

# PRIMO-SWELL System Enables Advanced Multizone OptiPac Screen Job in Sensitive Reservoir, Colombia

Oil-base system maintains compatibility with water-base filtercake and meets density requirement, facilitating successful zonal isolation and gravel packing

## CHALLENGE

Perform zonal isolation prior to gravel packing using OptiPac\* Alternate Path openhole gravel-pack screen with a 100% oil-base fluid to enable packer swelling while maintaining hydrostatic pressure.

## SOLUTION

Prepare and deploy PRIMO-SWELL\* oil-swellable packer activation system, which contains no emulsifiers or wetting agents and maintains compatibility with water-base filtercakes.

## RESULTS

Maintained well control requirements to enable completion installation and successful gravel packing on critical well.



## All-oil packer fluid required for sensitive Colombia reservoir

An operator in Colombia was planning to drill a reservoir with a water-base drilling fluid because of the region's environmental sensitivity. The planned completion included fast oil-swell packers. Originally, diesel was used to swell the packers, but increased density requirements mandated a weighted fluid. Conventional invert emulsions are not compatible with the water-base filtercake left by the drilling process and risked formation damage and equipment plugging. Therefore, an all-oil system was required.

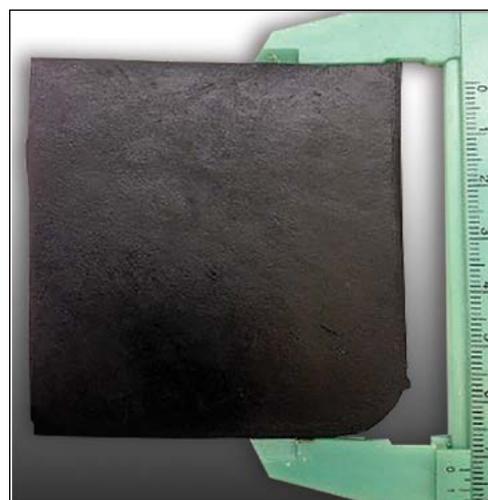
## PRIMO-SWELL system proposed to meet objectives

M-I SWACO suggested the PRIMO-SWELL system, an all-oil packer activation system that maintains compatibility with water-base filtercakes. The PRIMO-SWELL system comprises the PRIMO-VIS\* oil-swell packer activation fluid viscosifier for suspension and WARP DRY CC\* calcium carbonate high-density colloidal suspension technology to provide higher density to mineral-oil- and diesel-base fluids. Both products feature a very small particle size distribution to mitigate the risk of screen plugging.

## Customized system enables successful OptiPac screen job

M-I SWACO engineers tested the solution based on downhole parameters to ensure that the solution would meet the operator's objectives. The engineers prepared an 8.6-lbm/galUS PRIMO-SWELL system and static aged the fluid at the bottomhole temperature of 180 degF [82.2 degC] for 20 h—the time required to swell the packers. The laboratory sample demonstrated consistent rheology with no significant phase separation. When tested on a production screen tester, the sample gave no indication of plugging through 250-um premium mesh screens.

The diesel-base PRIMO-SWELL system was prepared on location and properties checked. With the lower completion on bottom, 80 bbl [12.72 m<sup>3</sup>] of PRIMO-SWELL system was spotted in place at 4 bbl/min [0.64 m<sup>3</sup>/min] using 20-bbl [3.18-m<sup>3</sup>] lead and 20-bbl tail viscous spacers to minimize interface. The well was then shut in for 24 h to allow the swell packers to expand as they soaked in the PRIMO-SWELL system. Thereafter, the OptiPac Alternate Path openhole gravel-pack screen job commenced and was executed successfully.



*The swell packer coupon sample after the 20-h soak in the PRIMO-SWELL system. The sample expanded at the same rate as in unweighted diesel.*