IMCA M117 - Defining the roles of key DP personnel.
How far can simulation go?

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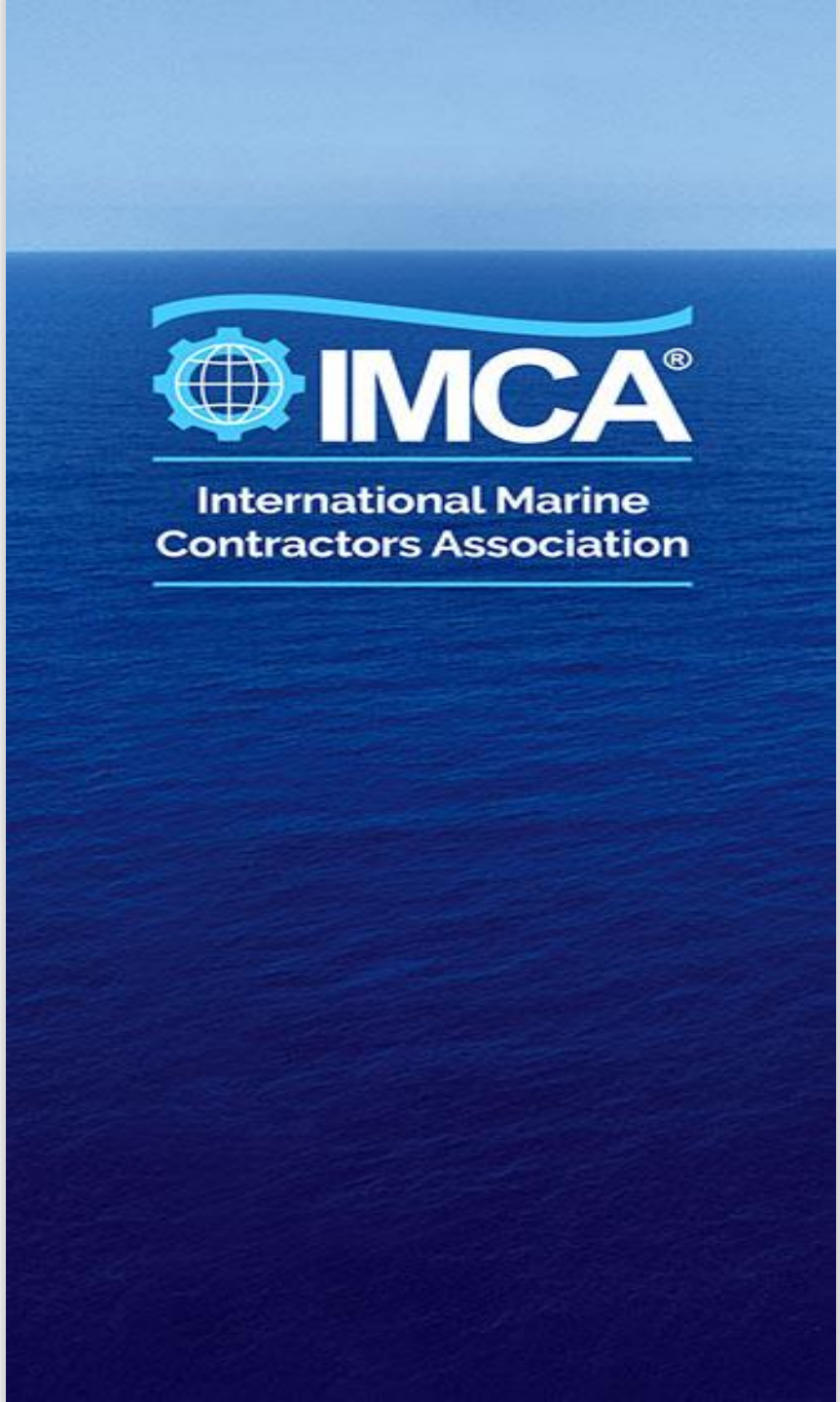


