

TÜRK LOYDU



Chapter 59 – Offshore Units and Installations- Classification, Certification and Surveys January 2024

This latest edition incorporates all rule changes. The latest revisions are shown with a vertical line. The section title is framed if the section is revised completely. Changes after the publication of the rule are written in red colour.

Unless otherwise specified, these Rules apply to ships for which the date of contract for construction as defined in TL- PR 29 is on or after 1st of January 2024. New rules or amendments entering into force after the date of contract for construction are to be applied if required by those rules. See Rule Change Notices on TL website for details.

"General Terms and Conditions" of the respective latest edition will be applicable (see Rules for Classification and Surveys).

If there is a difference between the rules in English and in Turkish, the rule in English is to be considered as valid. This publication is available in print and electronic pdf version. Once downloaded, this document will become UNCONTROLLED. Please check the website below for the valid version.

<http://www.turkloydu.org>

All rights are reserved by Türk Loydu, and content may not be reproduced, disseminated, published, or transferred in any form or by any means, except with the prior written permission of TL.

TÜRK LOYDU

Head Office PostaneMah. Tersaneler Cad. No:26 Tuzla 34944 İSTANBUL / TÜRKİYE
Tel : (90-216) 581 37 00
Fax : (90-216) 581 38 00
E-mail : info@turkloydu.org
<http://www.turkloydu.org>

Regional Offices

Ankara Mustafa Kemal Mahallesi, Dumlupınar Bulvarı, Mahall Ankara B Blok Daire No:184
Çankaya - ANKARA / TÜRKİYE
Tel : (90-312) 219 56 34
Fax : (90-312) 219 68 25
E-mail : ankara@turkloydu.org

İzmir Atatürk Cad. No :378 K.4 D.402 Kavalalılar Apt. 35220 Alsancak - İZMİR / TÜRKİYE
Tel : (90-232) 464 29 88
Fax : (90-232) 464 87 51
E-mail : izmir@turkloydu.org

Adana ÇınarlıMah. Atatürk Cad. Aziz NaciİşMerkezi No:5 K.1 D.2 Seyhan - ADANA / TÜRKİYE
Tel : (90- 322) 363 30 12
Fax : (90- 322) 363 30 19
E-mail : adana@turkloydu.org

Offshore Units And Installations-Classification, Certification And Surveys

	Page
Section 1 Classification	
A. General	1-2
B. Definitions	1-3
C. Limits of Classification	1-5
D. Application	1-6
E. Rules, Guidelines and Regulations	1-11
F. Period and Validity of Class	1-12
G. Classification Procedures	1-15
Section 2 - Class Designation For Mobile Offshore Units	
A. General	2-2
B. Characters of Classification	2-2
C. Notations Affixed to the Character of Classification	2-3
Section 3 - Survey of Mobile Offshore Units	
A. General	3-2
B. Periodical Surveys For Units	3-6
C. Occasional Surveys	3-17
D. Guidelines for the Survey of Offshore Mooring Chain Cable in Use	3-18
Appendix A - Underwater Inspection in Lieu of Drydocking Survey	3-26
Appendix B - Minimum Requirements For Thickness Measurements For Class Renewal Survey	3-28
Section 4 - Class Designation For Fixed Offshore Installations	
A. General	4-2
B. Characters of Classofication	4-2
C. Notations Affixed to the Character of Classification	4-3
Section 5 - Survey of Fixed Offshore Installations	
A. General	5-2
B. Periodical Surveys For Installations	5-5
C. Occasional Surveys	5-15
Section 6 - Certification	
A. Certification and Objectives	6-2
B. Certification Procedures For New Constructions	6-2
C. Modifications to Existing Offshore Units or Installations	6-5

SECTION 1

CLASSIFICATION

	Page
A. General	1-2
1. Prerequisites for Classification	
2. Scope of Classification	
B. Definitions	1-3
1. Mobile Offshore Unit	
2. Fixed Offshore Installation	
3. Administration and Coastal State	
4. Types of Units and Installations	
5. Modes of Operation	
C. Limits of Classification	1-5
1. Date of Contract	
2. Sister Units/Installations	
D. Application	1-6
1. General Requirements	
2. Types of Offshore Constructions	
3. Subject of Investigation	
E. Rules and Guidelines, Regulations.....	1-11
1. Underlying TL Rules	
2. Other TL Rules and Guidelines	
3. Other Rules	
4. Industry Codes, Standards	
F. Period and Validity of Class	1-12
1. Period of Class	
2. Requirements	
3. Laid-up Units or Installations out of Operation	
4. Change of Ownership	
5. Suspension and Withdrawal of Class	
G. Classification Procedures	1-15
1. Classification of New Constructions	
2. Admission to Class	

A. General**1. Prerequisites for Classification**

1.1 The Rules for Classification and Surveys apply to the Classification of mobile offshore units as well as fixed offshore installations as defined in B.1. and B.2.

1.2 The Rules published by **TL** give the requirements for the assignment and the maintenance of Class for the Classification of mobile offshore units as well as for fixed offshore installations.

1.3 Class assigned to a mobile offshore unit as well as to a fixed offshore installation, reflects the opinion of **TL** that the mobile offshore unit or fixed offshore installation, for declared conditions of use and within the relevant time frame, complies with the Rules applicable at the time the service is rendered.

1.4 The General Terms and Conditions as defined in the **TL** Rules, Classification and Surveys, Section 1 at the time of signing of the contract with the Owner or prospective owner, the building yard or other subcontractors apply.

1.5 Classification essentially means the:

- Review/approval of design documents, construction plans and material specifications in comparison with the applicable Rules according to Chapter 60 to 64 of these Rules or other applicable Rules and Guidelines of **TL**.
- Supervision of new constructions or conversions
- Supervision of mobile offshore units as well as of fixed offshore installations in service by surveys required by **TL**'s Rules in order to ascertain that a condition is maintained, which complies with Class requirements

2. Scope of Classification**2.1 New Constructions**

2.1.1 Classification covers the mobile offshore unit's or the fixed offshore installation's hull/structure and machinery including electrical installations as well as special equipment and installations as far as agreed in the building specification between the prospective owner and the building yard. Classification aims primarily at ensuring reliability of the hull/structure and machinery systems on board, resulting in an adequate level of safety of personnel and environmental protection. However, Classification is not intended to ensure the effectiveness of the intended use on purpose.

2.1.2 Hull/structures, machinery and equipment determining the type of mobile offshore unit or fixed offshore installation are subject to examination within the scope of Classification, in accordance with the Character of Classification and affixed Class Notations.

Other systems and components may be included in the Classification and/or Certification procedure upon request of the prospective mobile offshore unit's Owner or the fixed offshore installation's Owner, the building yard or other subcontractors.

2.1.3 Upon completion of construction and trials, the Class Certificate(s) will be issued and will be kept on board, unless another location is agreed. The Certificates have a defined period of validity (Class Period), and may be renewed after prescribed thorough surveys, see Sections 3 and 5.

2.2 Existing mobile offshore units or fixed offshore installations

Consent may be given for existing mobile offshore units or fixed offshore installations, not built under **TL**'s supervision, to be classified and subjected to the corresponding inspection routine. In such a case, a class entry survey by a qualified surveyor will be performed regardless of the unit or the installation type. The class entry survey is normally comprised of the review of existing design documents and service records, a thorough onsite survey of the mobile offshore unit, or fixed offshore installation, including

investigation of the underwater hull/structure and foundations, verifications by measurement where necessary, and tests/trials of equipment and machinery as far as agreed and/or essential for safety, see also G.2. Underwater survey shall not be dispensed with in any case.

B. Definitions

1. Mobile Offshore Unit

Mobile offshore unit, in the following abbreviated as "unit", means any mobile offshore structure or vessel, whether designed for operation afloat or supported by the sea bed and intended for use in offshore operations and related activities.

Drilling unit means any unit intended for use in offshore drilling operations for the exploration or exploitation of the subsea resources.

Self-propelled unit means any unit which is designed for unassisted passage. All other units are considered as non-self-propelled.

For ship-shaped units the provisions of **TL Rules** - Classification and Surveys, as far as applicable, generally apply.

2. Fixed Offshore Installation

Fixed offshore installation or platform, in the following abbreviated as "installation", means any offshore installation permanently fixed to the seabed and intended for diverse purposes.

3. Administration and Coastal State

Administration is the Government of the State whose flag the unit or installation is entitled to fly.

Coastal state means the government of the state exercising administrative control over the drilling operations of the unit. Particular attention should be paid if more than one coastal state is controlling the operations based on international agreements on specific areas.

4. Types of Units and Installations

The offshore units or installations to which these Rules apply may be categorized according to the following criteria:

4.1 Method of connection to the sea bed

The following types of construction may be distinguished:

4.1.1 Floating units

- Units connected to the sea bed by anchoring (mooring)
- Units kept on position by dynamic positioning/propelling system
- Units temporarily connected to the sea bed by legs in jacked up condition (self elevating units)

4.1.2 Fixed installations

- Installations permanently fixed by piling (pile foundation)
- Installations resting on the sea bed by action of gravity (gravity foundation)
- Installations with excess of buoyancy, connected to a base by tensioned anchoring elements (tension leg foundation)

4.2 Materials used for construction of the hull/main structure

The following materials may be used for the hull/main structure:

- Steel
- Reinforced concrete
- Any other suitable material
- Combination of above materials

4.3 Use or employment

The following types of employment may be distinguished:

- Drilling/exploration
 - self-elevating drilling units
 - column stabilized drilling units
 - surface drilling units of ship or barge type
 - other types of drilling units
- Production, e.g. oil/gas
- Processing/treatment
- Storage or loading on/off
- Research, measurements
- Other types of employment

4.4 Manning

The following types of manning have to be distinguished:

- Continuously manned installations or units
- Temporarily or intermittently manned installations
- Normally unmanned installations

Depending on the use and attendance arrangements, the provisions of the Rules may need to be subject to agreement.

4.5 Further terms

Further definitions of special terms are given in the relevant Chapters and Sections.

5. Modes of Operation

5.1 General

A mode of operation is a condition or manner in which a unit or installation may operate or function while on location or in transit. Distinction is to be made between the different modes of operation in connection with safety factors and other safetyrelevant criteria.

Insofar the requirements of these Rules are concerned the approved modes of operation for a unit or installation shall include the following.

5.2 Transitional conditions

- Transportation from the construction site to the final operating location
- Installation/assembly at the site of operation
- Removal/recovery of the unit or installation
- All unit or installation movements from one geographical location to another

5.3 Operating conditions

Operating conditions are conditions where a unit is on location for purposes of drilling or other operations, and combined environmental and operational loadings are within the appropriate design limits established for such operations. The unit or installation may be either afloat or supported on the sea bed, as applicable. For environmental conditions see Chapter 62, Section 1.

5.4 Severe storm conditions

These are conditions during which a unit or installation may be subjected to the most severe environmental loading for which the unit or installation is designed. Drilling or other operations may have to be discontinued due to the severity of the environmental loading. The unit or installation may be either afloat or supported on the sea bed, as applicable.

C. Limits of Classification

The following shall apply unless otherwise specified:
(For further details, see TL-PR 29)

1. Date of Contract

The date of "contract for construction" of a unit or installation is the date on which the contract to build the unit or installation is signed between the prospective owner and the building yard. This date is normally to be declared to **TL** by the ordering client applying for the assignment of Class to new constructions.

Special consideration may be given for applying new or modified rule requirements which entered into force subsequent to the date of the contract, at the discretion of **TL** and in the following cases:

- when a justified written request is received from the party requesting for Classification,
- when the keel is not yet laid and more than one year has elapsed since the contract was signed,
- where it is intended to use existing previously approved plans for a new contract,
- Where building is interrupted or prolonged for a period of time which is beyond predicted timeline.

Requests for activities by **TL**, such as request for Classification, surveys during construction, surveys of units or installations in service, tests, etc., are in principle to be submitted in writing and signed by the prospective owner and the building yard or the other subcontractors. Such request implies that the ordering party will abide by all the relevant requirements of the Rules and the General Terms and Conditions of **TL**.

2. Sister Units/Installations

The date of "contract for construction" of a series of sister units or installations, including specified optional units or installations for which the option is ultimately exercised, is the date on which the contract to build the

series is signed between the prospective owner and the building yard. Particular attention should be paid especially for drilling systems on MODUs which may vary based on developing technologies in time therefore sister MODUs are to have exactly same drilling systems including hull, machinery and electrical features.

Sister units or installations are such built to the same approved plans for Classification purposes. The optional units or installations will be considered part of the same series of sister units or installations if the option is exercised not later than one year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional units or installations or additional options, the date of "contract for construction" for such units or installations is the date on which the amendment to the contract is signed between the prospective owner and the building yard. The amendment to the contract is to be considered as a "new contract" to which 1. and 2. apply.

4. The above procedures for application of the Rules are, in principle, also applicable to existing units as well as to installations in the event of major conversions or major alterations, to parts of the unit or installation.

5. The Rules, surveys performed, reports, Certificates and other documents issued by **TL**, are not intended to replace or alleviate the duties and responsibilities of parties such as Administrations, designers, building yards, manufacturers, repairers, suppliers, contractors or subcontractors, actual or prospective owners or operators, charterers, brokers, cargo-owners and underwriters. **TL** cannot assume therefore the obligations arising from these functions, even when **TL** is consulted to answer inquiries concerning matters not covered by its Rules, or other documents.

6. The activities of such parties which fall outside the scope of the Classification as set out in the Rules, such as design, engineering, manufacturing, operating alternatives, choice of type and power of machinery and

equipment, number and qualification of crew or operating personnel, lines of the units or installations, as applicable, trim, hull/structure vibrations, spare parts, location and fastening arrangements, life-saving appliances, maintenance equipment and landing operations, remain therefore the responsibility of those parties, even if these matters may be given consideration for Classification according to the type of unit or the installation or Class Notation assigned.

7. The Classification-related services and documents performed and issued by **TL** do not relieve the parties concerned of their responsibilities or other contractual obligations expressed or implied or of any liability whatsoever, nor do they create any right or claim in relation to **TL** with regard to such responsibilities, obligations and liabilities. In particular, **TL** does not declare the acceptance or commissioning of a unit or installation or any part of it, this being the exclusive responsibility of the owner or other subcontractor.

8. Unless otherwise specified, the Rules do not deal with equipment such as pressure vessels, machinery and other equipment which is permanently installed and used solely for operational activities such as dredging, heavy load lifting or workshops, except for their effect on the Classification-related matters, such as the unit's or the installation's general strength.

9. During periods of construction, modification or repair, the unit or installation is solely under the responsibility of the builder or the repair yard. As an example, the builder or repair yard is to ensure that the construction, modification or repair activities are compatible with the design strength of the unit or installation and that no permanent deformations are sustained.

10. As regards to the Owner's responsibility for maintenance and operation of the unit or installation in relation to the maintenance of Class, see Sections 3 and 5.

D. Application

1. General Requirements

1.1 Scope

These Rules apply to all units and installations intended for use in offshore operations and related activities that are designed to be operated continuously or for a defined period at an offshore location.

1.2 Coming into force

Classification according to these Rules shall not apply to those units or installations contracted for construction prior to the effective date of coming into force of these Rules.

Classification according to these Rules may also be applied to existing units or installations, which have been built/erected before these Rules entered into force, with the decision of **TL** HO and / or when specially requested by an Owner and provided sufficient supporting documentation is submitted and it is subsequently surveyed to determine that they are of an equivalent standard.

1.3 Equivalence

TL reserve the right to consider designs for Classification which have similar configurations and modes of operation to those described in these Rules, if they are deemed to be equivalent and/or suited for the intended service, or alternatively, to impose more stringent requirements should these be deemed to be justified.

In addition, evaluation must be made of possible loading conditions peculiar to the type of units or installations under consideration. Calculations sustaining the adequacy of the design are to be submitted to **TL**. Machinery and electrical installations, etc. for other special purpose units or installations will be subject to approval by **TL**, as found to be applicable.

1.4 Confidentiality

1.4.1 No information, whatsoever related to the class of the unit, or the installation, will be provided or confirmed to any third party, unless the appropriate request for information is duly completed and signed by the party making the request and the authorisation of the current Owner is obtained.

1.4.2 TL maintains confidentiality with respect to all documents and other kinds of information received in connection with the orders entrusted to TL. TL shall comply with the security procedures, if any, agreed upon with the prospective Owner of the unit or the installation, and the building yard.

1.5 Interpretation

TL alone is qualified to decide upon the meaning, interpretation and application of the Rules and other Classification related documents. No reference to the Rules or other Classification-related documents has any value unless it involves, accompanies or follows the intervention of TL.

1.6 Disagreement and appeal

1.6.1 Any technical disagreement with the Surveyor in connection with the performance of his duties should be raised by the Owner, building yard or other subcontractor as soon as possible.

1.6.2 The Owner, building yard or other subcontractor may appeal in writing to TL, which will subsequently consider the matter and announce its decision according to its established procedure.

1.7 Duties of the interested parties

1.7.1 International and national regulations

The Classification of a unit or installation does not absolve the Owner, building yard or other subcontractor from compliance with any requirements issued by Administrations.

In the event of disputes, the text of the International and National Rules and Regulations will prevail.

When authorised by the Administration concerned, TL will act on its behalf within the limits of such authorisation. In this respect, TL will take into account the relevant requirements, will survey the unit or installation, and will report and issue, or contribute to the issue, of the corresponding Certificates.

The above surveys do not fall within the scope of the Classification of units or installations, even though their scope may overlap in part and may be carried out concurrently with surveys for assignment or maintenance of Class.

In the case of discrepancies between the provisions of the applicable International and National Regulations and those of the Rules, the applicable International and National Regulations normally take precedence. However, TL reserve the right to call for the necessary adaptation to preserve the intention of the Rules or to apply the provisions of the scope of Classification.

1.7.2 Surveyor's intervention

Surveyors are to be given free access at all times to units or installations which are classed or being classed, as well as to building yards and manufacturer works, to carry out their interventions within the scope of assignment or maintenance of Class, or within the scope of interventions carried out on behalf of Administrations, when so delegated.

Free access is also to be given to experts or/and auditors accompanying the Surveyors to TL within the scope of the audits as required in pursuance of TL's internal Quality System or as required by external organizations.

Owners, building yards or other subcontractors are to take the necessary measures for the Surveyors' inspections and testing to be carried out safely. Owners, building yards or other subcontractor, irrespective of the nature of the service provided by the Surveyors to TL or others acting on TL's behalf, assume with respect to such Surveyors all the responsibility of an employer for his workforce such as to meet the provisions of applicable legislation. As a rule, the Surveyor is to be constantly accompanied during surveys by personnel of the Owner, building yard or other subcontractor.

The Certificate of Classification and/or other documents issued by **TL** remain the property of **TL**. All Certificates and documents necessary to the Surveyor's interventions are to be made available by the Owner, building yard or other subcontractor, to the Surveyor on request.

During the phases of design and construction of the unit or installation, due consideration should be given to rule requirements in respect of all necessary arrangements for access to spaces and hull/structures with a view to carrying out Class surveys. Arrangements of a special nature are to be brought to the attention of **TL**.

1.8 Access

1.8.1 Means of Access

1.8.1.1 Each space within the unit is to be provided with at least one permanent means of access to enable, throughout the life of a unit, overall and close-up inspections and thickness measurements of the unit's structures to be carried out by the Administration, the company, and the unit's personnel and others as necessary. Such means of access is to comply with the provisions of paragraph 1.8.4 and with the technical provisions for means of access for inspections, adopted by the Maritime Safety Committee by resolution MSC.133(76), as may be amended by IMO (see also TL- I MODU 1).

1.8.1.2 Where a permanent means of access may be susceptible to damage during normal operations or where it is impracticable to fit permanent means of access, the Administration may allow, in lieu thereof, the provision of movable or portable means of access, as specified in the technical provisions, provided that the means of attaching, rigging, suspending or supporting the portable means of access forms a permanent part of the unit's structure. All portable equipment is to be capable of being readily erected or deployed by the unit's personnel.

1.8.1.3 The construction and materials of all means of

access and their attachment to the unit's structure are to be to the satisfaction of the Administration. The means of access should be subject to inspection prior to, or in conjunction with, its use in carrying out surveys.

1.8.2 Safe access to holds, tanks, ballast tanks and other spaces

1.8.2.1 Safe Access to holds, cofferdams, tanks and other spaces is to be direct from the open deck and such as to ensure their complete inspection. Safe access may be from a machinery space, pump-room, deep cofferdam, pipe tunnel, hold, double hull space or similar compartment not intended for the carriage of oil or hazardous materials where it is impracticable to provide such access from an open deck.

1.8.2.2 Tanks, and subdivisions of tanks, having a length of 35 m or more, are to be fitted with at least two access hatchways and ladders, as far apart as practicable. Tanks less than 35 m in length are to be served by at least one access hatchway and ladder. When a tank is subdivided by one or more swash bulkheads or similar obstructions which do not allow ready means of access to the other parts of the tank, at least two hatchways and ladders are to be fitted.

1.8.2.3 Each hold is to be provided with at least two means of access as far apart as practicable. In general, these accesses are to be arranged diagonally, e.g., one access near the forward bulkhead on the port side, the other one near the aft bulkhead on the starboard side.

1.8.3 Access manual

1.8.3.1 A unit's means of access to carry out overall and close-up inspections and thickness measurements are to be described in an access manual which may be incorporated in the unit's operating manual. The manual is to be updated as necessary, and an updated copy maintained on board. The structure access manual is to include the following for each space:

- 1.8.3.1.1** plans showing the means of access to the space, with appropriate technical specifications and dimensions;
- 1.8.3.1.2** plans showing the means of access within each space to enable an overall inspection to be carried out, with appropriate technical specifications and dimensions. The plans are to indicate from where each area in the space can be inspected;
- 1.8.3.1.3** plans showing the means of access within the space to enable close-up inspections to be carried out, with appropriate technical specifications and dimensions. The plans are to indicate the positions of critical structural areas, whether the means of access is permanent or portable and from where each area can be inspected;
- 1.8.3.1.4** instructions for inspecting and maintaining the structural strength of all means of access and means of attachment, taking into account any corrosive atmosphere that may be within the space;
- 1.8.3.1.5** instructions for safety guidance when rafting is used for close-up inspections and thickness measurements;
- 1.8.3.1.6** instructions for the rigging and use of any portable means of access in a safe manner;
- 1.8.3.1.7** an inventory of all portable means of access; and
- 1.8.3.1.8** records of periodical inspections and maintenance of the unit's means of access.

1.8.3.2 For the purpose of this paragraph "critical structural areas" are locations which have been identified from calculations to require monitoring or from the service history of similar or sister units to be sensitive to cracking, buckling, deformation or corrosion which would impair the structural integrity of the unit.

1.8.4 General technical specifications

1.8.4.1 For access through horizontal openings,

hatches or manholes, the dimensions are to be sufficient to allow a person wearing a self-contained air-breathing apparatus and protective equipment to ascend or descend any ladder without obstruction and also provide a clear opening to facilitate the hoisting of an injured person from the bottom of a confined space. The minimum clear opening is not to be less than 600 mm x 600 mm. When access to a hold is arranged through a flush manhole in the deck or a hatch, the top of the ladder is to be placed as close as possible to the deck or hatch coaming. Access hatch coamings having a height greater than 900 mm is also to have steps on the outside in conjunction with the ladder.

2.2.4.2 For access through vertical openings, or manholes, in swash bulkheads, floors, girders and web frames providing passage through the length and breadth of the space, the minimum opening is not to be less than 600 mm x 800 mm at a height of not more than 600 mm from the bottom shell plating unless gratings or other footholds are provided.

2. Types of Offshore Constructions

2.1 Units and installations

These Rules as defined in E.1. and E.2. apply to units and to installations as defined in B.1. and B.2. The Rules apply to supporting structures made of steel, concrete or equivalent materials, to machinery, electrical installations, equipment, and essential systems with regard to safe operation.

2.2 Unclassified types

Types that are not included within the categories listed in B.4. may by special agreement be checked for general compliance with the principles expressed in these Rules.

