

## CASE STUDY 04

### Major Accident Hazard Process Safety Alignment

#### *Strengthening safety coherence in high-hazard chemical operations*

#### KEY RESULTS

- Strengthened alignment between process safety frameworks and operational practice
- Clarified ownership of safety responsibilities across engineering and site leadership
- Improved interpretation and application of hazard analysis outputs
- Reinforced critical safety functions across high-hazard operations
- Supported improved safety performance alongside operational efficiency



## Context

Major accident hazard facilities handling dangerous gases and chemotoxic materials depend on disciplined process safety management to maintain operational integrity.

These environments require strong alignment between engineering design, process safety frameworks and operational leadership.

In this engagement, a high-hazard chemical facility sought to strengthen coherence between hazard analysis outputs, engineering systems and day-to-day operational decision-making.

Although safety frameworks were established, leadership recognised that greater clarity across responsibilities and risk controls would strengthen both safety assurance and operational performance.

## Structural Challenge

Several structural challenges were identified within the operating environment.

These included:

- fragmented ownership of key process safety responsibilities
- inconsistent interpretation of hazard analysis outputs across engineering and operations teams
- disconnect between engineering design intent and operational implementation
- opportunity to strengthen clarity around critical safety functions

Without stronger alignment between these elements, organisations risk reduced visibility of safety barriers and less effective operational control of major accident hazards.

## Hardium Role

Hardium's advisors supported the organisation in strengthening coherence between engineering design, process safety frameworks and operational leadership.

The objective was to improve clarity around safety responsibilities, reinforce understanding of critical safeguards and strengthen alignment between hazard analysis outputs and operational practice.

This work supported leadership teams in maintaining a disciplined approach to managing major accident hazards.



## Approach

The engagement focused on improving clarity across safety and engineering interfaces.

### 1 Process safety alignment

Hazard analysis outputs were reviewed to ensure that risk controls were clearly understood and consistently applied across engineering and operational teams.

### 2 Engineering interface clarity

Engineering systems and operational practices were examined to ensure that critical safeguards were clearly defined and maintained.

This reinforced understanding of the relationship between process safety design and operational control.

### 3 Governance reinforcement

Responsibilities for maintaining safety integrity were clarified across engineering, operations and leadership teams.

This helped ensure that critical safety decisions remained visible and accountable within the organisation.

## Outcome

The facility achieved stronger alignment between process safety frameworks and operational practice.

Engineering and operations teams gained clearer understanding of safety responsibilities and hazard control mechanisms.

This improved clarity strengthened both safety assurance and operational discipline within the high-hazard environment.

## What This Demonstrates

- Integration of process safety and operational leadership
- Alignment of hazard analysis outputs with operational reality
- Governance clarity across high-hazard facilities
- Strengthened understanding of critical safety functions
- Improved safety assurance within complex operating environments

