

# Bow Tie Analysis

FOR BHAGYAM AND RAGESHWARI TERMINALS



## Challenges Faced by Shell

- Carin Energy's Bhagyam field and Raageshwari Gas Terminal (RGT) is operational, but what are the hazards associated with it?
- What are the non process related hazards which may cause a major accident?
- Is the present barriers to prevention effective in preventing a major accident hazard (MAH)?
- Decreasing HSE standards and potential threat



## Solution Approach by Petrodia

- Site visit, identifying process and non process hazards. Identifying barriers present and missing that is layers of protection analysis (LOPA).
- Analysis the hazards in the plant and identifying hidden hazards present in the plant. Conducting LOPA and reviewing it.
- Creating BowTie diagrams, identifying the hazards, barriers and recommendation of adding more barriers to prevent MAH.



## Results Delivered by Petrodia

- The review highlighted the existing hazards and potential hidden hazards, which will enable Carin to install barriers to prevent MAH and loss of control.
- Findings of the review identified the current barrier's ineffectiveness to overcome the present and hidden hazards.
- Thereby Carin's operational safety increased, leading to higher technical integrity, safer environment and minimal hazard will enable higher rate of production.

