Advanced LNG Vessel Transfer Ship to Ship (STS) – LNG Load Master POAC, Operations, Methods and Claims Handling to the Oil & Gas Industry.

About the Course.

This intensive course will equip you with a detailed practical grounding in the fundamentals and advanced STS and LNG transfer operations. You will learn the practical tools and techniques that can be utilized to manage risk more effectively and make better practical operational decisions while handling.

1. Reinforce knowledge about operations that are carried out in accordance with all relevant national and international maritime legislation, local regulations, and industry best practices.
2. Evaluate the different procedures and factors affecting cost of the operation
3. Ensure overall safety for any STS operation on the use of correct size and number of fenders and certified tested hoses.
4. Become familiar with LNG vessels, operations and LNG STS equipment
5. Enhance understanding of Ship-to-Ship transfer equipment, design, maintenance - and training methods for STS.
6. Familiarize the differences of Person in Overall Advisory Control, Mooring Master and Master of the Ship
7. Establish a useful methodology in reducing risk
8. Understanding environmental challenges
9. Recognize and understand differences in operations and hazards between oil and gas vessels.
10. Understand requirements for LNG vessel compatibility and Optimoor studies and follow an LNG spill response case study
11. Learn the Important Aspects of STS Operations
12. What Regulations and Guidelines are Governing STS Transfer Operations?
13. Users of TR 56 [Singapore] TR56 is applicable to bunkering of both ocean-going vessels and harbour craft.
14. Scope of TR 56 - Singapore the technical reference covers LNG delivery from LNG bunkering facilities (i.e. trucking, shore, terminal, shipping and ISO tankers lifting facilities) to receiving ships through four modes of transfer (truck-to-ship, shore-to-ship, ship-to-ship and LNG cassette bunkering)
15. Master the Parties Involved in the STS Transfers and their Relationship to One Another
16. POAC Performing Different Roles at Particular Point of the STS Operations
17. Pre-planning and Risk Assessment Considerations for LNG
18. Insights on STS Plan and Equipment
19. Review and Plan with Real Life Case Scenario
20. Mooring Operations Manoeuvring and Risks
21. LNG Focussed Cargo Transfer Operations
22. STS Industry and Future LNG Developments
23. Five (5) Case Studies: FLNG, STS, Barge to Ship and Liquefied Natural Gas Ship to Ship Transfer Operations to Floating Structure Re Gasification Unit

Key Topics Covered.

1. Gain world leading advance techniques concerning the entire Liquid/Gas and LNG STS, FLNG and terminal process chain
2. Understand the leading advances in STS cargo transfer operations from both a Liquid and Gas ship management and terminal/Facility perspective.
3. Understand the trade routing and cargo management options for all Liquid and Gas cargos
4. Consider and select the best options for STS Liquid and Gas vessel types, terminal and containment systems
5. Make accurate measurements and calculations of all liquid and Gas STS custody transfers, and product quality accuracy. Including the advanced systems available on the market today and in the future from around the globe
6. Examine the impact of various design codes and guidelines on Liquid and Gas ship and shore transfer management

7. Better select, understand and manage supply chain transportation contracts in the Liquid and Gas industry from around the world
8. Examine many real Case Studies from around the Globe concerning Liquid and Gas STS incidents and evaluate tanker/terminal safety, commercial liability, associated risks and requirements to better manage and safe guard your liquid and Gas operations
9. Learn in detail about the liquid and Gas business and operations from one of the world's leading industry
10. What Regulations and Guidelines are Governing STS Transfer Operations?
11. Master the Parties Involved in the STS Transfers and their Relationship to One Another
12. POAC Performing Different Roles at Particular Point of the STS Operations
13. Pre-planning and Risk Assessment Considerations for LNG
14. Insights on STS Plan and Equipment
15. Review and Plan with Real Life Case Scenario
16. Mooring Operations Maneuvering and Risks
17. LNG Focused Cargo Transfer Operations
18. STS Transfer Operations Best Practices Oil and LNG comparisons
19. Emergency Response and Contingency Planning
20. STS Industry and Future LNG Developments
21. Case Study: Liquefied Natural Gas Ship to Ship Transfer Operations to Floating Structure regasification Unit
22. Case Study: LNG Spill Response during Cargo operations
23. Case Study: LNG Fuel spill failures from around the Globe

How will this Training Course be presented?

