# The Seismic AVO of Wet and Dry CBM Reservoirs

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Abstract/Excerpt

The seismic reflection characteristics of an Ardley Coal CBM reservoir are studied. The study reservoir has a high water saturation. Synthetic modelling is used to investigate the AVO response of the existing “wet” coals and that of hypothetical “dry” coals. Both the PP-reflection and the converted wave PS-reflection are investigated. The model results show that with sufficient bandwidth in the recorded signal, the AVO response of wet and dry coals is sufficiently distinct to discriminate between the different states of water saturation. In part to determine what bandwidth could be achieved in the field, the University of Calgary conducted a 1C-2D seismic survey at the study area in the summer of 2006. An ENVI mini-vibe source was used to generate a 10-200 Hz sweep. The signal to noise ratio diminished significantly above 100 Hz in the recorded data. However, although the signal bandwidth is limited and the targets are closely spaced thin beds, the coals are resolved as two distinct events in the migrated seismic section.