



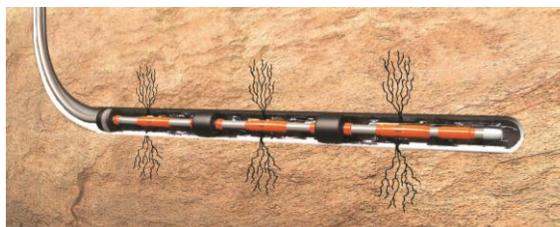
CASE HISTORY

Unconventional Resources: Multi-Zonal Acidization Treatment/Refrac

Full-bore Inflatable Packers

SINGLE TRIP MULTI-ZONAL ACID STIMULATION/REFRACTURING SOLUTION

A New Acid Stimulation System Enables an Operator to Efficiently Perform a Simultaneous Multi-Stage Acid Treatment in a Well with Lost Circulation in Northern Iraq - Kurdistan



TAM's Full-bore Inflatable Packers

CHALLENGES: During the life of a well, calcium carbonate scale commonly builds throughout formation matrixes, causing a significant decrease in permeability. Acid stimulation is an industry standard method employed to remove scale deposits and maximize production. Zonal isolation can optimize acid stimulation operations, as it provides the required flow diversion to force acid into damaged formations, unlike bull-heading acid treatments that can be inefficient in reaching targeted formations and can cause production tubing/casing to corrode. Conventional methods of flow diversion include bridge plugs and chemical barriers. This application required effective zonal isolation to simultaneously stimulate and refracture three zones in a well undergoing lost circulation.

SOLUTION: TAM International worked directly with an operator in Kurdistan to design a new acid stimulation system that incorporated three full-bore inflatable packers in conjunction with sliding sleeves to isolate each treatment zone. After the packers were simultaneously inflated inside the 7 in. production casing, coiled tubing was deployed inside the acid stimulation system to open the sliding sleeves and achieve direct acid flow diversion into the treatment zones.

The new acid stimulation system used three packers. A 5-1/4 in. OD exposed slat packer anchored the assembly and sealed the top zone, and two 5-1/16 in. OD fully covered packers were run to isolate the other zones. The assembly was run in the well with the bottom sliding sleeve open for equalization; coiled tubing was deployed with a shifting tool to close the sleeve and achieve pressure integrity to simultaneously inflate the packers by increasing the applied pressure. The other sliding sleeves were opened with the same shifting tool, allowing direct communication from surface to the formations requiring acid stimulation.

RESULTS AND BENEFIT: This multi-zonal simultaneous acid stimulation system proved to be an effective and economical method to achieve zonal isolation and refracturing capability in a timely and safe manner.