FET | Global Tubing

f-e-t.com/global-tubing

Abrasion Mitigation

A combination of galling and abrasive wear from contact between the tubing and well completion casing can cause abrasion. Generally, the orientation of this damage is along the longitudinal axis of the tubing.

Signs of Abrasion

The following images are examples of the damage in the outer surface of the coiled tubing.

Recommended Mitigation Practices

Due to abrasion damage being commonly sustained in the longitudinal direction, the detrimental effect on fatigue life is directly correlated with the amount of wall thickness loss. The primary failure mode is burst or collapse as shown below.

- Minimize localized bends and kinks near the BHA to minimize localized buckling and high contact forces near extended reach tools. Visually inspect near the BHA for flat spots or abrupt changes in ovality and crop as necessary.
- Implement a consistent BHA cropping and assessment procedure regardless of any indication of abrasion to minimize the possibility of a flat spot being close to the BHA. The field may trim 30 - 50 ft routinely to assure flat areas are removed.
- Uniform spooling during operations will minimize localized bends and kinks at crossovers which can cause localized abrasion.
- Use of lubricants will reduce abrasion rates, but the timing must be considering based on tubing forces and hydraulics analysis, particularly when the highest wall contact forces may be experienced.

Please refer to our technical paper (SPE-209019-MS) presented at the 2022 SPE/ICoTA Well Intervention Conference & Exhibition held in The Woodlands, Texas, USA to learn more about this type of damage.

Looking for more?

Contact our coiled tubing experts for more information:

+1 713-265-5000

coiledtubing@f-e-t.com