



[Return to Session Menu](#)

**DYNAMIC POSITIONING CONFERENCE**  
**October 15-16, 2013**

**QUALITY ASSURANCE SESSION**

**IMO Guidelines for Vessels with  
Dynamic Positioning Systems**

**Ian C. Giddings**

***IMCA***



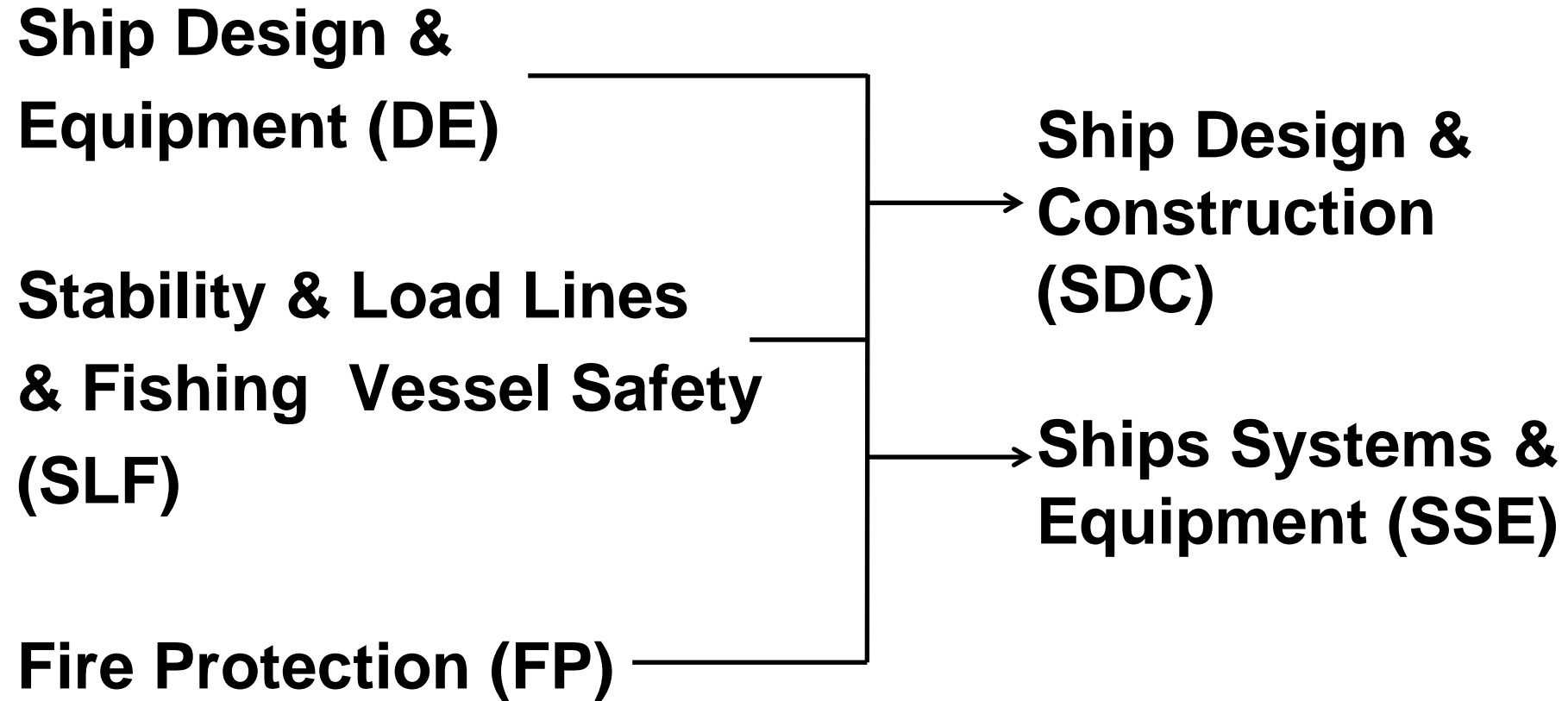
# IMO Guidelines for Vessels with Dynamic Positioning Systems

Ian C. Giddings

Technical Adviser – Marine, IMCA

- **Introduction**
- **IMO**
- **MSC/Circ.645**
- **Issues arising**
- **FSVAD**
- **Equipment**
- **Human factors**
- **Conclusion**

# IMO sub-committees



**INTERNATIONAL MARITIME ORGANIZATION**

4 ALBERT EMBANKMENT  
LONDON SE1 7SR

Telephone: 071-735 7611  
Telegrams: INTERMAR-LONDON SE1  
Telex: 23588  
Telefax: 071-587 3210



