



GUIDE FOR

**MOBILE OFFSHORE UNITS OPERATING ON
NORWEGIAN CONTINENTAL SHELF, N-NOTATION**

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**American Bureau of Shipping
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- March 2009 version plus Corrigenda/Editorials

March 2009 consolidation includes:

- April 2007 version plus Notice No. 1

Foreword (1 March 2009)

This Guide provides a road map for our clients for documenting technical requirements related to classification for compliance with verification obligations associated with operation of mobile offshore units on the Norwegian Continental Shelf (NCS) and applying for an Acknowledgement of Compliance (AoC) which is mandatory for operation on the Norwegian Continental Shelf (NCS).

ABS has been appointed as a Recognized Organization (RO) for Mobile Offshore Units by the Norwegian Maritime Directorate (NMD) and thereby authorized to perform on its behalf technical verification, inspection and surveys for the delegated items concerning Mobile Offshore Units which are or will be registered in a Norwegian Ship Register.

Irrespective of flag, for the purpose of this Guide, Appendix 1 (as applicable) and the relevant parts of the delegated items (see Appendix 2) will form part of the technical verification permitted by Chapter 1 Section 3 of the Framework Regulations to contribute towards the application for an AoC. It is to be noted that the NMD references in this Guide do not imply full compliance with Norwegian Flag.

The Guide describes NCS-related services provided by ABS for the following types of mobile offshore units and systems:

- Drilling Units
- Floating Production Storage and Offloading Units
- Accommodation Units (applicable parts of Chapter 3, Section 1)
- Drilling Systems, and
- Hydrocarbon Production and Process Facilities

The Guide contains the following three Chapters:

- Conditions of Classification
- Verification Methodology
- N-Notations

The effective date of this Guide is 1 March 2009.

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GUIDE FOR

MOBILE OFFSHORE UNITS OPERATING ON NORWEGIAN CONTINENTAL SHELF, N-NOTATION

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CHAPTER 1 Conditions of Classification

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CHAPTER 1 Conditions of Classification

SECTION 1 Scope and Conditions of Classification

1 Classification

The term classification, as used herein, indicates that a mobile offshore unit, operating on the Norwegian Continental Shelf (NCS), has been designed, constructed, installed and surveyed in compliance with this Guide, applicable existing ABS Rules and Guides or other acceptable standards.

General principles and procedures related to classification covered in this Guide are stated in the applicable ABS Rules. The continuance of classification is dependent on the fulfillment of requirements for surveys after construction.

According to the Norwegian Petroleum Act, the Owner is fully responsible for verification activities to ensure that operation of units and systems are in compliance with the applicable regulatory requirements. Therefore, the ultimate responsibility for shutting down operations beyond the limit specified in unit and system design basis does not rest upon the ABS Classification Committee.

3 Class Notation

3.1 ABS N-Notation (1 March 2009)

Classification requirements given in this Guide are supplementary to the latest edition of ABS Rules.

In order to obtain the **(N)** symbol, a **design verification to the applicable ABS Rules and/or Guides and additional requirements outlined in this Guide** is to be performed. Additionally, mobile offshore units are to always comply with the latest edition of the PSA Regulations, the associated guidelines and referenced standards.

The verification will only be related to safety aspects of the applicable standards, rules and regulations.

Generally, class requirements are to be applied to all systems for which the **(N)** symbol has been requested. Unless the Owner requests additional compliance, production facilities will be subject to NORSOK standards. However, in order to verify that safety is not impaired, ABS is to review the effect (area classification, loading, etc.) of these systems on the unit. **It is recommended that the production system is classed to avoid any difficulties that the interfaces between plant and vessel may create.**

Mobile offshore units for operation on the Norwegian Continental Shelf, that have been built to the satisfaction of the Surveyors to the Bureau to the full requirements of this Guide, where approved by the ABS Classification Committee for service for the specified design environmental conditions, will be classed and distinguished in the *ABS Record* by the symbols **⊠ A1**, followed by the appropriate notation and the **(N)** symbol, for example, **⊠ A1 Column-Stabilized Drilling Unit (N)**. The N-Notations for mobile offshore units and systems are referenced in subsequent Chapters of this Guide.

3.3 Systems Not Built Under Survey

Mobile offshore units which have not been built under survey to this Bureau, but which are submitted for classification, will be subjected to a special classification survey. Where found satisfactory and thereafter approved by the Committee, they will be classed and distinguished in the *Record* by the symbols and special notations as described in this Guide, but the mark **✕** signifying survey during construction will be omitted.

5 Rules for Classification

5.1 Applications

This Guide is intended for use in conjunction with the ABS:

- *Rules for Building and Classing Mobile Offshore Drilling Units* (MODU Rules),
- *Guide for Building and Classing Floating Production Installations* (FPI Guide),
- *Guide for Building and Classing Offshore Facilities* (Facilities Guide),
- *Guide for the Classification of Drilling Systems* (CDS Guide),
- *Guide for Certification of Lifting Appliances*, or
- Other applicable ABS Rules and Guides.

The application of this Guide is, in general, based on the contract date for construction between the builder and the prospective Owner.

5.3 Scope (1 March 2009)

This Guide covers the safety aspects of the mobile offshore unit operating on NCS, and provides assistance to the Owner for AoC application for the following types of mobile offshore units:

- Accommodation Units (applicable parts of Chapter 3, Section 1)
- Drilling Units
- Production Storage/Offloading Units (FPSO and FPDSO) Units

and the following types of industrial systems/facilities:

- Drilling Systems
- Production Facilities

Note: The AoC scheme is mandatory for all types of mobile units except floating storage units.

Other types of installations designed as mobile offshore units which do not fall into the above categories will be treated on an individual basis and be assigned an appropriate classification designation similar to the above format. It is to be noted that the drilling systems and the production facilities are to go through the process of verification for the N-Notation.

5.5 Effective Date of Change of Requirement

5.5.1 Effective Date

This Guide and subsequent changes to this Guide are to become effective on the date specified by the Bureau. In general, the effective date is not less than six months from the date on which the Guide is published and released for its use. However, the Bureau may bring into force the Guide or individual changes before that date, if necessary or appropriate.

5.5.2 Implementation of Rule Changes

In general, until the effective date, plan approval for designs will follow prior practice unless review under the latest Rules is specifically requested by the party signatory to the application for classification.

The date of “contract for construction” of a mobile offshore unit is the date on which the contract to build the unit is signed between the prospective Owner and the shipbuilder. The date and the construction numbers (i.e., hull numbers) of all the units included in the contract are required to be indicated on the form, “Application of Request for Classification”. If the signed contract for construction is amended to change the unit type, the date of “contract for construction” of this modified unit, or units, is the date on which the revised contract or a new contract is signed between the Owner, or Owners, and the shipbuilder.

7 Norwegian Regulations and Other Standards

While this Guide covers the requirements for the classification of mobile offshore units operating on NCS, the attention of Owners, designers and builders is directed to the requirements of the Norwegian regulations and other standards that are over and above the classification requirements.