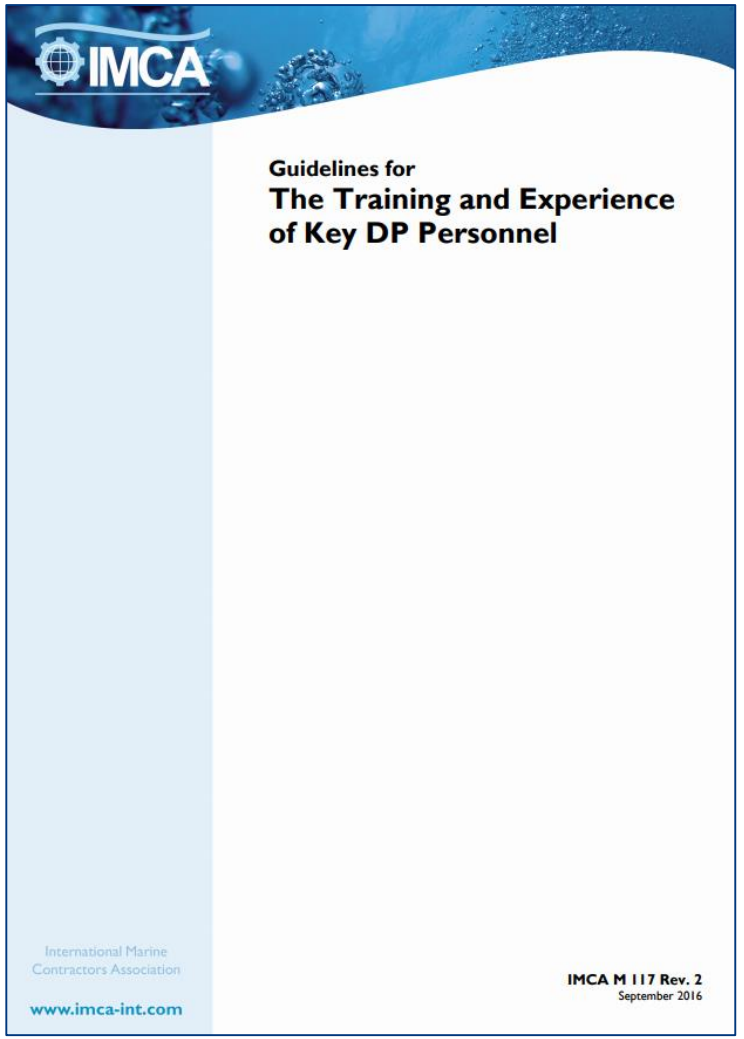
TOPICS TO COVER

1. History M117
2. Principle revision objectives
    1. Identify key personnel (Chapter 5)
    2. Provide for more than one DPO scheme
    3. Encourage training of technical crew
    4. Introduce the concept of CPD (Chapter 10)
3. Experience (Chapter 8)
4. Learning from others
5. The use of simulation
    1. Ashore
    2. Onboard
    3. During drills

HISTORY AND REASON FOR REVISION

- First published
  - January 1996
- First revision
  - February 2006
- Second revision
  - September 2016

- New Chapter 5 identifying key DP personnel
- Does not focus on just the NI DPO training scheme
- More emphasis on technical crew
- Introduces CPD



