Geology, Geochemistry and Regional Implications of the Middle Proterozoic Bear River Dykes, Wernecke Mountains, Yukon(106 D/16, 106/C13)

Danette Schwab

The Middle Proterozoic Bear River dykes (ca. 1.27 Ga) are mafic intrusions that crosscut the Gillespie Lake Group of the Wernecke Supergroup in the Slats Creek and Fairchild Lake map areas (106 D/16, 106 C/13). The dykes are fine- to-medium- grained gabbros and basalts with tholeiitic affinities. The most northwesterly dyke was examined in detail. It was emplaced into mainly dolostone, and crosscuts an older fault. A white-weathering aureole along the margins of the dyke consists of calcite-magnetite- serpentine skarn. Within the dyke, hydrothermal effects are dominated by Fe (hematite and magnetite), with local enrichments of Cu (chalcopyrite) and U, a signature characteristic of earlier-formed zones of Wernecke Breccia (1.6 Ga). Alteration of the dyke indicates that a later pulse of hydrothermal fluids was channelled along the dyke or the fault.

A U-Pb date of 1268.5 ±1.5 Ma on baddeleyite indicates that the Bear River dykes may belong to the coeval, giant radiating Mackenzie dyke swarm of the northern Canadian Shield. In addition,