



**BUREAU
VERITAS**

Classification of Offshore Units - Risk Based Approach-

July 2011

**Rule Note
NR 568 DT R00 E**

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BUREAU
VERITAS

ARTICLE 1

1.1. - BUREAU VERITAS is a Society the purpose of whose Marine Division (the "Society") is the classification ("Classification") of any ship or vessel or structure of any type or part of it or system therein collectively hereinafter referred to as a "Unit" whether linked to shore, river bed or sea bed or not, whether operated or located at sea or in inland waters or partly on land, including submarines, hovercrafts, drilling rigs, offshore installations of any type and of any purpose, their related and ancillary equipment, subsea or not, such as well head and pipelines, mooring legs and mooring points or otherwise as decided by the Society.

The Society:

- prepares and publishes Rules for classification, Guidance Notes and other documents ("Rules");
- issues Certificates, Attestations and Reports following its interventions ("Certificates");
- publishes Registers.

1.2. - The Society also participates in the application of National and International Regulations or Standards, in particular by delegation from different Governments. Those activities are hereafter collectively referred to as "Classification".

1.3. - The Society can also provide services related to Classification and Certification such as ship and company safety management certification; ship and port security certification, training activities; all activities and duties incidental thereto such as documentation on any supporting means, software, instrumentation, measurements, tests and trials on board.

1.4. - The interventions mentioned in 1.1., 1.2. and 1.3. are referred to as "Services". The party and/or its representative requesting the services is hereinafter referred to as the "Client". **The Services are prepared and carried out on the assumption that the Clients are aware of the International Maritime and/or Offshore Industry (the "Industry") practices.**

1.5. - The Society is neither and may not be considered as an Underwriter, Broker in ship's sale or chartering, Expert in Unit's valuation, Consulting Engineer, Controller, Naval Architect, Manufacturer, Shipbuilder, Repair yard, Charterer or Shipowner who are not relieved of any of their expressed or implied obligations by the interventions of the Society.

ARTICLE 2

2.1. - Classification is the appraisement given by the Society for its Client, at a certain date, following surveys by its Surveyors along the lines specified in Articles 3 and 4 hereafter on the level of compliance of a Unit to its Rules or part of them. This appraisement is represented by a class entered on the Certificates and periodically transcribed in the Society's Register.

2.2. - Certification is carried out by the Society along the same lines as set out in Articles 3 and 4 hereafter and with reference to the applicable National and International Regulations or Standards.

2.3. - **It is incumbent upon the Client to maintain the condition of the Unit after surveys, to present the Unit for surveys and to inform the Society without delay of circumstances which may affect the given appraisement or cause to modify its scope.**

2.4. - The Client is to give to the Society all access and information necessary for the safe and efficient performance of the requested Services. The Client is the sole responsible for the conditions of presentation of the Unit for tests, trials and surveys and the conditions under which tests and trials are carried out.

ARTICLE 3

3.1. - The Rules, procedures and instructions of the Society take into account at the date of their preparation the state of currently available and proven technical knowledge of the Industry. They are not a standard or a code of construction neither a guide for maintenance, a safety handbook or a guide of professional practices, all of which are assumed to be known in detail and carefully followed at all times by the Client.

Committees consisting of personalities from the Industry contribute to the development of those documents.

3.2. - **The Society only is qualified to apply its Rules and to interpret them. Any reference to them has no effect unless it involves the Society's intervention.**

3.3. - The Services of the Society are carried out by professional Surveyors according to the applicable Rules and to the Code of Ethics of the Society. Surveyors have authority to decide locally on matters related to classification and certification of the Units, unless the Rules provide otherwise.

3.4. - **The operations of the Society in providing its Services are exclusively conducted by way of random inspections and do not in any circumstances involve monitoring or exhaustive verification.**

ARTICLE 4

4.1. - The Society, acting by reference to its Rules:

- reviews the construction arrangements of the Units as shown on the documents presented by the Client;
- conducts surveys at the place of their construction;
- classes Units and enters their class in its Register;
- surveys periodically the Units in service to note that the requirements for the maintenance of class are met.

The Client is to inform the Society without delay of circumstances which may cause the date or the extent of the surveys to be changed.

ARTICLE 5

5.1. - The Society acts as a provider of services. This cannot be construed as an obligation bearing on the Society to obtain a result or as a warranty.

5.2. - The certificates issued by the Society pursuant to 5.1. here above are a statement on the level of compliance of the Unit to its Rules or to the documents of reference for the Services provided for.