Known throughout the DP industry as M117

THE PURPOSE OF M117

SECTION 4 AIM

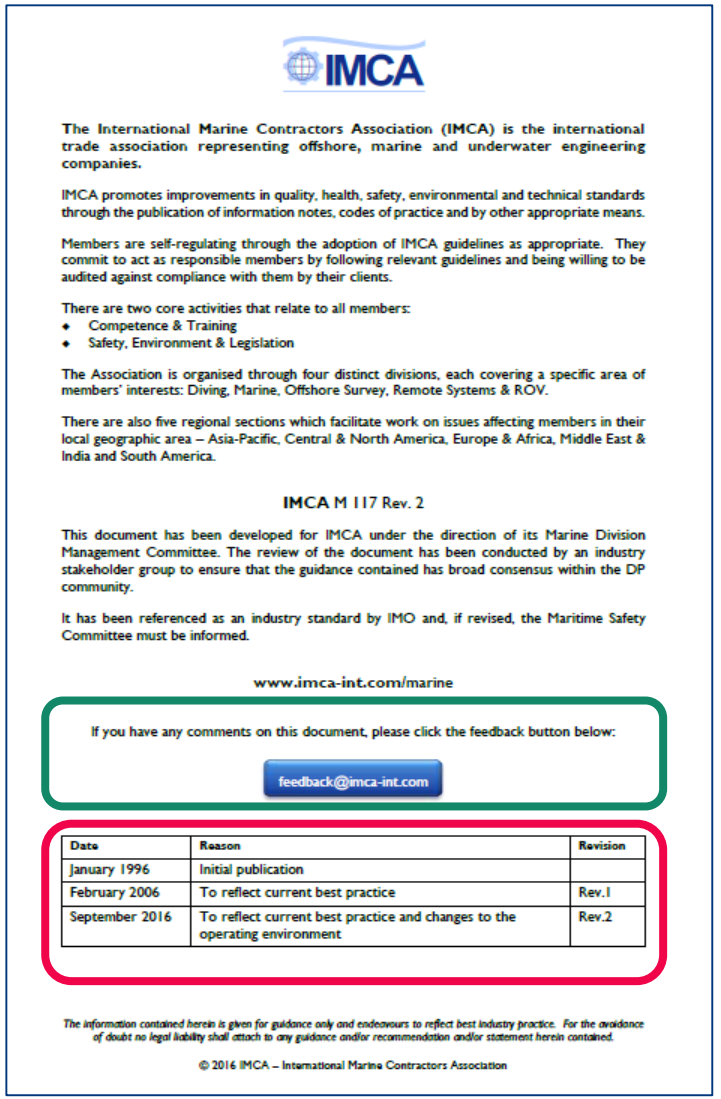
- Define **minimum industry guidelines** for:
  - training, qualification and competence of key DP personnel;
  - developing and sustaining competence

- Recognised by IMO
  - **MSC/Circ. 738/Rev.2** (June 2017)

  - **Footnote referencing MSC/Circ.738/Rev.2** within section B-V/f of the STCW Code (June 2017)

AN INDUSTRY DOCUMENT

- Feedback button added
  - Industry feedback is encouraged
- Revision record added
- Planned review periods by DP Subject Matter Experts



IMCA

The International Marine Contractors Association (IMCA) is the international trade association representing offshore, marine and underwater engineering companies.

IMCA promotes improvements in quality, health, safety, environmental and technical standards through the publication of information notes, codes of practice and by other appropriate means.

Members are self-regulating through the adoption of IMCA guidelines as appropriate. They commit to act as responsible members by following relevant guidelines and being willing to be audited against compliance with them by their clients.

There are two core activities that relate to all members:
- Competence & Training
- Safety, Environment & Legislation

The Association is organised through four distinct divisions, each covering a specific area of members' interests: Diving, Marine, Offshore Survey, Remote Systems & ROV.

There are also five regional sections which facilitate work on issues affecting members in their local geographic area – Asia-Pacific, Central & North America, Europe & Africa, Middle East & India and South America.

IMCA M 117 Rev. 2

This document has been developed for IMCA under the direction of its Marine Division Management Committee. The review of the document has been conducted by an industry stakeholder group to ensure that the guidance contained has broad consensus within the DP community.

It has been referenced as an industry standard by IMO and, if revised, the Maritime Safety Committee must be informed.

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If you have any comments on this document, please click the feedback button below:

