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Applicability	Group
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GP 10-70

Completion-Workover Riser Systems

Group Practice

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**

Introduction

The introduction to this ETP mirrors section 27 of the revised DWOP.

The design and operation of all Completion/Workover Riser Systems (CWOR) shall conform to Engineering Technical Practice GP 10-70 – Completion/Workover Riser Systems

The design and operation of all Completion/Workover Riser System shall also conform to Engineering Technical Practice GP 78-33 - Design and Operation of Completion/Workover Riser Systems which has been developed as a supplement to ISO 13628 Design & Operation of Subsea Production Systems, Part 7 – Completion/Workover Riser Systems.

1. CWOR Systems

- 1.1 The ETP is limited to CWOR Systems manufactured from low alloy carbon steels.
- 1.2 Risers fabricated from special material such as Titanium, composite materials and flexible pipes are beyond the scope of this document.
- 1.3 The Standard shall apply to all new systems and shall be applied to modifications and operation of existing systems, particularly when they are re-deployed at different locations and from different vessels.

2. Description of CWOR Systems

A **Completion Riser** is used to run the tubing hanger and tubing through a drilling riser and BOP into the wellbore. It may also be used to reconnect to a tubing hanger for well re-entry through a drilling riser and BOP.

A **Workover Riser** is typically used in place of a drilling riser to re-enter the well through the subsea tree in open water, and may also be used to install the subsea christmas tree.

Both riser types provide communication between the well bore and the surface equipment. Both resist external loads and pressure loads and accommodate tools for drilling and completion operations.

The **Completion Riser** is exposed to external loading such as curvature of the drilling riser, especially at the upper and lower joints (ie Flex-joint and Ball-joint)

The **Workover Riser** is exposed to ocean environmental loads such as hydrodynamic loads from waves and currents, in addition to vessel motions.

Note that Completion/Workover Riser Systems are considered to be Safety Critical Equipment.



3. Scope of Supply

Specific CWOR System equipment covered by the above referenced documents is as follows;

- Riser Joints
- Connectors
- Workover Control Systems
- Surface Flow trees
- Surface Tree Tension Frames
- Lower Workover Riser Packages
- Lubricator Valves
- Retainer Valves
- Subsea Test Trees
- Shear Subs
- Tubing Hanger Orientation Systems
- Swivels
- Annulus Circulation Hoses
- Umbilical Clamps
- Handling & Test Tools
- Tree Cap Running Tools

The ETP outlines the following topics which are prescribed in more detail in ETP 78-33 and ISO 13628

- System requirements
- Functional requirements
- Design requirements
- Materials & Fabrication
- Testing requirements
- Marking, Storage & Shipping
- Documentation

4. System Requirements



The CWOR System engineering shall be performed to ensure CWOR Riser System compliance with the provisions of the ETP, ISO referenced standards and regulatory requirements. System engineering shall, as a minimum, include the following;

- Establishment of a design basis
- Establishment of the system definition
- System design
- System review
- System verification

The CWOR System shall be designed to meet the following requirements;

- Regulatory requirements
- Barrier requirements
- Purchaser specification requirements
- Design basis
- Design principles
- Operational principles
- Safety principles
- Operational requirements
- System and component functional requirements

The CWOR System definition shall as a minimum be described in terms of the following;

- System description
- System schematics
- Riser modes of operation
- Workover Control System modes of operation

Refer to ETP GP 10-70 for other BP ETP's applicable to CWOR System selection and specification.

