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# National Occupational Standards for FPSO/FSUs

## Marine Operations: Common





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## GLOSSARY

**Angle of Loll** - An angle of Loll is where a vessel initially has unstable equilibrium, where G (Centre of Gravity) is above M (Metacentric Height). The resulting angle of heel causes G to drop below M again, this angle that the vessel is heeled to and settled at is known as the Angle of Loll.

**Ballast Tank** - Any tank which is used to contain Seawater in order to assist with raising or lowering the draft of the vessel and maintaining stability.

**Bending Moment** - The Bending Moment at a point is the algebraic sum of the moments of the forces to one side of the point considered. A bending moment above the neutral axis will be positive and below the neutral axis will be negative.

**Bilge** - The space at the bottom of the vessel which collects spills and leaks for a compartment e.g. Pumproom or Engine room Bilges

**Bunker System** - The pipework and tanks on a ship / vessel used to transport fuel onto and around the vessel.

**Confined/Controlled Space Entry** - Any space that requires a control measure to be put in place to allow safe entry. This is normally a Confined Space Entry Permit (e.g. **restricted space** – machinery space; **enclosed space** – ballast tank).

**Deck Operator** - A person who is utilised to monitor, operate or control equipment externally on the Process or Marine Decks of a vessel/FPSO/FSU.

**Free Surface Effect** - Free Surface Effect is defined as a virtual loss of GM. When an external force heels a vessel, the liquid in the vessel is free to move also. The liquid will move to the low side of the vessel causing G to move off the centreline. The result is that the GZ (righting moment) of the vessel is reduced from what it would be if the liquid were not free to move **and** the effect is that the vessel will have a smaller GM than is actually the case.

**Field Operations** - Any operation that occurs within the extremities of the Installation 500m Zone; includes surface, subsea and airborne operations.

**Heavy Weather** - Conditions which are outwith Installation accepted 'Norms' for continued safe operations, includes Wind, Sea Swell conditions.

**Heel** - A ship / vessel is said to be heeled when she is inclined by an external force, e.g. when inclined by the action of wind or waves.

**Hogging** - A vessel is HOGGED if too much weight is loaded at either end causing the amidships draught to be less than the fwd and aft draughts

**List** - A ship / vessel is said to be listed when she is inclined by forces within the ship / vessel, e.g. when a weight is moved transversely within the ship.

**Marine Systems** - Any system which requires a Marine Operator to have input into controlling the input or output of the system.

**Offload Station** - The area of the Installation or vessel where cargo is exported/offloaded to another facility e.g. Offtake Tanker.

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**Sagging** - A vessel is SAGGED if too much weight is loaded in the middle causing the amidships draught to exceed the fwd and aft draughts

**Shear Force** - The Shear Force at a point is the algebraic sum of the forces acting to one side of the point considered. A shear force above the neutral axis is considered positive and below the neutral axis is considered negative.

**Stability** - The subject of maintaining a vessel afloat in a safe condition

**Stiff Ship** - A stiff ship is where she has a large righting moment at small angles of heel. An example is when a vessel has a large GM caused by too much cargo loaded low down in the vessel (double bottom ballast tanks).

**Synoptic Chart** - A chart of an area of operation that has an overlay of the weather patterns that have developed or are developing in the area. Used to predict / forecast the expected weather in a specific location.

**Tender Ship** - A tender ship is where she has a small righting moment at small angles of heel. An example of this is when a vessel has a small GM caused by loading cargo high up in the vessel (timber deck cargo or too much process deck added to a conventional tanker)

**Tensile Loading** - Any external load applied to a material in such a way as to cause an extension of the material, results in Tensile Loading.