feedback@imca-int.com

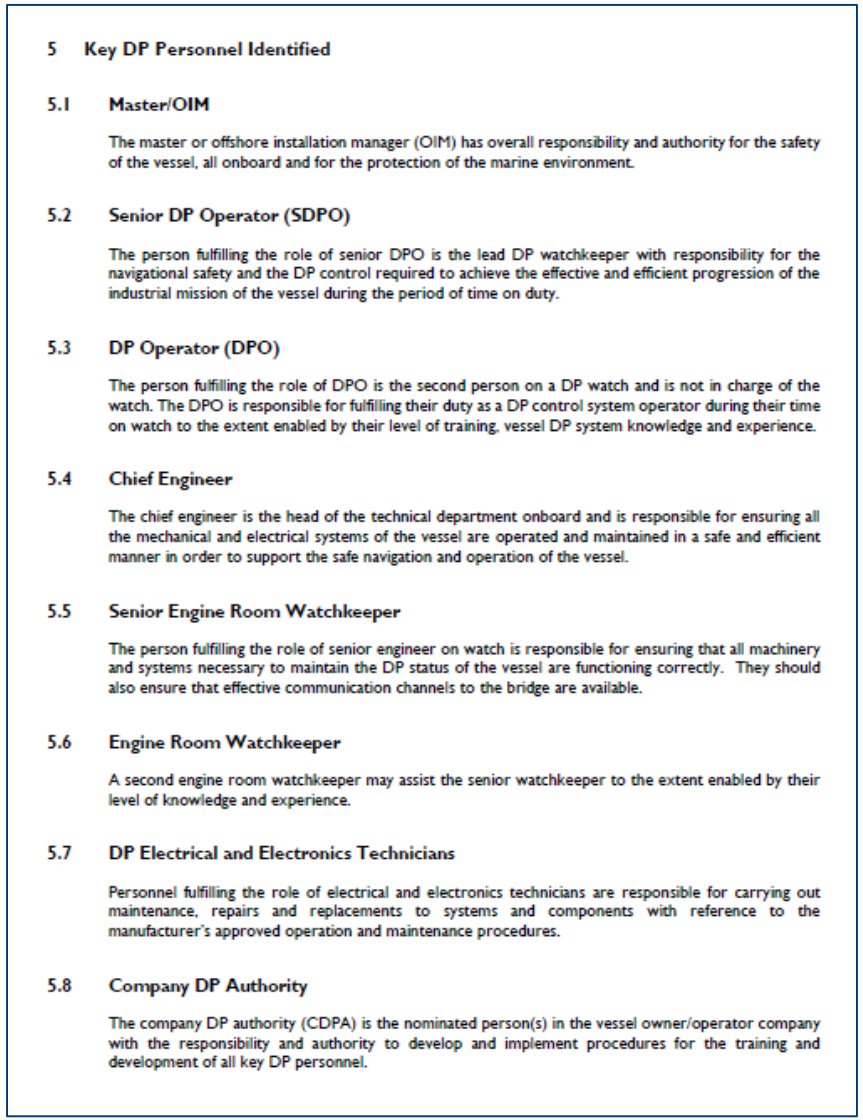
Date	Reason	Revision
January 1996	Initial publication	
February 2006	To reflect current best practice	Rev.1
September 2016	To reflect current best practice and changes to the operating environment	Rev.2

The information contained herein is given for guidance only and endeavours to reflect best industry practice. For the avoidance of doubt no legal liability shall attach to any guidance and/or recommendation and/or statement herein contained.

WHO ARE KEY DP PERSONNEL?

SECTION 5 KEY DP PERSONNEL IDENTIFIED

- **Senior DP Operator (SDPO)**
  - lead DP watchkeeper with **responsibility** for the navigational safety and the DP control
- **DP Electrical and Electronics Technicians**
  - Personnel fulfilling the **role** of electrical and electronics technicians so could be C/E, superintendent etc.
- **Company DP Authority**
  - nominated person(s) with **responsibility** to develop and implement the training and development of all key DP personnel.



5 Key DP Personnel Identified

5.1 Master/OIM

The master or offshore installation manager (OIM) has overall responsibility and authority for the safety of the vessel, all onboard and for the protection of the marine environment.

5.2 Senior DP Operator (SDPO)

The person fulfilling the role of senior DPO is the lead DP watchkeeper with responsibility for the navigational safety and the DP control required to achieve the effective and efficient progression of the industrial mission of the vessel during the period of time on duty.

5.3 DP Operator (DPO)

The person fulfilling the role of DPO is the second person on a DP watch and is not in charge of the watch. The DPO is responsible for fulfilling their duty as a DP control system operator during their time on watch to the extent enabled by their level of training, vessel DP system knowledge and experience.

5.4 Chief Engineer

The chief engineer is the head of the technical department onboard and is responsible for ensuring all the mechanical and electrical systems of the vessel are operated and maintained in a safe and efficient manner in order to support the safe navigation and operation of the vessel.

5.5 Senior Engine Room Watchkeeper

The person fulfilling the role of senior engineer on watch is responsible for ensuring that all machinery and systems necessary to maintain the DP status of the vessel are functioning correctly. They should also ensure that effective communication channels to the bridge are available.

5.6 Engine Room Watchkeeper

A second engine room watchkeeper may assist the senior watchkeeper to the extent enabled by their level of knowledge and experience.

5.7 DP Electrical and Electronics Technicians

Personnel fulfilling the role of electrical and electronics technicians are responsible for carrying out maintenance, repairs and replacements to systems and components with reference to the manufacturer's approved operation and maintenance procedures.

