Occurrence Details

Occurrence Number: 105G 149
Occurrence Name: Nhl
Occurrence Type: Hard-rock
Status: Showing
Date printed: 8/6/2025 2:18:18 AM

General Information

Secondary Commodities: copper, gold, lead, silver, zinc
Deposit Type(s): Volcanogenic Sulphide - type not determined
Location(s): 61°22'33" N - -130°29'12" W
NTS Mapsheet(s): 105G08
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Staked as NHL cl 1- 166 (YB60677) in Aug/95 by Expatriate Resources Ltd. The claims comprise part of the company¿s larger Goal Net property.
In the spring of 1996 Expatriate flew a helicopter-borne electromagnetic/magnetic geophysical survey over its entire Goal Net property including the NHL claims. The company carried out reconnaissance scale soil sampling on the claims later in the summer. In 1997 the company carried out geological mapping, prospecting and detailed grid soil sampling and in 1998 followed up with hand trenches and hand pits.
In 2000 Expatriate drilled 4 diamond drill holes on target I2 located on the adjoining Goon claim block (Minfile Occurrence #105G 125) the results of which they used to re-evaluate and redefine the stratigraphy underlying the NHL claims. The company also carried out follow-up soil sampling and prospecting around target I4 and staked NHL cl 167-176 (YB89561).

