Risk Based Verification of Floating Offshore Units

October 2010

Guidance Note
NI 567 DT R00 E

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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 leg 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 hereaftercollectively referred to as “Certification”.

1.3. - The Society can also provide services related to Certification and such ship and company safety management certification, ship port security certification, training activities; all activities and duties incidental thereto such as documentation on any supporting means, software, instrumentattorizations, 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 of any person representing 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. - Certification 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 the 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 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 certification and classification 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.

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 or 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 of one hundred and fifty thousand (150,000) Euros.

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 of 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 of 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 fees 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.
GUIDANCE NOTE NI 567

NI 567
Risk Based Verification of Floating Offshore Units

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October 2010
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SECTION 1  GENERAL

1 General

1.1 Objective

1.1.1 The main objectives of the present Note are to provide:
- a general statement of Bureau Veritas Risk Based Verification (RBV) services for offshore units
- a statement of independent verification services provided by the Society when acting as an Independent Verification Body
- an interface between Risk Based Verification and independent verification and the Classification process
- a statement of the services that the Society can provide toward the compliance with UK Continental Shelf Regulations.

1.2 Application

1.2.1 The provisions of the present Note are applicable for all structural types of floating offshore units defined in Pt A, Ch 1 of the Offshore Rules.

1.2.2 The provisions of the present Note are applicable for all types of services covered by the 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.

1.2.3 Risk Based Verification and independent verification services can be performed separately from, or combined with Classification. Depending on the type of investigated unit, the Classification can provide useful features which can be directly credited into independent verification.

1.2.4 Risk Based Verification and independent verification services can be performed for both newbuild units and existing units and cover all the stages of offshore units lifecycle.

2 Verification services

2.1 General

2.1.1 Verification service is a confirmation by examination and provisions of objective evidence that specified requirements have been fulfilled (ISO 8402/1994).

2.1.2 Verification services are parallel to design, construction and operation activities. These activities are to be carried out under the responsibility of the appointed duty holder.

2.2 Risk Based Verification

2.2.1 The principle of Risk Based Verification is to assess the risks related to relevant failure modes of safety critical equipments and systems in order to keep the risk below an acceptable limit.

For this purpose, safety critical equipments and systems are to comply with relevant performance standards and this compliance is verified.

2.2.2 The Society can provide Risk Based Verification services using performance standards based on the requirements of the Offshore Rules, international and national regulations and standards or Owner/Operator specifications.

2.2.3 Principles of Risk Based Verification services are included in Sec 2.

2.2.4 Many National Authorities have specific Regulations related to verification activities, which are to be taken into account for Risk Based Verification. These Regulations may be goal setting, prescriptive or combined. The Authorities may also have requirements about the roles and responsibilities, independence of the verifier, content and form of verification activities.

2.3 Independent Verification Body

2.3.1 Independent verification service is a particular case of Risk Based Verification carried out by the Society when acting as Independent Verification Body (IVB).

2.3.2 Some National Regulations such as UK Continental Shelf Regulations require independent verification. The IVB is appointed by the duty holder to provide a independent verification service.

2.3.3 Additional information relating to independent verification services for compliance with UK Continental Shelf Regulations is given in Sec 3.

3 Classification and verification

3.1 General

3.1.1 Classification and Risk Based Verification can be performed through a combined approach, with important benefits for both services. A list of these benefits with application to the compliance with UK Continental Shelf Regulations is given in Sec 3, [4].
3.2 Classification principles

3.2.1 The principles, meaning, scope and limits of the Classification are defined in Pt A, Ch 1 of the Offshore Rules and Marine Division General Conditions.

The classification process mainly consists of:

- the development of Offshore Rules, guidance notes and other documents relevant to the structure, material, equipment, machinery and other items covered by such documents
- the review of plans and calculations and the surveys, checks and attendance to tests intended to demonstrate that the unit meets the Offshore Rules
- the assignment of class and issue of a Certificate of Classification, where compliance with the above Offshore Rules is found
- the periodical, occasional and class renewal surveys performed to record that the unit in service meets the conditions for maintenance of class (see Part A, Chapter 2 of the Offshore Rules).