In particular, the Society does not engage in any work relating to the design, building, production or repair checks, neither in the operation of the Units or in their trade, neither in any advisory services, and cannot be held liable on those accounts. Its certificates cannot be construed as an implied or express warranty of safety, fitness for the purpose, seaworthiness of the Unit or of its value for sale, insurance or chartering.

5.3. - The Society does not declare the acceptance or commissioning of a Unit, nor of its construction in conformity with its design, that being the exclusive responsibility of its owner or builder, respectively.

MARINE DIVISION

GENERAL CONDITIONS

5.4. - The Services of the Society cannot create any obligation bearing on the Society or constitute any warranty of proper operation, beyond any representation set forth in the Rules, of any Unit, equipment or machinery, computer software of any sort or other comparable concepts that has been subject to any survey by the Society.

ARTICLE 6

6.1. - The Society accepts no responsibility for the use of information related to its Services which was not provided for the purpose by the Society or with its assistance.

6.2. - If the Services of the Society cause to the Client a damage which is proved to be the direct and reasonably foreseeable consequence of an error or omission of the Society, its liability towards the Client is limited to ten times the amount of fee paid for the Service having caused the damage, provided however that this limit shall be subject to a minimum of eight thousand (8,000) Euro, and to a maximum which is the greater of eight hundred thousand (800,000) Euro and one and a half times the above mentioned fee.

The Society bears no liability for indirect or consequential loss such as e.g. loss of revenue, loss of profit, loss of production, loss relative to other contracts and indemnities for termination of other agreements.

6.3. - All claims are to be presented to the Society in writing within three months of the date when the Services were supplied or (if later) the date when the events which are relied on or were first known to the Client, and any claim which is not so presented shall be deemed waived and absolutely barred. Time is to be interrupted thereafter with the same periodicity.

ARTICLE 7

7.1. - Requests for Services are to be in writing.

7.2. - Either the Client or the Society can terminate as of right the requested Services after giving the other party thirty days' written notice, for convenience, and without prejudice to the provisions in Article 8 hereunder.

7.3. - The class granted to the concerned Units and the previously issued certificates remain valid until the date of effect of the notice issued according to 7.2. here above subject to compliance with 2.3. here above and Article 8 hereunder.

7.4. - The contract for classification and/or certification of a Unit cannot be transferred neither assigned.

ARTICLE 8

8.1. - The Services of the Society, whether completed or not, involve, for the part carried out, the payment of fee upon receipt of the invoice and the reimbursement of the expenses incurred.

8.2. **Overdue amounts are increased as of right by interest in accordance with the applicable legislation.**

8.3. - **The class of a Unit may be suspended in the event of non-payment of fee after a first unfruitful notification to pay.**

ARTICLE 9

9.1. - The documents and data provided to or prepared by the Society for its Services, and the information available to the Society, are treated as confidential. However:

- clients have access to the data they have provided to the Society and, during the period of classification of the Unit for them, to the classification file consisting of survey reports and certificates which have been prepared at any time by the Society for the classification of the Unit;
- copy of the documents made available for the classification of the Unit and of available survey reports can be handed over to another Classification Society, where appropriate, in case of the Unit's transfer of class;
- the data relative to the evolution of the Register, to the class suspension and to the survey status of the Units, as well as general technical information related to hull and equipment damages, are passed on to IACS (International Association of Classification Societies) according to the association working rules;
- the certificates, documents and information relative to the Units classed with the Society may be reviewed during certificating bodies audits and are disclosed upon order of the concerned governmental or inter-governmental authorities or of a Court having jurisdiction.

The documents and data are subject to a file management plan.

ARTICLE 10

10.1. - Any delay or shortcoming in the performance of its Services by the Society arising from an event not reasonably foreseeable by or beyond the control of the Society shall be deemed not to be a breach of contract.

ARTICLE 11

11.1. - In case of diverging opinions during surveys between the Client and the Society's surveyor, the Society may designate another of its surveyors at the request of the Client.

11.2. - Disagreements of a technical nature between the Client and the Society can be submitted by the Society to the advice of its Marine Advisory Committee.

ARTICLE 12

12.1. - Disputes over the Services carried out by delegation of Governments are assessed within the framework of the applicable agreements with the States, international Conventions and national rules.

12.2. - Disputes arising out of the payment of the Society's invoices by the Client are submitted to the Court of Nanterre, France.

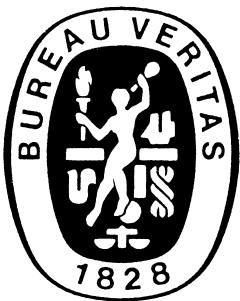
12.3. - **Other disputes over the present General Conditions or over the Services of the Society are exclusively submitted to arbitration, by three arbitrators, in London according to the Arbitration Act 1996 or any statutory modification or re-enactment thereof. The contract between the Society and the Client shall be governed by English law.**

ARTICLE 13

13.1. - These General Conditions constitute the sole contractual obligations binding together the Society and the Client, to the exclusion of all other representation, statements, terms, conditions whether express or implied. They may be varied in writing by mutual agreement.