9 Submission of Plans

Subsequent Chapters in this Guide identify requirements for typical mobile offshore units and industrial systems that will be part of the classification and verification process for respective N-Notation.

Upon satisfactory completion of all of the required engineering and survey processes, ABS will issue the Classification Certificate to the operating mobile offshore unit, including the N-Notation.

9.1 Hull Plans

Hull plans showing the scantlings, arrangements, and details of the principal parts of the hull structure of each mobile offshore unit to be built under survey are to be submitted and approved before the work of construction is commenced. These plans are to clearly indicate the scantlings and details of welding, and they are to include such particulars as the design draft and design speed. Where provision is to be made for any special type of cargo or for any exceptional conditions of loading, whether in ballast or with cargo, particulars of the weights to be carried and of their distribution are also to be given.

9.3 Machinery Plans

Machinery plans showing the boilers, main engines, reduction gears, etc., also machinery general arrangement, installation and equipment plans as referenced in the applicable Rules, are to be submitted and approved before proceeding with the work.

9.5 System Plans

In most cases, manufacturer’s component and system related drawings, calculations and documentation would be required for submittal to substantiate the design of the systems and their equipment. In these cases, upon satisfactory completion of ABS review of the manufacturer’s submittal, ABS Engineers will issue a review letter. This letter, in conjunction with the submitted package, will be used and referenced during surveys and subsequently issued reports by attending ABS Surveyors.

11 Abbreviations and Definitions

11.1 Abbreviations (1 March 2009)

Abbreviations used in this Guide are as follows:

ABS	American Bureau of Shipping
AoC	Acknowledgement of Compliance
EEA	European Economic Area
EU	European Union
HES	Health Environment and Safety
IACS	International Association of Classification Societies
MOU	Mobile Offshore Unit
MODU	Mobile Offshore Drilling Unit
MOPU	Mobile Offshore Production Unit
NBH	Norwegian Board of Health
NCS	Norwegian Continental Shelf
NMD	Norwegian Maritime Directorate
NPD	Norwegian Petroleum Directorate
NSA	Norwegian Shipowners' Association
OLF	Norwegian Oil Industry Association
PSA	Petroleum Safety Authority
SFT	Norwegian Pollution Control Authority
SoC	Statement of Compliance

11.3 Definitions (1 March 2009)

Definitions used in this Guide are as follows:

Acknowledgements of Compliance (AoC) – An *Acknowledgement of Compliance* is a decision made by the Petroleum Safety Authority (PSA) that the technical condition of a Mobile Offshore Unit (MOU) and the applicant's organization and management systems are considered to be in compliance with relevant requirements in Norwegian Shelf legislation.

Applicant – The *Applicant* is the responsible body for operation of a MOU who applies for an AoC.

CE Mark – *CE* denotes "Communauté Européenne" and confirms that equipment complies with European Union Directives.

Client – The *Client* is the party having requested classification or having assumed ownership of a classed offshore unit or installation. In cases where Owners have requested another party to operate the unit or installation on their behalf, such party is regarded as the client.

Contract – The *Contract* is an agreement between ABS and the client where the extent of services requested by the client is defined.

Mobile Offshore Unit (MOU) – A *Mobile Offshore Unit (MOU)* is a buoyant structure engaged in offshore operations including drilling, production, storage or support functions, not intended for services on one particular offshore site and which can be relocated without dismantling or modification.

MOU Classification Society (NMD Construction Regulation) – An *MOU Classification Society (NMD Construction Regulation)* is a recognized classification society with which there is an additional agreement with the NMD on its carrying out inspection and surveys, etc., on mobile offshore units. Also referred to as “Recognized Organization”.

Notified Body – A *Notified Body* is an independent organization appointed by European Economic Area (EEA) national authorities to undertake conformity assessment before a product is CE marked according to an European Union (EU) Directive.

Owner – For the purpose of this Guide, the *Owner* is the party responsible for the offshore unit, including its operation and safety.

Recognized Classification Society [NMD Construction Regulation (Red Book Section VI-3)] – A *Recognized Classification Society [NMD Construction Regulation (Red Book Section VI-3)]* is any Classification Society with which the Ministry has entered into an agreement pursuant to §9 of the Seaworthiness Act.

Statutory Certificates – *Statutory Certificates* are IMO convention certificates issued on behalf of, or by, national authorities.

Supplier or Manufacturer – The *Supplier* or *Manufacturer* supplies materials, components, equipment and systems to new and existing offshore units or industrial systems, whose product is subject to design approval, surveys and testing in accordance with the Rules.

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CHAPTER 2 Verification Methodology

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CHAPTER 2 Verification Methodology

SECTION 1 Basis and Procedures

1 General

1.1 Acknowledgement of Compliance (AoC) (1 March 2009)

An AoC is a decision made by the Petroleum Safety Authority (PSA) that the technical condition of a MOU and the applicant's organization and management systems are considered to be in compliance with relevant requirements of Norwegian Shelf Legislation.

The AoC is mandatory and is applicable to all **types of mobile facilities except storage units** operating on the NCS. MOUs, in this context, are units, registered by a Flag Administration and **which follow a maritime operational concept**.

Note: In some cases (production storage/offloading) it may be a matter of judgment if the unit can be categorized as a maritime practice "offshore unit" according to PSA regulations. It is recommended that the PSA be contacted at an early stage of such projects for their clarification.

ABS services described in this document may be used by Owners to document partial compliance with the PSA requirements for an AoC. **To assist with the application** for an AoC, a MOU is to meet the requirements for the N-Notation as described in the appropriate sections of Chapter 3. The N-Notation is obtained by the unit holding class certificates, being flagged and meeting supplementary requirements of PSA and NMD.

Details of the AoC scheme are given in "Handbook for Application for Acknowledgement of Compliance (AoC)" issued by OLF/NR. For further information and references, see 2-1/Tables 1 and 2 of this Guide.

1.3 Technical Norms and Standards (1 March 2009)

This Guide includes reference to other ABS documents, regulations, codes and standards which shall be used in conjunction with the requirements of this Guide for assignment of the N-Notation. Unless otherwise agreed, latest issues of the references shall be used.

2-1/Table 1 provides ABS Rules/**Guides** to be used in performing the required **design verification**.

2-1/Table 2 provides additional regulations/standards, other than class, to be used in performing the required design verification for N-Notations.

