Occurrence Details

Occurrence Number: 105E 063
Occurrence Name: Nickeline
Occurrence Type: Hard-rock
Status: Showing
Date printed: 12/16/2025 2:02:26 PM

General Information

Secondary Commodities: antimony, arsenic, cobalt, nickel
Deposit Type(s): Ultramafic - Nickel
Location(s): 61°19'42.08" N - -134°6'5.912" W
NTS Mapsheet(s): 105E08
Location Comments: From Yukon Geological Survey Open File 2005-09.
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

The Livingstone Creek area is a placer district which has seen intermittent mining operations since the 1898 discovery of gold in the area. The occurrence was discovered in the summer of 2004 by M. Colpron of the Yukon Geological Survey during a 1:50 000 scale geological mapping program.
The occurrence was previously staked within Brenda claims 1-188 (YB13399) which were recorded in Apr/88 by E.V.E.M. Ltd. No work appears to have been carried out and the claims were allowed to expire the following year.
Restaked as Mik cl 1-612 (YC37133) in Nov/2004 by M. Lindsay and M. Mickey. The partners carried out grid soil sampling on selected areas in Nov/2005.

Capsule Geology

The occurrence is situated within the Livingstone Creek area, a significant placer mining area located approximately 80 km northeast of Whitehorse. Although known more for placer mining, the area has seen some bedrock exploration however despite numerous signs of past bedrock exploration activity very little documentation of this work exists.
Published bedrock geology maps of the Lake Laberge map sheet are limited to reconnaissance-scale studies of Bostock and Lees (1938; 1:253 440 scale) and Templeman-Kluit (1984; 1:250 000 scale). Subsequent studies have mainly focused on the structural and geochronological history of the area. Portions of map sheet 105E/8 were re-mapped by R.-L. Simard of Dalhousie University (2003) as part of a PhD thesis on the Semenof Hills. Detailed bedrock mapping of the Livingstone Creek area was undertaken by M. Colpron of the Yukon Geological Survey in 2004-2005 to establish the stratigraphic framework of the Yukon-Tanana Terrane in the area, and to place the Livingstone Creek area within the context of recent studies of the Yukon-Tanana Terrane in the Finlayson Lake and Glenlyon areas of the Yukon.
The Yukon-Tanana Terrane east and north of the South Big Salmon River comprises five successions of metasedimentary and metavolcanic rocks, from east to west: the Snowcap complex, and the Livingstone Creek, Mendocina, Last Peak and Dycer Creek successions. Metasedimentary rocks northeast of Mendocina Creek and those that occur in strands within and to the east of d¿Abbadie fault zone were previously assigned to Cassiar Terrane. Based on two seasons of fieldwork Colpron is now confident that they are part of the Yukon-Tanana Terrane.
The occurrence consists of silicified ultramafic rock assigned to unit DMMu of the Devonian to Mississippian age Mendocina succession. The occurrence is located at the contact of the d¿Abbadie fault zone and is mineralized in nickeline and annabergite. Four samples returned anomalous values in nickel (up to 3 409.5 ppm), cobalt (up to 140.3 ppm), arsenic (up to 3 068.6 ppm) and antimony (up to 1 822.1 ppm). The ultramafic was likely altered by circulation of hydrothermal fluids circulating along d¿Abbadie Fault thus establishing the potential for further mineralization along this fault zone.
The Mendocina succession consists of graphitic phyllite, greenstones, marble and serpentinized peridotite and metagabbro. The age of the succession is not well constrained. It is apparently intruded by strongly foliated quartz diorite to granodiorite, inferred to be Early Mississippian in age. Colpron suggests that the association of greenstone, metagabbro, serpentinite and minor carbonaceous phyllite resembles the Upper Devonian Fire Lake formation of the Finlayson Lake district (Murphy 2001). If this correlation is true it is possible that the ultramafic unit (unit DMMu) is an intrusive unit similar to Murphy¿s unit Dum which is in intrusive contact with unit DF, Fire Lake metavolcanic unit.

References

BOSTOCK, H.S. AND LEES, E.J., 1938. Laberge map-area, Yukon. Geological Survey of Canada, Geological map (105E), 1:253 440 scale, and report, 33 p.

COLPRON, M., 2005. Preliminary investigation of the bedrock geology of the Livingstone Creek area (NTS 105E/8), south-central Yukon. In: Yukon Exploration and Geology 2004. D.S. Emond, L.L. Lewis and G.D. Bradshaw (eds.), Yukon Geological Survey, p. 95-107.

COLPRON, M., 2005. Geological map of Livingstone Creek area (NTS 105E/08), Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2005-9.

COLPRON, M., 2006. Geology and Mineral potential of Yukon-Tanana Terrane in the Livingstone Creek area (NTS 105E/8), south-central Yukon. In: Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 93-107.

MURPHY, D.C. ET AL., 2001. Preliminary bedrock geological map of northern Finlayson Lake area (NTS 105 G), Yukon Territory (1:100 000 scale). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 2001-33.

SIMARD, R.-L., 2003. Geological map of southern Semenof Hills (part of NTS 105E/1,7,8), south-central Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2003-12.

SIMAARD, R-L. AND DEVINE, F., 2003. Preliminary geology of the southern Semenof Hills, central Yukon (105E/1,7,8). In: Yukon Exploration and Geology 2002, D.S. Emond, and L.L. Lewis (eds.), Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, p.213-222.

TEMPLEMAN-KLUIT. D.J., 1984. Geology, Laberge (105E) and Carmacks (105I), Yukon Territory. Geological Survey of Canada, Open File 1101, 1:250 000 scale.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096140	2012	2011 Geochemical Sampling and Surficial Geology Mapping Program, Livingstone Property	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Regional Surficial Mapping - Geology		

Related References

Number	Title	Page(s)	Reference Type	Document Type
2017-1	Revised geological map of Livingstone Creek area (NTS 105E/8)		Yukon Geological Survey	Open File (Geological - Bedrock)