

Multi-Chem Reduces workover costs \$180,000/yr Injection Volumes Maintained with Cost-Effective Solution

BACKGROUND

Initially there was a scaling problem down hole. Water analysis revealed high levels of Iron, Calcium, Magnesium and Barium. A scale inhibitor was selected to control the scale. The system makes 502 bbl(75m³) of oil and 6721 bbl (1000m³) water per day. System has a 2000 bbl FWKO. The oil goes to two sales tanks and the water on to a 2000 bbl skim tank and then on to a 2000 bbl H₂O tank and further to a disposal well (on vacuum).

ISSUES

An operator in NW Canada had a water disposal well on vacuum, normally disposing up to 11,054bbl/d. (1650m³) After a rig job the well lost disposal rate after 3-4 weeks. The rate declined to 6700 bbl/ (1000m³)day after 5 to 6 weeks. The normal disposal rate fell to 6230-6853 bbl/day.

ANALYSIS

Multi-Chem's local technical team ran Iron counts. The system had normal rates of Fe initially, but at the water tanks oxygen reacted with the dissolved iron to form iron oxide. The main culprit is the introduction of oxygen with loads of water and the use of a converge diverge system in the H₂O tank which turns the water in the tank in a circular motion. Iron oxide was carrying through down the disposal well and plugging off the perforations thus reducing water intake.

RESOLUTION

Laboratory testing showed that introduction of an acid base compound to the water would keep the iron in solution. For cost efficiency Formic Acid was add to the emulsion breaker, eliminating the need for an extra pump. The only change made was at the injection point of chemical a quill was installed due to the lower pH.

DELIVERED VALUE

Multi-Chem delivered huge value to the costomer by reducing at least 2 rig operations per year (\$180,000) and now using only 5ppm of formic acid on a daily basis with a cost of \$10,000/yr. Cost savings \$170,000/yr to the customer.

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