GEODynamics®

OFFSHORE
ALASKA

CASE STUDY

Rapid Development of Perforating System to Overcome Isolation Challenges in Older Wells

Custom developed perforating charges penetrate inner string(s) of casing without penetrating the outer most string(s) to facilitate effective isolation in multiple annuli for P&A or squeeze cementing operations

THE CHALLENGE

A planned waterflood program required the preparation of several older, unused wellbores for a sidetrack coil tubing drilling operation targeting the shallower West Sak formation. The wells were originally drilled in the early 1980's and unfortunately the planned casing exit point was uncemented – to stabilize the casing and provide water flood injection isolation a cement squeeze was required.

On a particular pad 7 inch 26 lb/ft decentralized production casing was hanging inside a cemented 9-5/8 inch intermediate casing. A cement squeeze was required over the mudstone confining layer and extending across the West Sak D target layer – in total a gross interval of about 160 feet. The challenge was to perforate the 7 inch casing but not the 9-5/8 inch intermediate.

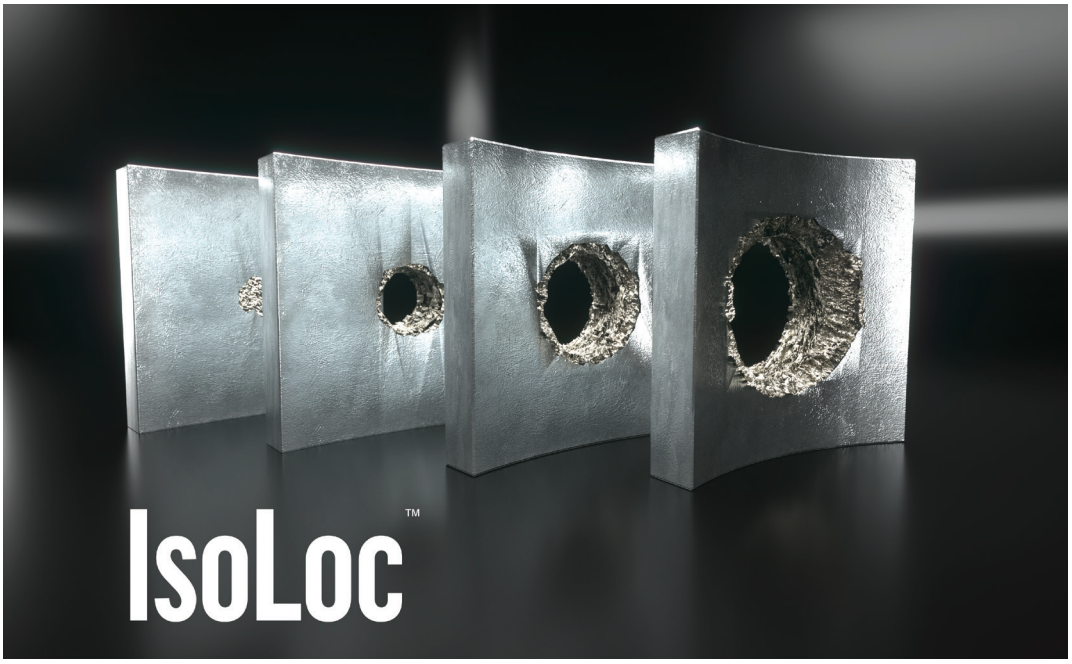
The planned perf, wash, and cementing operation required a 0.5 inch casing entry hole at a density of 12 shots per foot in order to effectively circulate and place cement behind the casing.

THE SOLUTION

A perforating charge was custom developed for the 5-1/8 inch IsoLoc™ perforating system. The charge was developed in 14 days. Based on surface testing results the charge provided an entrance hole diameter of 0.68 inch (low side) and 0.58 inch (high side) in the 7 inch production casing and did not penetrate the 9-5/8 inch intermediate casing – even with the 7 inch casing fully contacting the 9-5/8 inch outer string.

THE RESULTS

The developed charge met the design requirements and was deployed on schedule. The complete 160 feet of interval was successfully squeezed and isolated in preparation for further operations.



PROJECT SUMMARY

Product Name
IsoLoc™
Charge part number EC2-51C1631

Region
Offshore Alaska USA
Kuparuk field

Formation
West Sak

Lithology
Sandstone/Silt Intervals

Well Type
Injector

Depth
3,200 ft TVD

Casing
7 inch, 26 lb/ft, J-55 production casing (uncemented)
9-5/8 inch, 36 lb/ft, J-55 intermediate casing (cemented)

www.perf.com
www.perf.com/isoloc