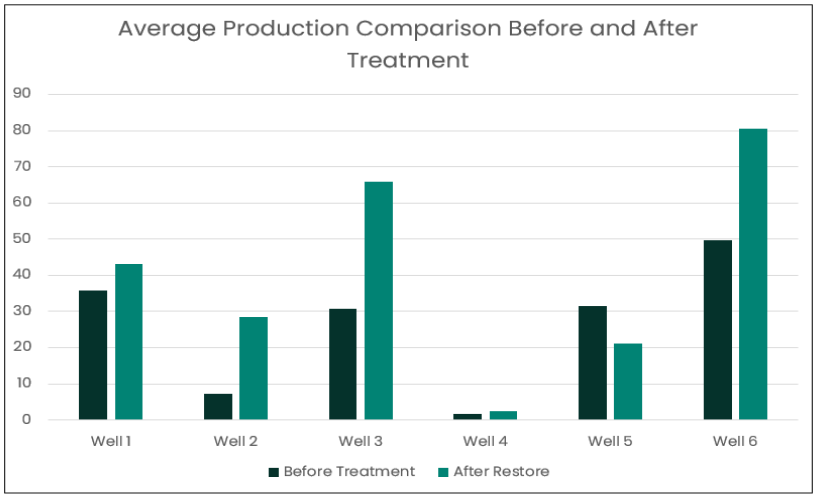
Case study: California, United States

RESTORE/FlowSuite enhancement program increases production

In California, several wells were experiencing production declines related to fines migration suspected of plugging and bridging across the pore throat openings in the critical matrix, gravel pack, and perforations. Further contributing to declining production was the formation of post-acidizing sludge or rigid film emulsions that affect relative permeability and change fluid wettability.

Baker Hughes engineers analyzed six wells in the field and recommended a Baker Hughes RESTORE Production Enhancement Program. Each well received a customized application of Baker Hughes RESTORE™ PEP2 Asphaltene Dispersant, along with Baker Hughes FlowSuite™ FS4. These treatments are designed to remove asphaltene damage and break emulsion blocks by separating the water and formation fines from the in-situ oil. Where necessary, treatments were enhanced with the inclusion of Baker Hughes SRW40808S Organic Acid to remove the scale.

Years of skin damage caused by paraffin and asphaltene sludge, inorganic scale, water blockage, and wettability problems were removed within hours of applying the Baker Hughes RESTORE Program treatments, bringing the wells closer to their original and natural productive capabilities. With initial production improvements as high as 290% the operator's investment with Baker Hughes yielded an initial return of over 2,300%.



Challenges

- In California, several wells were in decline due to years of skin damage.
- Difficulties with plugging and bridging across the pore openings in the critical matrix, gravel pack, and perforations.

Results

- Wettability problems were removed within hours of apply the Baker Hughes RESTORE Program treatments
- FlowSuite remediated emulsion issues quickly and efficiently
- An estimated $384,000 revenue increase in the first three months
- 2,300% initial return on investment
- 23-day average payback time
- 3-25% increase in rod pump efficiency.