Resolution A.712(17)

Adopted on 6 November 1991
(Agenda item 10)

RECOMMENDED STANDARDS OF SPECIALIZED TRAINING, QUALIFICATIONS AND CERTIFICATION OF KEY PERSONNEL ASSIGNED RESPONSIBILITY FOR ESSENTIAL MARINE FUNCTIONS ON MOBILE OFFSHORE UNITS (MOUs)

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO Assembly resolution A.538(13) concerning maritime safety training of personnel on mobile offshore units,

CONSIDERING the number of casualties involving mobile offshore units and the need to avoid similar occurrences,

RECOGNIZING that the application of conventions such as the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, may not be appropriate in respect of all mobile offshore units,

BEING OF THE OPINION that standards of training, qualifications and certification of key personnel will enhance safety and facilitate the international movement of mobile offshore units,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its fifty-eighth session,

1. ADOPTS the Recommended Standards of Specialized Training, Qualifications and Certification of Key Personnel Assigned Responsibility for Essential Marine Functions on Mobile Offshore Units (MOUs), set out in the annex to the present resolution;

2. URGES Governments to consider implementing the Recommended Standards as soon as practicable and issuing certificates or other appropriate documents to personnel who are qualified and have successfully completed the specialized training set out in the annex to the present resolution.

Annex

RECOMMENDED STANDARDS OF SPECIALIZED TRAINING, QUALIFICATIONS AND CERTIFICATION OF KEY PERSONNEL ASSIGNED RESPONSIBILITY FOR ESSENTIAL MARINE FUNCTIONS ON MOBILE OFFSHORE UNITS (MOUs)

1 INTRODUCTION

1.1 This recommendation provides guidance on the specialized training, qualification and certification arrangements that should be established by Administrations to ensure that responsibility for essential marine functions on board mobile offshore units (MOUs) is assigned to competent personnel.

1.2 Although this recommendation states that responsibility for certain essential marine functions on MOUs should be assigned to specific personnel, Administrations, in developing their own systems of training, qualifications and certification for key MOU personnel, need not directly link to any specific posts each of the functions prescribed herein provided the system developed by each Administration ensures that the key personnel of each MOU, when their skills are grouped together on the MOU, are capable of performing all the essential functions listed in this recommendation. Administrations should specify an adequate number of key MOU personnel who should be on board, and the certificates which they should hold, bearing in mind the system of training, qualification, certification and assignment of functions developed by the Administration.

1.3 The provisions of this recommendation are without prejudice to any rights of the coastal State under international law to impose its own additional requirements relating to training, qualifications and certification of key personnel on board units engaged, or intending to engage, in the exploration for or exploitation of the natural resources of those parts of the sea-bed and subsoil over which that State is entitled to exercise sovereign rights.

2 TERMS AND DEFINITIONS

2.1 For the purpose of this recommendation, the terms used have the meanings defined hereunder:

.1 *Offshore installation manager (OIM)* means a competent person appointed in writing by the owner as the person in charge and who has complete and ultimate command of the unit.

.2 *Barge supervisor* means a person who may provide support to the OIM in certain essential marine matters. The barge supervisor on some MOUs may also be referred to as the stability section leader or barge master.

.3 *Ballast control operator* means the person assigned responsibility for the normal day-to-day control of trim, draught and stability.

.4 *Maintenance supervisor* means the person assigned responsibility for the inspection, operation and testing, as required, of all machinery and equipment as specified by the owner of the MOU. The maintenance supervisor on some MOUs may also be referred to as the chief engineer, technical section leader or rig mechanic.

.5 *Mobile offshore units (MOUs)* mean vessels which can be readily relocated and can perform an industrial function involving offshore operations other than those traditionally provided by ships covered by chapter I of the 1974 SOLAS Convention. Such MOUs include at least the following:

.5.1 *Self-propelled unit:* a unit certified to navigate independently;

.5.2 *Non-self-propelled unit:* a unit not certified to navigate independently;

.5.3 *Surface unit:* a unit with a ship- or barge- type displacement hull of single- or multiple-hull construction intended for operation in the floating condition;

.5.4 *Self-elevating unit:* a unit with movable legs capable of raising its hull above the surface of the sea;

.5.5 *Column-stabilized unit:* a unit with the main deck connected to the underwater hull or footings by columns or caissons;

.5.6 *Submersible unit:* a unit with a ship shape, barge-type or novel hull design (other than a self-elevating unit) intended for operation while bottom bearing;

.5.7 *Mobile offshore units* do not include vessels such as:

- supply vessels;
- standby vessels;
- anchor handling vessels;
- seismic vessels; and
- ship-shape monohull diving support vessels.

.6 *Mobile offshore drilling unit* means a unit capable of engaging in drilling operations for the exploration for or exploitation of resources beneath the sea-bed such as liquid or gaseous hydrocarbons, sulphur or salt.

.7 *Mobile offshore accommodation unit* means a unit, the primary purpose of which is to accommodate personnel working offshore.

.8 *Drillship* means a ship shape monohull surface mobile offshore drilling unit.

.9 Other mobile offshore unit means a unit which may be involved in any single activity or combination of activities such as:

- construction;
- maintenance (including the maintenance of wells);
- lifting operations;
- pipe laying;
- emergency preparedness/contingency including fire fighting;
- units used for single well offshore production systems; and
- diving.

.10 *Mode of operation* means a condition or manner in which a unit may operate or function while on location or in transit. The modes of operation of a unit include the following:

.10.1 *Operating conditions:* conditions wherein a unit is on location for the purpose of conducting operations, including drilling and production activities, and combined environmental and operational loadings are within the appropriate design limits established for such operations. The unit may be either afloat or supported on the sea-bed, as applicable.

.10.2 *Severe storm conditions:* conditions wherein a unit may be subjected to the most severe environmental loadings for which the unit is designed. The operations are assumed to have been discontinued due to the severity of the environmental loading. The unit may be either afloat or supported on the sea-bed, as applicable.

.10.3 *Transit conditions:* conditions wherein a unit is moving from one geographical location to another.

3 SPECIALIZED TRAINING AND QUALIFICATIONS OF MOU KEY PERSONNEL

3.1 General

Every MOU should have sufficient key persons on board possessing the knowledge, qualifications, skills and experience necessary to ensure the safe operation of the unit. It is recognized that the nature of MOUs and their operations necessitate the consideration of specialized training and

qualifications. The Administration should determine the adequacy of the knowledge, qualifications, skills and experience of the personnel assigned the responsibility for essential marine functions, on the basis of the design, type, size and operating parameters of each MOU. Administrations are invited to consider the essential functions listed below in determining the necessary knowledge, qualifications, skills and experience for key personnel.

3.2 Offshore installation manager

3.2.1 The essential marine functions for which the OIM is responsible, and the related knowledge and qualifications required, will depend on the type of unit and its mode of operation.

3.2.2 Subject to the more precise indications given in the table below, which relates the knowledge and training requirements to particular types of MOU, it is considered necessary, for the proper discharge of the essential marine functions assigned to the OIM, for him to have knowledge and experience of the following matters:

.1 *Stability and construction*

.1.1 The general principles of MOU construction.

.1.2 The static and dynamic stability of MOUs; theory and factors affecting trim and stability; measures to preserve safe trim and stability, including sufficient knowledge of stability calculations and the use of stability booklets; also the relationship with the regulatory requirements in respect of the stability curves for the operating and survival conditions taking into account the effect of environmental conditions prevailing.

.1.3 The effect on the trim and stability of a MOU in the event of damage to, and consequent flooding of, any compartment; counter-measures to be taken. Knowledge of the principle and importance of maintaining the watertight integrity of the MOU; procedures for maintaining watertight integrity.

.1.4 Loading supplies and ballasting in order to keep the unit stresses within acceptable limits.

.1.5 Principal structural members of a MOU and required periodical inspections. Basic knowledge of the effects of welding. Effects of corrosion on the structure.

.1.6 The effect of the MOU's mooring system on stability.

.1.7 Preloading and leg reaction stresses on self-elevating units.

.2 *Station keeping, mooring and dynamic positioning*

.2.1 Sea-bed composition and characteristics.

.2.2 Behaviour of mooring systems and force distribution including the effect of environmental conditions.

.2.3 Consequences of failure of the mooring system.

.2.4 Anchor placement and recovery, and working with anchor handling vessels.

.2.5 The principles of the dynamic positioning system including capabilities and limitations of thrusters, power systems and maximum allowable position offsets.

.3 *Transit operations*

.3.1 The 1972 Collision Regulations, as amended.

.3.2 Navigation and electronic navigational aids appropriate to the type of unit.

.3.3 Towing procedures including recovery of tow.

.4 *Emergency procedures and safety equipment*

.4.1 Life-saving and fire-fighting procedures, including drills.

.4.2 Maintenance and inspection of life-saving and fire-fighting appliances in accordance with the regulatory requirements.

.4.3 Communication procedures in emergencies.

.4.4 Precautions to be taken before the onset of heavy weather.

.4.5 Evacuation procedures.

.5 *Personnel transfers*

.5.1 Precautions to be taken during transfer of personnel.

.5.2 Use of the personnel basket.

.5.3 Helicopter transfers.

.5.4 Vessel transfers.

.6 *Handling and stowage of supplies, including dangerous goods*

.6.1 Safe handling, stowage and care of equipment, supplies and dangerous goods.

.6.2 Cranes and lifting equipment and inspections.

.6.3 Procedures for loading and discharge of helicopters and supply vessels.

.7 *Pollution prevention and control*

.7.1 Pollution prevention systems and equipment.

.7.2 Pollution control procedures.

.8 *Meteorology*

.8.1 The characteristics of various weather systems.

.8.2 Ability to apply available meteorological information to ensure safety of the MOU and, upon request, supply other vessels or aircraft with information.

.8.3 Sources of meteorological information.

.8.4 The effects of weather on the environmental limits of the MOU.

.9 *Safe working practices*

.9.1 Occupational safety, health and hygiene.

.9.2 Hazardous areas.

.9.3 Permits to work.

.9.4 Work over water.

.9.5 Work in enclosed spaces.

.9.6 Personnel training.

.9.7 Understanding of organization and communication.

.9.8 Understanding and inspection of safety equipment.

.10 *Regulatory and certification requirements*
Appreciation of international and national regulations and recommendations affecting operations.

.11 *Industrial operations as they relate to maritime safety*
Appreciation of the interrelationship between marine operations and specific industrial activities including, where appropriate, the following:

.11.1 Drilling and maintenance, where appropriate, of wells.

.11.2 Construction and offshore maintenance and repair.

.11.3 Production.

.11.4 Accommodation support.

.11.5 Lifting operations.

.11.6 Pipe laying.

.11.7 Diving.

.11.8 Fire-fighting support.

Table - *Knowledge and training requirements for different types of MOU*

Knowledge/ experience listed in 3.2.2	Type of MOU						
	Drillship	Self-propelled		Non self-propelled		Bottom-bearing	
		Column-stabilized unit	Other	Column-stabilized unit	Other	Submersible	Self-elevated unit
.1.1	X	X	X	X	X	X	X
.1.2	X	X	X	X	3	2	2
.1.3	X	X	X	X	X	2	2
.1.4	X	X	X	X	X	X	X
.1.5	X	X	X	X	X	X	X
.1.6	X[1]	X[1]	X[1]		X	X	
.1.7							X
.2.1	X	X	X	X	X	X	X
.2.2	X[1]	X[1]	X[1]		X	X	
.2.3	X[1]	X[1]	X[1]		X	X	
.2.4	X	X	X	X	X	X	X
.2.5	X	X	X				
.3.1	X	X	X	X[3]	3	2,3	2,3
.3.2	X	X	X	X[3]	3	2,3	2,3
.3.3	X	X	X	X	X	2	2
.4 to .11	X	X	X	X	X	X	X

[1] except for units in dynamic positioning mode.
[2] bottom-bearing units whilst afloat.
[3] depends on unit type and circumstances of operation (to be determined by the Administration).

3.3 Barge supervisor

Knowledge and experience of the following matters is considered necessary for the proper discharge of the essential marine functions assigned to the barge supervisor:

.1 *Stability*
The stability concepts specified for the ballast control operator plus a period of service in that capacity.

.2 *Construction*
Principles of construction, structural members, watertight integrity and damage control.

.3 *Emergency duties*
Responsibilities set forth in the emergency plan or operating manual relating to the safety of the unit.

