

Facies changes in the Upper Albion Member of the Carboniferous Stellarton Basin, Nova Scotia

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The Stellarton Basin displays rapid facies changes both laterally and vertically throughout the stratigraphic section. These facies changes are observed to occur mostly between coals and shales (oil shales). The upper Albion Member interval of the Stellarton Formation encompasses examples of stratigraphy that displays these facies changes. The prominent and laterally continuous coal seams in this upper Albion Interval were used as stratigraphic markers to aid with correlations of the stratigraphy across the basin for the examination of: lateral and vertical facies transitions from shales (oil shales) to coals; regional thickness and compositional facies variations of organic- rich and interbedded clastic units; indications of tectonic and depositional controls on the organic-rich deposits and potential hydrocarbon reservoir units; whether depositional environments were restricted to only lacustrine/deltaic (or was there some marine influence?). The upper members of the Stellarton Formation (Coal Brook and Thorburn members) have been subject to a significant amount of scientific scrutiny, with less emphasis on the Albion Member (aside from its coal seams), making this interval an excellent area of study. Analytical techniques used for analysis include: geophysical logs and drill core for correlations; thin sectioning and microscope analysis; XRD; Rock-Eval Pyrolysis; and X-Ray Fluorescence. A close and detailed examination of this interval reveals the origins and controls on these facies changes, deposition, and interaction of the stratigraphic units of the upper Albion Member which will garner more interest and research into the remainder of the Albion Member and other lower members of the Stellarton Formation.