CARGO EQUIPMENT MANAGEMENT TRAINING COURSE

The SIGTTO LNG Shipping Suggested Competency Standards (3rd Edition) define 8 performance outcomes at Cargo Equipment Management level. Each performance outcome comprises

- Knowledge and understanding – acquired from 7 eLearning modules
- Levels of competence – achieved through experiential learning onboard LNG carrying vessels over a minimum of 30 days service

During the onboard training period(s)/sea service, candidates should be able to demonstrate the levels of competence listed under each performance outcome in this document. The Master or Chief Officer will verify the attainment of competence which will be attested in a company letter, to be submitted as part of the candidate's certificate application.

The Levels of Competence at the Cargo Equipment Management level follow:

1.0 Performance Outcome - Develop Familiarisation and Understanding of LNG Transportation Requirements

You should be able to do the following:

i. Identify the properties and characteristics of liquefied gases and other relevant gases and determine their impact on safety and vessel operations.
ii. Identify the regulations and guidelines, vessel designs, characteristics, propulsion systems, materials and cargo related equipment and determine their impact on cargo storage, transportation and containment.
iii. Determine specific loading and discharging features and cargo cycles and confirm individual responsibilities of those involved.
iv. Identify the ship to shore or ship to ship (STS) interface and equipment and determine any issues they might raise during vessel and cargo operations.
v. Confirm the specific vessel and cargo operations risk assessment requirements and processes for those involved.

2.0 Performance Outcome - Manage and Operate Safety Systems and Equipment

You should be able to do the following:

i. Identify the safety systems and equipment required for carriage of LNG, their parameters, operating specifications and limits and maintenance requirements.
ii. Confirm that the status of the safety systems and equipment meets operating parameters and requirements.
iii. Confirm appropriate monitoring systems and required tests for safety systems and equipment.
iv. Confirm individual responsibilities for maintaining, testing and inspecting safety systems and equipment.
v. Verify the results of maintenance, testing and inspection of safety systems and equipment and where they are not in line with required parameters, determine the relevant action and/or inform the appropriate person.
vi. Operate safety systems and equipment as required in line with regulations, procedures, guidelines and safety practice.
vii. Provide accurate and complete records.

3.0 Performance Outcome – Ensure Effectiveness of the Entire Cargo Cycle

You should be able to do the following:

i. Determine activities and own responsibilities involved in specific cargo cycle operations from plans provided and instructions received
ii. Confirm with those involved in the planned operation that they understand the responsibilities of others where relevant
iii. Prepare for and carry out operational activities in line with planned procedure, guideline, health and safety and environmental practice
iv. Operate all cargo machinery in accordance with organisational and manufacturers' guidelines and system parameters
v. Carry out and monitor checks at relevant times and critical points, and advise others, as required, to confirm correct and appropriate implementation of the operational plan
vi. Identify non-standard and emergency operating conditions from alarms and other relevant sources and take relevant action and/or inform the appropriate person in a timely and safe manner
vii. Provide feedback to relevant personnel and record appropriate information

4.0 Performance Outcome – Ensure Effectiveness of Cargo Operations Under Non-Standard and Emergency Conditions

You should be able to do the following:

i. Confirm that the type, nature and scale of the condition is correctly determined from alarms and relevant sources.
ii. Ensure the correct options are identified for how to deal with the condition safely and in a controlled manner.
iii. Ensure the risk assessments and planning for each option are carried out and that the most appropriate plan and course of action to deal with the situation is determined.
iv. Ensure that accurate and clear instructions and information are provided to relevant people to carry out the plan.
v. Ensure that the determined plan into operation in a timely and safe manner.
vi. Monitor the effects of the plan as required, and identify and ensure that appropriate adjustment are made
vii. Review the plan and operational procedures at the appropriate time and identify lessons learnt and provide feedback to relevant people and organisations

5.0 Performance Outcome – Ensure Effectiveness of Maintenance, Testing and Inspection of Cargo Equipment and Spaces

You should be able to do the following:

i. Accurately identify cargo containment operational parameters
ii. Identify the equipment required for cargo operations, its parameters, operating specifications and limits and maintenance requirements
iii. Confirm status of the equipment meets operating parameters and requirements
iv. Accurately identify the function and conditions of cargo related spaces
v. Ensure required maintenance, tests and inspections for cargo containment, cargo equipment, monitoring systems and cargo related spaces are effectively carried out
vi. Confirm individual responsibilities for maintaining, testing and inspecting cargo containment, cargo equipment and cargo related spaces

vii. Determine an appropriate course of action where problems with maintenance, testing and inspection are identified and inform the relevant personnel
viii. Ensure accurate and complete records are maintained.

6.0 Performance Outcome – Control the Operation of Gas-Burning Equipment and Associated Systems

You should be able to do the following:

i. Operate fuel gas combustion equipment and machinery within safe operating limits and defined parameters
ii. Condition the fuel gas to meet design criteria of the particular gas burning equipment with regards to delivery pressure and temperature control
iii. Identify non-standard operating conditions from alarms and other relevant sources and take the appropriate corrective action in a timely and safe manner
iv. Make adjustments to gas burning equipment as required to maintain specified voyage arrival and loading and delivery cargo conditions
v. Maintain and test, within relevant time scales, associated equipment, apparatus, alarm functions, and processes in accordance with applicable regulations, procedures, guidelines and safety practice.

7.0 Performance Outcome - Control Operation of the Propulsion Plant Under Non-Standard Conditions

You should be able to do the following:

i. Determine the type, nature and scale of the condition from alarms and relevant sources
ii. Identify the options for how to deal with the condition safely and in a controlled manner
iii. Carry out risk assessments and planning for each option and determine the most appropriate plan/course of action to deal with the situation
iv. Provide accurate and clear instructions and information to relevant people to carry out the plan
v. Put the determined plan into operation in a timely and safe manner
vi. Monitor the effects of the plan as required and identify and make adjustments according to the effect on the condition
vii. Review the plan and operational procedures at the appropriate time and identify lessons learnt and provide feedback to relevant people and organisations.

8.0 Performance Outcome - Ensure Integrity of Electrical Plant and Control Systems

You should be able to do the following:

i. Prepare a plan to maintain electrical plant and control systems and their components in accordance with established regulations, procedures, guidelines, safety practice, and environmental protection
ii. Confirm that work areas, machinery and equipment are safe for work to proceed and comply with legislative requirements, codes of practice, isolation and earthing procedures, permit to work procedures and environmental concerns
iii. Control the planned maintenance, checks and tests in accordance with established safety rules and regulations, manufacturers instructions and recognised practice
iv. Ensure the integrity of electrical equipment in hazardous areas
v. Ensure that variances from the specification, plans and schedules are correctly identified and that effective corrective action is specified
vi. Identify non-standard operating conditions from alarms and other relevant sources and take the appropriate remedial action in a timely and safe manner

vii. Ensure that the equipment or system is restored to the correct settings and specification using the appropriate repair or adjustment method
viii. Control the de-isolation procedures to vessel standards, operational requirements and specification
ix. Ensure that tests are carried out to verify that equipment and systems meet required performance after maintenance
x. or repair
xi. Ensure that documentation and records are completed accurately and to meet future requirements.