



International Marine Contractors Association

Annual Dynamic Positioning Trials for Dynamically Positioned Vessels

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Many vessel owner/operators operate a vessel assurance system in which is contained a range of relevant vessel specific documents and manuals including annual DP trials report.

1994 - IMO MSC Circular 645 –
*Guidelines for Vessels with Dynamic
Positioning Systems* (Also issued as
IMCA 113 IMO)

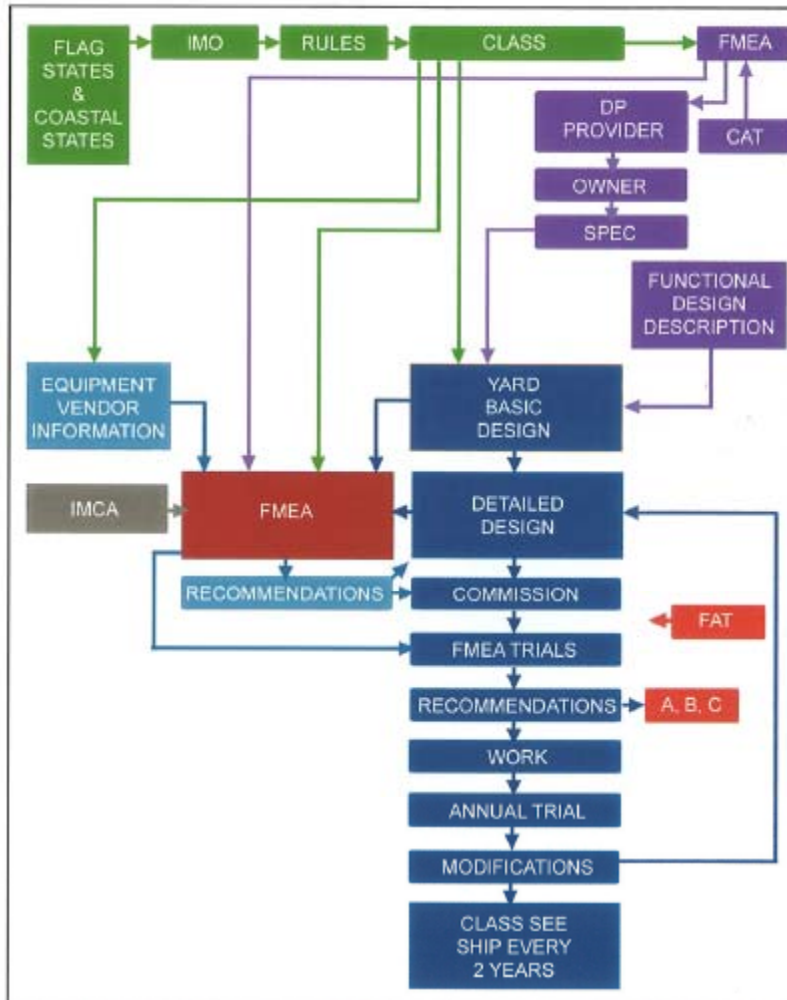
- Equipment classes
- Functional requirements
- Operational requirements
- Surveys, testing and the Flag State
Verification and Acceptance
Document (FSVAD)

Annual survey should be carried out within three months before or after each anniversary date of the initial survey. The annual survey should ensure that the DP-system has been maintained in accordance with applicable parts of the guidelines and is in good working order.

Further an annual test of all important systems and components should be carried out to document the ability of the DP-vessel to keep position after single failures associated with the assigned equipment class.

The type of test carried out and results should be documented in the FSVAD

Annual DP Trials



A vessel life cycle with respect to DP design and verification

FMEA Proving Trial

“to prove the findings of the FMEA”

“To be conducted annually.

Findings and recommendations to be addressed in accordance with their criticality.

Previous trials reports and associated close out documentation to be kept on board.”

*Marine Technology Society Dynamic Positioning
Committee*

DP Operations Guidance

“Further an annual test of all important systems and components shall be carried out to document the ability of the DP vessel to keep position after single failures associated with the assigned class notation (DP annual trials)”

*Germanischer Lloyd
Rules for Classification and Construction
Dynamic Positioning Systems*

- 1991 – 101 DPVOA – *Example of A DP Vessel's Annual Trials Programme*
- 1993 – 112 UKOOA – Part 2 - *Guidelines for Auditing Vessels with Dynamic Positioning Systems*
- 1997 – IMCA M 139 - *Standard report for DP vessel annual trials*

- 2008 – IMCA M 191 - *Guidelines for Annual DP Trials for DP Mobile Offshore Drilling Units*
- 2011 – IMCA M 190 - *Guidelines for Developing and Conducting Annual DP Trials Programmes for DP Vessels*
- 2011 – IMCA M XXX – *Example of an Annual Trials Report*

Annual DP Trials

“to prove DP system is fully functional and well maintained”

“to prove the redundancy concept is intact”

Annual DP Trials



Annual DP Trials should be performed at a specific time once a year within 3 months of the anniversary of the previous year's trials.

