MANUAL

OFFSHORE FACILITIES LIFE-SAVING APPLIANCE REQUIREMENTS (AMENDMENTS/SUPPLEMENTS TO SOLAS)

DEP 80.80.00.10-Gen.

December 1998

DESIGN AND ENGINEERING PRACTICE

PREFACE

DEP (Design and Engineering Practice) publications reflect the views, at the time of publication, of:

Shell International Oil Products B.V. (SIOP)
and
Shell International Exploration and Production B.V. (SIEP)
and
Shell International Chemicals B.V. (SIC)

The Hague, The Netherlands,

and other Service Companies.

They are based on the experience acquired during their involvement with the design, construction, operation and maintenance of processing units and facilities, and they are supplemented with the experience of Group Operating companies. Where appropriate they are based on, or reference is made to, national and international standards and codes of practice.

The objective is to set the recommended standard for good design and engineering practice applied by Group companies operating an oil refinery, gas handling installation, chemical plant, oil and gas production facility, or any other such facility, and thereby to achieve maximum technical and economic benefit from standardization.

The information set forth in these publications is provided to users for their consideration and decision to implement. This is of particular importance where DEPs may not cover every requirement or diversity of condition at each locality. The system of DEPs is expected to be sufficiently flexible to allow individual operating companies to adapt the information set forth in DEPs to their own environment and requirements.

When Contractors or Manufacturers/Suppliers use DEPs they shall be solely responsible for the quality of work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, the Principal will expect them to follow those design and engineering practices which will achieve the same level of integrity as reflected in the DEPs. If in doubt, the Contractor or Manufacturer/Supplier shall, without detracting from his own responsibility, consult the Principal or its technical advisor.

The right to use DEPs is granted by SIOP, SIEP or SIC, in most cases under Service Agreements primarily with companies of the Royal Dutch/Shell Group and other companies receiving technical advice and services from SIOP, SIEP or SIC. Consequently, three categories of users of DEPs can be distinguished:

1) Operating companies having a Service Agreement with SIOP, SIEP, SIC or other Service Company. The use of DEPs by these Operating companies is subject in all respects to the terms and conditions of the relevant Service Agreement.

2) Other parties who are authorized to use DEPs subject to appropriate contractual arrangements.

3) Contractors/subcontractors and Manufacturers/Suppliers under a contract with users referred to under 1) or 2) which requires that tenders for projects, materials supplied or - generally - work performed on behalf of the said users comply with the relevant standards.

Subject to any particular terms and conditions as may be set forth in specific agreements with users, SIOP, SIEP and SIC disclaim any liability of whatsoever nature for any damage (including injury or death) suffered by any company or person whomsoever as a result of or in connection with the use, application or implementation of any DEP, combination of DEPs or any part thereof. The benefit of this disclaimer shall inure in all respects to SIOP, SIEP, SIC and/or any company affiliated to these companies that may issue DEPs or require the use of DEPs.

Without prejudice to any specific terms in respect of confidentiality under relevant contractual arrangements, DEPs shall not, without the prior written consent of SIOP and SIEP, be disclosed by users to any company or person whomsoever and the DEPs shall be used exclusively for the purpose for which they have been provided to the user. They shall be returned after use, including any copies which shall only be made by users with the express prior written consent of SIOP and SIEP. The copyright of DEPs vests in SIOP and SIEP. Users shall arrange for DEPs to be held in safe custody and SIOP or SIEP may at any time require information satisfactory to them in order to ascertain how users implement this requirement.

All administrative queries should be directed to the DEP Administrator in SIOP.

NOTE: In addition to DEP publications there are Standard Specifications and Draft DEPs for Development (DDDs). DDDs generally introduce new procedures or techniques that will probably need updating as further experience develops during their use. The above requirements for distribution and use of DEPs are also applicable to Standard Specifications and DDDs. Standard Specifications and DDDs will gradually be replaced by DEPs.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 SCOPE

This new DEP specifies requirements and gives recommendations for the design, manufacture, testing and operation of life-saving appliances for secondary and tertiary methods of abandonment of offshore facilities described below.