2.3 Novel features

Units or installations which contain novel features of design, with respect to buoyancy, elevating arrangements, structural arrangements, machinery, equipment, etc. to which the requirements of these Rules are not directly applicable, may be classed, when

approved by **TL** on basis that the Rules, insofar as applicable, have been complied with and that special consideration has been given to the novel features based on the best information available at the time

3. Subject of Investigation

3.1 Constructional elements

The following items, where applicable, are covered by these Rules and are subject to approval by **TL**:

- Materials
- Corrosion protection
- Structural strength
- Loadbearing structures
- Foundations
- Welding
- Buoyancy
- Stability, intact and damaged
- Weathertight/watertight integrity
- Temporary or positional mooring equipment
- Jacking system
- Propulsion machinery including shafts and propellers
- Steering gears and rudders
- Auxiliary machinery,
- Safety systems and equipment as far as their operation involves any hazards
- Pumping and piping systems, including valves
- Boilers and pressure vessels

- Electrical installations
- Protection against fire and explosion

TL reserve the right to extend the scope of classification to all equipment and machinery used in the operation of the installation/unit, which by their character and/or arrangement may impair the safety of human life, of the unit or installation and its operation or of the environment.

Structural systems and equipment determining the type of unit or installation are subject to examination within the scope of Classification, if the type of unit or installation is specified in the form of a Notation affixed to the Character of Classification, compare Sections 2 and 4.

3.2 Industrial equipment

3.2.1 Unless a classification notation (e.g. EQUIPPED FOR DRILLING) for special operations was assigned for a unit / installation, **TL** will usually survey working gear and plants for industrial purposes, e.g. drilling equipment, in respect of their influence on the safety of the unit or installation only. The Rules do not cover structural details of industrial equipment used exclusively in drilling or other industrial operations. Machinery, electrical and piping systems used exclusively for industrial purposes are not covered by these Rules, except in so far as their design or arrangement may affect the safety of the unit or installation.

3.2.2 The safety and quality of working gear and other special installations can also be ascertained separately by special agreement. Existing regulations for the prevention of accidents are to be observed, see C.5

3.3 Anchoring and positioning

Determination of the adequacy of sea bed conditions, regarding bearing capacity, resistance to possible sliding and anchor holding capability, is not covered by these Rules.

The assessment of the required holding capacity, arrangement and operation of position mooring.

Equipment and dynamic positioning equipment used for station-keeping activities in connection with the operation is the responsibility of the Owner. **TL** may, however, assign **DK** (1-3) classification notation for a unit / installation in accordance with requirements provided in TL Rules, Part C, Chapter 22, Dynamic Positioning Systems with the request by the Owner. But if anchoring and positioning is decisive for the safety of the unit or installation, such as for pontoons equipped for pipe laying, this equipment is part of Classification or Certification.

3.4 Ice strengthening

Units or installations designed to be operated in areas where ice strengthening may be necessary will be specially considered. Provided that the reinforcement necessary for operation in the specified ice conditions is provided to the satisfaction of **TL**, an appropriate Notation will be granted

3.5 Special installations

For special installations subject to buoyancy, such as buoys, tension leg platforms, etc., the requirements for floating units have to be adopted, as far applicable.

E. Rules and Guidelines, Regulations

1. Underlying TL Rules

The Classification of offshore units and installations as well as of any pertinent equipment is based on:

- the respective latest edition of these Rules for Classification, Certification and Surveys
- the construction Rules relating to the respective unit or installation type, as applicable on the date of conclusion of the contract between building yard (manufacturer) and Owners (client), Chapter 60 - 64

2. Other TL Rules and Guidelines

For particular elements, components or procedures not specifically covered by these Rules, and for shipshaped units, other **TL** Rules and Guidelines may be applied where appropriate and agreed upon, e.g.:

- **TL** Rules - Classification and Surveys
- **TL** Rules, Chapter 1 - Hull
- **TL** Rules, Chapter 2 - Material and Chapter 3 - Welding
- **TL** Rules, Chapter 4, Machinery
- **TL** Rules, Chapter 4-1, Automation
- **TL** Rules, Chapter 5, Electrical Installation
- **TL** Rules, Chapter 22- Dynamic Positioning Systems
- **TL** Rules, Chapter 52, 53 and 54
- **TL** Rules, Chapter 58 - Guidelines for Ocean Towing
- **TL** Rules, Chapter 67 - Subsea Pipelines
- **TL** Rules, Additional Rules and Guidelines, Rules for Design, Construction and Testing of Pumps

Regarding special equipment see also Section 2, B.5. and Section 4, B.4.

3. Other Rules

3.1 The review and appraisal of design and construction particulars by **TL** will be exclusively based on rules and guidelines, agreed upon in the specification of the Classification contract between the prospective Owner, the building yard or other subcontractors, and **TL**.

3.2 In addition, statutory construction rules for units or installations may be applied upon agreement with the relevant Authority and if defined in the specification of

the Classification contract between the prospective Owner, the building yard or other subcontractor, and **TL**.

3.3 The compliance of the units or installations to statutory regulations of the respective Flag State or Coastal State is left to the responsibility of the prospective Owner, the building yard or any subcontractor.

3.4 International Conventions, Resolutions, Codes, etc., may be applicable in certain cases and/or for certain aspects, e. g. pollution prevention. Details shall be clarified and laid down in the Classification specification in the particular case.

3.5 In addition to statutory rules, API standard may also be applied.

4. Industry Codes, Standards

Internationally recognized Standards and Codes published by relevant organisations, national industry organisations or standardisation institutions may be used upon agreement in particular cases as a design and construction basis.

Examples for such standards are: ISO, IEC, EN, DIN, etc.

F. Period and Validity of Class

1. Period of Class

The hull/structure, the machinery as well as special equipment and installations classed have the same period of Class. The Class continues to be valid, provided that the hull/structure, the machinery as well as special equipment and installations are subjected to all surveys stipulated and that any repairs required are carried out to the satisfaction of **TL**, see also Sections 3 and 5.

2. Requirements

The requirements for:

- prerequisites for validity of Class

- repairs, conversions
- Class expiry

are defined in the **TL** Rules, Classification and Surveys, Section 2, C and Section 3, A. as far as applicable.

3. Laid-up Units or Installations out of Operation

3.1 The period of Class of hull/structure and machinery will not be interrupted throughout the laying-up and out of operation period. This means that periodical and non-periodical surveys will have to be carried out as before; surveys due, which include drydocking or in-water surveys may be postponed until re-commissioning.

3.2 Upon expiry of the Class, Class Renewal Survey including underwater survey and survey of propulsion systems such as thrusters out of water (retracted or removed) will have to be performed.

An entry on the Class Renewal will be made in the Class Certificate, with the Notation **LAID-UP UNIT/INSTALLATION OUT OF OPERATION**, and indicated in the Register.

3.3 A unit or installation put out of commission may be subject to specific requirements for maintenance of Class, as specified in the following, provided that the Owner notifies **TL** of the situation.

3.4 If the Owner does not notify **TL** of the laying-up of the unit, or the out of operation of the installation, or does not implement the lay-up maintenance program, the Class will be suspended and/or withdrawn when the due surveys are not carried out by their limit dates in accordance with the applicable requirements given in 2.

3.5 The lay-up/out of operation maintenance program provides for a "laying-up /out of operation" survey to be performed at the beginning of lay-up and subsequent "lay-up/out of operation" condition surveys which are required to be carried out as long as the unit or installation remains laid-up/out of operation. The minimum content of the lay-up/out of operation

maintenance program as well as the scope of these surveys is to be agreed with **TL**. The other periodical surveys, which become overdue during the layup/ out of operation period, may be postponed until the re-commissioning of the unit or installation.

3.6 Where the unit or installation has an approved lay-up/out of operation maintenance program and its period of Class expires, the period of Class is extended until it is re-commissioned, subject to the satisfactory completion of the lay-up/out of operation condition surveys as described in 3.5.

3.7 The periodical surveys carried out during the lay-up/out of operation period may be credited, either wholly or in part, at the discretion of **TL**, having particular regard to their extent and dates. These surveys will be taken into account for the determination of the extent of surveys required for the re-commissioning of the unit or installation, and/or the expiry dates of the next periodical surveys of the same type.

3.8 When a unit or installation is recommissioned, the Owner is to notify **TL** and make provisions for the unit or installation to be submitted to the following surveys:

- A survey prior to re-commissioning, the scope of which depends on the duration of the lay-up period. Depending on the duration of the laying-up period, a sea trial and/or re-commissioning trials of specific installations and/or components will be carried out.
- All periodical surveys which have been postponed in accordance with 3.1 taking into account the provisions of 3.7.

3.9 Where the previous period of Class expired before the re-commissioning and was extended as stated in 3.2, in addition to the provisions of 3.7 a complete Class renewal survey is to be carried out prior to re-commissioning. Items which have been surveyed in compliance with the Class renewal survey requirements during the 15 months preceding the recommissioning may be credited. A new period of

Class is assigned from the completion of the Class renewal survey.

4. Change of Ownership

4.1 In the case of change of ownership, the unit, or installation, retains its current Class with **TL** provided that:

- **TL** is informed of the change in due time and able to carry out any survey as deemed appropriate, and
- the new Owner expressly requests to keep the current Class, involving acceptance of **TL**'s General Terms and Conditions and Rules. This request covers inter alia the condition of the unit, or installation, when changing ownership.

4.2 The Class is maintained without prejudice to those provisions in the Rules, which are to be enforced in cases likely to cause suspension or withdrawal of the Class, such as particular damages or repairs to the mobile offshore unit, or fixed offshore installation, of which **TL** has not been advised by the former or, as the case may be, new Owner.

5. Suspension and Withdrawal of Class

5.1 Discontinuity of Class

5.1.1 The Class may be discontinued either temporarily or permanently. In the former case it is referred to as "suspension" of Class, in the latter case as "withdrawal" of Class. In both these cases, the Class is invalidated in all respects. If for some reason the Class has been expired or suspended or withdrawn by **TL**, this will be indicated in the Register.

5.1.2 If the Owner is not interested in maintenance of Class of the unit or installation or any of its special equipment and installations classed, or if conditions are to be expected under which it will be difficult to maintain Class, **TL** will be informed accordingly. **TL** will decide whether the Certificate will have to be returned and Class suspended or withdrawn. Where only special equipment and installations are concerned, the

corresponding Notation will be withdrawn and the Certificate amended accordingly.

5.1.3 The Class and/or Notations related to special equipment and installations (e.g. EQUIPPED FOR DRILLING, DK) may also be suspended if a unit, installation or special equipment is withdrawn from active service for a long period.

5.2 Suspension of Class

5.2.1 The Class may be suspended either automatically or following the decision of **TL**. In any event, the unit or installation will be considered as not retaining its Class from the date of suspension until the date when Class is reinstated.

5.2.2 The Class may be automatically suspended when one or more of the following circumstances occur:

- When a unit or installation is not operated in compliance with the rule requirements, such as in cases of services or conditions not covered by the service Notation, or trade outside the navigation restrictions for which the Class was assigned
- When a unit proceeds with less freeboard than that assigned, or has the freeboard marks placed on the sides in a position higher than that assigned, or in cases of units where freeboards are not assigned the draught is greater than that assigned
- When the Owner fails to inform **TL** in order to submit the unit or installation to a survey after defects or damages affecting the Class have been detected
- When repairs, alterations or conversions affecting the Class are carried out either without requesting the attendance of **TL** or not to the satisfaction of the Surveyor.

5.2.3 Suspension of Class with respect to the above cases will remain in effect until such time as the cause giving rise to suspension has been removed. Moreover,

TL may require any additional surveys deemed necessary, taking into account the condition of the Mobile Offshore Unit or Fixed Offshore Installation and the cause of the suspension.

5.2.4 In addition, the Class is automatically suspended:

- When the Class Renewal Survey has not been completed by its limit date or within the time granted for the completion of the survey, unless the unit or installation is under attendance by **TL**'s Surveyors with a view to completion prior to resuming trading or operation
- When annual or intermediate survey has not been completed by the end of the corresponding survey time window Suspension of Class with respect to the above cases will remain in effect until such time as the Class is reinstated once the due items and/or surveys have been dealt with.

5.2.5 In addition to the circumstances for which automatic suspension may apply, the Class of a unit or installation may also be suspended following the decision of **TL**:

- When a Condition of Class is not dealt with within the time limit specified, unless it is postponed before the limit date by agreement with **TL**
- When one or more surveys are not held by their limit dates, or the dates stipulated by **TL** also taking into account any extensions granted in accordance with the requirements
- When due to reported defects, **TL** consider that a Mobile Offshore Unit or Fixed Offshore Installation, is not entitled to retain its Class as well on a temporary basis (pending necessary repairs or renewals, etc.)
- In other circumstances which **TL** will consider on their merits (e.g. in the event of non-payment of fees)

5.2.6 Suspension of Class decided by **TL** takes effect from the date when the conditions for suspension of Class are met and will remain in effect until such time as the Class is reinstated once the due items and/or surveys have been dealt with.

5.3 Withdrawal of Class

5.3.1 **TL** will withdraw the Class of a unit or installation in the following cases:

- At the request of the Owner
- When the causes that have given rise to a suspension currently in effect have not been removed within six months after due notification of suspension to the Owner
- When the unit or installation is reported as a constructive total loss
- When the unit or installation is lost
- When the unit or installation is reported scrapped

5.3.2 Withdrawal of Class takes effect from the date on which the circumstances causing such withdrawal occur.

5.3.3 When the withdrawal of Class of a unit or installation comes into effect, **TL** will:

- Forward written notice to the Owner
- Delete the Mobile Offshore Unit or Fixed Offshore Installation from the Register
- Notify the flag Administration, if required
- Make the information available to the Underwriters, on their request
- Notify the coastal state(s)

5.4 Suspension/withdrawal of Class Notations

If the survey requirements related to maintenance of Class Notations are not complied with, the suspension or withdrawal may be limited to the Notations concerned.

5.5 Reassignment/re-admission to Class

5.5.1 At the request of the Owner, a unit or installation which was previously classed with **TL**, subsequently withdrawn from Class and has not been classed since that time, may have the Class reassigned subject to an Admission to Class survey. If applicable and appropriate, account may be taken of any periodical surveys held in the former period of Class with **TL**.

5.5.2 Where, after suspension or withdrawal of Class, the repairs required by **TL** have been carried out and the unit or installation has been subjected to a survey for Re-admission to Class, the original Class may be reassigned starting with a new period of Class. Such surveys are generally to be carried out in accordance with the requirements for a Class Renewal Survey, see Sections 3 and 5.

5.5.3 Depending on the duration of the interruption period, parts of the machinery installation may have to be dismantled and sea trials or function tests have to be carried out in excess of the requirements mentioned above. For parts and installations replaced or added in the meantime, the scope of examinations and tests to be carried out for Admission to Class shall be as for new constructions.

G. Classification Procedures

1. Classification of New Constructions

1.1 Order for Classification

1.1.1 The written order for Classification is to be submitted to **TL** (in triplicate) by the building yard or the Owner, using the form provided by **TL**. The order shall be submitted by the client, who as a basis of the building contract has the duty to observe the Rules of **TL**.

1.1.2 Where orders for the production of components are placed with subcontractors, **TL** should be advised and an indication of the scope of production provided. The client will be responsible for observance of the **TL** Rules by the subcontractors.

1.1.3 Where the order considers particulars to be used for the Classification which have already been approved by **TL** for previous new constructions, this shall be specifically stated in the order. Amendments to the Construction Rules having been introduced meanwhile shall be taken into account.

1.2 Design review/approval

1.2.1 Particulars of the design are to be submitted to **TL** for examination according to the details defined in Chapter 60, Section 1, C. and Chapter 61, Section 1, C. in due time prior to commencement of construction.

1.2.2 The particulars and drawings to be submitted, of components subject to approval, will be examined by **TL**. Where applicable, they will be provided with a mark of approval and returned in one copy.

1.2.3 Any deviations from approved drawings require to be approved by **TL** prior to being realized.

1.3 Supervision of construction and installation

TL will supervise the construction of units or installations and their installation at the site of operation, as defined in Chapter 60, Section 1, D. and Chapter 61, Section 1, D.

1.3.1 **TL** will assess the production facilities and procedures of the building yard, subcontractors and other manufacturers, to determine whether they meet the requirements of **TL**'s Rules and any additional requirements of the prospective Owner as agreed in the building specification. This assessment may be connected with a quality assurance Certification.

1.3.2 Materials, components, appliances and installations subject to inspection are to comply with the relevant rule requirements and are to be presented for inspection to **TL**'s Surveyors, unless otherwise provided

as a result of special arrangements agreed upon with **TL**. It is the obligation of the Owner, building yard, manufacturers, and other subcontractors to inform the **TL**'s inspection office in due time about particular surveys to be carried out.

1.3.3 In order to enable the Surveyor to fulfil his duties, he is to be given free access to the workshops and to the unit or installation. For performance of the tests required, the building yard, subcontractors and other manufacturers are to give the Surveyor any assistance necessary by providing the staff and the equipment needed for such tests.

1.3.4 During the phase of construction of the unit or installation, **TL** will satisfy itself by surveys and inspections that:

- Parts for hull/structure, machinery and electrical installations or special equipment subject to review/approval have been constructed in compliance with the approved drawing/documents
- All tests and trials stipulated by the Rules for Classification and Construction are performed satisfactorily
- Workmanship is in compliance with current engineering Standards and/or **TL**'s Rule requirements
- Welded parts are produced by qualified welders in accordance with qualified procedures having passed the tests required by the applicable Rules
- For hull/structure sections or components requiring **TL**'s approval Certificates have been presented. The building yard, subcontractors or other manufacturers will have to ensure that any parts and materials requiring approval will only be delivered and installed, if the appropriate Certificates have been issued.

- Type-tested or type approved appliances and equipment are used, in accordance with the Rule requirements, where individual Certificates are not required.

1.4 Testing and commissioning

1.4.1 TL Surveyors will witness the necessary tests at the manufacturers, the yard and at sea, see also Chapter 60, Section 1, E. and Chapter 61, Section 1, E.

1.4.2 As far as practicable, the machinery including electrical installations as well as special equipment and installations classed will be subjected to operational tests at the manufacturer's premises to the scope specified in the Construction Rules.

Where the machinery, electrical installation or special equipment and installations are of novel design or have not yet sufficiently proved their efficiency and reliability under actual service conditions on board, TL may require performance of tests under specified severe conditions.

1.4.3 Upon completion of the construction, prior to commissioning, all hull/structures, machinery including electrical installations as well as special equipment and installations classed will be subjected to operational trials in the presence of the Surveyor prior to and during the trials. This will include, e.g.:

- Tightness, operational and load tests of tanks, anchoring equipment, hatches and hatch covers shell ports, ramps, etc.
- Operational and/or load tests of the machinery, installations and equipment of importance for the operational safety of the unit or installation

During a final survey, checks will be made to ensure that any deficiencies found, i.e. during the trials, have been eliminated.

1.5 Reports, Certificates

1.5.1 Testing of materials, components, machinery, etc. at the subcontractor's works will be certified by the Surveyor and/or the local TL representation.

1.5.2 Upon completion of the unit or installation the Surveyors will prepare construction reports, on the basis of which TL will issue the Class Certificate, see 1.6.

1.5.3 The Classification data of each unit or installation will be included in TL's data file. An extract of these data will be indicated in the Register.

1.5.4 Where TL has been entrusted in addition and beyond the scope of the Rules with supervision of construction in accordance with the building specification a Certificate of Conformity (CoC) will be issued and a corresponding Notation added to the Class designation, see Sections 2 and 4.

1.6 Class Certificate, Characters of Classification

1.6.1 Assignment of Class, issuance of the Class Certificate, and assignment of the corresponding Character of Classification and Notations thereto according to Sections 2 and 4 are conditional upon proof being furnished of compliance with the TL Construction Rules in force on the date of placing the order, see 1.1.

TL Class can be granted only, if the initial, or if necessary the repeated, tests and trials show satisfactory results.

1.6.2 TL reserve the right to add special remarks in the Class Certificates, as well as information regarding operation of the installation/unit which is of relevance for the unit's or installation's Class.

1.7 Register

The Classification data of each unit or installation classified will be included in the TL data file.

An extract of these data will be entered in the Register.

During the period of Class TL will update these details on the basis of relevant reports submitted by the Surveyors.

2. Admission to Class

2.1 Orders

2.1.1 Orders for the Classification of units or installations or special equipment not constructed under the supervision of **TL** or for readmission to Class are to be formally addressed to **TL**'s Head Office, in triplicate using the form provided by **TL**. The order for Classification is to be accompanied at least by the particulars referred to in 2.2. **TL** reserve the right to request submission of additional particulars.

2.1.2 **TL** is to be informed about the previous Class status and period, as well as about any Conditions of Class (recommendations) imposed by the previous Classification Society.

2.2 Particulars for structure/hull and machinery

The particulars and/or drawings as defined in the design review for Installations in Chapter 61, Section 1, C. and for units in Chapter 60, Section 1, C. have to be submitted, as far as applicable:

2.3 Examination of design and surveys

2.3.1 The requirements according to 1.2 are applicable in principle. The report on the survey according to 1.5 will be evaluated together with the examination of the particulars and/or drawings to be approved, if needed.

2.3.2 Where sufficiently detailed documentation required for approval is not available, the necessary information may have to be gathered by an additional survey, possibly including measurements, and/or by additional investigations, computations, etc.

2.3.3 If the unit or installation, as well as the special equipment and installations classed have the valid Class of another recognized Classification Society, and if sufficient proof has been furnished regarding the present Class status, **TL** may dispense with parts of the examination of drawings and computations and may reduce the scope of the survey. However, at least a survey to the scope of an annual survey is to be carried out.

2.4 Reports, Certificates, documentation

2.4.1 Upon completion of the examinations and surveys mentioned above, a Class Certificate will be issued and a Class period defined.

2.4.2 Concerning the Surveyor's reports and Certificates, the provisions in 1.5 apply also to the Classification of existing units or installations.

2.4.3 Once units or installations and the relevant equipment have been classed with **TL**, the Rules in force for surveys as well as procedures applicable to units or installations, constructed under supervision of **TL** will apply.

2.4.4 The following documents to allow quick action in case of surveys, special operation and especially in case of damage must be kept on board and shall be made available to the Surveyor on request:

- Class Certificate, all Survey Statements and reports
- A Stability Handbook and Loading Manual, if required
- A description of corrosion protection system, if required
- Construction portfolio including "As built" drawings and other documentation and plans showing the location and extent of application of different grades and strengths of materials, together with a description of the materials and welding procedures employed, and any other relevant construction information. Restrictions or prohibitions regarding repairs or modifications shall also be included.
- A list of important testing/monitoring procedures to be followed in connection with validity of Class.

SECTION 2**CLASS DESIGNATION for MOBILE OFFSHORE UNITS**

	Page
A. General	2-2
1. Definitions	
2. Class designation	
B. Characters of Classification	2-2
1. Hull/structure	
2. Machinery	
3. Survey, Supervision of Construction	
4. Subdivision, Damage Stability	
5. Special Equipment	
C. Notations affixed to the Character of Classification	2-3
1. General	
2. Hull/structure Notations	
3. Machinery Notations	

A. General**1. Definitions**

1.1 The Class of a mobile offshore unit complying with these **TL** Rules is expressed by the “Character of Classification”, assigned to hull/structure and machinery including electrical installations, see B.

1.2 Details about hull/structure, machinery including electrical installations as well as special equipment and installations included in the Classification procedure are indicated by “Notations” affixed to the Character of Classification, see C. Classification notations not listed in this section may also be assigned in accordance with Classification and Surveys, Section 2, D.

1.3 The Character of Classification and the Notations give the scope according to which the Class of the unit has been based and refer to the specific rule requirements which are to be complied with for their assignment. In particular, the Classification Character and Notations are assigned according to the type and service of the unit and other criteria, which have been provided by the prospective Owner, building yard or other subcontractors, when requesting for Classification.

1.4 **TL** may change the Character of Classification or the Notations at any time, when the information available shows that the requested or already assigned Notations are not suitable for the intended type, service, navigation and any other criteria taken into account for Classification, see Section 1.

1.5 The Character of Classification and Notations assigned to a unit are indicated on the Certificate of Classification, as well as in the Register.

1.6 The Character of Classification and Notations applicable to existing units conform to the Rules of **TL** in force at the date of assignment of Class. They may however be updated on request according to the current Rules, as far as applicable.

