

# Single-treatment scale prevention sustains production: Utah

SCALEGUARD proppant-delivered scale-inhibiting technology keeps oil flowing, eliminates frequent, high-cost remediation.

## Uinta Basin, Utah

### The challenge

Owing to the persistent build-up of carbonate and sulfate scales in its Greater Monument Butte Unit (GMBU) wells in Utah's Uinta Basin, the operator relied on liquid phosphonates and particulate-based inhibitors to prevent production-restricting deposits, which nonetheless continue to re-emerge. Within the GMBU, excessive volumes of produced water are intensified by a long history of waterflooding, causing scale to form quickly and frequently, effectively seizing rod pumps and downhole tubulars in a matter of days. Compounding the reduced production, persistent scale build-up can reach the point where a squeeze is the only option, requiring rod and other downhole hardware be pulled, which can conservatively cost up to \$25,000 per treatment. Thus, the operator sought an alternative and longer-lasting solution that would sustain oil production for multiple years without the frequent remediation.

### The solution

CARBO® recommended the operator employ its single-treatment SCALEGUARD® proppant-delivered scale-inhibiting technology, designed to eliminate the formation of scale at its point of origin.

Specifically, water-activated SCALEGUARD technology—a highly conductive ceramic proppant infused with scale inhibitors that features a controlled release technology—is placed directly throughout the fracture network as part of a typical fracing operation.

Through this controlled release technology, scale-generating water is inhibited at a specified rate so that levels remain above the minimum inhibitor concentration (MIC) determined for each application. To test the effectiveness in sustaining production, a field trial was arranged, whereas five vertical wells would be completed similarly and stimulated with a blend of SCALEGUARD technology and 20/40 northern white sand.

Prior to the trial, CARBO specialists conducted extensive yard tests and modeling, taking into account the water chemistry, production rate and other well characteristics, to determine the precise MIC and placement release rate.

### Well Data

**Location:** Uinta Basin, Utah

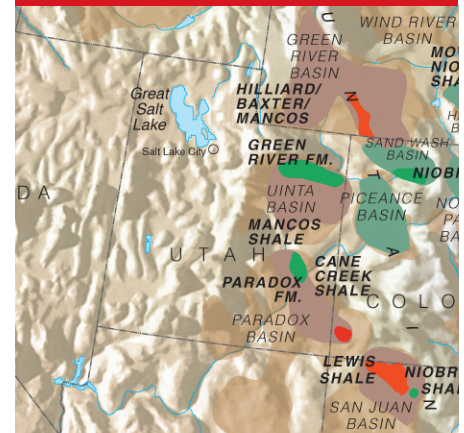
**Operator:** Independent

**Location/wells:** Greater Monument Butte Unit (GMBU); 5 wells

**Well type:** Oil; vertical

**Reservoirs/depth:** Green River, Wasatch formations; 4,100 to 6,400 ft

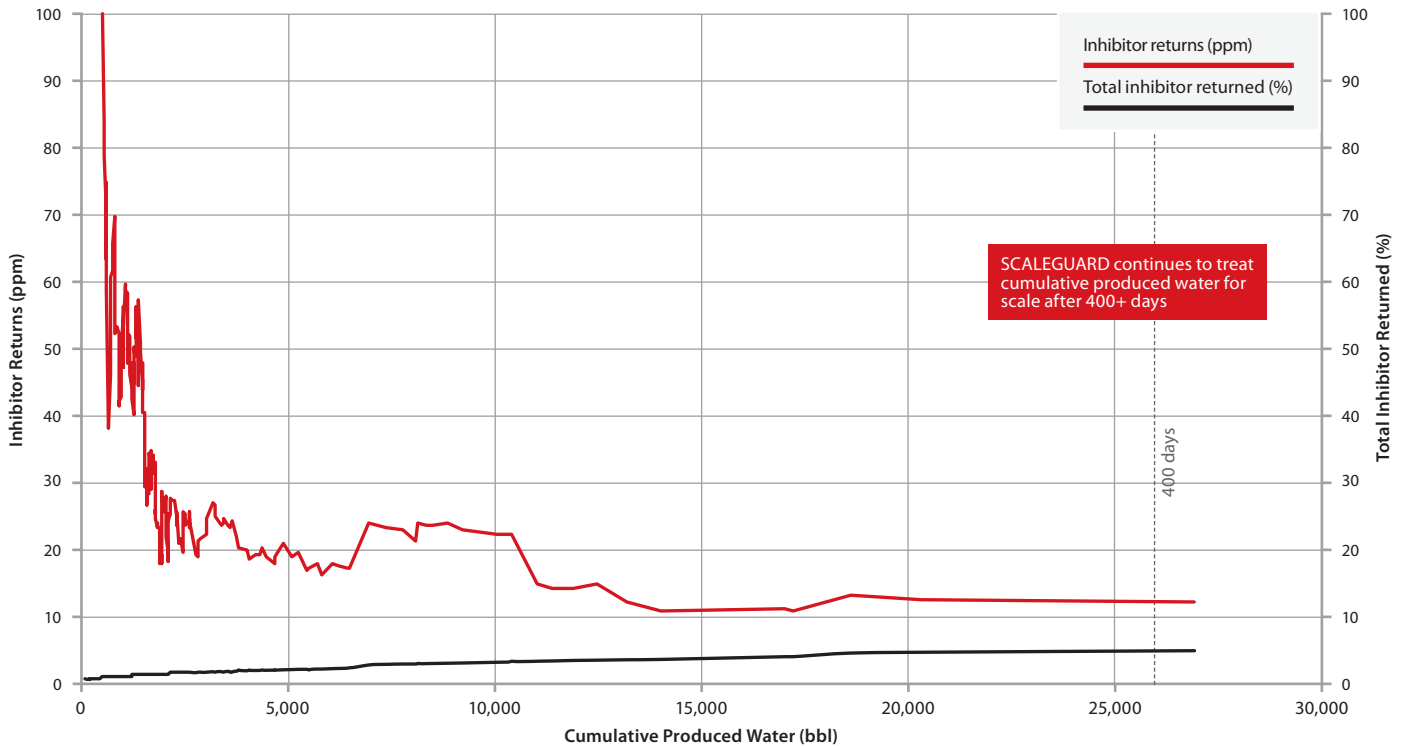
**Proppant:** SCALEGUARD, 20/40 northern white sand



## The results

The controlled release of the inhibitor by SCALEGUARD technology has worked as designed with the five wells sustaining production for more than one year with no downhole scaling issues. After treatment, production has sustained rates achieved prior to the scale deposition. Water samples show the scale control consistently remaining well above the MIC, effectively saving the operator costs associated with oft-repeated scale remediation. The success of the SCALEGUARD technology field trial has opened the door for additional proppant-delivered solutions to counter other production-choking problems within the GMBU such as paraffin.

### Inhibitor concentration in produced water



From SPE-173792-MS "Effective Scale Prevention Using Chemically Infused Proppant – A Uinta Basin Case History."

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