Section (3) of this DEP gives amendments and supplements to SOLAS, Consolidated Edition, 1997 and sections (2) and (4) give further supplements, all of which are considered necessary to ensure compliance with Shell Group requirements.

The numbering of regulations in section (3) follows that of SOLAS. Only the regulations of SOLAS which are included in this DEP shall apply.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by SIOP and SIEP, the distribution of this DEP is confined to companies forming part of the Royal Dutch/Shell Group or managed by a Group company, and to Contractors and Manufacturers/Suppliers nominated by them (i.e. the distribution code is "F", as defined in DEP 00.00.05.05-Gen.).

This DEP is intended for use offshore oil and gas production and drilling facilities.

If national and/or local regulations exist in which some of the requirements may be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable as regards safety, environmental, economic and legal aspects. In all cases, the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned with the object of obtaining agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

The **Contractor** is the party which carries out all or part of the design, procurement, construction, commissioning or management of a project, or operation or maintenance of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party which manufactures or supplies equipment and services to perform the duties supplied by the Contractor.

The **Principal** is the party which initiates the project and ultimately pays for its design and construction. The Principal will generally specify the technical requirements. The Principal may include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.4 ABBREVIATIONS

HSE	Health, Safety and Environment
SOLAS	Safety of life at Sea
STL	Static Test Load
SWT	Safe Winch Test
SWL	Safe Working Load
TEMPSC	Totally Enclosed Motor Propelled Survival Craft

1.5 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets. Other documents referenced in this DEP are listed in (5).

1.6 ORDER OF PRECEDENCE

The following descending order of precedence shall apply:

- local regulations;
- this DEP;
- other DEPs and standards referenced herein; and
- other standards or codes as appropriate.

Any conflict between this DEP and other referenced documents shall be referred to the Principal for resolution.

2. GENERAL

2.1 OFFSHORE FACILITY REQUIREMENTS

Offshore facilities shall be designed to maintain the safety of personnel when they move to another location to avoid a hazardous event, to provide temporary refuge for as long as is necessary and to facilitate safe rescue.

The basis for the design of the Escape, Evacuation & Rescue (EE&R) systems shall be EP 95-0230, HSE Design Manual. Section 6.11 of this manual is fully applicable. Interpretation of ISO/DIS 13702 for offshore facilities should be based on EP 95-0230.

A study should evaluate the need for and means of EE&R in the event of platform emergencies to establish performance criteria for these, commensurate with the HSE policy of the Principal. The environmental conditions throughout the year should be considered for their impact on potential escape and evacuation requirements.

The need for of a standby boat should be evaluated in the light of the performance criteria.

2.2 ABANDONMENT METHODS

In principle, three methods of abandonment should be provided from offshore installations:

- Primary method: The preferred primary method is the normal way of access to the installation, generally involving external assistance. Examples are helicopters in remote or environmentally hostile areas, or crew boats in other areas. When a mobile unit is connected, evacuation should normally be through the gangway connecting the unit to the installation.
- Secondary method: For manned installations a secondary method for evacuation shall be provided. This is the self-supporting way to evacuate the installation, typically by means of survival craft such as TEMPSC (Totally Enclosed Motor Propelled Survival Craft).
- Tertiary methods: A tertiary method of escape e.g. life rafts, personal chutes, knotted ropes, etc., shall be provided to permit direct access to the sea. The tertiary method should be used only if the primary or secondary methods are not possible.

3. AMENDMENTS/SUPPLEMENTS TO SOLAS CONSOLIDATED EDITION 1997, CHAPTER III, PART C, LIFE-SAVING APPLIANCE REQUIREMENTS

3.1 GENERAL REQUIREMENTS FOR LIFE-SAVING APPLIANCES

General requirements for life-saving appliances shall comply with the requirements of Regulation III/30 of SOLAS.

3.2 PERSONAL LIFE-SAVING APPLIANCES

3.2.1 Lifebuoys

Lifebuoys shall comply with the requirements of Regulation III/31 of SOLAS.

3.2.2 Lifejackets

Lifejackets shall comply with the requirements of Regulation III/32 of SOLAS.

3.2.3 Immersion suits

Immersion suits shall comply with the requirements of Regulation III/33 of SOLAS.

