



Document No.	GP 78-26
Applicability	Group
Date	30th May 2007

Guidance on Practice for Subsea Reliability and Maintenance Data Collection

GP 78-26

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 78-26.

This Guidance on Practice (GP) is not a standalone document. This GP shall be used with other series 78 subsea GPs that provide further details on subsea reliability techniques and application.

Uncontrolled Copy

Copyright © 2005, BP Group. All rights reserved. The information contained in this document is subject to the terms and conditions of the agreement or contract under which the document was supplied to the recipient's organisation. None of the information contained in this document shall be disclosed outside the recipient's own organisation without the prior written permission of Director of Engineering, BP Group, unless the terms of such agreement or contract expressly allow.



Table of Contents

	Page
1. Scope	5
2. Normative references.....	5
3. Terms and definitions.....	6
4. Symbols and abbreviations	7
5. General.....	8
6. RM data collection issues	8
6.1. Why RM data collection is important	8
6.2. Reliability data constraints	9
7. Process.....	10
7.1. Key process.....	10
7.2. Establishing inventory start and end dates.....	11
7.3. Assigning failure and maintenance event to subsea hardware.....	12
7.4. Failure event investigation	13
8. Project team responsibility	13
9. Operating asset responsibility	14
Annex A (Informative) Event log example	16

List of Tables

Table 1 - In service start and end dates	11
--	----

List of Figures

Figure 1 - Subsea reliability documents	4
---	---

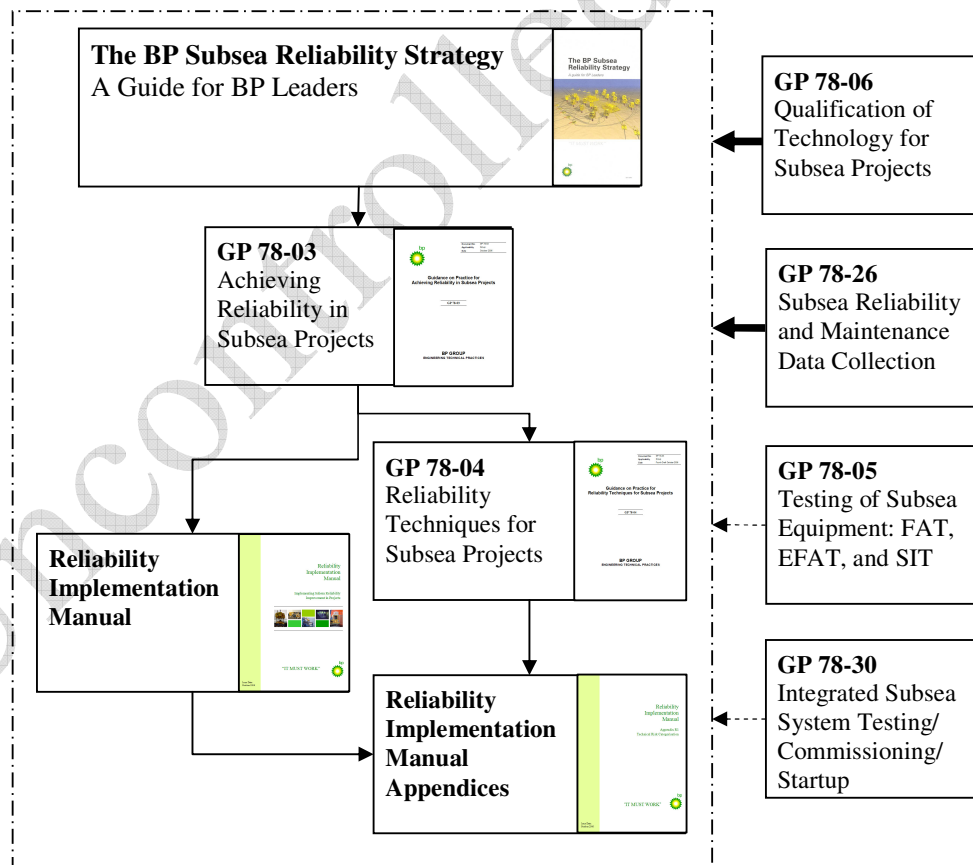


Introduction

This GP is designed to ensure that reliability and maintenance (RM) performance data for subsea equipment are collected and made available within BP to support risk and reliability assessments and production assurance studies for prospective projects. RM data can be used to measure actual performance of subsea assets, comparing this with forecast performance and benchmark performance across BP assets and equipment vendors and between oil companies.