Classification is a representation of compliance to the prescriptive requirements of the Offshore Rules. These Rules are based on experience and current good practice and can credit for the compliance with a large number of standards and regulations. Classification provides also a useful input for the Risk Based Verification, in particular when the performance standards adopted for verification are based on the requirements of the Offshore Rules.

3.2.2 Classification based on a risk analysis approach, which may be accepted by the Society provided that the conditions of Pt A, Ch 1, Sec 1, [2.6] of the Offshore Rules are complied with, can credit for Risk Based Verification because both approaches are similar.

3.3 Class notations relating to verification

3.3.1 Offshore units classed by the Society and complying with a regulation or standard through a Risk Based Verification carried out by the Society may be granted the additional class notation RBVS-xxx, where “xxx” is the reference of the concerned regulation, standard or Owner specification.

3.3.2 Offshore units classed by the Society and for which an independent verification is carried out by the Society, acting as IVB, may be granted the additional notation IVBS. The notation is completed with the reference of the concerned regulation, standard or Owner specification.

Example: IVBS-UK

4 Definitions

4.1 Definitions based on UK Continental Shelf Regulations

4.1.1 The present list of definitions and terms is provided in accordance with UK Continental Shelf Regulations. The references to relevant statutory instruments are given in Sec 3.

4.1.2 Competence

Relates to relevant theoretical and practical knowledge and experience to enable a professional judgement to be made regarding the importance and suitability of plant to be assessed.

4.1.3 Escape

The process of leaving the installation in an emergency. Means of escape includes items which assist with descent to the sea, such as davit launched life rafts, chute systems, ladders, and individually controlled descent devices; and items in which personnel can float on reaching the sea, such as throw-over life rafts.

4.1.4 Evacuation

A planned and controlled method of leaving an installation and its vicinity without directly entering the sea. Means of evacuation offer protection from the hazard, and have their own motive power to enable persons to move quickly away from the installation.

4.1.5 Independent

A person is regarded as independent only where he has had no involvement or responsibility related to the aspect or thing to be verified, nor any financial interest, which might compromise his objectivity; and he is sufficiently independent of any management system which bears responsibility for the aspect or thing to be examined, that he will be objective in discharging his function.

4.1.6 Major Accident

a) A fire, explosion or other release of a dangerous substance involving death or serious injury to persons on the installation or engaged in an activity on or in connection with it.

b) Any event involving major damage to the structure of the installation or plant affixed thereto or any loss in the stability of the installation.

c) The collision of a helicopter with the installation.

d) The failure of life support systems for diving operations in connection with the installation, the detachment of a diving bell used for such operations or the trapping of a diver in a diving bell or other subsea chamber used for such operations; or

e) Any event arising from a work activity involving death or serious injury to five or more persons on the installation or engaged in an activity in connection with it.

4.1.7 Offshore installation

Offshore installation is as defined in Regulation 3 of SI 1995/738 (MAR). This also deems an offshore installation to include any part of a pipeline or any apparatus or works that are connected to the installation and within the 500 m zone.

4.1.8 Performance Standard

A statement which can be expressed in qualitative or quantitative terms, of the performance required of a system, item of equipment, 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 measure(s), and the associated requirements of functionality, reliability, availability and survivability.

4.1.9 Safety Case
The formal document prepared pursuant to Regulation 2(2) of SI 2005/3117 (SCR).

4.1.10 Safety-Critical Element
Means such parts of an installation and such of its plant (including computer programs), or any part thereof:

a) The failure of which could cause or contribute substantially to;

b) A purpose of which is to prevent or limit the effect of,

a major accident hazard.

This definition also applies to temporary equipment brought onto the offshore installation.

4.1.11 UK written schemes or combined scheme
Refers to the written schemes required under PFEER and SCR (see Sec 3).

4.1.12 Verification scheme
Refers to a suitable written scheme provided to ensure that selected items are appropriate for the intended use, dependable and effective when required, and able to perform as intended. SCR Verification Scheme refers to the scheme provided under SCR regulation 15.