Capsule Geology

Geological mapping completed by Murphy and Piercey (1999b), and Murphy et al., (2001) of the Yukon Geological Survey, various Expatriate Resources geologists and deposit studies completed by Hunt (2002) indicates that the area is predominantly underlain by a sequence of Devonian to Early Mississippian metavolcanic and metasedimentary rocks assigned to the Grass Lakes succession. The youngest member of the sequence, unit Dq, consists of biotite-muscovite-feldspar-quartz schist, micaceous quartzite, psammite and marble. Unit Dq is overlain by mafic volcanic rocks belonging to the Fire Lake metavolcanic unit (DF) which are in turn overlain by felsic metavolcanic rocks assigned to the Kudz Ze Kayah felsic metavolcanic unit (DK). Murphy¿s et al., noted mappable units of calcareous muscovite-quartz metasandstone (unit DKcs) in the southwest corner of the claim block.
To the west, the sequence is intruded by Early Mississippian granitic to monzonitic metaplutonic rocks belonging to the Grass Lakes Plutonic Suite (unit MGg). These rocks which Murphy and Piercey interpreted to be sills, intrude the lower part of unit Dq. To the east, the sequence is intruded by a granitic intrusion believed to be Cretaceous in age. In the central and eastern portions of the claim block the sequence is intruded by variably sepentinized ultramafic (unit Dum) which is inferred to be in intrusive contact with unit DF.
The 1996 airborne aeromagnetic survey outlined numerous magnetic anomalies on the claim block which Expatriate initially thought were related to underlying ultramafic rocks. The reconnaissance soil sampling program outlined two areas of strongly anomalous zinc and molybdenum values which the company referred to as Target I. Follow-up grid sampling in 1997 identified three specific targets; I1, I2 and I3. Target I2 is located on the adjoining Goon claims (Minfile Occurrence #105G 125).
Target I1 (occurrence location) is the largest of the three targets and is comprised of partially overlapping clusters of moderately anomalous copper-lead-zinc values. The combined anomaly measures approximately 1 000 m long by 100 to 500 m wide and appears to originate from cliffs at its south end and narrows to the north where it borders a lake. The southern part is wider and richer in copper and zinc while the northern part is characterized by strong lead and zinc response. Detailed prospecting in the southern cliff area in 1997 and 1998 uncovered a mineralized horizon at the base of an impassable cliff where weakly disseminated foliaform chalcopyrite with malachite and azurite coating occur with quartz-biotite-chlorite schist and lesser interlayerd felsic schist. A 1.7 m chip sample collected across the thickest portion of mineralized stratigraphy returned 0.8 g/t silver, 480 ppm copper, 18 ppm lead and 194 ppm zinc. Numerous other float and outcrop showings were found in the area however most do not appear to have any aerial extent.
Target I3 is located approximately 2.5 km southeast of target I1 and covers a 2 000 by 2 000 m area that hosts three clusters of strong lead response (up to 954 ppm) supported by weaker zinc and copper values. Hand trenching and pitting completed in 1997 and 1998 failed to discover a bedrock source for the anomaly however prospecting located thinly bedded banded massive and disseminated magnetite in several areas located around target I3. Samples of a discontinuous, orange-brown manganiferous clay horizon encountered in one of the pits returned 0.8 g/t silver, 290 ppm copper, 316 ppm lead and 4 360 ppm zinc. Weakly oxidized and pitted quartz-sericite fragments collected from an unnamed pit returned 10.0 g/t silver, 339 ppm copper, 196 ppm lead and 2 370 ppm zinc.
Follow-up soil sampling completed in 1998 lead to the discovery of target I4, located 2 km southwest of target I1. Target I4 consists of a mineralized exhalite horizon which was traced on cliffs and in creek cuts for a distance of about 1 000 m. The horizon is located 20 m vertically below a dense, coarse grained metaporphyry unit and ranges from 0.3 to 3.0 m thick. It consists of a grey to white silica matrix with weak to moderate sericite and chlorite partings. Some sections are moderately calcareous and contain thinly interlaminated buff weathering carbonate layers. Sphalerite is the most common sulphide, occurring as thin, orange-buff weathering laminae throughout the exhalative sequence. Chalcopyrite and galena appear with sphalerite in biotite-chlorite-garnet +/- quartz schist bands developed within the exhalite and more frequently in the immediate footwall. The best results were obtained from area ¿C¿ where specimens returned up to 34.0 g/t silver, 1.01% copper, 6 980 ppm lead, 8.31% zinc and 65 ppb gold.
Expatriate¿s 1998 geological compilation map shows the assumed trace of the exhalite horizons forming a mappable band of rocks connecting targets I1 and I4 and forming a separate unit surrounding target I3. The unit is assumed to be equivalent to Kudz Ze Kayah stratigraphy. At the end of 1998 the company rated the area surrounding target I, as possessing the best potential for hosting volcanogenic massive sulphide mineralization.
In 2000 Expatriate drilled four drill holes 544.6 m) on target I2 located on the neighboring Goon claims (Minfile Occurrence #105G 1250), (located approximately 2.5 km northeast of target I1). Three of the holes reached bedrock and 2 holes intersected sulphide mineralization in quartz-porphyritic metarhyolite that is similar to the felsic metavolcanic strata that hosts the GP4F deposit (Minfile Occurrence #105G 143) located approximately 8 km to the northwest. The best intersection returned 63.0 g/t silver, 1 360 ppm copper, 1.84% lead, 3.01% zinc and 2.20 g/t gold across 0.73 m. Deleterious elements such as arsenic, antimony, mercury and selenium were all below the analytical limits.
The company used the recovered drill core to re-evaluate the known stratigraphy located on the NHL claims. The results confirmed the presence of a thick package (~250 m) of felsic volcanic rocks from the contact with the overlying ultramafic cap to the underlying granite. The most striking feature in the Target I area is a prominent recessive linear that parallels the surface trace of local stratigraphy. Detailed examination of this feature along a 500 m section of intermittent cliff exposures located around target I4, identified a 30 to 50 m thick section of rusty weathering interbanded chlorite-biotite-sericite schist and strongly sericite altered felsic tuff. Much of the sequence contains variable amount of disseminated pyrite with minor chalcopyrite. The largest concentrations of pyrite (up to 15%) occur in strongly sericite altered rhyolite bands up to 2 m thick. These bands closely resemble the hanging wall marker horizon from the I2 drill core.
Further prospecting around target I4 determined there was a second mineralized horizon located about 100 m below the first recessive horizon. Samples from the higher horizon generally returned elevated copper values and low values for other volcanogenic massive sulphide elements. The second horizon which consists of sphalerite and lesser chalcopyrite in thin foliaform wisps and disseminations within a 0.2 to 2 m thick section of chlorite-biotite-garnet schist and weakly skarnified metasediments returned up to 8.31% zinc, 6 980 ppm lead, 1.10 % copper and 34.0 g/t silver.
Compilation work complete to the end of 2000 suggests that the NHL claim block hosts one of the thickest successions of Devonian to Mississippian felsic volcanic rocks in the Finlayson

Lake district. The existence of several mineralized horizons within this package suggests the area has a high potential for hosting multiple volcanogenic massive sulphide deposits.

