

Design, Installation, Operation, Test, and Redress of Subsurface Safety Valve Systems

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Introduction

This document has been developed by users/purchasers and suppliers/manufacturers of subsurface safety valve (SSSV) equipment intended for use in the petroleum and natural gas industry worldwide. This document is intended to give requirements and information to both parties on the design, operation, installation, and testing of subsurface safety valve system equipment and also the storage/transport, maintenance, and redress of the SSSV equipment.

Users of this document should be aware that further or differing requirements might be needed for individual installations, storage/transport and maintenance. This document is not intended to inhibit the user/purchaser from accepting alternative engineering solutions. This may be particularly applicable where there is innovative or developing well-completion technology.

Significant revisions to the document include the following.

- Many former recommendations (shoulds) have become requirements (shalls).
- Alternate technologies for SSSV operation have been included.
- Secondary tools used in the servicing of tubing-retrievable type SSSVs have been included.
- Subsurface injection safety valves (SSISV) have been included.
- Information on insert-type valves for tubing-retrievable type SSSVs has been expanded.
- The annex describing testing of SSSVs has been changed from informative to normative. Examples have been added to illustrate various methods of calculating leakage rate for both liquid and gas leakage.
- The testing interval of surface controlled SSSVs (SCSSVs) has been limited to a maximum frequency of 12 months.

Design, Installation, Operation, Test, and Redress of Subsurface Safety Valve Systems

1 Scope

This document establishes requirements and provides guidelines for subsurface safety valve (SSSV) system equipment. This includes requirements for SSSV system design, installation, operation, testing, redress, support activities, documentation, and failure reporting. SSSV system equipment addressed by this document includes control systems, control lines, SSSVs, and secondary tools as defined herein. SSSV types including surface controlled (SCSSV), sub-surface controlled (SSCSV), and sub-surface injection safety valves (SSISV) are included. Requirements for testing of SSSVs including frequency and acceptance criteria are included. Alternate technology SSSV equipment and systems are included in these requirements.

This document is not applicable to design, qualification, or repair activities for SSSVs. This document does not specify when a SSSV is required.

NOTE API 14A provides requirements for SSSV equipment design, qualification, and repair.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Specification 14A, *Specification for Subsurface Safety Valve Equipment*

API Recommended Practice 14C, *Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms*

API Recommended Practice 14E, *Recommended Practice for Design and Installation of Offshore Production Platform Piping Systems*

API Recommended Practice 14F, *Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Division 1, and Division 2 Locations*

API Specification 14L, *Specification for Lock Mandrels and Landing Nipples*

ISO 9000:2005¹, *Quality management systems—Fundamentals and vocabulary*

ISO 9712:2012, *Non-destructive testing—Qualification and certification of NDT personnel*

ASNT SNT-TC-1A², *Personnel Qualification and Certification in Nondestructive Testing*

¹ International Organization for Standardization, 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva 20, Switzerland, www.iso.org.

² American Society for Nondestructive Testing, 1711 Arlingate Lane, P.O. Box 28518, Columbus, Ohio 43228, www.asnt.org.