4.2 Other definitions

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

4.2.2 HAZID
Hazard Identification (HAZID) is a structured method for the identification of hazards, threats and consequences.

4.2.3 Availability
Availability of a system or equipment is the probability that it is not in a failed state at a point in time.

4.2.4 Reliability
Reliability is a probability of desired performance over time in a specified condition.

4.2.5 Duty Holder
The duty holder is responsible for discharging the duties in the context of Risk Based Verification. Depending on the regulation, it may be the Owner or Operator.

For the purpose of UK Continental Shelf Regulations, a different definition is given in Sec 3.
SECTION 2  PRINCIPLES OF RISK BASED VERIFICATION

1 General

1.1 Introduction

1.1.1 Through Risk Based Verification, the Society aims to confirm that the offshore unit being designed, constructed and operated such as to be fit for its intended purpose, it meets the following principles:

- the level of integrity is as high as reasonably practicable
- the associated risk relating to persons, environment and property is as low as reasonably practicable (ALARP).

1.1.2 For duty holders or other parties requiring Risk Based Verification services, the following benefits are considered:

- improve availability of the unit/installation in operation
- improve reliability
- improve the timing of verification activities, through the selection of areas and activities high contributors to risk
- possibility of a combined approach to Classification and Risk Based Verification, combining the features of both services
- involvement in the early stages of the project and active support from the Society.

1.2 Documents

1.2.1 Risk Based Verification documents will be issued by the Society for each phase of the project, as defined in Tab 1.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Phase of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Conceptual design</td>
</tr>
<tr>
<td></td>
<td>Detail Design</td>
</tr>
<tr>
<td>Construction</td>
<td>Manufacturing of components</td>
</tr>
<tr>
<td></td>
<td>Manufacturing of equipment</td>
</tr>
<tr>
<td></td>
<td>Installation</td>
</tr>
<tr>
<td></td>
<td>Project completion</td>
</tr>
<tr>
<td>Operation</td>
<td>Operation, maintenance and repair</td>
</tr>
</tbody>
</table>

1.2.2 The Society will issue a Compliance Statement for each phase of the project, showing satisfactory completion of related verification activities.

1.2.3 A verification report will be associated to the Compliance Statement. This document will include a detailed description of various related verification activities, comments and visit reports.

1.2.4 For classed units granted the additional class notation RVBS-xxx, the Compliance Statement and the verification report will be included in an annex of the Certificate of Classification.

2 Procedure of Risk Based Verification

2.1 Verification phases

2.1.1 The main phases of Risk Based Verification provided by the Society are summarized in Tab 2.

2.1.2 The Society may assist the duty holder during all relevant phases in Tab 2.

<table>
<thead>
<tr>
<th>Verification phase</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Record of safety critical elements and documentation of selection process</td>
<td>Performed by the duty holder</td>
</tr>
<tr>
<td>2 Definition and record of performance standards for each safety critical element</td>
<td>Performed by the duty holder</td>
</tr>
<tr>
<td>3 Verification of safety critical element list and performance standards</td>
<td>Verification carried out by the Society</td>
</tr>
<tr>
<td>4 Definition of a verification scheme including verification tasks and schedules</td>
<td>Performed by the Society and the duty holder</td>
</tr>
<tr>
<td>5 Execution of verification tasks (verification scheme), conclusions and record of comments</td>
<td>Verification carried out by the Society</td>
</tr>
<tr>
<td>6 Issue of Compliance Statement</td>
<td>Issued by the Society</td>
</tr>
</tbody>
</table>
2.2 Safety critical elements

2.2.1 The record of safety critical elements requires several steps, as follows:
- definition of asset prioritization
- identification of major accident events
- identification of safety critical elements.

2.2.2 Asset prioritization
Asset prioritization is to be based on criteria related to function, capacity, operational requirements. The description of components is to be done through several grouping levels.

