistical and material requirements are addressed, and workflows are coordinated.

As the detailed plans for the turnaround are developed, SITEX's safety experts can build safety into the program. By identifying the timing and location of vital safety needs like confined space rescue, hole watch, fire watch, and hazard control or abatement, stakeholders can take proactive steps to avoid delays and create accurate schedules and workflows.

As vendors and contractors are brought on to the project, SITEX can help stakeholders verify certifications and provide additional training where necessary. Safety professionals are an ideal partner to have when developing orientation curriculums. At the same time, a detailed projection of safety equipment and PPE inventories can be generated.

It takes both expertise and experience to foresee the safety challenges that exist within workflows and take steps to ensure safe execution.

Execution

The execution phase begins when **the facility shuts down,** and the turnaround project begins.

It's when months of planning turn to action and the countdown to the project deadline begins. Anyone who's been through an STO knows that even the most careful and detailed plans will have to change as the work proceeds.

When things go according to plan, there is plenty of work to keep safety and environmental teams busy. There are permits to be issued, PPE and equipment to be expedited, tasks to be supervised, and rescue teams to be dispatched.

When plans change, having safety experts on the team adds real value. Change management is the biggest challenge to maintaining a safety plan as workflows are revised to adapt to challenges that crews encounter.

SITEX STO Solutions stays focused on safety during the execution phase so their clients can focus on getting the job done.

Start-Up

During the start-up phase, contractors and vendors will be stood down as their **assignments are wrapped-up.**

As each task on the to-do list of a turnaround gets checked off, attention should turn to the steps that will ensure a safe and successful re-start of the facility. Verifying that the work was completed and that the affected machinery is ready to return to operation is vital.

With SITEX STO Solutions on-site, clients have extra sets of eyes and pairs of hands to ensure that no detail is overlooked before systems are brought back online.

SITEX's expertise includes both environmental and worksite safety. As work orders are reviewed and closed or punch lists issued and resolved, SITEX works with their clients to bring each element of the turnaround to a safe and successful close.

SITEX STO Solutions provides comprehensive support from start to finish.

Review

Whether an STO exceeds all of its goals or falls short of some, it's essential to gather the lessons learned and ensure they're part of a plan for continuous improvement. Evaluating KPIs and examining the details of project performance yields valuable insights.

SITEX STO Solutions assists clients with the gathering, analysis, and reporting of data on environmental and safety aspects of the turnaround.

With SITEX as a partner, a facility gets a **detailed analysis of what went right and what could've gone better.**

The lessons learned become recommendations for future STOs.

It's Never Too Early To Make SITEX a Part of Your STO Team

Shutdowns and turnarounds are planned events. Making safety a pillar of the process from beginning to end is one of the best ways to ensure that these projects stay on schedule and under budget.

Of course, plants and facilities experience unplanned outages from time to time too. When SITEX is part of your team, you know that safety and environmental solutions are in the hands of experts, and the help you need is ready to go and just a phone call away.

Give SITEX STO Solutions a chance to show you the difference safety can make.

¹ T.A. Cook, STO Management: Achieving sustainable success for turnarounds, shutdowns and outages, 2022.

² Solomon, Turnaround duration study, 2022.

³ Accruent, Guide to optimizing the plant turnaround process: how to avoid and overcome the most common challenges, 2020.