Challenging Tutored Marked Assignments and in-depth Case Studies are presented to students through the duration of the course. Factual case studies and exercises along the way cement participants newly acquired skills and help them apply them to real situations. Equally as important, a look at the mind-set of LNG/Oil operators, STS Handlers and surveyors, ship and LNG bunker vessel manufactures, MPA's, naval architects - ship designers, project managers, and marine engineers is given through the discussion; giving student participants an additional boost in anticipating potential problems and correcting them beforehand. The training methodology will incorporate both theory and skill training components, utilizing both traditional lectures, as well as hands-on exercises, group discussions and case studies.

Who is this Training Course for?

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

- Ship Owners and Managers
- Offshore Vessel and FPSO Owners and Operators
- Oil Majors, NOCs and Independents
- Ship Superintendents and Safety Officers
- Ship Officers and Crews (Master, Chief Officers, Chief Engineers etc)
- Bunkering industry Personnel including Loading and Mooring Masters
- STS Service Providers
- Liquid Cargo and Bunker Surveyors
- Ports and Terminal Operators
- P&I Inspectors and Executives
- LNG FSU Owners, Managers, Operators
- Company Assurance Managers and Superintendents
- Project Directors
- Asset Managers
- Project Managers
- Project Planners
- Cost Estimators
- Quality Assurance Managers
- Contract Managers
- Procurement Managers

- Project Engineers
- Discipline Engineers
- Technical Assistants

About the Marine LNG Institute - Course Director [LNG STS].

- One of the world's leading Liquid and Gas STS Experts with 27 years of experience
- Engaged as an IMO expert on Liquid and Gas STS, Cargo's, terminal, vessel and offshore platforms, STS – ports and harbor infrastructure, safety; LNG Cargo and propulsion and vessel component integrity and failure
- He lectures in the field of marine LNG Ship and Terminal survey engineering, LNG and STS engineering, auditing and safety throughout South East Asia, UK, New Zealand, Australia and the US
- Advises the world's leading multinational participants in the oil and LNG/STS and the geotechnical LNG drilling sector in areas regarding offshore LNG, and FLNG, Terminal, platform installations in Australia, USA, Korea, Europe and throughout South East Asia
- Professional membership: Member International Institute of Marine Surveyors (MIIS)
- Partial list of clients includes: Qatar Energy, IMO, US NAVY, BHP Australia Pty Ltd (Australia and London), Woodside, Samsung Heavy Industry – Korea, Royal Dutch - Shell (FLNG) Construction, Singapore LNG, KOGAS - Korea, TOTE USA, Total Oil Asia, Chevron Gorgon, Shell - (Prelude), Petronas - Malaysia, Offshore Marine Service Alliance (Malaysia), Hans Ship Management (Singapore), Chevron Oil and Gas (U.S.A - GULF)
- KOGAS Lead project management research and development and feasibility expert Liquid and Gas infrastructure – Ship to Shore interface Korea/Japan
- QATAR LNG Construction Technical Advisor Ship to shore interface
- LNG - CHEVRON GORGON Ship to shore interface - Independent Technical Expert - $54 Billion USD Liquid Natural Gas [LNG] - Project LNG/SIMOP/HSE/IMO/ILO
- Liquid and Gas Port Lead Infrastructure management and Safety. LNG - Chevron Gorgon STS Facility Safety Compliance - SIMOP/LNG -HSE/IMO/ILO
- Former C. Eng., Fleet Superintendent, Class Surveyor, PMA Surveyor, Marine LNG Engineering Class Surveyor, LNG POAC and LNG/STS technical Expert Shipping.
- Former IMO technical Liquid and Gas advisor – transport, ship and terminal logistics.
- Technical Independent Expert: United States America Navy and Royal New Zealand Navy WARSHIP - RNZS Combat Supply and Multi Role War Ship - HMNZS War Ship 'Canterbury'

Alumni Testimonials:

'Lecturer is very knowledgeable and conduct himself and the course very well. A very interactive communication with clear and easy to understand, on machineries like switchboard, engine control room, ballast systems, fire system, portable water system, cargo pumps, propulsion.'
Daewoo Technologies – South Korea

'Hybrid technology and regulations and current topics in marine industry such as renewable energy...great. Lecturer really expanded on marine engineering technologies also very good.'
Ship management and Procurement – Wilhelmsen Vessel Management

"*Great expert, very professional and a key Lecturer. Only 10 students on the course allowed is great for asking questions in small groups of the Lecturer.'*
Senior Base Manager – Icon offshore Malaysia