5.8 Company DP Authority

The company DP authority (CDPA) is the nominated person(s) in the vessel owner/operator company with the responsibility and authority to develop and implement procedures for the training and development of all key DP personnel.

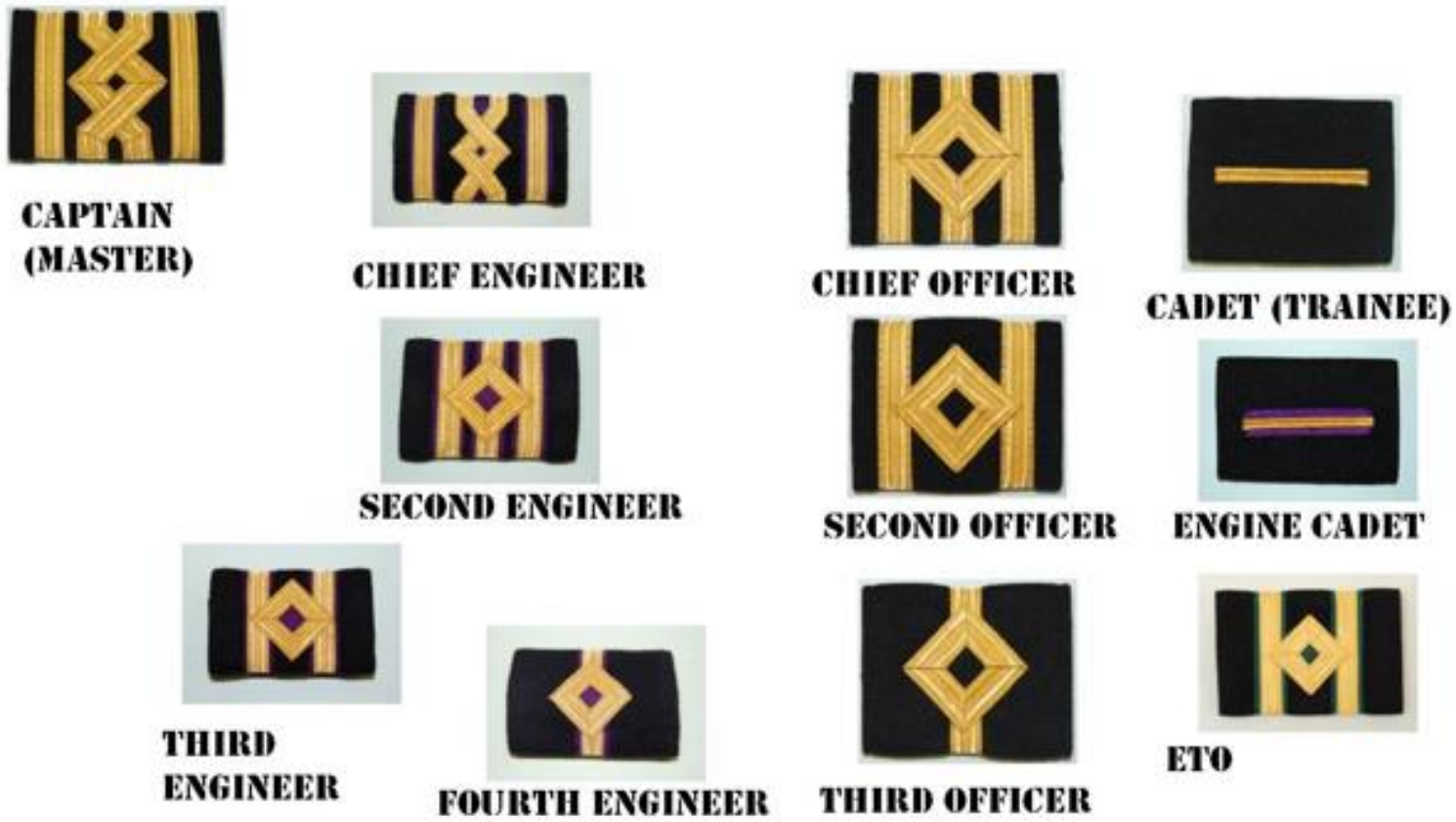
TRAINING REQUIREMENTS

SECTION 6 DP TRAINING

- 6.1 Types of Training
  - shore-based including use of **simulator** systems
  - onboard DP **simulator** specific to the operations
  - onboard training as operations permit under supervision
  - onboard instruction and continuation training
  - equipment manufacturers' training - ashore and onboard
  - seminars with open discussions on vessel operations
  - refresher courses, both theory and **simulator**
  - computer (including web) based training

