

**Stratigraphy, petrochemistry and tectonic setting
of the Silurian New Canaan Formation, Meguma Terrane, Nova Scotia**

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The New Canaan Formation consists of Upper Silurian sedimentary and volcanic rocks, exposed in a double synclinal structure in the west-central Meguma terrane of Nova Scotia. The formation conformably overlies slate and metasilstone of the Kentville Formation, also of Silurian age, which in turn

overlies the Lower Silurian(?) through Cambrian White Rock, Halifax, and Goldenville formations.

Based on limited surface exposure combined with core samples from 6 drill holes, the New Canaan Formation has a total thickness of about 500 m, and is divided into seven

stratigraphic units. The lowermost unit includes calcareous siltstone, slate, mafic lithic tuff, and vesicular basalt. Units 2, 4, and 6 are mainly composed of fossiliferous limestone and calcareous siltstone, whereas units 3 and 5 are dominated by varied crystal and lithic tuff, with minor pillow basalt also present in unit 5. The uppermost unit, the top of which is not preserved, consists of amygdaloidal basalt and crystal tuff. The tuffaceous units are intensely altered and contain abundant chlorite, quartz, and calcite. Mafic flows are less altered, and relict clinopyroxene survives in some of the amygdaloidal basalt units, and in basaltic clasts in some lithic tuff units. Limestone units and some of the tuffaceous units contain

abundant fossil debris, including bryozoans, corals, crinoids, and brachiopods. Biotite and/or actinolite are present in samples within the thermal aureole of the Devonian South Mountain Batholith, which intruded the New Canaan Formation along its southern margin.

Geochemical data from basaltic flows and mafic tuff units show that the rocks are alkalic, with Nb/Y ratios between 1 and 3, and high Zr and TiO₂ contents. They formed in a within-plate setting. These data are consistent with limited published chemical data from the older White Rock Formation which also suggest a within-plate setting.