

Completion Solutions

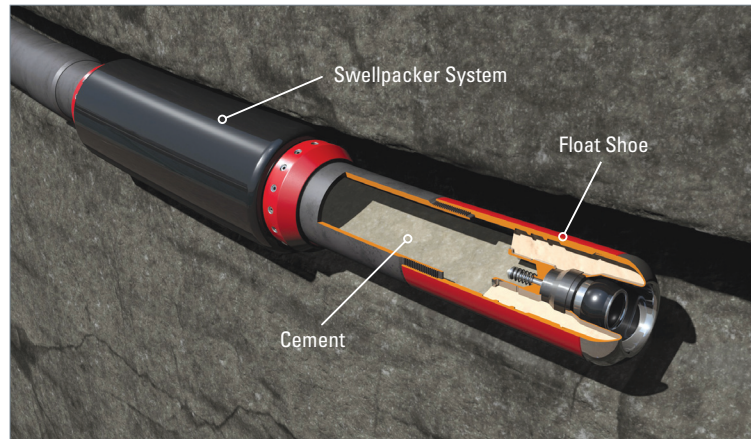
Subsea Surface Casing - Shallow Water Shutoff

Location: North Sea, Norway

Challenge – During subsea batch setting of the 18.7-in. surface casings in 24-in. hole, an operator discovered water migration to the sea bed. The water-bearing zone caused isolation failure around the 18.7-in. casing, allowing free water leak to seabed.

Subsea installations had already been completed on six wells and a plan to prevent water migration to seabed was required for further subsea installations in the remaining wells.

All future wells are still required to be conventionally cemented to the seabed.



Solution – In cooperation with Halliburton Cementing, the Swell Technology team proposed using a low-temperature water-swelling type packer. The packer was designed to maintain compliance with the expected Equivalent Circulating Density (ECD) limitations for conventional cementing operations while still meeting the pressure rating requirement for the application. The low-profile OD Swellpacker® isolation system was cemented in without affecting ECDs, while still allowing the packer to swell to the hole ID of 24-in. This design allows the packer to provide a secondary seal in case of water channels in the cement.

Result – The casing running operation went according to plan. No additional drag was observed. The cementing operation was performed with no abnormal pressure. Initial observation of the well showed water leaking to the seabed, as with the previous wells. As the leaking water contacted the low-temperature water-swelling Swellpacker system, the element expanded and water flow decreased. The last well observation performed by an ROV showed no water leaking to seabed.

CHALLENGE	SOLUTION	RESULT
<p>Stop water migration to the sea bed between 18.7-in. surface casing and 24-in. hole</p>	<p>Low-temperature water swelling Swellpacker® system run in conjunction with cement</p> <p>The packer was designed to meet pressure requirements, not affect ECD's, and still swell to the hole ID of 24-in.</p>	<p>Casing was run to depth and cemented without issue. As the water came in contact with the Swellpacker system, the element expanded and the water flow decreased, eventually shutting it off</p>