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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 21412.2-2022

**Petroleum and natural gas industries - Design and operation of
subsea production systems - Part 2: UNbonded flexible pipe
systems for subsea and marine applications**

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting:

This document is Part 2 of GB/T 21412 "Design and Operation of Subsea Production

Systems for the Oil and Gas Industry", GB/T 21412 the following parts have been published:

- Part 1: General requirements and recommended practices;
- Part 2: Unbonded flexible pipe systems;
- Part 3: Through flowline (TFL) system;
- Part 4: Subsea wellhead and Christmas tree equipment;
- Part 5: Subsea umbilical cables;
- Part 6: Subsea production control system;
- Part 7: Completion or workover riser systems;
- Part 8: Subsea robot (ROV) interface of subsea production system;
- Part 9: Remotely operated tool (ROT) maintenance system;
- Part 10: Bonded Flexible Pipe Specifications;
- Part 11: Recommended practices for flexible pipe systems;
- Part 15: Subsea structures and manifolds:

This document replaces GB/T 21445.2-2008 "Design and operation of subsea production systems for the oil and gas industry - Part 2: Use Flexible pipe systems on the seabed and offshore", compared with GB/T 21445.2-2008, except for structural adjustments and editorial changes, the main technical changes See Appendix A for details:

This document is modified to adopt ISO 13628-2:2006 "Design and operation of subsea production systems for the oil and gas industry - Part 2: Use Unbonded Flexible Pipe Systems on the Subsea and Offshore":

Compared with ISO 13628-2:2006, this document has more structural adjustments, and the structure number changes between the two documents are compared at a glance See Appendix B for the table:

Compared with ISO 13628-2:2006, this document has more technical differences, and vertical the straight line (I) is marked, and the list of these technical differences and their reasons is shown in Appendix C:

The following editorial changes have been made to this document:

--- In order to coordinate with the existing documents, the name of the document was changed to "Design and Operation of Subsea Production Systems for the Oil and Gas Industry Part 2 Part: Unbonded flexible pipe system";

---Incorporated the errata content of ISO 13628-2:2006/Cor:1:2009, the outer margins of

the terms involved are marked with vertical Straight double lines (||) are marked:

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

The subsea production system consists of one or more subsea wellheads producing oil and gas, and the given processing facilities (fixed platforms, floating facilities, Subsea facilities), or various subsystems such as onshore treatment facilities, or subsea wellheads developed through water/gas injection: GB/T 21412 "Design and Operation of Subsea Production Systems for the Oil and Gas Industry" covers subsea production systems and their subsystems, as well as various interfaces and maintenance systems:

system, protection system, etc., providing a design framework, recommended practices and guidelines for use, and is planned to be composed of fifteen parts:

--- Part 1: General requirements and recommended practices: The aim is to develop and apply subsea production systems for various fields of the oil and gas industry Provides general requirements, recommended practices, and usage guidelines:

--- Part 2: Unbonded flexible pipe systems: The purpose is to provide recommendations for unbonded flexible pipe system products in subsea production systems practice:

--- Part 3: Through flowline (TFL) system: The purpose is to support the design, manufacture and operation of TFL systems in non-subsea production systems to provide recommended practices:

--- Part 4: Subsea wellhead and Christmas tree equipment: The purpose is to provide subsea wellheads and Christmas trees in subsea production systems Product equipment provides recommended practices:

--- Part 5: Subsea umbilical cables: The purpose is to provide recommended practices and use of subsea umbilical products in subsea production systems guide:

--- Part 6: Subsea production control system: The purpose is to provide recommendations for subsea production control system products in subsea production systems practice:

--- Part 7: Completion or workover riser systems: The purpose is to provide well completion or workover riser system products in subsea production systems Provides recommended practices and gives requirements and recommendations for installation from floating installations:

--- Part 8: Subsea robot (ROV) interface for subsea production systems: Intended for ROV interface to subsea production systems Put forward technical requirements:

--- Part 9: Remotely operated tool (ROT) maintenance system: The purpose is to provide