2.2.3 Major accidents
Sec 1 provides a definition of major accidents based on UK Regulations and directly applicable for Safety Case approach given in Sec 3. However, this definition can be completed or modified for each Risk Based Verification, taking into account the specificities of the investigated asset. Typical definition of major accident includes:
- fire and explosions
- structural failure
- helicopter crash
- loss of stability
- well blow-out during simultaneous operations
- collisions with support vessels
- toxic release
- serious mechanical failures
- station keeping failure, when relevant
- towing incidents.

The identification of major accident events requires a HAZID analysis, as defined in Sec 1. It is also important to establish a link between hazard, risk and risk reducing measures such as prevention and/or mitigation.

2.2.4 Risk ranking
In order to focus on the most significant hazards, a risk ranking of hazards identified as per [2.2.3] is to be performed.

2.2.5 Identification of safety critical elements
The identification of safety critical elements is to be based on the definition given in Sec 1, [4.1.10] and on the list of major accident events (see [2.2.3]).

2.3 Performance standards

2.3.1 Performance standards, as defined in Sec 1, are to be defined for each safety critical element identified as per [2.2.5].

2.3.2 For classed units, classification requirements can provide a valuable input for the definition of both qualitative and quantitative performance standards.

2.4 Review of safety critical elements and performance statements

2.4.1 This review is carried out by the Society and all comments are recorded. The Society will provide to the duty holder necessary information for clear understanding of these comments.

2.4.2 Before establishing the verification scheme, all disagreements relating to the comments record are to be resolved with the participation of the duty holder.

2.5 Verification scheme

2.5.1 The definition of the verification scheme is a crucial step of the Risk Based Verification. Verification tasks will be identified in order to check that the performance standards are achieved for each safety critical element.

2.5.2 The Society involvement in the verification process will depend on the assigned risk class of the safety critical element. An example is shown in Tab 3.

Table 3: Involvement in verification process

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Involvement in the verification process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>Detailed review of the design documents and procedures; Attendance of the surveyor requested for inspection and factory acceptancy test; More comprehensive involvement than Class 2.</td>
</tr>
<tr>
<td>Class 2</td>
<td>Detailed review of the design documents and procedures; Attendance of the surveyor requested for inspection and factory acceptancy test.</td>
</tr>
<tr>
<td>Class 3</td>
<td>Review of principal design documents and procedures; Attendance of the surveyor only during system testing</td>
</tr>
</tbody>
</table>

2.5.3 The categorization of safety critical elements into risk classes is performed on the base of the following criteria:
- failure modes relating to the element
- risk ranking of hazards required in [2.2.4]
- role of the element in risk reducing measures, particularly mitigation.

2.5.4 The verification scheme is to integrate all verification tasks related to all project phases, including examination of documents and required inspections, defining clearly the objective and scope of each verification task.

2.6 Execution of the verification tasks

2.6.1 The Society will perform the verification tasks defined through the verification scheme, including the examination of documents and inspections. A Compliance Statement will be issued for each phase of the project, as stated in [1.2], when the relevant verification scheme is satisfactorily fulfilled.
2.7 Modifications

2.7.1 When modification relating to design, construction or operation is made known to the Society, the procedure of Risk Based Verification will be reiterated from the relevant verification phase.

2.7.2 When the Risk Based Verification procedure is reiterated due to modifications, the verification activities performed by the Society are to be reiterated too.

2.8 Up-dates of verification schemes

2.8.1 Based on the feedback of inspection activities, the Society may require up-dates and improvements of verification schemes. Such up-dates involve the execution of additional verification tasks or changes of verification procedures.

2.8.2 For classed units, changes to the verification schemes are to be recorded and integrated into the relevant annex of Certificate of Classification.
SECTION 3 VERIFICATION FOR COMPLIANCE WITH UK CONTINENTAL SHELF REGULATIONS

1 General

1.1 Objective

1.1.1 The present Section gives a general statement of the services that the Society can provide toward the compliance with UK Continental Shelf Regulations including:

- independent verification services, when the Society acts as Independent Verification Body (IVB)
- combined approach to classification and independent verification.

1.1.2 Independent verification services presented in the present Section are based on the methodology and principles given in Sec 2. The purpose of the present Section is to highlight the specificities of independent verification for compliance with UK Continental Shelf Regulations.