References

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EXPATRIATE RESOURCES LTD, May/97. Assessment Report #093655 by R.W. Woolham.

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MURPHY, D.C., AND PIERCEY, S.J., 1999b. Geological map of parts of Finlayson Lake (105G/7,8 and parts of 1,2, and 9) and Frances Lake (parts of 105H/5 and 12) map areas, southeastern Yukon (1:100,000 scale). Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 1999-4.

MURPHY, D.C. AND PIERCEY, S.J., 2000. Syn-mineralization faults and their re-activation, Finlayson Lake massive sulphide district, Yukon-Tanana Terrane, southeastern Yukon. In: Yukon Exploration and Geology 1999, D.S. Emond and L.H. Weston (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 55-66.

MURPHY, D.C., ET AL., 2002. Finlayson Lake Targeted Geoscience Initiative (southern Yukon), Part 1: Bedrock geology. In: Yukon Exploration and Geology 2001, D.S. Emond, L.H. Weston and L.L. Lewis (eds.), Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, p. 189-207.

YUKON EXPLORATION AND GEOLOGY 1997, p. 16, 36; 2000, p. 9, 25, 27.

Work History

Date	Work Type	Comment
12/31/2000	Geology	Re-evaluated geological mapping using drill core from adjoining Goon claims.
12/31/2000	Geochemistry	Follow-up soil sampling.
12/31/2000	Other	
12/31/1998	Trenching	Also dug numerous hand pits.
12/31/1997	Geology	
12/31/1997	Geochemistry	
12/31/1997	Other	
12/31/1996	Geochemistry	Reconnaissance scale soil sampling.
12/31/1996	Airborne Geophysics	Also magnetic survey, flown over entire Goal Net property.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
094668	2004	Assessment Report Describing Prospecting, Geological Mapping, and Diamond Drilling on the Goal Net Property	Diamond - Drilling, Rock - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Prospecting - Other	4	1034.60
094526	2003	Geological and Geochemical Report on the Goal Net Claim Block	Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology		
094016	1998	Assessment Report Describing Geological Mapping, Prospecting, and Soil Geochemistry on the Goal Net Property	Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Backhoe - Trenching		
093788	1997	Assessment Report Describing Geological Mapping, Prospecting, and Soil Geochemistry on the Goal Net Property	Rock - Geochemistry, Soil - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Bedrock Mapping - Geology, Prospecting - Other, Backhoe - Trenching, Hand - Trenching		
			Electromagnetic - Airborne Geophysics, Magnetic - Airborne		

093573	1996	Assessment Report Describing Geological Mapping, Prospecting, and Soil Geochemistry and Geophysical Surveys on the Goal Net Property	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Soil - Geochemistry, Bedrock Mapping - Geology, Prospecting - Other		
093655	1996	Report on a Combined Helicopter-Borne Electromagnetic and Magnetic Survey, Goal Net, Hat Trick, League, Offside, Power Play, Shutout and Slapshot Properties	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics		

Related References

Number	Title	Page(s)	Reference Type	Document Type
ARMC016590	Geochemical map - 105G/8 - Wolverine Lake		Property File Collection	Geochemical Map
ARMC016578	Geology map - 10G/8 - Wolverine Lake		Property File Collection	Geoscience Map (Geological - Bedrock)
ARMC017622	Geochemical map of Wolverine Lake - Cu, Pb, Zn, Mn, Mo.W		Property File Collection	Geochemical Map