TRAINING REQUIREMENTS

SECTION 6 DP TRAINING



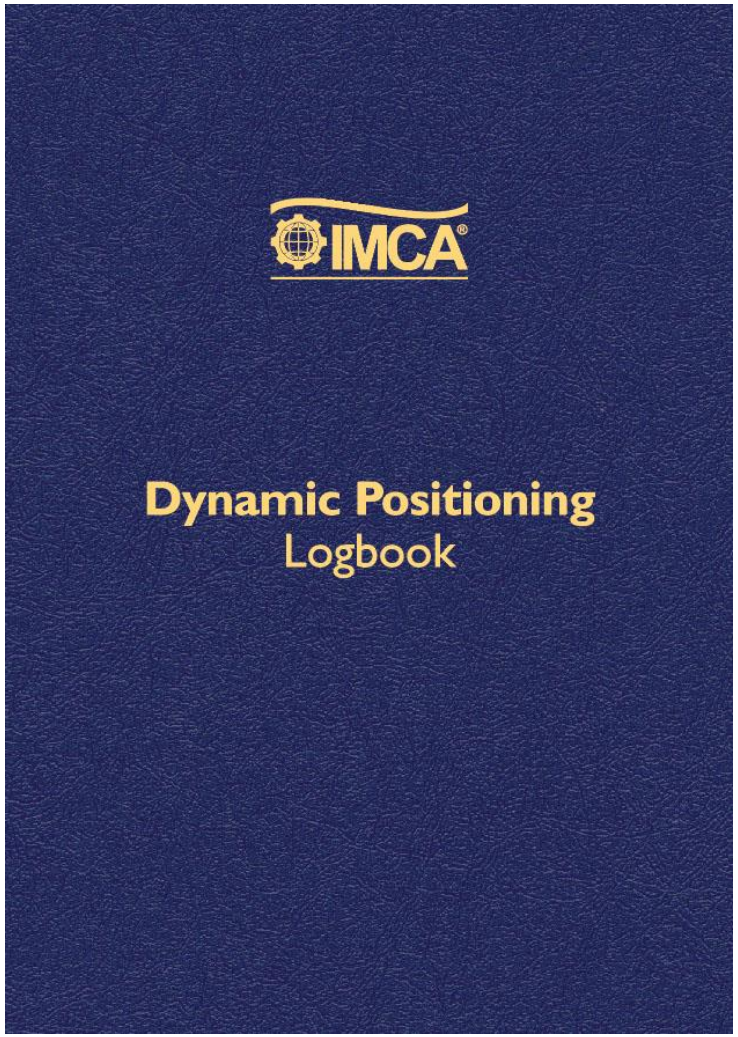
Trainers are to be suitably qualified and experienced

– therefore senior DP personnel should be trained to deliver effective training and mentoring

TRAINING REQUIREMENTS

SECTION 6 DP TRAINING

- 6.2 Training Records
- 6.3 Training Courses & Certification for DPO Personnel
  - recognises there are now **more than one DPO certification** process available
- 6.4 Training Courses for Key Technical DP Personnel
  - good **technical knowledge**
  - understand the **industrial mission** of the vessel
- 6.5 Training Courses for **Other Personnel** Involved in DP Operations
  - encourages others to understand DP operations



SECTION 7 QUALIFICATION & KNOWLEDGE REQUIREMENTS

- 7.1 Master/OIM

- 7.2 Senior DPO (SDPO)

(**The person fulfilling the role**)

- 7.3 DPO

(**The person fulfilling the role**)

