AAPG Datapages/Search and Discovery Article #90295 ©2017 AAPG Asia Pacific Region GTW,
Influence of Volcanism and Associated Magmatic Processes on Petroleum Systems, Oamaru, New Zealand, March 14-16, 2017

Identification and Interpretation of Igneous and Hydrothermal Minerals in Petroleum Basins

Rowena Newman[1]

[1]Newman Energy Research Ltd, New Zealand

ABSTRACT

Petrographic analysis of samples from petroleum exploration wells primarily focuses on organic constituents, which provide information on source potential and maturity. The character of the associated rocks and minerals is commonly overlooked. However, these inorganic constituents can be a valuable source of information about the hydrothermal and igneous history of petroleum basins. The focus of this study is the Clipper-1 well, located in the Clipper Sub-Basin in the offshore Canterbury Basin, New Zealand. This well was chosen because it features common secondary mineralisation and covers the full depth of the Canterbury Basin sedimentary sequence. Although there have been gas-condensate discoveries in the offshore Canterbury Basin, relatively few wells have been drilled and a commercial hydrocarbon resource has not yet been defined. Intraplate volcanism has been a recurring feature of Canterbury Basin geology from the Cretaceous to the Pliocene, but the potential influence of igneous activity on hydrocarbon systems has received little attention. Prior to the current investigation volcanic rocks in Clipper-1 were believed to be restricted to thin tuffs of the Early Eocene age Endeavour Volcanics (Field et al., 1989).