Recommended Practice for Subsea Pumping Well Intervention Systems

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, standards@api.org.

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Introduction

The purpose of a subsea pumping well intervention system (SPWIS) is to pump fluid into a subsea well. Due to barrier philosophy differences, pumping operations into or out of a flow line/pipeline or a subsea storage unit will not be addressed. This document also does not cover flow backs even though it is understood that the system is to be designed and operated in the presence of residual hydrocarbons in small quantity but not a full flow back scenario.

Subsea pumping systems typically involve a spooled fluid conduit with the fluid conduit not being rigidly attached to the subsea well, similar to a top tensioned intervention riser system. No tooling is conveyed through the fluid conduit; therefore, the mode of operation for these SPWISs is considered to be riserless. Commonly used fluid conduits typically consist of internally welded coil tubing, composite lines, umbilical lines, and other spooled products but can include jointed pipe. An SPWIS is a group of components or equipment packages that make up a standalone system or that may be a supplement to permanently installed subsea infrastructure operated together as an intervention system. The whole of the system needs to meet all the requirements of API Standard 17G and API Recommended Practice 17G5 as modified or amended by this document.

This document is not intended to inhibit a manufacturer from offering or the purchaser from accepting alternative equipment or engineering solutions for a specific application. This may be particularly applicable where there is innovative or developing technology.

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1 Scope

This recommended practice provides recommendations for the design, manufacture, testing, and performance of SPWISs deployed from a mobile offshore work unit such as a multipurpose vessel. This document contains the system-level requirements and recommendations and where not found elsewhere, the information that applies to individual components. To the greatest extent possible, this document points the reader to the API document that is applicable to each system component or subsystem.

This information is applicable to all new and existing SPWISs.

SPWISs are intended to satisfy the requirements of API Standard 17G and API Recommended Practice 17G5, with modifications thereof as given in this document. Therefore, this document is not intended to be a standalone document. It is to be used in conjunction with API Standard 17G (parent document), API Recommended Practice 17G1, API Recommended Practice 17G5, and end user requirements.

This recommended practice is intended to serve as a common reference for designers, manufacturers, and operators/users, thereby reducing the need for end user specifications. This RP also eliminates the need for interpretation of the applicability of requirements given by other codes and standards for permanent installed equipment.

Specific equipment covered by this recommended practice is as follows:

— flying leads;

— vertical fluid conduits;

— jumpers;

— fluid conduit connectors;

— subsea safety module (SSM);

— control systems;

— disconnect systems.

Associated equipment not covered by this recommended practice is listed below:

— subsea pumps;

— subsea process packages;

— intervention vessels used to execute work in the field;

— winching, spooling, tensioners, injector heads, or other equipment to deploy fluid conduits.

2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API Specification 5ST, *Specification for Coiled Tubing*