

Case study: Sakhalin, Russia

# GeoFORM completion saved 5 days, \$5M USD in challenging openhole extended lateral offshore Sakhalin

An operator working offshore Sakhalin, Russia, wanted to complete a new horizontal well drilled from existing surface casing in a target zone. The zone was deemed daunting, if not impossible to complete because of its robust sand-control requirements. Stand-alone screens had been typically used in this field, but gravel packing was needed to produce from this interval. Due to the length of the target lateral, the potential to exceed fracture gradient, and platform limitations, gravel packing was deemed impractical. The customer reached out to Baker Hughes for a deployment approach that would replicate the simplicity of a stand-alone screen completion and the sand control efficiency of a gravel pack.

Baker Hughes proposed the **GeoFORM™ conformable sand management system**. The GeoFORM system's modularity and flexibility allow customization of the completion and stimulation design to best match the reservoir. Unlike conventional sand control techniques, the GeoFORM system leverages unique shape-memory-polymer (SMP) material—a highly porous filtration media that expands downhole in the presence of GeoFORM activation fluid and conforms to the borehole wall. GeoFORM system deployment is faster and offers much greater completion design flexibility

compared to conventional multizone gravel or frac-pack completions. The GeoFORM system is run downhole like a sand screen—but can be installed by a two-person crew, and doesn't require special pumping equipment or proppant, making it ideal for remote locations. When used in place of a gravel pack, the GeoFORM system can save three or more days of rig time on average.

After extensive feasibility and compatibility testing at Baker Hughes' laboratories and in the field, the decision was made to spot the 8 ½-in. open hole with GeoFORM activation fluid prior to pulling the drilling BHA out of hole. Pre-spotting of the activation fluid, combined with synthetic oil-based mud (SOBM), would significantly reduce the rig time needed to later run washpipe for fluid spotting.

## Flawless Execution

Deployment of the completion by trained Baker Hughes personnel and spotting of the activation fluid to expand the SMP material was executed flawlessly with no HSE incidents. The operation was completed in a single trip with the aid of a Baker Hughes **FLEX-LOCK™ IV liner hanger system** and required no sand control pumping operations.

## Challenges

- Long extended laterals
- Ultrafine sands and low frac gradient
- Remote location with limited field resources
- Platform limitations

## Results

- Eliminated the need for gravel pack equipment and rig time, saving \$5M USD
- Drilled and completed entire challenging openhole lateral in a single trip

The openhole completion allowed the customer to avoid running liner and cementing, installing sump packers, and eliminated wellbore cleanout operations compared to conventional cased-hole gravel packing. By using the GeoFORM system, the customer saved approximately \$5 million USD and five rig days on the completion phase alone as compared to a gravel pack operation.

They were extremely pleased to discover a solution for this challenging well and will use GeoFORM for several upcoming projects. They also are evaluating switching all of their wells globally from gravel packing to the GeoFORM system.



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