

Structural Cross Sections, Constructed to Assess the Coal-bed Methane Potential of the Foothills of Alberta

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Six structural cross sections were constructed through the Alberta Foothills. They are situated in the Copton Creek, Moberly Creek, Hinton, Coal Valley, Nordegg, and Red Deer River River areas, respectively. The cross sections mainly cover the Foothills belt, since that is where coal bearing strata can be found at a depth and in structural positions, that are ideal for coalbed methane exploration.

The cross-sections are based on recent interpretations of industry seismic profiles, well information and surface geology. Well data includes dipmeter, stratigraphic tops, coal zones and vitrinite reflectance. Surface and well data was projected into section planes using GaiaBase software, and sections were constructed either by hand or using 2D Move software.

The position and thickness of coal-bearing zones are highlighted in the cross sections, and vitrinite reflectance data are posted to indicate the maturity of the coals. Coals occur in the Jura-Cretaceous Kootenay Formation, the Lower Cretaceous Luscar Group, the Upper Cretaceous Brazeau Formation and the Cretaceous-Tertiary Coalspur Formation. The Luscar coal zone is the most widespread. In the Outer Foothills, Luscar coal is present at depths between 2500 and 3500m. In the Inner Foothills, this coal is present between depths of 0 and 2500m. The area north of the Red Deer River has the best potential for coal-bed methane in the Luscar Group. The Brazeau and Coalspur coal zones occur mainly in the parautochthonous strata above the upper detachment of the Triangle zone. Coal bed methane potential in the Kootenay Formation exists in the southern part of the Foothills.