



**PROTECT CONTRACTORS AND MITIGATE POTENTIAL LOSSES DURING TURNAROUNDS**

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The most dangerous period for an oil refinery is not when it is fully operational, but rather when it is in transition. During a turnaround, thousands of separate procedures are performed, often by contractors who are unfamiliar with the specific site. Some of these procedures involve highly volatile substances or risk-laden working environments such as confined spaces. In order to realise the benefits of an effective turnaround, refiners must fully understand the risk environment, and both plan and allocate resources accordingly.

The risk profile of a turnaround is indeed quite broad. Poor planning and execution can lead to costly delays, damage to critical assets, extensive environmental harm and severe safety incidents, which may include the loss of life. Such incidences have the potential to cause significant damage to company assets and public image.

With this challenge, however, comes opportunity – a turnaround provides an ideal context for optimising assets, taking action to reduce energy consumption and improving process efficiency. Recent technological advancements, coupled with an integrated approach to sustainable operations management, could decrease production costs and help you to achieve your bottom line.

### DUPONT CAN HELP YOU TO:

- Understand the risk environment
- Deliver on budget and on time
- Manage safety performance
- Plan and resource efficiently
- Gauge process safety risks

### CUSTOMIZED SOLUTIONS BY DUPONT

As a world leader in safety performance and operational sustainability, DuPont is able to leverage its owner/operator experience to help ensure that refiners can perform a turnaround in the shortest possible time, at the lowest possible cost, with the highest quality and best safety performance. Having performed numerous turnarounds in the many DuPont production facilities across the globe, our specialists are intimately familiar with the practical and dependable methodologies that allow our company to benefit from safe, efficient turnarounds.

### THE DUPONT 6-STEP PROCESS FOR CONTRACTOR SAFETY MANAGEMENT



Throughout the course of our 200 year history as an owner/operator, we have considered the safety of our employees – both direct hires and contractors – to be a core value. To this end, we have developed an approach to contractor safety management that has proven effective in decreasing the frequency of injuries and accidents among its contractors. When driven by management commitment and reinforced by a strong safety culture, the application of this six-step process allows refiners to realise dramatic reductions in injuries, and consequently an increase in productivity and improved employee morale.

We work with refiners to reap maximum benefit from turnarounds by helping to:

- Understand the risk environment
- Plan and allocate resources efficiently
- Gauge process safety risks
- Deliver on budget and on schedule
- Manage safety performance
- Review performance and identify paths for future improvements

These aims are achieved through a combination of assessments, application of best practices, training, coaching and implementation assistance.

## THE DUPONT TURNAROUND MODEL

To deliver an efficient turnaround, DuPont has developed an effective, multi-faceted management process that incorporates DuPont best practices.



### ASSESSMENT

During the assessment phase, our experienced personnel review assets and safety performance management systems, as well as operations planning, process safety and past shutdown records. By performing detailed assessments, our team is able to engineer customised solutions that deliver concrete results. Furthermore, they are able to identify specific measures that can be taken to optimise processes, assets, energy efficiency and environmental management.

### PREPARATION

The preparation phase combines our proven contractor safety management methodologies and our best practices in performing turnarounds, thereby ensuring the refiners have not only the most efficient plan in place, but the most effective team to execute this plan at their disposal. Our specialists help to select the most effective team to manage the turnaround, and assist them in preparing a formal work list. A procedure is developed for each item on the work list, fully integrating safety and risk assessment results. Our specialists then partner with management teams in selecting, preparing and training contractors to perform the work with the highest safety standards and operational discipline.

The preparation phase is the portion of the turnaround where, if properly executed, refiners can realise the most savings of time and money. In other words, proper front-end loading provides the framework for improving your bottom line.