3.2.4 Thermal protective aids

Thermal protective aids shall comply with the requirements of Regulation III/34 of SOLAS.

3.3 SURVIVAL CRAFT

3.3.1 Liferafts

3.3.1.1 General requirements for liferafts

General requirements for liferafts shall comply with Regulation III/38 of SOLAS.

3.3.1.2 Inflatable liferafts

Inflatable liferafts shall comply with Regulation III/39 of SOLAS.

3.3.1.3 Rigid liferafts

Rigid liferafts shall comply with Regulation III/40 of SOLAS.

3.3.2 Lifeboats

3.3.2.1 General requirements for lifeboats

General requirements for lifeboats shall be in accordance with Regulation III/41 of SOLAS with the following amendments.

41.1.1

Add the following paragraph:

Provision for towing life rafts and other survival craft in the fully loaded condition should be incorporated in the survival craft. Each survival craft should be capable of being towed by another vessel without impairing the structural integrity of the towed survival craft.

41.1.3

Add the following sentence:

The survival craft shall have a hull and canopy of rigid construction totally enclosing the craft and providing protection for the occupants from the elements and from fire on the water.

Add the following additional section:

41.2.2.3

The layout of seating shall not impede manual starting of the engine with all persons seated. Each seat shall permit the occupant to sit and be securely harnessed allowing for each occupant's personal survival kit. Provision shall be made for securing a stretcher, with a person strapped to it, in a horizontal position.

41.6.1

Add the following sentence:

The engine and fuel tank space shall be efficiently ventilated.

41.6.2

Replace first sentence with the following:

Each engine shall be provided with both a power starting system and a manual starting system. The two systems shall be independent of each other.

41.6.5

Add the following sentence:

The design should allow easy access to remove or replace the engine.

41.6.6

Add the following paragraph:

A spark arrester silencer shall be provided. Any part of the exhaust system within reach of

personnel shall be insulated for personnel protection. The exhaust discharge location shall ensure that re-circulation is not possible thereby avoiding fumes in the survival craft. The design of the exhaust system shall ensure that there are no fumes produced within the survival craft under any possible engine running mode, either from coatings, insulation or bulkhead/hull penetration, due to contact with hot surfaces of the exhaust system. Materials of construction for exhaust system, piping and silencer shall be able to withstand prolonged exposure in a saliferous atmosphere.

41.6.9

Add the following paragraph:

Arrangements shall be provided to prevent oil absorption by any insulating materials used in the engine space and also to prevent oil from the engine spreading throughout the bottom of the survival craft, under normal conditions, by compartmenting the main and engine bilges. Hand-operated bilge pumps shall be provided which discharge overboard.

41.6.11

Replace the third sentence with the following:

Whilst the survival craft is stowed on the Installation it shall be provided with only one external power supply via a dedicated socket for the following purposes:

- to keep the batteries in the survival craft permanently charged and ready for use (i.e. the dc supply for engine starting (if appropriate) and instrumentation, interior lighting, strobe light, searchlight and radio equipment);
- to supply space heating and sump heating. Space heating shall be provided in the survival craft to maintain the interior temperature above the dew point.

The supply shall not exceed 55 V (ac) relative to earth. The socket shall be arranged and labelled so that only the correct supply can be connected to it. The supply arrangement shall not interfere with the launching of the survival craft. An earth monitor and sensitive earth leakage protection combination unit (which also indicates when the circuit breaker has tripped) shall be provided at the source of the external power supply.

The batteries, charging facilities and alternator shall be compatible with the internal electrical equipment and operate at no more than 24 V (dc).

All internal electrical equipment with the exception of the batteries should, as far as reasonably practicable, be certified for use according to the area classification where they are intended to be stowed.

When the survival craft is stowed, its batteries shall be permanently on charge so that they are in a permanent state of readiness should the survival craft need to be launched. The electrical equipment on board which is powered by the installation (i.e. space heater, sump heater, transformer for batteries) shall be rated to suit the external supply. The space and sump heaters shall be connected directly to the supply and it shall **not** be possible to power these from the batteries of the survival craft either before or after launch.

