

Case Study:

ScaleFix SSD-E Extends Service Life of Pump Rods and Tubing for Major Bakken Operator

Successful single treatment reduces sulfate scale and NORM avoiding replacement of rods and tubing resulting in net savings of \$70K for the operator

Well Data

Location: Williston, North Dakota

Well Type: Lateral Oil Producer

Date: October 2021



Background

An international E&P company operating in North Dakota experienced ongoing issues with deposition of Barium Sulfate scale with high Naturally Occurring Radioactive Material (NORM) on their pump rods and specialty tubing leading to a decline in production. They had previously attempted to remove the sulfate scale with various commercially available dissolvers with minimal success.

TAQA Solution

ScaleFix SSD-E was recommended to dissolve the scale on the pump rods and tubing. In order to evaluate the efficacy of the treatment, the scaled up rods and tubing were pulled and the ODs and IDs measured at discrete points and marked for post treatment reference. NORM readings were also recorded while pulling out of hole. They then installed a blanking plug at the bottom of the tubing and filled up with ScaleFix SSD-E allowing for rod displacement while running back in hole. The rods were then run back in and the tubing and rods were soaked in ScaleFix SSD-E for 12 hours. The pump was then turned on for 6 hours to agitate. The rods were then pulled and the ODs re-measured at the previously marked positions. NORM readings were also taken while coming out of hole. The blanking plug was then unseated and the tubing pulled; observing IDs as coming out of hole.

Project Results

The amount of scale removed was evaluated comparing rod ODs and NORM readings before and after treatment. Result was that an average of 0.024" of BaSO₄ scale equating to 558 lbs was removed from the rod string OD and the NORM level had been reduced from 350 µR/hr to 30 µR/hr. There was no

evidence of corrosion or damage to the specialty tubing. This extended service life of rods and tubing prevented the need for replacement resulting in \$70k net cost savings.



Figure 1 OD measurements taken before and after treatment



Figure 2 Operator side Pre (left) NORM 237 µR/hr. Post (right) NORM 29-62 µR/hr: after time to dry