

Lithogeochemistry of the Meguma Supergroup, Nova Scotia, Canada: Petrographic Constraints, Depositional Environments and Alteration Haloes about Sediment Hosted Hydrothermal Mineral Deposits¹

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A lithogeochemical evaluation of Meguma Supergroup metasedimentary rocks from Nova Scotia has: (i) identified mineral suites that control the various rock compositions, (ii) provided clues about the paleo-environmental seafloor and basin conditions during sedimentation, (iii) detected previously unknown alteration zones, and (iv) established element concentration backgrounds. Variations in the amounts of quartz, albite, illite, smectite, chlorite and kaolinite control the sedimentary rock compositions and allow identification of cryptic stratigraphic boundaries that assist in establishing stratigraphic level within the basin. In addition, Mn, Fe, and P concentration patterns indicate that the basin became progressively more reducing with time, allowing identification of strata that could host sediment-hosted massive sulfide mineralization. Finally, alteration halos about saddle reef gold deposits and primary dispersion haloes in sedimentary rocks adjacent to Sn greisen deposits can be readily identified, providing useful exploration criteria.

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