13.2. - The invalidity of one or more stipulations of the present General Conditions does not affect the validity of the remaining provisions.

13.3. - The definitions herein take precedence over any definitions serving the same purpose which may appear in other documents issued by the Society.



RULE NOTE NR 568

NR 568

Classification of Offshore Units

- Risk Based Approach-

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SECTION 1

GENERAL

1 General

1.1 Objective

1.1.1 The objective of the present Rule Note is to provide procedures and methodologies for the classification of floating offshore units based on a risk analysis approach.

1.1.2 The present Rule Note relates to the classification services under the terms and conditions defined by the Offshore Rules (see [2.1.1]). The purpose of the present document is to provide an alternative route for the classification process of offshore units, based on the achievement and maintenance of an acceptable level of safety and integrity, at least equivalent to that achieved under the prescriptive Rules.

1.1.3 The alternative route for classification process mentioned in [1.1.2] is accepted under the provisions of Pt A, Ch 1, Sec 1, [2.6] of the Offshore Rules.

1.1.4 Classification based on a risk analysis approach is formalized through the additional class notation defined in [1.4].

1.1.5 The requirements of the present Rule Note are consistent with the following documents of the Society:

- NI567 Risk Based Verification of Floating Offshore Units
- NI525 Risk Based Qualification of New Technology - Methodological Guidelines.

1.2 Classification based on a risk analysis approach

1.2.1 Classification based on a risk analysis approach will be assigned through the review and approval of specific verification schemes (see [2]), that will be established by the Society.

The requirements and criteria to be followed are set out in Sec 2.

1.2.2 The following types of verification schemes are to be established:

- verification schemes for design, construction, installation and commissioning
- verification schemes for in-service surveys (maintenance of class).

1.2.3 Through classification based on a risk analysis approach, the Society may accept alternatives and/or modifications of the prescriptive Offshore Rules, provided that:

- a written agreement of the Owner for related deviations is submitted to the Society
- the requirements of Pt A, Ch 1, Sec 1, [2.6] of the Offshore Rules are complied with.

Modifications are accepted through the principle of equivalence stated in Pt A, Ch 1, Sec 1, [2.3] of the Offshore Rules.

1.2.4 Upon the request of the applying party, classification based on a risk assessment approach may be performed for the whole offshore unit or only for a part of the unit (specific plant, installation or equipment).

1.2.5 Classification based on a risk analysis approach is appropriate in the following cases:

- for classification of offshore units using new technology or based on novel design, for which the existing record of in-service information is insufficient to provide prescriptive Rules.

Note 1: New technologies are also qualified based on the principles stated in NI525 Qualification of New Technologies, which are fully consistent with the present Rule Note.

- for classification of offshore units for which the Society also provides independent verification services based on the principles of NI567 Risk Based Verification of Floating Offshore Units.

Note 2: Classification based on a risk analysis approach credits for compliance with several national regulations, such as UK Regulations (SCR), US Regulations (SEMS) or Australian Regulations (NOPSA).

1.2.6 The Society will carry out document approval and verification activities for classification, under the terms and conditions of Part A of the Offshore Rules and Sec 2 of the present Rule Note.

The involvement of the Society in the early stages of the project is recommended, in order to improve the timing of classification activities and the exchange of information and documents.

1.3 Application

1.3.1 The requirements of the present Rule Note are to be applied in addition to the requirements of the Offshore Rules (as defined in [2.1.1]), which remain applicable except when otherwise specified in the present Rule Note.

1.3.2 The requirements of the present Rule Note are applicable for all structural types of floating offshore units defined in Part A, Chapter 1 of the Offshore Rules.

1.3.3 The requirements of the present Rule Note are applicable for all type of services covered by class notations defined in Pt A, Ch 1, Sec 2 of the Offshore Rules, including drilling, drilling assistance, oil and gas production, oil and gas storage and offloading, etc.

1.3.4 Regarding the application of the provisions of the present Rule Note for offshore units for which statutory requirements are to be complied with (such as mobile offshore units), attention is drawn upon the necessary agreement of the flag, Coastal and/or continental shelf Authorities for any alternative of the relevant requirements.

1.3.5 The requirements of the present Rule Note are applicable for new-built units and existing units, as stated in Sec 3.

