

Ichnology of the Lower Triassic Montney Formation, Kahntah River and Ring Border Fields, Northeastern British Columbia

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Fine-grained sandstone beds in the Lower Triassic Montney Formation are the primary reservoir lithology in the Kahntah River & Ring-Border fields of northeastern British Columbia and Alberta. Production in the Ring-Border area, production occurs from a coarsening-upward succession of lower Griesbachian strata (lowest Triassic). Trace fossils are rare in these strata. Lithologies interpreted to be of offshore-transition origin contain isolated specimens of *Planolites*, *Treptichnus* and *Chondrites* in interbedded shale and silty sandstone, and rare specimens of *Thalassinoides* and *Cruziana* on the soles of thin, sharp-based sandstone tempestites. Trace fossils in lower shoreface very fine-grained sandstone beds consist of isolated *Rhizocorallium*, *Thalassinoides*, *Planolites*, *Spongiomorpha* & *Protovirgularia*. Upper shoreface sandstone beds are apparently barren.

Production in the Kahntah River area occurs from slightly younger strata (upper Griesbachian-lower Dienerian). Pervasive bioturbation has intermixed silt and mud laminae into most shoreface sand beds, reducing porosity and permeability. Offshore-transition to lower-shoreface successions are characterized by gradation from a *Cruziana* assemblage (*Cruziana*, *Palaeophycus*, *Planolites*, *Teichichnus* and *Thalassinoides*) to a mixed *Cruziana-Skolithos* assemblage (*Cruziana*, *Cylindrichnus*, *Diplocraterion*, *Planolites*, *Phycodes*, *Phycosiphon*, *Rosselia*, *Palaeophycus*, *Skolithos* and *Thalassinoides*). Upper-shoreface sandstone beds are characterized by rare, isolated *Skolithos*. Although ichnotaxonomic diversity is relatively high in the Kahntah River shoreface, most forms are small. This abrupt increase in ichnotaxonomic diversity and abundance is related both to faunal recovery from the end-Permian extinction and to paleogeographic considerations including deposition in a well-oxygenated setting.