



## Integrated Energy Firm

### Global Energy Firm Enhances Operational Excellence and Integrates Risk Assessment with Management of Change

As a leading integrated energy company, this global energy firm committed itself to maintaining the highest standards of worker safety and environmental performance throughout its operations, which span the exploration, production, generation and sale of energy to millions of households and businesses. In support of this objective, the company's Environment, Health and Safety Policy emphasizes the importance of recognizing and managing risks in order to protect both people and the environment.

In the oil and gas industry, every engineering and operational decision and action must take into account a multitude of factors in order to mitigate operational risks, many of which can have serious consequences if not managed effectively. Therefore, the firm's decision-makers require consistent and reliable processes and systems to identify, assess, mitigate and monitor the risks involved in projects. "The Sphera Operational Risk Solution helped us heighten operational excellence, mitigate potential business risks and ensure compliance with regulations and standards," said the critical systems lead at the firm.

#### Strengthening Operational Excellence with Centralization and Consistency

In the past, upgrading a piece of plant equipment or assessing the risk involved with building a new facility involved multiple processes, some paper-based and some using basic software or databases. To improve accuracy, the firm recognized the need for a consistent process for two interrelated activities: 1. identifying and mitigating operational risks; and 2. effectively managing and documenting the process of making operational or engineering changes.

Several years ago, the firm implemented an off-the-shelf version of Sphera's Stature® for both risk assessment and management of change (MOC).

The experience was mixed, however the firm saw benefits of the software and decided to significantly upgrade and tailor the workflows to its own processes. The firm has since mandated usage of the system for approximately 1,200 engineering and operational team members at all of its gas processing facilities, power stations and LPG distribution centers across two countries. "Today, Sphera software provides a centralized source of truth for our engineering change management and process hazard analysis during the design of an asset" said the process safety manager at the company. "We've been able to heighten operational excellence and efficiency by using the system enterprise-wide."

#### CHALLENGE

- Centralize the process to manage operational changes and assess risk
- Ensure that major projects can be commissioned on time
- Track risk mitigation actions to completion

#### SOLUTION

##### Operational Risk

- Risk Assessment
  - HAZOP, HAZID
  - LOPA
  - Design Review
- Management of Change (MOC)
- Action Item Management

#### RESULTS

- Provided 1,200 engineering/operational team members at 50 facilities with system access
- Formed part of the solution to achieve the best-ever safety score with 20% decrease in TRIFR, recordable injuries
- Supported a \$20 billion 500km LNG project to deliver on time and without catastrophic incident
- Reduced MOC audit actions from over 30 to zero in MOC audit
- Tracked actions between MOC and risk assessment to ensure risk mitigation

# Global Energy Firm Enhances Operational Excellence

## Achieving Stellar Safety Record with Better MOC

Prior to implementing a consistent MOC process for asset design, the firm experienced some inconsistencies with the way processes were implemented: changes were documented in an inconsistent manner; some people were missed in terms of notifications. “Now, we have assurance that we are managing engineering change correctly,” said the process safety manager. “When we modify something at a plant, we know that we’re assessing the risks, completing the engineering, getting the right internal approvals and following the change through to all the impacted systems and ensuring we’re meeting our compliance requirements.”

With more than 1,000 MOCs per year, the potential for an incident has been decreased by the use of Sphera software. A major incident could result in serious safety issues as well as have a substantial impact on the company’s profits and reputation. “For example, an explosion in a gas field can be serious if it’s not managed properly. That’s the kind of thing that a centralized MOC process supported by effective software solutions helps us avoid,” said the critical systems lead. “We have not had a major incident related to asset design.”

Migrating all of the data from various systems, the critical systems lead explained, “took months because people could not locate the paperwork and they weren’t closing out actions” to show that the risks identified in process hazard analyses (PHAs) had been mitigated. “Since then, the company has seen a significant culture shift because plant changes now always follow the engineering MOC process in Stature. We now have evidence of a high rate of PHA study close-outs, helping to demonstrate the reduction of risk as far as possible.” A recent audit of 60 MOCs showed that all contained the necessary information.

The firm recently scored its best-ever Total Recordable Injury Frequency Rate (TRIFR) safety score and the move to the centralized MOC process was part of what made this possible. “Across the board, we’ve had a 20 percent improvement in recordable injuries,” said the critical systems lead.

## Delivering on Time with Effective Risk Management

The use of Sphera software was especially beneficial when the firm implemented the upstream portion of the cross-country LNG Project to construct a 500 km transmission pipeline to an LNG processing facility. This project involved 20,000 Process Hazard Analysis actions. The team had been using an Access-based system with paper close-out sheets, which was manual and lacked the end-to-end flow through showing risk mitigation actions had been completed.

“If we were commissioning a particular gas processing plant, for example, we had no way to show all of the close-outs associated with that plant,” said the critical systems lead. “We can’t commission a plant without evidence all of these risk reduction actions have been taken care of.”

It took the team six months to clean and centralize all the data with the web-based system, which he says helped them “gain control over the MOC HSE risks associated with the project.

Overall, the project was delivered on time, which I believe would have been very difficult to achieve without the Sphera

software supporting our process,” said the process safety manager. “If we’d had to delay commissioning of a plant, it could have had substantial cost implications.”

## Linking Risk Assessment to MOC

The firm has benefitted from the integration between MOC and risk assessment work processes and software support. In the past, when the company had multiple instances of the same type of equipment running at different locations, it needed to run risk assessments on each one separately. Today, when the company has an issue at one plant, it can assess the risk there and then apply the change across all similar plants. “For example, we have over 1,000 wells currently producing gas,” said the critical systems lead. “They all use similar technologies. We can risk assess and correct the issue on a small group of pilot wells, then use the MOC process to transfer the solution to other wells. So, we know we’re implementing consistently across the board, which will later save us significant money.”

## Providing Key Stakeholder Reporting

Today, with better processes and software support to mitigate operational risk, the firm is able to meet the needs of its diverse stakeholders. “Our staff knows the company is looking out for them,” says the critical systems lead. “Leadership pays close attention to safety, and rewards team members based on the safety rate. A strong safety record also helps make the firm a more enticing business partner and a better corporate citizen.

“Audits show that our systems and procedures are fully compliant with local laws, our internal procedures and our business partners’ expectations,” said the critical systems lead. “Sphera software helps support us to deliver this compliance.”

“Today, Sphera software provides a centralized source of truth for the entire organization. We’ve been able to heighten operational excellence and efficiency through enterprise-wide use.”

Critical Systems Lead  
Global Energy Firm