TABLE 1
ABS Applicable Rules/Guides (1 March 2009)

<i>ABS Rules/Guides</i>
<i>Rules for Building and Classing Mobile Offshore Drilling Units</i>
<i>Guide for Building and Classing Floating Production Installations</i>
<i>Rules for Materials and Welding (Part 2)</i>
<i>Guide for the Classification of Drilling Systems</i>
<i>Guide for Building and Classing Facilities on Offshore Installations</i>
<i>Guide for Lifting Appliances</i>

TABLE 2
Regulations/Standards other than Class (1 March 2009)

<i>Reference</i>	<i>Title</i>
PSA	Regulations relating to health, environment and safety in the petroleum activities (Framework Regulations)
PSA	Regulations relating to design and outfitting of facilities etc., in the petroleum activities
PSA	Regulations relating to conduct of activities in the petroleum activities
IMO MODU Code	Code for the construction and equipment of Mobile Offshore Drilling Units
NMD	Norwegian Maritime Directorate's Regulations for Mobile Offshore Units (NMD Red Book)
NMD No. 123	Regulations for Mobile Offshore Units with production plants and equipment
NMD No. 227	Regulations concerning precautionary measures against fire and explosion on Mobile Offshore Units
NMD No. 853	Regulations concerning evacuation and lifesaving appliances on Mobile Offshore Units
NMD No. 865	Regulations concerning the construction of Mobile Offshore Units
NMD No. 857	Regulations concerning anchoring/positioning systems on Mobile Offshore Units
NMD No. 878	Regulations concerning stability, watertight subdivision and watertight/weathertight closing means on Mobile Offshore Units
NMD No. 879	Regulations concerning ballast systems on Mobile Offshore Units
NMD No. 1200	Regulations concerning the installations and use of radio equipment on Mobile Offshore Units
NMD No. 1239	Regulations concerning risk analyses for mobile offshore units
NMD No. 72	Regulations concerning helicopter decks on mobile offshore units
NMD No. 2318	Regulations concerning the construction and equipment of living quarters on mobile offshore units
NMD Operation 858	Regulations concerning operation of Mobile Offshore Units
NMD No. 859	Regulations concerning protective, environmental and safety measures on mobile offshore units
NMD No. 854	Regulations concerning deck cranes, etc., on Mobile Offshore Units
NMD No. 860	Regulations concerning potable water systems potable water supply on Mobile Offshore Units
NMD No. 1331	Regulations concerning the prevention of pollution from the maritime operations of Mobile Offshore Units
Norwegian Ministry of Local Government and Labour	Regulations relating to asbestos
API RP 14C	Analysis, design, installation and testing of basic surface safety systems for Offshore Production Platforms
ISO-13628	Design and operation of subsea production systems
ISO-10418	Analysis, design, installation and testing of basic surface safety systems
ISO 13702 Chapter 9 and Appendix C.1	Electrical Systems General Parts
IEC61892	Mobile and Fixed Offshore Units – Electrical Installations
IEC60092	Electrical Installations on Ships

TABLE 2 (continued)
Regulations/Standards other than Class (1 March 2009)

<i>Reference</i>	<i>Title</i>
NORSOK D-001	Drilling Facilities
NORSOK L-001	Piping and valves
NORSOK L-002	Piping design, layout and stress analysis
NORSOK P-001	Process design
NORSOK P-100	Process systems
NORSOK S-001	Technical safety
NORSOK U-001	Subsea production systems
OLF/NR	Handbook for Application for Acknowledgement of Compliance (AoC) www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf
IMO MSC Circular 645	Guidelines for vessels with dynamic positioning systems

3 Regulatory Basis (1 March 2009)

Petroleum Safety Authority (PSA) may issue the Acknowledgement of Compliance (AoC) when the unit is complete and when the technical conditions and the applicant's organization and management systems are considered to be in compliance with the legal requirements of the Norwegian Continental Shelf. Applicable regulations are given in 2-1/Table 3 and are available at:

www.ptil.no/main-page/category9.html?lang=en_US

TABLE 3
Regulations

<i>Formal Regulations Title</i>	<i>General Title</i>
Regulations relating to Health, Environmental and Safety	The Framework Regulations
Regulations relating to Management in the Petroleum Activities	The Management Regulations
Regulations relating to Material and Information in the Petroleum Activities	The Information and Duty Regulations
Regulations relating to Design and Outfitting of Facilities etc., in the Petroleum Activities	The Facilities Regulations
Regulations relating to Conduct of Activities in the Petroleum Activities	The Activities Regulations

5 Regulatory Considerations (1 March 2009)

According to Section 3 of the Framework Regulations, relevant technical requirements contained in the Rules and Regulations, etc., which have been issued by the Norwegian Maritime Directorate together with supplementary classification Rules and State Flag regulations, may be used as a basis for documentation of compliance. Refer to Enclosure C of OLF/NR, "Handbook for Application for Acknowledgement of Compliance (AoC)". This handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20Aoc%20Handbook.pdf

7 Verification Basis (1 March 2009)

MOUs are to comply with the latest edition of the PSA Regulations, the referred to standards therein and associated guidelines.

MOUs may be accepted for operation on the NCS by applying Chapter 1 Section 3 of the Framework Regulations for marine aspects as an alternative to direct compliance with the PSA Facility Regulations. The unit must be registered and comply with classification procedures with five yearly renewal surveys.

The maritime regulations and applicable classification Rules are to have a safety level at least equivalent to that corresponding to the latest edition of the NMD Regulations for Mobile Offshore Units (NMD Red Book) and Supplementary Offshore Classification Rules.

Drilling and production systems shall comply directly with the provisions of the PSA Facilities Regulations, as shall working environmental issues. It is recommended that the PSA be contacted at an early stage of the project to clarify the verification process.

9 Verification Procedures

In accordance with the Norwegian Petroleum Act, it is the responsibility of the Owner to ensure that ongoing operations onboard the MOU comply with the applicable Rules and regulations.

The Applicant may choose to use internal as well as external verification activities work to demonstrate partial or full compliance with their verification obligations. Documents issued for this purpose may include, but are not limited to, the following:

- Classification Certificates
- Maritime certificates issued by flag state administration and associated Rules and regulations to which certificates are issued.
- Evidence of compliance with Norwegian Maritime Directorate Regulations
- Verification reports or Statement of Compliance (SoC) issued by consultants/technical specialists for the Owner/Operator.

11 Classification Principles and Procedures

Classification principles and procedures addressed in this Guide are stated in the applicable ABS Rules/Guides.

The N-Notation will be issued and maintained based on satisfactory completion of the following activities:

- Design verification
- Certification of supplier-provided materials and equipment
- Surveys during construction
- Surveys after construction



CHAPTER 3 N-Notations

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CHAPTER 3 N-Notations

SECTION 1 Mobile Offshore Drilling Units

1 Introduction (1 March 2009)

The verification described herein may be applied to Mobile Offshore Drilling Units (MODUs), provided they satisfy the following requirements:

- Classification requirements
- NMD requirements common to Class
- NMD requirements in addition to Class
- PSA requirements
- Drilling System requirements

To assist with the application for an AoC, a MODU is to meet the requirements for the N-Notation as described in this Guide. N-Notations are assigned to MODUs holding class certificates, being flagged and meeting supplementary requirements of PSA and NMD.

3 ABS N-Notation (1 March 2009)

Classification requirements given in this Guide are supplementary to the latest edition of ABS Rules. In order to obtain the **(N)** symbol, a **design verification to ABS Rules additional requirements given in Appendix 1** is to be performed. Additionally, mobile offshore units are to comply with the latest edition of the **NMD and PSA Regulations**, the associated guidelines and referenced standards.