2. Class designation

Table 2.1 shows examples for a Class designation for hull/structure and machinery.

Table 2.1 Examples for Class designation

Hull/Structure	+ 1 A 5	SELF ELEVATING UNIT
Machinery	+ M	EC

B. Characters of Classification**1. Hull/structure****1.1 Character of Classification**

1 A 5 The unit's hull/structure fully complies with the requirements of the Construction Rules of **TL** or other rules considered being equivalent.

1 A 4 (as examples):

1 A 3 The hull/structure does not fully comply with the requirements of the Construction Rules of **TL**; however, the Class may be maintained for a shorter period and/or with shorter survey intervals.

The figures 5, 4, etc. indicate the duration of the period of class, in years.

2. Machinery

M The machinery and all installations covered by Classification comply with the requirements of the Construction Rules of **TL** or other rules considered equivalent.

T-M The machinery of non-self-propelled units complies with the requirements of the Construction Rules of **TL** or other rules considered equivalent.

[M],[T-M] The machinery does not fully comply with the requirements of the Construction Rules of **TL**, but functional safety and seaworthiness are ensured for the envisaged service.

3. Survey, Supervision of Construction

The characters have the following meaning:

- +** Hull/structure, machinery and/or special equipment have been constructed:
 - under the supervision of **TL** at the building yard and/or at subcontractors supplying construction components and hull/structure sections and
 - with Certification by **TL** of components and materials requiring inspection, subject to the **TL** Construction Rules
- (+)** The construction symbol (+) may be given to hull, machinery and/or special equipment (e.g. refrigerating installation) when components and materials requiring inspection and testing at manufacturer's site, subject to the **TL** Construction Rules, are not certified/supervised by **TL**.

On-board installation testing and in-service survey requirements required by **TL** Rules for the components and the materials are to be applied under **TL** supervision.

If deemed appropriate by **TL**, the construction symbol (+) may also be given to hull, machinery and/or special equipment (e.g. refrigerating installation) of double class new building ships.

TL reserves the right to request **TL** certification or supervision of a component or material.

- [+]** Hull/structure, machinery installation or special equipment have been constructed under the supervision of and in accordance with the rules of another recognized Classification Society and have subsequently been classed with **TL**.

+, **(+)** or **[+]** notations are not present in front of main class notations in case hull, machinery and/or special equipments are not constructed under supervision of **TL**

or another recognised classification society but later assigned class by **TL**.

Note

In the event Admission to Class (Change of Class) from a Society recognized by the former state administration of the unit/installation, prior examination of drawings of the hull/structure, machinery and electrical installations is not conditional.

4. Subdivision, Damage Stability

4.1 General markings

FS For the hull/structure proof of subdivision and damage stability has been furnished.

5. Special Equipment

5.1 Diving systems

TAZ The diving system complies with the requirements of the **TL** Rules, Chapter 52 – Diving Systems.

C. Notations affixed to the Character of Classification

1. General

1.1 There are different kinds of Notations, describing particular features, capabilities, service restrictions or special equipment and installations included in the Classification, as defined in the following.

1.2 The Notations to be affixed to the Character of Classification are optional and may be selected by the prospective Owner or building yard. The chosen scope of Notations has to be defined in the Classification specification as well as in the building specification.

1.3 Generally, the type and/or service Notations will be assigned according to the indications or suggestions of the prospective Owner or building yard.

1.4 The Notations define the type and/or service of the unit, which have been considered for its Classification, according to the request for Classification signed by the prospective Owner or building yard. The assignment of any Notation to a new construction is subject to compliance with the general rule requirements laid down in the Construction Rules.

1.5 The Notations applicable to existing units conform to the Rules of **TL** in force at the date of assignment of Class. However, at the request of the Owner and as far as applicable, the Notations of existing units may be updated according to the current **TL** Rules.

1.6 A Notation may be complemented by one or more Notations, giving further precision regarding the type and/or service of the unit, for some of which specific rule requirements are applied.

1.7 At the request of the Owner and as far as applicable, **TL** reserve the right to grant other Class Notations as defined in other **TL** Rules. The Class maintenance surveys for such Class Notations are to be performed to the corresponding requirements in the other **TL** Rules.

2. Hull/structure Notations

2.1 Range of service

Units complying with the Construction Rules' requirements for a restricted range of service only will have the Notations specified below affixed to their Character of Classification.

Y (Restricted International Service)

This range of service is limited, in general, to operate along the coast, provided that the distances to the nearest port of refuge as well as the offshore distance do not exceed 200 nautical miles. This applies to operate in the North Sea and within enclosed seas, such as the Mediterranean, the Black Sea and waters with similar seaway conditions. Trade to Iceland, Spitsbergen and the Azores is exempted.

K 50 or K 20 (Coastal Service)

This range of service is limited, in general, to operate along the coasts, provided that the distances to the nearest port of refuge as well as the offshore distance do not exceed 50 and 20 nautical miles. This applies also to operate within enclosed seas, such as the Baltic Sea, Marmara Sea and gulfs with similar seaway conditions.

L1/L2 (Shallow Water Service)

L1 This range of service is limited to trade in harbours which their boundaries fixed by flag state, provided that to stay in the range of L2.

L2 This range of service is limited to trade in harbours not exceeding 10 nautical miles from the nearest coastline and not exceeding 100 nautical miles from the port of departure.

The Notations may possibly be assigned on the basis of the seaway conditions prevailing in the respective service area (e. g. official seaway statistics).

Observance of the range of service boundaries is a prerequisite for validity of the Class.

TL may, on request, agree to the range of service being extended for a limited period and/or with certain reservations. This will have to be documented.

2.2 Ice strengthening

Hull/structure and machinery installations, which comply with the requirements of the Construction Rules relating to strengthening for navigation in ice, will have one of the "Ice Class" Notations specified in the following affixed to the Character of Classification.

Except for Class Notation ICE-B, which on request may be assigned to the hull or the machinery installation only, hull and machinery must always be assigned the same ice class. If the hull is constructed such as to comply with a higher ice class, this will be indicated in the Technical File.

ICE-B, ICE-B1, ICE-B2, ICE-B3, ICE-B4: Hull and machinery have been designed such as to comply with the requirements for navigation in ice, with index 4 representing the highest notation. Notations **ICE-B1** to

ICE-B4 correspond to ice classes **IC** to **IA Super** of the Finnish/Swedish Ice Class Rules.

2.3 Unit type

The following Notations for various types of units may be distinguished, e.g.:

SELF ELEVATING UNIT

Notation for units equipped with legs which are capable

of raising the hull above the sea surface by means of a jack-up system. These units have hulls with sufficient buoyancy and they are also known as jack-up units. The movable legs of a self elevating unit are supported on the sea bed when in the elevated condition and may be equipped with enlarged sections or footings to reduce the soil penetration, or may be attached to a bottom pad or mat.

COLUMN STABILIZED UNIT

Notation for units with an upper structure connected to the underwater hulls or footings by widely spaced columns. Column Stabilized Units depend upon the buoyancy of the columns, lower hulls or footings for flotation stability for all modes of operation afloat or in the raising or lowering the unit, as may be applicable.

DRILLING VESSEL

Notation for self-propelled ship type units equipped for drilling operations.

WELL STIMULATION VESSEL OR UNIT

Notation for self-propelled ship type vessels or units equipped for intervention at subsea wells with the aim to improve the operational well performance

PIPE-LAYING VESSEL

Notation for self-propelled ship type units equipped for pipe-laying operations.

PONTOON

Notation for non self-propelled units with a closed deck

and without cargo holds.

FLOATING PRODUCTION STORAGE AND OFFLOADING UNIT (FPSO)

Notation for floating units intended for production, storage and off-loading of hydrocarbons.

FLOATING PRODUCTION AND OFFLOADING UNIT (FPO)

Notation for floating units intended for production and off-loading of hydrocarbons.

FLOATING STORAGE AND OFFLOADING UNIT (FSO)

Notation for floating units intended for storage and off-loading of hydrocarbons.

2.4 Laid-up units

LAID-UP UNIT

Notation for units, where the unit is not in active operation and the Class Renewal Survey has been substituted, compare Section 1, F.3.

2.5 In-water survey

IWS Notation for units, the hull/structure is specially equipped for in-water surveys as per **TL** Rules Chapter 1 - Hull Structures, Section 25. See also Section 3, E.3.

2.6 Bridge design on seagoing units

NAV Notation for units, the bridge is designed in compliance with **TL** Rules, Chapter 21 – Navigation Bridge Visibility, Bridge Arrangement and Equipment.

NAV-INS Integrated Navigation Systems. In addition to the notation NAV, special focus is laid on increased availability and consistency of the bridge equipment

2.7 Dynamic Positioning Systems

DK Notation for units complying with the **TL** Rules, Chapter 22 – Dynamic Positioning Systems. Depending on the desired system reliability and on the basis of risk analysis three distinctive marks are to be provided, i.e.:

DK1 non-redundant

DK2 redundant

DK3 redundant, installation in separate compartments

2.8 Environmental protection standards

ENVIRONMENTAL PASSPORT

Notation for units fulfilling the requirements of the **TL** Rules, Chapter 76 – Guidelines for the Environmental Service System.

2.9 Special equipment and systems

Special systems, e. g. propulsion systems, or equipment covered by Classification may be referred to by a Notation affixed to the Character of Classification, such as:

EC Equipment Certified

This Notation is assigned for characteristic implements and/or equipment which have by agreement been constructed in accordance with the Rules and under supervision of **TL**.

This does not apply to the anchor equipment, which is always covered by the Classification.

EQUIPPED WITH TURRET MOORING

Notation for units equipped with a rotational mooring which enables the safe mooring of ships for all directions of wind and/or stream.

EQUIPPED WITH POSITION MOORING SYSTEM

Notation for units equipped with a system of a greater number of winches and anchors holding the unit exactly at a desired position and also moving the unit on a defined track.

EQUIPPED FOR DRILLING

Notation for units equipped with a drilling derrick and all the equipment to handle and operate the drill pipe and has all the necessary auxiliary devices.

EQUIPPED FOR CONSTRUCTION

Notation for units equipped with construction equipment to install and erect fixed offshore installations which may stand alone or in a bigger offshore complex.

EQUIPPED FOR PIPE LAYING

Notation for units equipped with equipment for storage, handling and welding of pieces of pipe into a continuous pipeline and with a system to safely place this pipeline onto the sea bed.

EQUIPPED FOR PRODUCTION

Notation for units equipped with facilities for production of oil and gas to be delivered by the fully developed source.

EQUIPPED FOR PROCESSING

Notation for units equipped with a plant for processing gas and/or oil into semi-finished products or end products.

EQUIPPED FOR FLARING

Notation for units equipped with at least one flare or cold vent, used for the safe disposal of hydrocarbon gases and vapours and other gases associated with drilling, production and processing of mineral oil and gas.

EQUIPPED FOR STORAGE

Notation for units equipped with storage facilities for large gas and/or oil quantities, which act as a buffer e.g. between loading periods of transport vessels.

EQUIPPED FOR POWER TRANSFORMING

Notation for units equipped with a power transformer which receives electric energy with high voltage and distributes this power with lower voltage to various consumers in an offshore complex or vice versa.

EQUIPPED FOR LOADING

Notation for units equipped to serve as loading terminals for gas or oil within larger offshore complexes.

EQUIPPED FOR ACCOMMODATION

Notation for units equipped with large accommodation facilities for a number of special personnel.

EQUIPPED WITH BOW RUDDER

Notation for units where a high level of manoeuvrability is required and which is achieved by a bow rudder.

2.10 Operating manual**OPERATION ACCORDING TO OPERATING MANUAL**

Notation where the operation of the unit has to be carried out strictly according to the requirements defined in an Operating Manual readily available on board and containing guidance for the safe operation and envisaged emergency conditions, compare Chapter 60 – Mobile Offshore Units, Section 1, C.

2.11 Materials

If units are constructed of normal strength structural steel, this will not be specially indicated. If hull other materials are employed for the hull/structure, this will be indicated in the Ship Register and in the Class Certificate, e. g.:

HIGHER STRENGTH HULL STRUCTURAL STEEL**REINFORCED CONCRETE****ALUMINIUM****FRP** (Fibre Reinforced Plastic)

Other materials used for structural parts of the hull/structure will be indicated in the Register.

2.12 Novel designs

EXP Hull/structure, machinery installations or essential parts have been constructed in accordance with a design, for which sufficient experience is not available yet. **TL** will decide at what intervals the required periodical surveys will have to be carried out.

Where experience over a prolonged period of time has proved the efficiency of the design, the Notation **EXP** may be cancelled.

2.13 Class notations related to helicopter operations

HEL Equipped for helicopter operations, See Chapter 62, Chapter 9.

2.14 Class notations related to crane operations

CRANE Equipped with classified lifting appliances

See Chapter 62, Section 8.

3. Machinery Notations**3.1 Automation**

Machinery installations which comply with the Rules of **TL** for automated and/or remote-controlled systems will have the following Notations affixed to the Character of Classification. Other Notations for a detailed description are possible:

AUT The machinery installation is fitted with equipment for unattended machinery spaces, so that control and maintenance operations are not required for at least 24 hours.

AUT-nh The period during which control and maintenance operations are not required, is less than 24 hours, with nh indicating that the machinery space may be left unattended for n hours.

AUT-C The machinery installation is operated with the engine control room permanently attended for centralized control and is equipped with a system for remote control of the main propulsion plant from the bridge or arrangements for manoeuvring from the engine control room.

3.2 Ice strengthening

ICE-B Notation affixed to the Character of Classification for the machinery installation see 2.2.

3.3 Condition Monitoring

Where a Condition Monitoring System is used to reliably determine the condition of their components depending on the minimum achieved scope of condition monitoring, one of the following Notations will be assigned to the Character of Classification for the machinery installations.

CM1 Up to 3 % of the possible Condition Monitoring scope is achieved.

CM2 Up to 10 % of the possible Condition Monitoring scope is achieved.

CM3 Up to 20 % of the possible Condition Monitoring scope is achieved.

CM4 More than 20 % of the possible Condition Monitoring scope is achieved.

3.4 Novel designs

EXP See 2.12

4. Summary of notations for offshore units

Table 2.2 gives an overview for the various Notations which may be assigned to mobile offshore units. Additional information is given in the respective Chapters.

Table 2.2 Summary of notations for mobile offshore units

Chapter 59 Classification, Certification and Surveys	Chapter 60 Mobile Offshore Units	Chapter 62 Structural Design	Chapter 63 Machinery Installations	Chapter 64 Electrical Installations
Unit type: SELF ELEVATING UNIT COLUMN STABILIZED UNIT DRILLING VESSEL WELL STIMULATION VESSEL / UNIT PIPE-LAYING VESSEL PONTOON FPSO FPO FSO Non-operation status: LAID UP UNIT Operating manual: OPERATION ACCORDING TO OPERATING MANUAL	Special equipment certified: EC Special systems: EQUIPPED FOR DRILLING EQUIPPED FOR CONSTRUCTION EQUIPPED FOR PIPE LAYING EQUIPPED FOR PRODUCTION EQUIPPED FOR PROCESSING EQUIPPED FOR POWER TRANSFORMING EQUIPPED FOR FLARING Damage Stability: FS	Range of service: Y K L1 , L2 Ice strengthening: ICE-B ICE-B1 ICE-B2 ICE-B3 ICE-B4 In-water surveys: IWS Special equipment: EQUIPPED WITH TURRET MOORING EQUIPPED WITH POSITION MOORING SYSTEM EQUIPPED FOR ACCOMMODATION Material: HIGHER STRENGTH HULL STRUCTURAL STEEL REINFORCED CONCRETE ALUMINIUM FRP Novel design: EXP CRANE HEL	Dynamic positioning systems: DK 1 DK 2 DK 3 Environmental standards: ENVIRONMENTAL PASSPORT Special systems: EQUIPPED FOR STORAGE EQUIPPED FOR LOADING EQUIPPED FOR BOW RUDDER Ice strengthening: ICE-B ICE-B1 ICE-B2 ICE-B3 ICE-B4 Condition monitoring: CM1 CM2 CM3 CM4 Novel design: EXP Diving systems: TAZ	Bridge design: NAV NAV-INS Automation: AUT AUT-nh AUT-C

SECTION 3

SURVEY of MOBILE OFFSHORE UNITS

	Page
A. General	3-2
1. Supervision and Testing During Construction	
2. Surveys for Maintenance of Class	
B. Periodical Surveys for Units	3-6
1. Application	
2. Definition	
3. Repairs	
4. Annual Surveys	
5. Intermediate Surveys	
6. Class Renewal Surveys	
7. Survey of the Outside of Unit's Bottom and Related Items	
8. Propulsion System Surveys	
9. Boilers Surveys	
10. Survey Preplanning and Record Keeping	
11. Remote Inspection Techniques (RIT)	
C. Occasional Surveys	3-17
1. Damage Survey	
2. Repairs	
3. Lay-up and Reactivation Surveys	
4. Alterations	
5. Welding and Replacement of Materials	
D. Guidelines for the Survey of Offshore Mooring Chain Cable in Use	3-18
1. Application and Purpose	
2. Survey Interval, Purpose and Extent	
3. Anchor Inspection	
4. Anchor Swivels	
5. Chain Inspection Criteria	
6. Fairlead and Windlass Inspection - Chain Systems	
7. Fairleads and Winches Inspection - Wire Rope Systems	
8. Inspection of Jewellery and Miscellaneous Fittings	
9. Wire Rope Surveys	
10. References	
Appendix A - Underwater Inspection in Lieu of Drydocking Survey	3-26
Appendix B - Minimum Requirements for Thickness Measurements for Class Renewal Survey	3-28

A. General**1. Supervision and Testing During Construction**

During the design and construction phase of a mobile offshore unit the following steps of the approval procedure to obtain **TL** Class shall be applied subsequently unless otherwise specified:

- Design review/approval see Chapter 60, Section 1, C.
- Survey of materials and components, see Chapter 60, Section 1, D.
- Supervision of fabrication and installation, see Chapter 60, Section 1, D.
- Testing and commissioning, Chapter 60, Section 1, E.

2. Surveys for Maintenance of Class**2.1 General requirements**

2.1.1 For maintenance of Class, the regular periodical and non-periodical surveys of hull, machinery including electrical installation and any special equipment classed as defined in the following are to be performed.

In addition to survey requirements given in this section, units of ship-shaped structure may be inspected in accordance with the provisions of **TL** Rules, Classification and Surveys.

The periodical surveys include:

- The annual survey
- The intermediate survey
- The class renewal survey
- The propeller shaft survey
- The bottom survey/underwater inspection

- The steam boiler survey,

as well as surveys for the maintenance of Class Notations, where applicable. The surveys are to be carried out in accordance with the intervals and conditions laid down in this Section.

When there are no specific survey requirements for Class Notations assigned to a unit, the equipment and/or arrangements related to these Class Notations are to be examined, as applicable, to the Surveyor's satisfaction at each class annual, intermediate or renewal survey.

The surveys are to be carried out in accordance with the relevant requirements in order to confirm that the hull/structure, machinery including electrical installation, equipment and appliances comply with the applicable Rules and remain in satisfactory condition.

When the conditions for the maintenance of type and/or service Notations are not complied with, the type and/or service Notation will be suspended and/or withdrawn in accordance with the applicable Rules given in Section 1, F.5.

The requirements for surveys apply to those items that are required according to the Rules or, even if not required, are fitted on board.

Unless specified otherwise, any survey other than bottom survey/underwater inspection, propeller shaft, steam boiler/thermal oil plant and pressure vessels survey, may be effected by carrying out partial surveys or splitting of surveys at different times to be agreed upon with **TL**, e.g. continuous Class surveys, provided that such a survey procedure is adequately extensive. The splitting of a survey is to be such as not to impair its effectiveness.

2.1.2 In addition to the above periodical surveys, the units are to be submitted to occasional nonperiodical surveys whenever the circumstances so require.

For example, occasional non-periodical surveys will be carried out at the time of:

- Updating of Classifications documents (e.g. change of the Owner, name of the mobile offshore units, flag)

- Damages or suspected damage
- Repairs or maintenance work
- Conversions
- Extraordinary surveys as parts of TL's quality assurance system
- Postponement of surveys or conditions of Class
- Non-periodical surveys for change of anniversary date, postponement or advance of surveys
- Remarks further to Port State Control inspections
- Oil spill at sea

TL reserve the right, after due consideration, to change the periodicity, postpone or advance surveys, taking into account particular circumstances.

If applicable, when a survey becomes overdue during a voyage, the following applies:

- For avoiding loss of Class, in the case of a Class renewal survey, **TL** may, in exceptional cases, grant an extension to allow completion of this survey, provided there is documented agreement to such an extension prior to the expiry date of the Class Certificate, and **TL** is satisfied that there is sufficient technical justification for such an extension.
- In the case of Class annual or intermediate surveys, no postponement is granted. Such surveys are to be completed within their prescribed time windows.
- In the case of all other periodical surveys and conditions of Class, extension may be granted, provided there is sufficient technical justification for such an extension.

Other surveys performed by **TL** - partly in connection with Classification - are listed in 2.5.

2.1.3 Surveys required for maintenance of Class, e.g. in the case of repairs, or modifications to any parts subject to Classification, are to be agreed with **TL** Head Office in due time, so that the measures envisaged may be assessed and supervised, as required.

2.1.4 Surveys conducted during a voyage may be agreed and credited to periodical surveys due. The prerequisites, procedures and specific conditions, e. g. weather, to be met will be fixed from case to case. The decision as to feasibility of the survey may only be taken in agreement with the Surveyor.

2.1.5 **TL** will inform the Owner or Operator about the status of Class, indicating the last recognized surveys and the next due dates. However, even if not provided with such information, the Owner or Operator is obliged to have the surveys stipulated by the present Rules performed.

2.1.6 **TL** may agree to testing and analysis procedures as a supplement to or equivalent substitute for conventional survey and inspection such as by uncovering/ opening up of components.

2.1.7 **TL** reserve the right for given reasons, e.g. in the light of special experience gained during operation to extend the scope of survey or to carry that out with two Surveyors, if needed.

2.1.8 **TL** reserve the right to demand surveys to be held between the due dates of regular surveys, if this is necessary.

2.1.9 If a unit has to be surveyed in a port beyond the reach of a **TL** Surveyor, also in the events of force majeure or of armed conflicts, **TL** Head Office will have to be notified. Following a review of the facts the process to be adopted will be decided by **TL**.

2.2 Selection of Surveyors

In principle, the acting Surveyors will be chosen by **TL**. However, the Operator of a classed unit is free to request that any findings of surveys or decisions which he deems to be doubtful are checked by other **TL** Surveyors.

2.3 Documentation, confirmation of Class

2.3.1 The records of each survey, as well as any requirements upon which maintenance of the Class has been made conditional, will be entered into the respective Survey Statement. The Surveyor's signature on the Certificate and other documents only certifies what has been seen and checked during the particular survey.

2.3.2 The reports prepared by the Surveyor will be sent to **TL** Head Office. If there are no objections, the results will be published in the **TL** Register and the confirmation of Class effected by the Surveyor in the Certificate will acquire final validity.

2.3.3 In the Register the dates of the following surveys will be indicated:

- Class renewals I, II, III, etc.
- Annual survey
- Intermediate survey
- Continuous Class renewal
- Bottom/underwater and propeller shaft/thruster surveys
- Boiler surveys

Records on periodical repeat tests on steam boilers and thermal oil heaters will be entered in special Test Certificates, which are to be kept on board.

2.3.4 A confirmation of Class effected by the Surveyor relates to the kind of survey referred to in the report and is valid under the reservation that examination will not give cause for any objections, see 2.3.2.

2.3.5 Upon request, Class may be confirmed in writing by a separate Certificate. However, such Certificates are valid only if issued by **TL** Head Office or in exceptional cases, Head Office has expressly authorized the field service representatives to do so.

2.3.6 Where defects are repaired provisionally only, or where the Surveyor does not consider immediate repairs or replacements necessary, the unit's Class may be confirmed for a limited period by making an entry in the Survey Statement to the Certificate of Classification. Cancellation of such limitations will also have to be indicated in the Survey Statement.

2.4 Preparation for Survey

2.4.1 Conditions for Survey

2.4.1.1 The Owner is to provide the necessary facilities for a safe execution of the survey. For confined space entry, the requirements of TL- PR37 is to be followed.

