

CASE HISTORY

MagTraC MWD RANGING™ SUCCESSFULLY TWINNS SAGD TARGET WELL IN RUSSIA

APPLICATION

SAGD - Opposing Lateral Placement; Twinning

TECHNOLOGY

MagTraC MWD Ranging™, Sci-Driver™, Sci-GAIN™, Falcon EM MWD, and Magnetized Casing

LOCATION

Ukhta, Komi Republic, Russia

CUSTOMER CHALLENGE

The customer needed to drill a SAGD injector well (Wellbore A) with 5.5 m to 8 m TVD separation above an existing producer well (Wellbore B). The injector well was to be drilled from a separate pad, approaching the producer well from the opposite direction.

The rig was slanted at 45° inclination at surface, making it problematic to run a gyro survey in the existing producer well to help reduce the Error or Uncertainty. This further complicates the operation as no definitive position of the well to be twinned existed.

SCIENTIFIC SOLUTION

A BHA featuring SDI's Sci-Driver™ Near Bit Smart Motor with continuous gamma and inclination, Sci-GAIN™ (Gamma & Inclination), and Falcon EM MWD was selected to drill and accurately place the new injector well.

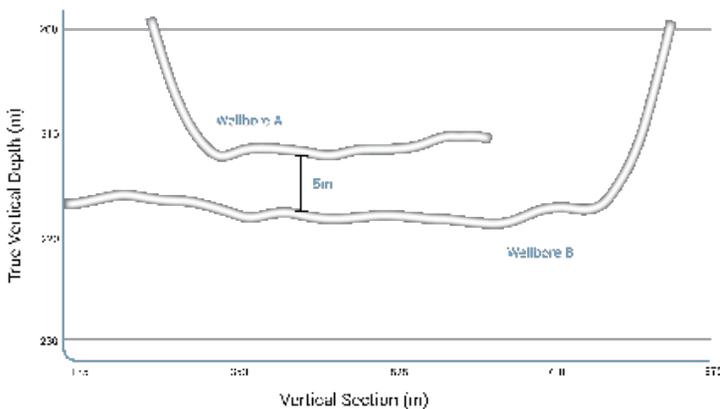
In order to facilitate early detection of the producer well, the 7" slotted liner in the producer well was magnetized prior to running in hole - enabling higher accuracy ranging measurements to be obtained in all areas of the well. MagTraC was used while drilling the injector well to detect and place the producer well. Initial ranging was at 361 m MD with the injector being 14.6 m away, a difference of 10 m from its surveyed position. Ranging continued though the build section, with the results enabling the injector well to be landed with 5.5 m TVD separation and 4.1 m lateral separation. The injector well was opened up to 12 ½", allowing 9 5/8" casing to be run.

MagTraC was also used in the 8 ½" lateral section of the injector well to twin the producer well with minimal lateral separation. The customer requested an increased TVD separation at 604 m in order to exploit a more permeable layer. It was used to confirm the increased separation of 8 m at 706 m MD. The customer then requested that the TVD separation be reduced, and ranging was used to confirm a 7 m TVD separation at 734 m MD.

CUSTOMER VALUE

An opposing lateral placement, requiring an injector to be drilled above the existing oil producer is a very complex and extensive operation. SDI's high accuracy technology paired with MagTraC MWD Ranging allowed the customer to overcome positional uncertainties and ultimately ensured maximum production recovery. In addition, the customer was delivered significant time and cost savings with SDI's streamlined operations and avoiding extensive wireline active ranging runs.

With the successful completion of this project, SDI was awarded the drilling and magnetic ranging work for an additional 28 SAGD pairs.



OPPOSING LATERAL PLACEMENT

Scientific Drilling's passive ranging solution (MagTraC MWD Ranging™) and magnetized casing operation allowed accurate wellbore positioning within 5 m of separation as seen in graph to the right.