The BP Subsea Reliability Strategy was developed in 2003, enhanced in 2005 by publication of the Reliability Handbook, and introduced to BP projects. A set of subsea reliability GPs, including this GP, was developed in 2006 to support BP staff in implementing BP's reliability strategy. The Reliability Handbook (2005), which has been renamed The Reliability Implementation Manual (2006), has been upgraded in electronic format to facilitate its use. These key subsea reliability documents, their hierarchy within BP, and their interrelationship is shown in Figure 1.

Figure 1 - Subsea reliability documents



1. Scope

- a. This GP provides guidance for subsea RM data collection and applies to all BP operated subsea assets.
- b. If BP is a partner in a subsea asset, the operator should be encouraged to comply with this GP. If the operator is a participant of Offshore RELiability DAtabase (OREDA), this GP is the preferred tool (other electronic or hardcopy formats may be used).
- c. This GP is designed to establish rigorous provisions for ensuring that relevant RM data are identified and recorded by BP in accordance with OREDA principles and ISO 14224.
- d. This GP details procedures to be adopted for collection of OREDA format performance data of operational subsea equipment (refer to OREDA data collection guidelines).
- e. This GP makes recommendations for tracking failures that may occur between title transfer or provisional acceptance of subsea equipment and OREDA database definition of operational start date.
- f. This GP is based on best practices and experience in collecting and using subsea performance data gained since 1998, both within BP and in cooperation with other OREDA member companies.

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 78-03	Achieving Reliability in Subsea Projects.
GP 78-04	Reliability Techniques for Subsea Projects.
GP 78-05	Testing of Subsea Equipment: FAT, EFAT, and SIT.
GP 78-06	Subsea Prototype Qualification Procedure.
GP 78-30	Integrated Subsea Testing/Commissioning/Startup.

Up to date list of series 78 (subsea) documents is available on ETP website.

Guidelines	OREDA Subsea Data Collection Guidelines.
------------	--

Reliability Implementation

Manual	Implementing Subsea Reliability Improvement in Projects, 2006.
--------	--

The manual is available on CD and has also been entered in the library as set of RD documents numbered RD 78-400 onwards.

Strategy Guide	BP Subsea Reliability Strategy, A Guide for BP Leaders, revised 2006.
----------------	---

This document is available as a booklet and has also been entered in the library as RD 78-003.

International Organisation for Standardisation (ISO)

ISO 14224	Petroleum and natural gas industries - Collection and exchange of reliability and maintenance data.
-----------	---



3. Terms and definitions

For the purposes of this GP, the following terms and definitions apply:

Component

A sub unit may be divided into several components. Components or maintainable items are lowest level items in the taxonomy hierarchy classification that may be repaired or replaced as a whole (e.g., valve, sensor).

GP 78-03, GP 78-04, and the Reliability Implementation Manual do not distinguish between components and sub units.

Database system

A process for recording and storing data.

Equipment unit

Equipment units are major items of installation and have one main function (e.g., Xmas tree, control system). ISO 14224 focuses on the equipment unit level for collection of RM data.

In some instances, an equipment unit may also be a package.

Failure

The termination of the ability of an item to perform a required function (refer to ISO 14224).

Failures come from many causes, including:

- *Failure to fit, connect, seal, or operate with full design functionality.*
- *Post delivery detection of quality defects in design or manufacture that does not comply with specification or require additional measures to ensure equipment suitability for continued service.*
- *Damage to vendor equipment arising from incorrect or incomplete vendor procedures or failures by vendor personnel to follow procedures.*

Failure cause (root cause)

Circumstances associated with design, manufacture, installation, use, and maintenance that lead to failure (refer to ISO 14224).

Failure rate

The number of failures occurring within a defined time interval.

Installation (subsea system)

An entire subsea installation as a combination of well system, control system, manifold system, connection system, etc. A subsea field may have several installations.

In GP 78-03, GP 78-04, and the Reliability Implementation Manual, an installation is referred to as a subsea system.

Package

An individual subsystem within a subsea installation (e.g., well system as a combination of wellhead, tree, tubing hanger, or production controls system as combination of subsea control module [SCM], hydraulic power unit [HPU], master control systems [MCS]).

Term "Package" is not used by OREDA or ISO 14224.