1.2 Application

1.2.1 The provisions of the present Section are directly applicable for all types of units defined in Pt A, Ch 1 of the Offshore Rules operating or intended to operate in UK waters.

1.2.2 Independent verification services can be performed separately or through a combined approach with classification. The combined approach with classification is particularly recommended for compliance with UK Continental Shelf Regulations, for the benefits stated in this Section.

1.2.3 The provisions of the present Section may be applied for units operating outside UK waters, even when not requested by the concerned regulation.

1.3 Class notation

1.3.1 Offshore units classed by the Society and for which the Society provides independent verification services for compliance with UK regulations are granted the additional class notation IVBS-UK. A detailed description of the verification services performed by the Society is stated in an annex of Certificate of Classification.

2 UK Continental Shelf Regulations

2.1 Legislative framework

2.1.1 UK Continental Shelf Regulations are part of the general duties required under Health and Safety at Work, Etc. Act 1974.

2.1.2 The provisions of the present Section are based on or reference to the following regulations:

- SI 2005/3117 “Offshore Installations (Safety Case) Regulations” (SCR)
- SI 1995/743 “Offshore Installations (Prevention of Fire and Explosion, and Emergency Response on Offshore Installations) Regulations” (PFEER)
- SI 1996/913 “Offshore Installations and Wells (Design and Construction etc.) Regulations” (DCR)

2.1.3 UK Continental Shelf Regulations are established on a fully goal-setting approach, setting goals for outcomes instead of prescriptive requirements. The main targets of these regulations relate to the identification of major accident hazards concerning an offshore unit or installation and their management throughout the unit lifecycle.

2.2 Responsibilities under UK Continental Shelf Regulations

2.2.1 The duty holder is responsible for compliance with UK Continental Shelf Regulations. The duty holder is defined depending on the type of offshore unit, as follows:

- for units performing oil and gas production, the duty holder is the Operator
- for all other units, the duty holder is the Owner.

Note 1: Additional information clarifying the definition of Owner and Operator are given in SI 1995/738.

Note 2: Special consideration is to be given to the individual roles for cases when the work is contracted between separate parties.

2.2.2 Duty holder is responsible for the following actions:

- identify major accident hazards relating to the offshore unit
- identify means of avoiding or mitigating these hazards
- perform engineering studies in order to check that the risk is reduced to ALARP
- detail arrangements for protection of personnel (temporary refuge, escape and evacuation, monitoring and control)
2.2.3 For compliance with UK Continental Shelf Regulations, the duty holder is to achieve the following items:

- provide Quantitative Risk Assessment
- provide PFEER assessment
- demonstrate that the selected PFEER measures and performance standards are suitable against all relevant major accident hazards
- submit the formal safety case document and comply with specific Safety Management System and audit requirements
- identify the safety critical elements and realize a formal record of elements and standards
- establish a SCR written scheme
- establish a written scheme for measures provided against fire and explosion and for emergency response (PFEER (SI 1995/743), reg 19)
- establish a written scheme for examination and testing of personal protective equipment to be used in an emergency
- assess the emergency response and provide additional means or protection, wherever required
- provide rescue and recovery plan
- comply with the requirements of PFEER (SI 1995/743), reg 11 relating to communications.

2.3 Independent Verification Body (IVB)

2.3.1 UK Continental Shelf Regulations require an independent verification of PFEER written scheme of examination, the SCR record of safety critical elements and the SCR verification scheme. This independent verification is to be carried out by an independent and competent person (ICP).

2.3.2 The IVB (or directly ICP) is to be appointed by the duty holder.

2.3.3 The Society can act as IVB, assist the duty holder in the activity for compliance with UK Continental Shelf Regulations or evaluate the state of compliance, when requested. The Society cannot assume the responsibility of the duty holder for the safety and integrity of the offshore units. The Society cannot issue or guarantee the compliance on behalf of UK authorities.

