

# Customized FORTRESS Isolation Valve Proves Key to ENL's Completion Design for Extended-Reach Wells

Modified profile provides the only downhole fluid loss control device compatible with ExxonMobil's proprietary openhole isolation packer on Russia's largest platform

## CHALLENGE

Customize a FORTRESS\* premium isolation valve to ensure compatibility with the ExxonMobil proprietary openhole isolation packer to be installed with UltiPac\* Alternate Path† extended-reach gravel-pack screens offshore Sakhalin Island.

## SOLUTION

Modify the shifting profile of the isolation valve to differentiate it from that of the packer, thereby preventing accidental actuation of both.

## RESULTS

Isolated the production zone from upper completion activities after a 100%-complete openhole gravel pack and subsequently opened the FORTRESS valve for production, with zero NPT, successfully implementing ENL's completion design.



## Provide isolation valve compatible with ENL's proprietary packer

The ice-resistant Berkut platform operated by Exxon Neftegas Limited (ENL) in Arkutun-Dagi field offshore Sakhalin Island is the largest oil and gas production platform in the world. Equipped with an enclosed drilling superstructure, it is rated for peak oil production of 90,000 bbl/d. The first well drilled for this high-visibility campaign was planned as a 3,200-m-long deviated well, to be completed with an openhole gravel pack.

The completion incorporated UltiPac Alternate Path extended-reach gravel-pack screens, two mechanically set openhole isolation packers proprietary to ExxonMobil, and a FORTRESS premium isolation valve above the packers. The valve was selected for its superior debris tolerance—critical during gravel packing—and ISO barrier valve certification. ENL had scheduled first oil delivery before the end of 2014 and the tight time frame had zero margin for NPT.

During the well design phase it was noted that the shifting tool for the isolation packers had the potential to partially engage the shifting profile within the FORTRESS valve, resulting in significant overpull to free the shifting tool or inadvertent actuation of the valve. The validity of this concern was confirmed during a system integration test (SIT) performed at the Schlumberger Ardmore Manufacturing Center. ENL requested a design modification to ensure that the completion could be run successfully.

## Customize FORTRESS premium valve to ensure completion compatibility

Schlumberger product development and engineering teams worked to modify the FORTRESS valve shifting profile and the shifting tool collet to eliminate any potential engagement with the proprietary openhole packer and its shifting tool. Multiple successful SITs were conducted in both Houston and Aberdeen to verify the reliability and effectiveness of the redesign.

## Enable execution of ENL completion design

Close teamwork by ExxonMobil and Schlumberger using RapidResponse\* client-driven product development resulted in a customized design and accelerated delivery, enabling successful completion of the first well drilled from the Berkut platform. The openhole isolation packers were set as per procedure and without any interference from the FORTRESS valve's shifting tool. The gravel pack was pumped through UltiPAC screens with 100% packing efficiency and the FORTRESS valve was subsequently closed and tested before installing the upper completion. The valve was successfully opened 10 days later by cycling the TripSaver\* one-trip remote-operating mechanism for isolation valves and the well was immediately placed on production.

The modified FORTRESS valve is the industry's only downhole fluid loss control device that has been tested and confirmed as compatible with the ExxonMobil proprietary openhole isolation packer, which is an essential component of the company's preferred completion technique in numerous field development campaigns worldwide.

[slb.com/FORTRESS](http://slb.com/FORTRESS)

\*Mark of Schlumberger

†Mark of ExxonMobil; technology licensed exclusively to Schlumberger; UltiPac screens use ISAPT™ internal shunt Alternate Path technology licensed from ExxonMobil Upstream Research Company  
Copyright © 2015 Schlumberger. All rights reserved. 15-CO-39837