

Bow Tie – Tank overfill Barriers and recovery measures

2025-05

Overfill

Operator checks and matches tank ullage with receipt amount planned prior to receipt

Operator establishes communication with delivering party prior to receipt to validate receipt amount

Operator confirms correct valve alignment prior to receipt

Operator monitors the tank level during receipt via the tank gauging system and responds to abnormal situations (barrier only valid when the High Level Alarm system does not make use of a signal received from the tank gauging system)

High Level Alarm system (either from the tank gauging system or independent)

Operator response to High Level Alarm

High-High Level Alarm system (Independent from High Level Alarm system) with Uninterruptible Power Supply

Operator response to High-High Level Alarm

For pipeline and vessel receipts, the primary and secondary communication systems (and for vessels, additional emergency means of communication) used for general communications and to transmit the Level Alarms - either verbally or through an electronic signal - to the Shipper are fully independent from each (incl. power supply)

Automated Overfill Prevention System (AOPS) per High-High level alarm

Loss of Containment

Local Language

Recovery Measures

Secondary Containment

Fire Fighting
ERP

Bund Valve Management

8 Principles of PS leadership – 2019 Amendment

P1. Clear and positive process safety leadership is at the core of managing a major hazard business and is vital to ensure that risks are effectively managed;	Leadership commitment and objectives are stipulated on the Asset Management system Manual	P5. Engagement of the workforce is needed in the promotion and achievement of good process safety management;	Actions Same as P3
P2. Process safety leadership requires senior leadership team involvement, understanding and competence	Senior leader, HSSE Critical roles, Frontline barrier management and Technical authority roles and associated competencies are defined on the AMS manual	P6. Robust and regular auditing of the safety management system and associated major accident hazard barriers, is essential to ensure that system weaknesses are identified and process safety risks are being effectively managed;	Various audit points LOD 1 – Self Assessment LOD 2 - Peer assessment LOD 3 – External assessment
P3. Good process safety management requires constant active engagement and vigilance;	There are various platforms used to drive active engagement from organizational level to site/team level	P7. Publication of process safety performance information provides important assurance about the management of risks by an organization;	HSSE Included PS report publish monthly per site, Country/Business, Organizational. Included as part of the business results quarterly review
P4. Senior leadership team visibility and promotion of process safety leadership is essential to set a positive safety culture throughout the organization;	Leaders perform VLC at periodical level, then report back observations at site level and provide support for Areas of improvement and reward and recognition for best practices	P8. Sharing good practice across industry sectors in order to learn and implement lessons from relevant incidents occurring internally and externally to the organization, is important to maintain the currency of corporate knowledge and competence.	e.g. Participating at FIASA