Restarting wells after extended shut-in periods

Effectively avoid restart challenges by addressing lower temperatures, stagnant or incompatible fluids, and the absence of protective chemicals

Overview

Halliburton Multi-Chem provides expertise and solutions to minimize challenges experienced when restarting wells after extended shut-in periods. Conditions such as lower temperatures, stagnant or incompatible fluids, and the absence or depletion of protective chemicals can lead to well restart challenges. Developing a successful treatment program for paraffin, scale, solids, corrosion, bacteria growth, and other challenges requires understanding previous treatment programs, how the well was shut-in, and potential treatment solutions.

Challenges

ISSUE	RISK POTENTIAL
Lower temperature	▪ Paraffin precipitation (when well temperature is < wax appearance temperature) ▪ Can lead to blockages ▪ Gas hydrates
Stagnant or incompatible fluids	▪ Asphaltene precipitation ▪ Scale formation/solids sedimentation ▪ Microbial activity
Absence or depletion of protective fluids	▪ If shut-in occurred without any protective treatment or insufficient treatment ▪ Bacterial growth and corrosion

RESTART CHECKLIST:

- Understand history of the production system
- Evaluate procedures used to shut-in system
- Explore application options and develop customized chemical treatment program
- Recommend an ongoing maintenance program to help ensure asset integrity and production reliability

Solutions

A broad array of options is available to help remediate issues, but the best treatment and success depend on system setup and actions taken to prepare a well prior to shut-in. Chemical programs in place before shut-in will likely need to be re-established.

PARAFFIN TREATMENT	
Solvents	▪ Dissolves precipitated paraffins independent of molecular weight or carbon number ▪ Good option where heat, mixing are limited ▪ Solvent becomes saleable product (enters crude oil stream) ▪ Non-chlorinated
Thermals	▪ Hot oil/hot water ▪ Paraffin dispersant helpful to offset cooling over time
SCALE/SOLIDS TREATMENT	
Acids	▪ Calcium carbonate ▪ Iron carbonate (corrosion product) ▪ Iron sulfides (can produce H_2S and is reversible with pH increase)
Specialty dissolvers	▪ Hot oil/hot water ▪ Paraffin dispersant helpful to offset cooling over time
Surfactants	▪ General and sand-specific
SCALE/SOLIDS TREATMENT	
Gas wells	▪ Treat liquid-loaded gas wells with a foaming agent
Bacteria growth	▪ Use a biocide to remove any growth during shut-in to prepare flow conduit such as tubing and surface lines
Corrosion	▪ A corrosion inhibitor treatment will re-establish a layer of protection against general corrosion mechanisms such as CO_2 and H_2S
Past and go-forward treatments	▪ Review and re-establish previous treatments, supported by periodic treatments during service life

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

halliburton.com/specialty-chemicals

HALLIBURTON