1.3.6 When the provisions of the present Rule Note concern only a part of the offshore unit, as stated in [1.2.4], the remaining part, installations and equipment are to comply with the prescriptive requirements of the Offshore Rules.

In such a case, alternatives or modifications of the requirements of the Offshore Rules, such as stated in [1.2.3], will be accepted only for the part of the unit covered by the classification based on risk analysis approach.

The Society will take care of the interface between these related parts on a case-by-case basis, in order to avoid negative effects upon the overall safety of the unit due to different classification approaches.

1.4 Additional class notation

1.4.1 Offshore units complying with the requirements of the present Rule Note are granted the additional class notation **RBA**.

1.4.2 When the classification based on risk analysis approach covers only a part of the offshore units, as stated in [1.2.4], the additional class notation **RBA** is to be completed with a feature describing the concerned part of the unit, installation or equipment, between brackets.

Example: **RBA (offloading system)**

1.5 Interface of classification with other verification services based on risk analysis approach

1.5.1 Offshore units classed through a risk analysis approach and which are granted the additional class notation **RBA** are verified on a technical basis equivalent to the one requested for the compliance with National regulations such as:

- UK Continental Shelf Regulations (HSE)
- US Outer Continental Shelf Regulations (BOEMRE)
- Australian Shelf Regulations (NOPSA).

1.5.2 Units with the additional class notation **RBA** may be granted as of right the following additional class notations:

- **RBVS**, as defined in NI567, for risk based verification services
- **IVBS**, as defined in NI567, for verification where the Society acts as an Independent Verification Body.

1.5.3 For the purpose of [1.5.2], when the additional class notation **IVBS** is requested for compliance with specific National Regulations, such as **IVBS-UK**, the Society may require additional documentation in order to follow the formalism of verification procedure requested by the concerned Regulation. Details on this formalism are given in NI567 Risk Based Verification of Floating Offshore Units.

The Society may also require additional studies of equivalence and gap analysis, on a case-by-case basis.

2 Definitions

2.1 Offshore Rules

2.1.1 Offshore Rules means Bureau Veritas Rules for the Classification of Offshore Units (NR445). When reference is made to the Offshore Rules, normally the latest version of these ones is applicable.

2.2 Risk

2.2.1 Risk is a concept quantifying a hazard, consisting in a combination of probability or frequency and consequence of the related hazard.

2.3 Hazard

2.3.1 Hazard means any source of potential damage or casualty, or any situation with potential to cause it.

2.4 Risk analysis

2.4.1 Risk analysis is a structured method involving:

- identification of hazards related to the unit, installation of equipment
- estimation of hazard probabilities or frequencies
- estimation of hazard consequences.

2.5 Risk assessment

2.5.1 Risk assessment is a systematic analysis of risks including risk analysis, as defined in [2.4], review of risk acceptability by comparison with agreed criteria and identification of risk reduction measures, when relevant.

2.6 Major hazard

2.6.1 Major hazard is a hazard with potential for causing major accidents involving fatalities, severe damage to the offshore unit or major pollution events.

2.7 Safety-Critical Element

2.7.1 A Safety-Critical Element is any part of the unit or item:

- the failure of which could cause or contribute substantially to,
- or
- the purpose of which is to prevent or limit the effect of, a major hazard.

The definition also applies to temporary equipment brought onto the offshore unit.

2.8 Performance Standard

2.8.1 A Performance Standard is a statement, which can be expressed in qualitative or quantitative terms, of the performance required of a system, an item of equipment, a person or procedures in order to manage a hazard. The Performance Standard should contain sufficient information against which to assess the suitability and condition of the item to which it applies. This is expected to include the purpose of the measures and the associated requirements of functionality, reliability, availability and survivability.

2.9 Verification scheme

2.9.1 A verification scheme is a written scheme listing all approval and verification activities required by classification. It includes the verification of the design, construction, installation, commissioning and in service inspection of Safety-Critical Elements.

The verification scheme is established by the Society after the identification of Safety-Critical Elements and associated Performance Standards.

2.10 Other definitions

2.10.1 For the definition of other terms and wordings used in the present Rule Note, reference is made to:

- Pt A, Ch 1, Sec 1, [4] of the Offshore Rules, and
- Sec 1, [4] of NI567 Risk Based Verification of Floating Offshore Units.

3 Documents to be submitted

3.1 Additional documents

3.1.1 The list of documents to be submitted for classification is given in Pt A, Ch 1, Sec 4 of the Offshore Rules. In addition, for the purpose of classification based on risk analysis approach, the documents listed in Tab 1 are to be submitted.