MSC/Circ.645  
6 June 1994

Ref. T4/3.03

**GUIDELINES FOR VESSELS WITH DYNAMIC POSITIONING SYSTEMS**

- 1 The Maritime Safety Committee at its sixty-third session (16 to 25 May 1994), approved the Guidelines for Vessels with Dynamic Positioning Systems, set out at annex to the present circular, as prepared by the Sub-Committee on Ship Design and Equipment at its thirty-seventh session.
- 2 Member Governments are invited to bring the Guidelines to the attention of all bodies concerned, and apply the Guidelines to new vessels with dynamic positioning systems constructed on or after 1 July 1994, in conjunction with implementation of the provisions of paragraph 4.12 of the 1989 MODU Code as amended by resolution MSC.38(63).
- 3 Member Governments are also invited to use the proposed model form of flag State verification and acceptance document set out in the appendix to the Guidelines.

\*\*\*

**A lot has changed in the nearly  
20 years since this document  
was issued...**

**...if it isn't broke don't fix it.**



## WORK PROGRAMME

### Proposed amendments to the Guidelines for vessels with dynamic positioning (DP) systems (MSC/Circ.645)

Submitted by the United States, IADC and IMCA

#### SUMMARY

*Executive summary:* This document proposes an unplanned output for the Sub-Committee on Ship Design and Equipment (DE) that would amend the Guidelines for vessels with dynamic positioning (DP) systems (MSC/Circ. 645) in order to reflect advances in technology and operations since the publication of the circular in 1994

*Strategic direction:* 5.2

*High-level action:* 5.2.1

*Planned output:* No related provisions

*Action to be taken:* Paragraph 17

*Related documents:* MSC/Circ.645 and resolution A.1023(26)

#### Introduction

1 This document proposes an unplanned output to amend technical and operational Guidelines contained in MSC/Circ.645.

2 The proposal conforms to the Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC-MEPC.1/Circ.4).

#### IMO's objectives

3 The proposal falls under the scope of Strategic Direction 5.2 (Enhancing technical, operational and safety management standards) and High-level Action Plan item 5.2.1.

4 MSC/Circ.645 (the Circular) was published on 1 July 1994. Because of the potential catastrophic consequences of failure of DP systems on these vessels, the present Guidelines should be updated to address the current technology employed on modern vessels that are growing in size and operating in deeper waters.

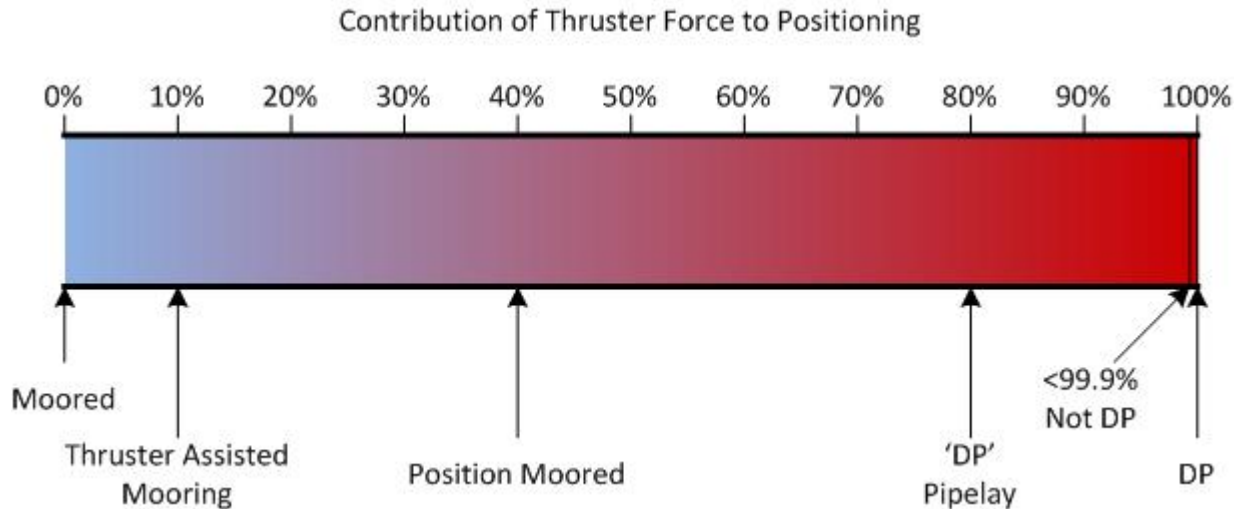
**Revise the guidelines  
for vessels with DP  
systems incorporating  
improved guidance  
available in multiple  
industry guidance  
documents**