Generally, class requirements are to be applied to all systems for which the **(N)** symbol has been requested.

N-Notations for types of MODUs and systems are referenced below.

Type of MODU

MODU (Self Elevating)

MODU (Column Stabilized)

MODU (Ship)

MODU (Barge)

Notation

✘ **A1 Self Elevating Drilling Unit (N)**

✘ **A1 Column-Stabilized Drilling Unit (N)**

✘ **A1 Drilling Unit (N)**

✘ **A1 Barge Drilling Unit (N)**

Other types of units designed as mobile offshore units which do not fall into the above categories may be treated on an individual basis and assigned an appropriate classification notation similar to the notations above.

<u>Type of System</u>	<u>Notation</u>
Drilling System	☒ CDS (N)

Note: Drilling systems are to be classed in accordance with the ABS *CDS Guide* in association with the process of verification for the N-Notation. Where MODUs are fitted with production facilities and unless the Owner request additional compliance, the production facilities will be subject to NORSOK standards. However, in order to verify that safety is not impaired, ABS is to review the effect (area classification, loading, etc.) of the production facilities on the unit.

5 Design Verification

5.1 Classification (1 March 2009)

A design verification to the ABS Rules is to be carried out for items indicated in 3-1/Table 1, (as applicable) as referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)” which gives the applicable PSA Facility Regulations and alternatives to the Facility Regulations for each SFI area. Additionally, technical verification is required for the supplementary items given in Appendix 1 of this Guide, and with respect to the NMD’s Regulations (Red Book), the delegated items from the NMD’s Red Book given in Appendix 2 of this Guide.

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

Upon completion of the technical verification, noted comments are to be satisfactorily addressed by the applicant.

TABLE 1
Classification Requirements (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
2, 20, 27, 28	Hull and Structure	WSD Method Acceptable as per Sec 3 HES,
488	Jacking Systems, spud tank, Jetting Systems for Jack-Ups	
564	Walkway between Units	Applicable to walkways to Accommodation Units
57	Ventilation, Air Conditioning and Heating Systems	Applicable to Ventilation in Hazardous Areas only
58	Sanitary Systems with discharge	
60, 62, 63, 64, 65, 66	Machinery and Main components	
70, 71, 72, 73, 74, 79	Systems for Machinery and Main components	
80	Common Systems Ballast and Bilge Systems	
813, 819	Fire/Washdown Systems, Emergency Fire Pumps, General Service Pumps, Fire Fighting Systems for external fires, Fire Fighting Systems with CO ₂ and Halon	
82	Air and Sounding Systems from tank to deck	
83	Special common Hydraulic Systems	

5.3 NMD Requirements Common with Class (1 March 2009)

NMD design verification requirements for items indicated in 3-1/Table 2 are referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)”. This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

For NMD updates, visit:

www.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/.

Items in 3-1/Table 2 will also be reviewed to the ABS Rules, as applicable.

During the contractual stage, ABS may be requested to issue a Statement of Compliance as part of the design verification process.

TABLE 2
NMD Requirements Common with Class (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
1	Stability, Watertight and Weathertight Integrity	NMD
2, 488	Hull and Structures, Jacking System	NMD Construction 6, 7, 10 NMD Stability 22, 30
11	Arrangement, Escape Ways, Hazardous Areas	NMD Construction NMD Living Quarters NMD Fire NMD Operations, 13 AoC Handbook Enc A3
566	Helicopter decks with equipment	NMD Helideck
66	Aggregates and generators for emergency power production	NMD Construction
408	Dynamic Positioning Plant	NMD Anchoring IMO MSC 645
810 811	Fire detection, fire and lifeboat alarm systems	NMD Fire except specific requirements to sound and light alarms for 810 only
812	Emergency shut down system	NMD Fire 'yes' for drilling unit part, 'no' for process plant (well testing facilities should be considered as a process for drilling unit)
813 to 819	Fire/wash down system, emergency fire pump and general service pumps Fire fighting systems for external fires Fire fighting systems with CO₂ and Halon gases	NMD Fire NMD Helideck
80, 82	Ballast and Bilge Systems	NMD Ballast NMD Pollution
85 86 87 88 89	Electrical Systems General Part Electrical Power Supply Electrical Distribution Common Systems Electrical Cable Installation Electrical Consumers (lighting etc.)	NMD Construction (and reference to 89/336/EEC and 92/31/EEC) Regulations concerning maritime electrical installations For SFI 87 and 88 refer to SFI 408 for dynamically positioned units. See 3-1/Table 4

5.5 NMD Requirements in Addition to Class (1 March 2009)

NMD design verification requirements for items indicated in 3-1/Table 3 are referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)”.

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

For NMD updates, visit:

www.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/.

TABLE 3
NMD Requirements in Addition to Class (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
11	Winterization Working Environment	NMD Construction NMD Living Quarters
41 427	Navigation and Searching Equipment, Light and Signal Equipment Coast Directorate Regulations for marking of facilities in the Petroleum Industry	NMD Construction NMD Helicopter Decks
421	Radio Plant	NMD Radio
422	Lifeboat radio transmitters, emergency radio, direction finder	NMD Lifesaving Appliances
425	Calling system, command telephone etc.,	NMD Fire NMD Crane NMD Anchoring See SFI 811
43 (401-407)	Anchoring, Mooring and Towing Equipment	NMD Anchoring, Appendix 2 of this Guide Not applicable for SEDUs
441-447	Repair Maintenance, Cleaning Equipment and Outfitting Machine tools, Cutting and Welding equipment	Facility Regs Sec. 9 NMD Welding
448	Name Plates (markings) on machinery, pipes, cables	NMD Protective Environmental
45	Lifting and Transport Equipment for machinery components (Offshore Cranes see Area 563)	NMD Protective Environmental
501	Lifeboats with equipment	Follow Facilities Regulations directly (deviation from AoC Handbook Rev 3) For new facilities or after larger rebuilding projects free-fall lifeboats are required. Both lifeboats and MOB boat must be addressed under these regulations
502, 503	Life rafts with equipment, Lifesaving, safety and emergency equipment	NMD Life Saving Appliances
504	Medical and Dental Equipment, Medicines and First Aid Equipment	NMD Living Quarters Facility Regs Sec. 60, 61
505	Loose fire fighting Apparatuses and Equipment, fireman’s suit	NMD Fire
51, 52, 53	Living Quarters <i>Note:</i> It is presupposed that requirements concerning watertight integrity and load line will be considered in Area 1	NMD Construction NMD Living Quarters NMD Fire
54, 55	Living Quarters	NMD Living Quarters

TABLE 3 (continued)
NMD Requirements in Addition to Class (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
561	Personnel Lifts, Escalators (other than drill floor)	NMD Protective Environmental NMD Construction 23
563	Deck Cranes (see 1.1/§ 22a of Appendix 2)	
57	Ventilation, air conditioning and heating system	NMD Fire
76	Distilled and Made-up Water Systems	NMD Potable Water
79	Automation systems for machinery	NMD Risk Analysis 22

Note

- 1 SFI 11, 441-447, 45, 504, 54, 55, 561, 563, 79 of 3-1/Table 3 above
EU directives and owner's management system covered by the AoC are not included in the N-Notation.

