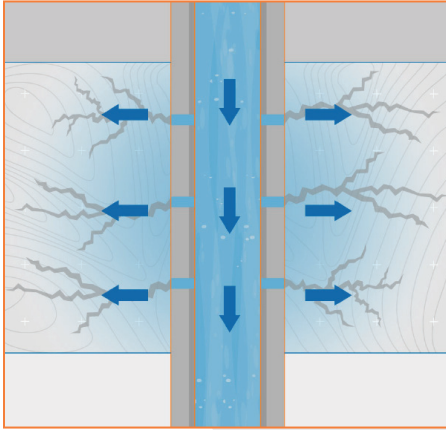


CASE STUDY

Increased Injectivity in Delaware Basin SWD Well



- Fracture past perf tunnel damage
- Replace or enhance acid jobs
- Lower pumping pressures
- Break down all perforations for injection

Project Challenge

A major operator working in the Delaware Basin producing large volumes of water needed to maximize the daily capacity of their new SWD wells and keep their operating costs as low as possible.

Our Solution

Enhanced Energetics recommended the operator use Kraken[®]-enhanced perforating technology during the initial completion of the well, then follow with an acid job. The Kraken progressively burning propellant fractures the formation after the well has been perforated and bypasses any near-wellbore damage. Kraken allows the injected fluid to access the formation through all the perforations. The acid then follows fractures created by the Kraken boosters and clears any cement remaining in the perforations and wellbore.

Results

After perforating the well with the addition of Kraken boosters and the subsequent acid job, a step test was performed to determine the initial capacity of the SWD. The pumping rate was increased in increments of 5 bbl/min until reaching a maximum rate of 24.8 bbl/min and a pressure of 776 psi. Therefore, **the SWD has an initial capacity of more than 35,000 B/D at or below a pressure of 776 psi.** Extremely pleased with the results, the operator said it was one of their best-performing SWD wells and has now standardized on the use of Kraken technology on all its SWD completions in the region.

See step-rate test results on following page.

Application

New SWD completion

Gun design

3 1/8-in. OD Kraken

Formation

Canyon (sandstone)

Location

Pecos, TX

Max step-test

injection rate

24.8 bbl/min

Max step-test pressure

776 psi

Interval depth

5,740 – 6,788 ft
(2,512 perforations)

Casing diameter

7 in.

+1 281.272.6580

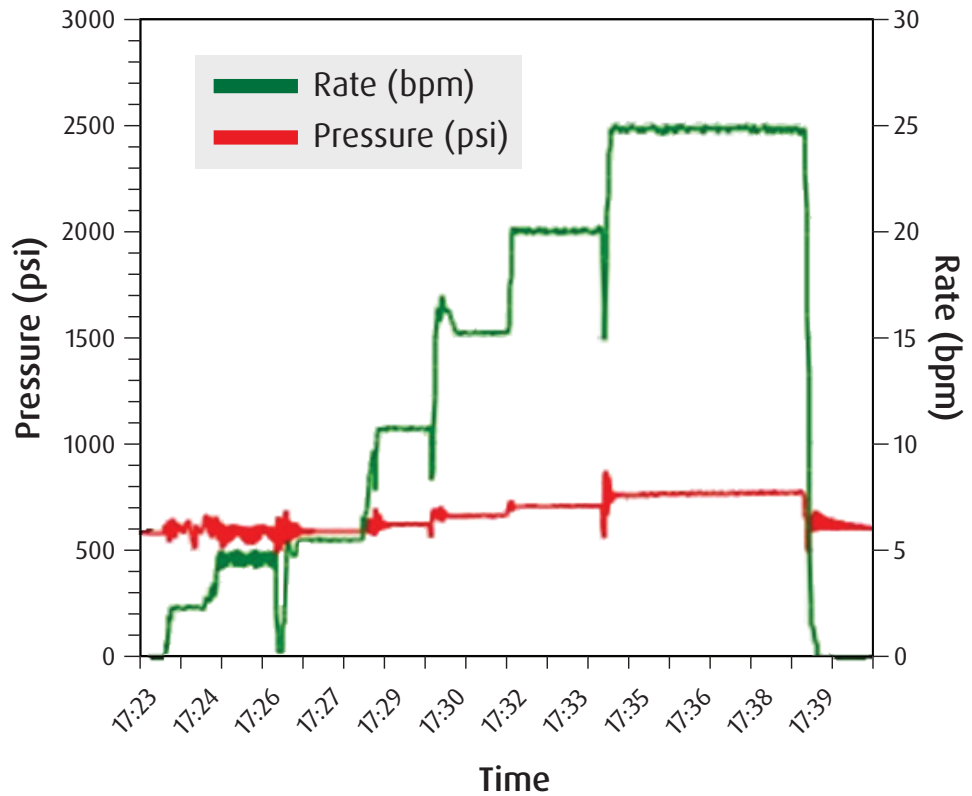
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CASE STUDY

Increased Injectivity in Delaware Basin SWD Well



Delaware SWD Step-rate Test Results



Step-rate test determined the initial capacity of this SWD well was improved with the addition of Kraken boosters to the perforating guns prior to the acid job.

About Enhanced Energetics

Enhanced Energetics (fka The GasGun) offers proven propellant-enhanced stimulation and perforating technology designed to lower total cost of operations and improve profitability of vertical and horizontal producing and injection wells. Progressively burning GasGun® and Kraken technology generates high-pressure gas in the wellbore, creating fractures that improve well connectivity.

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