Improve Productivity With Real-time Sandface Data

Tool provides real-time data in difficult wells.

The new WellWatcher Flux multizonal reservoir monitoring system overcomes three technical challenges: acquiring sandface zonal pressures and high-resolution temperature data across multistage subsea completions, transmitting those in real time to the surface even in deep wells with upper and lower completions and interpreting the data to gain knowledge that would otherwise be too expensive to collect.

The system provides continuous sandface monitoring across one or multiple zones with only a single wellhead penetration. It extends monitoring into lower completions with field-proven inductive coupling techniques that provide wireless power and data communication without the challenges sometimes associated with optical fiber.

The robust temperature sensors have a resolution 100 times higher than that of optical fiber, and a proprietary multidisciplinary transient interpretation technique allows operators to optimize well production and reservoir depletion while maximizing field economics. The data can be used to identify real-time production and injection profiles, permeability and skin changes, water breakthrough, fines movement, and out-of-zone injection. High tolerance for debris and vibration makes the system particularly suitable for multistage deepwater completions, where intervention costs and risks are high.

Data gathering in the Caspian Sea

Government regulations in the Caspian Sea mandate production logging each well at least once per year. High pressure and hydrogen sulfide levels up to 15% in one operator’s wells posed significant HSE risk, necessitating use of specialized equipment during logging and increasing operating time and cost. Moreover, production must be suspended on all wells on the platform when a well is logged, resulting in deferred production and compounding the inherent risk of shutting in a well.

For a new well Schlumberger recommended the WellWatcher Flux system to acquire the required production data, and the benefits of the new system became apparent even before the well was placed on production. During the injection test and subsequent acid stimulation, the system transmitted data to the surface in real time.

The high-resolution temperature data helped identify zones that were successfully stimulated by indicating the exothermic reaction that occurs as acid contacts the formation, including higher localized temperature increases in the higher permeability zones. The data revealed exactly which zones had the best permeability distribution.

Visit Schlumberger booth 2415 Monday at 12 p.m. for a special presentation with more details about this new technology.