

DEP SPECIFICATION

OFFSHORE PIPELINE AND UMBILICAL/CABLE CROSSINGS

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DESIGN AND ENGINEERING PRACTICE



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PREFACE

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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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- 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.

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

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1. INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for offshore pipeline and umbilical/cable crossings. Specifically this DEP addresses the following:

- a. crossing design and engineering analysis requirements for both the crossed (pipeline or umbilical) and crossing pipeline;
- b. typical pipeline and umbilical crossing configurations;
- c. crossing construction procedure;
- d. monitoring requirements during crossing mat installation work operation, and;
- e. post installation as-built survey.

The primary focus of this DEP is pipeline and umbilical/cable crossings in the Gulf of Mexico region. Use of this DEP in regions other than the Gulf of Mexico and Brazil is at the discretion of the regional technical authority for Pipelines.

This is a revision of the DEP of the same number dated February 2015; 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 the 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 subsea facilities related to exploration and production. This DEP may be applied also 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 consumables, materials, equipment and services to perform the duties specified by the Contractor.

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

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

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

1.3.2 Specific definitions

Term	Definition
Crossing Pipeline	Pipeline that crosses over an already existing pipeline or umbilical in place on the seafloor.
Crossed Pipeline or Umbilical	Pipeline or umbilical that already exists and is in place on the seafloor. The crossed pipeline or umbilical can be Principal owned and operated or owned and operated by a third party.
Projected Width	Distance, typically wider than the crossing corridor, that provides for the defined corridor width along the crossing pipeline, taking into account the angle of the crossing.
Separation	Distance between the existing and proposed crossing pipeline, (i.e., outside diameter to outside diameter).
Umbilical	Subsea production umbilical, power cable or communications cable including fibre optic cables.
Work	Tasks to be executed by the Contractor as defined in the Invitation to Tender or Contract Scope of Work.

1.3.3 Abbreviations

Term	Definition
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
BSEE	Bureau of Safety and Environmental Enforcement
CFR	Code of Federal Regulations
FEA	Finite Element Analysis
ITT	Invitation to Tender
MOC	Management of Change
ROV	Remotely Operated Vehicle
VIV	Vortex Induced Vibrations

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section or clause number is shown in brackets (). Other documents referenced by this DEP are listed in (8).

1.5 SUMMARY OF MAIN CHANGES

This DEP is a minor revision of the DEP of the same number dated February 2015. The following are the main, non-editorial changes:

Section/Clause	Change
All	Restructured and clarified requirements, enforced use of shall / should / may for normative statements

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.