"*I'm going to go to do another of the informative courses. Very interesting and is well and truly a great Lecturer. Very informative.*"
~ Business Manager, Sembmarine International

"*I got so much out of it. From an Oil and Gas perspective, I have never been or listen to a world leading expert in this technical Oil and Gas - Maritime field.*"
~ Senior Manager, KSDC Brokers Singapore

"*I have done several courses and this one was the best I have attended so far. Very technical and informative, very approachable and professional.*"
~ Woodside Australia (Oil and Gas - Gorgon Project)

"*Excellent Speaker and held in high regard in the Oil and Gas industry. All the executive management got a great presentation and seminar over the three days, terrific.*"
~ KSDC Oil/Gas Brokers Malaysia

"*We learnt a lot about the current marketplace and 2017 – 2018 forecasts in Asia, Qatar and the Middle East. The need for this course is essential if you are engaged in the industry.*"
Chevron Gas and Oil [USA]

"*Useful and interesting. Topic related to my job scope."*
~ Inter-Continental Oils & Fats Pte Ltd

"*Instructor was good at presentation of the material. Topics are directly related to my current job scope. Case studies ensured equal and sufficient interaction and tested our understanding of the topics*"
~ Navig8 Asia Pte Ltd

"*Good case studies and knowledge from law perspective. Adequate number of participants*"
~ PT Chandra Asri Petrochemical Tbk

"*Lots of interaction between trainer & delegates. Informative on certain topics.*"
~ Nova Carriers (Singapore) Pte Ltd

"*Trainer is very experienced and knowledgeable. Coursework/material were adequately sufficient.*"
~ Total Oil Asia Pacific Pte Ltd

"*Speaker able to deliver clearly. Lots of case studies covered.*"
~ Ace Oil Pte Ltd

Course Syllabus.

DAY 1

0900 - 0920
Introduction
• Introduction to Virtual Learning
• Introduction of Lecturer and student attendees
• Basic outlines of the 3-day course contents and schedule

0920 - 1000
STS Operations
• Optimisation of vessels
• Harbour draught / berth limitation
• Emergency transfer work
• Class issues of vessel for trading regions
• Commercial reasons, multiple vessels and receivers
• LNG FSU Tandem off-loading and FSRUs

1000 - 1100
Regulations and Guidelines Governing STS and Transfer Operations
• MARPOL Annex 1, Section 8 about Oil Tanker
• Latest on transfer Guides for Crude, Products and Liquid Gasses
• International Safety Guide for Oil Tankers and Terminals (ISGOTT)
• Oil Companies International Marine Forum (OCIMF) Guidelines
• LNG Vessel operations in port guidance
• LNG Bunkering guidelines (SGMF)

1100 - 1130

Coffee Break and Virtual Networking

1130 - 1230
Parties involved in STS and their Relationship to One Another
• How Parties involved (Oil/Gas Majors, Charterers, Service Provider, Cargo Surveyors, POAC, Ships' masters and Mooring Master) work harmoniously to attain operational efficiency and safety
• LNG Ship Management and receiving terminal

- Preparation of Cargo Cycle – LNG and Liquid/Gas Terminal Compatibility Studies
- Users of TR 56 is applicable to bunkering of both ocean-going vessels and harbour craft.
- Scope of TR 56 - The technical reference covers LNG delivery from LNG bunkering facilities (i.e., trucking, shore, terminal, shipping and ISO tankers lifting facilities) to receiving ships through four modes of transfer (truck-to-ship, shore-to-ship, ship-to-ship and cassette bunkering)
- Roles and responsibility of terminal in LNG cargo transfer
- Terminal loading and discharging
- Ship-to-Shore operations interfaces
- Compatibility forms

Delegate Exercise Contracted LNG/GAS Cargo Operations and development

- Cargo Transfer checklists and forms required
- Cargo Transfer equipment required
- Cargo hazards, safety and risks that exist
- Cargo controls
- Cargo training required for personnel (LNG STS Preparations forms)

1230 - 1300
Person in Overall Advisory Control
• Qualifications and Training of POAC
• POAC performing different roles at particular point of the STS Operations

- Liquid/Gas Operations -Tanker Loading and Discharging Operations and Preparations
- Arrival preparations and checklists
- Loading Arms – Technology, vendors and designs
- Cryogenic Hoses, testing and type 8 inch and 6 Inch
- Dynamic Positioning
- Maneuvering with and without tug assistance or DP
- Jetty Approaches: Finger or Face Terminal Design Interface Pre-loading procedures alongside. Ramp up, loading and ramp down, actions and precautions

