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Turning Challenges into Opportunities: A Study of Process Safety Tier-III Events

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ABSTRACT

Write your abstract of 400 words

KEY WORDS

Process Safety Tier III Events, Risk Mitigation, Asset Integrity, API RP 754, Quality assurance, Design practices, training and capacity-building

BIOGRAPHY

Include a short biographical (100 words) for the presenting author

CONFERENCE PROGRAM

Please indicate which conference program your abstract relates to:

☒ Hazards Australasia

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Abstract

Process safety is of paramount importance at MariEnergies, a key player in Pakistan's oil and gas exploration and production industry. This paper presents a comprehensive analysis of Process Safety Tier-III events over a three-year period, offering detailed insights into their frequency, root causes, consequences, and lessons learned within MARIENERGIES's operational context.

The analysis is structured around the guidance provided by API Recommended Practice 754 and relevant regulatory frameworks. MariEnergies' Tier-III events were identified and categorized, with contributing factors such as equipment failures, design shortcomings, human errors, and external conditions critically examined. This approach revealed trends unique to MariEnergies operational environment, allowing the company to tailor its process safety management improvements accordingly.

Consequences of Tier-III events were evaluated in terms of potential impacts on personnel safety, asset integrity, the environment, and business continuity. By quantifying the outcomes of these incidents, the study supports evidence-based decisions related to resource prioritization, risk management, and safety investments.

By developing targeted risk mitigation strategies and fostering a culture of continuous safety improvement, MariEnergies works towards preventing these severe incidents and ensuring the safety of its facilities, employees, and the environment. This study serves as a valuable resource for MariEnergies process safety professionals and decision-makers, enabling them to proactively strengthen their safety measures and protect the reputation and well-being of the company while addressing the most critical safety challenges

As a result of this analysis, several process safety enhancements have been initiated. Design practices have been updated to include fail-safe mechanisms, redundancy in critical systems, and hazard reviews during early project stages. Quality assurance in plant construction has been reinforced through improved inspection routines, upgraded material specifications, and better coordination between engineering and construction teams.

The study also emphasized the importance of proper soft goods storage. Measures such as climate-controlled storage areas and periodic inspections are now being implemented to prevent premature degradation of gaskets, seals, and insulation.

Furthermore, MariEnergies is enhancing its operating and maintenance procedures to reduce reliance on manual interventions. This is supported by targeted training and capacity-building initiatives designed to improve workforce competence, reduce human error, and promote a culture of safety.

In conclusion, this analysis not only highlights process safety challenges of MariEnergies but also drives continuous improvement in design, operations, and maintenance. These initiatives collectively strengthen commitment to safety, safeguard its personnel and assets, and reinforce its role as a responsible operator in Pakistan's energy sector.

Note: This paper was presented in HAZARDS34 IChemE conference in UK in November 2024

Biography

Naseem Qamar Shaikh

E&P BUSINESS – DIVERSIFIED EXPERIENCE OF PRODUCTION & ASSET MANAGEMENT PROCESS SAFETY, HSE MANAGEMENT, FACILITIES MANAGEMENT.

Currently working as Director HSE at MariEnergies in Pakistan. I have more than 25 years of diversified experience including but not limited to field operations & maintenance, Projects & facilities engineering, Production & Asset Integrity Management, Occupational Health & Safety and Process Safety Management. Previously I have worked with MOL Group, a Hungarian Oil and Gas Company and Pakistan Petroleum Limited in different roles.

I am now more focused on Process Safety and HSE leadership works in making work culture improve.