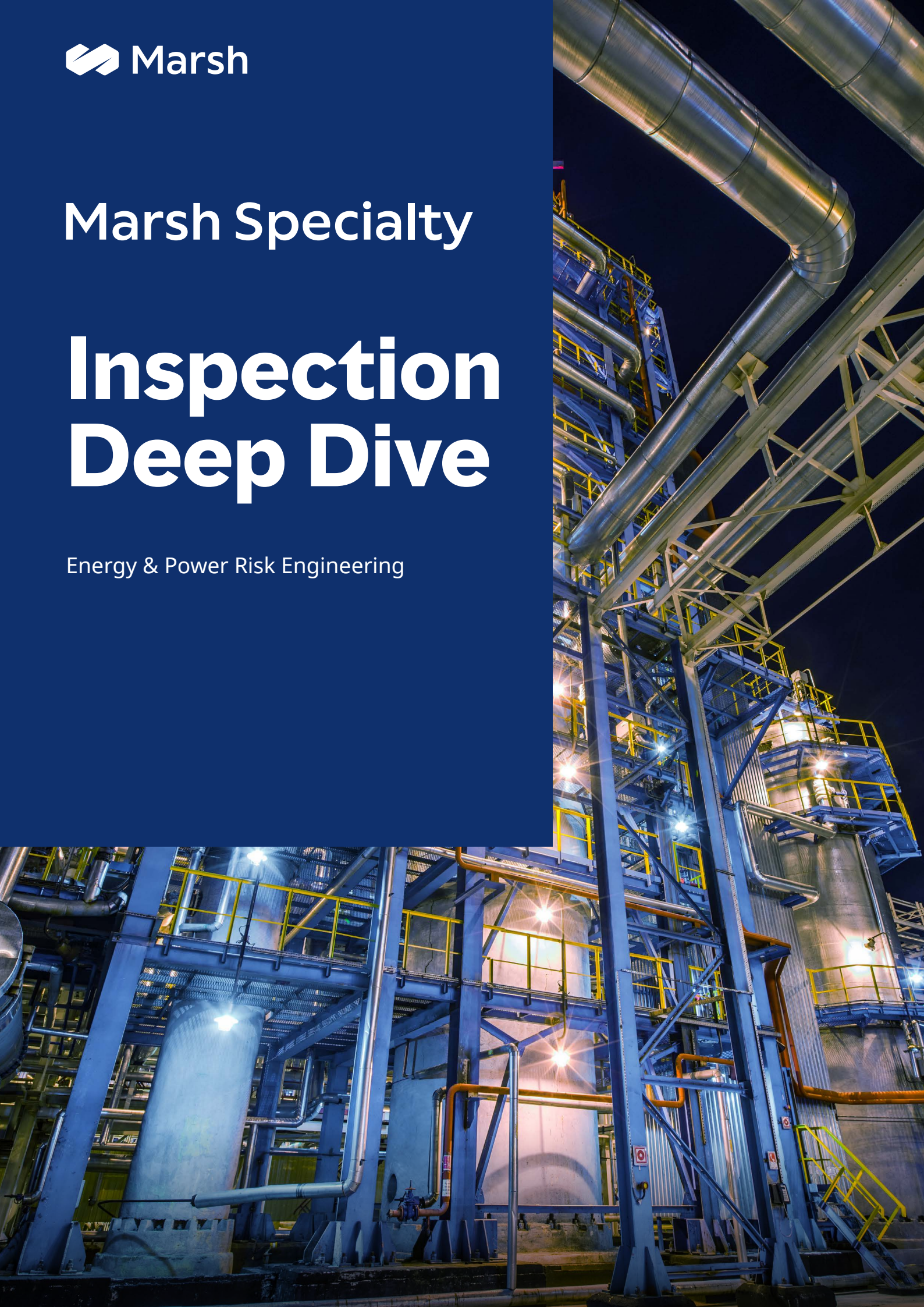




Marsh Specialty

Inspection Deep Dive

Energy & Power Risk Engineering





A suite of in-depth surveys conducted by specially qualified and certified Marsh Specialty engineers, deep dive surveys are designed to provide a better understanding of risk quality and considered insights that result in risk recommendations that deliver real value to your business.



