Volume 5, Issue 8

THE ASSOCIATION OF DESK AND DERRICK CLUBS

August 2017

ADDC Insight

Inside this issue:

Unlocking the Earth—A Short History of Hydraulic Fracturing

by Michael Quentin Morton

This article appeared in GeoExPro, Vol. 10, No. 6—2013

The recent shale gas boom is a reminder that the effective use of hydraulic fracturing in shale formations is a relatively new phenomenon. However, this 'fracking' (also called 'fracing' or 'fraccing' in the technical literature) has been around for longer than many people realise, and the use of unconventional techniques to extract oil and gas from the ground has developed over more than 150 years.

Fracking has come a long way since 1857 when Preston Barmore lowered gunpowder into a well at Canadaway Creek, NY, and dropped a red-hot iron down a tube, resulting in an explosion that fractured the rock and increased the flow of gas from the well.

Hydraulic fracturing, as its name suggests, involves pumping water and sand at high pressure to fracture subterranean rocks. This might appear far removed from the mid-nineteenth century practice of 'shooting' a well, which used explosives instead of water, but the basic principle is the same. Drillers freed-up logged or non-productive wells by creating underground explosions to loosen rock or debris. The effect was often the reverse of modern fracking: a column of earth, water and oil would shoot out of the well head, a spectacle for onlookers but hardly a reliable industrial process.

In 1865, Col. Edward Roberts and his brother developed a technique known as 'superincumbent fluid-tamping', in which water dampened the explosion, preventing any debris blowing back up the hole and amplifying its effects. They also developed a nitro-glycerine 'torpedo', replacing the black powder and gunpowder that had previously been used. Their legacy lives on with the Tallini and Otto Cupler Torpedo Company, which still shoots wells with modern explosives and rigorous safety procedures.

Read more...