**The document is guidance and  
as such open to interpretation.**



**“Dynamically positioned vessel (DP-vessel) means a unit or a vessel which automatically maintains its position (fixed location or predetermined track) exclusively by means of thruster force.”**

- Automatic Position Mooring (Posmoor)
- Thruster Assisted Mooring System (TAMS)



**“Redundancy means the ability of a component or system to maintain or restore its function when a single failure has occurred.**

**Redundancy can be achieved for instance by installation of multiple components, systems or alternative means of performing a function.”**

**“For equipment classes 2 and 3, at least three position references systems should be installed and simultaneously available to the DP-control system during operations”**

**“When two or more position reference systems are required, they should not all be of the same type, but based on different principles and suitable for the operating conditions.”**

## References in the document

**“5.2.7 Control of a DP-vessel holding a valid FSVAD should be carried out according to the principles of 1.7 in the MODU Code 1989”**

**Now superseded by MODU Code 2009 but no difference in 1.7**



**“Flag State Verification and Acceptance Document (FSVAD) should be issued, after survey and testing in accordance with these guidelines, either by officers of the Administration or an organization duly authorised by it”**

**DP equipment class**

## DP CLASSES

DP class notation												
IMO equipment class	ABS	BV	CCS	DNV		GL	IRS	KR	LR	NK	RINA	RS
	American Bureau of Shipping (USA)	Bureau Veritas (France)	China Classification Society (China)	Det Norske Veritas (Norway)		Germanischer Lloyd (Germany)	Indian Register of Shipping (India)	Korean Register of Shipping (Korea)	Lloyds Register (UK)	Nippon Kaiji Kyokai (Japan)	Registro Italiano Navale (Italy)	Russian Maritime Register of Shipping (Russia)
	DPS-0	DYNAPOS SAM		DYNAPOS AUTS	DPS 0				DP (CM)		DYNAPOS SAM	
Class 1	DPS-1	DYNAPOS AM/AT	DP-1	DYNAPOS AUT	DPS 1	DP 1	DP(1)	DPS (1)	DP (AM)	Class A DP	DYNAPOS AM/AT	DYNPOS-1
Class 2	DPS-2	DYNAPOS AM/AT R	DP-2	DYNAPOS AUTR	DPS 2	DP 2	DP(2)	DPS (2)	DP (AA)	Class B DP	DYNAPOS AM/AT R	DYNPOS-2
Class 3	DPS-3	DYNAPOS AM/AT RS	DP-3	DYNAPOS AUTRO	DPS 3	DP 3	DP(3)	DPS (3)	DP (AAA)	Class C DP	DYNAPOS AM/AT RS	DYNPOS-3

Note: The equivalent to IMO DP class is approximate only because of differences between the various classifications and the allowance for class societies to allow exemptions etc.



- **“For vessels which are fitted with a dynamic positioning system with centralizes manual position control and automatic heading control to maintain the position and heading under the specified maximum environmental conditions.”**

## *Rolls Royce*

- **3 operator stations on main bridge**
- **4 main DP control cabinets, powered by individual UPS**
- **3 main DP controllers running in triple redundant configuration**
- **4 sensor groups with sufficient distribution of sensors and position reference systems**
- **Extended network redundancy**
- **Thruster interface cabinets with output voting**

## North Sea Giant

- K-Pos DP-21
- K-Pos DP-11 BU
- K-Pos DP-11/cJoy
- ***“Extremely high redundancy based on low loss concept diesel electric system”***



- **Data communication networks**
- **Data logger**
- **Voyage data recorder**
- **Unified bridge**
- **Operator station designation**

# Not explicitly mentioned



- **FMEA**
- **Capability plots**
- **Ergonomics**
- **Terminology**

- **Two thirds of DPOs have less than 2 years experience**
- **Training and experience of DPOs is captured in STCW**
- **But not assessment and certification**
- **Also not for this document**

- **IMO**
- **IMCA**
- **MTS**
- **GOMO**
- **USCG**
- **and others**

**Thank you**



**Any questions, comments or thoughts?**

**Ian C. Giddings**

**Technical Adviser – Marine, IMCA**

**[Ian.Giddings@imca-int.com](mailto:Ian.Giddings@imca-int.com)**

**[www.imca-int.com](http://www.imca-int.com)**