Transforming risk recommendation programs to ensure clients understand their risks and make informed decisions about mitigation and transfer.

What is an inspection deep dive?

Developed in 2017, the aim of a deep dive is for specially qualified engineers to spend time discussing and reviewing the additional records and field checks that are not normally practicable during a standard risk engineering survey.

Engineers who conduct these inspections are subject to additional competency requirements; including practical experience within relevant department during their industry experience (e.g. Inspection Department), qualification from recognized international authority (e.g. API 580, API 571, NACE) to ensure that they have the experience and education to deliver valuable insights through the process.

Deep dives can be conducted as a stand-alone review or integrated with a general survey visit. Generally, the in-depth examination takes up to two days, follows a similar format to a traditional survey and includes structured interview sessions.



“ The inspection deep dive was well prepared, organized, conducted and concluded. Feedback from the team was that both surveyors were highly knowledgeable and provided valuable insight. This was one of the best surveys we have experienced. ”

Large Refinery Operator in Middle East.

Why is an inspection deep dive important?

Mechanical integrity continues to be a key challenge for the energy industry. According to the findings of Marsh Specialty's *100 Largest Losses in the Hydrocarbon Industry* report, which summarizes the property damage losses between 1974 and 2021, the last two years, due to the disruption from the COVID-19 pandemic, were fortunately, less turbulent than 2018-2019.

Twenty-four of the top 100 losses since 1974 were due to mechanical failure. Six of these 24 losses have happened in the last 20 years, with the most recent being in Vohburg, Germany in 2018. The Vohburg loss features in the top 20 since 1974, with a total value of \$879 million, and is the eighth largest loss out of the total 100.

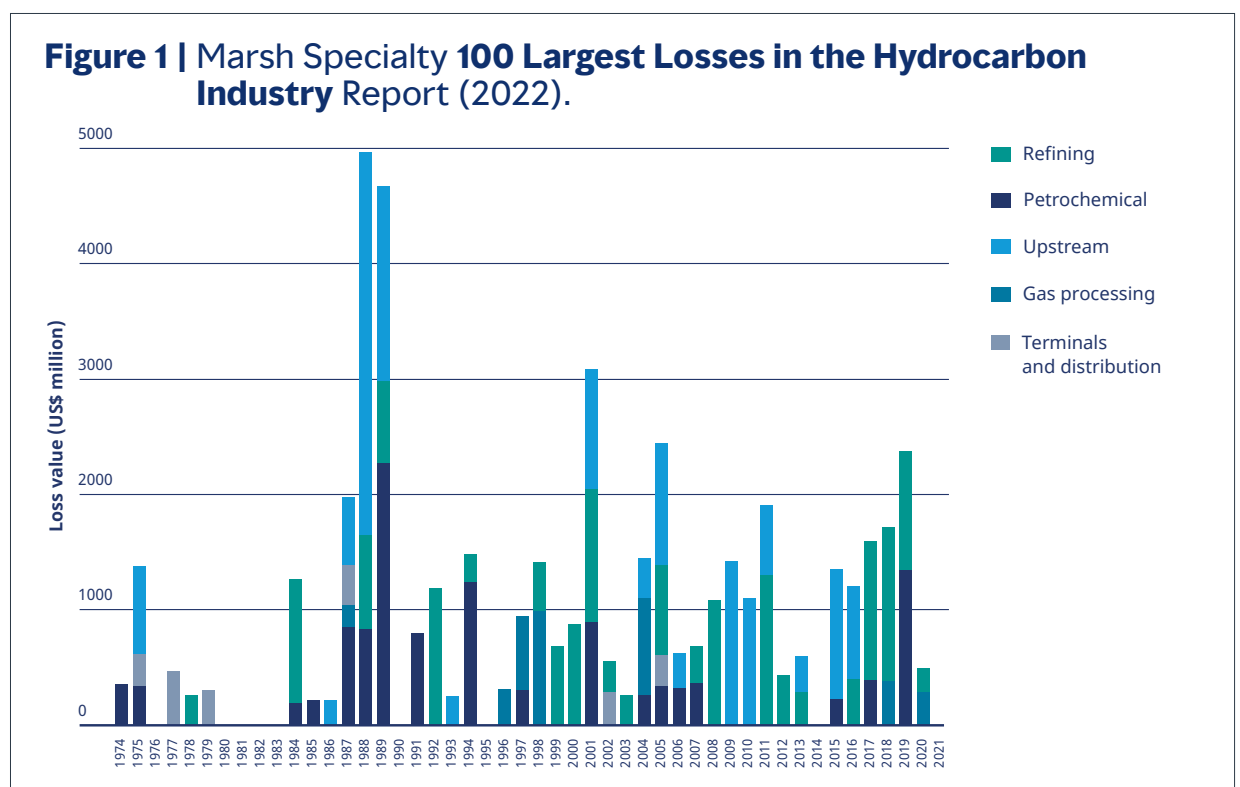
Our risk engineer surveys found that "engineering standards" at refineries declined over the past 12 years, and both gas processing plants and terminals/distribution underwent an overall deterioration in risk quality over that period.