1300 - 1400
Luncheon

1400 - 1500
Pre-planning and Risk Assessment Considerations - STS
• What is LNG? Hazards and Risks vs. Oil
• Screening / Compatibility Studies of participating vessels
• Ship compatibility, and OPTIMOOR
• Criteria in selecting transfer area and Approval from the authorities
• Security issues
• Checklists and Preparations
• Risk Assessments and Management, Helicopter operations, Cargo Hazards, weather conditions, personnel injury, mooring unmooring operations
• Oil v/s LNG any differences? LNG and Liquid/Gas Transfer System Architectures and available technologies

- Ship to Ship to shore
- Ship to Platform
- Ship to Ship
- Barge to Ship
- FLNG and FSRU
- Ship connected transfer systems and tandem configurations
- System Uptime considerations of effective operations
- Meteocean conditions, prediction tools

1500 - 1520
Coffee Break and Virtual Networking
1530 - 1630
STS Planning and Equipment
• Plan format and information to include
• Joint operations plan
• Who prepares the plan?
• Supply of equipment, fenders, hoses
• Equipment and Locations
• ISM and Training requirements – Timelines for Compatibility

1630 - 1700
Plan and Review STS Exercise
• Plan review and discuss checklists and equipment items required
• Confirm any training requirements
• Simulation training and bridge team resources management

End of Day 1

0900 - 1000
STS Mooring Operations Manoeuvring and Risks
• Underway and Anchored operations
• Navigation signals
• Tug and Tender assistance
• Carriage and Delivery of Fenders and Equipment
• Communications
• Mooring operations, weather limitations for operations.

Safety and Risk Management
- Recent industry incidents highlighted
- Common causes of these incidents
- ESD 1 and 2 Design Codes and Operations Alarm settings ESD Actions
- Required crew training and preparations
- Hazards and Risks moving forward
    - Geographical hazards
    - Crew factor
- Water Curtain Operations and Tests
- Theory and Potential Damages
    - Ship and shore requirements
- Preparing for the future incidents
    - Contingency planning
    - Salvage of an LNG vessel
    - Considerations for cargo recovery
    - Environmental impact
    - Technical equipment development

    - Risk profiling of your operations
    - What response is required?
- Safety Management Systems and Options Receiving terminal and charterer requirements
    - Receiving terminal parameters for acceptance
    - Voyage management considerations to achieve terminal parameters
    - Typical requirements from charterers
    - Use of Boil Off Gas (BOG), natural or forced
    - Fuel oil use and consumptions allowed
    - Restrictions on distances and voyage times
    - Case Study - Spill Responses

1000 - 1030
Coffee Break and Virtual Networking

1030 - 1130
STS and Cargo Transfer Operations
• Introduction to LNG vessel types
• Personnel transfer
• Pre- Cargo Transfer meeting
• Checklist and communications confirmation
• Custody Transfer measurement
• Emergency Shut Down tests, Shore ESD 2 and STS ESD 2 difference
• Cargo operations and monitoring
• Differences for operations between oil and LNG

1130 - 1230
CASE STUDY - STS
• Compatibility study and meeting
• OPTIMOOR study
• Simulator training and STS equipment
• Cargo discharge considerations

1230 - 1330
Networking and Luncheon

1330 - 1400
STS - Best Practices Oil and LNG comparisons
• Discuss main considerations
• Best practice any real differences between oil and gas?

1400 - 1500
Emergency Response and Contingency Planning - STS
• Things to do in case of emergency
• General Emergency Response Management
• Contingency equipment
• Oil spill and LNG leak,
• SOPEP use
• Fire or Structural damage
• Poor weather and mooring failures
• Precautions against piracy
• Media management and communications, parties involved.