**Validate** - To confirm or corroborate

**Verify** - To check or determine correctness

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## ABBREVIATIONS

IGS	Inert Gas System
ESD	Emergency Shut Down
HASAWA	Health and Safety at Work Act
COSHH	Control of Substances Hazardous to Health
GPS	Global Positioning System
UTM	Universal Transverse Mercator
ARPA	Automatic Radar Plotting Aid
TPC	Tonnes Per Centimetre
MCTC	Moment to Change Trim by one Centimetre
KG	Height of Centre of Gravity (G) Above Keel
KM	Height of Metacentre above Keel
LCB	Longitudinal Centre Buoyancy
C of G	Centre of Gravity
RVP	Reid Vapour Pressure
BSW	Base Sediment and Water
FS (effect)	Free Surface Effect
P & IDs	Piping and Instrument Drawings
FFA	Fire Fighting Appliances
LSA	Life Saving Appliances
CCTV	Closed Circuit Television
HCS	Heading Control System
H & S	Health and Safety
P & ID	Process and Instrument Diagrams
GM	Metacentric Height

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### **Unit MOC37 : Conform to the Statutory, General Health and Safety Requirements for FPSO/FSUs**

This unit is concerned with ensuring that FPSO/FSU Marine Operators conform to the Statutory, General Health and Safety Requirements for FPSO/FSUs.

This unit consists of one element:

#### **37.1 Conform to Statutory and General Health and Safety Requirements**

**During this work you must take account of the relevant installation, operational requirements, procedures and safe working practices AS THEY APPLY TO YOU**

In achieving this you will have demonstrated that you have successfully met all of the required Standards of Performance and that you have all the knowledge and understanding which underpins the achievement of those Standards of Performance. This ensures that you can do the work, understand the work and so can react appropriately to any contingency which falls within your responsibility.

#### **Unit Guidance**

#### ***Competence Requirements***

**To fully demonstrate your competence you must safely/effectively contribute, as relevant to your responsibilities, to the following situations::**

- **individual operation**
- **team operation**
- **consideration of toxic substances**
- **maintaining continuous communication**
- **reacting to on-site emergencies**

**All activities which the FPSO/FSU Marine Operator is required to carry out, either on his own or with assistance, are to be assessed.**

Where you do not have the opportunity to cover all aspects of the Standards of Performance in the workplace, you may be permitted to supplement your demonstration of competence by a realistic simulation and questioning.

**Underpinning Knowledge and Understanding** : refer to Appendix 1.

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**Element MOC37.1** CONFORM TO STATUTORY AND GENERAL HEALTH AND SAFETY REQUIREMENTS

This element is about conforming to the statutory (e.g. HASAWA and COSHH) and general (organisational) H & S requirements

**Standards of Performance:**

In achieving this element, you will have:

1. located and referenced Local Operating Instructions and safety related procedures
2. correctly selected and used the relevant PPE
3. correctly used fire protection, first aid and survival equipment
4. effectively participated in installation drills and exercises

**Knowledge Specification: (see also Unit Guidance)**

Within the limits of your responsibility you must be able to demonstrate that you know:

- how to obtain and interpret information
- the Local Operating Instructions, safety related procedures (e.g. Safety Procedures, Operating Instructions, Routine Duties, Emergency, Fire, Evacuation Procedures) and your responsibilities
- the effects of weather and sea conditions (e.g. heavy weather, heavy seas, adverse weather, normal weather)

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### **Unit MOC38 : Monitor and Maintain the Health and Safety of Personnel on FPSO/FSUs**

This unit is concerned with ensuring that FPSO/FSU Marine Operators monitor and maintain the Health and Safety of individuals, other workers and visitors on FPSO/FSUs.

This unit consists of one element:

38.1 Monitor and Maintain the Health and Safety of Individuals, other Workers and Visitors.

**During this work you must take account of the relevant installation, operational requirements, procedures and safe working practices AS THEY APPLY TO YOU**

In achieving this you will have demonstrated that you have successfully met all of the required Standards of Performance and that you have all the knowledge and understanding which underpins the achievement of those Standards of Performance. This ensures that you can do the work, understand the work and so can react appropriately to any contingency which falls within your responsibility.

#### **Unit Guidance**

##### ***Competence Requirements***

**To fully demonstrate your competence you safely/effectively contribute, as relevant to your responsibilities, to the following situations:**

- **individual operation**
- **team operation**
- **consideration of toxic substances**
- **maintaining continuous communication**
- **reacting to on-site emergencies**

**All activities which the FPSO/FSU Marine Operator is required to carry out, either on his own or with assistance, are to be assessed.**

Where you do not have the opportunity to cover all aspects of the Standards of Performance in the workplace, you may be permitted to supplement your demonstration of competence by a realistic simulation and questioning.

