

DEP SPECIFICATION

**LIFEBOATS AND RESCUE BOATS
(AMENDMENTS/SUPPLEMENTS TO SOLAS, LSA AND
DNV-OS-E406)**

DEP 80.80.00.10-Gen.

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DESIGN AND ENGINEERING PRACTICE

DEM1



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These views are based on the experience acquired during involvement with the design, construction, operation and maintenance of processing units and facilities. Where deemed appropriate DEPs are based on, or reference international, regional, national and industry standards.

The objective is to set the standard for good design and engineering practice to be applied by Shell companies in oil and gas production, oil refining, gas handling, gasification, chemical processing, or any other such facility, and thereby to help achieve maximum technical and economic benefit from standardization.

The information set forth in these publications is provided to Shell companies 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 Units 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 such use, including the quality of their work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, the Principal will typically expect them to follow those design and engineering practices that will achieve at least 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.

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TABLE OF CONTENTS

PART I	INTRODUCTION	4
1.1	SCOPE	4
1.2	DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS	4
1.3	DEFINITIONS	5
1.4	CROSS-REFERENCES	5
1.5	SUMMARY OF MAIN CHANGES.....	5
1.6	COMMENTS ON THIS DEP	6
1.7	DUAL UNITS.....	6
1.8	NON NORMATIVE TEXT (COMMENTARY).....	6
1.9	ORDER OF PRECEDENCE	6
PART II	GENERAL REQUIREMENTS	7
1.1	STANDARDS	7
1.2	APPLICATION OF SOLAS	7
1.3	APPLICATION OF LSA	8
PART III	AMENDMENTS/SUPPLEMENTS TO SOLAS, LIFE-SAVING APPLIANCE (LSA) AND DNV-OS-E406 REQUIREMENTS.....	9
Chapter IV	Survival craft	9
4.4	General requirements for lifeboats	9
4.5	Partially enclosed lifeboats	15
4.6	Totally enclosed lifeboats	15
4.7	Free-fall lifeboats	15
4.8	Lifeboats with a self-contained air support system	16
4.9	Fire-protected lifeboats	16
4.10	Controls.....	17
4.11	Instruction manual.....	17
Chapter V	Rescue boats.....	18
Chapter VI	Launching and embarkation appliances	18
6.1	Launching and embarkation appliances	18
PART IV	AMENDMENTS/SUPPLEMENTS TO LSA, Testing and Evaluation of Life Saving Appliances	20
Part 1	Prototype Tests for Life-Saving Appliances:	21
6	Lifeboats	21
6.3	Lifeboat overload test	21
Part 2	Production and installation tests	22
5	Survival Craft.....	22
5.3	Lifeboat and rescue boat test	22
6	Launching and Stowage Arrangements	25
6.1	Launching appliances using falls and winches	25
PART V	REFERENCES	28

PART I INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for the design, manufacture, testing, inspection and commissioning of lifeboats and rescue boats used when offshore facilities need to be abandoned by personnel. This DEP is used primarily for the procurement of new lifeboats and rescue boats.

This DEP is based on the International Convention for the Safety of Life at Sea, better known as SOLAS, consolidated edition 2009, Chapter III, "Life saving appliances and arrangements", the Life Saving Appliances (LSA) Code, 2010 edition and DNV Offshore Standard DNV-OS-E406, "Design of Free Fall Lifeboats", April 2010.

It is a requirement that the Contractor notify the Principal if any of the referenced codes or standards have been superseded (see Part II, 1.1).

Part III of this DEP is written as amendments and supplements to the following chapters of the LSA Code:

Chapter IV	Survival Craft
Chapter V	Rescue Boats
Chapter VI	Launching and embarkation appliances

All other sections in the LSA Code apply as written.

Part IV of this DEP is written as amendments and supplements to LSA - the International Maritime Organization, Marine Safety Committee, MSC 70/23/Add1 Annex 6 with Revised Recommendation on Testing of Life-Saving Appliances (Resolution MSC.81 (70)).