In the first 10 years of a plant's operation, most losses are caused by operations-related failures, such as not following operating or permit-to-work procedures.

In older plants, mechanical-integrity-related failures account for 65% of losses. Mechanical integrity also represents a challenge for new installations where competencies implementation of an inspection plan could represent an area of improvement.

An inspection deep dive allows businesses to better understand their performance against key metrics that have a correlation to losses. These include: organization, inspection management systems, program, execution, data analysis and storage, audit and assurance.

Following the deep dive, Marsh Specialty is able to provide tailored insights and advice on industry best practices to positively impact your risk profile.



How is a deep dive structured?

An inspection deep dive ranks risk across six key metrics and the exposures associated with them, being:

The topics in this diagram represent a pillar of deep dive and are mapped within the inspection deep dive risk ranking tool to provide a visual representation of the findings.

ORGANIZATION

Including competencies, work force, training and certification program, job description, vacancies.

AUDIT

Evaluation by internal/external, tracking gaps and actions, managed action deferral, action closing review, sustainable approach.

PHILOSOPHY

Considering time base versus risk base inspection, remaining life assessment, thickness retention criteria, risk mitigation criteria, fitness for service, creep analysis.

DATA ANALYSIS AND STORAGE

Considering data management, control systems and processes.



PROGRAM

Review of different inspection programs according to different degradation mechanisms, ensuring the right inspection technique is selected, specific program to key element (pressure safety valves, critical energy isolation valves, integrity operating windows, etc).

EXECUTION

Examine how the program is executed in the field, typical KPIs for inspection department versus benchmarking, deferral management of overdue inspections.

It allows businesses to better understand the risks associated with plant operation and provides practical insights to allow you to:



Reduce losses and associated direct/indirect costs, including loss of production.



Decrease risk associated with loss of containment.



Improve reliability



Reduce property damage and business interruption exposure.



Increase site mechanical availability.

What is the output of an inspection deep dive?

Undertaking an inspection deep dive provides a risk based approach to site reliability and site mechanical integrity.

On completion of the deep dive you will be provided with a detailed report which includes risk rankings and recommendations to specifically address any identified exposures.

This service has been also provided outside of the standard risk engineering insurance program, as consultancy directly from Marsh Specialty – it can be customized according to your requirements in terms of both depth and length of assessment.

Site risk resilience and reliability performance improvements are just two of immediate benefits from an inspection deep dive. In addition, it strengthens the underwriting information providing a better risk engineering focused understanding of the site capabilities, which support the insurance placement.



For further information, please contact: riskengineering@marsh.com
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