Table 1 : Additional documents

Item	A/I	Documents to be submitted to the Society
1	I/A	Documentation of risk assessment methodology and tools; sensitivity analysis of significant assumptions may be requested by the Society
2	I	Report of hazard identification workshop including documentation of main assumptions relating to hazard identification
3	A	Report on risk ranking of identified hazards and related documentation including: <ul style="list-style-type: none"> • assumptions related to safety systems • assumptions for exclusion of low significance risks
4	A	Report on the definition of risk acceptance criteria
5	A	Report on risk assessment including: <ul style="list-style-type: none"> • assessment of risk against risk acceptance criteria • identification of risk mitigation measures, when relevant
6	A	Record of Safety-Critical Elements
7	A	List of Performance Standards for Safety-Critical Elements
8	A	Additional documentation, studies or gap analysis requested on a case-by-case basis, when the Performance Standards do not meet directly the requirements of the Offshore Rules

Note 1:
 I = Documents submitted for information only.
 A = Documents submitted for approval.

SECTION 2

PROCEDURE FOR CLASSIFICATION BASED ON A RISK ANALYSIS APPROACH

1 General

1.1 Objective

1.1.1 The objective of the present Section is to provide general requirements related to classification based on a risk analysis approach, including:

- definition of classification stages, with identification of duties of interested parties
- requirements for risk analysis and risk assessment.

1.2 Duties of the party applying for classification

1.2.1 In addition to the duties defined in the Offshore Rules, the party applying for classification is to submit to the Society the documents requested in Sec 1, [3] and to perform the activities relating to risk analysis and assessment requested in the present Rule Note.

1.2.2 The party applying for classification shall co-operate with the Society as necessary to establish and perform the approval and verification activities requested by the classification process.

1.2.3 The party applying for classification is to inform the Society or its Surveyor, as relevant, about any modification of existing documentation or related to the design, arrangement or operation of the offshore unit.

1.3 Society involvement

1.3.1 Based on the documentation submitted by the party applying for classification, the Society will establish verification schemes, as stated in Sec 1, [1.2.2].

1.3.2 The Society will undertake approval and verification activities from the verification schemes, as well as the approval of documents requested in Sec 1, [3].

1.3.3 The Society can provide analyses to the parties applying for classification, in relation to:

- risk analysis and risk assessment, from the point of view of acceptance for classification
- definition of Performance Standards and verification tasks based on the Offshore Rules.

2 Requirements for risk analysis approach

2.1 Classification stages

2.1.1 The main stages of risk analysis approach for the purpose of classification are given in Tab 1 and detailed in the present Article [2].

Table 1 : Classification stages

	Classification stage
1	Documentation and approval of methodologies and tools
2	Asset categorization and prioritization
3	Hazard identification
4	Hazard ranking, selection and approval of major hazards
5	Definition and approval of risk acceptance criteria
6	Risk assessment against acceptance criteria and identification of risk mitigation measures; approval
7	Record and approval of Safety-Critical Elements
8	Definition and approval of Performance Standards
9	Definition of verification schemes for classification purpose
10	Performance of verification activities, conclusions and record of comments
11	Issue of the Certificate of Classification with the additional class notation RBA , when conditions are met
12	Maintenance of the Certificate

2.2 Methodology and tools

2.2.1 Risk analysis and assessment are to be performed in accordance with recognized methods, at the satisfaction of the Society.

2.2.2 The methodologies and tools, as well as the assumptions used through the risk assessment, are to be documented and submitted to the approval of the Society.

2.2.3 The Society may request, on a case-by-case basis, additional documentation and/or studies relating to methodology and tools, e.g. to evaluate the sensitivity to various assumptions.

2.3 Asset categorization and prioritization

2.3.1 Prior to hazard identification, the offshore unit is to be described in components according to several grouping levels. These components are to be categorized through criteria related to function, capacity, operational requirements, location.

2.4 Hazard identification

2.4.1 The hazards related to the offshore unit, as defined in Sec 1, [2.3], are to be identified through a specific analysis. Generally, this analysis is performed through dedicated workshops involving persons having competence in various fields of activity relating to all expected hazards.

2.4.2 Hazard identification is to include all states of the offshore units, such as operation, inspections and maintenance, shutdown.

2.4.3 The hazard list is to be defined on a case-by-case basis, taking into account the specificities of the investigated unit. A typical list (not exhaustive) includes:

- fire and explosions
- structural failure
- helicopter crash
- loss of stability
- well blow-out
- collisions with support vessels or merchant ships
- toxic release
- serious mechanical failures
- station keeping failures
- serious towing/transit incidents.

2.4.4 A documentation relating to hazard identification, including the results of workshop activity and a statement of relevant assumptions, is to be submitted to the Society for information.

