

DEP SPECIFICATION

DEEPWATER SUBSEA MANIFOLD SYSTEM (AMENDMENTS/SUPPLEMENTS TO ISO 13628-15 / API RP 17P)

DEP 37.81.40.38-Gen.

February 2013

ECCN EAR 99

DESIGN AND ENGINEERING PRACTICE



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Full document details: SHELL 37.81.40.38 2013

PREFACE

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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.

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

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PART I INTRODUCTION

1.1 SCOPE

This DEP specifies the requirements for the design, manufacturing, assembly, testing, and shipment of a deepwater subsea manifold system, and is based on the industry standard document ISO 13628-15 and API RP 17P.

NOTE: ISO 13628-15 is the basis for the new API standard API RP 17P which at the issue date of this DEP is in publication stage and is at present aligned with ISO 13628-15 (as an "adopt-back" to ISO 13628-15). It is expected that API RP 17P will be formally issued by year end 2012 or early 2013.

The intention of this DEP is to complement and align the requirements of the industry standard documents ISO 13628-15 / API RP 17P with the Principal's specific global requirements for deepwater subsea manifold systems. Part III of this DEP contains text that clarifies, amends and supplements the content in the ISO standard. In a number of cases, additional requirements and recommendations are provided pertaining to the various sections/clauses of ISO 13628-15. For ease of reference, the clause numbering of ISO 13628-15 has been used throughout Part III of this DEP (paragraph numbering in the corresponding draft standard API RP 17P is identical). To eliminate duplicate references throughout this DEP, sections referring to the ISO standard, refer to the API standard equally.

The DEP specifies additional requirements to those listed in the ISO document as well as noting any deviations from and exceptions to the same. Where no comment is made in this document the content of the ISO document is accepted. Any additional features not included in the ISO document that warrant their own section have been added as additional sections in (Part III) of this DEP.

Where the ISO document addresses requirements for equipment that is not a part of a deepwater subsea manifold system, such as pipeline end termination (PLETs), diver assisted systems, or systems using guidelines, those sections are not a part of this DEP and are not applicable to it.

In addition to the standards referenced in the ISO document, there are also references to other project specifications and DEPs listed in (Part IV) of this DEP and in the companion DEP Informative that describe features and requirements that are project specific.

The ISO document used as the basis for this DEP is part of the ISO 13628 series of documents that are listed under the general title "*Petroleum and natural gas industries - Design and operation of subsea production systems*".

For guidance purposes and in order to identify the general requirements and recommendations, refer to the following ISO document or its equivalent API or DEP document:

- ISO 13628-1 *Part 1: General requirements and recommendations*;
- API RP 17A *General Requirements and Recommendations (Endorsement of API/ISO 13628-1)*, or;
- DEP 37.80.00.30-Gen. *Design and operation of subsea production systems (based on ISO 13628)*.

This is a revision of the DEP of the same number dated September 2011; 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 authorization to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in offshore oil and gas production facilities. 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 word **should** indicates a recommendation.

1.3.2 Abbreviations

Term	Definition
FAT	Factory Acceptance Test
MOC	Management of Change
MQC	Multi Quick Connection
PLEM	Pipeline End Manifold
PLET	Pipeline End Termination
ROV	Remote Operated Vehicle
SCM	Subsea Control Module
SIT	System Integration Test

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 IV).

1.5 SUMMARY OF MAIN CHANGES

The basic purpose of this revision to the previous (September 2011) first edition of this DEP was to incorporate reference to the 2011 version of ISO 13628-15 and clarify the relationship to corresponding draft standard API RP 17P. No technical changes have been made.

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.

PART II GENERAL

Part III of this DEP specifies requirements for the design, manufacturing, assembly, testing, and shipment of a deepwater subsea manifold system in addition to or superseding those detailed in the ISO 13628-15 2011 document. It is the purpose of this DEP to provide the requirements as additional ones to those identified in the ISO document as well as highlighting any definitive functional, operational, testing and interface requirements.

Part III of this DEP is written as clarifications, amendments and supplements to ISO 13628-15. Wherever reference is made to ISO 13628-15, it shall be understood to mean ISO 13628-15 as amended/supplemented by this DEP.

For ease of reference, the clause numbering of ISO 13628-15 has been used throughout Part III of this DEP.

Clauses in ISO 13628-15, which are not mentioned in this DEP, shall remain applicable as written.

PART III AMENDMENTS/SUPPLEMENTS TO ISO 13628-15**1. Scope**

The text of ISO document Scope applies, except as modified by the following:

The Manifold systems for deepwater applications within the scope of this DEP are:

- Production
- Gas Injection
- Water Injection
- Gas lift and/or other artificial lift

Equipment components covered within the document include:

- a) Manifold Structure
- b) Manifold pipework, valves, and connection hubs
- c) Manifold control and chemical tubing
- d) Manifold foundation
- e) Installation tools and rigging
- f) Control System Interfaces
- g) Remotely operated vehicles (ROV) Interfaces
- h) Any protection structures associated with the above.

The following equipment is outside of the scope of this DEP and is addressed by other DEPs or design specification documents:

- a) PLETs
- b) Pipeline end manifolds (PLEMs)
- c) Inline sleds
- d) Well and flowline tie-in systems (i.e., Jumpers, connectors, etc.)
- e) Chemical, hydraulic, and electrical distribution structures

Although listed as outside the scope of the ISO document, the following equipment is subject to general system level requirements which are included in this DEP, and to specific design requirements included in referenced documents in (Part IV):

- a) Pipeline and manifold valves
- b) Flowline and tie-in connectors
- c) Choke valves
- d) Production control systems
- e) Hydraulic and chemical distribution systems

Any requirements relating to environmental conditions, water depths, pressure/temperature ratings, materials, or other project specific requirements will be provided within the tender documentation package, Basis for Design and project equipment specific documentation packages or data sheets.