5.7 PSA Requirements (1 March 2009)

Emergency shutdown indicated in 3-1/Table 4 is referenced in Enclosure D of OLF/NR, "Handbook for Application for Acknowledgement of Compliance (AoC)".

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

TABLE 4
Emergency Shutdown (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
812	Emergency Shut Down	ISO 13702 Ch.6 and 7 and App B.2 and B.3
	FR Sec. 32 (Well Testing Facilities as process for Drilling Unit)	
	FR Sec. 33 (Well Testing)	
	FR Sec. 34 (Well Testing)	ISO 13702 Ch.6 and App B.2 S-001 Ch.6.9 and App E

5.9 Drilling Systems (1 March 2009)

At the request of the client, design verification is to be carried out to the ABS *CDS Guide* and the applicable parts of NORSOK D-001 as indicated in the PSA Facilities Regulations with guidelines for SFI 30A to 39A for items indicated in 3-1/Table 5 and referenced in Enclosure D of OLF/NR, "Handbook for Application for Acknowledgement of Compliance (AoC)".

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

Upon completion of the technical verification, the noted comments are to be satisfactorily addressed by the applicant. It is recommended that the Drilling System be classed so that the N-Notation may be assigned and to avoid any difficulties that interfaces between plant and vessel may create.

**TABLE 5
 Drilling Systems**

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
30A	Derrick with Components	
31A	Drill Floor Equipment and Systems	
32A	Bulk and Mud Systems	
33A	Well Control Equipment and Systems	
34A	Pipe Handling Equipment and Systems	
35A	Drill String and Downhole Equipment and Systems	
36A	Material Handling Equipment and Systems	
37A	Service Equipment and Systems	
38A	Miscellaneous Equipment, Systems and Services	
39A	Marine Riser, Riser Compensator and Drillstring	

In addition to **complying with** the above, further compliance is required with PSA Facilities Regulations with Guidelines. Chapter IV-I is available at www.ptil.no/main-page/category9.html?lang=en_US, and contains following the applicable sections:

- Section 47 Well Barriers
- Section 48 Well Control Equipment
- Section 49 Compensator and Disconnection Systems
- Section 50 Drilling Fluid Systems
- Section 51 Cementing Unit
- Section 52 Casings and Anchoring of Wells
- Section 53 Equipment for Completion and Controlled Well Floor
- Section 54 Christmas Tree
- Section 55 Remote Operation of Pipes and Work Strings

7 Certification of Materials and Equipment

In addition to the ABS classification surveys per applicable ABS Rules and Guides, surveys carried out at the supplier’s facility are also to meet the design verification requirements of Chapter 3, Section 1 of this Guide.

9 Surveys During Construction

In addition to the ABS classification surveys per applicable ABS Rules and Guides, surveys carried out during construction of the MODU are also to meet the design verification requirements of Chapter 3, Section 1 of this Guide.

11 Surveys After Construction *(1 March 2009)*

Surveys after construction during the maintenance phase are to be carried out at intervals defined in the ABS Rules and in accordance with applicable ABS Rules and Guides.

Gap analyses are to be carried out at intervals not exceeding five years, and preferably before completion of the Special Periodical Survey, **to show that the applicant has control over the effect of changes between original and latest edition of the applicable technical references**. These analyses may be required by PSA at more frequent intervals.

13 Procedures for Classification

To avoid duplication of work, activities related to issuance and maintenance of N-Notations are to be carried out as an integral part of activities related to the class requirements of MODUs. Class procedures are to be followed for issuance of applicable class notations.

15 Limitations *(1 March 2009)*

The following items subject to PSA requirements **for the AoC application** are outside of the scope for N-Notation:

- Emergency preparedness
- Owner's management systems onboard and onshore.
- Development of risk analysis.
- Prevention of harmful effects of tobacco.
- Working protection and working environmental issues.
- European Union (EU) Directives
- Regularity and Reliability Issues
- Protection against pollution
- **Cranes and lifting appliances (for Deck Cranes see 1.1/§ 22a of Appendix 2)**
- **Welding Central**
- **Water quality**
- **Operational requirements**
- **Drilling plant (N-Notation is optional)**
- **Winterization and Arctic operational issues**

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CHAPTER 3 N-Notations

SECTION 2 Mobile Offshore Production Units

1 Introduction (1 March 2009)

The verification described herein may be applied to Mobile Offshore Production Units (MOPUs), provided they satisfy the following requirements:

- Classification requirements
- NMD requirements common to class
- NMD requirements in addition to class
- PSA requirements
- Production Facility requirements

In the application for an AoC, a MOPU is to meet the requirements for the N-Notation described in this Guide. N-Notations are assigned to MOPUs holding class certificates, being flagged and meeting supplementary requirements of PSA and NMD.

Section 3 of the Framework Regulations is not applicable to the production facilities and therefore items are to comply with NORSOK and other standards as indicated in 3-2 Table 5.

Special consideration may be given for the classification of the production facilities where the facility has been determined to be in full compliance with NORSOK requirements.

Production systems and equipment for use in the Norwegian Continental Shelf are to comply directly with the provisions given in the PSA Regulations.

3 ABS N-Notation (1 March 2009)

Classification requirements given in this Guide are supplementary to the latest edition of ABS Rules. In order to obtain the **(N)** symbol, a design verification to the ABS Rules is to be performed. Additionally, mobile offshore units are to comply with the latest edition of the NMD and PSA Regulations, the associated guidelines and referenced standards.

Generally, class requirements are to be applied to all systems for which the **(N)** symbol has been requested. Unless the Owner requests additional compliance, production facilities will be subject to NORSOK standards. In order to verify that safety is not impaired, ABS is to review the effect (area classification, loading, etc.) of these systems on the unit. However it is recommended that the production facility be classed so that the N-Notation may be assigned and to avoid any difficulties that the interfaces between plant and vessel may create.

N-Notations for types of MOPUs and systems are referenced below.

<i>Type of MOPU</i>	<i>Notation</i>
FPS	☒ A1 Floating Production (and Offloading) System (N)
FPSO	☒ A1 Floating Production, Storage and Offloading System (N)
FOI*	☒ A1 Floating Offshore Installations (N)

* Note: FOI Notation means that although the offshore unit is fitted with production facilities, the Owner did not desire classification of the production facilities.

Other types of units designed as mobile offshore units which do not fall into the above categories may be treated on an individual basis and assigned an appropriate classification notation similar to the notations above. **The AoC scheme is not applicable to floating storage units.**

At this time, ABS does not offer any specific class notation for production facilities. However, the “P” in above FPS or FPSO type units designate that the offshore installation is fitted with production facilities and classification of the production facilities was desired by the Owner.