1500 - 1530
Coffee Break and Virtual Networking

1530 - 1630

CASE STUDY Spill Response during Cargo STS Transfer Operations
• Immediate response and notifications
• Effects and consequences of the spill
• Contingency considerations after spill
• Investigation and Cause

1630 - 1700
Industry and Future of STS and LNG Developments
• New Technologies and Future Developments

End of Day 2

0900 - 1000
Vessel Design, Technology and Operations - STS

- Fuel systems for LNG powered Vessels
- Measures to reduce energy consumption in ship-to-ship applications
- Cut operating costs while, at the same time, reducing emissions
- Ship design efficiencies
- Technological efficiencies to reduce energy Consumption in all ship application
- Tankers and Bulker
- Containership
- RORO
- Ferries
- OSV

1000 - 1030
Coffee Break and Virtual Networking

1030 – 1130 LNG STS Failures Investigation and Root Cause Analysis - Case Study & Delegate Exercise – LNG Failure and Diagnosis, Analysis and Planning

SIMPOS – Simultaneous Operations (Transfers and Operations) during STS Operations

- Considerations when performing SIMPOS
- HAZARD and Risk when performing LNG SIMOPS
- Ship to Ship operations
- 24 Hr LNG operations
    - Where do SIMPOS operations occur?
    - Why are SIMPOS performed?

Custody Transfer Measurement and Calculations

- System setup parameters
- Sampling and Certification Custody
- LNG Quality controlled transfers – Forensic and laboratory analysis
- Quality Management systems for LNG transfer and analysis

- LNG probes, equipment and software infrastructure to ensure quality control between vendors and buyers
- Ship and Terminal LNG Quality Control
- Transfer Guidelines of Terminals Ship and surveyor roles
- Certificate of Loading
- Types of Custody Transfer Measurement
    - Liquid/Gas Quality and Management during transfers
    - Quality Management Systems for Liquid/Gas
    - Terminal and ship systems and Equipment
- Inerting
- Aerating
- (CTMs) testing and checks

Detailed analysis of Custody Transfer Procedures, Flow Metering and design for STS by system and type

- Flow measurement and custody transfer flow metering, types
- Coriolis Flow mechanisms, design, metering and performance
- Thermal Flow mechanisms, design, metering and performance
- Differential Flow mechanisms, design, metering and performance
- Ultrasonic Flow mechanisms, design, metering and performance
- Vortex Flow mechanisms, design, metering and performance
- Applications of flow meters, calibration, calculations, transfer principles Safety

Case Study - Liquid and Gas CARGO SPILLS/ESD AND RELEASES - Protocols and how the systems are used

Delegate Exercise

1130 – 1230
STS and New Bunkering developments for Marine Engineers and Tech Superintendents – Wear down, Fatigue and Failure Management Practices and planning - LNG Fuel, STS and Bunkering

- Overview of SMS & PMS
- Discuss onboard planned maintenance systems – PMS
- Discuss Trend analysis – T.A
- Analysis of Condition monitoring technical - CME
- OEM Main Engine component failures relevant to engine performance

1230 - 1330
Virtual Networking and Luncheon

1330 – 1400
Commercial and Insurance aspects of LNG Carrier General Average and how it affects all participants in the STS Shipping Industry

- What is G.A – why does it affect all participants commercially?
- G.A – LNG Carriers concerns
- G.A – LNG Charterer concerns
- G.A – LNG Facilities and Operators concerns
- G.A – LNG STS, Bunker Handlers & Bunker Operators concerns
- Commercial Contracts and the effects on all parties
- Technical nature of NG G.A
- Rights and Obligations of all participants in the event of LNG G.A

1400 - 1500
STS Safety and Planning

- SWP/JSA Delegate Exercise - HSE Health and Safety Workplace Practices SWP/JSA for end-to-end Bunkering
- Bunkering Safety and Risk Management
- LNG Risk Analysis and Job Safety Analysis – OBJECTIVES
- Technical characteristics of LNG
- Handling, storage and spill risk.
- Volatile cargo and gas vapors leak from ruptured tanks, Hoses and pipelines, causing oxygen deficiencies
- Gas Hazard Monitoring Equipment for JSA
- Adverse Weather Working – Guidelines examples for JSA
- LNG STS Approach to Installations
- LNG STS Hose construction and length
- Hose quality and identification
- The 'Golden' Safety LNG STS Rules Operations
- Confined space entry
- LNG Process and Mechanical isolations
- Electrical isolation
- Lifting Operations

1500 - 1515
Coffee Break and Virtual Networking

1515 – 1610
STS and Offshore Liquid transfer Inspections

- In Service LNG Inspections
- LNG STS Service Leak Testing
- LNG STS Hose Ops and Vessels Procedures
- COLOUR COUPLINGS INDEXES
- Operational risk profiles in Bunkering
- LNG STS Inspections and Audit – Rigging

1700 - END DAY 3 COURSE CLOSED

Note:

(1) There will be a Question and Answer throughout the duration of the sessions and after each module.