

DNV CLASSIFICATION OF MOBILE OFFSHORE UNITS

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Global Service Responsible Offshore Classification

1. Introduction

From time to time, DNV is asked by users and potential users of our classification services 'What is covered by class', 'What is covered on behalf of authorities' etc.

This memo is written in response to general inquiries of this nature and may be used for information and as basis for more in-depth discussions. The memo mainly contains excerpts from DNV rules and survey check lists to illustrate actual coverage for various types of Mobile Offshore Installations.

It is worth noting that the actual coverage by class will vary between classification societies. This memo addresses matters and issues covered by DNV, with no attempt of comparing our scope to that of other societies.

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2. General

Classification is a comprehensive verification service providing assurance that a set of requirements laid down in rules established by the classification society are met during design and construction, and maintained during operation of a ship or an offshore unit. The rules are aimed at ensuring safety against hazards to the unit, personnel, and against hazards to the environment. The rules are developed by the classification company also referring to internationally accepted technical standards.

Classification has gained world-wide recognition as representing an adequate level of safety and quality, by way of applying experience and peak technical competence in developing rules and performing approval and surveys.

Classification implies an activity, in which a ship or an offshore unit is surveyed during construction on the basis of design approval, tested before being taken into service, and surveyed regularly during its whole operational life. The aim is to verify that the required safety standard is built in, observed and maintained.

Having assigned class, DNV will issue a classification certificate and enter the main particulars and details of class in the classification register. With reference to what is stated above, any certificate issued by a classification society is related to a set of rules which will vary from society to society, and also as a function of time since the rules are updated and revised on a continuous basis. *It is therefore of utmost importance to be aware of the technical references for a certificate in order to understand what the certificate actually covers.* For DNV classed units, the technical references are indirectly given through a set of class notations in the certificate, as well as the initial year of classification. Technical requirements stated in the rules valid at that time will follow the unit later, meaning for instance that a classification certificate for a rig from 1992 may have different requirements associated with it than a corresponding certificate for a rig from 1982, although the class notations may be the same. A summary of currently available class notations is given in Pt. 4 below.

3. Assignment of class

Having assigned a specific class implies that DNV:

- has been satisfied that the object meets the Rule requirements for the particular class
- will, through a system of surveys, verify that the requirements stipulated for retention of class are complied with.



When assigning class to an offshore unit where the Administration of a flag state undertakes approval and surveys of systems/equipment covered by the Rules, DNV may accept their decision on these items as basis for assigning class.

For units permanently placed on location and intended for production and storage of hydrocarbons, DNV may also accept decisions by the authority with jurisdiction over the waters in which the unit is to operate (shelf state) as basis for assigning class.

4. Class notations

Classed units will be given a class designation consisting of:

- construction symbol (mandatory)
- main character of class (mandatory)
- basic design notation (mandatory)
- service notation (mandatory)
- system and special facility notations (voluntary)
- special feature notations (voluntary).

The *construction symbol*  will be given to units built under the supervision of DNV, whereas the symbol  will be given to units built under the supervision of a recognised classification society and later assigned class with DNV.

Main character of class is represented by the notations **1A1** or **OI**.

The notation **1A1** will be given to mobile offshore units with hull, marine machinery and equipment found to be in compliance with the basic (common) requirements of the applicable DNV offshore standards referred to in the rules.

The notation **OI** will be given to non-selfpropelled floating offshore installations intended for long term service at one offshore location with main structure, utility and safety systems found to be in compliance with the basic (common) requirements of the applicable DNV offshore standards referred to in the rules.

The *basic design notation* indicates the type of structure. The notations currently in use are as follows:

| <i>Basic design notation</i> | <i>Description</i> |
|-------------------------------|---|
| Ship-shaped Unit | Monohull ship and barge type units having displacement hulls with or without propulsion machinery. |
| Column-stabilised Unit | Unit dependant on the buoyancy of widely spaced columns for floatation and stability for all modes of operation |
| Self-elevating Unit | Unit with hull of sufficient buoyancy for safe transport which is raised above sea surface on legs supported by the sea bed during operation. |
| Deep-draught Unit | Floating structure having a relatively deep draught to obtain high heave natural period avoiding resonance responses. A DDF can have single or multi- vertical columns, with or without moonpools |
| Tension-leg Unit | A buoyant installation connected to a fixed foundation by pre-tensioned tendons |

Units constructed according to DNV Offshore Classification Rules, arranged for a particular service and found to be in accordance with the relevant requirements for such service, will be given a corresponding *service notation*.