Project specific requirements are to be specified by the Principal in the data requisition sheets or DEPs and/or in a separate Specific Project Requirements (SPR) document.

This DEP contains mandatory requirements to mitigate process safety risks in accordance with Design Engineering Manual DEM 1 – Application of Technical Standards.

This is a revision of the DEP of the same number dated February 2013; see (1.5) regarding the changes.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to Contractors and Manufacturers/Suppliers nominated by them. Any authorised access to DEPs does not for that reason constitute an authorisation to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in facilities related to oil and gas production, gas handling, oil refining, chemical processing, gasification, distribution and supply/marketing. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process shall be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could 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 with regards to the 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, the objective being to obtain agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

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

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

The **Principal** is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The capitalised term **SHALL [PS]** indicates a process safety requirement.

The word **should** indicates a recommendation.

The terms **survival craft** and **lifeboat** are used interchangeably.

The word **may** indicates a permitted option.

1.3.2 Specific definitions

Term	Definition
HSE	Health, Safety & Environment
IMO	International Maritime Organisation
LSA	Life-Saving Appliances, International Maritime Organisation publication (referred to as "Code" in SOLAS)
lbm	Pounds mass
SOLAS	Safety of Life at Sea, International Maritime Organisation publication.
STL	Static Test Load
SWL	Safe Working Load
SWT	Safe Winch Test
SPR	Specific Project Requirements

1.4 CROSS-REFERENCES

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

1.5 SUMMARY OF MAIN CHANGES

This DEP is a revision of the DEP of the same number dated February 2013. The following are the main non-editorial changes:

Section/Clause	Change
All	Some minor, non-technical modifications and requirements have been numbered

1.6 COMMENTS ON THIS DEP

Comments on this DEP may be submitted to the Administrator using one of the following options:

Shell DEPs Online (Users with access to Shell DEPs Online)	Enter the Shell DEPs Online system at https://www.shelldeps.com Select a DEP and then go to the details screen for that DEP. Click on the "Give feedback" link, fill in the online form and submit.
DEP Feedback System (Users with access to Shell Wide Web)	Enter comments directly in the DEP Feedback System which is accessible from the Technical Standards Portal http://swwww.shell.com/standards . Select "Submit DEP Feedback", fill in the online form and submit.
DEP Standard Form (other users)	Use DEP Standard Form 00.00.05.80-Gen. to record feedback and email the form to the Administrator at standards@shell.com .

Feedback that has been registered in the DEP Feedback System by using one of the above options will be reviewed by the DEP Custodian for potential improvements to the DEP.

1.7 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

1.8 NON NORMATIVE TEXT (COMMENTARY)

Text shown in italic style in this DEP indicates text that is non-normative and is provided as explanation or background information only.

Non-normative text is normally indented slightly to the right of the relevant DEP clause.

1.9 ORDER OF PRECEDENCE

The following descending order of precedence shall apply:

- a) local regulations;
- b) this DEP;
- c) other DEPs and standards referenced herein;
- d) other industry standards and codes, as appropriate.

Specific project requirements shall be adopted in some regions (e.g., the requirement for freefall lifeboats in Norway compliant with DNV standard DNV-OS-E406). It is not the intent of this DEP to list all these requirements.

PART II GENERAL REQUIREMENTS

1.1 STANDARDS

1. The Contractor SHALL [PS] use the following standards and notify the Principal if any of the documents have been superseded and/or if Contractor intends to use a different edition or version:
 - a. International Maritime Organization, International Convention for the Safety of Life at Sea (SOLAS), Consolidated Edition 2009, including new regulation III/1.5 approved in May 2011;
 - b. International Maritime Organization, Life-Saving Appliances 2010 Edition;
 - c. International Life-Saving Appliance Code (LSA), including but not limited to:
 - i. Testing and Evaluation of Life-Saving Appliances: I Revised recommendation on testing of life-saving appliances (Resolution MSC.81 (70)) and II Code of practice for the evaluation, testing and acceptance of prototype novel life-saving appliances and arrangements (annex to resolution A520 (13));
 - ii. Appendix 1 – Resolution MSC.48 (66);
 - iii. Appendix 3 – Resolution A.520 (13);
 - iv. MSC 70/23/ADD.1, Annex 6;
 - v. International Maritime Organization, Marine Safety Committee, MSC 70/23/Add1Annex 6 and MSC272 (85) specific to seating arrangements;
 - vi. DNV-OS-E406, “Design of Free Fall Lifeboats”, April 2010.
2. The Contractor shall provide, with the quotation, a complete list of all regulations, resolutions and amendments thereof that will be used.

