

# **Comprehensive Analysis of Clastic Heavy Oil Reservoirs using Microresistivity Images and Dielectric Dispersion Logs**

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## **Abstract**

In the heavy oil fields of northeast Alberta, reservoir evaluation is carried out by drilling, coring and logging numerous, closely spaced, vertical wells, which are evaluated for geological and petrophysical information. Due to the short drilling season, operators often undertake very demanding drilling programs, typically involving hundreds of wells, multiple rigs and dedicated logging units. The resulting data needs to be interpreted rapidly and efficiently, in order to develop a thorough understanding of the following reservoir properties:

- lithofacies and environment of deposition
- reservoir architecture and channel orientation
- thickness of pay and bitumen saturation

Until recently, a complete interpretation over the reservoir required the acquisition of full core and wireline logs in every well. Historically core analysis has been the preferred method for lithofacies analysis and obtaining bitumen saturations. However, advances in interpretation techniques, combined with new wireline logging technology, means that a thorough evaluation is now possible with a reduced coring program, combined with the acquisition of triple-combo data, microresistivity images and dielectric dispersion logs from all wells.