2.5 Risk acceptance criteria

2.5.1 Risk acceptance criteria are to be defined and documented by the Owner and subject to the approval of the Society.

2.5.2 Risk acceptance criteria may be defined in various ways, depending on the type of offshore units and other considerations. In any case, criteria are to take into account the probability or frequency and the consequences of major hazards.

Generally, the risk acceptance criteria are defined based on an annual probability or frequency of occurrence.

2.5.3 The Society will accept risk acceptance criteria based on the principle that they achieve at least the same level of safety as the prescriptive requirements of the Offshore Rules. The Society may require to increase the level of severity of the acceptance criteria, when relevant.

2.5.4 An example of typical risk acceptance criteria accepted by the Society is given in Guidance Note N1525 Risk Based Qualification of New Technology - Methodological Guidelines. Other specific information is given recognized standards, such as ISO 17776: Petroleum and natural gas industries – Offshore production installations – Guidelines on tools and techniques for hazard identification and risk assessment.

2.6 Hazard ranking and selection of major hazards

2.6.1 Hazards identified as per [2.4] are to be ranked by the Owner based on their probability of frequency and their consequences.

2.6.2 A basis for risk ranking of hazards is to be established and documented by the Owner. On this basis, the Society may accept to eliminate insignificant risks from the analysis, provided that the supporting assumptions are acceptable for the Society. Remaining hazards (major hazards) will be selected for further considerations.

2.6.3 The hazard ranking is to consider events initializing the hazard as well as combinations of events leading to a hazard. The probability or frequency of occurrence of these events is to be obtained by the Owner from existing records or other relevant data, at the satisfaction of the Society.

2.6.4 The consequences of hazards are to be analysed and documented. This analysis is to consider:

- safety of personnel
- unit integrity
- pollution event consequences.

2.7 Risk assessment against acceptance criteria

2.7.1 Risks relating to the major hazards are to be assessed against the risk acceptance criteria defined in [2.5]. The results of this assessment are to be documented and approved by the Society.

2.7.2 When the risk acceptance criteria are not complied with, measures for the prevention and/or mitigation of risks are to be proposed and applied by the Owner.

2.7.3 Generally, the measures mentioned in [2.7.2] may be categorized as:

- measures for avoidance of hazards (removal of source of hazard or acting on the sequence of events leading to hazard)
- measures for reduction of hazard probability or frequency (reduction of number of sources, use of additional protective equipment, use of less hazardous materials, process and technology)
- measures for reduction of hazard consequences (layout improvement, use of prevention and protection systems).

2.8 Record of Safety-Critical Elements

2.8.1 When the risk acceptance criteria are complied with, Safety-Critical Elements, as defined in Sec 1, [2.7], are to be identified. This identification is to take into account the means for prevention and/or mitigation of risks stated in [2.7.2] and [2.7.3].

2.8.2 The selection of Safety-Critical Elements is to be based on the consequence of failure. This selection is to be consistent with the major hazard selected as per [2.6].

2.8.3 The record of Safety-Critical Elements and related documentation are to reflect the traceability of Safety-Critical Elements back to major hazards. In addition to the requirements of [2.8.1] and [2.8.2], the selection of Safety-Critical Elements is to be based on a proven engineering consideration.

2.8.4 The record of Safety-Critical Elements is to be prepared and submitted by the Owner for the approval of the Society, as required in Sec 1, [3].

2.9 Performance Standards

2.9.1 General

Performance Standards are to be defined by the Owner for the Safety-Critical Elements identified as per [2.8].

Performance Standards are to be established based on the following principles:

- to be consistent with the fulfilment of risk acceptance criteria
- to cover all relevant requirements of Safety-Critical Element life cycle
- to take into account the interaction between Safety-Critical Elements for the selected major hazards.

The definition of Performance Standards is to be documented and subject to the approval of the Society.

2.9.2 Performance Standards based on prescriptive Offshore Rules

Prescriptive requirements of the Offshore Rules cover the design, construction, installation and in-service inspections of the offshore units and provide a level of safety accepted by the Society.

For the purpose of classification based on a risk analysis approach, these prescriptive requirements can be taken into account for the definition of Performance Standards.

Such Performance Standards are reviewed and approved by the Society.

2.9.3 Other Performance Standards

Performance Standards covering items in addition to the prescriptive requirements of the Offshore Rules may be accepted by the Society based on proven engineering considerations and on the consistency with the previous stages of risk analysis approach.

Performance Standards differing from the prescriptive requirements of the Offshore Rules may be accepted by the Society, based on the provisions of Sec 1, [1.2.3].