2.4.1.2 Tanks and spaces are to be safe for access, i.e. gas freed, ventilated and illuminated.

2.4.1.3 In preparation for survey and thickness measurements and to allow for a thorough examination, all spaces are to be cleaned including removal from surfaces of all loose accumulated corrosion scale. Spaces are to be sufficiently clean and free from water, scale, dirt, oil residues etc. to reveal corrosion, deformation, fractures, damages, or other structural deterioration. However, those areas of structure whose renewal has already been decided by the Owner need only be cleaned and descaled to the extent necessary to determine the limits of the areas to be renewed.

2.4.1.4 Sufficient illumination is to be provided to reveal corrosion, deformation, fractures, damages or other structural deterioration.

2.4.1.5 Where soft or semi-hard coatings have been applied, safe access is to be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft or semi-hard coating is to be removed.

2.4.2 Access to Structures

2.4.2.1 For survey, means are to be provided to enable the surveyor to examine the hull structure in a safe and practical way.

2.4.2.2 For survey in void compartments and water ballast tanks, one or more of the following means for access, acceptable to the Surveyor, is to be provided:

- Permanent staging and passages through structures;
- Temporary staging and passages through structures;
- Lifts and movable platforms;
- Boats or rafts;
- Other equivalent means.

2.4.2.3 For Surveys conducted by use of a remote inspection technique, one or more of the following means for access, acceptable to the Surveyor, is to be provided:

- Unmanned robot arm
- Remote Operated Vehicles (ROV)
- Unmanned Aerial Vehicles / Drones
- Other means acceptable to TL.

2.4.3 Equipment for Survey

2.4.3.1 Thickness measurement is normally to be carried out by means of ultrasonic test equipment. The accuracy of the equipment is to be proven to the Surveyor as required. Thickness measurements are to be carried out by a firm approved by TL in accordance with TL- R Z17.

2.4.3.2 One or more of the following fracture detection procedures may be required if deemed necessary by the Surveyor:

- Radiographic equipment;
- Ultrasonic equipment;
- Magnetic particle equipment;

- Dye penetrant.

Other acceptable NDT Techniques.

2.4.4 Survey Offshore or at Anchorage

2.4.4.1 Survey offshore or at anchorage may be accepted provided the Surveyor is given the necessary assistance from the personnel onboard.

2.4.4.2 A communication system is to be arranged between the survey party in the tank or space and the responsible officer on deck. This system must also include the personnel in charge of ballast pump handling if boats or rafts are used.

2.4.4.3 When boats or rafts are used, appropriate life jackets are to be available for all participants. Boats or rafts are to have satisfactory residual buoyancy and stability even if one chamber is ruptured. A safety checklist is to be provided.

2.4.4.4 Surveys of tanks by means of boats or rafts may only be undertaken at the sole discretion of the Surveyor, who is to take into account the safety arrangements provided, including weather forecasting and ship response in reasonable sea conditions **(1)**.

2.5 Surveys in accordance with flag state regulations

2.5.1 Where surveys are required on account of international conventions and of corresponding laws/official ordinances of a flag state, TL will undertake them on application, or by official order, acting on behalf of the Authorities concerned, based on the respective provisions; this includes e.g. surveys according to:

- The International Convention on Load Lines **(ILC 66/88)**
- The International Convention for the Safety of Life at Sea **(SOLAS 74/88)** for self-propelled units
- The International Convention for the Prevention of Pollution from Ships **(MARPOL 73/78)**

(1) Reference is made to TL- G 39 – Guidelines for use of Boats or Rafts for Close-up surveys.

- The related Conventions of the International Labour Organisation (ILO)
- Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU)
- International Convention for the Control and Management of Ships' Ballast Water and Sediments
- International Convention on the Control of Harmful Anti-Fouling Systems on Ship

Where possible, such surveys will be carried out simultaneously with the Class surveys.

2.5.2 TL will also undertake on request other surveys and checks stipulated by additional regulations and requirements of the flag state. Such surveys are subject to agreements made in each individual case and/or to the regulations of the country concerned.

2.5.3 All activities as outlined in 2.5.1 and 2.5.2 and, where applicable, issuance of relevant Certificates are likewise subject to the general conditions of Section 1.

2.5.4 If for some reason a unit's Class has expired or has been withdrawn by **TL**, all statutory Certificates issued by **TL**, if any, will automatically become void. If subsequently the Class is renewed or reassigned, the validity of these Certificates will be revived within the scope of their original period of validity, provided that all surveys meanwhile having fallen due have been carried out.

2.6 External service suppliers

Personnel or firms engaged in services affecting Classification and statutory work are subject to approval by **TL**.

The inspection, measuring and test equipment used in workshops, shipyards and on board units, which may form the basis for Surveyor's decisions affecting Classification or statutory work, shall be appropriate for the services to be performed. The firms shall individually identify and calibrate each item of such equipment to a recognized national or international standard.

B. Periodical Surveys for Units

1. Application

1.1 The requirements apply to all Mobile Offshore Units after their construction.

1.2 The requirements apply to surveys of the hull, structure, equipment, and machinery subject to classification.

1.3 The Thickness Measurement requirements of TL- R Z15 applies (See also Appendix B, Table 1).

2. Definition

2.1 Ballast Tank

A Ballast Tank is a tank which is used primarily for salt water ballast.

2.2 Preload Tank

A Preload Tank is a tank within the hull of a self-elevating unit. These tanks are periodically filled with salt water ballast and used to preload the footings of the unit prior to commencing drilling operations. Preload Tanks are considered equivalent to Ballast Tanks.

2.3 Spaces

Spaces are separated compartments and part of hull such as void space, cofferdam, chain locker, cargo pump room, cement tank room, thruster room, auxiliary machinery room.

2.4 Coating Condition

Coating Condition is defined as follows:

GOOD condition with only minor spot rusting

FAIR condition with local breakdown at edges of stiffeners and weld Connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for **POOR** condition

POOR condition with general breakdown of coating over 20% or more of areas or hard scale at 10% or more of areas under consideration

2.5 Close-Up Survey

A Close-Up Survey is a survey where the details of structural components are within the close visual inspection range of the surveyor i.e. normally within reach of hand.

2.6 Transverse Section (Girth Belt)

A Transverse Section (Girth Belt) includes all continuous longitudinal members such as plating, longitudinals and girders at a given section of the unit.

2.7 Representative Spaces

Representative Spaces are those which are expected to reflect the conditions of other spaces of similar type and service and with similar corrosion prevention systems. When selecting Representative Spaces, account is to be taken of the service and repair history on board and identifiable Critical Structural Areas and/or Suspect Areas.

2.8 Critical Structural Area

Critical Structural Areas are locations which have been identified from calculations to require monitoring or from the service history of the subject Unit or from similar Units or sister Units, if applicable, to be sensitive to cracking, buckling or corrosion which would impair the structural integrity of the Unit.

2.9 Suspect Area

Suspect Areas are locations showing Substantial Corrosion and/or are considered by the Surveyor to be prone to rapid wastage.

2.10 Substantial Corrosion

Substantial Corrosion is an extent of corrosion such that assessment of corrosion pattern indicates a wastage in

excess of 75% of allowable margins, but within acceptable limits.

2.11 Excessive Diminution

Excessive Diminution is an extent of corrosion beyond allowable limits.

2.12 Corrosion Prevention System

A Corrosion Prevention System is normally considered a full hard protective coating. Hard Protective Coating is usually to be epoxy coating or equivalent. Other coating systems, which are neither soft nor semi-hard coatings, may be considered acceptable as alternatives provided that they are applied and maintained in compliance with the manufacturer's specifications.

2.13 Prompt and Thorough Repair

A Prompt and Thorough Repair is a permanent repair completed at the time of survey to the satisfaction of the Surveyor, therein removing the need for the imposition of any associated condition of classification.

2.14 Special consideration

Special consideration or specially considered (in connection with close-up surveys and thickness measurements) means sufficient close-up inspection and thickness measurements are to be taken to confirm the actual average condition of the structure under the coating.

2.15 Propulsion Assist

Propulsion Assist are non-self-propelled Units fitted with thrusters intended to assist in manoeuvring or propelling while under tow.

2.16 Remote Inspection Techniques(RIT)

Remote Inspection Technique is a means of survey that enables examination of any part of the structure without the need for direct physical access of the surveyor (refer to TL- G 42).

3. Repairs

3.1 Any damage in association with wastage over the allowable limits (including buckling, grooving, detachment or fracture), or extensive areas of wastage over the allowable limits, which affects or, in the opinion of the Surveyor, will affect the Unit's structural, watertight or weathertight integrity, is to be promptly and thoroughly (see 2.13) repaired.

For locations where adequate repair facilities are not available, consideration may be given to allow the unit to proceed directly to a repair facility. This may require temporary repairs for the intended voyage.

3.2 Additionally, when a survey results in the identification of structural defects or corrosion, either of which, in the opinion of the Surveyor, will impair the unit's fitness for continued service, remedial measures are to be implemented before the unit continues in service.

3.3 Where the damage mentioned in Para. 3.1 is isolated and of a localised nature which does not affect the unit's structural integrity, consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weather tight integrity and impose a condition of class in accordance with TL- PR 35, with a specific time limit.

4. Annual Surveys

4.1 Schedule

Annual Surveys are to be held within 3 months before or after each anniversary date from the date of the initial classification survey or the completion for the last Class Renewal Survey.

4.2 Scope

The survey consists of an examination for the purpose of verifying, as far as practicable, that the hull, structure, equipment, and machinery are maintained in accordance with the applicable Rule requirements.

In addition to survey requirements given in this section, units of ship-shaped structure may be inspected in accordance with the provisions of TL Rules, Classification and Surveys.

4.3 Annual Survey - Hull, Structure and Equipment

4.3.1 At each Annual Survey the exposed parts of the hull, deck, deck house, structures attached to the deck, derrick substructure, including supporting structure, accessible internal spaces, and the applicable parts listed below are to be generally examined and placed in satisfactory condition as found necessary.

4.3.2 The Surveyors are to be satisfied at each Annual Survey that no material alterations have been made to the unit, its structural arrangements, subdivision, superstructure, fittings, and closing appliances upon which the stability calculations or the load line assignment is based.

4.3.3 Suspect Areas identified at previous surveys are to be examined. Thickness measurements are to be taken of the areas of substantial corrosion and the extent of thickness measurements is to be increased to determine areas of substantial corrosion.

Appendix B, Table 4 may be used as guidance for these additional thickness measurements. These extended thickness measurements are to be carried out before the annual survey is credited as completed.

4.3.4 All Units

The following items are to be examined:

- Accessible hatchways, manholes and other openings.
- Machinery casings and covers, companionways, and deck houses protecting openings.
- Portlights together with deadcovers, cargo ports and similar openings in hull sides, ends, or in enclosed superstructures.
- Ventilators, tank vent pipes together with flame screens, and overboard discharges from enclosed spaces.
- Watertight bulkheads and end bulkheads of enclosed superstructures.

- Closing appliances for all the above, including hatchcovers, doors, together with their respective securing devices, dogs, sill, coamings and supports.
- Freeing ports together with bars, shutters and hinges.
- Windlass and attachment of anchor racks and anchor cables.
- Protection of the crew, guard rails, lifelines, gangways, and deck houses accommodating crew.

4.3.5 Surface-Type Units

In addition to the requirements of 4.3.4 the following items are to be examined:

The hull and deck structure around the drilling well (moon-pool) and in vicinity of any other structural changes in section, slots, steps, or openings in the deck or hull and the back-up structure in way of structural members or sponsons connecting to the hull.

4.3.6 Self-Elevating Units

In addition to the requirements of 4.3.4 the following items are to be examined:

Jack-house structures and attachments to upper hull or platform. Jacking or other elevating systems and leg guides, externally. Legs as accessible above the waterline, plating and supporting structure in way of leg wells.

4.3.7 Column-Stabilized Units

In addition to the requirements of 4.3.4 the following items are to be examined:

Columns, diagonal and horizontal braces together with any other parts of the upper hull supporting structure as accessible above the waterline.

Note:

At the 1st Annual Survey after construction, Column Stabilized and Self Elevating Units may be subject to

examination of major structural components including non-destructive testing, as deemed necessary by TL. If TL deems such survey to be necessary, the extent should be agreed to by TL and the Owner or operator prior to commencement of the Survey.

4.4 Annual Survey - Machinery

4.4.1 Self-Propelled Units

A general examination of main and auxiliary engines, boilers, steering machinery, pumps, pipings, electrical installation including those in hazardous areas, and fire extinguishing systems is to be carried out.

4.4.2 Non-Self Propelled Units

A general examination of items required for classification such as auxiliary machinery, pumps, piping, electrical installation in hazardous areas and fire extinguishing systems is to be carried out.

4.4.3 Units with Propulsion-Assist or Dynamic Positioning

Propulsion-assist and dynamic positioning equipment should be surveyed on the basis of Annual Survey-Machinery in accordance with the requirements of TL.

4.5 Annual Survey - Electrical Equipment

A general examination of electrical machinery, the emergency sources of electrical power, the switchgear, and other electrical equipment, including operation of same is to be carried out. The operation of the emergency sources of power, including their automatic operation, is to be confirmed as far as practicable.

4.6 Annual Survey - Shipboard Automatic and Remote Control Systems

A general examination of the automatic and remote-control system is to be made to the Surveyor's satisfaction. The machinery-space fire-detection and bilge water-level alarms are to be tested to confirm satisfactory operation.

4.7 Annual Survey - Special Features

A general examination of hazardous areas, remote shutdown arrangements, fire fighting systems, self-elevating systems, piping systems, and bilge systems is to be made.

5. Intermediate Surveys

5.1 Survey period

5.1.1 Due dates

An intermediate survey, if requested, is due at half the nominal time interval between two Class renewal surveys, i.e. every $p/2$ years (p is the duration of the nominal class period in years, normally $p=5$), and may be performed either at the second or third annual survey. Additional items to the annual survey may be performed either at or between the second or third annual survey.

5.2 Scope

5.2.1 General

Intermediate surveys are generally to be performed to the extent of annual surveys including any additional items, such as related to a survey inspection programme, if any.

Additionally, the requirements for all ship-type units are defined in the **TL Rules, Classification and Surveys**.

5.2.2 Special features for mobile offshore drilling units

Mobile offshore drilling units may have many special items of machinery and electrical equipment not found on conventional ships. The items mentioned in 6.8 are to be specially examined in an analogous manner and reported upon at all Class intermediate surveys.

6. Class Renewal Surveys

6.1 Schedule

6.1.1 Class Renewal Surveys of hull, structure,

equipment, and machinery are to be carried out at 5 year intervals to renew the Classification Certificate(s).

6.1.2 The first Class Renewal Survey is to be completed within 5 years from the date of the initial classification survey and thereafter within 5 years from the credited date of the previous Class Renewal Survey. Extensions of class beyond the 5th year may be granted in exceptional circumstances (for a definition of exceptional circumstances, see TL- PR 1C). In this case the next period of class will start from the expiry date of the Class Renewal Survey before the extension was granted.

6.1.3 For survey completed within 3 months before the expiry date of the Class Renewal Survey, the next period of class will start from the expiry date of the Class Renewal Survey. For Survey completed more than three months before the expiry date of the Class Renewal Survey, the period of class will start from the survey completion date.

6.1.4 The Class Renewal Survey may be commenced at the 4th Annual Survey and be progressed with a view to completion by the 5th anniversary date. When the Class Renewal Survey is commenced prior to the 4th Annual Survey, the entire survey is to be completed within 15 months if such work is to be credited to the Class Renewal Survey.

6.1.5 A survey planning meeting is to be held prior to the commencement of the survey.

6.1.6 When considered necessary by **TL** the interval between Class Renewal Surveys may be reduced.

6.1.7 Class Renewal Survey requirements of units of unusual design, in lay-up or in unusual circumstances will be determined on individual basis.

6.1.8 At the request of the Owner, and upon the **TL's** approval of the proposed arrangements, a system of Continuous Survey may be undertaken whereby the Class Renewal Survey requirements are carried out in regular rotation in accordance with **TL Rules** to complete all the requirements of the particular Class Renewal Survey within a five year period. Any defects that may affect classification found during the survey,

are to be reported to **TL** and dealt with to the satisfaction of the Surveyor.

6.2 Scope

6.2.1 The Class Renewal Surveys shall include, in addition to Annual Survey requirements per item 4, the following examinations, tests, and checks of sufficient extent to verify that the hull, structure, equipment, and machinery are in satisfactory condition and that the Mobile Offshore Unit is in compliance with the applicable Rule requirements for the new period of class of 5 years to be assigned subject to proper maintenance and operation and the Periodical Surveys carried out at the due dates.

Additionally, the requirements for all ship-type units are defined in the **TL** Rules, Classification and Surveys, and are to be observed as far as applicable.

6.2.2 The examinations of the hull are to be supplemented by thickness measurements and testing as required, to verify the structural integrity. The aim of the examination is to discover Excessive Diminution, Substantial Corrosion, significant deformation, fractures, damages or other structural deterioration, that may be present.

6.2.3 The Class Renewal Survey is to include examination of underwater parts per item 7.

6.3 Class Renewal Survey No. 1 – Hull, Structure and Equipment

6.3.1 All Units

The following parts are to be examined:

- The hull or platform structure including tanks, watertight bulkheads and deck, cofferdams, void spaces, sponsons, chain lockers, duct keels, helicopter deck and its supporting structure, machinery spaces, peak spaces, steering gear spaces, and all other internal spaces are to be examined externally and internally for damage, fractures, or excessive diminution. Thickness gauging of plating and framing may be required where wastage is evident or suspected.

- All tanks, compartments and free-flooding spaces throughout the drilling unit are to be examined externally and internally for excess wastage or damage.
- Internal examinations of spud cans and mats may be specially considered.
- Watertight integrity of tanks, bulkheads, hull, decks and other compartments is to be verified by visual inspection.
- Suspect areas and critical structural areas should be examined and may be required to be tested for tightness, non-destructive tested or thickness gauged.
- All special and primary application structures (as defined in TL- G11) and identified critical structural areas are to be subjected to Close up survey.
- Tanks and other normally closed compartments are to be ventilated, gas freed and cleaned as necessary to expose damages and allow meaningful examination and thickness gauged in case of excessive diminution.
- Internal examination and testing of void spaces, compartments filled with foam or corrosion inhibitors, and tanks used only for lube oil, light fuel oil, diesel oil, fresh water, drinking water or other non-corrosive products may be waived provided that upon a general examination the Surveyor considers their condition to be satisfactory. External thickness gauging may be required to confirm corrosion control.
- Structures such as derrick substructure and supporting structure, jack-houses, deck houses, superstructures, helicopter landing areas, raw water (sea water intake) towers and their respective attachments to the deck or hull.

- Windlass and attachments of anchor racks and anchor cable fairleads.
- Foundations and supporting headers, brackets, and stiffeners for drilling related apparatus, where attached to hull, deck, superstructure or deck house.
- Thickness gaugings are to be carried out where wastage is evident or suspect.
- Where provided, the condition of corrosion prevention system of ballast tanks is to be examined. Where a hard protective coating is found in POOR condition and it is not renewed, where soft or semi-hard coating has been applied, or where a hard protective coating was not applied from time of construction, the tanks in question are to be examined at a frequency determined by **TL**. Thickness measurements are to be carried out as deemed necessary by the Surveyor.
- Thickness measurements are to be carried out in accordance with Appendix B, Tables 1, 2 or 3 as applicable. The Surveyor may extend the thickness measurements as deemed necessary. When thickness measurements indicate substantial corrosion, the extent of thickness measurements is to be increased to determine areas of substantial corrosion. Table 4 of Appendix B may be used as guidance for these additional thickness measurements. These extended thickness measurements are to be carried out before the survey is credited as completed.

6.3.2 Surface-type Units

In addition to the requirements of 6.3.1 the following items are to be examined:

- Structural appendages and ducts for positioning units.

6.3.3 Self-Elevating Units

In addition to the requirements of 6.3.1 the following items are to be examined:

- All legs, including chords, diagonal and horizontal braces, gussets, racks, joints, together with leg guides. Tubular or similar type legs are to be examined externally and internally, together with internal stiffeners and pinholes as applicable.
- Structure in, around and under jack-house and leg wells. Non-destructive testing of these areas may be required.
- Leg jacking or other elevating systems externally.
- Leg connections to bottom mats or spud cans, including non-destructive testing of leg connections to mats or spud cans.
- Jetting piping systems or other external piping, particularly where penetrating mats or spud cans.
- Spud cans or mats. Where the spud cans or mat are partly or entirely obscured below the mud line where the Class Renewal Survey is otherwise being completed, consideration may be given to postponement of the examinations until the next Rig move.

6.3.4 Column-Stabilized Units

In addition to the requirements of 6.3.1 the following items are to be examined:

- Connections of columns and diagonals to upper hull, structure or platform and lower hull, structure or pontoons. Joints of supporting structure including diagonals, braces and horizontals, together with gussets and brackets. Internal continuation or back-up structure for the above. Non-destructive examination may be required of these areas.

6.4 Class Renewal Survey No. 2 and Subsequent Class Renewal Surveys - Hull, Structure and Equipment

These Surveys are to be at least as comprehensive as Class Renewal Survey No. 1, with special attention being given to the condition and thickness of material in high corrosion areas.

Representative gaugings will be required as per Appendix B. Special attention should be paid to splash zones on structure, legs or related structure, and in ballast tanks, pre-load tanks, free-flooding spaces, spud cans and mats.

In addition to survey requirements given in this section, units of ship-shaped structure may be inspected in accordance with the provisions of TL Rules, Classification and Surveys.

6.5 Class Renewal Surveys – Machinery

6.5.1 Non-Self-Propelled Units

In addition to the requirements for Annual Surveys, at each Class Renewal Survey, special attention is to be given to the following items as applicable:

- All openings to the sea, including sanitary and other overboard discharges, together with cocks and valves connected therewith are to be examined internally and externally while the Unit is in drydock, or at the time of underwater examination in lieu of drydocking, and the fastenings to the shell plating are to be renewed when considered necessary by the Surveyor.
- Pumps and pumping arrangements, including valves, cocks, pipes and strainers are to be examined. Non-metallic flexible expansion pieces in the main salt water circulating system are to be examined internally and externally. The Surveyor is to be satisfied with the operation of the bilge and ballast systems. Other systems are to be tested as considered necessary.

- The foundations of machinery are to be examined.
- Heat exchangers and other unfired pressure vessels within the scope of classification are to be examined, opened up or thickness gauged and pressure tested as considered necessary, and associated relief valves proved operable. Evaporators that operate with a vacuum on the shell need not be opened, but may be accepted on basis of satisfactory external examination and operational test or review of operating records.
- Non-metallic expansion joints in piping systems, if located in a system which penetrates the unit's side and both the penetration and the non-metallic expansion joint are located below the deepest load waterline, should be inspected as part of the dry-dock survey and replaced as necessary, or at an interval recommended by the manufacturer.

6.5.2 Self-Propelled Units

In addition to the requirements for non-propelled units, the main and auxiliary propulsion machinery, including associated pressure vessels should be surveyed. In addition, examination of the steering machinery is to be carried out, including an operational test and checking or relief-valve settings. The machinery may be required to be opened for further examination as considered necessary by the Surveyor.

6.5.3 Units with Propulsion - Assist or Dynamic Position

Propulsion-assist and dynamic positioning equipment should be surveyed on the basis of Class Renewal Survey-Machinery in accordance with the requirements of TL.

6.6 Class Renewal Survey - Electrical Equipment

In addition to the requirements for Annual Surveys, at each Class Renewal Survey, special attention is to be given to the following items as applicable:

- Fittings and connections on main switchboards and distribution panels are to be examined, and care is to be taken to see that no circuits are overfused.
- Cables are to be examined as far as practicable without undue disturbance of fixtures.
- All generators are to be run under load, either separately or in parallel. Switches and circuit breakers are to be tested.
- All equipment and circuits are to be inspected for possible development of physical changes or deterioration. The insulation resistance of the circuits is to be measured between conductors and between conductors and ground and these values compared with those previously measured.
- Electrical auxiliaries installed for vital purposes, generators and motors are to be examined and their prime movers opened for inspection. The insulation resistance of each generator and motor is to be measured.
- The windings of main propulsion generators and motors are to be thoroughly examined and found or made dry and clean. Particular attention is to be paid to the ends of all windings of stators and rotors.
- Emergency power systems are to be examined and tested.

