

# OVERVIEW OF INDUSTRY STANDARDS RELATING TO HYDRAULIC FRACTURING [HF]

API is the worldwide leading standards setting body for the oil and natural gas industry. Accredited by the American National Standards Institute (ANSI), API has issued nearly 700 consensus standards governing all segments of the oil and gas industry. These include standards, guidelines, and recommended practices regarding safety, equipment, operations, effective water management, spill prevention and environmental protection. Many API standards and practices are incorporated into both federal and state oil and natural gas regulations and they are the most widely cited petroleum industry standards by international regulators.

In our on-going effort toward continuous improvement of oil and natural gas operations and building on existing API standards and practices pertaining to oil and gas extraction, we have developed a set of 5 documents which specifically address the risk management issues accompanying unconventional well construction and management. First completed in 2011 and revised in 2013 under API's accredited consensus-based standards development process, this robust series helps to protect the public by providing a blueprint for strong, carefully constructed wells. The standards were created to convey proven industry practices while remaining flexible enough to accommodate the variations in state and regional regulatory frameworks that often occur due to fundamental differences in regional geology and other factors, and to also serve as a reference for federal, state and international regulators.

## **ANSI/API RP 100-1 — Well Integrity and Fracture Containment, 1<sup>st</sup> Edition, October 2015**

- Highlights practices for onshore well construction and fracture stimulation design and execution relating to well integrity and fracturing containment.
- Identifies actions to protect and isolate useable quality groundwater through application of appropriate barriers and controlled fracture design and execution practices.

## **ANSI/API RP 100-2 — Managing Environmental Aspects Associated with Exploration and Production Operations Including Hydraulic Fracturing, 1<sup>st</sup> Edition, August 2015**

- Provides proven practices applicable for the planning and operation of wells, including hydraulic fracturing. It includes topics on managing environmental aspects during site planning; site selection; logistics; mobilization; rig up and demobilization; and stimulation operations.

## **ANSI/API Bulletin 100-3 — Community Engagement Guidelines, 1<sup>st</sup> Edition, July 2014**

- Outlines what local communities and other key stakeholders can expect from operations. It is designed to acknowledge challenges and impacts that can occur and provides flexible and adaptive strategies for managing expectations and engaging with the community.

## **API Standard 65 Part 2 — Isolating Potential Flow Zones During Well Construction, 2<sup>nd</sup> Edition, December 2010**

- Helps ensure the well is properly designed and constructed to contain the hydrocarbons through the well bore and isolate them from ground water aquifers. This is accomplished through the use of casing, cement, and mechanical barriers.
- Includes information on industry cementing practices. A well-designed cement job optimizes cement placement through considerations such as laboratory tested slurry design, honoring pore pressure/fracture gradient window, use of spacers/pre-flushes, proper density and rheological hierarchy, fluid compatibility and adequate centralization.

## **API RP 51R — Environmental Protection for Onshore Oil and Gas Production Operations and Leases, 1<sup>st</sup> Edition, July 2009**

- Provides environmentally sound practices for domestic onshore oil and gas production operations, including fracturing. Applies to all production facilities, including produced water handling facilities. Operational coverage begins with the design and construction of access roads and well locations, and includes reclamation, abandonment, and restoration operations.