**Underpinning Knowledge and Understanding** : refer to Appendix 1.

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**Element MOC38.1**      MONITOR AND MAINTAIN THE HEALTH AND SAFETY OF INDIVIDUALS,  
OTHER WORKERS AND VISITORS

This element is about monitoring and maintaining the H & S of individuals, other workers and visitors.

**Standards of Performance:**

In achieving this element, you will have:

1. ensured that the area within your personal responsibility is maintained clean and hazard free
2. initiated the correct response for all alarms (e.g. fire, gas, personal injury)
3. ensured effective communications with relevant personnel
4. participate actively in meetings and briefings

**Knowledge Specification: (see also Unit Guidance)**

Within the limits of your responsibility you must be able to demonstrate that you know:

- how to implement good Housekeeping practices throughout
- the responses necessary for all alarms
- how to establish/maintain effective fixed/mobile communications with relevant internal/external personnel during normal operations and in response to public address announcements (i.e. pressure testing, radiography, heavy lifting, weather conditions)

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### **Unit MOC39 : Monitor and Maintain FPSO/FSU Environmental Control Measures**

This unit is concerned with ensuring that FPSO/FSU Marine Operators **monitor and maintain** FPSO/FSU Environmental Control Measures.

This unit consists of one element:

#### 38.1 Monitor and Maintain Environmental Control Measures

**During this work you must take account of the relevant installation, operational requirements, procedures and safe working practices AS THEY APPLY TO YOU**

In achieving this you will have demonstrated that you have successfully met all of the required Standards of Performance and that you have all the knowledge and understanding which underpins the achievement of those Standards of Performance. This ensures that you can do the work, understand the work and so can react appropriately to any contingency which falls within your responsibility.

#### **Unit Guidance**

##### ***Competence Requirements***

**To fully demonstrate your competence you must safely/effectively contribute as relevant to your responsibilities to the following situations:**

- **individual operation**
- **team operation**
- **consideration of toxic substances**
- **maintaining continuous communication**
- **reacting to on-site emergencies**

**All activities which the FPSO/FSU Marine Operator is required to carry out, either on his own or with assistance, are to be assessed.**

Where you do not have the opportunity to cover all aspects of the Standards of Performance in the workplace, you may be permitted to supplement your demonstration of competence by a realistic simulation and questioning.

**Underpinning Knowledge and Understanding** : refer to Appendix 1.

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## **Element MOC39.1**      MONITOR AND MAINTAIN ENVIRONMENTAL CONTROL MEASURES

This element is about monitoring and maintaining environmental control measures

### **Standards of Performance:**

In achieving this element, you will have:

1. observed all procedures/work instructions
2. reported and contained (if possible) leaks, losses and spillages
3. ensured correct disposal of solids and liquid wastes
4. supported actively the relevant waste management programmes

### **Knowledge Specification: (see also Unit Guidance)**

Within the limits of your responsibility you must be able to demonstrate that you know:

- how to interpret procedures/work instructions (e.g. Safety Procedures, Operating Instructions, Routine Duties, Emergency Procedures)
- loss of containment practices (e.g. sources and effects on drain systems, oily water separation systems, crude oil washing precautions, cargo handling precautions, hose/pipe inspections)
- the waste management programmes (e.g. dry waste, garbage, obsolete equipment and stores)

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## Appendix 1

### Underpinning Knowledge and Understanding

**Within the limits of your responsibility you must be able to demonstrate that you know:**

- how to select, use and care for PPE (to include sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implication of statutory (e.g. HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (e.g. relevant policies, procedures instructions, codes of practice, standards, schedules, duties) including station bill and emergency procedures
- the location and identity of all relevant equipment
- how to conduct full handovers between shifts and maintain continuity
- how to put in place all appropriate safety measures and adhere to all required safety practices
- how to carry out positive reporting of instructional actions, tasks, safety measures and checks in full
- the function and operation of the Fire and Gas system
- how to manually initiate deluge systems, halon or other appropriate systems
- the geography of the installation
- the procedures and methods for safety shutting down systems
- the function and operation of the facilities on the installation