

Jet Blaster Service Removes Calcium Carbonate Scale in a Single Run

Case study: Efficient scale cleanout removes perforating gun restrictions and improves operational efficiency in wells in Thailand

Challenge

Efficiently remove calcium carbonate (CaCO_3) scale to allow perforating guns to reach zones of interest.

Solution

Use the Jet Blaster* jetting scale removal service to clean out CaCO_3 scale and allow the perforating guns to run to depth without requiring a drift run with slickline to verify clearance.

Results

Successfully removed the CaCO_3 scale in a single run, allowing perforating guns to reach the zones of interest and improving operational efficiency.

Scale buildup in tubing

An operator in Thailand routinely reperforated its gas wells in the Platong field to enable producing lower-pressure sands as other intervals begin to deplete. However, CaCO_3 scales frequently form in the tubing above the nipples, which prevents the perforating guns from reaching the zones of interest.

The operator's early attempts to dissolve the CaCO_3 scale involved using coiled tubing (CT) to place hydrochloric acid (HCl) downhole. This technique often had to be applied several times to completely dissolve the scale, and then a drift run had to be made to confirm adequate clearance for the perforating guns.

Efficient single-trip scale removal

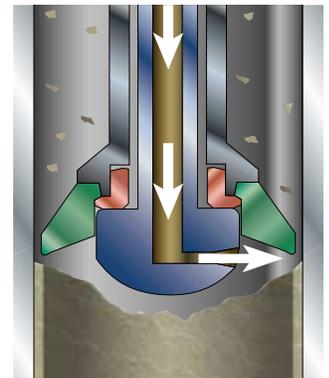
Looking for a more effective scale removal alternative, the operator selected the Jet Blaster service to remove the scale before running the perforating guns. Jet Advisor* software was used to configure the Jet Blaster tool for maximum jetting efficiency and to take into account all the relative completion design parameters.

The operation called for using 13,600 ft [4,145 m] of 1.5-in [3.8-cm] CT. Based on the software results, the Jet Blaster tool was configured with a 1.5-in [3.8-cm] nozzle head with two 0.125-in [3.175-mm] radial nozzles and a 0.093-in [2.362-mm] downjet. A drift ring was used to provide surface indication that enough scale had been removed to allow passage of the perforating guns.

The Jet Blaster tool was deployed to a depth of 6,891 ft [2,100 m], where the drift ring tagged scale. A total of 10 bbl [1.59 m³] of HCl was then pumped downhole, which was approximately one-third the volume typically used with the spot-and-soak method to achieve the same results. The Jet Blaster tool was run in the hole with no indication of tagging scale.

Operational efficiency and cost savings

Following the scale removal operation, the perforating guns were successfully run to depth without the need for a slickline run to verify the drift. The Jet Blaster service removed the CaCO_3 scale in a single run, which was a significant improvement over the previous technique. As a result, the operator is using the Jet Blaster service as the standard scale removal method to achieve its reperforating objectives in the Platong field.



Rotating head nozzles increase efficiency while the drift ring provides surface indication of scale removal.