### EXECUTION

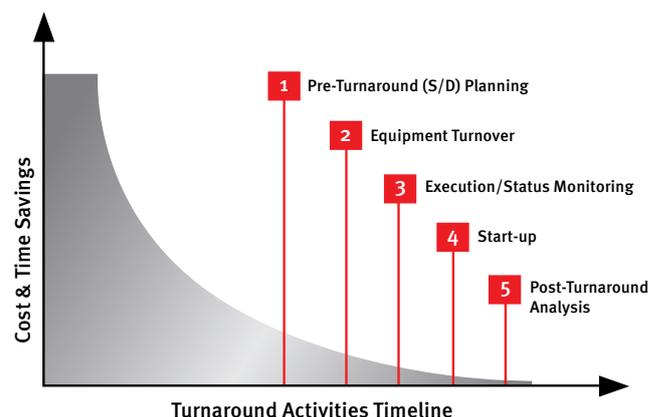
During the execution phase, our consultants serve as valuable resources, facilitating a pre-start up safety review and advising on specific strategies to ensure compliance to both the preparation planning and the contractor safety management system. A robust enforcement system that includes on-site safety audits, development of indicators, incident investigation and communication tools is implemented to achieve the highest standards of performance.

As impartial observers, our turnaround specialists do not compromise on safety or operational discipline. They ensure that everyone does it right, every time. By partnering with us, you can prevent an incident that would destroy months of hard work and preparation, and potentially cause significant damage to the environment, your reputation and, ultimately, your bottom line.

### REVIEW

Once the turnaround is completed, our specialists deliver an overall performance review, which covers not only contractor performance but also an evaluation of systems and equipment. Based on this review, an action plan and timetable for the next turnaround is developed.

The benefits of an improvement in turnaround performance are numerous. By implementing this 4-stage process, refiners are able to achieve profound improvements in turnaround performance and contractor safety management. Not only can you avoid costly delays and catastrophic incidents, but you can also improve asset performance. Partnering with DuPont will allow you to conduct a turnaround on budget, on time and without incident, ultimately improving your bottom line.



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### DUPONT TECHNOLOGIES FOR REFINERS

With over 100 years of experience as an owner/operator of sulphuric acid facilities, DuPont is well-positioned to ensure that your chemical turnaround is a success. We not only offer innovative products such as STRATCO® and BELCO®, but also a wide range of complimentary services for sulphuric acid units.

Combining STRATCO® alkylation and DuPont sulphuric acid/acid plant knowledge and expertise, our experienced personnel are able to provide comprehensive turnaround assistance for alkylation units and sulphuric acid facilities. Our experts can provide turnkey acid tank cleaning and inspection services, repair and component installation supervision, equipment review, valve review/reconditioning and pre-start-up checkout services.

### ENERGY AND ENVIRONMENTAL SERVICES

DuPont is recognised as a leader in environmental management<sup>1</sup>, and can help you achieve your sustainability goals. Our consulting teams offer tailored solutions for improving energy efficiency and environmental performance.

Our delivery approach focuses on local needs, contexts and communication requirements, helping clients to meet competitive, societal and regulatory demands today and in the future. Our specialists are versed in proven methodologies and best practices that reduce corporate environmental footprint, achieve energy efficiency and extract the maximum value from your asset base.

<sup>1</sup> Fortune Magazine named DuPont among its Top 50 Most Admired Companies in the World and Corporate Responsibility Magazine included in its 100 Best Corporate Citizens selection.



### ABOUT DUPONT

DuPont Sustainable Solutions (DSS) is one of 12 DuPont businesses. Bringing customers the benefits of an integrated global consulting services and process technology enterprise, DSS applies DuPont's real-world experience, history of innovation, problem-solving success, and strong brands to help organisations transform their workplaces and work cultures to become safer, more operationally efficient and more environmentally sustainable.

For more information, visit our website at:  
[www.sustainablesolutions.dupont.co.uk](http://www.sustainablesolutions.dupont.co.uk)

DuPont (NYSE: DD) has been bringing world-class science and engineering to the global marketplace in the form of innovative products, materials, and services since 1802. The company believes that by collaborating with customers, governments, NGOs, and thought leaders we can help find solutions to such global challenges as providing enough healthy food for people everywhere, decreasing dependence on fossil fuels, and protecting life and the environment.

For more information about DuPont, please visit:  
[www.dupont.com](http://www.dupont.com)

## DuPont Sustainable Solutions

### SAFETY RESOURCES

[http://j.mp/LnD\\_TurnArnd](http://j.mp/LnD_TurnArnd)

[http://j.mp/DuPont\\_DSS\\_TurnArnd](http://j.mp/DuPont_DSS_TurnArnd)

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