

CASE HISTORY

CASING MAGNETIZATION PROVIDES SOLUTION FOR CONTINGENCY RELIEF WELL PLANNING

APPLICATION

Contingency Relief Well Planning

TECHNOLOGY

Casing Magnetization, MagTraC, Well Planning

LOCATION

Barents Sea,
Norway

CUSTOMER CHALLENGE

The Customer was drilling in the Barents Sea into a shallow reservoir. One of the risk mitigation measures was to have a contingency relief well plan in the event of a blowout occurring during drilling operations. The contingency relief well plans using Active ranging required a high angle of approach which was not optimum for using access independent active ranging tools. To enable a passive ranging prospect, the detection range needed to be increased.

Scientific Drilling was challenged to produce a workable contingency relief well plan.

SCIENTIFIC SOLUTION

The MagTraC magnetic ranging detection range can be greatly increased by artificially magnetizing a number of casing joints in a string in a pre-determined proprietary polarity pattern. This pattern is designed for each application and consists of combinations of positive and negative poles arranged to provide a known and predictable magnetization signature.

A specialized coil was developed by SDI to magnetize all casing sizes up to 18" in diameter. The coil is pulled back across each joint slowly in order to saturate each casing joint to the required magnetic field strength. The coil polarity is reversed for those joints that require oppositely charged poles.

A total of 22 lengths of 9 5/8" casing were magnetized in this manner. Each casing joint was numbered to ensure the correct pattern when the casing was run in hole.

Special handling and storage procedures were also required to ensure magnetic strength of the poles did not diminish during handling. Tests have shown that once run in place the SDI proprietary magnetization pattern will last for at least 2 years without any fall off in field strength.



CUSTOMER VALUE

The customer was able to obtain the appropriate regulatory authorization to be able to drill the well successfully. The exploration well was successful and a further sidetrack was drilled to prove the discovery. SDI was subsequently called out to provide the casing magnetization service for the sidetrack well.