  - Certificated DPO
  - Junior DPO

SECTION 7 QUALIFICATION & KNOWLEDGE REQUIREMENTS

- 7.4 Chief Engineer

- 7.5 Senior Engine Room Watchkeeper

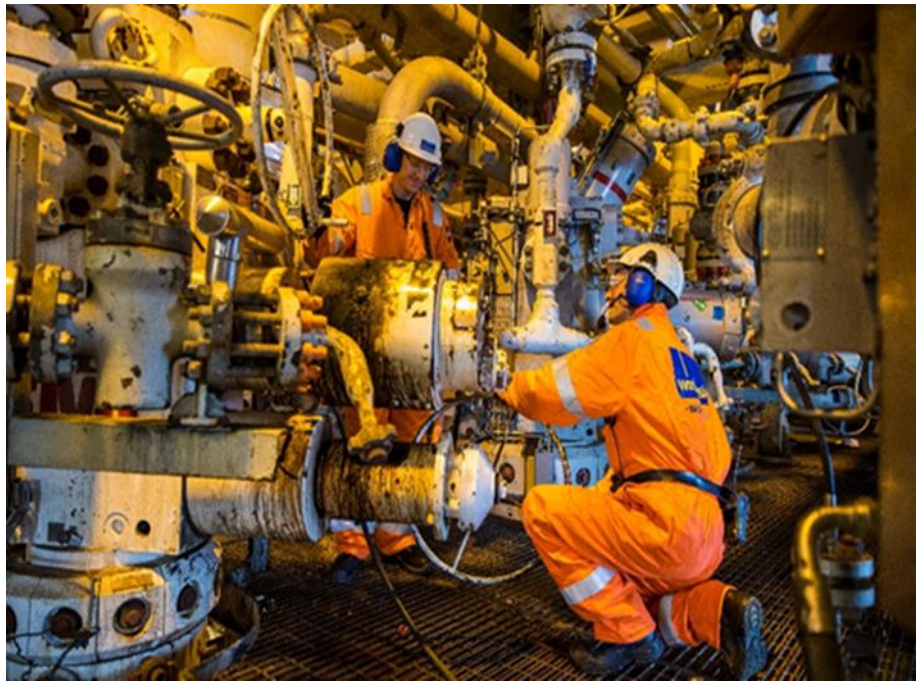
(**The person fulfilling the role**)

- 7.6 Engine Room Watchkeeper

- 7.7 Electrical & Electronics Technician

(**The person fulfilling the role**)

  - Electronics Technician
  - Electrical Technician



SECTION 7 QUALIFICATION & KNOWLEDGE REQUIREMENTS

- 7.8 **Company DP Authority**

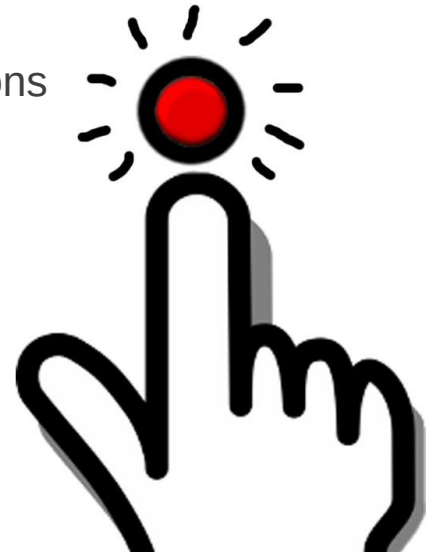
- Within the office
  - A person that understands and takes responsibility for monitoring key DP personnel

If you press the wrong button its game over

FAMILIARISATION

SECTION 9 VESSEL & INDUSTRIAL MISSION FAMILIARISATION

- 9.1 Procedure
  - 9.1.1 All Personnel
    - job descriptions;
    - restricted practices;
    - instruction on controlled documents;
    - reporting forms;
    - personnel management system;
    - familiarisation of client procedures;
    - the importance of good, clear and early communications
  - 9.1.2 DP Operators
  - 9.1.3 DP Technical Personnel
- 9.2 **Current Project Familiarisation**



SECTION 10 CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

- 10.1 CPD **Definition**

CPD is the systematic maintenance, improvement and broadening of knowledge, understanding, personal qualities and skills throughout the individual's working life.