The engine shall be provided with an alternator. This shall be capable of providing sufficient power to run the following:

- internal lighting;
- engine instrumentation and lighting;
- external flashing lamp; and
- recharging batteries.

41.6.12

Add the following paragraph:

Instruction manuals shall be supplied with each survival craft. These shall include a ‘basic' operating manual for use in the boat after launch and a comprehensive service manual which should include the recommended frequency and details of testing of the special equipment.

Clear and highly visible instructions shall be provided at the coxswain position explaining the following:

- the main and emergency means of starting the engine;
- the means of controlling the engine;
- the means of emergency steering;
- operation of compressed air supply;
- operation of water deluge system; and
- operation of ventilators (where fitted).

41.7.6

Add the following new section:

The hooks shall be released from the falls by means of an operating lever which shall only be capable of being operated when the hydrostatic interlock is off and a safety pin has been removed.

Operation of the lever shall require two separate actions e.g. (i) lift lever (ii) pull lever. It shall only be possible to fully reset the operating lever and reinsert the safety pin after the hooks have been correctly reset.

41.7.7

Add the following sentence:

The location of the release and the towing point shall be accessible from within the survival craft, i.e. it shall not be necessary to go outside the survival craft onto the open deck to undertake release or towing activities. The release system shall be operable from the coxswain's position.

41.7.10

Add the following sentence:

The lamp shall be capable of being switched on from inside the survival craft.

41.7.13

Add the following:

A raised area (i.e. cockpit) shall be provided in the survival craft's canopy with suitable transparent panels to give the coxswain a good view forward, aft and to both sides. The engine and transmission shall be controlled from the coxswain's position with the controls so positioned that they are capable of being operated by the coxswain whilst strapped in his seat. Controls shall include the following:

- steering;
- means for controlling the survival craft's descent;
- on-load release handle and manual override;
- painter release;
- engine controls and instrumentation;
- control of compressed air to survival craft interior; and
- compass.

An emergency tiller shall also be provided in addition to the normal steering. This shall be capable of controlling the steering duct in case of failure of the steering mechanism. The emergency tiller shall be removable and facilities shall be provided to stow it securely near to the steering duct stock. The steering duct and tiller shall be so arranged as not to be damaged by operation of the release mechanism or the propeller. The emergency tiller facility shall allow all passengers to remain seated when it is required to become operable.

Controls shall be provided for the operation of the water spray system.

The engine cold start lever shall be readily accessible, clearly marked and capable of being operated without removal of the engine cover.

41.8.25

Replace by the following:

One manual bilge pump, permanently installed and piped, to enable complete emptying of the bilges.

41.8.28

Replace by the following:

Two portable dry powder fire-extinguishers each containing 2.5 kg which shall be readily accessible and ready for immediate use.

41.9.2

Replace by the following:

The exterior of the survival craft shall be coloured international orange, the interior light grey or white.

The name of the installation to which the survival craft belongs shall be marked on the side of the survival craft's bow in clear permanent block capitals and numerals.

3.3.2.2 Partially enclosed lifeboats

Partially enclosed lifeboats shall comply with the requirements of 3.3.2.1 and in addition shall comply with the requirements of Regulation III/42 of SOLAS.

3.3.2.3 Self-righting partially enclosed lifeboats

Self-righting partially enclosed lifeboats shall comply with the requirements of 3.3.2.1 and in addition shall comply with the requirements of Regulation III/43 of SOLAS.

3.3.2.4 Totally Enclosed Motor Propelled Survival Craft (TEMPSC)

TEMPSC shall comply with the requirements of 3.3.2.1 and in addition shall comply with the requirements of Regulation III/44 of SOLAS with the following amendments.

44.2.2

Add the following sentence:

Access to the survival craft shall be provided by at least three doors/hatches with at least one hatch in the roof and at least one door on each side of the survival craft.

44.2.3

Add the following sentences:

A top hatch shall be provided in the canopy to facilitate rescue of personnel by helicopter. The hatch shall open inwards or slide open to allow unobstructed access to a hatch opening minimum 1000 mm long by 700 mm wide.

44.2.9

Add the following sentence:

External fittings shall be so designed that they minimise the snagging hazard to helicopter winch lines in a rescue situation.

