CENTER FOR Hydrogen SAFETY
Connecting a Global Community

Safety Culture Spotlight

Proactive Management Supports Safety—Risk Analysis

- Hazards are considered beyond minimum requirements

- Clearly defined responsibilities enhance process safety

- Effective communications promotes integration for safe operations

BACKGROUND

A specialty chemical facility that uses a dozen different flammable solvents stores them in small, low pressure storage tanks that are kept at a slight overpressure by the presence of a nitrogen blanket.

Nitrogen is supplied by a vendor-owned system that vaporizes liquid nitrogen and supplies it to the facility's distribution system where the pressure is reduced and regulated for various uses.

WHAT HAPPENED

The facility Process Safety Management System (PSMS) Manager included the liquid nitrogen supply system in the PSMS because the loss of nitrogen blanketing could allow air to enter the vapor spaces of the tanks, possibly creating an ignitable atmosphere. This decision was made even though the regulation would have allowed exempting these tanks and the nitrogen supply from the PSMS.

The PSMS Manager also worked with the vendor to determine which elements would be the facility's responsibility and which would be handled by the nitrogen vendor. This, too, was not required by regulation.

SAFETY CULTURE FOCUS

✓ Strong leadership supports hazards analysis beyond regulations to identify potential risks.

✓ Safety is integrated into all process activities.

✓ Effective communications supports safe operations.

✓ Mutual trust with vendors enhances safety.

Only 37% of those surveyed indicated management involvement was a strength in their organization.

IMPROVING HYDROGEN SAFETY CULTURE

LEARNING OPPORTUNITIES FROM OTHER'S EXPERIENCES

"Safety culture is how the organization behaves...
...when no one is watching."

Safety Culture Framework

- ► Safety is everyone's responsibility
- ► Strong leadership support
- ► Integrated into all activities
- ► Open, timely, effective communications
- ► Questioning/learning environment
- ► Mutual trust
- ► Continuous improvement

What are the benefits?

- ✓ Eliminates common weaknesses identified as contributing factors to catastrophic events.
- ✓ Promotes trust in the hydrogen energy industry's ability to deliver safe, reliable, quality products and services.
- ✓ Supports a sustainable legacy for companies and the hydrogen industry.
- ✓ Fosters efficiency and productivity in the workplace.

Resources

- ✓ For further information and resources on safety culture, see: https://www.aiche.org/ccps/safety-culture-what-stake
- ✓ For further case studies on safety culture, see: https://h2tools.org

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