The service notations currently in use are defined below:

| <i>Service notation</i> | <i>Description</i> |
|--------------------------|---|
| Drilling | Unit with drilling as a main function |
| Well Intervention | Unit with well intervention as a main function |
| Accommodation | Units primarily used for accommodation purposes |
| Crane | Units primarily used for heavy-lift purposes |
| Offshore Support | Units intended for offshore support functions (fitted with only parts of equipment necessary to perform main functions) |
| Oil Production | Unit or installation with production of hydrocarbons as a main function |
| Oil Storage | Unit or installation with storage of hydrocarbons as a main function |

Units having special facilities, systems or equipment found to satisfy specified class requirements will be given a corresponding *system or special facility* class notation. Such notations may typically be DRILL, CRANE, POSMOOR, DYNPOS etc., which means that DNV has performed initial approval, fabrication survey, testing and in-service survey of subject systems/equipment in accordance with the technical standards referred in the Rules covering these class notations.

5. Coverage of class

The *extent* of a DNV survey will vary depending on whether it is a fabrication or in-service survey. For the latter, the extent will also vary through a class period, which normally contains one Renewal Survey, one Intermediate survey and three annual surveys in the 5-year period for which a DNV class certificate is valid. The exact coverage and extent is given in the DNV rules which should be carefully read to comprehend the exact scope for any survey.

Main class covers the following main areas:

- Structural strength and redundancy
- Materials and welding
- Corrosion protection
- Stability
- Watertight and weathertight integrity
- Power generation
- Propulsion (as applicable)
- Temporary and emergency mooring
- Fire detection and extinction
- Structural fire protection
- Hazardous areas and ventilation
- Electrical systems and equipment
- Automation and instrumentation
- Emergency shut down systems
- Fuel oil systems
- Ballast systems
- Drainage and bilge pumping
- Sounding systems
- Leak detection (as applicable)
- Equipment for towing (as applicable)
- Jacking system (as applicable)

Detailed survey check lists adequately reflecting the rule requirements are available for all class notations, and may be submitted to owner for information upon request.

6. Statutory surveys

DNV is delegated authority by a number of Flag Authorities, meaning that we will carry out surveys on their behalf. Some Flag Administrations have developed own rules which then form the formal reference for such surveys, whereas the majority refers to the IMO MODU CODE as applicable standard for mobile drilling units.

The MODU CODE addresses 3 main aspects; the construction, the safety equipment and the radio system. The *construction* part is fully covered by DNV's main class, the *radio system* requires separate surveys by specialists, and the *safety equipment* is subject to a dedicated survey addressing the following main topics:

- Protection of crew
- Stability documentation
- Mooring equipment
- Mooring system supply boat to rig
- Navigation
- Collision prevention
- Navigation communication
- Fire and explosion prevention
- Fire resistance
- Fire detection and alarm
- Gas detection and alarm
- Fire fighting
- Means of escape
- Emergency power generation and distribution
- Emergency operations
- Evacuation and life-saving
- Shut down and safety systems
- Storing of explosives
- Operations and training manuals
- Helicopter deck
- Helicopter refuelling
- Helicopter deck fire fighting arrangement
- Dynamic positioning system documentation

7. What is not covered by class?

It is important to be aware that a number of aspects are not covered by classification, it being assumed that the unit is managed by a competent company with relevant management procedures in place. Some important aspects which are not covered by DNV's classification concept are hence:

- Maintenance procedures (DNV requirement: the unit, machinery installations and equipment are to be maintained at a standard complying with the requirements of the rules)
- Operational procedures (DNV requirement: the unit, machinery installation and equipment are to be adequately manned and competently handled)
- Qualification and training of personnel
- Implementation of relevant quality assurance systems in designer's, fabricator's and owner's organisations

8. Conclusion

The purpose of this memo is to highlight some important aspects of DNV's class systematics for mobile offshore units and actual coverage by classification.

The most important message is that a certificate must always be considered on the background of the rules it refers to, and that the class coverage for any unit is dependent on class notations, actual rule revision and not at least, the actual classification society. A full understanding of what is covered by classification and what is not may only be achieved after a detailed review of applicable classification rules.