SIL Training for LNG Facilities

Service Objectives

Industry-tailored training to apply the IEC 61511 functional safety lifecycle across LNG liquefaction, storage, jetty transfer, and regasification operations.

- Apply IEC 61511 lifecycle activities to LNG hazards (cryogenic release, roll-over, jetty loss-of-containment).
- Execute defensible HAZOP/LOPA, set SIL targets with credible initiating event frequencies and IPL credits.
- Specify and verify SIF architectures considering LNG valve response, partial-stroke testing, and common-cause factors.
- Develop LNG-focused SRS, proof-test procedures, and bypass/override governance aligned to plant and marine operations.
- Lead and participate in FAT/SAT, commissioning, and functional testing for LNG ESD and Fire & Gas interfaces (mapped to NFPA 59A).
- Strengthen competence governance, independence for verification/validation, and lifecycle documentation control for audit-ready handover.

Who This Service Is For

- LNG terminals, liquefaction trains, FSRUs, and satellite regasification facilities seeking robust SIS governance.
- Roles: LNG process safety engineers; control and automation engineers; instrumentation technicians; ESD/BMS specialists; HSE managers; maintenance supervisors; operations shift leaders.
- EPC/PMC contractors and ISA/IEC system integrators on LNG greenfield and brownfield projects.
- Leadership teams needing clarity on governance, competence, performance monitoring, and risk-based SIS investment decisions aligned with corporate standards.
- LNG risk drivers addressed: cryogenic exposure/embrittlement, rapid vaporisation/dispersion, high-integrity containment, complex jetty-storage ESD philosophies, ship-to-shore interface controls.
- UAE context: alignment with IEC 61511 and NFPA 59A; interfaces with UAE Civil Defence approvals, OSHAD, Dubai Municipality frameworks, and port/maritime controls.

> Certificate of completion is issued by NPM, detailing hours, modules, and LNG-specific outcomes. Statutory or company role authorisations remain the client’s responsibility.

Duration & Process Overview

- Typical 3-day intensive for engineering and HSE professionals; 1–2 day variants for maintenance/technician groups.

- Scheduling options include split-week and evening delivery to fit LNG ship berthing and loading operations.
- Delivery on-site at LNG terminals or corporate centres, or as a hybrid with live virtual modules plus on-site workshops using actual P&IDs, C&Es, and shutdown key plans.
- Cohorts of 8–16 delegates for interactive calculation and peer review; multi-site rollouts via staggered cohorts with standardised materials and assessment.

Methodology

The programme threads real LNG operating scenarios through each phase, from lifecycle framing to proof testing and governance, with hands-on exercises mapped to IEC 61511 and NFPA 59A.

Phase	Objective	Deliverable
Pre-course scoping	Capture site scenarios, typical SIF architectures, and documentation formats.	Scoping brief and tailored agenda.
IEC 61511 Fundamentals	Align lifecycle across liquefaction, storage, jetty, and regas operations.	Lifecycle map for an LNG terminal.
HAZOP/LOPA Integration	Analyse overfill, spill-to-water, roll-over, and BOG compressor trip scenarios.	LOPA worksheet for LNG overfill and jetty ESD.
SIL Target Setting	Set targets using credible initiating event rates and IPL justification.	SIL assignment with IPL rationale.
SIF Design & Verification	Select architectures; verify PFDavg; address valve response, voting, and common-cause factors.	Verification calculations and architecture selection record.
SRS Development	Frame LNG-specific SRS with cryogenic, ESD/F&G, and marine interface requirements.	Draft SRS excerpts and peer-review comments.
Testing & Operations	Plan proof testing, bypass control, MOC, and impairment tracking within shipment windows.	Proof-test plan aligned to marine schedules.
Practical Workshops	Apply learning: mini-LOPA; jetty ESD architecture with partial-stroke; LNG SRS drafting.	Completed worksheets, PFDavg verification, and SRS sections.
Governance & Audit Readiness	Embed competence, independence, and SAT/FAT oversight; ensure traceability from LOPA to test records.	Checklists and templates supporting IEC 61511/NFPA 59A evidence.