29 TANKERS AND OTHER SHIPS CARRYING BULK LIQUID CARGOES

29.1 General

29.1.1 Seafarers appointed to work on tankers or similar vessels must meet the minimum training and qualifications requirements specified in regulation V/1 of the International Conventions on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, including the 2010 Manila amendments.

S.I. 2015/782 and MSN 1866(M)

29.1.2 An assessment should be made of the risks arising from bulk liquid cargoes, using any information available, and in particular the chemical data sheets contained in the *Tanker Safety Guides* (gas and chemical) issued by the International Chamber of Shipping.

29.1.3 Training in emergency procedures and the use of any special emergency equipment should be given, as appropriate, to members of the crew at regular intervals. The instruction should include personal first-aid measures for dealing with accidental contact with harmful substances in the cargo being carried and with inhalation of dangerous gases and fumes.

IMO EmS Guide and IMO Medical First Aid Guide (MFAG)

29.1.4 Owing to the risks of ill effects arising from contamination by certain liquid cargoes, especially those carried in chemical tankers and gas carriers, seafarers should maintain very high standards of personal cleanliness, particularly so when they have been engaged in cargo handling and tank cleaning.

29.1.5 Seafarers on board responsible for the safe loading and carriage of the cargo should have all the relevant information about its nature and character before it is loaded and about the precautions that need to be observed during the voyage, and they should also be trained in handling procedures. Other seafarers should be advised of any precautions that they too should observe.

29.1.6 Rules restricting smoking and the carriage of matches or cigarette lighters and electronic devices should be strictly observed.

29.1.7 Spillages and leakages of cargo should be attended to promptly. Oil-soaked rags should not be discarded carelessly where they may be a fire hazard or possibly ignite spontaneously. Other combustible rubbish should not be allowed to accumulate.

29.1.8 Cargo-handling equipment, testing instruments, automatic and other alarm systems should be maintained to a very high standard of efficiency at all times. Where electrical equipment is to be used in the cargo area, it should be of approved design and 'certified safe'. The safety of this equipment depends on proper maintenance, which should be carried out only by competent persons. Unauthorised persons should not interfere with such equipment. Any faults observed, such as loose or missing fastenings or covers, corrosion and cracked or broken lamp glasses, should be reported immediately.

29.1.9 Work that might cause sparking or that involves heat should not be undertaken unless authorised after the work area has been tested and found gas-free, or its safety is otherwise assured.

29.1.10 Where any dangerous (enclosed) space has to be entered, the precautions given in Chapter 15, Entering dangerous (enclosed) spaces, should be strictly observed. Dangerous gases may be released or leak from adjoining spaces while work is in progress, and frequent testing of the atmosphere should be undertaken. Permit to work procedures should generally be adopted.

S.I. 1988/1638

29.2 Oil and bulk ore/oil carriers

29.2.1 Tankers and other ships carrying petroleum or petroleum products in bulk are at risk from fire or explosion arising from ignition of vapours from the cargo, which may in some circumstances penetrate into any part of the ship.

29.2.2 Additionally, vapours may be toxic, some in low concentrations, and some liquid products are harmful in contact with the skin.

29.2.3 Guidance on the general precautions that should be taken is given in the publication, *International Safety Guide for Oil Tankers and Terminals* (ISGOTT), published by the International Chamber of Shipping, Oil Companies International Marine Forum and the International Association of Ports and Harbours. Companies are additionally required, under

the ISM Code, to have their own documented safety procedures. These publications and detailed procedures should be available on board and the guidance conscientiously followed.

S.I. 1998/1561

29.3 Liquefied gas carriers

29.3.1 Guidance on the general precautions that should be taken on these vessels is given in the *Tanker Safety Guide (Liquefied Gas)* published by the International Chamber of Shipping. The International Maritime Organization (IMO) Codes for the International Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC) contain guidance on operational procedures.

S.I. 1994/2464

29.3.2 It should be noted that cargo pipes, valves and connections, and any point of leakage of the gas cargo, may be intensely cold. Contact with these may cause severe cold burns.

29.3.3 Pressure should be carefully reduced and the liquid cargo drained from any point of the cargo transfer system, including discharge lines, before any opening up or disconnecting is begun.

29.3.4 Some cargoes such as ammonia have a very pungent, suffocating odour and very small quantities may cause eye irritation and disorientation together with chemical burns. Seafarers should take this into account when moving about the vessel, and especially when climbing ladders and gangways. The means of access to the vessel should be such that the cargo can be closely supervised and sited as far away from the manifold area as possible. Seafarers should be aware of the location of eyewash equipment and safety showers.

29.4 Chemical carriers

29.4.1 A bulk chemical tanker may be dedicated to the carriage of one or a small number of products or it may be constructed with a large number of cargo tanks in which numerous products are carried simultaneously side by side.

29.4.2 The products carried range from the so-called non-hazardous to those that are extremely flammable, toxic or corrosive, or have a combination of these properties, or that possess other hazardous characteristics.

29.4.3 The ship arrangements and the equipment for cargo handling may be complex and require a high standard of maintenance and the use of special instrumentation, protective clothing and breathing apparatus for entry into dangerous spaces.

29.4.4 IMO has produced codes (International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) and Interpretations of the IMO Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code)) for the construction and equipment of ships carrying dangerous chemicals in bulk. The codes are statutory under merchant shipping regulations. Ships carrying cargoes in bulk that are listed in the IBC Code must display for the information of all on board any data necessary for the safe carriage of the cargo, including action to be taken in the event of spills and leaks, countermeasures against accidental personal contact, and firefighting procedures and firefighting media.