Where the term ‘ship’ is used in the referenced documents it is interchangeable with the terms ‘offshore installation’ or ‘facility’ as used by the Principal.

Project specific requirements will be specified by the Principal in the data requisition sheets, project specific DEPs and/or in a separate Specific Project Requirements (SPR) document.

1.2 APPLICATION OF SOLAS

1. SOLAS Chapter III, “Life-saving appliances and arrangements”, requirements are endorsed for use by this DEP without amendment and shall be applied directly.

1.3 APPLICATION OF LSA

1. Part III of this DEP is written as amendments and supplements to the chapters of the LSA Code shown in (Table 1); all other Sections in the LSA Code shall apply as written:

Table – 1: LSA chapter amendments

Chapter IV	Survival Craft
Chapter V	Rescue Boats
Chapter VI	Launching and embarkation appliances

Part IV of this DEP is written as amendments and supplements to LSA - the International Maritime Organization, Marine Safety Committee, MSC 70/23/Add1 Annex 6 with Revised Recommendation on Testing of Life-Saving Appliances (Resolution MSC.81 (70)).

2. Wherever reference is made to LSA, it shall be understood to mean the International Life-Saving Appliance Code (LSA), as amended/supplemented by this DEP.
3. For ease of reference, the clause numbering of LSA has been used throughout Part III of this DEP. Clauses in LSA, which are not mentioned in this DEP, shall remain valid as written.

PART III AMENDMENTS/SUPPLEMENTS TO SOLAS, LIFE-SAVING APPLIANCE (LSA) AND DNV-OS-E406 REQUIREMENTS**Chapter IV Survival craft****4.4 General requirements for lifeboats**

Add the following to this section:

The type of lifeboat, either davit launched or free fall will be specified in the requisition or SPR.

1. The Contractor SHALL [PS] submit thorough design calculations, drawings and fabrication tolerances to the Principal for approval prior to starting fabrication.
. The Principal's calculation review may take 1 - 2 months dependent on the completeness and accuracy of the Contractor's calculations and drawings.
2. The structural strength of the lifeboats SHALL [PS] be assured by:
 - a. demonstrating safe structural load carrying and load transfer mechanisms at connections and throughout the primary load path by utilizing advanced structural analysis techniques (e.g., finite element analysis of plates and shells);
 - b. using Principal approved modelling programs, techniques and analysis methods;
 - c. demonstrating active material, fabrication and inspection quality control;
 - d. a Principal approved Inspection and Test Plan (ITP) prepared by the Contractor;
 - e. evaluating the cumulative and combined effects of all possible loads (e.g., including dynamic and asymmetric loads) and ensuring that they are adequately represented by the factors of safety assigned in Section 4.4.7.6.4, herein.
3. The Contractor SHALL [PS] submit the Design and Fabrication Quality Plan and the Fabrication Inspection and Test Plan to the Principal for approval prior to starting fabrication.

The Principal's review could take 2 to 4 weeks dependent on the completeness and accuracy of the Contractor's plans.

4.4.1 Construction of lifeboats**4.4.1.1**

Add the following to this section:

1. Lifeboats shall be totally enclosed and self propelled. Refer to (4.6).

4.4.1.2

Add the following to this section:

1. The certificate of approval, endorsed by the Administration, shall include the individual personnel weight, in addition to the total number of persons.