6.7 Class Renewal Survey - Shipboard Automatic and Remote Control Systems

In addition to the requirements of Annual Surveys the following parts are to be examined:

- Control Actuators: All mechanical, hydraulic, and pneumatic control actuators and their power systems are to be examined and tested as considered necessary.

- Electrical equipments: The insulation resistance of the windings of electrical control motors or actuators is to be measured, with all circuits of different voltages above ground being tested separately to the Surveyor's satisfaction.
- Unattended Plants: Control systems for unattended machinery spaces are to be subjected to dock trials at reduced power on the propulsion engine to verify the proper performance of all automatic functions, alarms, and safety systems.

6.8 Class Renewal Survey - Special Features (All Types)

Mobile Offshore Units may have many items of machinery and electrical equipment not found on conventional vessels. Certain of these items are required for classification even if the unit is without propulsion machinery. Items to be especially examined and reported upon at all Class Renewal Surveys are as follows:

6.8.1 Hazardous Areas - Enclosed hazardous areas such as those containing open active mud tanks, shale shakers, degassers and desanders are to be examined and doors and closures in boundary bulkheads verified as effective. Electric lighting, electrical fixtures, and instrumentation are to be examined, proven satisfactory and verified as explosion-proof or intrinsically safe. Ventilating systems including ductwork, fans, intake and exhaust locations for enclosed restricted areas are to be examined, tested and proven satisfactory. Ventilating air alarm systems to be proven satisfactory. Electrical motors are to be examined including closed-loop ventilating systems for large D-C motors. Automatic power disconnect to motors in case of loss of ventilating air is to be proved satisfactory.

6.8.2 Remote Shutdown Arrangements - Remote shutdown for fuel-oil transfer service pumps and ventilating equipment, together with oil tank outlet valves where required to be capable of being remotely closed are to be proved satisfactory. Emergency switch(s) for all electrical equipment including main and emergency generators, except alarm and

communication systems and lighting in vital areas such as escape routes and landing platforms, are to be proved satisfactory.

6.8.3 Fire Fighting Systems - A general examination of the fire detection and extinguishing systems is to be made in order that the Surveyor may be satisfied with its efficient state. The following items are to be especially examined:

- Fire hoses, nozzles, and spanners at each fire station.
- Servicing of all portable extinguishers.
- Weighing and re-charging as necessary of all dry chemical and CO₂ extinguishers.
- Fire pumps and piping including operation and capacity.
- Alarm systems including fire and gas detection.

6.8.4 Self Elevating Systems - On self elevating type Mobile Offshore Units, the elevating systems are to be examined and reported on. Pinions and gears of the climbing pinion gear train of rack and pinion systems are to be examined, as far as practicable, to the Surveyor's satisfaction by an effective crack detection method.

6.8.5 Piping Systems - Piping systems used solely for drilling operations and complying either with the TL's requirements or a recognized standard are to be examined, as far as practical, operationally or hydrostatically tested to working pressure, to the satisfaction of the Surveyor.

6.8.6 Miscellaneous - Bilge alarm systems, if fitted, to be tested.

7. Survey of the Outside of Unit's Bottom and Related Items

7.1 Schedule

7.1.1 There is to be a minimum of two examinations

of the outside of the unit's bottom and related items during each five-year class renewal survey period. One such examination is to be carried out in conjunction with the class renewal survey. In all cases the interval between any two such examinations is not to exceed 36 months. For units operating in salt water for less than six (6) months each year, the survey interval may be increased by **TL**.

7.1.2 Consideration may be given at the discretion of **TL**, to any special circumstances justifying an extension of the interval.

7.1.3 Proposals for alternative means of examining the unit's bottom and related items while afloat may be considered, provided they are in general agreement with Appendix A.

7.2 Parts to be Examined

7.2.1 Surface-type Units (ship or barge type units)

- External surfaces of the hull, keel, stem, stern frame, rudder, nozzles, and sea strainers are to be selectively cleaned to the satisfaction of the attending Surveyor and examined together with appendages, the propeller, exposed parts of stern bearing assembly, rudder pintle and gudgeon securing arrangements, sea chest and strainers, and their fastenings.
- Propeller shaft bearing, rudder bearing, and steering nozzle clearances are to be ascertained and recorded.

7.2.2 Self-Elevating Units

- External surfaces of the upper hull or platform, spud cans, mat, underwater areas of legs, together with their connections as applicable, are to be selectively cleaned to the satisfaction of the attending Surveyor and examined.
- At each Drydocking Survey or equivalent, after Class Renewal Survey No. 2, the Surveyor is to be satisfied with the condition of the internal

structure of the mat or spud cans. Leg connections to mat and spud cans are to be examined at each Drydock Survey or equivalent. Non-destructive testing may be required of areas considered to be critical by **TL** or found to be suspect by the Surveyor.

7.2.3 Column-Stabilized Units

- External surfaces of the upper hull or platform, footings, pontoons or lower hulls, underwater areas of columns, bracing and their connections, sea chests, and propulsion units as applicable, are to be selectively cleaned and examined to the satisfaction of the attending Surveyor. Non-destructive testing may be required of areas considered to be critical by **TL** or found to be suspect by the Surveyor.

7.3. Ballast Spaces

In conjunction with Drydocking Surveys (or equivalent) after Class Renewal No. 1 and between subsequent Class Renewal Surveys, the following ballast spaces are to be internally examined, thickness gauged, placed in satisfactory condition as found necessary, and reported upon. If such examination reveals no visible structural defects, the examination may be limited to a verification that the corrosion prevention arrangements remain effective.

7.3.1 All Units

Particular attention is to be given to corrosion prevention systems in ballast spaces, freeflooding areas and other locations subjected to sea water from both sides.

7.3.2 Surface type units

One peak tank and at least two other representative ballast tanks between the peak bulkheads used primarily for water ballast.

7.3.3 Self elevating units

Representative ballast tanks or free-flooding

compartments in mat or spud cans, if accessible, and at least two representative hull pre-load tanks.

7.3.4 Column stabilized units

Representative ballast tanks in footings, lower hulls, or free-flooding compartments as accessible, and at least two ballast tanks in columns or upper hull, if applicable.

8. Propulsion System Surveys

8.1 Schedule

Refer to the schedule in TL- R Z21 for tailshaft propeller shaft surveys.

8.2 Propeller Shaft Surveys and Extension of Survey Intervals

Surveys are to be carried out in accordance with the **TL** Rules, except that in the case of Mobile Offshore unit, due to low running hours on tailshafts propeller shaft, extended intervals between tailshaft propeller shaft surveys may be considered based on:

- Satisfactory diver's external examination of stern bearing and outboard seal area including wear-down check as far as is possible.
- Internal examination of the shaft area (inboard seals) in propulsion room(s).
- Confirmation of satisfactory lubricating oil records (oil loss rate, contamination).
- Shaft seal elements are examined/replaced in accordance with seal manufacturer's recommendations.

8.3 Other propulsion systems

Other propulsion systems shall be surveyed according to **TL** Rules.

9. Boilers Surveys

9.1 Schedule

Boiler Surveys are to be carried out according to the schedule found in TL- R Z18.2.

9.2 Scope

9.2.1 At each Boiler Survey the boilers, superheaters, and economizers are to be examined internally (water-steam side) and externally (fire side).

9.2.2 Boiler mountings and safety valves are to be examined at each Boiler Survey and opened as considered necessary by the Surveyor.

9.2.3 The proper operation of the safety valves is to be confirmed at each survey.

9.2.4 When considered necessary by the Surveyor, the boilers and superheaters are to be subjected to hydrostatic pressure test.

10. Survey Preplanning and Record Keeping

10.1 A specific Survey Program for Class Renewal Surveys and Continuous Class Renewal Surveys must be worked out in advance of the Class Renewal Survey by the Owner in cooperation with TL. The Survey Program shall be in written format.

10.2 Plans and procedures for survey of the outside of the unit's bottom and related items are to be submitted for review in advance of the survey and made available on board. These should include drawings or forms for identifying the areas to be surveyed, the extent of hull cleaning, non-destructive testing locations (including NDT methods), nomenclature, and for the recording of any damage or deterioration found. Submitted data, after review by TL, will be subject to revision if found to be necessary in light of experience.

11. Remote Inspection Techniques (RIT)

11.1 The RIT is to provide the information normally obtained from a close-up survey. RIT surveys are to be

carried out in accordance with the requirements given here-in and the requirements of TL- G 42 'Guidelines for Use of Remote Inspection Techniques for surveys'. These considerations are to be included in the proposals for use of a RIT which are to be submitted in advance of the survey so that satisfactory arrangements can be agreed with TL.

11.2 The equipment and procedure for observing and reporting the survey using a RIT are to be discussed and agreed with the parties involved prior to the RIT survey, and suitable time is to be allowed to set-up, calibrate and test all equipment beforehand.

11.3 When using a RIT as an alternative to close-up survey, if not carried out by TL itself, it is to be conducted by a firm approved as a service supplier according to TL- R Z17 and is to be witnessed by an attending surveyor of TL.

11.4 The structure to be examined using a RIT is to be sufficiently clean to permit meaningful examination. Visibility is to be sufficient to allow for a meaningful examination. TL is to be satisfied with the methods of orientation on the structure.

11.5 The Surveyor is to be satisfied with the method of data presentation including pictorial representation, and a good two-way communication between the Surveyor and RIT operator is to be provided.

11.6 If the RIT reveals damage or deterioration that requires attention, the Surveyor may require traditional survey to be undertaken without the use of a RIT.

C. Occasional Surveys

1. Damage Survey

1.1 It is the responsibility of the Owner/operator of the unit to report to TL without TL any damage, defect or breakdown, which could invalidate the conditions for which a classification has been assigned so that it may be examined at the earliest opportunity by TL's Surveyor(s). All repairs found necessary by the Surveyor are to be carried out to his satisfaction.

2. Repairs

2.1 Where repairs to hull, legs, columns or other structures, machinery or equipment, which affect or may affect classification, are planned in advance to be carried out, a complete repair procedure including the extent of proposed repair and the need for Surveyors attendance is to be submitted to and agreed upon by **TL** reasonably in advance. Failure to notify **TL**, in advance of the repairs, may result in suspension of the unit's classification until such time as the repair is redone or evidence submitted to satisfy the

Surveyor that the repair was properly carried out. This applies also to repairs during voyage or on site.

2.2 The above is not intended to include maintenance and overhaul to hull, other structures, machinery and equipment in accordance with recommended manufacturers procedures and established marine practice and which does not require **TL** approval; however, any repair as a result of such maintenance and overhauls which affects or may affect classification is to be noted in the ships log and submitted to the Surveyor.

3. Lay-up and Reactivation Surveys

3.1 When **TL** is notified by the Owner that a Unit has been laid-up, this status will be noted in the vessel's survey status and surveys falling due during lay-up may then be held in abeyance until the vessel reactivates, at which time they are to be brought up-to-date.

3.2 Units which have been laid up and are returning to active service, regardless of whether **TL** has been previously informed that the vessel has been in lay-up, a Reactivation Survey is required. The requirements for the Reactivation Survey are to be specially considered in each case, having due regard being given to the status of surveys at the time of the commencement of lay-up, the length of the lay-up period and the conditions under which the vessel has been maintained during that period.

4. Alterations

No alterations which may affect classification are to be made to the hull or machinery of a classed unit unless plans of proposed alterations are submitted and approved by **TL** before the work of alterations is commenced. Such work is to be carried out in accordance with approved plans and tested on completion as required by the Rules and to the satisfaction of the Surveyor.

5. Welding and Replacement of Materials

5.1 Welding of steels, including high strength structural steel, is to be to the satisfaction of **TL**.

5.2 Welding or other fabrication performed on steels of special characteristics or repairs or renewals of such steel or in areas adjacent to such steel is to be accomplished with procedures approved by **TL** considering the special materials involved. Substitution of steels differing from those originally installed is not to be made without approval by **TL**.

5.3 See TL- G 11 - "Materials Selection Guideline for Mobile Offshore Drilling Units" when considering suitable replacement materials.

D. Guidelines for the Survey of Offshore Mooring Chain Cable in Use

1. Application and Purpose

The information herein is intended to provide guidance to Surveyors for inspection of position mooring systems which have been classed by **TL** for Mobile Offshore Drilling Units. Temporary mooring equipment is to be surveyed under the Rules for Building and Classing Steel Vessels of **TL**.

2. Survey Interval, Purpose and Extent

2.1 Annual Surveys are to be conducted at approximately twelve (12) month intervals, with the vessel at operational draft, with the position mooring system in use.

2.1.1 The purpose of the Annual Survey is to confirm that the mooring system will continue to carry out its intended purpose until the next annual survey. No disruption of the unit's operation is intended. Ideally, the Annual Survey would be done during a relocation move.

2.1.2 The scope of the Annual Survey is limited to the mooring components adjacent to the winch or windlass. Depending on the mooring component visible from the unit, particular attention should be given to:

Chain

- Wear on the chain shoulders in way of the chain stopper and windlass pockets;
- Support of chain links in the windlass pockets.

Wire Rope

- Flattened ropes;
- Broken wires;
- Worn out or corroded ropes.

The surveyor should determine if any problems have been experienced in the previous twelve (12) months period with the mooring system, e.g. breaks, mechanical damage, loose joining shackles, chain or wire jumping.

If the Annual Survey reveal severe damage or neglect to the visible part of chain or cable, a more extensive survey should be performed.

Typical damage warranting a more comprehensive survey could be:

Chain

- Reduction in diameter exceeding 4%;
- Missing studs;
- Loose studs in Grade 4 chain;
- Worn out cable lifters (i.e. gypsies) causing damage to the chain.

Wire Rope

- Obvious flattening or reduction in area;
- Worn cable lifters causing damage to the wire rope;
- Severe wear or corrosion;
- Broken wires.

2.2 Special Periodical Surveys are carried out at intervals of approximately five (5) years and will require extensive inspection, usually associated with a sheltered water visit. When considered necessary by **TL**, the interval between Special Periodical Surveys may be reduced.

2.2.1 The purpose of the Special Periodical Survey is to ensure that each chain is capable of performing its intended purpose until the next Special Periodical Survey, assuming that appropriate care and maintenance is performed on the mooring system during the intervening period.

2.2.2 The Special Periodical Survey should include:

- Close visual examination of all links of mooring chains, with cleaning as required
- Enhanced representative NDT sampling
 - 5% on general chains
 - 20% on chain which has been in way of fairleads over last five (5) years
 - All connecting links
- Dimension checks, including length over five (5) links

2.2.3 Particular attention should be given to:

- Those lengths of chain (or wire rope) which have frequently been in contact with the windlass and fairleads during the unit's operation since the last survey. The Surveyor should ensure that these lengths are rated for use in the way of the windlass and fairlead.

- The looseness and pin securing arrangements of the joining-shackles.
- All windlass and fairlead chain pockets for:
 - Unusual wear or damage to pockets;
 - Rate of wear on pockets, including relative rate of wear between links and pockets;
 - Mis-match between links and pockets, and improper support of the links in the pockets.
- A functional test of the mooring system during anchor-handling operation for:
 - Smooth passage of chain links and/or wire rope and joining-shackles over the windlass and fairleads pockets;
 - The absence of chain jumping or other irregularities.

2.2.4 The thickness (diameter) of approximately 1% of all chain links should be measured. The selected links should be approximately uniformly distributed through the working length of the chain. The above percentage may be increased/decreased if the visual examination indicates excessive/minimal deterioration.

2.2.5 All joining-shackles of the Kenter type and bolted type which have been in service for more than four (4) years should be dismantled and Magnetic Particle Inspection (MPI) performed on all machined surfaces as per 8.2.

2.3 Special Continuous Surveys

In lieu of a special periodic survey, the Owner may opt for a Continuous Survey, by providing an extra mooring line which may be regularly inspected on shore and exchanged with lines installed on the unit on an annual or other appropriate schedule.

3. Anchor Inspection

The anchor head, flukes and shank should be examined

for damage, including cracks or bending. The anchor shackle pin and crown pin should be examined and renewed if excessively worn or bent. Moveable flukes should be free to rotate between stops on the anchor head.

Bent flukes or shanks should be heated and jacked back in place according to an approved procedure, followed by Magnetic Particle Inspection.

4. Anchor Swivels

Although swivels are no longer in common use, anchors have been lost due to corrosion of the threads engaging the swivel nut. These threads should be carefully examined and, if significant corrosion is found, the swivel should be removed or replaced.

5. Chain Inspection Criteria

5.1 Chain Types Considered

This section applies only to "Offshore" or "Rig Quality" chains with studs secured by one of the following means:

- Mechanically locked adjacent to the link's flash-butt-weld and fillet welded on the other end (TL R3 chain for example)
- Studs mechanically locked in place on both ends (TL R4 chain for example)

Note : See Chapter 2, Section 10, C for definition of TL-R3 and TL-R4.

Other types of chain will require special consideration.

The service environment of offshore mooring chain is more severe than the service environment for conventional ship anchoring chain. Offshore chain is exposed to service loads for a much longer period of time. The long term exposure to cyclical loadings in sea water magnifies the detrimental effect of geometric and metallurgical imperfections on fatigue life. Moreover the increased number of links in offshore chains renders the chain more susceptible to failure from a statistical standpoint.

Due to the effect of "notches", e.g. the stud footprint, higher strength steels, such as that used for TL R4 chain, have a lower ratio of fatigue strength to static tensile strength than typical lower strength steel such as used for TL R3 chain.

5.2 Chain Link Diameter Loss due to Abrasion and Corrosion

Diameter measurements should be taken in the curved or bend region of the link and at any area with excessive wear or gouging. Particular attention should be given to the 'shoulder' areas which normally contact the windlass or fairlead pockets.

Links with minimum cross-sectional area less than 90% of the original nominal area should be rejected. If repair is permitted, it should be done by qualified personnel using an approved procedure.

Note: WELD REPAIR IS NOT PERMITTED ON TL R4, R4S and R5 CHAIN (See paragraph 5.3.1) A 5% reduction in diameter is equivalent to 10% of the reduction in cross-sectional area to original.

Two diameter measurements should be taken 90 degrees apart and the average compared with original diameter considering with allowable diminution.

5.3 Chain Stud Defects and Repair or Replacement

Studs prevent knots or twist problems during chain handling and support the sides of the links under load to reduce stretching and bending stresses, resulting in longer fatigue life. Links with missing studs should be removed or the studs should be refitted using an approved procedure.

5.3.1 Chain Studs Secured by Fillet Welds on one End

The stud is likely to fall out if it is loose or the weld is cracked.

Any axial or lateral movement is unacceptable and the link must be repaired or replaced.

Links with studs fillet welded on the flash-butt-weld end of the stud are unacceptable.

Rejection of links with gaps exceeding 3 mm (1/8 inch) between the stud and the link at the flash-butt-weld end of the stud should be considered. Closing the gap by renewing the fillet weld may be considered, where permitted.

Field repair of cracked welds should be avoided. Welding must be performed by qualified personnel using approved procedures.

Note: WELD REPAIR IS NOT PERMITTED ON TL R4, R4S and R5 CHAIN Chains with studs mechanically locked in place on both ends may only be repaired by an approved mechanical 'squeezing' procedure to reseal the stud.

Fillet welding of studs on both ends is not acceptable nor is welding on the stud end adjacent to the link's flash-butt-weld.

Existing studs with fillet welds on both ends will require special consideration and will be subject to special crack detection efforts. A reduction in mechanical properties in way of the flash-butt-weld will normally be required and approval of the coastal Administration may also be required.

5.3.2 Chain Studs Secured by Press Fitting and Mechanical Locking

It is very difficult to quantify excessive looseness of chain studs. The decision to reject or accept a link with a loose stud must depend on the surveyor's judgment of the overall condition of the chain complement.

Axial movement of studs of 1 mm or less is acceptable. Links with axial movement greater than 2 mm must be repaired by 'squeezing' or removed. Acceptance of chain links with axial movements from 1 to 2 mm must be evaluated based on the environmental conditions of the unit's location and expected period of time before the chain is again available for inspection.

Lateral movement of studs up to 4 mm is acceptable.

5.4 Link Repairs

Cracks, gouges and other surface defects (excluding weld cracks) may be removed by grinding provided the resulting reduction in link diameter does not exceed 5% and the crosssectional area, due to abrasion, wear, and grinding is at least 90% of the original nominal area. Cross-sectional area should be calculated for the lowest average of two diameters taken 90 degrees apart.

Links with surface defects which cannot be removed by grinding should be replaced.

5.5 Chain Link Replacement

Defective links should be removed and replaced with joining-shackles, i.e. connecting links, guided by the following good marine practice:

- The replacement joining-shackle should comply with TL- R W22 or API Spec 2F.
- Joining-shackles should pass through fairleads and windlasses in the horizontal plane.

Since joining-shackles have much lower fatigue lives than ordinary chain links as few as possible should be used. On average, joining-shackles should be by 122 m (400 ft) or more apart.

If a large number of links meet the discard criteria and these links are distributed in the whole length, the chain should be replaced with new chain.

6. Fairlead and Windlass Inspection - Chain Systems

6.1 Fairleads

Inspection should verify that all fairleads move freely about their respective Z-axes, to the full range of motion required for their proper operation. All bolts, nuts and other hardware used to secure the fairlead shafts should be inspected and replaced, as required.

Fairlead attachment to the hull should be verified and NDT conducted, as necessary.

Note: There have been cases of closing plates on the fairlead shaft coming loose due to corrosion of the threads of the securing bolts, resulting in serious damage to the fairlead arrangements and the complete jamming of the fairlead and chain.

Consequently, the securing bolts should also be checked to ensure that the bolt material does not corrode preferentially, should the sacrificial anode system fail to function in way of the fairlead.

6.2 Windlasses

Special attention should be given to the holding ability of the windlass. The chain stopper and the resultant load path to the unit's structure should be inspected and its soundness verified.

6.3 Chain Pockets and Chain Support

It is essential that a link resting in a chain pocket makes contact with the fairlead at only the four shoulder areas of the link to avoid critical bending stresses in the link.

Satisfactory chain support is to be verified, and excessive wear in the pockets should be repaired as required, to prevent future damage to the chain.

Chain pockets may be repaired by welding in accordance with the standard procedures supplied by the fairlead/windlass manufacturer. Normally, the hardness of the pockets should be slightly softer than the hardness of the chain link, and procedures must be specific for the chain quality used.

7. Fairleads and Winches Inspection - Wire Rope Systems

7.1 Fairleads

See 6.1.

7.2 Winches

Special attention should given to the holding ability of the winch and the satisfactory operation of the pawls, rachets and braking equipment. The soundness of the

resultant load path to the unit's structure should be verified.

Proper laying down of the wire on the winch drum should be verified to the satisfaction of the Surveyor, and drums and spooling gear adjustments made, if required.

8. Inspection of Jewellery and Miscellaneous Fittings

8.1 General

Anchor shackles, large open links, swivels and connecting links should be visually inspected. Certain areas should be examined by MPI. Areas to be examined should be clearly marked on each item. Links and fittings should be dismantled, as required. Damaged items should be replaced as required by the attending surveyor. Illustrations showing the areas of concern may be found in API RP 2I, section 2.4.

General guidance on the areas requiring MPI is provided below:

- Large open links: the interior contact surfaces of large open links
- Bolted shackles: the inside contact areas and the pins
- Swivels: the swivel pin and threads and mating surface

8.2 Joining Shackles (Connecting Links)

8.2.1 Experience has shown that an undue number of anchors and chains have been lost due to connecting link failure. Joining-shackles used for higher strength chains, such as ORQ and above, which do not have certificates of equivalent quality should receive special attention.

8.2.2 Magnetic Particle Inspection

All joining-shackles of Kenter or similar design which have been in service for more than four (4) years should be dismantled and MPI carried out. Illustrations showing the areas of concern may be found in API RP 2I,

section 2.4.