44.4.2

Add the following paragraph:

The batteries fitted shall be of the sealed gel anti-spray type which will not allow the electrolyte to leak should the survival craft capsize. If the engine is started electrically, two independent batteries shall be provided for engine starting. The batteries shall be fitted into a watertight box which is vented to outside the survival craft so as to prevent ingress of water.

44.4.3

Add the following sentence:

The engine shall be enclosed and arranged such that the ingress of fumes into the survival craft is not possible.

i) Air support system
The air support system shall comply with the requirements of Regulation III/45 of SOLAS

with the following additions.

Compressed air cylinders shall comply with BS 5045 Part 1 or equivalent. The maximum pressure to which each cylinder shall be filled, and the minimum pressure to which each cylinder shall be charged to provide the operating capacity required above, shall be permanently and conspicuously displayed in the survival craft.

The cylinders shall be provided with a pressure gauge which shall be clearly marked, prominently displayed and easily read, to permit a check on the contents of each cylinder without significant loss of air. Each system shall be provided with a visual or audible indication for when the air supply is nearly depleted.

ii) Fire protection
Survival craft shall be fitted with a piped water spray fire protection system with nozzles delivering water on the external skin which shall comply with the requirements of Regulation III/46 of SOLAS with the following amendment:

46.1 Replace complete section with the following:

Operation of the water spray fire protection system shall protect the occupants of the survival craft against excessive internal temperature under external fire exposure conditions. The survival craft, when launched, shall be capable of protecting the number of persons it is permitted to accommodate for a period of not less than ten minutes, when subjected to a continuous oil fire that envelops the survival craft. During this period the air temperature inside the survival craft shall not rise by more than 20 °C.

46.2

Add the following section:

The routing of the piping for the water spray system shall be such as to:

- minimize the possibility of obstruction and entanglement of the fall wires and helicopter winch;
- provide the maximum self inherent protection for the pipe itself (protection from impact/dropped objects).

The pump supplying water shall be capable of meeting the defined water demands even if its supply of water is interrupted for at least five minutes.

3.4 RESCUE BOATS

Launching and embarkation appliances shall comply with the requirements of Regulation III/47 of SOLAS.

3.5 LAUNCHING AND EMBARKATION APPLIANCES

Launching and embarkation appliances shall comply with the requirements of Regulation III/48 of SOLAS with the following amendments.

48.1.1

Add the following section:

The davit shall incorporate a rigid weatherproof and shatterproof notice which shall provide concise instructions for launching and retrieving the survival craft. The notice shall be securely fixed to the davit in a prominent position.

48.1.5

Add the following:

The Manufacturer/Supplier of the appliance shall provide a maintenance schedule.

The davit assembly supplied should be in a one piece modular form requiring the minimum of assembly/construction offshore. Access for maintenance shall be integral with the davit assembly.

Specific consideration shall be given to the interface between the supplied davit assembly and the as-built connecting structure/walkway onto which the davit is to be installed.

The Supplier of the davit assembly shall ensure that the davit fulfils the requirements of the specific platform installation.

48.1.8

Add the following paragraph:

The suspension chains and the means of attaching them to the davit shall be clearly marked with their SWL (Safe Working Load). The pendant length shall be such that the slack prior to transfer of load from the falls is no more than 40 mm.

48.2.1

Add the following sentence:

Falls shall be capable of withstanding the loading imposed by the stall torque of the winch motor (in the event of limit switch failure and overwinding of the boat into the davit).

48.2.3

Add the following sentence:

Davit winches which are situated on main decks so that, when operating, they could provide a hazard to members of the crew, shall be provided with adequate guarding. The direction of the winch motor operation shall be clearly marked.

48.2.4

Add the following paragraphs:

Handles or wheels fitted for this purpose shall be removable.

48.2.5

Add the following:

All switches, etc. shall be suitable for the area classification of the zone where the equipment is installed and shall be weatherproof to IP 56 in accordance with IEC 60529. Limit switches shall be provided to cut off the power to the winch motor before the survival craft reaches its chocks in the davit. This is to prevent damage to the survival craft.

