Occurrence Details

Occurrence Number: 106D 097
Occurrence Name: Bear River
Occurrence Type: Hard-rock
Status: Showing
Date printed: 12/16/2025 5:06:14 PM

General Information

Secondary Commodities: copper, uranium
Deposit Type(s): Iron Oxide Breccias & Veins (Wernecke Breccias)
Location(s): 64°57'24" N - -134°25'26" W
NTS Mapsheet(s): 106D16
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Discovered during a regional mapping program carried out by Yukon Geology Program geologists between 1992 to 1995. Geochemical sampling and analysis, as well as U-Pb age determinations were also carried out, and more detailed examination was subsequently conducted in 2000 by geologists from Simon Fraser University.

Capsule Geology

The region is underlain by a metamorphosed and altered sequence of Lower Proterozoic Wernecke Supergroup clastic and carbonate rocks (Fairchild Lake Group, Quartet Group and Gillespie Lake Group, from oldest to youngest) that are intruded by Early to Middle Proterozoic mafic sills and dykes, and cut by Middle Proterozoic Wernecke Breccia.
The occurrence is located along an unnamed creek approximately 5 km west of the headwaters of Slats Creek. The occurrence is associated with a Middle Proterozoic gabbroic dyke that has been correlated with the Bear River Dykes. The intrusion, which consists of greenish-grey fine to medium grained gabbro, forms an irregularly shaped 2 km long dyke that pinches and swells in thickness from 0-150 m. The dyke strikes east-southeast, dips steeply to the southwest and crosscuts orange-weathering dolostone and minor black shale of the Gillespie Lake Group. The dyke has been dated by U-Pb at 1.27 Ga, indicating it is coeval and perhaps comagmatic with the 1.27 Ga Mackenzie igneous event on the Canadian Shield.
A white-weathering contact aureole, 5 to 10 m thick, and mainly restricted to the margins of the thickest part of the intrusion consists of well developed calcite-magnetite-serpentine skarn. Within the dyke, hydrothermal effects are dominated by iron-mineralization (hematite and magnetite), with local enrichments of copper (up to 5950 ppm; chalcopyrite) and U (~ 20 ppm), a signature characteristic of earlier formed zones of Wernecke Breccia that are found at neighboring occurrences; Minfile Occurrence #106D 075 located approximately 1 km to the northeast and Minfile Occurrence #106D 078 located 1 km to the west.

References

GORDEY, S.P. AND MAKEPEACE, A.J., 2003. Yukon Digital Geology, version 2.0, S.P. Gordey and A.J. Makepeace (comp); Geological Survey of Canada, Open File 1749 and Yukon Geological Survey, Open File 2003-9 (D).

GREEN, L.H. 1972. Geology of Nash Creek, Larsen Creek and Dawson Map-Areas, Yukon Territory. Geological Survey of Canada, Memoir 364.

SCHWAB, D.L. AND THORKELSON, D.J., 2001. Geology and alteration signature of a Middle Proterozoic Bear River dyke in the Slats Creek map area, Wernecke Mountains, Yukon (106D/16). In: Yukon Exploration and Geology 2000, D.S. Emond and L.H. Weston (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 257-266.

THORKELSON, D.J. AND WALLACE, C.A., 1993. Development of Wernecke Breccias in Slats Creek (106D/16) map area, Wernecke Mountains, Yukon. In: Yukon Exploration and Geology, 1992. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 77-87.

THORKELSON, D.J. AND WALLACE, C.A., 1998. Geological Map of Slats Creek map area, Wernecke Mountains, Yukon (106D/16). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Geoscience Map 1998-9, 1:50,000 scale.

THORKELSON, D.J. AND WALLACE, C.A., 2000. Geology and mineral occurrences of the Slats Creek, Fairchild Lake and "Dolores Creek" areas, Wernecke Mountains, Yukon (106D/16, 106C/13, 106C/14). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Bulletin 10, 73 p.

Work History

Date	Work Type	Comment
12/31/2000	Geology	By Schwab and Thorkelson of Simon Fraser University.
12/31/1992	Geology	By Yukon Geology Program.
12/31/1992	Other	By Yukon Geology Program.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
			Diamond - Drilling, Rock - Geochemistry, Silt - Geochemistry, Soil -		

095646	2007	2007 Geological, Geochemical and Geophysical Report on the Werneckes Project	Geochemistry, Detailed Bedrock Mapping - Geology, Regional Bedrock Mapping - Geology, Magnetics - Ground Geophysics, Scintillometer - Ground Geophysics, Prospecting - Other, Backhoe - Trenching, Hand - Trenching, Handblast - Trenching	28	6537.96
094956	2006	2006 Geological, Geochemical and Geophysical Report on the Werneckes Project	Reverse Circulation - Airborne Geophysics, Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Scintillometer - Ground Geophysics, Prospecting - Other		