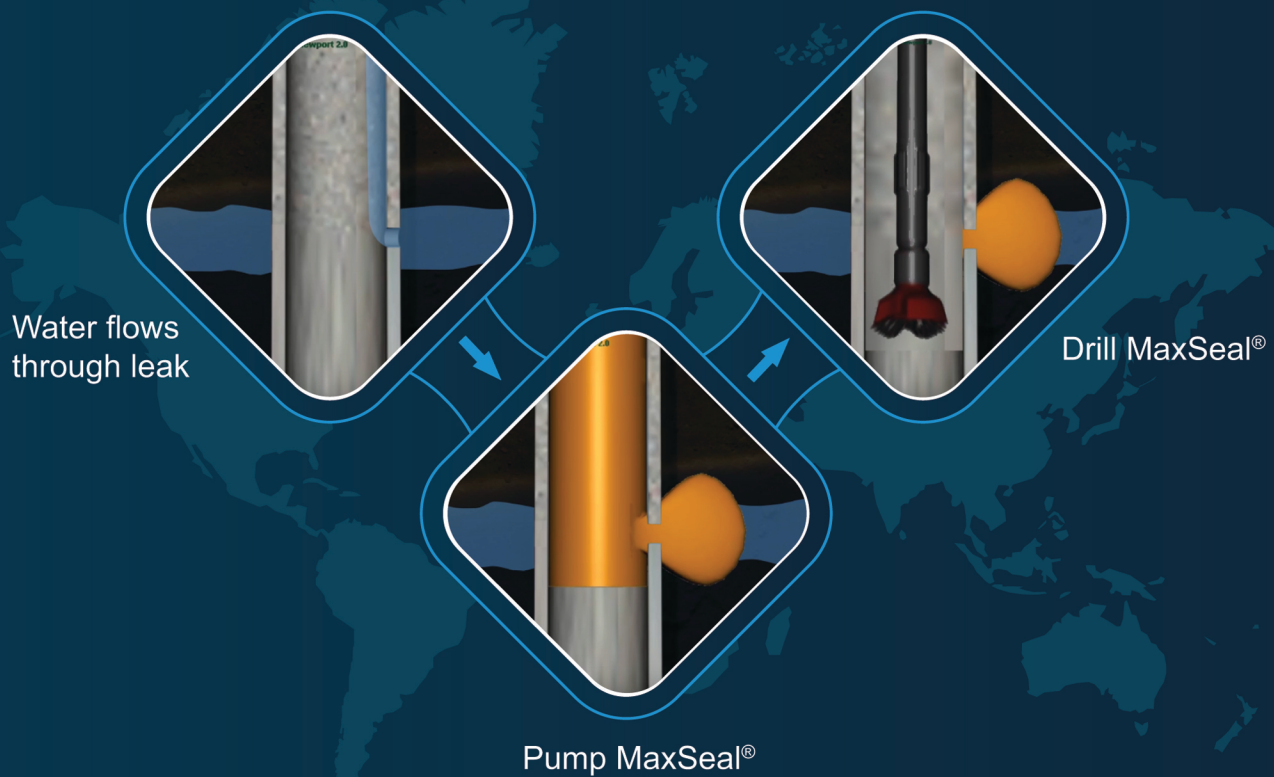


## Casing Leak Remedy



Long-term zonal isolation issues with oilfield cement annuli commonly result from cyclic temperature and pressure loading during the lifetime of the well. Cement mechanical properties such as brittleness and low tensile strength affect the long-term durability of the cement seal.

Remediation of zonal isolation failures, such as microannuli, can be both costly and challenging to execute successfully. The relatively large particle size of conventional cement compared to a microannulus means that it is difficult for the cement to penetrate far enough to create an effective seal. Gulf Operations has developed MaxSeal® to penetrate areas previously inaccessible to conventional cement slurry, such as tight casing leaks, gravel packs, small fractures, channels, or microannuli.

MaxSeal® has better mechanical properties compared to conventional cement and short setting time. The mechanical properties of MaxSeal® system, including density, elasticity, and strength can be tailored to meet a variety of wellbore challenges. Applications include situations where water or gas leaks need to be prevented or remediated:

- Zonal isolation/shut off water and gas.
- Plugging of hydraulic control line.
- Temporary Plugging.
- Plugs for P&A.