.4 *Communications*
Communication procedures for normal operations and in an emergency.

.5 *Safe working practices*

.5.1 Occupational safety, health and hygiene.

.5.2 Hazardous areas.

.5.3 Permits to work.

.5.4 Work over water.

.5.5 Work in enclosed spaces.

.5.6 Personnel training.

.5.7 Understanding and inspection of the safety equipment.

.6 *Regulatory requirements*
International and national regulations and recommendations affecting operations.

.7 *Emergency first aid*
Provision of first aid to a casualty pending transfer to a medical facility.

.8 *Transit operations*

.8.1 Application of the 1972 Collision Regulations, as amended.

.8.2 Navigation and electronic navigational aids appropriate to the type of unit.

.8.3 Towing procedures including recovery of tow.

.9 *Seamanship*

.9.1 Heavy weather.

.9.2 Store and bulk liquid transfer.

.9.3 Manoeuvring and positioning.

.9.4 Anchor handling.

.9.5 Dynamic positioning, if applicable.

3.4 Ballast control operator

Knowledge and experience of the following matters is considered necessary for the proper discharge of the essential marine functions assigned to the ballast control operator on column-stabilized units.

3.4.1 *Basic stability*

.1 Understanding of general terms, i.e. displacement, draught, trim, heel, freeboard, buoyancy, reserve buoyancy, etc.

.2 Understanding of centre of gravity, centre of buoyancy, position of metacentre, righting lever and its effect on transverse stability.

.3 Stable, unstable and neutral equilibrium.

.4 Theory of moments as applied to stability including the effects of heavy lifts and movement of same.

.5 Effect of adding, removing, shifting weight. Calculation of vertical, transverse and longitudinal shift of centre of gravity.

.6 Understanding of the inclining experiment report and its use.

.7 Effect of free surface on stability and factors affecting same.

.8 General understanding of change of trim, trimming moments, longitudinal metacentre and longitudinal stability.

.9 Use of hydrostatic curves, deadweight scale and hydrostatic tables.

.10 Use of cross curves to produce a curve of statical stability and information from curve.

.11 Dynamical stability; synchronous rolling and angle of loll; stability criteria for MOUs.

.12 Effect of anchor system on stability.

.13 Daily loading calculations.

3.4.2 *Application of stability knowledge*

The following should include the relevant theory and calculations:

.1 Deck loads and effect on stability - change in lightweight.

.2 Examination of ballasting systems and procedures.

.3 Response to systems failures including station-keeping systems, damage to structures and subsequent action.

.4 Damage control procedure, watertight compartments counter-flooding, use of pumping systems and cross-connections.

.5 Environmental conditions and their effect on stability.

.6 Vessel and environmental limitations and criteria for changing to survival condition.

.7 Zones of reduced stability, precautions to take, unsymmetrical ballasting/de-ballasting and importance of sequence with regard to stress.

.8 Theory of calculations carried out on daily loading sheet, variations in chain deployed and effect on vertical moment.

.9 Emergency procedures.

3.4.3 *Supplementary training*

Having successfully completed the formal training, as indicated above, no individual should work in a ballast control room without the supervision of a competent person for a period of time to enable him to become fully conversant with the ballasting systems of that installation. Before being left in sole charge and being required to react alone in the event of an emergency, the individual should receive experience of simulated emergency situations.

3.5 Maintenance supervisor

3.5.1 On self-propelled MOUs the person assigned responsibility for the operation and maintenance of the main propulsion and auxiliary machinery should meet the appropriate knowledge requirements of chapter III of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978.

3.5.2 On non-self-propelled MOUs, the person assigned responsibility for the operation and maintenance of the power plant and auxiliary machinery should have knowledge and experience of the following:

.1 Operation and maintenance of diesel engines.

.2 Operation and maintenance of auxiliary machinery including pumping and piping systems, associated control systems and, if appropriate, jacking systems.

.3 Detection of machinery malfunction, location of faults to prevent or minimize damage.

.4 Maintenance and repair problems.

.5 Operation and maintenance of systems for fire prevention, detection and extinction.

.6 Safe working practices.

.7 Maintenance of survival craft launching appliances.

.8 Pollution prevention procedures.