

DEP SPECIFICATION

SEISMIC DESIGN PROCEDURES AND CRITERIA – OFFSHORE (AMENDMENTS/SUPPLEMENTS TO ISO 19901–2)

DEP 37.19.00.14-Gen.

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DESIGN AND ENGINEERING PRACTICE

DEM1



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PART I INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for the earthquake resistant design of fixed offshore structures, based on ISO 19901-2.

The requirements in this DEP are intended to reduce risks to persons, the environment, and assets to as low as reasonably practicable. This intent is achieved by using the following:

- a. seismic design procedures that are dependent on the structure's exposure level and the expected intensity of seismic events;
- b. a two-stage seismic design check:
 - the structure is designed to the ultimate limit state (ULS) – for strength and stiffness;
 - the structure is checked against abnormal seismic events to the accidental limit state (ALS). This is done to ensure that it satisfies energy dissipation requirements, for adequate ductility to survive this abnormal event.

Part III of this DEP amends, supplements and deletes various clauses of ISO 19901-2:2004, and follows the clause numbering of ISO 19901-2 for easy reference.

All clauses of ISO 19901-2:2004 not modified by this DEP remain valid as written.

For the earthquake design of onshore facilities, reference should be made to DEP 34.00.01.10-Gen.

In certain situations, and if approved by the Principal, fixed offshore structures may be designed in accordance with API RP 2A-WSD instead of ISO 19901-2 and this DEP. An example of this would be where extensive good historical performance is known.

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 offshore exploration and production 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.