Note: Production systems are to be classed in accordance with the ABS *Facilities Guide* in association with the process of verification for the N-Notation.

5 Design Verification

5.1 Classification Requirements (1 March 2009)

A design verification to the ABS Rules is to be carried out for items indicated in 3-2/Table 1 (as applicable), as referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)” which gives the applicable PSA Facility Regulations and alternatives to the Facility Regulations for each SFI area. Additionally, technical verification is required for the supplementary items given in Appendix 1 of this Guide, and with respect to the NMD’s Regulations (Red Book), the delegated items given in Appendix 2 of this Guide.

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf

Upon completion of the technical verification, noted comments are to be satisfactorily addressed by the applicant.

TABLE 1
Classification Requirements (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
2, 20, 27, 28 26	Hull and Structure Turret	WSD Method Acceptable as per Sec 3 HES NMD Production
488	Jacking Systems, spud tank, Jetting Systems for Jack-Ups	
57	Ventilation, Air Conditioning and Heating Systems	Applicable to Ventilation in Hazardous Areas only
58	Sanitary Systems with discharge	
60, 62, 63, 64, 65, 66	Machinery and Main components	
70, 71, 72, 73, 74, 79	Systems for Machinery and Main components	

TABLE 1 (continued)
Classification Requirements (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
80	Common Systems Ballast and Bilge Systems	
813, 819	Fire/Washdown Systems, Emergency Fire Pumps, General Service Pumps, Fire Fighting Systems for external fires, Fire Fighting Systems with CO ₂ and Halon	
82	Air and Sounding Systems from tank to deck	
83	Special common Hydraulic Systems	

5.3 NMD Requirements Common with Class (1 March 2009)

NMD design verification requirements for items indicated in 3-2/Table 2 are referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)”. This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

For NMD updates, visit:

www.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/.

Items in 3-2/Table 2 will also be reviewed to the ABS Rules, as applicable.

During the contractual stage, ABS may be requested to issue a Statement of Compliance as part of the design verification process.

TABLE 2
NMD Requirements Common with Class (1 March 2009)

<i>Enclosure D Area</i>	<i>Reference</i>	<i>Comments</i>
1	Stability, Watertight and Weathertight integrity	NMD NMD Production 17, 2.3
2, 488	Hull and Structures, Jacking System	NMD Construction 6, 7, 10 NMD Stability 22, 30
11	Arrangement, Escape Ways, Hazardous Areas	NMD Construction NMD Living Quarters NMD Fire NMD Operations, 13 AoC Handbook Enc A3
810 811	Fire detection, fire and lifeboat alarm systems	NMD Fire except specific requirements to sound and light alarms for 810 only
566	Helicopter Decks with equipment	NMD Helideck
66	Aggregates and generators for emergency power productions	NMD Construction NMD Production
80, 82	Ballast and Bilge Systems	NMD Ballast NMD Pollution
36B	Offloading Systems	NMD Production
26	Turret	NMD Production
43 (401-407)	Anchoring, mooring and towing equipment	NMD Anchoring/Production

TABLE 2 (continued)
NMD Requirements Common with Class (1 March 2009)

<i>Enclosure D Area</i>	<i>Reference</i>	<i>Comments</i>
408	Dynamic Positioning Plant	NMD Anchoring IMO MSC 645
46	VOC/Blanket Gas System	NMD Production
85	Electrical Systems General Part	NMD Construction (and reference to 89/336/EEC and 92/31/EEC) Regulations concerning maritime electrical installations For SFI 87 and 88 refer to SFI 408 for dynamically positioned units. See 3-2 Table 4
86	Electrical Power Supply	
87	Electrical Distribution Common Systems	
88	Electrical Cable Installation	
89	Electrical Consumers (lighting etc.)	

5.5 NMD Requirements in Addition to Class (1 March 2009)

NMD design verification requirements for items indicated in 3-2/ Table 3 are referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)”.

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

For NMD updates, visit:

www.sjofartsdir.no/en/Legislation_and_International_Relations/Translated_Norwegian_legislation/.

TABLE 3
NMD Requirements in Addition to Class (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
11	Winterization Working Environment	NMD Construction NMD Living Quarters Enclosure A3
41 427	Navigation and Searching Equipment, Light and Signal Equipment Coast Directorate Regulations for marking of facilities in the Petroleum Industry	NMD Construction NMD Helicopter Decks
421	Radio Equipment, Communication Equipment	NMD Radio
422	Lifeboat radio transmitters, emergency radios, direction finder	NMD Lifesaving Appliances
425	Calling, System, Command etc.	NMD Fire NMD Crane NMD Anchoring See SFI 811
441-447	Repair Maintenance, Cleaning Equipment and Outfitting Machine tools, Cutting and Welding equipment	Facility Regs Sec. 9 NMD Welding
448	Name Plates (markings) on machinery, pipes, cables	NMD Protective Environmental
45	Lifting and Transport Equipment for machinery components (Offshore Cranes see Area 563)	NMD Protective Environmental

TABLE 3 (continued)
NMD Requirements in Addition to Class (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
501	Lifeboats with equipment	Follow Facilities Regulations directly (deviation from AoC Handbook Rev 3) For new facilities or after larger rebuilding projects free-fall lifeboats are required. Both lifeboats and MOB boat must be addressed under these regulations
502, 503	Life rafts with equipment, Lifesaving and emergency equipment	NMD Life Saving Appliances
504	Medical and Dental Equipment, Medicines and First Aid Equipment	NMD Living Quarters Facility Regs Sec. 60, 61
505	Loose fire fighting Apparatuses and Equipment, fireman's suit	NMD Fire
51, 52, 53	Living Quarters : It is presupposed that the requirements concerning watertight integrity and load line will be considered in Area 9	NMD Construction NMD Living Quarters NMD Fire
54, 55	Living Quarters	NMD Living Quarters
561 563	Personnel Lifts, Escalators (other than drill floor) Deck Cranes (see 1.1/§ 22a of Appendix 2)	NMD Protective Environmental NMD Construction 23
57	Ventilation, air conditioning and heating system	NMD Fire
76	Distilled and made-up water Systems	NMD Potable Water
79	Automation systems for machinery	NMD Risk Analysis 22

Note

- 1 SFI11, 441-447, 45, 504, 54, 55, 561, 563, 79 of 3-2/Table 3 above
EU directives and owner's management system covered by the AoC are not included in the N-Notation.

5.7 PSA Requirements (1 March 2009)

Emergency shutdown indicated in 3-2/Table 4 is referenced in Enclosure D of OLF/NR, "Handbook for Application for Acknowledgement of Compliance (AoC)".

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

TABLE 4
Emergency Shutdown (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
812	Emergency Shut Down FR Sec. 32 (Well Testing Facilities as process for Drilling Unit)	ISO 13702 Ch.6 and 7 and App B.2 and B.3
	FR Sec. 33 (Well Testing)	ISO 10418 or API 14C
	FR Sec. 34 (Well Testing)	ISO 13702 Ch.6 and App B.2 S-001 Ch.6.9 and App E

5.9 Production Facilities (1 March 2009)

PSA design verification requirements for items indicated in 3-2/Table 5 are referenced in Enclosure D of OLF/NR, “Handbook for Application for Acknowledgement of Compliance (AoC)”.