A switch shall be provided next to the winch operating buttons. This switch shall directly isolate the three-phase supply to the winch motor (i.e. it shall **not** rely on external contactors for operation). It shall be clearly marked as an emergency stop switch.

4. EVALUATION, TESTING AND APPROVAL OF LIFE-SAVING APPLIANCES AND ARRANGEMENTS

In addition to the SOLAS requirements mentioned in (3), the following shall apply:

4.1 SURVIVAL CRAFT

4.1.1 Watertightness

With the survival craft in water, all fittings below the waterline shall be visually inspected for leakages, including:

- seacocks;
- drainplugs;
- sterntube gland (for ingress of excessive water);
- lift shoes; and
- any other fittings bolted through the hull.

4.1.2 Engine installation

The engine installation shall be thoroughly inspected to ensure:

- no leakages from the oil and water systems;
- engine drip tray is free from oil, water and any materials which cause an obstruction or fire hazard;
- exhaust system water trap, spark arrester and lagging are in good order;
- correct coolant level in fresh water cooling header tank;
- correct concentration of anti-freeze in cooling water (if applicable);
- correct starting handle is on board;
- batteries are in good order, with greased and tight terminal connections and properly stowed;
- V-belts are correctly tensioned;
- with the throttle/gear level in neutral, ensure engine is free to turn without rotating the propeller shaft. Check by operating the decompression levels and hand crank; and
- fuel tank is full of fuel.

4.1.3 Engine start and running (basic test)

Prior to starting the engine it shall be checked that:

- fuel tank valves, engine fuel lift pump valves and keel cooler hull penetration valves are all open;
- pump heater is functioning correctly; and
- throttle/gear level is in neutral position.

The engine shall be started using each starting method available in turn. When the engine is running the charge warning light should not be glowing.

After the engine has reached its working temperature, all indicating instruments shall be checked for correct operation.

The engine shall be run for two hours covering all representative operating speeds. Of these two hours, at least one hour shall be spent underway. During the underway trials, the survival craft shall be run at its maximum speed and engine r.p.m. for a continuous period not less than fifteen minutes. During the underway trials full left and right steerage shall be applied whilst proceeding both forward and astern, at least three times for each steerage position in each direction.

During and after the two-hour test, the following should be checked:

- oil, water and exhaust systems for leakages;
- water temperature, oil pressure and charge indicators for correct operation;
- battery charging system;
- no fumes in the survival craft.

4.1.4 Air system

The air system shall be inspected to ensure:

- correct and approved equipment has been fitted;
- bottle pressure reads 200 bar (ga); and
- system does not leak. Check valves and gauges by closing the outlet valve of the system, closing the lever valves on the bottles and operating the ball valves. This will permit the volume of air in the assembly to discharge through the pressure controller. The controller pressure gauge should read approximately 7 bar (ga) when discharging air. The main pressure gauge should drop back to zero.

A full air system discharge cycle test shall be carried out, during which time the survival craft's internal pressure shall be monitored and shall remain positive with respect to the ambient air pressure external to the survival craft, for a period of not less than ten minutes.

4.1.5 Spray system

The spray system shall be initially tested for leakages by flushing through the system.

With the spray system turned on, all fittings above the waterline shall be visually inspected for leakage including:

- hatches;
- doors;
- hook assemblies; and
- any other fittings bolted through the canopy.

The operating of the system shall then be tested by:

- closing all doors and hatches;
- bringing sea inlet valve handle to the "OPEN" position;
- keeping control in neutral position;
- revving-up engine to half throttle;
- checking satisfactory water coverage of the outside surfaces above the waterline of the survival craft;
- following test the system shall be flushed through with potable water.

4.1.6 Hook release ("ON LOAD" Release)

i) Hydrostatic Interlock

The survival craft shall be lowered and raised into and out of the water four times to ensure that the hydrostatic interlock functions correctly:

- when the survival craft is clear of the water, the interlock lever should be in the "LOCKED" position;
- after the survival craft has been lowered into the water, the interlock lever should have moved to the "OPEN" position.

ii) Hook release

The hook release gear shall be tested with the survival craft in the water by:

- removing the safety pin from the release gear side plate;
- operating the release handle;
- checking that both hooks open simultaneously;
- re-setting the hooks, in accordance with the release system Supplier's procedure;
- replacing the safety pin.

