



CASE HISTORY

Unconventional Resources: Steam Injection

FREECAP GT™—Geothermal Swellable Packers

STEAM INJECTION OIL RECOVERY ENHANCEMENT SOLUTION UTILIZES HIGH-TEMPERATURE SWELLABLE PACKER TECHNOLOGY FOR PRODUCTION IMPROVEMENT IN HEAVY OIL APPLICATION

FREECAP GT™ Swellable Packers Were Utilized to Isolate a Water Production Zone through a Slotted Liner Completion and Increased Oil Production by 30% after Effective Isolation



CHALLENGES: An operator in the Middle East experienced a decline of oil production in a horizontal barefoot completion due to water encroachment. A solution was needed to isolate individual production zones and shut off the water producing zone.

SOLUTION: A plan was developed to obtain effective isolation across the water producing zone while at the same time designing the intervention so the well could be set up for steam injection operations to further enhance oil recovery. Zonal isolation equipment would be subject to high temperatures during steam injection, which prevented the utilization of traditional methods such as inflatable, mechanical, or standard swellable packers. The intervention instead would utilize TAM's FREECAP GT (high-temperature swellable packer technology) to achieve the required zonal isolation during steam injection and production periods. An oil-reactive, high-temperature swellable packer system was designed to provide zonal isolation as part of the 4-1/2 in. slotted liner completion. To accommodate steam injection-induced tubing movement, the swellable packer element was designed as a slide-on sleeve to allow the packer to remain fixed while the pipe moved during temperature and pressure changes.

RESULTS AND BENEFIT: The slotted liner completion with the FREECAP GT swellable packer was successfully run in the hole and landed at the desired interval, positioning the packer across the known water entry. The well was placed back on line, and its oil production increased by 30%. By incorporating TAM's FREECAP GT in the completion design, the customer was able both to isolate the water producing zone and to allow for steam-assisted enhanced recovery and a longer functional life of the well.

