

DEP SPECIFICATION

GLOBAL DESIGN AND ANALYSIS OF PERMANENTLY MOORED DEEPWATER FLOATING PRODUCTION SYSTEMS (AMENDMENTS/SUPPLEMENTS TO API RP-2FPS, API RP-2SK AND API RP-2SM)

DEP 37.81.10.13-Gen.

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DESIGN AND ENGINEERING PRACTICE



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PREFACE

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PART I INTRODUCTION AND GENERAL REQUIREMENTS**1. INTRODUCTION****1.1 SCOPE**

This new DEP specifies requirements and gives recommendations for the global design and analysis of permanently moored deepwater floating production systems (FPS), based on API RP 2FPS, API RP 2SK and API RP 2SM.

Permanently moored deepwater floating production systems include:

- Semi-submersible (SEMI)
- SPAR
- Ship-based Floating Production, Storage and Offloading (FPSO)

Note that the following applications are not covered by this DEP:

Temporary moored ship or semi-based Mobile Offshore Drilling Units (MODU)	see DEP 37.91.10.11-Gen.
Industry solution small/medium sized FPSO systems	see DEP 37.90.10.33-Gen.
Tension leg platform (TLP) systems	see DEP 37.81.10.14-Gen.

This DEP is written in the form of amendments and supplements to relevant parts of API RP 2FPS, API RP 2SK and API RP 2SM, as they pertain to the global design and analysis of permanently moored deepwater SEMI, SPAR or FPSO systems. Typical global design and analysis scope includes:

- Naval architecture (e.g., hull sizing and stability)
- Seakeeping performance (motions, airgap, green water)
- Mooring design and analysis

Table 1 illustrates the relationships between some relevant ISO, API and Shell standards that are pertinent to the design of deepwater floating production systems. For a good understanding and proper application of the present DEP, the user is encouraged to become familiar with these other standards.

This DEP is organised in seven parts as follows:

Part I	Defines the scope and definitions.
Part II	Defines General Requirements along with Design Environmental Conditions.
Part III	Amends, supplements and deletes various clauses of API RP 2FPS. It follows the clause numbering of the API standard for easy reference.
Part IV	Amends, supplements and deletes various clauses of API RP 2SK. It follows the clause numbering of the API standard for easy reference.
Part V	Amends, supplements and deletes various clauses of API RP 2SM. It follows the clause numbering of the API standard for easy reference.
Part VI	References
Part VII	Bibliography

This new DEP-Gen supersedes former EPP standard 37.81.10.13-EPP.

Table 1 Overview of ISO, API and Shell Standards

SUBJECT	ISO	API	SHELL DEP
General requirements:			
	19900	2GEN	DEP 37.19.00.10-Gen.
Specific requirements:			
Metocean	19901-1	2MET	DEP 37.00.10.10-Gen.
Seismic	19901-2	2EQ	
Topsides	19901-3		DEP 37.19.00.12-Gen.
Geotechnical	19901-4	2GEO	DEP 37.81.10.12-Gen. (Anchor Piles)
Weight management	19901-5		DWS 37.19.20.11-Gen.
Marine operations	19901-6	2MOP	DEP 37.81.10.19-Gen.
Stationkeeping	19901-7	2SK	DEP 37.91.10.11-Gen. (MODU) DEP 37.90.10.32-Gen. (DP) DEP 37.81.21.35-Gen. (Equipment)
Platform types:			
Fixed steel	19902	2A	DEP 37.19.00.30-Gen.
Fixed concrete	19903	2CON	
FPS	19904-1	2FPS	DEP 37.81.10.13-Gen.
TLP		2T	DEP 37.81.10.14-Gen.
Jack-up	19905	95J	DEP 37.11.00.30-Gen.
Arctic	19906	2N	
Special topics:			
Synthetic moorings		2SM	DEP 40.10.01.12-Gen.
Risers		2RD	DEP 37.81.10.10-Gen. (SCR) DWS 37.81.10.11-Gen. (TTR)

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 authorized 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 offshore oil and gas production. 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 Specific definitions

Term	Definition
ABS	American Bureau of Shipping
ALS	Accidental Limit State
API	American Petroleum Institute
DEC	Design Environmental Condition
DNV	Det norske Veritas
FLS	Fatigue Limit State
FPS	Floating Production System (SEMI or SPAR)
FPSO	Floating Production, Storage and Offloading system (ship-based)
IMO	International Maritime Organization
ISO	International Standards Organization
LTRA	Long-Term Response Analysis
MODU	Mobile Offshore Drilling Unit
RBDC	Response-Based Design Criteria
SEMI	Semi-submersible (column-stabilized platform)
SLS	Serviceability Limit State
STRA	Short-term response based analysis
TLP	Tension Leg Platform
ULS	Ultimate Limit State

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 VI).

1.5 SUMMARY OF MAIN CHANGES

This is a new DEP.