Typical CPD activities include:

- attending training courses
- work-based learning
- acting as a mentor or instructor
- distance learning and private study
- writing DP related industry papers
- attending lectures, seminars or conferences
- preparation and delivery of lectures and presentations

EXPANDING AND MAINTAINING KNOWLEDGE

SECTION 10 CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

- 10.2 DP **Competency** and CPD
  - Continuous regular performance of DP operations
  - Regular training and practice of DP skills
  - Mentoring
  - Regular performance assessments and setting of objectives

- 10.3 DP **Refresher Training**
  - operational conditions and circumstances change
  - performance assessment indicates a need for re-training
  - when a vessel spends prolonged periods in one location

- 10.4 **Maintaining** Personal Performance
  - the individual's DP experience;
  - the operational requirements of the DP vessel;
  - the vessel specific DP system

AN EXPERIENCED CREW

Definition of Competency - IMCA

"The combination of appropriate training, current skills, knowledge, and experience so that a person consistently applies them to perform tasks safely and effectively"

AN EXPERIENCED CREW

SECTION 8 RECOMMENDED VESSEL EXPERIENCE

- 8.1 Recommended minimum experience on an established DP operational vessel

- 8.2 Recommended minimum experience on a new or unfamiliar DP vessel

Simulators can assist

"The time may be reduced if a DP control system simulator is available, particularly if it enables virtual operational experience to be gained"

- 8.3 Minimum period of familiarisation on a familiar vessel

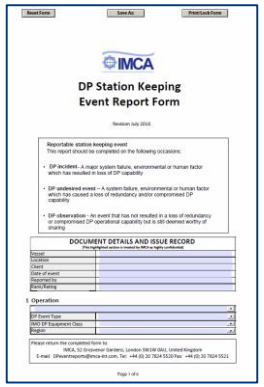
When a vessel changes operators, or is deployed in a new area, it may be difficult to crew the complete vessel with fully experienced DP personnel.

LEARNING FROM OTHERS

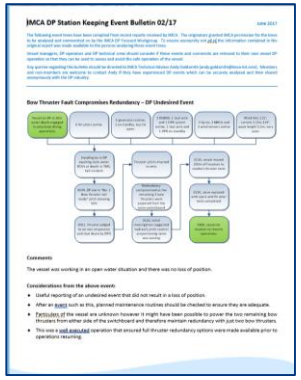
THE IMCA DP STATION KEEPING REPORTING SCHEME

- Administered by the IMCA Marine DP Committee

- A new DP reporting form introduced in 2016



- Provides industry with recent DP related lessons learnt



- Annual review of DP events
- includes spreadsheet for on board analysis

IMCA DP incident Code #	Initiating Event	Main Cause	Secondary Cause	Comments	Could this happen on your vessel?	What if any additional safe guards need to be taken	Is this covered in the vessel FMEA	Recommendations to improve vessel, DP procedures, FMEA and DP drills
1601	Change of vessel centre of rotation from centre of the vessel to the OAS location on the port stern	Computer – DP software malfunction		Prior to future operations the vessel was set up on DP on three separate occasions with the centre of rotation as the OAS and on each occasion the DP system reacted as expected and satisfactorily				
1602	After a period of five hours with no wind sensor selected a wind sensor was re-enabled to the DP	Computer – Buffer was full due to extensive wind difference alarms		Concern was expressed regarding the mathematical model and how it can be affected when no wind sensor information is received, especially after an extended period of time. Following this event, the master's standing orders were updated to include the following statement; "when wind sensors have been disabled for a period of time the vessel must be in a safe area when they are re-enabled to the DP desk"				
1603	Failure of diesel generator	Power – Diesel Generator No. 3 stopped due to a faulty valve		With only one generator feeding each side of the bus bar when the generator tripped it caused a loss of power to that side of the bus bar. This caused 4 thrusters to become unavailable for DP and the vessel maintained position with the two remaining thrusters. The blackout recovery system functioned as designed and the four thrusters that tripped were restarted. The vessel maintained position within one meter throughout.				
	Failure of mode selector Remote Control Unit (RCU) B	Computer – Failure of mode selector RCU A & B	Human error – failure to understand and act on the	A DP alarm indicating a fault with mode selector RCU A was generated the day before this event. This alarm indicated				

THE USE OF SIMULATION

AN AID TOWARDS EXPERIENCE

- Vessel familiarisation
- Project familiarisation
- Specific training
  - DPO certification
  - DP technical crew
- Emergency drills
- Project planning
  - How to do the impossible
  - Confidence to tackle the unknown

THE USE OF SIMULATION

CAN SIMULATION PROVIDE THE EVERYDAY EXPERIENCE I GAINED BY SUCH ACTIVITIES AS TANK CLEANING?

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