



THE CHEMICAL ENGINEERING MAJOR

FLNG Operation and Maintenance

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Introduction

For the successful operation of the LNG FPSO (FLNG) it is of vital importance to understand the process from well operation and subsea control, to separation, dehydration, liquefaction, storage and offload. This 5-day FLNG Operation and Maintenance training course focuses on maintaining the high level of safety and security during the entire process.

This BTS training course highlights the key technical challenges and risks associated the operation and maintenance of an FLNG. It will arm the participant with a wealth of knowledge to help them advance their project.

This training course will feature:

- Operation and maintenance – Guidance and General Requirements
- Environmental Influences affecting FLNG operation
- Gas treatment
- Liquefaction
- Storage requirements
- Offloading operations
- Control and safety systems
- Safety in operation and maintenance

Training Objectives

What are the Goals?

By the end of this training course, participants will be able to:

- Identify the key operational requirements
- Recognize the effects of the ocean environment on FLNG operation.
- Understand tank cooling procedures and controlling the boil-off during tank filling.
- Interpret process plant behaviour
- Appreciate safety in operation and maintenance

Target Audience

Who is this Training Course for?

This BTS training course is suitable to a wide range of professionals but will greatly benefit:

- Technical Staff
- Project Engineers
- Engineering Discipline Leads
- Engineering Specialists
- Operating Staff
- Maintenance Technicians
- Supervisors and Managers
- Non-Engineering Personnel

Training Methods

How will this Training Course be Presented?

This FLNG Operation and Maintenance training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The daily workshops will be highly interactive and participative. This involves regular discussion between both delegates and course director. The training course will provide the participant with an in-depth knowledge through detailed information, real-life case studies, photos and video animation.

Daily Agenda

Day One: Introduction to LNG FPSO

Competency Description: The objective is to understand the key considerations of the design, operation and maintenance requirements of an FLNG.

Key behaviours

- Identify the characteristics of an FLNG
- Understand the applicable rules and regulations
- Comprehend the operation and maintenance strategy
- Understand the turret swivel system and main bearing integrity
- Be familiar with SURF inspections

Topics to be covered

- Introduction to FLNG design and technology
- Rules, regulations, codes and standards
- Operation and maintenance requirements
- Mooring system
- Surf and subsea interfaces
- Environmental and design aspects affecting FLNG operation

Day Two: The LNG Process Plant

Competency Description: The objective is to understand the operation, inspection and maintenance requirements and procedures of the systems and equipment to process well stream into LNG/LPG/Condensate.

Key behaviours

- Identify the various stages of the LNG process
- Understand the gas treatment process
- Comprehend liquefaction technologies
- Understand the operation of the major equipment
- Be acquainted with the advantages of dynamic process simulation

Topics to be covered

- LNG properties
- Reception
- Pre-treatment
- LPG and condensate
- Liquefaction
- Process equipment
- Dynamic process simulation

Day Three: Storage and Offloading

Competency Description: To develop an understanding of operation, inspection and maintenance requirements, challenges and safety risks of the containment and offloading system on a floating LNG facility.

Key behaviours

- Identify LNG sloshing damages
- Understand the boil-off effects

- Know the preparation procedures for loading of the FLNG cargo tanks
- Understand the offloading equipment and operations
- Be aware of the offloading risks

Topics to be covered

- Storing of the products
- Tank loading preparation
- Cargo handling (LNG, LPG and condensate)
- Cargo transfer operations
- LNG carrier mooring procedures
- Cargo metering and custody transfer
- Offloading risks
- Emergency shutdown and release

Day Four: Power Heating and Utility Systems

Competency Description: Malfunction of the utility and supporting systems may reduce, stop, or even endanger the production and personnel. The objective is to understand the operation and maintenance of the power generation system and the main process plant equipment and utilities.

Key behaviours

- Understand operational concerns of the prime movers
- Be familiar with HV and LV switchboards
- Inspect and test batteries and UPSs
- Be acquainted with the operational and maintenance requirements of the utility and supporting systems

Topics to be covered

- Power generation and heating systems
- Power distribution system
- Heating sources and generators
- UPSs and batteries
- Cooling systems
- Utility systems
- Electrical system
- Cryogenic Piping
- Instrumentation
- Telecommunication

Day Five: Safety in Operation and Maintenance

Competency Description: Ensuring safety, operability and system / structural integrity are the main concerns on a FLNG. The objective is to gain a better knowledge of: how to optimize production and plant capacity while increasing safety levels and ensure environmental compliance.

Key behaviours

- Comprehend the functioning of integrated control and safety system
- Know the operations, maintenance safety approach for process equipment
- Recognize the hazards of electrical energy and hazards associated with process fluids
- Know how to handle emergencies
- Apply operations, maintenance safety approach for process equipment

Topics to be covered

- Control and safety systems
- Safety instrumentation
- Accessibility to the LNG process plant
- Hazards associated with process fluids
- Assessment of hazards
- Leakage and dispersion of LNG or hydrocarbon release
- Control of leaks and releases
- Emergency plan – equipment and procedures
- Fire prevention and control
- Electrical safety