Schlumberger has unveiled its new DeepLook-EM™ crosswell reservoir imaging system which will deliver highly detailed results as well as ensure major cost savings.

Increased accuracy for seismic reservoir imaging

Schlumberger announced the expansion of its deep reading portfolio at the recent Middle East Oil & Gas Show and Conference (MEOS) in Bahrain. The company unveiled its new electromagnetic DeepLook-EM™ enhanced crosswell reservoir imaging and monitoring system and announced the acquisition of crosswell seismic reservoir imaging technology. The services include pre-job planning, modelling, simulation, acquisition, processing and inversion to deliver interwell reservoir images.

“DeepLook-EM and our recently acquired Z-Seis crosswell seismic service bridge the resolution gap between well logs and surface measurements to provide customers answers at the reservoir scale,” said Colin Hulme, technical director, Deep Reading, Schlumberger. “The addition of these technologies provides the opportunity to deliver advanced reservoir monitoring answers from combined measurements and by integrating them with additional data.”

The second generation DeepLook-EM system provides detailed resistivity profiles between wells up to 1 km apart using time-proven induction logging principles. Acquisition is performed using a dynamic transmitter sonde in one well and an array of receivers in an offset well. Receivers can be deployed in open or cased wells.

“It minimises the risk of a well being non-productive by being able to better plan infill locations by using EM guided reservoir models, which is a new reservoir scale measurement added into the workflow,” Ajay Nalonnil, DeepLook-EM product champion for Schlumberger, told Oil Review at MEOS. He added that using the system can result in a more optimised reservoir management plan and revealed that the system has also received considerable interest from the offshore sector.

In development for more than seven years, Schlumberger has successfully completed DeepLook-EM surveys in the United States, Canada, China, Brazil and the Middle East. The crosswell images have provided customers vital information on the efficiency of water- and steamflood programs allowing interwell saturation to be estimated and bypassed pay zones to be identified.

Interwell resistivity variations can be caused by changes in saturation during waterflood, in temperature during steamflood or porosity reduction if subsidence occurs. With time-lapse monitoring using DeepLook-EM, flood-front movement can be accurately depicted and tracked. All field data are compiled within Petrel™ seismic-to-simulation software and are integrated to model and interpret the reservoir volume logged.

Interwell seismic imaging can provide seismic velocity profiles and seismic imaging at resolutions an order of magnitude higher than surface seismic.

This detailed information can be used to understand reservoir characterisation at the reservoir scale and in a time lapse mode to monitor fluid movements such as in steam injection and CO2 sequestration.

For additional information, visit www.slb.com/deeplook