The Basics of LNG

Liquefied natural gas for energy transport.

Introduction

LNG has advanced and acquired a lot of traction recently. All parties involved in or wishing to enter the LNG industry must comprehend the commercial and technical risks associated with the end-to-end LNG chain and operations, as LNG enterprises are expected to be operating at full capacity. In particular, individuals seeking chances to grow or broaden their current company into the growing LNG sector.

The conceptual, technical, and practical commercial elements of LNG are covered in this Course N Carry training course on the subject, covering everything from pre-fixture activities and terminals to LNG transportation. Contracts, terminal operations, tanker loading and discharging protocols, and LNG custody transfer computations and measurements are all included in this. Get additional knowledge about the LNG market so that you can hunt for chances, remain ahead of the game, and succeed in this specialised field.

Objectives

- Learn the principles and an overview of the whole LNG process chain.
- Recognise LNG cargo transfer processes from the viewpoints of the terminal and ship management.
- Recognise the alternatives for LNG cargo management and trade routing.
- Think about and pick the best options for containment systems and LNG vessel types.
- Make precise LNG custody transfer measurements and computations.
- Analyse the effects of different design rules and regulations on the management of LNG ships and shore transfers.
- Improved handling of shipping documentation and contracts for LNG supply transportation
- To improve the management of your LNG tanker operations, look into LNG events and assess tanker safety, related hazards, and necessary needs.
- Study up on the business and operations of LNG tankers.

Training Methodology

You will leave this rigorous 5-day training session with a thorough practical foundation in the principles of advanced LNG. With the help of case studies, practical methods, and theory-based instruction, you will discover useful tools and approaches for managing

operational and commercial risks more skillfully and for making more sensible investment decisions.

- Educate yourself on conducting operations in compliance with all applicable local, national, and international maritime laws, as well as industry best practices.
- Examine the various processes and variables influencing the operation's cost.
- Make sure all LNG operations are safe by using the appropriate number and size of fenders as well as certified, tested hoses.
- Learn about LNG STS equipment, operations, and vessels.
- Improve knowledge of STS training techniques, equipment design, maintenance, and ship-to-ship transfer.
- Learn the distinctions between the Person in Overall Advisory Control, the Mooring Master, and the Ship's Master.
- Provide a practical approach for lowering risk.
- Recognising the environmental issues with LNG
- Acknowledge and comprehend how oil and gas boats operate differently and what the risks are.
- Recognise the prerequisites for LNG vessel compatibility

Organizational impacts

A wide number of essential LNG skill sets will be acquired by your business, including:

- Supply Chain: Workers in the gas and crude oil industries.
- Ship brokers, dealers, shipping agents, employees of claims departments, loading masters, cargo inspectors, and surveyors are examples of providers of energy and logistics.
- Staff members in the administrative and non-operational departments who lack "on hand" practical experience.
- Oil and Gas Industry: The management responsible for creating and overseeing the policy and procedures related to cargo acceptance

Personal Imapct

- Learn the Key Aspects of LNG, Operations, and the Future of Energy to have a practical foundation.
- Which rules and guidelines control how things are done?
- Understand the Parties to the Transfers and Their Interactions with Each Other
- POAC Playing Various Roles at Various Stages of the Operations
- Preparation and Risk Evaluation Aspects for LNG

Who should attend?

Though a wide range of professionals can benefit from this training, the following will be especially noted:

- LNG vendors, dealers, and wholesalers

- Ship managers and owners
- Safety officers and superintendents
- Executives in operations and technology
- Dealers and brokers
- Ship brokers
- Operators of ports and terminals
- Club P&I and maritime insurance
- Ship managers and owners
- Owners and Operators of Offshore Vessels and FPSOs
- Oil Majors, Independents, and NOCs
- Safety officers and superintendents of ships
- Officers on board ships and their crews (chief engineers, masters, etc.)
- Masters of Loading and Mooring
- Service Providers for STS
- Surveyors for Bunker and Liquid Cargo
- Operators of Ports and Terminals
- P&I Executives and Inspectors
- Owners, managers, and operators of LNG FSU
- Superintendents and Managers of Company Assurance

Course Outline

Day 1

Types of LNG Tankers, Storage Tanks, Terminals, and the Science of LNG Treatment

- Main types of LNG terminals and vessels
- Steamships, Membrane, Moss Rosenberg, and other vessel designs
- Systems for gas detection and storage design
- The science behind LNG as a source of power and energy
- The IMO's participation
- LNG's benefits as a fuel source
- Emission Control Technology (E.C.T.) with CO2
- Future plans for LNF with carbon capture and storage. Have we arrived yet?
- Features of Boil Off Gas and Options for Dual Fuel
- Systems for vessels powered by LNG, diesel, and electricity are available.
- LNG Comparing technical aspects and containment strategies
- Locations of land-based regasification terminals and regas vessels
- LNG treatment and techniques
- Specific Features of LNG: What is it, and why is more of it desired?

