

CASE HISTORY

COMPLEX PLUG & ABANDONMENT IN LOS ANGELES METROPOLITAN AREA

APPLICATION

Complex Plug and Abandonment
Well Intercept
Magnetic Ranging

TECHNOLOGY

BlackShark™ Active Ranging
MagTraC™ Passive Ranging
GyroMWD
Continuous B-Total
Advanced Survey Management

LOCATION

Los Angeles,
California

CUSTOMER CHALLENGE

During an urban development project in a densely populated area in Los Angeles, an orphan well which was leaking oil was discovered. To ensure the safety of the community and environment, and to permit the construction to continue, the well needed to be permanently plugged and abandoned. The well was previously plugged more than a hundred years ago using outdated techniques that were no longer sufficient, making traditional re-entry into the well impossible. The well needed to be intercepted five times to isolate three hydrocarbon-bearing zones and underground freshwater zone. The only economical way to re-enter the well was via interception from a specially designed offset well. Upon commencement of remedial operations, it was discovered that the target well casing had multiple breaks, making ranging operations more complex. The already challenging scenario was further complicated by the absence of any survey information on the target well.

SCIENTIFIC SOLUTION

Scientific Drilling partnered with WZI and Driltek to ensure the most economically efficient method to remediate the problematic well for the stakeholder. The intercept well plan was designed to locate and twin the target well using Scientific Drilling's BlackShark™ and MagTraC™ ranging systems, perform a detailed analysis of the casing damage, and map the position of the target well. An all-in-one well intercept kit was mobilized to facilitate the project. Keeper™ gyro integrated into MWD and Ranging systems enabled accurate True North referencing in the magnetically perturbed environment. Proprietary Continuous B-Total measurements while drilling ensured early magnetic anomaly detection. Advanced Survey Management minimized the number of wireline ranging runs and would re-construct the most probable target well profile for optimally targeted series of intercepts from a single offset well.

CUSTOMER VALUE

Thorough planning, fit-for-purpose tools, and experienced wellbore intercept personnel led this complex plug-and-abandonment project to successful execution and completion. The compromised well was permanently abandoned, fulfilling all regulatory, environmental, and safety requirements and allowing the successful completion of the civil construction.