This Handbook is available at:

www.olf.no/getfile.php/Dokumenter/Retningslinjer/061-080/065%20AoC%20Handbook.pdf.

It is recommended that the production system be classed in accordance with the ABS Facilities Guide to avoid any difficulties that the interfaces between plant and vessel may create.

TABLE 5
PSA – Production Facilities (1 March 2009)

<i>Enclosure D Areas</i>	<i>Item</i>	<i>Comments</i>
---	Production Plants General	PSA Facilities Regulations Chapter IV-II Including guidelines
301B	Inlet from risers, manifold, swivels etc.	S-001, S-002N, L-001, L-002, P-001, P-100, R-004, M-001, M-601, ISO 6385, 13702
302B	Separation Equipment (including water treatment)	As in 301B and R-001, R-100, S-005
303B	Compression Equipment	As in 301B and R-001, S-005, NS 4931
304B	Water injection Equipment	As in 301B
31B	Auxiliary Equipment, Dedicated Process Equipment	As in 301B
32B	Chemical Equipment	As in 301B
331B	Process Shut Down (PSD)	S-001, S-002N, ISO 13702, 11064, 10418 (API 14C), IEC 61508, NS-EN 614, 894, OLF-Guideline 70, PSA YA-710
332B	Emergency Shutdown (ESD)	As in 301B
333B	De-pressurization, Safety Valves, corresponding Flare Systems	As in 301B
334B	Open Drains for Process Facility	S-001, L-001, P-001, ISO 13702
34B	Load Bearing Structure for Process Equipment	NMD Production
36B	Offloading Equipment	L-001, L-002
37B	Metering for Oil and Gas export, Injection, Combustion of Gas, Flaring Gas	FR Sec 9, Sec 16 Management Reg Sec 18

Note: (1 March 2009) The NORSOK standards are available at <http://www.standard.no/imaker.exe?id=541>

7 Certification of Materials and Equipment

In addition to the ABS classification surveys per applicable ABS Rules and Guides, surveys carried out at the supplier’s facility are also to meet the design verification requirements of Chapter 3, Section 2 of this Guide.

9 Surveys During Construction

In addition to the ABS classification surveys per applicable ABS Rules and Guides, surveys carried out during construction of the MOPU are also to meet the design verification requirements of Chapter 3, Section 2 of this Guide.

11 Surveys After Construction (1 March 2009)

Surveys after construction during the maintenance phase are to be carried out at intervals defined in the ABS Rules and in accordance with applicable ABS Rules and Guides.

Gap analyses are to be carried out at intervals not exceeding five years, and preferably before completion of the Special Periodical Survey, **to show that the applicant has control over the effect of change between the original and latest edition of the applicable technical references**. This analysis may be required by PSA at more frequent intervals.

13 Procedures for Classification

To avoid duplication of work, activities related to the issuance and maintenance of the N-Notation are to be carried out as an integral part of the activities related to the class requirements of MOPUs. Class procedures are to be followed for the issuance of applicable class notations.

15 Limitations (1 March 2009)

The following items subject to PSA requirements **for the AoC application** are outside the scope of the N-Notation:

- Emergency preparedness
- Owner's management systems onboard and onshore.
- Development of risk analysis.
- Prevention of harmful effects of tobacco.
- Working protection and working environmental issues.
- European Union (EU) Directives
- Regularity and Reliability Issues
- Protection against pollution
- **Cranes and lifting appliances (Deck Cranes see 1.1/§ 22a of Appendix 2)**
- **Welding central**
- **Water Quality**
- **Operational Requirements**
- **Production Plant (N-Notation optional)**
- **Winterization and Arctic operation issues**

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APPENDIX **1** **Additional Classification Requirements (1 March 2009)**

Summary of Gap Analysis

For units operating in the Norwegian Continental Shelf, ABS will carry out additional reviews for the following:

<i>Item</i>		<i>Gap Requirements</i>
1	Bilge System	A graphic panel, showing all components of bilge and drainage systems shall be suitably positioned at the bilge pumping station.
2	Platform Piping	Pipe tunnels to be fitted with an air pipe not less than 75 mm internal diameter.
3	Platform Piping	Sounding rods are to be spark proof for liquids having flash point below 60°C.
4	Machinery Piping	Strums shall be fitted to all sea chest openings in the shell plating. The total area of the strum holes shall be at least twice the total floor area in the sea water inlet valves.
5	Machinery Piping	Remote stop of hydraulic oil pumps from a central place outside the engine and boiler rooms is to be provided.
6	Steam Systems	If two or more boilers are connected to a common header or steam manifold the steam connection to each boiler shall be provided with two shut off valves with a free blowing drain in between. This requirement does not apply to exhaust gas economizers with forced circulations.
7	Hydraulic Cylinders	Piston rods with diameter less than 5% of the length between the mountings in the fully extracted position, buckling calculations shall be documented.
8	Ventilation	Engine room supply and exhaust fans are to be arranged with redundancy.
9	Gas Turbines	Gas turbines are to be shut down on loss of control power failure.
10	Thrusters	It should be possible to lock the thrusters in the neutral position to allow it to produce thrust in case its steering gear is inoperative.
11	Thrusters	<ul style="list-style-type: none"> a) Lubricating oil tanks are to be provided with a low level alarm. b) Torsional vibrations – calculations for the first and second order natural frequency shall be submitted. Natural frequencies are not permitted in the range 0.8 - 1.2 blade order frequency at MCR unless the vibratory torque is documented to be within approved limits.
12	Compressors	Design of crankshafts are to be provided for air compressors rated above 200 kW.
13	Boilers	Boilers and steam heated generators are to be provided with two safety valves for heating surface of 10 m ² and greater

