



FESAus Monthly Technical Meeting

“Case Studies and Applications of the New High-Resolution Integrated Resistivity and Acoustic LWD Imager in Oil-Based Mud”

James Dolan, Schlumberger

Abstract:

Borehole imaging at the time of drilling has been available since the first azimuthal tools were designed and have been in regular use since the 1990s. In water-based muds (WBM) we now have the ability to acquire high quality measurements suitable for a large range of applications. Today's challenge is to extend the range of logging-while-drilling (LWD) images into an oil-based mud (OBM) environment.

An experimental version of the tool has been field tested in a broad variety of drilling and geological environments. To date, over 10,000m of data have been acquired in wells ranging from vertical to horizontal. Data acquisition has been in clastics, carbonates, and evaporites having various formation properties. The field test data have confirmed the metrology of both physics types, i.e., resistivity and ultrasonic imaging. Examples are presented demonstrating the range of measurements under different borehole and geological conditions. Results to date have exceeded expectations in terms of imaging capabilities. Moreover, the acquisition of resistivity and ultrasonic images has frequently proved to be complementary, with the resistivity images rich in bedding features and the ultrasonic images more sensitive to fractures and borehole conditions.

We will review one case study in detail that was obtained from an early version of the tool designed to test the feasibility and robustness of acquiring high-resolution images while drilling in oil-based mud. Data was acquired in a single drilling run in a recent well, offshore Norway. The section was drilled as a low angle tangent at approximately 15 degrees deviation using a mineral oil-based mud. The section was logged at the time of drilling with an LWD triple combo tool and the new imaging tool. Subsequent wireline logging included a high resolution oil-based mud resistivity imaging tool.

About the Presenter:

James Dolan has a BSc(Hons) and MSc from Victoria University of Wellington, New Zealand. He has spent 19 years in the industry and 16 of those years with Schlumberger with assignments in Australia, New Zealand, Norway and Poland. He has extensive international experience working in Myanmar, UK, USA, Ghana, Romania, Germany, Italy, Denmark and India. James started his career with Schlumberger as a Field Engineer, then spent several years geosteering and field-testing new technologies before training to become a Petrophysicist. In 2014, he returned to Australia and has been supporting all LWD services across Australia, New Zealand and Papua New Guinea.



DATE: Tuesday 12th March 2019, 12:00 – 1:30 PM **VENUE:** Hotel IBIS- 334 Murray Street, Perth

COST: Members \$30.00; Non Members \$40.00; Students/Retirees \$10.00

Online registration at www.fesaus.org by Friday 8th March 3PM

Note: limited seats for unregistered attendees may be available: \$50.00 cash door charge