General guidance on the areas requiring MPI is provided below:

- Joining shackle links: all machined and ground surfaces of the link and the sides of the curved portions of the link
- Joining shackle stud: machined surfaces only
- Joining shackle pin: 100%

8.2.3 Fatigue is considered to be the critical criteria in way of the machined surfaces. On the remaining surface, the profile should be ground smooth and MPI should be carried out upon completion of grinding. In general, the radius of the completed grinding operation should produce a recess with a minimum radius of 20 mm and a length along the link bar greater or equal to six times its depth.

Note: Sandblasting prior to MPI may damage the machined surfaces and should be avoided. Alternative methods of cleaning should be used. The maximum permissible depth of grinding is 5% of the nominal diameter. The minimum acceptable crosssectional area in way of the grinding repair, due to the combined effect of local grinding and general corrosion/abrasion is 90% of the nominal cross-sectional area.

The minimum acceptable diameter in way of the grind repair, due to the combined effect of local grinding and general corrosion/abrasion, is 95% of the nominal diameter.

8.2.4 General Corrosion/Abrasion

The minimum acceptable cross-sectional area due to generally uniform corrosion/abrasion is 90% of the nominal cross-sectional area (equivalent to an uniform 5% reduction in diameter).

8.2.5 Tapered pins holding the covers of connecting links together should make good contact at both ends and the recess of counterbore at the large end of the pin holder should be solidly plugged with a peened lead slug to prevent the pin from working out.

8.2.6 Looseness Upon Re-Assembly

Any joining-shackles of Kenter or similar designs which are loose upon re-assembly should be accepted only after special consideration in each case.

Note: Looseness between the mating faces will significantly reduce the remaining fatigue life of a joining-shackle. Stud movement in the longitudinal direction of the stud of more than 0.5 mm is also likely to significantly reduce the remaining fatigue life of a joining-shackle.

9. Wire Rope Surveys

9.1 Acceptance Criteria

Acceptance criteria should be guided by ISO-Standard 4309. Further insight may be gained from the 'discard' guidance provided by API RP 2I, Figures 18 and 19.

It should be borne in mind that ISO-Standard 4309 is primarily intended for lifting appliances where the Factor of Safety may be higher than for mooring wires.

The Surveyor should exercise great care in his interpretation of the condition of the wire. An obvious acceptance or rejection is comparatively easy, but the "grey" area between is difficult to evaluate. The Surveyor must make a sound evaluation and technical judgment based on all available evidence.

In general, the age or time in service of the wire does not directly have a bearing on the acceptance or rejection of the wire other than as a factor to be taken into consideration by the Surveyor when deciding on the extent of survey.

9.2 Survey and Inspection

100% visual examination and diameter measurements should be performed.

9.2.1 Visual examination should identify and record the following items for each steel wire anchor line:

- Wire breaks at the termination;
 - External wear and corrosion;
 - Localized grouping of wire breaks;
 - Deformation;
 - Fracture of strands;
 - Termination area;
 - Reduction of rope diameter, including breaking or extrusion of the core.
- 9.2.2** Diameter measurements should be taken at approximately 100 m intervals, at the discretion of the attending Surveyor. If areas of special interest are found, the survey may be concentrated on these areas and diameter measurements taken at much smaller intervals.
- 9.2.3** An internal examination should be undertaken as far as practicable if indications of severe internal corrosion or possible breakage of the core or wire breaks in underlaying areas. See API RP 2I, Section 3.3.6.3, for guidance on the internal inspection of wire rope.
- ### 9.3 Guidance on Wire Rope Damage
- The cause of wire rope failures may be deduced from the observed damage to the rope. The information summarized below covers most types of wire rope failure.
- More detailed information, including photographic examples, is available in ISO-Standard 4309 and API RP 2I.
- 9.3.1** Broken wires at the termination indicate high stresses at the termination and may be caused by incorrect fitting of the termination, fatigue, overloading or mishandling during deployment or retrieval.
- The nature and number of wire breaks;
 - Distributed broken wires, illustrated by figures 9 through 12 of API RP 2I, may indicate the reason for their failure.

Crown breaks or breakage of individual wires at the top of strands may be caused by excessive tension, fatigue, wear or corrosion.

Excessive tension is indicated by necking down of the broken end of the wire.

Fatigue is indicated by broken faces perpendicular to the axis of the wire.

Corrosion and wear may be indicated by reduced cross sections of the wire.

Valley breaks, at the interface between two strands indicate tightening of the strands, usually caused by a broken core or internal corrosion which has reduced the diameter of the core.

Valley breaks can be caused by high loads, tight sheaves, and sheaves of too small a diameter.

- Locally grouped broken wires in a single strand or adjacent strand may be due to local damage. Once begun, this type of damage will usually worsen.

9.3.2 Changes in rope diameter can be caused by external wear, interwire and interstrand wear, stretching or corrosion.

A localized reduction in rope diameter may indicate a break in the core. Conversely, an increase in rope diameter may indicate a swollen core due to corrosion.

9.3.3 Wear on the crown of outer strands in the rope may be caused by rubbing against fairleads, unit structure, or the sea bed depending on the location of the wear. Internal wear between individual strands and wires in the rope is caused by friction and is accelerated by bending of the rope and corrosion.

9.3.4 Corrosion decreases rope strength by reducing the cross-sectional area and accelerated fatigue by creating an irregular surface which invites stress cracking. Corrosion is indicated by:

- The diameter of the rope at fairleads will grow smaller;
- The diameter of stationary ropes may actually grow larger, due to rust under the outer layer of strands. Diameter growth is rare for mooring lines.

9.3.5 Deformation, i.e. distortion of the rope from its normal construction, may result in an uneven stress distribution in the rope. Kinking, bending, scrubbing, crushing and flattening are common wire rope deformations. Ropes with slight deformations will not lose significant strength. Severe distortions can accelerate rope deterioration and lead to premature failure.

9.3.6 Thermal damage, although rare for mooring ropes in normal service, may be indicated by discoloration. Prompt attention should be given to damage caused by excessively high or low temperatures. The effect of very low temperatures on wire rope is unclear except for the known detrimental effect on lubricants.

10. References

10.1 Wire Rope

API RP 2I (R 2015) 3rd Edition (2008-04-01) – In service Inspection of Mooring Hardware for Floating Structures” and

ISO-Standard 4309:2017 Edition 5, “Cranes – Wire Ropes – Care and maintenance, inspection and discard”.

(Please see 9.1 regarding the ISO-Standard)

10.2 Chain

API RP 2I: (R2015) 3rd Edition (2008-04-01) "In-Service Inspection of Mooring Hardware for Floating Structures”.

Appendix A - Underwater Inspection in Lieu of Drydocking Survey**1. General**

Following are the procedures and conditions under which a properly conducted underwater inspection may be credited as equivalent to a Drydocking Survey.

2. Conditions**2.1 Limitations**

Underwater Inspection in lieu of Drydocking Survey may not be acceptable where there is record of abnormal deterioration or damage to the underwater structure; or where damage affecting the fitness of the unit is found during the course of the survey.

2.2 Thickness Gauging and Non-Destructive Testing

Underwater or internal thickness gaugings of suspect areas may be required in conjunction with the underwater inspection. Means for underwater non-destructive testing may also be required for fracture detection.

2.3 Plans and Data

Plans and procedures for the Drydocking Survey (Underwater Inspection) are to be submitted for review in advance of the survey and made available on board. These should include drawings or forms for identifying the areas to be surveyed, the extent of underwater cleaning, non-destructive testing locations (including NDT methods), nomenclature, and for the recording of any damage or deterioration found.

2.4 Underwater Conditions

The in-water visibility and the cleanliness of the hull below the waterline is to be clear enough to permit a meaningful examination which allows the surveyor and diver and/or ROV pilot to determine the condition of the plating, appendages and the welding. TL is to be satisfied with the methods of orientation

of the divers/ROVs on the plating, which should make use where necessary of permanent markings on the plating at selected points. Overall or spot cleaning may be required.

3. Physical Features

The following physical features are to be incorporated into the unit's design in order to facilitate the underwater inspection. When verified they will be noted in the unit's classification for reference at subsequent surveys.

3.1 Stern Bearing

For self-propelled units, means are to be provided for ascertaining that the seal assembly on oil-lubricated bearings is intact and for verifying that the clearance or wear-down of the stern bearing is not excessive. For use of the wear-down gauges, up-to-date records of the base depths are to be maintained on board. Whenever the stainless-steel seal sleeve is renewed or machined, the base readings for the wear-down gauge are to be re-established and noted in the vessel's records and in the survey report.

3.2 Rudder Bearings

For self-propelled units with rudders, means and access are to be provided for determining the condition and clearance of the rudder bearings, and for verifying that all parts of the pintle and gudgeon assemblies are intact secure. This may require bolted access plates and a measuring arrangement.

3.3 Sea Suctions

Means are to be provided to enable the diver to confirm that the sea suction openings are clear. Hinged sea suction grids would facilitate this operation.

3.4 Sea Valves

For the Drydocking Survey (Underwater Inspection) associated with the Class Renewal Survey, means must be provided to examine any sea valve.

4. Procedures**4.1 Exposed Areas**

An examination of the outside of the structure above the waterline is to be carried out by **TL's** Surveyor. Means and access are to be provided to enable the Surveyor to accomplish visual inspection and non-destructive testing as necessary.

4.2 Underwater Areas

An examination of the entire unit below the waterline is to be carried out by an approved firm in accordance with TL-R Z17.

4.3 Damage Areas

Damage areas are to be photographed. Internal examination, measurements, marking and thickness gauging of such locations may be necessary as determined by the attending Surveyor. Means are to be provided for location, orienting and identifying underwater surfaces in photographs or on video tapes.

5. Alternatives

TL is prepared to consider alternatives to the above guidelines including remotely operated vehicles, provided means and details for accomplishing results are not less effective.

Information Note:

Appendix A would be applicable to all drilling unit types due to contents of paragraph A2.3 - Plans and Data.

Appendix B - Minimum Requirements for Thickness Measurements for Class Renewal Survey

Table 1. Minimum Requirements for Thickness Measurements for Surface-Type Units at Class Renewal Survey

Class Renewal Survey No.1 Age ≤ 5	Class Renewal Survey No.2 < 5 Age ≤ 10	Class Renewal Survey No.3 10 < Age ≤ 15	Class Renewal Survey No.4 and subsequent 15 < Age
1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.
	2) One transverse section of deck plating abreast the moon pool opening within the amidships 0.6L, together with internals in way as deemed necessary. Where unit is configured with side ballast tanks, the plating and internals of the tanks are also to be gauged in way of the section chosen.	2) Two Transverse Sections (Girth Belts) of deck, bottom and side plating abreast the moon pool and one hatch opening within the amidships 0.6L together with internals in way as deemed necessary. Where unit is configured with side ballast tanks, the plating and internals of the tanks to be gauged in way of the required belts, Remaining internals in ballast tanks to be gauged as deemed necessary.	2) A minimum of three Transverse Sections (Girth Belts) of deck, bottom, side, and longitudinal bulkhead plating in way of the moon pool and other areas within the amidships 0.6 L, together with internals in way (including in perimeter ballast tanks, where fitted in way of belts).
	3) Moon pool boundary bulkhead plating.	3) Moon pool boundary bulkhead plating.	3) Moon pool boundary bulkhead plating.
		4) Internals in forepeak tank and aft peak tank as deemed necessary.	4) Internals in forepeak and after peak tanks as deemed necessary.
			5) Lowest strake of all transverse bulkheads in hold spaces. Remaining bulkhead plating to be gauged as deemed necessary.
			6) All plates in two wind and water strakes, port and starboard, full length.
			7) All exposed main deck plating full length and all exposed first-tier super-structure deck plating (poop, bridge and forecastle decks)
			8) All keel plates full length plus additional bottom plating as deemed necessary by the Surveyor, particularly in way of cofferdams and machinery spaces.
			9) Duct keel or pipe tunnel plating or pipe tunnel plating and internals as deemed necessary.
			10) Plating of sea chests. Shell plating in way of overboard discharges as considered necessary by the attending surveyor.

Notes:

1. Thickness measurement locations are to be selected to provide the best representative sampling of areas likely to be most exposed to corrosion, considering ballast history and arrangement and condition of protective coatings.
2. Thickness measurements of internals may be specially considered by the Surveyor if the hard protective coating is in GOOD condition.
3. For units less than 100 meters in length, the number of transverse sections required at Class Renewal Survey No. 3 may be reduced to one (1), and the number of transverse sections required at subsequent Class Renewal Surveys may be reduced to two (2).
4. For units more than 100 meters in length, at Class Renewal Survey No. 3, thickness measurements of exposed deck plating within amidship 0.5 L may be required.

Table 2. Minimum Requirements for Thickness Measurements for Self-Elevating Units at Class Renewal Survey

Class Renewal Survey No.1 Age ≤ 5	Class Renewal Survey No.2 < 5 Age ≤ 10	Class Renewal Survey No.3 10 < Age ≤ 15	Class Renewal Survey No.4 and subsequent 15 < Age
1) Suspect areas throughout the unit (particular attention to be paid to the legs in way of the Splash Zone).	1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.
	2) Legs in way of Splash Zone.	2) Legs in way of Splash Zone.	2) Legs in way of Splash Zone
	3) Primary application structures where wastage is evident.	3) Representative gaugings, throughout, of special and primary application structures	3) Comprehensive gaugings, throughout, of special and primary application structures
	4) Representative gaugings of upper hull deck and bottom plating and internals of one preload (ballast) tank.	4) Leg well structure.	4) Leg well structure.
		5) Representative gaugings of deck, bottom, and side shell plating of hull and mat.	5) Representative gaugings of deck, bottom, and side shell plating of hull and mat.
		6) Representative gaugings of upper hull deck and bottom plating and internals of at least two preload (ballast) tanks.	6) Substructure of derrick as deemed necessary.
			7) Representative gaugings of internals of all preload (ballast) tanks.

Note:

Structural application designation (Special, Primary, Secondary) are defined in TL- G 11

Table 3. Minimum Requirements for Thickness Measurements for Column-Stabilized Units at Class Renewal Survey

Class Renewal Survey No.1 Age ≤ 5	Class Renewal Survey No.2 < 5 Age ≤ 10	Class Renewal Survey No.3 10 < Age ≤ 15	Class Renewal Survey No.4 and subsequent 15 < Age
1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.	1) Suspect areas throughout the unit.
2) Columns and bracings where wastage is evident in Splash Zone.	2) Representative gaugings of columns and bracings in Splash Zone together with internals in way as deemed necessary.	2) Representative gaugings, throughout, of special and primary application structures	2) Comprehensive gaugings, throughout, of special and primary application structures.
	3) Special and primary application structure where wastage is evident.	3) One Transverse Section (Girth Belt) of each of 2 columns and 2 bracings in Splash Zone together with internals in way as deemed necessary.	3) One Transverse Section (Girth Belt) of each of one-half of the columns and bracings in Splash Zone and internals in way as deemed necessary (i.e., gauge half of the unit's columns and bracings in Splash Zone).
		4) Lower hulls in way of mooring lines where wastage is evident.	4) Lower hulls in way of mooring lines where wastage is evident.
		5) One Transverse Section (Girth Belt) of each lower hull between one set of columns.	5) One Transverse Section (Girth Belt) of each lower hull between one set of columns.
			6) Representative gaugings of substructure of drilling derrick.

Note:

Structural application designation (Special, Primary, Secondary) are defined in TL- G 11

Table 4. Guidance for Additional Thickness Measurements in way of Substantial Corrosion

Structural Member	Extent of Measurement	Pattern of Measurement
Plating	Suspect area and adjacent plates	5 point pattern over 1 square meter
Stiffeners	Suspect area	3 measurements each in line across web and flange

SECTION 4**CLASS DESIGNATION for FIXED OFFSHORE INSTALLATIONS**

	Page
A. General	4-2
1. Definitions	
2. Class Designation	
B. Characters of Classification	4-2
1. Structure	
2. Machinery	
3. Survey, Supervision of Construction	
4. Special Equipment Used on Installations	
C. Notations affixed to the Character of Classification	4-3
1. General	
2. Notations for the Structure	
3. Machinery Notations	
4. Summary of Notations for Fixed Offshore Installations	

A. General**1. Definitions**

1.1 The Class of a fixed offshore installation complying with these **TL** Rules is expressed by the “Character of Classification”, assigned to hull/structure and machinery including electrical installations, see B.

1.2 Details about structure, machinery including electrical installations as well as special equipment and installations included in the Classification procedure are indicated by “Notations” affixed to the Character of Classification, see C.

1.3 The Character of Classification and the Notations give the scope according to which the Class of the installation has been based and refer to the specific rule requirements which are to be complied with for their assignment. In particular, the Classification Character and Notations are assigned according to the type and service of the installation and other criteria, which have been provided by the prospective Owner, building yard or other subcontractors, when requesting for Classification.

1.4 **TL** may change the Character of Classification or the Notations at any time, when the information available shows that the requested or already assigned Notations are not suitable for the intended type, service, navigation and any other criteria taken into account for Classification, see Section 1.

1.5 The Character of Classification and Notations assigned to an installation are indicated on the Certificate of Classification, as well as in the Register.

1.6 The Character of Classification and Notations applicable to existing installation conform to the Rules of **TL** in force at the date of assignment of Class. They may however be updated on request according to the current Rules, as far as applicable.

2. Class Designation

Table 4.1 shows examples for a Class designation for structure and machinery.

Table 4.1 Examples for Class designation

Structure	+ 1 A 5	FIXED OFFSHORE STRUCTURE; PILE FOUNDATION
Machinery	+ M	EC

B. Characters of Classification**1. Structure****1.1 Character of Classification**

1 A 5 The installation's structure fully complies with the requirements of the Construction Rules of **TL** or other rules considered being equivalent.

1 A 4 (as examples):

1 A 3 The structure does not fully comply with the requirements of the Construction Rules of **TL**; however, the Class may be maintained for a shorter period and/or with shorter survey intervals.

The figures 5, 4, etc. indicate the duration of the period of class, in years.

2. Machinery

M The machinery and all installations covered by Classification comply with the requirements of the Construction Rules of **TL** or other rules considered equivalent.

T-M The machinery of non-self-propelled installations complies with the requirements of the Construction Rules of **TL** or other rules considered equivalent.

[M],[T-M] The machinery does not fully comply with the requirements of the Construction Rules of **TL**, but functional safety and seaworthiness are ensured for the envisaged service.

3. Survey, Supervision of Construction

Note

The characters have the following meaning:

+ Structure, machinery and/or special equipment have been constructed:

- under the supervision of **TL** at the building yard and/or at subcontractors supplying construction components and
- with Certification by **TL** of components and materials requiring inspection, subject to the **TL** Construction Rules

(+) The construction symbol (+) may be given to hull, machinery and/or special equipment (e.g. refrigerating installation) when components and materials requiring inspection and testing at manufacturer's site, subject to the **TL** Construction Rules, are not certified/supervised by **TL**.

On-board installation testing and in-service survey requirements required by **TL** Rules for the components and the materials are to be applied under **TL** supervision.

If deemed appropriate by **TL**, the construction symbol (+) may also be given to hull, machinery and/or special equipment (e.g. refrigerating installation) of double class new building ships.

TL reserves the right to request **TL** certification or supervision of a component or material.

[+] Structure, machinery installation or special equipment have been constructed under the supervision of and in accordance with the rules of another recognized Classification Society and have subsequently been classed with **TL**.

+, (+) or [+] notations are not present in front of main class notations in case hull, machinery and/or special equipments are not constructed under supervision of **TL** or another recognised classification society but later assigned class by **TL**.

In the event Admission to Class (Change of Class) from a Society recognized by the former state administration of the unit/installation, prior examination of drawings of the structure, machinery and electrical installations is not conditional.

4. Special Equipment Used on Installations

4.1 Diving systems

TAZ The diving system complies with the requirements of the **TL** Rules, Chapter 52 – Diving Systems.

C. Notations affixed to the Character of Classification

1. General

1.1 There are different kinds of Notations, describing particular features, capabilities, service restrictions or special equipment and installations included in the Classification, as defined in the following.

1.2 The Notations to be affixed to the Character of Classification are optional and may be selected by the prospective Owner or building yard. The chosen scope of Notations has to be defined in the Classification specification as well as in the building specification.

1.3 Generally, the type and/or service Notations will be assigned according to the indications or suggestions of the prospective Owner or building yard.

1.4 The Notations define the type and/or service of the installation, which have been considered for its Classification, according to the request for Classification signed by the prospective Owner or building yard. The assignment of any Notation to a new construction is subject to compliance with the general rule requirements laid down in the Construction Rules.

1.5 The Notations applicable to existing installations conform to the Rules of **TL** in force at the

date of assignment of Class. However, at the request of the Owner and as far as applicable, the Notations of existing installations may be updated according to the current **TL** Rules.

1.6 A Notation may be complemented by one or more Notations, giving further precision regarding the type and/or service of the installation, for some of which specific rule requirements are applied.

1.7 At the request of the Owner and as far as applicable, **TL** reserve the right to grant other Class Notations as defined in other **TL** Rules. The Class maintenance surveys for such Class Notations are to be performed to the corresponding requirements in the other **TL** Rules.

2. Notations for the Structure

2.1 Installation type

The following Notations for various types of installation may be distinguished, e.g.:

FIXED OFFSHORE STRUCTURE, PILE FOUNDATION

Notation for installations fixed on the seabed by means of piles.

FIXED OFFSHORE STRUCTURE, GRAVITY FOUNDATION

Notation for installations supported on the seabed by action of gravity only.

FIXED OFFSHORE STRUCTURE, TENSION LEG PLATFORM

Notation for buoyant installations connected to a fixed foundation or piles by means of pre-tensioned tendons.

2.2 Installation out of operation

INSTALLATION OUT OF OPERATION

Notation for installations, which are not in active operation and the Class Renewal Survey of which has

been substituted, compare Section 1, F.3.

2.3 Environmental protection standards

ENVIRONMENTAL PASSPORT

Notation for installations fulfilling the requirements of the **TL** Rules, Chapter 76 – Guidelines for the Environmental Service System.

2.4 Special equipment and systems

Special systems, e. g. equipment covered by Classification may be referred to by a Notation affixed to the Character of Classification, such as:

EC Equipment Certified

This Notation is assigned for characteristic implements and/or equipment which have by agreement been constructed in accordance with the Rules and under supervision of **TL**.

EQUIPPED FOR DRILLING

Notation for installations equipped with a drilling tower and all the equipment to lengthen or shorten the drill pipe and has all the necessary auxiliary devices.

EQUIPPED FOR PRODUCTION

Notation for installations equipped with facilities for production of oil and gas to be delivered by the fully developed source.

EQUIPPED FOR PROCESSING

Notation for installations equipped with a plant for processing gas and/or oil into semi-finished products or end products.

EQUIPPED FOR FLARING

Notation for installations equipped with at least one flare or cold vent, used for the safe disposal of hydrocarbon gases and vapours and other gases associated with drilling, production and processing of mineral oil and gas.

EQUIPPED FOR STORAGE

Notation for installations equipped with storage facilities for large gas and/or oil quantities, which act as a buffer e.g. between loading periods of transport vessels.

EQUIPPED FOR POWER TRANSFORMING

Notation for installations equipped with a power transformer which receives electric energy with high voltage and distributes this power with lower voltage to various consumers in an offshore complex or vice versa.

EQUIPPED FOR LOADING

Notation for installations equipped to serve as loading terminals for gas or oil within larger offshore complex.

EQUIPPED FOR ACCOMMODATION

Notation for installations equipped with large accommodation facilities for a number of special personnel within an offshore complex..

2.5 Materials

If installations are constructed of normal strength structural steel, this will not be specially indicated. If hull other materials are employed for the structure, this will be indicated in the Ship Register and in the Class Certificate, e. g.:

HIGHER STRENGTH HULL STRUCTURAL STEEL**REINFORCED CONCRETE****ALUMINIUM****FRP (Fibre Reinforced Plastic)**

Other materials used for structural parts will be indicated in the Register.

2.6 Novel designs

EXP Structures, machinery installations or essential parts have been constructed in accordance with a design, for which sufficient experience is not available yet. **TL** will decide at what intervals the required periodical surveys will have to be carried out.

Where experience over a prolonged period of time has proved the efficiency of the design, the Notation **EXP** may be cancelled.

