Process Safety Management Training for LNG Facilities

Service Objectives

- Build capability to anticipate, prevent, detect, and mitigate major accident hazards across LNG assets and marine interfaces.
- Translate HAZOP, LOPA, and QRA insights into operating procedures, barrier performance standards, and practical assurance routines.
- Apply NFPA 59A, API 625/620/2510, IEC 61511, and SIGTTO guidance to tanks, cryogenic equipment, ESD/SIS, and ship/shore systems.
- Strengthen permit-to-work, isolation, and SIMOPS controls during jetty operations, turnarounds, and debottlenecking activities.
- Improve alarm management, operating envelopes, and shift handover discipline for LNG control rooms.
- Elevate MoC quality for tie-ins and logic updates; practise scenario-based decisions for BOG upsets, ESD trips, and emergency response.

> Outcomes evidenced by improved alarm rationalisation, stronger MoC and PSSR, reduced integrity deviations in cryogenic service, and enhanced readiness for OSHAD, Dubai Municipality, and Civil Defence audits.

Who This Service Is For

- Organisations operating greenfield or brownfield LNG assets, EPCs executing LNG projects, and terminal operators handling ship and truck loading.
- Roles: HSE managers, operations supervisors, maintenance leads (cryogenic integrity and functional safety), marine/jetty teams, and project engineers.
- Contractors and EPC specialists during construction, commissioning, shutdowns, and SIMOPS where temporary conditions increase risk.
- LNG contexts with full-containment tanks, BOG compression/recondensing, ESD/HIPPS layers, marine loading arms, and large integrated control systems.
- UAE regulatory oversight alignment with OSHAD, Dubai Municipality, and Civil Defence; coordination with port authorities and classification societies.

Duration & Process Overview

- Core delivery: 2–3 days for operations and maintenance; mirrored sessions to respect 12-hour shifts and minimum manning.
- Hybrid and virtual options: live online modules plus on-site scenario clinics (typical clinics 0.5 day); fully virtual 2 days available.
- Integration with outages: proof-test observation, field walkdowns, and practical isolation exercises where planned.

- Pre-training needs analysis to tailor content to site standards and artefacts; typical group size 8–16.

Methodology

Phased, LNG-specific delivery using real scenarios, P&IDs, cause-and-effect charts, and DCS snapshots to embed barrier-based thinking and regulatory compliance.

Phase	Objective	Deliverable / Duration
Pre-Training Needs Analysis	Align modules to site standards, P&IDs, C&E, operating limits, and emergency arrangements.	Tailored training plan; curated site scenarios.
PSM Foundations for LNG	Introduce major accident hazards, barrier thinking, and safety-critical elements for tanks, trains, and jetties.	Barrier model and SCE draft list.
Hazard Identification & Risk	Use HAZID/HAZOP/LOPA insights tied to LNG unit operations and operating envelopes.	Actionable risk register items.
Functional Safety & ESD (IEC 61511)	Strengthen SIS/ESD lifecycle practices, proof testing, bypass control, and HIPPS layers.	Proof test plan principles and operating controls.
Integrity & Cryogenic Safety	Apply API 625/620 for tanks; manage brittle fracture risks, insulation, and cryogenic maintenance focus.	Inspection and maintenance focus points.
Jetty & Marine Interfaces	Rehearse ship/shore ESD communication, loading arm interlocks, SIMOPS, and emergency coordination.	Jetty risk controls and response flows.
Scenario-Based Drills	Practise decisions for BOG surges, ESD trips, detector activations, and depressurisation choices.	Scenario outputs and action lists; on-site walkdowns where applicable.
Assessment & Certification	Validate knowledge and applied decision-making against LNG hazards and standards.	Knowledge check + scenario assessment; certificate of completion.
Clinics & Refreshers	Targeted half-day clinics and quarterly microlearning to sustain competencies and address seasonal or operational risks.	0.5-day clinics; quarterly refreshers.