Evaluation of Well Perforators

API RECOMMENDED PRACTICE 19B
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1 Scope

This recommended practice describes standard procedures for evaluating the performance of perforating equipment so that representations of this performance may be made to the industry under a standard practice.

Section 4 provides methods for evaluating perforator or system performance, or both, in four ways:

a) performance under ambient temperature and atmospheric pressure test conditions into standard casing and concrete targets (4.1);

b) individual shots into Berea sandstone targets at various defined stressed conditions, with wellbore and pore pressures at nominally ambient conditions (4.2);

c) how performance can be changed after exposure to elevated temperature conditions (4.3);

d) flow performance of a perforation under specific stressed test conditions (4.4).

Section 4.5 provides a procedure to quantify the amount of debris that comes out of a perforating gun during detonation, and during conveyance out of the well. Section 4.6 provides a procedure to measure the swell of a perforating gun.

The purpose of this recommended practice is to specify the materials and methods used to evaluate objectively the performance of perforating systems or perforators.

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 applies (including any addenda/errata).

API Specification 10A, *Specification for Cements and Materials for Well Cementing*

API Standard 19C, *Measurement of and Specifications for Proppants Used in Hydraulic Fracturing and Gravel-packing Operations*

API Specification 19PT, *Downhole Perforating Tools*

ASTM A29, *Standard Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought*

ASTM C109, *Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)*

ASTM C150, *Standard Specification for Portland Cement*

ASTM D3740, *Practice for Minimum Requirements for Agencies Engaged in Testing and/or inspection of Soil and Rock as Used in Engineering Design and Construction*

ASTM D4543, *Practices for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance*

ASTM D7012-14e1, *Standard Test Methods for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures*