

Standard for Subsea High Integrity Pressure Protection Systems (HIPPS)

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Standard for Subsea High Integrity Pressure Protection Systems (HIPPS)

1 Scope

This standard addresses the requirements for the use of high integrity pressure protection systems (HIPPS) for subsea applications. API 14C, IEC 61508, and IEC 61511 specify the requirements for onshore, topsides, and subsea safety instrumented systems (SIS) and are applicable to HIPPS, which are designed to autonomously isolate downstream facilities from overpressure situations. This document integrates these requirements in order to address the specific needs of subsea production. These requirements cover the HIPPS pressure sensors, logic solver, shutdown valves, and ancillary devices including testing, communications, and monitoring subsystems.

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 6HT, *Heat Treatment and Testing of Large Cross Section and Critical Section Components*

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

API Specification 17D, *Subsea Wellhead and Christmas Tree Equipment*

API Specification 17E, *Specification for Subsea Manifolds*

API Standard 17F, *Standard for Subsea Production Control Systems*

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

API Recommended Practice 17F, *Recommended Practice for Design and Operation of Subsea Production Systems—Subsea Structures and Manifolds*

ANSI/ASME B31.3^{1, 2}, *Process Piping*

ANSI/ASME B31.9, *Gas Transmission and Distribution Piping Systems*

AWS D1.1³, *Structural Welding Code—Steel*

IEC 61508, Parts 1 to 4⁴, *Functional safety of electrical/electronic/programmable electronic safety-related systems*

IEC 61511, Part 1, *Functional safety—Safety instrumented systems for the process industry sector*

¹ American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, New York 10036, www.ansi.org.

² ASME International, 2 Park Avenue, New York, New York 10016-5990, www.asme.org.

³ American Welding Society, 8669 NW 36 Street, #130, Miami, Florida 33166-6672, www.aws.org.

⁴ International Electrotechnical Commission, 3, rue de Varembé, P.O. Box 131, CH-1211, Geneva 20, Switzerland, www.iec.ch.