Annual DP Trials also provide the opportunities for training of the vessel's crew and enhancement of their knowledge of failure modes and their effects.

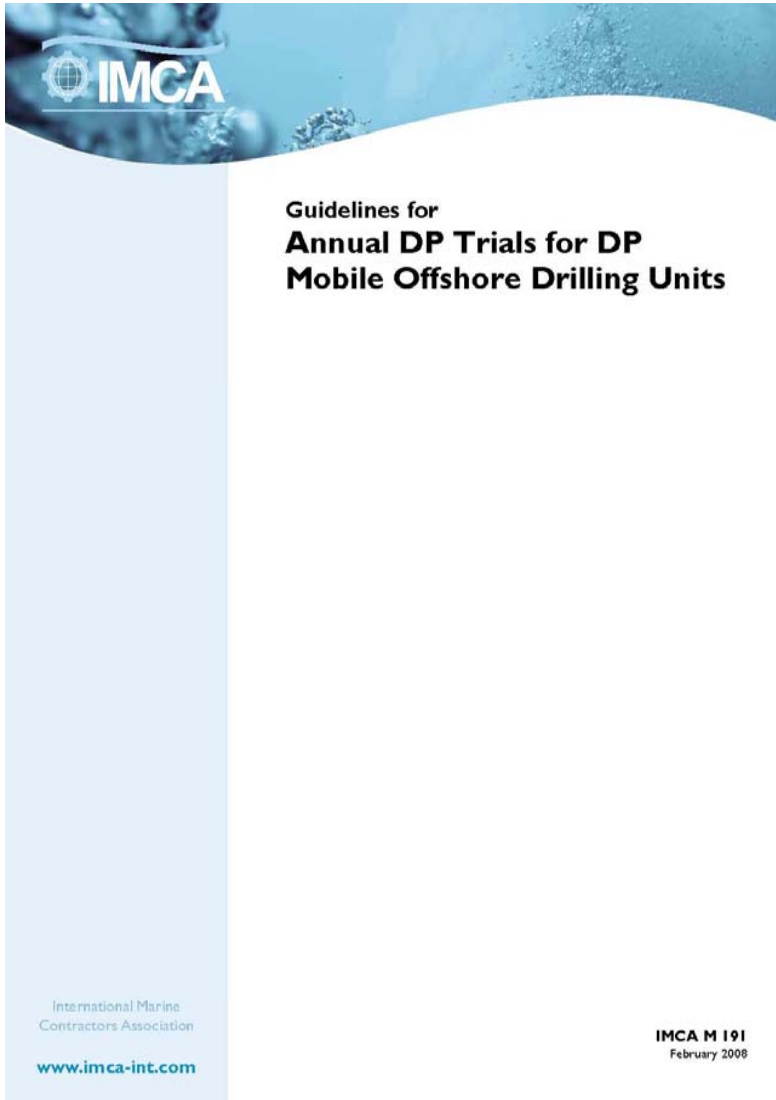
Annual DP Trials



A series of tests of fault and failure conditions relevant to the DP System.

The tests should be designed to prove system redundancy, as defined in the DP FMEA, system and equipment functionality, to validate repairs and preventive maintenance, and test the operation of protection and detection devices and responses so as to demonstrate that the vessel's DP system remains fit for purpose.

Annual DP Trials for MODUs



2008 - IMCA M 191

Annual DP Trials for MODUs



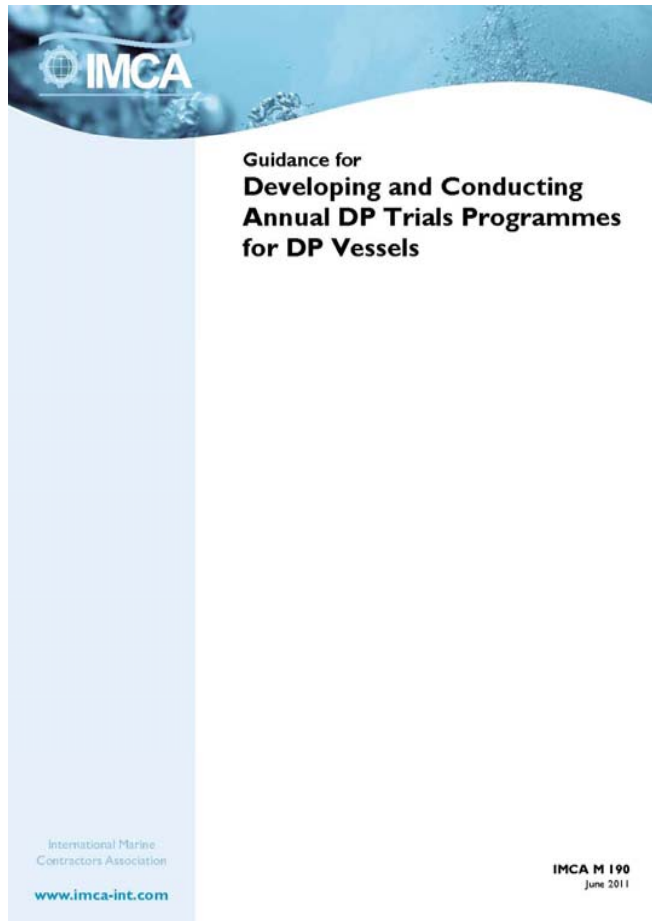
Experience has shown that, owing to heavy operational demands, DP drilling units are not usually able to meet the above criteria for conducting Annual DP Trials at a specific time once a year.