Relevant Safety Regulations and Charterer's Specifications

- Descriptions of International Gas Code vessels »» Type of LNG Tank »» Types of LNG vessels as well as the International Safety Management, ISM Code, and prerequisite

education
- Procedures and training for Safety Management Systems (SMS) in LNG Field Vessels and On Board
- S.P. - Regional security concerns, international ship and port security codes
- Self-Assessment for Tanker Management
- What and for whom is the TMA intended?
- Overview of TMA's components and phases
- The TMSA's application
- The inspection system SIRE. Why have it for LNG and what is it?

Day 2

The LNG Cargo Cycle's Stages

- Which stages are there?
- Why are they here?
- What do they succeed in?
- Locations of regasification terminals: land-based regas vessels Overview of the System: Typical Plans and Working Principles
- LNG Transfer system specifications and design Contributors to LNG Terminal Compatibility Studies.

Cargo Cycle Preparation for Boil Off Gas

- Terminal roles and responsibilities in the transfer of LNG cargo
- Loading and unloading at the terminal
- Interfaces for Ship-to-Shore Operations
- Forms of compatibility
- Checklists and paperwork for LNG cargo transfers; equipment needed for LNG cargo transfers; and dangers, hazards, and safety issues related to LNG cargo
- LNG Cargo Regulations:
- Functions of Fibre Optics in LNG Operations and Transfer
- Personnel must complete LNG cargo training (LNG preparation forms).

Day 3

LNG Transfer Systems: Ship Design and Naval Architecture; New Technologies Available

- Transfer systems from ship to ship to shore: the terminal interface and naval architecture
- Ship to Platform Transfer Systems: The Terminal Interface and Naval Architecture's Ship Systems
- Ship to Ship Transfer Systems: Ship-to-Ship Connected Transfer Systems and Tandem Configurations for Ship to Ship Communication Naval Architecture [ship systems] and the Vessel Interface

- Framework Considerations for uptime in efficient operations
- Meteorological conditions, forecasting software, and weather tracking
- Checklists and preparations for arrival
- LNG Loading Arms Capabilities: Products, Suppliers, and Designs
- Modern Cryogenic Hose Designs, Testing, and Types with Sensor Technologies What is 8-inch and 6-inch dynamic positioning and why is it available? DP1, DP2, and DP 2.
- Procedures for pre-loading LNG alongside
- Actions and precautions for ramp up, loading, and ramp down
- LNG ramping up and loading faster
- Procedures for loading tanks
- Ramp down and the procedure for topping off tanks
- Return ad Controlled LNG vapour pressure Operations following loading
- Start of the gas burning and disconnecting the line
- Pre-arrival checklists, port regulations and ship line cool down
- Heel choices, ramp down, and discharge
- An outline of typical discharge procedures
- Option to ramp down for heel distribution
- Operational discharge

Risk Reduction and Safety

- Global LNG spills and discharges were highlighted by recent industry occurrences.
- What knowledge have we gained?
- Human error and industry-related variables in LNG
- Failures in Latent Engineering Design in the LNG Sector
- LNG - Manufacturer errors
- Recurring reasons for these occurrences

Day 4

Design codes and operations for ESD 1 and 2 Alarm settings ESD Actions

- ESD 1 systems: what are they?
- What are the different systems in ESD 2?
- Essential crew preparations and training
- Risks and Hazards in the Future »» geographical dangers Crew component

Operation and Testing of the Water Curtain Theory and Possible Harm

- Criteria for ships and shore
- Getting ready for the upcoming situations
- Emergency preparation Salvage of an LNG ship
- Aspects should be taken into account for cargo recovery
- Effects on the environment
- Development of technical equipment Risk assessment of your business
- What action is necessary?
- Options and Systems for Safety Management

Simultaneous Operational Procedures (SIMPOS: LNG Transfers and Operations)

- Risk and hazards to be taken into account when conducting LNG SIMOPS day and night operations
- Ship-to-ship transactions

Day 5

LNG Measurement and Computations for Custody Transfer

- Configuration parameters for the system
- Custody Certification and Sampling
- Guidelines for Transfers at Terminals Roles of surveyors and ships
- The Loading Certificate
- Kinds of Measurement Systems and Equipment for Custody Transfer
- Drying, cooling, and inerting and aerating
- Measurement of liquid forms
- Volumetric assessment
- Measurement of temperature
- Testing and inspection of Custody Transfer Measurement Systems (CTMs)
- LNG Quality Control Systems and the Process of Transferring Custody
- Utilising flow measuring technology
- Types of custody transfer flow metering and flow measuring.
- Coriolis Design, metering, flow mechanisms, and performance
- Mechanisms, design, metering, and performance of thermal flow
- Mechanisms, design, metering, and performance of differential flow
- Mechanisms, design, metering, and performance of ultrasonic flow
- Mechanisms, design, metering, and performance of vortex flow
- Uses for flow metres, calculations, calibration, and transfer concepts Security
- 24-hour LNG operations
- Where do SIMPOS transactions take place?