2.10 Verification schemes for classification

2.10.1 Based on the documents submitted by the parties applying for Classification, the Society will establish verification schemes for classification purpose.

2.10.2 Verification schemes are to include:

- the list of Safety-Critical Elements
- related Performance Standards
- the list of verification activities as stated in [2.10.3]
- comments and clarifications related to the objective and scope of verification activities.

2.10.3 The verification schemes are to include the verification activities related to all project stages, including examination and approval of documents and required inspections, defining clearly the objective and scope of each verification activity.

2.10.4 Based on the principle that the level of criticality of Safety-Critical Elements is different, the Society will define risk classes for the involvement in the verification related to classification. The risk classes are defined on a case-by-case basis, depending on the specificities of each project. A typical example is given in NI567, Sec 2.

2.10.5 The categorization of Safety-Critical Elements in risk classes is based on the following criteria:

- failure consequence of the element
- hazard ranking, as per [2.6]
- role of the element in risk prevention and/or mitigation measures.

2.11 Performance of verification activities for classification

2.11.1 The Society will perform the verification activities defined through the verification scheme for classification. The additional class notation **RBA** is granted to the unit when the verification scheme is satisfactorily fulfilled.

2.12 Certificate of Classification

2.12.1 The Certificate of Classification is issued under the terms and conditions of Part A of the Offshore Rules.

2.12.2 The verification schemes for classification, as defined in [2.10], are to be included in an annex of the Certificate.

2.12.3 Background documentation requested for the acceptance of Performance Standards differing from the prescriptive Offshore Rules and relating to the design, construction and installation of the unit is to be included in the Design Criteria Statement, as defined in Pt A, Ch 1, Sec 1, [1.6] of the Offshore Rules.

SECTION 3

REQUIREMENTS FOR ASSIGNMENT OF CLASS

1 General

1.1 Application

1.1.1 The general procedure for class assignment is given in Pt A, Ch 1, Sec 3 of the Offshore Rules. In addition to these requirements, when the additional class notation **RBA** is intended to be granted to the unit, the provisions and principles of the present Section are to be applied.

1.1.2 Deviation from the requirements of Pt A, Ch 1, Sec 3 of the Offshore Rules may be accepted by the Society based on the provisions of Sec 1, [1.2.3].

1.2 Principles

1.2.1 The additional class notation **RBA** is granted to the unit after compliance with the following principles:

- the unit is to be designed and constructed with sufficient integrity to withstand operational and environmental loading
- unit's elements are designed and constructed such as to provide suitable functionality and survivability for prevention and/or mitigation of related major hazards
- the unit is designed and arranged such as to provide a suitable level of safety for all groups of personnel during all operational phases
- the unit is arranged such as to prevent the escalation of a major hazard to parts which are not affected by the initial event.

2 New buildings

2.1 Classification process

2.1.1 General

Classification based on a risk analysis approach will follow the relevant stages defined in Sec 2.

2.1.2 Verification schemes

The verification schemes for classification purpose are to include verification activities relating to:

- design of Safety-Critical Elements
- construction and manufacture of Safety-Critical Elements
- installation and operation of Safety-Critical Elements.

The verification activities will include document approval, attendance to tests and trials, examination of certificates, records and other relevant documents.

Based on the verification schemes, the Society will set up a verification plan, including the scheduling of verification activities, for the main stages of the project.

The issues and main comments relating to the verification work are normally recorded and documented.

2.2 Survey during unit's construction

2.2.1 When the verification schemes established through risk analysis approach identify survey activities during construction in addition to the requirements of Pt A, Ch 1, Sec 3, [2.1] of the Offshore Rules, these survey activities are to be considered as mandatory for the purpose of the additional class notation **RBA**.

2.2.2 Units for which the verification schemes fully meet the new building procedure defined in Pt A, Ch 1, Sec 3, [2.1] of the Offshore Rules will be assigned the construction mark **☒**, as defined in the Offshore Rules.

2.2.3 Units for which the verification schemes meet partially the new building procedure defined in Pt A, Ch 1, Sec 3, [2.1] of the Offshore Rules and include equivalent survey activities during construction, at the satisfaction of the Surveyor, will be assigned the construction mark **•**, as defined in the Offshore Rules.

3 Offshore units classed after construction

3.1 Classification process

3.1.1 An Owner may apply for classification based on a risk analysis approach of existing units. In such a case, the classification process will take into account the following situations:

- the existing unit has been classed with an IACS Society and the documentation is made available to the Society
- the existing unit was not previously classed with an IACS Society.

3.1.2 The general procedure for assignment of class for units classed after construction is given in Pt A, Ch 1, Sec 3 of the Offshore Rules.