This has been recognized by the industry with publication of specific guidance relating to the conduct of Annual DP Trials for DP MODUs.

This is found in IMCA M 191 *Guidelines for Annual DP Trials for DP Mobile Offshore Drilling Units*.

The guidance sets out a regime of annual testing that is conducted on an incremental basis throughout the year as opportunities arise but needs to be completed within a twelve month period.

Annual DP Trials



2011 – IMCA M 190
Prepared for IMCA
by GL Noble Denton

- Development of the Trials Programme
- Conduct of the Trials
- Format of the Trials report

- Responsibility – Vessel operator's
- Information needed – FMEA; FMEA proving trials report; details of changes; class rules; DP operations manual

In attendance:-

- Competent & independent witnesses
- Trials co-ordinator
- Vendors' representatives
- Clients representatives

Fault tolerant system based on redundancy:

1. Performance
2. Protection
3. Detection

Review of FMEA



As part of annual DP trials

- Worst case failure design intent
- Operating configurations
- DP capability before and after WCF
- Redundant groups
- Common points
- Protective functions
- Significant accuracy deterioration in equipment
- Fail safe for thrusters

Review of FMEA



All alarms to required to indicate potential hidden failure of loss of redundancy.

Return to Vessel Assurance



- FMEA
- CMID
- DP capability
- Training & experience of key DP personnel
- DP operations manual
- DP incidents
- Planned maintenance of DP system components

Categories of findings



- A For immediate action

- B For action when reasonably convenient

- C For future attention/consideration

Personnel competence



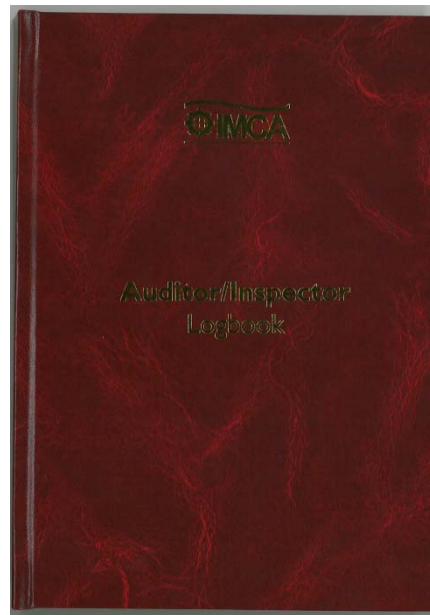
- Qualified engineer or mariner
- In team that has produced at least one DP FMEA
- Witnessed at least three annual trials
- Thorough knowledge of DP class rules and IMCA guidance
- Familiar with station keeping incident database
- Knowledge of the vessel type

Logbook



Auditor/Inspector Logbook Contents

Part 1	Personal Details
Part 2	Explanatory Notes
Part 3	Qualifications/Certificates
Part 4	Employment Record
Part 5	Record of Continuing Professional Development
Part 6	Competence Assessment Record
Part 7	Record of Audit/Inspection Experience



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IMCA Auditor/Inspector Logbook Record of Audit/Inspection Experience

Start Date: End Date:
Location of audit/inspection:
Client (if applicable):
Type of audit/inspection:
Role in audit/inspection:
Number of people conducting the audit/inspection:
Brief description of audit/inspection carried out:
.....

Company being Audited/Inspected Details

Company name:
Contact name:
Contact address:
E-mail Address:

Employer of Auditor/Inspector Details

Company:
Contact name and position:
Signature:
Contact address:
.....
Telephone No: Mobile No:
E-mail Address:

Lead Auditor/Inspector Details

Signature:
Name:
Date: Certification No:
Telephone No: Mobile No:
E-mail Address:

“The 2008 Trials were intended to show that the vessel meets the requirements of the 1999 IMCA Guidelines for the Design and Operation of DP vessels and the IMO 1994 Guidelines for Vessels with Dynamic Positioning Systems.”

Conclusion



Thank you for your attention

Any questions?

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