3. Machinery Notations**3.1 Condition Monitoring**

Where a Condition Monitoring System is used to reliably determine the condition of their components depending on the minimum achieved scope of condition monitoring, one of the following Notations will be assigned to the Character of Classification for the machinery installations.

CM1 Up to 3 % of the possible Condition Monitoring scope is achieved.

CM2 Up to 10 % of the possible Condition Monitoring scope is achieved.

CM3 Up to 20 % of the possible Condition Monitoring scope is achieved.

CM4 More than 20 % of the possible Condition Monitoring scope is achieved.

3.4 Novel designs

EXP See 2.6

4. Summary of Notations for Fixed Offshore Installations

Table 4.2 gives an overview for the various Notations which may be assigned to fixed offshore installations. Additional information is given in the respective Chapters.

Table 4.2 Summary of notations for fixed offshore installations

Chapter 59 Classification, Certification and Surveys	Chapter 60 Mobile Offshore Units	Chapter 62 Structural Design	Chapter 63 Machinery Installations	Chapter 64 Electrical Installations
Installation type: FIXED OFFSHORE STRUCTURE, - PILE FOUNDATION - GRAVITY FOUNDATION - TENSION LEG PLATFORM Non-operation status: INSTALLATION OUT OF OPERATION	Special equipment certified: EC Special systems: EQUIPPED FOR DRILLING EQUIPPED FOR PRODUCTION EQUIPPED FOR PROCESSING EQUIPPED FOR POWER TRANSFORMING EQUIPPED FOR FLARING	Special equipment: EQUIPPED FOR ACCOMMODATION Material: HIGHER STRENGTH HULL STRUCTURAL STEEL REINFORCED CONCRETE ALUMINIUM FRP Novel design: EXP	Environmental standards: ENVIRONMENTAL PASSPORT Special systems: EQUIPPED FOR STORAGE EQUIPPED FOR LOADING Condition monitoring: CM1 CM2 CM3 CM4 Novel design: EXP Diving systems: TAZ	-

SECTION 5**SURVEY of FIXED OFFSHORE INSTALLATIONS**

	Page
A. General	5-2
1. Supervision and Testing During Construction	
2. Surveys for Maintenance of Class	
B. Periodical Surveys for Installations	5-5
1. General	
2. Annual Surveys	
3. Intermediate Surveys	
4. Class Renewal Surveys	
5. Periodical Underwater Surveys	
6. Periodical Surveys of Individual Machinery Items	
7. Thickness Measurements and Corrosion Tolerances	
8. Survey preplanning and Record Keeping	
C. Occasional Surveys	5-15
1. Damage Survey	
2. Repairs	
3. Reactivation Surveys	
4. Conversion or Alteration Surveys	
5. Extraordinary Surveys	
6. Survey for Towage	
7. Welding and Replacement of Materials	

A. General**1. Supervision and Testing During Construction**

During the design and construction phase of a fixed offshore installation the following steps of the approval procedure to obtain **TL** Class shall be applied subsequently unless otherwise specified:

- design review/approval see Chapter 61, Section 1, C.
- survey of materials and components, see Chapter 61, Section 1, D.
- supervision of fabrication and installation, see Chapter 61, Section 1, D.
- testing and commissioning, Chapter 61, Section 1, E.

2. Surveys for Maintenance of Class**2.1 General requirements**

2.1.1 For maintenance of Class, the regular periodical and non-periodical surveys of structure, machinery including electrical installation and any special equipment classed as defined in the following are to be performed.

The periodical surveys include:

- The annual survey
- The intermediate survey, if requested
- The class renewal survey
- The underwater inspection
- The steam boiler/thermal oil plant and pressure vessels survey,

as well as surveys for the maintenance of Class Notations, where applicable. The surveys are to be carried out in accordance with the intervals and

conditions laid down in this Section.

When there are no specific survey requirements for Class Notations assigned to an installation, the equipment and/or arrangements related to these Class Notations are to be examined, as applicable, to the Surveyor's satisfaction at each class annual, intermediate or renewal survey.

The surveys are to be carried out in accordance with the relevant requirements in order to confirm that the structure, machinery including electrical installation, equipment and appliances comply with the applicable Rules and remain in satisfactory condition.

When the conditions for the maintenance of type and/or service Notations are not complied with, the type and/or service Notation will be suspended and/or withdrawn in accordance with the applicable Rules given in Section 1, F.5.

The requirements for surveys apply to those items that are required according to the Rules or, even if not required, are fitted on the installation.

Unless specified otherwise, any survey other than steam boiler or thermal oil plant and individual pressure vessels survey may be effected by carrying out partial surveys or splitting of surveys at different times to be agreed upon with **TL**, e.g. continuous Class surveys, provided that such a survey procedure is adequately extensive. The splitting of a survey is to be such as not to impair its effectiveness.

2.1.2 In addition to the above periodical surveys, the units are to be submitted to occasional nonperiodical surveys whenever the circumstances so require.

For example, occasional non-periodical surveys will be carried out at the time of:

- Updating of Classifications documents (e.g. change of the Owner, name of offshore installations permanently fixed to the seabed, etc.)
- Damages or suspected damage

- Repairs or maintenance work
- Conversions
- Extraordinary surveys as parts of **TL**'s quality assurance system
- Postponement of surveys or conditions of Class
- Non-periodical surveys for change of anniversary date, postponement or advance of surveys

TL reserve the right, after due consideration, to change the periodicity, postpone or advance surveys, taking into account particular circumstances.

If applicable, when a survey becomes overdue, the following applies:

- For avoiding loss of Class, in the case of a Class renewal survey, **TL** may, in exceptional cases, grant an extension to allow completion of this survey, provided there is documented agreement to such an extension prior to the expiry date of the Class Certificate, and **TL** is satisfied that there is sufficient technical justification for such an extension.
- In the case of Class annual or intermediate surveys, no postponement is granted. Such surveys are to be completed within their prescribed time windows.
- In the case of all other periodical surveys and conditions of Class, extension may be granted, provided there is sufficient technical justification for such an extension.

Other surveys performed by **TL** - partly in connection with Classification - are listed in 2.5.

2.1.3 Surveys required for maintenance of Class, e.g. in the case of repairs, or modifications to any parts subject to Classification, are to be agreed with the local **TL** representation in due time, so that the measures

envisaged may be assessed and supervised, as required.

2.1.4 **TL** will inform the Owner or Operator about the status of Class, indicating the last recognized surveys and the next due dates. However, even if not provided with such information, the Owner or Operator is obliged to have the surveys stipulated by the present Rules performed.

2.1.5 **TL** may agree to testing and analysis procedures as a supplement to or equivalent substitute for conventional survey and inspection such as by uncovering/ opening up of components.

2.1.6 **TL** reserve the right for given reasons, e.g. in the light of special experience gained during operation to extend the scope of survey or to carry that out with two Surveyors, if needed.

2.1.7 **TL** reserve the right to demand surveys to be held between the due dates of regular surveys, if this is necessary.

2.1.8 If an installation has to be surveyed in a location beyond the reach of a **TL** Surveyor, also in the events of force majeure or of armed conflicts, **TL** Head Office will have to be notified. Following a review of the facts the process to be adopted will be decided by **TL**.

In extraordinary cases and with **TL** Head Office agreement, it is possible to call for an external expert, whose report is, subject to review by **TL**. **TL** will decide whether or not the installation will have to be re-surveyed.

2.2 Selection of Surveyors

In principle, the acting Surveyors will be chosen by **TL**. However, the Operator of a classed installation is free to request that any findings of surveys or decisions which he deems to be doubtful are checked by other **TL** Surveyors.

2.3 Documentation, confirmation of Class

2.3.1 The records of each survey, as well as any requirements upon which maintenance of the Class has

been made conditional, will be entered into the respective Survey Statement. The Surveyor's signature on the Certificate and other documents only certifies what has been seen and checked during the particular survey.

2.3.2 The reports prepared by the Surveyor will be sent to **TL** Head Office. If there are no objections, the results will be published in the **TL** Register and the confirmation of Class effected by the Surveyor in the Certificate will acquire final validity.

2.3.3 In the Register, the dates of the following surveys will be indicated:

- Class renewals I, II, III, etc.
- Annual survey
- Intermediate survey
- Continuous Class renewal
- Bottom/underwater survey
- Boiler surveys

Records on periodical repeat tests on steam boilers and thermal oil heaters will be entered in special Test Certificates, which are to be kept on board.

2.3.4 A confirmation of Class effected by the Surveyor relates to the kind of survey referred to in the report and is valid under the reservation that examination will not give cause for any objections, see 2.3.2.

2.3.5 Upon request, Class may be confirmed in writing by a separate Certificate. However, such Certificates are valid only if issued by **TL** Head Office or in exceptional cases, Head Office has expressly authorized the field service representatives to do so.

2.3.6 Where defects are repaired provisionally only, or where the Surveyor does not consider immediate repairs or replacements necessary, the installation's Class may be confirmed for a limited period by making

an entry in the Survey Statement to the Certificate of Classification. Cancellation of such limitations will also have to be indicated in the Survey Statement.

2.4 Preparation for Survey

2.4.1 Conditions for Survey

2.4.1.1 The Owner is to provide the necessary facilities for a safe execution of the survey. For confined space entry, the requirements of TL-PR37 is to be followed.

2.4.1.2 Tanks and spaces are to be safe for access, i.e. gas freed, ventilated and illuminated.

2.4.1.3 In preparation for survey and thickness measurements and to allow for a thorough examination, all spaces are to be cleaned including removal from surfaces of all loose accumulated corrosion scale. Spaces are to be sufficiently clean and free from water, scale, dirt, oil residues etc. to reveal corrosion, deformation, fractures, damages, or other structural deterioration. However, those areas of structure whose renewal has already been decided by the Owner need only be cleaned and descaled to the extent necessary to determine the limits of the areas to be renewed.

2.4.1.4 Sufficient illumination is to be provided to reveal corrosion, deformation, fractures, damages or other structural deterioration.

2.4.1.5 Where soft or semi-hard coatings have been applied, safe access is to be provided for the surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft or semi-hard coating is to be removed.

2.4.2 Access to Structures

2.4.2.1 For survey, means are to be provided to enable the surveyor to examine the structure in a safe and practical way.

2.4.2.2 For survey in void compartments and water ballast tanks, one or more of the following means for

access, acceptable to the Surveyor, is to be provided:

- Permanent staging and passages through structures;
- Temporary staging and passages through structures;
- Lifts and movable platforms;
- Boats or rafts;
- Other equivalent means.

2.4.3 Equipment for Survey

2.4.3.1 Thickness measurement is normally to be carried out by means of ultrasonic test equipment. The accuracy of the equipment is to be proven to the Surveyor as required. Thickness measurements are to be carried out by a firm approved by **TL** in accordance with TL-R Z17.

2.4.3.2 One or more of the following fracture detection procedures may be required if deemed necessary by the Surveyor:

- Radiographic equipment;
- Ultrasonic equipment;
- Magnetic particle equipment;
- Dye penetrant.

Other acceptable NDT Techniques.

2.5 Surveys in accordance with coastal state regulations

2.5.1 Where surveys are required on account of international conventions and of corresponding laws/official ordinances of a coastal state, **TL** will undertake them on application, or by official order, acting on behalf of the Authorities concerned, based on the respective provisions; this includes e.g. surveys according to:

- The related Conventions of the International Labour Office (ILO)

Where possible, such surveys will be carried out simultaneously with the Class surveys.

2.5.2 **TL** will also undertake on request other surveys and checks stipulated by additional regulations and requirements of the coastal state. Such surveys are subject to agreements made in each individual case and/or to the regulations of the country concerned.

2.5.3 All activities as outlined in 2.5.1 and 2.5.2 and, where applicable, issuance of relevant Certificates are likewise subject to the general conditions of Section 1.

2.5.4 If for some reason an installation's Class has expired or has been withdrawn by **TL**, all statutory Certificates issued by **TL**, if any, will automatically become void. If subsequently the Class is renewed or reassigned, the validity of these Certificates will be revived within the scope of their original period of validity, provided that all surveys meanwhile having fallen due have been carried out.

2.6 External service suppliers

Personnel or firms engaged in services affecting Classification and statutory work are subject to approval by **TL**.

The inspection, measuring and test equipment used in workshops, yards and on board installations, which may form the basis for Surveyor's decisions affecting Classification or statutory work, shall be appropriate for the services to be performed. The firms shall individually identify and calibrate each item of such equipment to a recognized national or international standard.

B. Periodical Surveys for Installations

1. General

1.1 The periodical surveys listed in the following are to be conducted for the structure, machinery

including electrical installations as well as special equipment and installations included in the Classification of the installation.

The conditions for the maintenance of type and/or service Notations are to be checked for compliance at each periodical survey; the type and/or service Notation will be suspended and/or withdrawn in accordance with the applicable Rules given in Section 1, F.5., if the relevant rules are not complied with.

If for some obvious reason, e.g. a temporary out-of-service condition of certain equipment, parts included in the Classification cannot be surveyed, this will be noted in the Survey Statement/Certificate.

1.2 Where statutory regulations are applicable which impose inspection intervals deviating from the Class related intervals, where possible, the intervals will be harmonized in the individual case to reduce the number of single surveys.

1.3 In principle, elements covered by the Classification and submitted to a Class renewal survey on a date different from the date of the periodical Class renewal survey of the installation, they are to be re-examined p years (p is the duration of the nominal class period in years, normally p=5) after the previous survey.

1.4 An inspection schedule agreed upon between Owner/Operator and TL will be set up for the installation, in accordance with the indications described in this Section and adapted to the individual service conditions, see also Section 4.

1.5 When completed, the individual survey will be noted in the Class Certificate, including any necessary observations.

1.6 For installations special diving devices, vehicles or diver assist systems have to be used, which may be specially adapted to the configuration and conditions of the individual structure. The suitability of such devices and systems and their deployment within the inspection scheme are subject to approval and will be reviewed in the course of inspections carried out and experience gained.

1.7 The general procedure of survey consists in:

- An overall examination of the parts covered by the rule requirements
- Checking of selected items covered by the rule requirements at random
- Attending tests and trials, where applicable and deemed necessary by the Surveyor

1.8 When a survey results in the identification of significant corrosion, structural defects or damage to structure, machinery and/or any piece of its equipment which, in the opinion of the Surveyor affect the Class of the installation, remedial measures are to be implemented before the installation continues in service.

1.9 TL's survey requirements cannot be considered as a substitute for specification and acceptance of repairs and maintenance, which remain the responsibility of the Owner.

2. Annual Surveys

2.1 Due dates

Annual surveys are to be held within 3 months before or after each anniversary date from the date of the initial Class survey or from the date credited for the last Class renewal survey.

More extensive regulations of the country, where the fixed offshore installation is registered, are to be observed.

2.2 Scope

2.2.1 General

The survey consists of an examination for the purpose of ensuring, as far as practicable, that the structure, the machinery including electrical installations and equipment are maintained in a satisfactory condition.

2.2.2 Structure and equipment

2.2.2.1 The annual survey will generally cover visual examination of all important structural elements readily accessible, with regard to deformations, cracks, corrosion, etc. Where a special inspection plan has been prepared, the corresponding indications have to be observed, e.g. for critical areas with stress concentrations, locations with previous repairs, etc.

2.2.2.2 The type, location and extent of corrosion control, including coatings, cathodic protection systems, etc., as well its effectiveness and repairs or renewals shall be reported at each survey, see also Chapter 62, Section 6.

2.2.3 Steel structures

2.2.3.1 The structure within the splash zone shall be inspected visually with regard to corrosion, marine growth and damages, e.g. from collisions. Where damages are found which could extend further downwards, diver inspections may be called for.

2.2.3.2 In areas where scour is supposed to occur, adequate control may be required on a yearly basis or at closer intervals, especially for gravity type structures.

2.2.3.3 The exposed parts of the main structure, deck, deck house and structures attached to the deck, derrick substructure including supporting structure, accessible internal spaces and the applicable parts described in this Section are to be generally examined and placed in satisfactory condition as found necessary.

2.2.3.4 Jackets, diagonal and horizontal braces together with any other parts of the upper supporting structure as accessible above the waterline are to be checked.

Note :

At the 1st annual survey after construction, the structures may be subject to examination of major structural components including non-destructive testing, as deemed necessary by TL. If TL deems such survey to be necessary, the extent should be agreed to by TL and the Owner or Operator prior to commencement of the survey and incorporated in the survey schedule.

2.2.3.5 The TL Surveyor is to be satisfied that no material alterations have been made to the installation, its structural arrangements, superstructure, fittings and closing appliances.

2.2.3.6 The scope for thickness measurements is to be defined in the survey schedule/special inspection plan, compare 7.1. For inadmissible corrosion, see 1.8.

2.2.4 Concrete structures

The concrete surfaces shall be inspected for cracks, abrasion, spalling and any signs of corrosion of the steel reinforcement and embedment, particularly in the splash zone, in ice conditions and where repairs have been carried out previously. Surface has to be cleaned where necessary. Regarding foundations/scouring, see 2.2.3.2.

Note:

See 2.2.3.4

2.2.5 Drilling installations

The main deck structure around the drilling well (moon-pool) and in vicinity of any other structural changes in section, slots, steps or openings in the deck and the back up structure in way of structural connecting members has to be checked.

2.2.6 Machinery

2.2.6.1 A visual examination is to be made of all spaces containing machinery, boilers, pressure vessels, electrical installations, etc. essential for operation of the installation, especially with regard to fire and explosion hazards.

Existing safety plans are to be checked and functioning of safety and alarm devices and of the ventilation system to be verified as far as practicable.

Special equipment such as cranes, life-saving and drilling equipment are to be surveyed according to instructions issued in each individual case, if included in the Classification procedure.

2.2.6.2 All installations

In addition a general examination of hazardous areas, remote shutdown arrangements, piping systems, etc. is to be made.

2.2.6.3 Special features for offshore drilling installations

Offshore drilling installations may have special items of machinery and electrical equipment not found on conventional ships. The items mentioned in 4.2.6 shall be examined in an analogous manner and reported at all Class annual surveys.

3. Intermediate Surveys

3.1 Survey period

3.1.1 Due dates

An intermediate survey, if requested, is due at half the nominal time interval between two Class Renewal Surveys, i.e. every $p/2$ years, and may be performed either at the second or third annual survey. Additional items to the annual survey may be performed either at or between the second or third annual survey.

3.2 Scope

3.2.1 General

Intermediate surveys are generally to be performed to the extent of annual surveys including any additional items, such as related to a survey inspection programme, if any.

3.2.2 Special features for offshore drilling installations

Offshore drilling installations may have special items of machinery and electrical equipment not found on conventional ships. The items mentioned in 4.2.6 are to be examined in an analogous manner and reported upon at all Class intermediate surveys.

4. Class Renewal Surveys

4.1 Survey period

4.1.1 Due dates

Class renewal surveys, also called special surveys are to be carried out at the intervals p indicated by the Character of Classification.

A Class renewal survey may be carried out in several parts. The survey may be commenced at the last annual survey during the Class period and must have been completed by the end of the Class period. The total survey period of the Class renewal survey must not exceed 15 months.

Regarding underwater survey, see 5.

The new period of Class will commence:

- The day after the day the previous Class expires, provided that the Class renewal survey has been completed within the 3 months preceding that date. This applies also to a granted extension of Class.
- The day on which the Class renewal survey has been completed, provided that the Class renewal survey has been completed more than 3 months before expiry of the previous Class.

For further details see **TL** Rules, Classification and Surveys.

4.1.2 Class renewals for hull are numbered in the sequence I, II, III, etc. Regarding their scope, see 2.

4.1.3 The Class renewal surveys may be performed in various alternative survey modes, e.g.:

- Partial Class Renewal Survey System
- Continuous Class Renewal Survey System
- Planned Maintenance Survey System

- Condition Monitoring Survey System

For details, see **TL** Rules, Classification and Surveys.

4.2 Scope

4.2.1 General

4.2.1.1 The Class renewal surveys shall include, in addition to the annual survey, intermediate survey and the underwater inspection, the following examinations, tests and checks of sufficient extent to ensure that structure, equipment and machinery are in satisfactory condition and that the installation is fit for its intended purpose for the period of Class to be assigned subject to proper maintenance and operation and the periodical surveys carried out at the assigned due dates.

4.2.1.2 Special requirements for Class Renewal of installations of unusual design, in out of operation status or in unusual circumstances will be determined on individual basis in a survey inspection programme.

4.2.1.3 Class extension surveys

Upon request of the Owner and in exceptional cases, extension of the Class period may be granted by **TL**. Following surveys of structure and machinery afloat, **TL** may extend the Class period p by no more than 3 months in total, provided that the surveys show that hull and machinery including electrical installations are in acceptable condition.

In this case, the last survey in dry-dock, or equivalent, must not date back more than 5 years, counting from the date of the respective Class renewal survey.

4.2.2 Structure and equipment

4.2.2.1 Class Renewal I

Class Renewal I will have to be performed at the end of the first Class period p.

4.2.2.1.1 All installations

One or more of the following crack detection test

methods may be required if deemed necessary by the Surveyor:

- Radiography test (X or gamma rays)
- Ultrasonic test
- Magnetic particle test
- Dye penetrant test, etc.

If deemed necessary by the Surveyor, defective cement, asphalt covering or other coating, is to be removed. The steel work is to be examined before painting or before the cement or other coverings are renewed.

4.2.2.1.2 Structures

In addition to the annual survey and intermediate survey, a comprehensive survey of the underwater and above water structure is to be carried out covering the following aspects:

- Overall condition and integrity
- The structure including tanks, void spaces, helicopter deck and its supporting structure, machinery spaces, and all other internal spaces are to be examined externally and internally for damage, fractures, or excessive wastage. Thickness measurements of plating and framing may be required where wastage is evident or suspected.
- Suspect areas may be required to be tested for tightness, non-destructive tested or thickness gauged.
- Tanks and other normally closed compartments are to be ventilated, gas freed and cleaned as necessary to expose damages and allow meaningful examination and thickness gauged in case of excessive wastage.

- All tanks, compartments and free-flooding spaces throughout the installation are to be examined externally and internally for excess wastage or damage.
- Internal examination and testing of void spaces, compartments filled with foam or corrosion inhibitors, and tanks used only for lube oil, light fuel oil, diesel oil, or other non-corrosive products may be waived provided that upon a general examination the Surveyor considers their condition to be satisfactory. External thickness measurements may be required to confirm corrosion control.
- Structures such as derrick substructure and supporting structure, jack-houses, deck houses, superstructures, helicopter landing areas, raw water (sea water intake) towers and their respective attachments to the deck.
- Structure/plate thickness measurements and non-destructive testing according to an approved inspection plan and/or on-the-spot decision where damages are suspected.
- Foundations and supporting headers, brackets, and stiffeners for drilling related apparatus, where attached to structure, deck, superstructure or deck house
- Effectiveness of the corrosion protection system (potential measurements, condition of anodes etc.)
- Marine growth
- Condition of foundations (changes in topography/ scouring, settlement)

Account may be taken of data recorded by instruments installed to monitor structural and foundation behaviour. Special attention shall be given to areas of stress concentration and of suspected or proven damage, and to areas where repairs have been carried out previously.

Cleaning and/or uncovering of areas selected for close-up inspection and non-destructive testing may be necessary.

4.2.2.2 Class Renewal II and subsequent ones

The age of the installation is p to 2p years for Class renewal II and np for the subsequent ones. The requirements for the second Class Renewal and the subsequent ones shall be as comprehensive and include at least those of Class Renewal I, with special attention being given to the condition and thickness of material in high corrosion areas. Representative thickness measurements shall be required and are to be specified in advance by TL. Special attention should be paid to splash zones on structure, legs or related structure, and in ballast tanks, pre-load tanks, free flooding spaces, etc., as far as applicable..

4.2.3 Machinery including electrical installations

Except for individual machinery items contained in 6. the scopes of all Class renewal surveys for the machinery installation including electrical installations are identical. If the continuous Class renewal system or other relevant survey mode is applied, 1.3 is to be observed.

4.2.3.1 Machinery and equipment

In addition to the annual and intermediate survey, an extended examination of machinery spaces and installations will generally include, as far as applicable:

- Close inspection of machinery foundations
- Opening/internal inspection of pressure vessels and heat exchangers according to an approved inspection plan
- Pressure and operability testing of pipe systems according to an approved inspection plan
- Inspection and testing of fire protection installations and fire fighting equipment

Regarding special equipment, see 2.2.6.1.

