

# Trace Element Analysis and Redox History of the Montney Formation

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The Montney Formation was deposited during the Early Triassic – a period of slow recovery and fluctuating ocean chemistry following the end-Permian mass extinction. Previous authors have interpreted dysoxic to anoxic conditions during Montney deposition based on impoverished trace fossils assemblages, pyrite analyses, and inorganic and organic geochemistry. Although some degree of recovery has been recognized in the Upper Montney, a detailed reconstruction of its oxygenation history has yet to be published.

This study analyzed redox-sensitive trace element concentrations as a proxy for paleo-oxygenation levels. Whole rock ICP-MS geochemical analysis was utilized to obtain elemental data in two cored Upper Montney successions. The data was then correlated with observations in core and thin sections, as well as petrophysical well logs. The results reveal a more detailed record of Early Triassic benthic conditions throughout the deposition of the Montney. The information is not only valuable as an indicator of paleoenvironmental conditions, but also for assessing reservoir potential due to the increased preservation of kerogen under anoxic conditions.