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COURSE BROCHURE

Advanced Liquefied Gas Terminal Safety and Ship Operations Training Course

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Registered in the United Kingdom and Saudi Arabia

Advanced Liquefied Gas Terminal Safety and Ship Operations Training Course

Liquefied Gas Terminal Safety and Ship Operations is a 2-week training course for terminal operations supervisors and marine safety officers who run berths receiving gas carriers, and it builds a berth transfer safety dossier covering mooring, cargo transfer and emergency shutdown. Larger carriers, tighter berth windows and cryogenic hazards make each ship call a test of discipline. Jupiter Prime Training delivers this course for liquefied gas terminal safety.

Why Liquefied Gas Terminal Safety Matters Now

Three forces shape liquefied gas berths today: larger carriers arriving on tighter schedules, terminal crews working alongside ship crews of mixed experience, and insurers and charterers asking for clear evidence that ship-shore transfers are controlled. A terminal that handles this well turns ships round safely and keeps vapour, pressure and cold out of harm's way; one that handles it badly risks a release, a fire or a long berth closure. The course rests on ISO 45001 occupational health and safety management for the people side and on HAZOP studies as described in IEC 61882 for transfer system hazards.

Who Gains Most from Liquefied Gas Terminal Safety

- Berth and jetty supervisors who authorise each cargo transfer from first line ashore to final disconnection
- Marine safety officers who verify ship-shore safety checklists and mooring arrangements
- Loading arm and transfer system leads who maintain couplings, release systems and alarms
- Terminal control room operators who run emergency shutdown links and tank pressure
- Emergency response coordinators who plan for gas releases and fires at the berth

A terminal gains most when its berth supervisor, control room lead and marine safety officer attend together and agree one transfer routine.

Liquefied Gas Terminal Safety Capabilities

Participants leave able to control every phase of a ship call, from approach and mooring to cargo transfer and departure.

- Assess mooring line loads and berth limits against wind and current — berth acceptance decision
- Apply the ship-shore safety checklist with the ship's officers — authorisation to start transfer
- Specify loading arm envelopes and emergency release settings — transfer system integrity
- Design linked emergency shutdown sequences between ship and shore — control room response

- Calculate boil-off and vapour return needs during loading — tank pressure management
- Build a berth emergency response plan for releases and fires — terminal manager and responders

Key Liquefied Gas Terminal Safety Terms

- Boil-off gas — vapour produced as cargo warms slightly in tanks and lines, which must be returned, used or safely disposed of
- Emergency release system — couplings and valves on a loading arm that separate ship and shore quickly with minimal spill
- Ship-shore link — the cable or fibre connection that lets either side trigger the other's emergency shutdown
- Rollover — sudden mixing of stratified cargo layers in a tank that releases large volumes of vapour
- Cool-down — controlled chilling of transfer lines and arms before full flow to avoid thermal stress
- Custody transfer — the measured handover of cargo quantity and quality between ship and terminal

Liquefied Gas Terminal Safety Day by Day

Day 1: Gas Cargo Hazards and Properties

- Cryogenic and Pressurised Cargo Behaviour — Hazard Ranking at the Berth
- Flammability Range and Vapour Cloud Dispersion — Exclusion Zone Setting
- Cold Burns and Brittle Fracture Risks — Personal Protection Choices
- Toxic and Asphyxiant Cargo Properties — Gas Detection Placement
- Cargo Data Sheets — Briefing Content for Berth Crews

Day 2: Berth Design and Gas Carrier Types

- Membrane, Spherical and Pressurised Carrier Designs — Berth Compatibility Checks
- Jetty Layout and Safety Distances — Ignition Source Control
- Fendering and Berthing Energy — Approach Speed Limits
- Terminal Information Exchange — Pre-Arrival Data Requirements
- Berth Operating Limits Matrix — Weather Hold and Stop Criteria

Day 3: Mooring and Ship Approach

- Mooring Pattern Analysis — Line Load Distribution Decisions
- Quick Release Hooks and Load Monitoring — Line Tending Routines
- Tug and Pilot Coordination — Berthing Window Planning
- Passing Ship and Surge Effects — Mooring Reinforcement Triggers
- Snap-Back Zones — Deck and Jetty Crew Positioning