<i>Item</i>		<i>Gap Requirements</i>
14	Steering Gear	Overbalanced rudders and rudders of unconventional design: a) The influence of increased friction due to age and wear of bearings on steering gear torque capacity shall be duly considered. Unless such friction losses are accounted for and specified in submitted approval documentation, the friction coefficient for the bearing in worn condition shall be taken at least twice as when new. b) Steering gear shall be capable of bringing the rudder from any rudder angle back to neutral position. This is to be verified by testing on sea trial
15	Jacking Systems	An interlock is to be provided between electrical motor and fixation rack system (if any) in order to prevent power supply to the motors when the fixation rack is engaged.
16	Jacking Systems	A permanent remote indication of loads during jacking and retrieval is to be provided. For lattice leg unit the load per chord is to be presented. Alarm is to be given when maximum load is exceeded.
17	CSDU SEDU	Additional analysis to demonstrate adequacy of unit's for installation and retrieval. Loads to be considered are: a) functional loads b) maximum environmental loads and associated functional loads c) accidental loads and associated functional loads d) environmental loads corresponding to a return period of one year and associated functional loads after credible or accidental events e) environmental loads corresponding to a return period of one year and associated functional loads in a heeled condition corresponding to accidental flooding The applied loads are to be at least 80% of the loads associated with the severe storm condition that was used for the design of the unit. The maximum calculated stresses in the structure after the loss of a slender bracing member are to be less than the specified minimum yield strength of the material.
18	Unit's Condition	Strength analysis to demonstrate unit's adequacy for the damaged condition.
19	Design Load Condition	Additional analysis for accidental loads and one year return period for all loading requirements as 17 above.
		For Column Stabilized Drilling Units, structural redundancy is required so that the unit's structure is to be able to withstand the loss of a slender bracing member without causing a collapse of the unit's structure.
		For Jack-Ups assumed damaged condition such as loss of one main carrying brace or loss of one main load carrying deck girder may not be required due to high redundancy but damage condition in transit due to accidental flooding causing the unit heeling is required For Jack-Ups, since lattice legs have a high degree of structural redundancy, analysis to demonstrate structural redundancy is not required.
20		Design to account for site specific environmental conditions.
		For Jack-Ups, analyses are to be submitted to demonstrate adequacy of foundation (soils).
21	Ship Type	For ship shape units: 1. Adequacy for the unit is to be assessed for the following loads: a) Maximum gravity and functional loads b) Design environmental loads and associated gravity and functional loads c) Accidental loads and associated gravity and functional loads d) Design environmental loads and associated gravity and functional loads after credible failures or accidents e) Maximum gravity and functional loads in a heeled condition after accidental flooding 2. Design to account for site specific environmental conditions

**APPENDIX 2 Extract – Applicable NMD
Technical Delegated Items
(1 March 2009)**

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APPENDIX **2** **Extract – Applicable NMD** **Technical Delegated Items** *(1 March 2009)*

1 With Respect to the NMD's Regulations for Mobile Offshore Units (Red Book)

1.1 Regulations of 4 September 1987 no. 856 Concerning Construction of Mobile Offshore Units

The RO shall verify that specific requirements in the following paragraphs are met:

§ 6.1 and § 6.2

- Hull construction and strength, including selection of materials, for operation in the anticipated environmental conditions of the areas in which the unit will operate.
- Strength calculations of the unit and parts thereof, in accordance with applicable design criteria and calculation systematics as set forth in the RO's classification rules. The term 'main structural members' (ref.§ 6.2.1) includes, where applicable, items like derrick and derrick foundations, flare boom and flare boom foundation, stringer and stringer foundation and foundations of winches and of launching arrangements for lifeboats, rescue boats and life rafts.
- That the calculations take into consideration the effect of accidental loads as identified in the risk analysis and duly consider residual hull strength. Ref. Regulations of 22 December 1993 no. 1239 concerning risk analysis for mobile offshore units and regulations of 20 December 1991 no. 878 concerning stability, watertight subdivision and watertight/weathertight closing means on mobile offshore units.

§ 6.2.1, 6.2.9 and 6.5

Elevating system of jack-up units

§ 6.4

Construction, performance and control, including NDE (nondestructive examination).

§ 6.7.1

Securing of superstructures, heavy equipment and deck load with regard to withstanding the determined angles of heel. Note 1

§ 6b

Machinery system as listed in the regulations in accordance with RO rules. Machinery in hazardous areas in accordance with Chapter 6.7 of the MODU Code.

§ 7.3.2.1 and § 7.3.2.4

Minimum design temperatures used in the design and construction of the unit and in particular the structural strength consequence evaluation of ice load on components and equipment. Include hull, helicopter deck, deck cranes, and davits for lifeboats, rescue boats and life rafts, etc.

§ 22a

Verification of compliance with [NS-EN 13852-1] or an equivalent international standard. Note 2

Note 1 Refer to Regulations of 20th December 1991 no. 878 concerning stability, watertight subdivision and watertight/weathertight closing means on mobile offshore units

Note 2 This delegation enters into force when §22a in Regulations of 4th September 1987 concerning the Construction of MOU is adopted and enters into force.

1.3 Regulations of 31 January 1984 no. 227 Concerning Precautionary Measure Against Fire and Explosion on Mobile Offshore Units

The RO shall verify that specific requirements in the following paragraphs are met:

§ 6 and § 7

Dimensioning, strength, function, and workmanship of the components of the fire extinguishing system in accordance with the RO's Rules with respect to levels of pressure, capacity, load and the like, as specified in the NMD regulations.

3 Regulations of the 17 December 1986 no. 2319 Concerning Field Moves and Towing Of Mobile Offshore Units and Concerning Towing System and Mooring of Supply Ships at Such Units

The RO shall verify that specific requirements in the following paragraphs are met:

§ 7.10.2 and § 8.1

Construction and strength of towing fastening devices, their supporting structure and the fender systems.

5 Regulations of 4 September 1987 no. 857 Concerning Anchoring/Positioning Systems on Mobile Offshore Units

The RO shall verify that specific requirements in the following paragraphs are met:

§ 6.4

Strength, function, and workmanship of fairleads, in accordance with the RO's Rules with respect to levels of design, tension, capacity and the like, as specified in the NMD regulations.

§ 6.5.6

Strength, function, and workmanship of the components in the systems for thrusters-assisted and dynamic positioning, in accordance with the RO's Rules with respect to levels of design, tension, capacity and the like, as specified in the NMD regulations.

7 Regulations of 20 December 1991 no. 878 Concerning Stability, Watertight Subdivision and Watertight/ Weathertight Closing Means on Mobile Offshore Units

The RO shall verify that specific requirements in the following paragraphs are met:

§ 30

Strength of watertight bulkheads.

§ 39

Strength, function, and workmanship of hydraulic system for watertight closing means, in accordance with the RO's Rules with respect to levels of pressure, capacity, load and the like, as specified in the NMD regulations.

9 Regulations of 20 December 1991 no. 879 Concerning Ballast Systems on Mobile Offshore Units

The RO shall verify that specific requirements in the following paragraph are met:

§ 9

Strength, function and workmanship of the components in accordance with the RO's Rules with respect to levels of pressure, capacity, load and the like, as specified in the NMD regulations.

11 Regulations of 10 February 1994 no. 123 for Mobile Offshore Units with Production Plants and Equipment

The RO shall verify that specific requirements in the following paragraphs are met:

§ 12

Strength of hull structure.

§ 13.2, 13.3 and 13.4

Strength, function, and workmanship of the components of machinery and piping system to be in accordance with the RO's Rules with respect to levels of pressure, capacity, load and the like, as specified by the NMD regulations.

§ 15

Turret systems and its bearings.

§ 17.2

Capability and strength to withstand a collision as specified.

§ 35.3

Capabilities of the loading and mooring systems.

13 Regulations of 22 December 1993 no. 1240 Concerning Helicopter Decks on Mobile Offshore Units

The RO shall verify that specific requirements in the following paragraphs are met:

§ 8 and § 11

Material quality and strength of helicopter deck.