Standard for Subsea Production Control Systems

API STANDARD 17F
THIRD EDITION, MAY 2014

AMERICAN PETROLEUM INSTITUTE

Special Notes

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed.

Neither API nor any of API's employees, subcontractors, consultants, committees, or other assignees make any warranty or representation, either express or implied, with respect to the accuracy, completeness, or usefulness of the information contained herein, or assume any liability or responsibility for any use, or the results of such use, of any information or process disclosed in this publication. Neither API nor any of API's employees, subcontractors, consultants, or other assignees represent that use of this publication would not infringe upon privately owned rights.

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to assure the accuracy and reliability of the data contained in them; however, the Institute makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any authorities having jurisdiction with which this publication may conflict.

API publications are published to facilitate the broad availability of proven, sound engineering and operating practices. These publications are not intended to obviate the need for applying sound engineering judgment regarding when and where these publications should be utilized. The formulation and publication of API publications is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

Foreword

This standard shall become effective on the date printed on the cover but may be used voluntarily from the date of distribution.

Standards referenced herein may be replaced by other international or national standards that can be shown to meet or exceed the requirements of the referenced standard.

This standard is under the jurisdiction of API Subcommittee 14 on Subsea Production Systems. Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

This is the Third Edition.

API Subcommittee 17 documents consist of the following:

— Recommended Practice 17A, *Design and Operation of Subsea Production Systems—General Requirements and Recommendations*

— Recommended Practice 17B, *Recommended Practice for Flexible Pipe*

— Recommended Practice 17C, *Recommended Practice on TFL (Through Flowline) Systems*

— Specification 17D, *Specification for Subsea Wellhead and Christmas Tree Equipment*

— Specification 17E, *Specification for Subsea Umbilicals*

— Standard 17F, *Specification for Subsea Production Control Systems*

— Recommended Practice 17G, *Recommended Practice for Completion/Workover Riser Systems*

— Recommended Practice 17H, *Remotely Operated Tools and Interfaces on Subsea Production Systems*

— Specification 17J, *Specification for Unbonded Flexible Pipe*

— Specification 17K, *Specification for Bonded Flexible Pipe*

— Specification 17L1, *Specification for Flexible Pipe Ancillary Equipment*

— Recommended Practice 17L2, *Recommended Practice for Flexible Pipe Ancillary Equipment*

— Recommended Practice 17N, *Recommended Practice for Subsea Production System Reliability and Technical Risk Management*

— Recommended Practice 17O, *Recommended Practice for High Integrity Pressure Protection Systems (HIPPS)*

— Recommended Practice 17P, *Design and Operation of Subsea Production Systems—Subsea Structures and Manifolds*

— Recommended Practice 17Q, *Recommended Practice for Subsea Equipment Qualification—Standardized Process for Documentation*

— TR 17TR1, *Evaluation Standard for Internal Pressure Sheath Polymers for High Temperature Flexible Pipes*

— TR 17TR2, *The Ageing of PA-11 in Flexible Pipes*

— TR 17TR3, *An Evaluation of the Risks and Benefits of Penetrations in Subsea Wellheads Below the BOP Stack*

— TR 17TR4, *Subsea Equipment Pressure Ratings*

— TR 17TR5, *Avoidance of Blockages in Subsea Production Control and Chemical Injection Systems*

— TR 17TR6, *Attributes of Production Chemicals in Subsea Production Systems*

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this publication or comments and questions concerning the procedures under which this publication was developed should be directed in writing to the Director of Standards, American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the director.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. A one-time extension of up to two years may be added to this review cycle. Status of the publication can be ascertained from the API Standards Department, telephone (202) 682-8000. A catalog of API publications and materials is published annually by API, 1220 L Street, NW, Washington, DC 20005.

Suggested revisions are invited and should be submitted to the Standards Department, API, 1220 L Street, NW, Washington, DC 20005, standards@api.org.

Contents

Contents

Introduction

Description of hardware is included in API Standard 17F to illustrate functional requirements. This standard should not be interpreted in a way which would limit new solutions with documented improved life-cycle benefits.

API Standard 17F establishes design standards for systems, subsystems, components, and operating fluids in order to provide for the safe and functional control of subsea production equipment.

API Standard 17F contains various types of information related to subsea production control systems.

They are:

— informative data that provide an overview of the architecture and general functionality of control systems for the purpose of introduction and information,

— basic prescriptive data that apply to all types of control systems,

— selective prescriptive data that are control-system-type sensitive and apply only when relevant,

— optional data or requirements that need be adopted only when considered necessary either by the purchaser or the vendor.

In view of the diverse nature of the data provided, control system purchasers and specifiers are advised to select from this standard only the provisions needed for the application at hand. Failure to adopt a selective approach to the provisions contained herein can lead to the subsea control system being over specified and higher purchase costs.

Within this document, “shall” is used to state that a provision is mandatory; “should” is used to state that a provision is not mandatory but is recommended as good practice; and “may” is used to state that a provision is optional.

Systeme Internationale (SI) units are identified first when cited in the document. U.S. customary (USC) units may be given in parenthesis after the SI units.

Standard for Subsea Production Control Systems

1 Scope

This standard is applicable to design, fabrication, testing, installation, and operation of subsea production control systems (SPCSs).

This standard covers surface control system equipment, subsea-installed control system equipment, and control fluids. This equipment is utilized for control of subsea production of oil and gas and for subsea water and gas injection services. Where applicable, this standard can be used for equipment on multiple-well applications.

Rework and repair of used equipment are beyond the scope of this part of this standard.

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 6A, *Specification for Wellhead and Christmas Tree Equipment*

API Recommended Practice 17A, *Design and Operation of Subsea Production Systems—General Requirements and Recommendations*

API Specification 17D, *Specification for Design and Operation of Subsea Production Systems—Subsea Wellhead and Tree Equipment*, 2011

API Specification 17E, *Specification for Subsea Umbilicals*

API Recommended Practice 17O, *Recommended Practice for High Integrity Pressure Protection Systems (HIPPS)*

ANSI [1]/SAE [2] J517-JUN94, *Hydraulic hose*

AODC [3], *Code of practice for the safe use of electricity under water*

ASME *Boiler and Pressure Vessel Code* [4], *Section V: Nondestructive Examination*

ASME *Boiler and Pressure Vessel Code*, *Section VIII; Division 1: Rules for the Construction of Pressure Vessels*

ASME *Boiler and Pressure Vessel Code*, *Section IX: Welding and Brazing Qualifications*

ASTM D97 [5], *Standard Method for Pour Point of Petroleum Products*

ASTM D341, *Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)*

---

1 American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, New York 10036, www.ansi.org.
2 SAE International, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096-0001, www.sae.org.
3 Association of Offshore Diving Contractors, www.adc-uk.info.
4 ASME International, 3 Park Avenue, New York, New York 10016-5990, www.asme.org.
5 ASTM International, 100 Barr Harbor Drive, West Conshocken, Pennyslvania 19428, www.astm.org.