Day 4: The Ship-Shore Interface

- Ship-Shore Safety Checklist — Joint Authorisation to Proceed
- Pre-Transfer Conference — Agreed Rates, Pressures and Stop Signals
- Communication Protocols and Language — Command Clarity During Transfer
- Access Gangways and Jetty Security — Personnel Control at the Berth
- Simultaneous Operations Rules — Bunkering and Stores Restrictions

Day 5: Loading Arms and Transfer Systems

- Loading Arm Envelope Monitoring — Ship Movement Alarm Settings
- Emergency Release Coupling Testing — Separation Readiness Checks
- Insulating Flanges and Static Control — Spark Prevention at Connection
- Hose and Arm Connection Sequence — Leak Testing Before Flow
- Cool-Down Procedure — Thermal Stress Avoidance on Lines

Day 6: Cargo Transfer Operations

- Ramp-Up and Topping-Off Profiles — Surge Pressure Avoidance
- Vapour Return and Boil-Off Handling — Tank Pressure Balance
- Rollover and Stratification Monitoring — Tank Mixing Decisions
- Custody Transfer Measurement — Quantity Dispute Prevention
- Draining, Purging and Disconnection — Safe Release of the Arms

Day 7: Emergency Shutdown and Control Systems

- Emergency Shutdown Levels and Cause-and-Effect Charts — Trip Logic Design
- Ship-Shore Link Testing — Two-Way Shutdown Verification
- Valve Closure Times and Surge Analysis — Line Rupture Prevention
- Gas and Fire Detection Voting — False Trip Versus Missed Release
- HAZOP of Transfer Systems Following IEC 61882 — Safeguard Gaps

Day 8: Berth Emergencies and Response

- Release Scenarios and Consequence Modelling — Response Zone Planning
- Water Curtains and Fire Monitors — Jetty Fire Protection Decisions
- Emergency Unberthing and Tug Standby — Ship Removal Criteria
- Muster, Escape and Rescue From the Jetty — Personnel Accounting
- Joint Drills With Ship Crews — Exercise Scenario Design

Day 9: People, Permits and Performance

- ISO 45001 Worker Consultation — Berth Crew Involvement in Controls
- Permit to Work at Live Berths — Hot Work and Entry Decisions
- Competence Matrix for Berth Roles — Assessor Sign-Off Criteria
- Near-Miss Reporting From Ship Calls — Trend Review Triggers
- Leading Indicators for Transfer Safety — Terminal Management Reporting

Day 10: Practising the Berth Transfer Safety Dossier

- Mooring and Approach Case Exercise — Applying Berth Acceptance Criteria
- Simulated Transfer With Shutdown Trigger — Testing Link Response
- Release Scenario Tabletop — Applying the Berth Response Plan
- Peer Review of Dossier Sections — Gap Close-Out Actions
- Berth Transfer Safety Dossier — Final Assembly and Ownership

Applying Liquefied Gas Terminal Safety After the Course

- Lead a joint review of the ship-shore safety checklist with visiting ship officers at the next three calls and record the gaps found
- Run a two-way emergency shutdown link test with the control room and compare actual valve closure times with design values

Liquefied Gas Terminal Safety Questions FAQ

What is liquefied gas terminal safety and why does it matter now?

Liquefied gas terminal safety is the control of hazards when gas carriers moor and transfer cargo at a berth. It matters now because larger ships and tighter schedules leave less margin for error in mooring, transfer and shutdown, whether the cargo is natural gas or petrochemical gases.

Which roles gain most from liquefied gas terminal safety training?

Berth supervisors, marine safety officers, loading arm leads, control room operators and emergency coordinators gain most. Each controls part of the ship call, so shared methods across these roles close the gaps between ship, jetty and control room.

How does liquefied gas terminal safety differ from a general port operations course?

It focuses on cryogenic and pressurised gas cargoes, loading arms, vapour return and linked shutdown systems. A general port operations course covers cargo flow, berth planning and port performance across many cargo types without this depth on gas transfer hazards.

What do you bring back from liquefied gas terminal safety training?

You bring back a berth dossier covering mooring limits, checklist use, transfer profiles, shutdown links and emergency response. It gives your terminal one agreed routine to test at the next ship call and refine with the ship's officers.

Liquefied Gas Terminal Safety: The Way Forward

The berth transfer safety dossier first informs whether the next gas carrier is accepted at the berth under current weather and equipment conditions. Berth supervisors, the control room and marine safety officers use it at every ship call. After its first use, revisit the shutdown link timings and mooring limits against what actually happened alongside, and adjust the stop criteria.