S.I. 1996/3010

29.4.5 All seafarers should be trained in the use of relevant personal protective equipment and have basic training in emergency procedures. Guidance on general operational procedures and precautions that should be followed on chemical tankers is given in the *Tanker Safety Guide (Chemicals)* published by the International Chamber of Shipping. This publication, together with the codes referred to earlier and any special safety requirements issued by the Company, should be available on board.

29.4.6 Many products carried on chemical tankers are loosely referred to as alcohols. Drinking these could lead to serious injury and death, and strict controls should be exercised when carrying such cargoes in order to prevent pilfering.

30 PORT TOWAGE INDUSTRY

30.1 General

30.1.1 This section covers seafarers engaged on tugs that are involved in towage operations within port/harbour limits and provides general guidance on safety. Where other documents or sections of this Code apply, these are referenced and should be read in conjunction with this chapter.

30.1.2 Before beginning towing operations, a comprehensive plan should be prepared, taking account of all relevant factors, including sea state, visibility and the findings of the risk assessment.

30.2 Watertight integrity

30.2.1 The watertight integrity of a tug should be maintained at all times. When the tug is engaged on any towage operation, all watertight openings should be securely fastened. The tug crew should avoid working below the waterline at this time.

30.2.2 All watertight openings should be marked with a sign stating that they are to remain closed during towage operations. Any such openings used whilst moving about the tug during a towage operation should be re-secured immediately after use. Signs should conform with Chapter 9, Safety signs, of this Code.

30.3 Testing and inspection of towing equipment

30.3.1 Towing hooks and alarm bells, where fitted, should be inspected daily.

30.3.2 The emergency-release mechanisms on towing hooks and winches should be tested, both locally and where fitted remotely, at frequent intervals to ensure correct operation.

30.3.3 All towing equipment in use should be inspected for damage before undertaking and after completing a tow.

30.4 Connecting and disconnecting the towing gear

30.4.1 Before commencing a tow, the master should determine which towing gear is suitable for the operation and instruct the crew accordingly.

30.4.2 When receiving heavy lines, the tug crew should be aware of the risk of injury through being struck by a ‘monkey’s fist’ or other weighted object attached to a line. They should stand clear of and where possible indicate the area that the heaving line is to be thrown down to. The use of dangerously weighted heaving lines should be reported.

30.4.3 When connecting to the assisted vessel, the tug crew should ensure that the towing gear is clear of any obstructions, able to run freely and is run out from the tug in a controlled manner.

30.4.4 During disconnection, seafarers on deck should be aware of the risk of injury if the towing gear is released by the assisted ship in an uncontrolled manner, and avoid standing directly below. They should also be aware that any towing gear that has been released and is still outboard may 'foul' on the tug's propeller(s), steelworks or fendering, causing it to come tight unexpectedly.

30.5 Use of bridle/gog rope during towing operations

30.5.1 A suitable bridle or gog/gob rope or wire should be used in circumstances where the towline is likely to reach such an angle that a 'girting' situation may arise.

30.6 Seafarer safety during towing operations

30.6.1 Once the towing gear is connected, the deck crew should indicate this to the master and then clear the area and, if it is absolutely necessary to remain on deck, seafarers should stand in a safe position. If seafarers are required to attend the towing gears during the towing operation, the length of time exposed should be kept to the absolute minimum.

30.6.2 During towage operations, the towing gear, equipment and personnel should be continuously monitored and any change in circumstances immediately relayed to the master. This is particularly important on tugs where the master has a restricted view of those areas/personnel.

30.6.3 During all towing operations, where a tug is made fast to the assisted ship, the crew should be aware that the towing gear may have to be released in an emergency situation, and that this may occur without any warning.

30.6.4 Tug crews should wear appropriate personal protective equipment (see Chapter 8, Personal protective equipment).

30.7 Communications

30.7.1 Prior to undertaking the tow, effective means of communication must be established between the tug and the master (or pilot) of the assisted ship and relevant information (e.g. speed during connection) should be exchanged. Secondary/alternative means of communication, where possible, should also be agreed.

30.7.2 Internal communications are equally important and the tug master should ensure that the crew are aware of the intended operation, including any special circumstances or

instructions. An effective means of communication should be established between the master and crew before the operation begins and maintained throughout.

30.8 Interaction

30.8.1 Interaction and its effects on a tug and its handling are well known and appreciated in port/harbour towage. Masters and crew are reminded that these effects increase with speed. Marine guidance note MGN 199(M) provides guidance on the effects of interaction.

MGN 199(M)

30.8.2 In areas where interaction exists, and when manoeuvring alongside a ship, the master should be aware of the possibility of underwater obstructions, such as bulbous bows and stabiliser fins, and areas of the ship's sides, such as pilot doors, which are to be avoided. The use of bow/stern thrusters and azimuth propulsion systems by the ship may present a hazard to the tug.

30.8.3 When in close proximity to or coming alongside an assisted ship, the crew should be aware of interaction and the effect it may have on the tug. This may take the form of sudden movement or contact and result in loss of balance or movement of equipment and other objects.

30.9 Escorting

30.9.1 Escorting as a regular operation is common within the port towage industry. It should only be carried out after investigating the suitability of the tug for the operation and agreeing a plan. This type of operation is carried out in both passive and active modes: passive when running free in close attendance and active when fast to the tow.

30.9.2 If active escort is being undertaken, the form of towage can be direct or indirect, depending on the speed of the tow. When fast to the tow, masters should be aware that increased loads can be applied to towing gear, especially when operating in the indirect mode.