The hook release gear shall be complete with the following instruction labels:

- boat recovery;
- release handle;
- resetting lift hooks;
- lock pin removal (diagrammatic);
- override procedure;
- interlock "OPEN";
- interlock "LOCKED".

4.1.7 Radio

When installed, the radio shall be commissioned by the Manufacturer/Supplier and will therefore be subject to operational tests during the commissioning period.

4.2 LAUNCHING AND EMBARKATION APPLIANCES

4.2.1 Davit works test

Each end frame shall be statically loaded at no list or trim to 2.2 x SWL. Any deflection shall be recorded before, during and after the test.

Each block and means of attaching it to the davit head shall be statically loaded to 2.5 x SWL.

The SWL and STL (Static Test Load) shall be stamped on the davit test plate and endorsed with the approving authority Surveyor's stamp.

The approving authority inspector shall then endorse the davit certificate.

4.2.2 Winch works test

Winch works tests shall be in accordance with "Survey of life-saving appliances, Instructions for the guidance of surveyors" (U.K.) or similar local regulations.

Each winch (fitted with its motor) shall be subjected to the following tests:

- statically tested to 1.5 x SWL in both lowering and hoisting modes to prove the holding brake;
- the hoist tested at 110% working load;
- lowering test at the working load to prove the centrifugal brakes and to check that the speed complies with legal or statutory requirements. The speed obtained shall be recorded;
- checked for falls payout and pull-off at less than 75 kg on the winch drums; and
- checked for non-rotation of the winch handle during both lowering and hoisting.

SWL and SWT (Safe Winch Test) shall be stamped on the winch test plate and endorsed with the approving authority surveyor's stamp.

The approving authority inspector shall then endorse the winch certificate.

4.2.3 Rigging works test

All wire ropes and fittings shall be proof-loaded to 2.5 x SWL. Then the appropriate certificates as required by local regulations shall be completed.

The length of falls shall be checked against that specified.

4.3 TESTING OF SURVIVAL SYSTEM AFTER INSTALLATION OFFSHORE

The survival craft shall be lowering-tested whilst fully laden plus 10% overload. Waterbags or similar weights shall be used to represent persons during the test and shall be evenly distributed within the survival craft.

Testing of the system offshore shall be in accordance with "Survey of life-saving appliances, Instructions for the guidance of surveyors" (U.K.) or similar local regulations. The various tests should achieve a cumulative lowering distance of at least 100 m.

5. REFERENCES

In this DEP reference is made to the following publications:

NOTE: Unless specifically designated by date, the latest edition of each publication shall be used, together with any amendments/supplements/revisions thereto.

SHELL STANDARDS

Index to DEP publications and standard specifications — DEP 00.00.05.05-Gen.

HSE Design Manual — EP 95-0230

BRITISH STANDARDS

Transportable gas containers
Part 1: Specification for seamless steel gas containers above 0.5 litre water capacity — BS 5045-1

Issued by:
British Standards House
389 Chiswick High Road
London W4 4AL
UK

Offshore Installations - Guidance on life-saving appliances.
Survey of life-saving appliances. Instructions for the guidance of surveyors

Issued by:
Her Majesty's Stationary Office
Department of Energy, London
UK

INTERNATIONAL STANDARDS

International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974). (Amendments 1986).
Consolidated Edition, 1997

Life-saving appliances and arrangements
Life-saving appliance requirements — Chapter III
Part C

Issued by:
International Maritime Organisation
4, Albert Embankment
London SE1 7SR
UK

Degrees of protection provided by enclosures (IP code) — IEC 60529

Issued by:
Central Office of the IEC
3, Rue de Varembé
CH 1211 Geneva 20
Switzerland.

Copies can also be obtained from national standards organizations.

Petroleum and natural gas industries - Offshore platform systems - Functional requirements and guidelines for the control and mitigation of fires and explosions — ISO/DIS 13702

Issued by:
International Organisation for Standardization
1 Rue de Varembé
CH-1211 Geneva 20
Switzerland

Copies can also be obtained from national standards organizations.