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Guidance on Industry Standard for Offshore Pipeline Design and Construction (Supplement to DNV OS F101)

GIS 43-212

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**

Foreword

This is the first issue of BP Engineering Technical Practice (ETP) BP GIS 43-212. This document is updated on a periodic basis to include new BP experiences and any additional mandatory requirements. This is not a standalone document; it must be used in accordance with the requirements of ETP document PR 43: Status of ETP Pipeline Documents. In addition to the requirements for this document, those of relevant BP group standards such as getting HSSE right policy (gHSSer) and Process Safety/Integrity Management standard (PS/IM) must also be fulfilled.

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Introduction

- a. Guidance for Pipeline Welding is based on DNV OS-F101.
- b. Guidance statements of this GIS are modifications to DNV OS-F101, Submarine Pipeline Systems, January 2000.

Issues discussed are based on experience from BP and other industry sources.

- c. Modifications to DNV OS-F101 are identified as Add, Modify to Read, or Delete.
- d. Paragraph numbers in this specification correspond to DNV OS-F101.
- e. Paragraphs of DNV OS-F101 that are not revised remain applicable.
- f. If any statement is contradictory to DNV OS-F101, the requirements of this GIS shall take precedence.
- g. The technical integrity of all aspects of design, construction, and operation of pipelines is of the highest importance to BP and compliance with BP HSSE policy shall remain paramount.
- h. When this standard is applied in regions where the application of DNV OS-F101 is mandatory, criteria herein which effectively reflect a concession to the standard should be discussed with appropriate regulatory and legislative authorities to ensure their agreement to implementation.



SECTION 1 GENERAL

A. General

A 300 Scope and Application

Add

This GIS sets out BP's practice for implementation of the DNV OS F101 standard for submarine pipelines.

Issues discussed are based on experience from BP and other industry sources.

A 400 Other Codes

A403

Add

Note that ISO 13623 is now effectively superseded by BS EN 14161 which is effectively identical. Therefore DNV OS F101 shall be considered effectively compliant with the latter.

B. Normative references

B 300 Recommended practices

Add

Since publication of OS F101, DNV have introduced additional recommended practices. The currency of standards shall be confirmed from the DNV Website, www.dnv.com.

B 700 Other References

Add

BP GP 06-14 Guidance on Practice for Erosion Control

C. Definitions

C 200 Definitions

C210

Add

In some applications, activities associated with de-watering, cleaning, and drying are sometimes referred to as the pre-commissioning phase with the commissioning phase referring directly to product filling operations. The demarcation of each phase shall be clearly identified in particular for determination of contractual responsibilities during construction.

Typically the installation contractor may be responsible for pre-commissioning phase, while the operator has responsibility for commissioning.



C265**Add**

The pipeline system shall also include branch connections up to and including the first branch isolation valve.

Often, the location of the design code break between the pipeline system and the subsea installation is not clear (see 2nd sub para). In many cases, it may be appropriate to include subsea manifolds within the pipeline system, especially the main manifold header and the branch connections (particularly if there is no means of remotely isolating such connections). However, the use of other design codes for manifolds can provide a more conservative and robust manifold design.

Although this design code applies to the full pipeline system, in practice it is often only used for the design of the pipeline itself (see clause C263). Using this design code for a full assessment of all limit states of the riser and topsides pipework would be highly complex, and may not be cost effective (e.g. An assessment of the components therein would require the analysis of stress concentrations, offsets, eccentricities, and material compatibilities). Thus, in practice it may be appropriate to consider other (allowable stress based) design codes for the riser, and particularly for the topsides pipework (e.g. ASME B31.3).

Design code break locations shall not be confused with any pressure spec break locations, which if located at a valve (e.g. ESDV, pig trap valve, etc.) shall require the valve to be rated at the higher design pressure.

It is common practice for one or more of the lengths of pipe and fittings within the topsides pipework, riser, subsea spoolpieces, and pipeline to be designed by different contractors. This tends to create a situation where interconnecting parts of the pipeline are designed by different groups of engineers often with poor interfaces for the transfer or sharing of information.

A single overall stress/ flexibility analysis shall be performed for the section of pipeline that will undergo lateral displacement during operation, e.g. subsea spoolpieces, riser, and topsides pipework through to the valves on the inboard side of the pig receiver/ launcher.

This is to ensure that the overall fully interfaced design is rigorous and validated by the most appropriate contracted design contractor.



SECTION 2 DESIGN PHILOSOPHY

C. Design Format

C 300 Location classes

C301

Add

It is not strictly clear whether the 500 m limit should apply from the platform centre or whether from the platform extremity. It is advised that generally the 500 m limit should be taken from the platform extremity. A 500 m limit is not required around subsea production facilities.

C 400 Safety classes

C401

Add

For some installation critical operations in which failure may result in total system loss (e.g. deep water pipelaying), application of a safety class normal should be considered for the installation phase.

