

Background

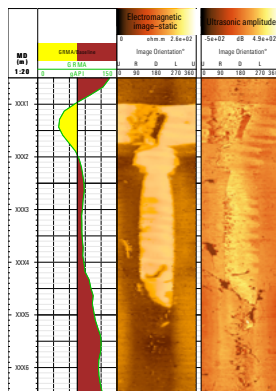
Point Resources AS planned to drill a horizontal well in the upper part of a sand body injected with shales in the Balder field. Combined with an uncertainty in the sand properties and distribution within these zones, the shale stability presented a challenge that required high-resolution borehole imaging to delineate. The use of oil-based mud in the well resulted in the selection of the TerraSphere service to use both electromagnetic and ultrasonic imaging technology.

Technology

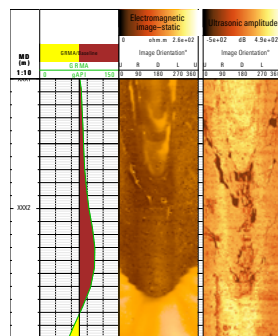
- TerraSphere* high-definition dual-imaging-while-drilling service

Point Resources AS Obtains High-Definition Images in Oil-Based Mud

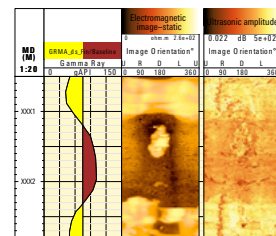
TerraSphere service enables high-definition visualization of complex Balder injectites, offshore Norway



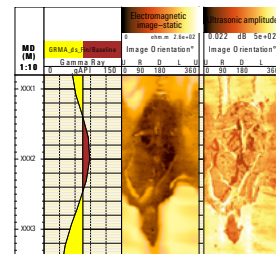
Detail of horizontal and vertical sand injection (lighter colors) in shale (darker colors).



Shale to sand intersection. Shales show fine scale damage along bedding.



Complex injection of sand in shale.



Sandstone containing large shale clast with internal small scale sand injections.

Point Resources AS successfully obtained high-definition borehole images of the complex Balder injectites. The TerraSphere service delineated thin and nonstructured sands injected both perpendicular and parallel to shale bedding. This removed ambiguity on conventional log responses and enabled validation of questionable reservoir zones for inclusion in completions. The ultrasonic images also captured weak-plane failure in the shales down to the scale of millimeters. Previously, this type of high-resolution measurement was only possible with wireline imagers.

*Mark of Schlumberger. Copyright © 2019 Schlumberger. All rights reserved. 19-DR-389051