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Guidance on Practice for Principles of Subsea Design and Execution

GP 78-00

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 78-00.

This Guidance on Practice (GP) is not a standalone document. It should be used with other series 78 (subsea) documents that provide details of execution of subsea projects and important elements of subsea design, construction, and commissioning.

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Table of Contents

	Page
1. Scope	5
2. Normative references.....	5
3. Symbols and abbreviations.....	5
4. Application	7
5. Subsea system definition	7
6. Single point of accountability.....	8
7. Subsea system integrity management and execution	8
7.1. Integrity management	8
7.2. Materials selection	10
7.3. System review	10
8. Regulations.....	11
9. Subsea system design.....	11
9.1. General design	11
9.2. Project phases	11
9.3. Subsystems	12
10. Interfaces.....	13
11. Procurement and supply chain management (PSCM).....	13
12. Construction and installation	14
12.1. Design	14
12.2. Risk assessment.....	15
12.3. Construction.....	15
12.4. Work schedule	15
13. Testing and precommissioning	16
13.1. Testing.....	16
13.2. Precommissioning.....	17
14. Commissioning and operational readiness.....	18
15. Operations	18
16. Maintenance and repair	19
17. Revalidation	19
18. Records and documentation	20
19. Cessation of operation and system disposal	20

List of Figures

Figure 1 - Typical subsea system components	9
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Introduction

- a. As BP continues to expand its hydrocarbon resource base, subsea developments play an increasingly important role in extraction and delivery of those resources. Subsea developments represent significant capital investment and risk for years prior to production and are an important part of future BP business plans.
- b. Subsea developments are expensive, highly integrated, highly complex, and multidisciplined.
- c. Subsea developments vary significantly. For example, in terms of reservoir definition, wells, production rates, operating conditions, equipment needs, water depths, technological challenges, host facilities, configuration, logistics, and many other key factors. .
- d. Regardless of subsea system configuration or complexity, several important items are apparent due to the very nature of existing in a challenging ocean environment:
 1. Potential for environmental impact and accidents is always present.
 2. Mistakes are very, very costly to rectify.
 3. With respect to cost and production time, subsea well intervention is orders of magnitude higher than onshore developments.
 4. New technology is often required.
 5. Subsea developments require sufficient time to manage risk in project undertaking for a successful outcome.
 6. Continuous project improvement by feedback from operations is essential to learn from actual operating behaviour versus design intent.
- e. Key to successful subsea development is the need to achieve high reliability in all elements (including operations) supported by the utmost attention to engineering design, quality management (QM), reliability, health, safety, security, and environment (HSSE), importing learning from other projects throughout the major project common process (MPcp) stages, and the capture of learning in project execution.
- f. This GP provides a roadmap describing high level best practice for planning and execution of subsea projects.

Although not organised as a standalone business segment, subsea projects are recognised as key components of “what we do” across the Exploration and Production (E&P) business segment (see www.bp.com/about BP).



1. Scope

- a. This GP provides guidance in planning and executing subsea developments and generally describes potential pitfalls and risks that these developments carry.
- b. This GP does not discourage the implementation of challenging subsea projects or the use of new technology, but instead assists in the understanding and better appreciation of the risks associated with such developments.
- c. This GP applies to business units (BU) and strategic performance unit (SPU) leadership and the project teams within the BU/SPU.
- d. This GP applies to relevant BUs and SPUs and locations that are wholly owned by BP or over which BP has operational control.
- e. This GP applies to the decommissioning and cessation of overall subsea developments at the end of the useful life of a subsea system.

More detail can be found in full suite of ETPs relating to subsea equipment and systems (series 78) and in other related ETPs in BP ETP library: "<http://etp.bpweb.bp.com/resource/Summary-Status.xls>". The Reliability Strategy and Implementation Manual are accessible in the ETP library

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

BP

GP 36-20	Materials Selection and Specification for Subsea Equipment.
GP 78-03	Achieving Reliability in Subsea Projects
GP 78-04	Reliability Techniques for Subsea Projects
GP 78-05	Testing Guidelines for Subsea Equipment. (FAT,EFAT & SIT)
GP 78-06	Subsea Prototype Qualification Procedure.
GP 78-26	Subsea Reliability and Maintenance Data Collection
GP 78-30	Integrated subsea system testing, commissioning and startup.(offshore)
Manual	BP Subsea Reliability Implementation Manual.
Strategy	BP Subsea Reliability Strategy.

3. Symbols and abbreviations

For the purpose of this GP, the following symbols and abbreviations apply:

BOD	Basis of design.
BU	Business unit.
CVP	Capital value process.



EA	Engineering authority.
EPTG	Exploration and Production Technology Group.
ESDV	Emergency shutdown valve.
FPSO	Floating production, storage, and offloading system.
GOC	Guidance on certification.
HIPP	High integrity pressure protection.
HSE	Health, safety, and environment.
HSSE	Health, safety, security, and environment.
IM	Integrity management.
MAR	Major accident risk.
MOC	Management of change.
MPcp	Major projects common process.
OVP	Operations value process.
PLEM	Pipeline end manifold.
PLET	Pipeline end termination.
PSCM	Procurement and supply chain management.
PTW	Permit to work.
QM	Quality management.
QMS	Quality management system.
ROV	Remotely operated vehicle.
SCS	Subsea control system.
SIMOPS	Simultaneous operations.
SOR	Statement of requirements.
SPA	Single point of accountability.
SPU	Strategic performance unit.
SSIV	Subsea isolation valve.
STPs	Site technical practices