3 Verification services

3.1 General

3.1.1 When appointed as IVB, the Society can provide the following services:

- comments on the record of safety critical elements
- preparation and consultation for SCR and PFEER written schemes, or combined schemes when requested
- performing and reporting of written schemes activities
- review and up-dates of written schemes for various stages of the lifecycle and taking into account all modifications of the design or operations affecting the safety of the unit.

3.2 Verification of safety critical elements

3.2.1 The verification scheme relating to safety critical elements shall be established by, or in consultation with the Society acting as IVB. Independent verifications under this scheme shall be performed by the Society.

3.2.2 The Society will provide a written comment on the record of safety critical elements, as required in SCR (SI 2005/3117), reg 15.

3.2.3 The verification scheme is to be subject of review and update as necessary to ensure the suitability of safety critical elements and with respect to the schedules of UK Continental Shelf Regulations.

3.3 PFEER

3.3.1 The examination of PFEER plant for detection, control and mitigation of fire and explosions will be performed by the Society, acting as IVB, and is to be based on an established written scheme for examination. The examination will include a check against the performance standards determined through PFEER assessment.

3.3.2 As PFEER plant is also selected as a safety critical elements, a scheme combining PFEER and SCR may used, in order to avoid overlapping work. Details are given in [3.5].

3.4 Personnel protective equipment for use in an emergency

3.4.1 Personnel protective equipment includes equipment which protects persons against fire, smoke, toxic gases and immersion in the sea. A related written scheme for examination will be performed by the Society, acting as IVB. This list may be combined with other verification schemes, as stated in [3.5].

3.5 Combined verification schemes

3.5.1 In order to avoid the overlapping of work using PFEER and SCR verification schemes and improve timing, the Society can propose combined verification schemes, with the agreement of the duty holder.

3.5.2 Following the typical sequence of the work for compliance with UK Continental Shelf Regulations, the combined schemes will include:

- all verification activities relating to safety critical elements
- PFEER related verification activities which are not included above.

3.5.3 The combined schemes will include all requirements of separate schemes and all the activities and information requested by the independent verification for all stages of the lifecycle. Interfaces between different parts of verification schemes can be provided, upon duty holder request.
4 Combined approach to classification and independent verification

4.1 General

4.1.1 Independent verification and Classification can be combined as stated in [1.2.2]. The following benefits are to be considered:

- Classification can contribute to the compliance with UK Continental Shelf Regulations, as stated in [4.2] and [4.3]
- Classification is based on prescriptive Rules considering implicitly risk aspects and incorporating risk mitigation principles, providing an important input for demonstrating the adequacy of marine systems
- Classification requirements can be used directly or contribute for the definition of performance standards
- Classification requirements apply to key structure and systems which are important for safety and integrity of the offshore unit
- Documents issued and managed through the Classification process can constitute a valuable input for the activities required by the compliance with UK Continental Shelf Regulations
- The period of safety case up-date required by SCR is 5 years, the same as the period of class renewal
- The combined approach to Classification and verification improve the efficiency of both activities through avoidance of duplication.

4.2 Classification

4.2.1 Classification, as defined in Sec 1, is based on the prescriptive requirements of the Offshore Rules. These Rules are based on experience and current good practice.

4.2.2 Classification issues are an important input for the verification schemes of units coming in UK waters from other areas.

4.2.3 UK Continental Shelf Regulations requirements can be accepted for the class through the principle of equivalence formulated in Pt A, Ch 1, Sec 1 of the Offshore Rules.

4.2.4 For compliance with UK Continental Shelf Regulations, the following additional work is to be performed:

- Risk assessment
- Safety cases
- Written schemes.

4.3 Classification based on risk analysis approach

4.3.1 Classification based on risk analysis approach is accepted by the Society provided that the conditions of Pt A, Ch 1, Sec 1, [2.6] of the Offshore Rules are complied with.

4.3.2 The approach of the Classification based on risk analysis is similar with the one for UK compliance.

4.3.3 Offshore units classed through a risk analysis approach fulfill also a significant part of the procedure for UK compliance. As additional work, the following items are to be considered:

- A formal safety case is required
- Evacuation, escape rescue and recovery are to be specially considered.