

Two-stage Drag Jet Separate-layer Fracturing Technology

Hydraulic jet fracturing technology is a new reservoir modification technology that utilizes the unique properties of water jets. This technology combines hydraulic perforating and hydraulic fracturing techniques to independently and continuously fracturing multiple locations in multiple vertical locations without using any mechanical seals. Connect a set of hydraulic sand blasting fracturing tools to the tubing string, down to the location where the perforation and fracturing are required, and perform perforation fracturing. The fracturing fluid containing fracturing sand first penetrates the casing and cement. In the ring layer, multiple holes are drilled in the stratum to complete the perforation operation. During the subsequent fracturing, the fracturing sand proppant can be filled into the pressure cracks to complete the fracturing and sanding operation. Stay in pressure cracks to ensure the permeability of fracturing seams. The process is completed by three processes: water-jet blasting, hydraulic fracturing, and annulus extrusion. Through a hydraulic injection tool installed on the construction string, one (or more) injection holes are formed in the formation using water hammer action, thereby generating micro-fractures in the near-wellbore area to achieve hydraulic injection fracturing.

The hydraulic injection fracturing of one pipe string can perform multi-stage fracturing, and the construction period is short, which is beneficial to reduce reservoir damage; directional injection fracturing can be performed to accurately create joints; injection fracturing can effectively reduce formation fracture pressure and ensure high fracture pressure stratum the process of pressure

cracking and fracturing; the process has fewer wells, less damage to the reservoir, and simple construction procedures, which can generate large economic benefits.

APPLICATION

» This technology is mainly applied in the hydraulic jet separate-layer fracturing for vertical well, deviated well, directional well, and horizontal well.

FEATURE

- » Two stage jet gun, two stage packer
- » Start using stage by stage;
- » Jet gun adopted high grade alloy and with high strength gun block;
- » Adopted high performance packers, guarantee many times' setting efficiency(Single trip down hole operation can reach 12times).

OPERATION

This processing string mainly includes upper stage jet gun, upper stage packer, lower stage jet gun, lower stage packer, and check valve.

First take the lower stage jet gun to operate, after 2~3layers, if the nozzle of the jet gun can not perforate the casing due to the carried sand' s washout, then proceed the operation with the upper stage jet gun till the upper stage jet gun wear out to failure or packer can not set. Uplift the string, re-lower hydraulic jet string to proceed operation again.

Technique parameters

Hydraulic jet gun: Nozzle 6pcs, diameter 6mm;

K-2 packer: 50Mpa, 135C°.