Applicable regulations of the Administration are to be complied with.

4.2.3.2 Electrical installation

The electric equipment including the generators, the motors of the essential auxiliary machinery, all switch gear including their protective and interlocking devices, as well as the cable network are to be examined and tested.

Electrical installations, particularly explosion protected machines and apparatus, which are situated in spaces in which there is danger of inflammable gas or steam air mixtures have to be examined concerning their ex-protection as well as IP-protection.

In addition to the general indications given above, the following is to be observed:

- Fittings and connections on main switchboards and distribution panels are to be examined, and care is to be taken to see that no circuits are over fused.
- Cables are to be examined as far as practicable without undue disturbance of fixtures.
- All generators are to be run under load, either separately or in parallel; switches and circuit breakers are to be tested.
- All equipment and circuits are to be inspected for possible development of physical changes or deterioration. The insulation resistance of the circuits is to be measured between conductors and between conductors and ground, and these values compared with those previously measured.
- Electrical auxiliaries installed for vital purposes, generators and motors are to be examined and their prime movers opened for inspection. The insulation resistance of each generator and motor is to be measured.

- The emergency remote switch-off devices of ventilators, fuel pumps, oil fired equipment and similar equipment are to be tested.

4.2.4 Fire extinguishing and fire alarm systems

The requirements for all installations are defined in the TL Rules, Classification and Surveys and are to be observed, as far as applicable.

4.2.5 Automation and remote control system

In addition to the requirements of annual surveys the following parts are to be examined:

- Control actuators
all mechanical, hydraulic and pneumatic control actuators and their power systems are to be examined and tested as considered necessary to ensure the proper performance of all automatic functions, alarms and safety systems
- Electrical equipment
the insulation resistance of the windings of electrical control motors or actuators is to be measured, with all circuits of different voltages above ground being tested separately to the Surveyor's satisfaction
- Unattended installations
control systems for unattended machinery spaces, if any, are subjected to trials to ensure the proper performance of all automatic functions, alarms and safety systems

4.2.6 Special features for offshore drilling installations

Offshore drilling installations may have many special features of machinery and electrical equipment. The following items are to be specially examined and reported upon at all Class renewal surveys:

4.2.6.1 Hazardous areas

- Enclosed hazardous areas such as those containing open active mud tanks, shale shakers, degassers and desanders are to be examined and doors and closures in boundary bulkheads verified as effective
- Electric lighting, electrical fixtures and instrumentation are to be examined, proven satisfactory and verified as explosion-proof or intrinsically safe
- Ventilating systems including ductwork, fans, intake and exhaust locations for enclosed restricted areas are to be examined, tested and proven satisfactory
- Ventilating alarm systems to be proven satisfactory
- Electrical motors are to be examined including closed-loop ventilating systems for large DC motors
- Automatic power disconnect to motors in case of loss of ventilating air is to be proved satisfactory

4.2.6.2 Remote shutdown arrangements

- Remote shutdown for fuel-oil transfer service pumps and ventilating equipment, together with oil tank outlet valves where required to be capable of being remotely closed are to be proved satisfactory
- Emergency switches for all electrical equipment including main and emergency generators, except alarm and communication systems and lighting in essential areas such as escape routes and landing platforms, are to be proved satisfactory

4.2.6.3 Fire fighting equipment and fire alarm systems

A general examination of the fire detection and

extinguishing apparatus, is to be made in order that the Surveyor may be satisfied with its efficient state. The following items are to be especially examined:

- Fire hoses, nozzles and spanners at each fire station
- Servicing of all portable soda-acid and foam extinguishers
- Weighing and re-charging as necessary of all dry chemical and CO₂ extinguishers
- Fire pumps and piping including operation and capacity
- Alarm systems

4.2.6.4 Piping systems

Piping systems used solely for drilling operations and complying either with the **TL** requirements or a recognized standard are to be examined, as far as practicable, operationally or hydrostatically tested to working pressure, to the satisfaction of the Surveyor.

4.2.7 Trials

Upon completion of the surveys for Class Renewal, the Surveyor must be satisfied that the entire machinery installation, including the electrical machinery and equipment, is operable without any restrictions. In case of doubt, this may have to be proved by trials and/or operational tests.

5. Periodical Underwater Surveys**5.1 Survey period****5.1.1 Due dates**

The outside structure and related items of installations are to be examined two times in any p year period between two Class renewal surveys, with an interval not exceeding three years between examinations.

Consideration may be given at the discretion of **TL**, to any special circumstances justifying an extension of the

interval. In such circumstances an extension of examination of the fixed offshore installation's structure of 3 months can be granted by **TL**.

5.1.2 Planning of survey

For plans and procedures for underwater surveys see 8.2.

5.2 Underwater surveys

5.2.1 General

5.2.1.1 The procedures and conditions under which a properly conducted underwater inspection is to be executed are defined in the following.

5.2.1.2 The diving firm assisting in underwater surveys must be approved by **TL** for this purpose. Validity of an approval granted shall depend on the continued qualification for satisfactorily carrying out the work required. The approval shall be renewed after a period not exceeding 5 years.

5.2.2 Conditions for underwater surveys

5.2.2.1 Thickness measurements and nondestructive testing

Underwater internal thickness measurements of suspect areas may be required in conjunction with the underwater inspection. Means for underwater nondestructive testing may also be required for fracture detection. Plans and procedures for underwater surveys see 8.2.

5.2.2.2 Underwater conditions

The areas to be surveyed shall be sufficiently clean and the seawater clear and calm enough to permit meaningful examination and photography, if necessary, by the diver. The structures below the waterline must be free from fouling and overall or spot cleaning may be required.

5.2.2.3 Physical features

The following physical features shall be incorporated

into the design in order to facilitate the underwater inspection. When verified they shall be noted in the Classification Certificate for reference at subsequent surveys.

5.2.2.3.1 Sea suction

Means shall be provided to enable the diver to conform that the sea suction openings are clear. Hinged sea suction grids would facilitate this operation.

5.2.2.3.2 Sea valves

For the underwater survey associated with the Class renewal survey, means must be provided to examine any sea valve.

5.2.3 Procedures

5.2.3.1 Exposed areas

An examination of the outside of the structure above the waterline shall be carried out by the **TL** Surveyor.

Means and access shall be provided to enable the Surveyor to accomplish visual inspection and nondestructive testing as necessary.

5.2.3.2 Underwater areas

Underwater areas are to be surveyed and/or relevant maintenance work is to be carried out with assistance by a diver of an approved firm whose performance is controlled by a Surveyor, using an underwater camera with monitor, communication and recording systems. The underwater pictures on the surface monitor screen must offer reliable technical information such as to enable the Surveyor to judge the parts and/or the areas surveyed. If applicable, the effectiveness of the corrosion protection system (potential measurements, conditions of anodes, etc.), the marine growth and the condition of foundations (changes in topography/scouring, settlement) are to be inspected.

5.2.3.3 Damage areas

Damage areas shall be photographed. Internal examination, measurements, marking and thickness

measurements of such locations may be necessary as determined by the attending Surveyor. Means shall be provided for location, orienting and identifying underwater surfaces in photographs or on video tapes. Documentation suited for reproduction (video tape with sound) shall be made available to **TL**.

5.3 Seawater gravity spaces

A special survey program has to be agreed with **TL**, if applicable, depending on size, configuration and accessibility of the internal structure.

6. Periodical Surveys of Individual Machinery Items

6.1 Due dates

The periodical surveys of individual machinery items or installations listed in the following are to be carried out in addition to those prescribed for the Class renewal surveys for maintenance of Class.

6.2 Scope

The following machinery items are to be surveyed:

- Steam boilers
- Thermal oil plants
- Steam pipes / heating coils
- Pressure vessels

The requirements regarding the scope are defined in the **TL** Rules, Classification and Surveys and are to be observed as far as applicable.

7. Thickness Measurements and Corrosion Tolerances

7.1 General

7.1.1 The thickness of structural elements is checked by measurements, in order to assess whether or not the values stipulated in **TL** Rules are observed,

taking into account the admissible tolerances. Unless severe corrosion has occurred owing to particular service conditions, thickness measurements will not be required until Class Renewal II, see 4.2.2.2.

7.1.2 Thickness measurements shall be carried out in accordance with recognized methods, by authorized personnel or firms, see 2. Rust and contamination are to be removed from the components to be examined. The Surveyor is entitled to require check measurements or more detailed measurements to be performed in his presence. The thickness measurements on board shall be witnessed by the Surveyor. This requires the Surveyor to be on board while measurements are taken, to the extent necessary to control the process.

The scope of thickness measurement as well as the reporting shall be fixed in a survey planning meeting between the Surveyor(s), representatives of the Owner and the approved thickness measurement operator/ firm well in advance of measurements and prior to commencing the survey.

Thickness measurements of structures in areas where close-up surveys are required shall be carried out simultaneously with the close-up surveys.

7.2. Authorization

7.2.1 The personnel or the company entrusted with thickness measurements, as well as the procedure for documentation must be approved by **TL** for this purpose.

7.2.2 Validity of an approval granted will depend on the continued qualification. The approval will have to be renewed after a period not exceeding 3 years.

7.3 Scope of measurements

The scope of thickness measurements as well as the reporting depends upon the particular installation and shall be documented by **TL** Head Office in advance of measurements and prior to commencing the survey.

8. Survey preplanning and Record Keeping

8.1 A specific Survey Program for Class Renewal Surveys and Continuous Class Renewal Surveys must be worked out in advance of the Class Renewal Survey by the Owner in cooperation with **TL**. The Survey Program shall be in written format.

8.2 Plans and procedures for survey of the outside of the unit's bottom and related items are to be submitted for review in advance of the survey and made available on board. These should include drawings or forms for identifying the areas to be surveyed, the extent of hull cleaning, non-destructive testing locations (including NDT methods), nomenclature, and for the recording of any damage or deterioration found. Submitted data, after review by the Society, will be subject to revision if found to be necessary in light of experience.

C. Occasional Surveys

1. Damage Survey

It is the responsibility of the Owner/Operator of the installation to report to **TL** without **TL** any suffered damage, defect or breakdown, which could invalidate the conditions for which a Classification has been assigned, or if damage may be assumed to have occurred as a consequence of an average or other unusual event, so that it may be examined at the earliest opportunity by the **TL** Surveyors. All repairs found necessary by the Surveyor shall be carried out to his satisfaction.

2. Repairs

2.1 Where repairs to main structure, legs, columns or other structures, machinery or equipment, which affect or may affect Classification, are planned in advance, a complete repair procedure including the extent of the proposed repair and the need of the Surveyors attendance shall be submitted to and agreed upon by **TL** reasonably in advance. Failure to notify to **TL**, in advance of the repairs, may result in suspension of the Classification until such time as the repair is redone or evidence submitted to satisfy the Surveyor

that the repair was properly carried out. This applies also to repairs on site.

2.2 The requirements of 2.1 are not intended to include maintenance and overhaul to structures, machinery and equipment in accordance with recommended manufacturers procedures and established marine practice and which do not require **TL** approval. However, any repair as a result of such maintenance and overhauls which affects or may affect Classification is to be noted in the log of the installation and submitted to the Surveyor.

2.3 Surveys conducted in the course of repairs are to be based on the latest experience and instructions by **TL**. In exceptional cases advice is to be obtained from the concerned Head Office departments, in particular where doubts exist as to the cause of damage.

2.4 For older installations, in the case of repairs and/or replacement of parts subject to Classification, as a matter of principle, the Construction Rules in force during their period of construction continue to be applicable.

This does not apply in the case of modifications required to the structure in the light of new knowledge gained from damage analyses, with a view to avoiding recurrence of similar damages.

2.5 Regarding the materials employed and certificates required, the requirements for new constructions are applicable, see 7.2.

2.6 Regarding damages or excessive wastage beyond allowable limits that affect the Class of the installation, see 4.2.2.1.1.

3. Reactivation Surveys

In the case of installations which have been out of service for an extended period, the requirements for reactivation surveys will be specially considered in each case with due regard given to the status of surveys at the time of commencement of the out of operation period, the length of period and conditions under which the installation has been maintained during that period.

4. Conversion or Alteration Surveys

No conversions or alterations which may affect Classification shall be made to structure and machinery of a classed installation unless plans of proposed alterations are submitted and approved by **TL** before the work of alterations is commenced. Such work shall be carried out in accordance with approved plans and tested on completion as required by the Rules and to the satisfaction of the Surveyor. A new or amended Class designation will be assigned, where necessary.

5. Extraordinary Surveys

TL reserve the right to require extraordinary surveys to be held independently of any regular surveys. Such surveys may become necessary for examining the technical condition of an installation and are understood to form a part of **TL**'s Quality Assurance System.

6. Survey for Towing

In compliance with the provisions of the General Conditions, a Certificate of towing over sea may be issued upon satisfactory survey, the scope of which is fixed in each particular case by **TL** according to the towing over sea.

7. Welding and Replacement of Materials

7.1 Welding of steels, including higher strength hull structural steel, is to be to the satisfaction of **TL**.

7.2 Welding or other fabrication performed on steels of special characteristics or repairs or renewals of such steel or in areas adjacent to such steel shall be accomplished with procedures approved by **TL** considering the special materials involved. Substitution of steels differing from those originally.

SECTION 6**CERTIFICATION**

	Page
A. Certification and Objectives	6-2
B. Certification Procedures for New Constructions.....	6-2
1. General	
2. Certificates for Structures, Jackets, Decks, Etc.	
3. Certificates of Topside Equipment	
4. Certificate of Fitness	
C. Modifications to Existing Offshore Units or Installations	6-5
1. Letter of Non-Objection to Modifications	
2. Supporting Documents	

A. Certification and Objectives

1. The main objective of TL's Offshore Certification Services is the written confirmation and verification of compliance with the agreed specifications and applicable regulations. In order to perform these services TL operates a world wide organisation employing qualified staff working according to TL's internal quality system which is kept updated and adequate to satisfy the client's needs.

2. The Certification Service is understood as the control procedure and attestation by TL that the design, and/or construction and fabrication and/or installation, and/or testing of a mobile offshore unit or fixed offshore installation and/or components thereof, is in conformity with recognized specifications and regulations or an appropriate safety code agreed between the Operator/Owner and TL in the Certification Service contract. The Certification procedure may be adjusted to the needs of an actual project. Extent and format of the Certification may also depend on the request of an Administration.

Insofar as it is necessary to identify materials or components during the manufacturing process or possibly also after commissioning, e.g. because of special properties of the material, a permanent mark is to be made by means of a stamp.

The construction supervision, survey and/or final inspection of materials, parts supplied or installation components, corresponding to the relevant specifications and TL rules, shall be attested by the TL Surveyor/Inspector, concerned on special forms, or informally, as agreed in the individual case.

3. TL will not be able to successfully negotiate a contract for Certification Services, if the specifications or regulations or codes proposed to TL are in contradiction to TL's professional understanding.

4. The Certification Services shall be confirmed in writing by issuing the different types of Certification Certificates as it is defined in this Section.

5. The Certification procedures shall be completely independent from TL Classification

procedures of mobile offshore units or fixed offshore installations as it is described in Sections 1 to 5.

B. Certification Procedures for New Constructions

1. General

1.1 Sequential Steps for the Certification Services

The Certification Services of units or installations may be carried out for new constructions in the sequential steps as it is indicated in Figure 6.1. It may be requested and needed that only one or more of these indicated sequential steps are subject to the contract for a Certification Service.

1.2 Responsibility

The Certification Service shall be carried out by TL Head Office and/or TL Surveyor/Inspector, as it is described at each type of Certificate. The Surveyor/Inspector may be delegated from the Head Office or from the local TL representations.

1.3 Certificate of Compliance

As an alternative to the Certification procedures described in the following, a Certificate of Compliance (CoCom) may be issued on special request of the client for any part or for the complete unit or installation. In this Certificate scope and standard of compliance shall be defined case by case.

1.4 National Administrations

Extent and format of the Certification Service may also depend on the requests of national Administrations.

2. Certificates for Structures, Jackets, Decks, Etc.

The general lay-out of these Certificates is indicated at the right column of Figure 6.1.

2.1 Design Certificates

The Certification of the design shall be documented by issuing the following Certificates by **TL** Head Office:

- Basic Design Certificate (**CoBD**)
- Detail Design Certificate (**CoDD**)
- Design Certificate (**CoD**), which shall cover both basic and detailed design

These Certificates shall consist of a cover page plus a list of approved design documents including their review/approval status and the comments of **TL** Head Office.

2.2 Material or Equipment Certificates

The material and equipment at the vendors/contractors shall be certified by the **TL** Surveyor/Inspector issuing:

- Material Certificates (**CoM**)
- Equipment Certificates (**CoE**)

These Certificates for materials (e.g. **TL** Material Certificate shall be in accordance with **TL** Rules, Materials, Chapter 2, Section 1). Machinery equipment, e.g. for valves, pressure vessels, etc., which shall be manufactured in several parts at vendor workshops, etc., after the inspection shall be summarized in a data base for the actual project.

2.3 Fabrication Certificates

Upon completion, the **TL** Surveyor/Inspector on site shall issue the following Certificates after successful manufacture of parts of the installation or unit, e.g.:

- Fabrication Certificate (**CoFab**), Jacket, which includes appendages such as boat fenders, etc.
- Fabrication Certificate, Piles, which is understood one per jacket

- Fabrication Certificate, Topside Structure including deck, module support frame(s), framework of separate modules

2.4 Installation Certificate

After successful installation offshore, the **TL** Surveyor/Inspector, shall issue an Offshore Installation Certificate (**CoI**), which covers piling, welding, no damages sustained during installation, etc. For each platform as well as for connecting bridges of a complex installation a Certificate may be also issued.

2.5 Certificate of Structure

The Certificate of Structure (**CoSt**) shall be issued by **TL** Head Office if all relevant Certificates according to 2.1 to 2.4 are already issued, but it shall cover the structures only. The industrial topside equipment of the Structure shall be certified as it is described in 3.

3. Certificates of Topside Equipment

The general lay-out of these Certificates may be observed at the left column of Figure 6.1.

3.1 Design Certificates

Similar Certificates as defined in 2.1 shall be issued.

3.2 Material Certificate

Similar Certificate as defined in 2.2 shall be issued.

3.3 Equipment Certificate

Similar Certificate as defined in 2.2 shall be issued.

3.4 System Certificate

For the different systems of the topside equipment the **TL** Surveyor/Inspector shall issue e.g. the following Certificates (**CoSys**):

- Certificate of Fire Fighting System
- Certificate of Emergency Power Supply and Emergency Lighting
- etc.

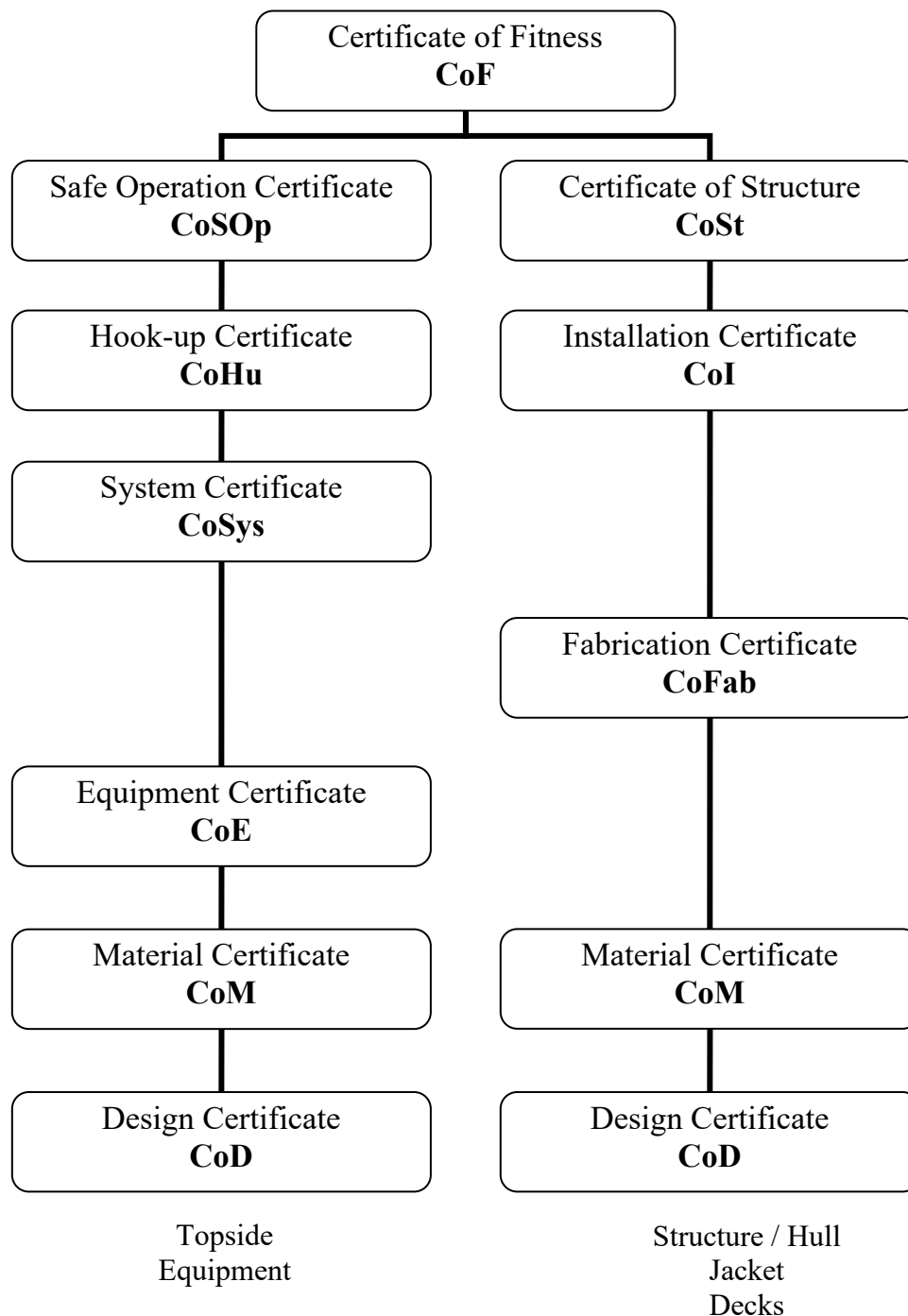


Figure 6.1 - Sequential steps for the Certification Services

3.5 Hook-up Certificate

The Hook-up Certificate (**CoHu**) shall be issued by **TL** Head Office and covers all topside equipment including the following Completion Certificates:

- Mechanical Completion Certificate
- Testing Certificate
- Pre-commissioning Certificate

These Certificates may be issued by **TL** Surveyor/Inspector on client's request.

3.6 Safe operation Certificate

The Certificate of Safe Operation (**CoSOp**) shall be issued by **TL** Head Office if all relevant Certificates according to 3.1 to 3.5 are already issued, but it shall cover only the topside equipment. The structure of the unit or installation shall be certified as it is described in 2.

4. Certificate of Fitness

A Certificate of Fitness (**CoF**) shall be issued by **TL** Head Office if the

- Certificate of Structure (**CoSt**) according to 2.5 and the
- Certificate of Safe Operation (**CoSOp**) according to 3.6

have already been issued.

A **CoF** may be issued for a single platform or for a complex combination of platforms forming a complete installation, e.g.:

- Certificate of Fitness "Offshore Installation..."

and it may be correlated with a statement of limitations, a statement of exceptions and a statement of inspections, if applicable.

C. Modifications to Existing Offshore Units or Installations

1. Letter of Non-Objection to Modifications

TL Head Office shall issue on request of the Owner/Operator a Letter of Non-Objection to Modifications (**LNOM**) which shall indicate that from the safety point of view, the modifications planned to an existing offshore unit or installation, as defined in the supporting documentation shall not adversely effect the use of the offshore unit or installation for its intended purpose at the specified location.

2. Supporting Documents

The letter as defined in 1. shall be supported by the following supporting documents:

- List of relevant drawings and documents
- Design Certificate according to B.2.1
- Material/Equipment Certificates according to B.2.2
- Inspection reports from **TL** Surveyor/Inspector on site.