Best Technology Solutions (BTS)

Managing the Bunkering and Use of LNG Fuel on Ships

Why Choose this Training Course?

For all vessel operators the issue of environmental pollution is becoming increasingly problematic. The requirements to comply with MARPOL Annex 6 have made air pollution one of the areas which ship owners and operators will have to address. Using LNG as a fuel is one way to reduce airborne pollution from ships. It also has different problems to address when operating a vessel with LNG on-board as a fuel. This BTS training course is intended to highlight these issues and provide a means to manage them. The IGF code details the requirements of ships using LNG as a bunker fuel, and this BTS training course will provide an insight to the means to comply with that code.

This BTS training course will highlight:

- Design and operational characteristics of ships subject to the IGF Code
- Precautions to minimize and manage hazards on a ship subject to the IGF Code
- Precautions to prevent pollution of the environment
- Monitoring and controlling compliance with legislative requirements

- Application of occupational health and safety measures

Training Objectives

What are the Goals?

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

- Understand why using LNG fuel can be beneficial
- Manage the use of LNG fuel on ships
- Communicate with bunker terminals and suppliers
- Manage any emergencies involving LNG fuel
- Understand the different fuel system configurations

Target Audience

Who is this Training Course for?

This training course is suitable to a wide range of professionals but will greatly benefit any person who deals with any aspect of LNG fuel used in ship operations. This may not be direct involvement but may require individuals particularly at a higher level who should understand the issues with using LNG as a fuel. In particular:

- Senior Management with high level responsibility for vessel operations
- Fleet Managers
- Technical Managers
- Vessel personnel
- Personnel at the vessel/ bunker facility interface

Training Methods

How will this Training Course be presented?

Participants to this training course will receive a thorough training on the subjects covered by the seminar outline with the Tutor utilizing a variety of proven adult learning teaching and facilitation techniques. Seminar methodology includes.

The structure for this course is based around a power point presentation supported by video clips and class-based exercises. Examples of the properties and problems that can be encountered with the cargoes can be demonstrated. Exercises will be based on scenarios that have happened or will be comparable to real time incidents. All exercises will use standard IMO/ Flag state pro- forma.

Organizational Impact

- Improves individual understanding of the impact of LNG fuel can have
- Helps to build team structures in bunker management
- Assists in prevention of environmental issues and their control if they occur
- Demonstrates the criticality of managing LNG fuel
- Provides knowledge of safe methods of LNG bunker loading and removal from the vessel
- Contributes to the competence of personnel in a structured competence scheme

Personal Impact

Individuals will benefit from enhanced knowledge of LNG bunker handling methodologies, emergency response techniques and HSE issues. Individuals will benefit by:

- Better understanding of operational issues
- Appreciation of the importance of properly structured procedures
- Increases awareness of hazards presented by different operations
- Learning techniques to ensure vessel integrity is not compromised

- Practicing methodologies which will aid incident prevention
- Understanding how emergencies occur and how to manage them

Daily Agenda

Day One: Definitions of Liquefied Gases and Associated Regulations

- IGF Code
- Defining LNG Fuel
- Properties of LNG
- Combustion properties
- Pollution characteristics
- Understanding Cryogenics
- Production and properties of LNG
- Components of LNG

Day Two: Health Safety and Environmental Issues and Combustion Theory

- Thermodynamic Laws
- Methane Number/ Knocking

- Gas detection Methods
- Electrostatic issues
- Toxicity
- Health and Safety
- Environmental Hazards

Day Three: Managing LNG Fuels in a Safe Manner

- Brittle fracture
- Fuel Storage systems
- Tank Gauging systems
- Safety Devices
- Fuel system arrangements
- Managing LNG as a fuel

Day Four: LNG Bunkering Systems and their Operational use

- Physical layouts
- Onboard containment systems

- Electrical safety
- Hazardous zones
- Fuel transfer process
- Safety plans and instructions
- Bunker Checklists
- Inerting warm up and cooldown

Day Five: SIMOPs Emergency Response and ESD Systems

- Bunkering installations
- SIMOPs
- Emergency response
- Protective clothing
- Repair and maintenance issues
- Emergency Shut Down
- Safety Management System
- Dealing with health issues (Cold Burns)