3.1.3 Classification based on a risk analysis approach will follow the relevant stages defined in Sec 2.

3.2 Specific requirements

3.2.1 For all units, the risk analysis process for classification takes into account the existing records relating to the operating history of the unit. Available documentation is to be submitted to the Society for examination.

3.2.2 The Society may require specific verification activities relating to unit condition assessment, including inspections, report examination and testing. These activities will be established on a case-by-case basis, taking into account the age and operating history of the unit.

Verification activities mentioned above will be included in the verification scheme for classification.

3.2.3 The risk analysis procedure requested for classification is to be consistent with unit condition assessment (see [3.2.2]).

3.2.4 For units previously classed with an IACS Society, the Society may limit the verification activities relating to design and construction, based on the completeness and relevance of available documentation and certificates.

SECTION 4

MAINTENANCE OF CLASS

1 General

1.1 Application

1.1.1 The general procedure for maintenance of class is given in Part A, Chapter 2 of the Offshore Rules. In addition to these requirements, when the additional class notation **RBA** is intended to be granted to the unit, the provisions of the present Section are applied.

1.1.2 As stated in Pt A, Ch 2, Sec 1, [1.2.1] of the Offshore Rules, the Society reserves the right, after due consideration, to change the periodicity, postpone or advance surveys, taking into account particular circumstances.

1.1.3 Alternatives of the requirements of Part A, Chapter 2 of the Offshore Rules may be accepted by the Society based on the provisions of Sec 1, [1.2.3] and on the principle of equivalence formulated in Pt A, Ch 1, Sec 1 of the Offshore Rules.

It is mentioned that Risk Based Inspections (RBI) may be considered for the purpose of the equivalence referenced above.

1.2 Principle

1.2.1 The maintenance of additional class notation **RBA** involves a set of in-service inspections, tests and reviews in order to verify the suitability of Safety-Critical Elements when operated in accordance with their intended purpose, during operational phase of the unit.

2 Verification schemes for maintenance of class

2.1 General

2.1.1 On the basis of the verification schemes for design and construction phases, the Society will set-up specific verification schemes for maintenance of class.

2.1.2 The verification schemes for maintenance of class are to identify the verification activities to be performed for the Safety-Critical Elements. Verification activities are to include:

- in-service inspections of structure, systems and equipment requiring the attendance of a Surveyor, including underwater inspections
- testing of equipment, systems and components
- review and approval of inspection and testing reports and records of data (such as ROV records)
- review and validation of verification procedures.

2.1.3 The involvement of the Society in the verification activities normally takes into account the level of criticality of Safety-Critical Elements defined through risk classes (see Sec 2, [2.10.4]).

2.1.4 Each verification activity defined through the verification scheme is to be scheduled based on the results of risk assessment. By default, in-service inspections are to follow the periodicity defined in Part A, Chapter 2 of the Offshore Rules. Alternatives may be accepted on a case-by-case basis, taking into account the requirements of [1.1.3].

2.2 Owner/Operator's plan for maintenance and inspection

2.2.1 The Owner/Operator of the unit is to submit a plan for inspection and maintenance. This plan is to include the following items:

- objective and scope of maintenance and inspection activities
- information relating to the qualification of personnel
- description of methods and tools used for maintenance and inspection activities
- planning of inspection activities including scheduling, milestones and reporting.

2.2.2 Owner/Operator plan for inspection and maintenance is subject to the approval of the Society. The Society will establish the verification schemes for maintenance of class taking into account the approved verification activities given in Owner/Operator plan.

Additional verification activities relating to the maintenance of Safety-Critical Elements may be included in the verification schemes, when deemed necessary by the Society.

2.2.3 Any update of the Owner/Operator plan for inspection and maintenance is to be made known to the Society. Related documentation is to be submitted.

2.2.4 When the planning and scheduling of verification activities is performed using RBI techniques, related documentation is to be submitted and approved.

The Society provides requirements and methodological guidelines for RBI in dedicated publications.

2.3 Updates of verification schemes

2.3.1 Verification schemes may have to be updated when modifications relating to the design or operation of the unit are made known to the Society. This includes:

- modifications performed during operation relating to the hull and/or equipment
- modifications of operational procedures or requirements.

2.3.2 The Society may put in place updates and improvements of the verification schemes based on the feedback of inspection activities. Such updates may involve the execution of additional verification activities or changes of verification procedures.

2.3.3 For any update of the verification scheme, the Society will check the consistence of these updates with the risk analysis requested by the additional class notation **RBA**. For significant changes of design or operation of the unit or significant feedback of the inspection activities, the Society will require to reiterate the risk analysis procedure defined in Sec 2 from the relevant stage.