HAZOP Training for LNG Facilities

Service Objectives

- Build LNG-specific HAZOP competence to improve study quality, action tracking, and decision-making.
- Interpret LNG PFDs/P&IDs, cause–consequence chains, and relief/venting philosophies to identify credible deviations.
- Emphasise jetty interfaces, ship–shore ESD links, overfill prevention, BOG control, and high-integrity protection layer integration.
- Frame nodes (e.g., unloading arms, tank in/out lines, vaporizers, recondenser loops) and apply guide words to surface realistic scenarios.
- Challenge IPL independence/effectiveness and articulate clear, testable actions with owners and verification methods.
- Align outcomes with NFPA 59A, IEC 61511, API 520/521, and port authority requirements for defensible, consistent HAZOP results.

> Scenario-driven and LNG-specific: uses real LNG case examples and representative P&IDs to accelerate relevance; strengthens decisions under operational constraints such as berth windows, contractor interfaces, and emergency readiness.

Who This Service Is For

- LNG plant engineers, operations supervisors, control room and jetty teams, maintenance/reliability, marine terminal coordinators, and HSE professionals.
- EPC contractors, terminal operators, bunkering service providers, and port-based stakeholders engaged in SIMOPS or marine interfaces.
- Applicable facilities: LNG liquefaction plants, storage terminals, regasification units, FSRU interfaces, truck loading bays, and bunkering operations.
- Leadership (plant managers, OIMs, heads of engineering): scope setting, attendance discipline, preventing scope creep, and turning findings into implementable actions.
- Ideal timing: pre-commissioning, MOC-driven revisions, new/modified ESD logic rollouts, and periodic revalidations.

Duration & Process Overview

- Formats: instructor-led classroom, virtual/hybrid, or blended (e-learning pre-work plus on-site scenario workshops).
- Typical durations: 1 day (leadership awareness); 2–3 days (practitioner workshop); 3 days + coaching (facilitator track).
- Cohort design: 10–16 delegates per group; staggered cohorts for multi-site operators; theory can be front-loaded virtually; on-site sessions aligned to maintenance or pre-commissioning windows.

- Materials: integrates redacted client artefacts (P&IDs, DNV/ABS jetty studies, cause–effect charts, ESD matrices) for immediate relevance.

Methodology

Phase	Objective	Deliverable
Foundation: HAZOP Essentials with LNG Examples	Apply HAZOP principles using LNG hazards (overfill/overpressure, RPT, BOG compressor failures); read P&IDs; select realistic nodes/guide words.	Common method literacy and LNG-aware node list.
Scenario Workshops: Storage, Transfer, Jetty Interfaces	Work through tank in/out manifolds, recondenser/BOG loops, loading arms with ESD interlocks, SSL failures; verify safeguards across operating modes.	Completed scenario exercises and draft HAZOP records.
Safeguards, IPLs, Functional Safety Alignment	Map safeguards to SIL targets, maintenance/testing regimes; clarify SIF assumptions and IPL independence (IEC 61511).	Traceable safeguard/IPL register aligned to lifecycle tasks.
Recording, Action Management, Closeout Quality	Produce defensible minutes; craft clear, verifiable actions; link to governing documents; integrate with MOC, startup, and emergency response.	Action log template and improved minutes samples.
Assessment & Certification	Knowledge checks, LNG scenario exercises, and a final assignment (nodes, guide words, safeguards/IPLs, actions); facilitator drill for advanced track.	NPM Certificate of Completion; individual feedback and group debrief.

> Certification note: the certificate is issued by NPM upon successful assessment. Any statutory or role-based competency authorisation remains with the client organisation.