Occurrence Details

Occurrence Number: 105H 080
Occurrence Name: Kneil
Occurrence Type: Hard-rock
Status: Showing
Date printed: 6/15/2025 11:40:54 AM

General Information

Secondary Commodities: copper, lead, silver, zinc
Deposit Type(s): Vein Polymetallic Ag-Pb-Zn+/-Au
Location(s): 61°6'27" N - -129°54'13" W
NTS Mapsheet(s): 105H04
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Staked as Kneil cl 1-48 (YA66651) and cl 51-60 (YA66699) in Jul/81 by Cyprus Anvil Mining Corporation, which performed mapping and geochemical sampling later in the year.
Restaked within Chit cl 1-146 (YB51060) in Jul/94 by Cominco Ltd, following a regional airborne geophysical survey. The company staked Tua cl 1-23 (YB51037) 13 km to the east at the same time. Cominco carried out preliminary geological mapping and geochemical sampling on both properties and completed ground HLEM, magnetic and gravity geophysical surveys on the Tua claims. In Dec/94 Cominco staked Tua cl 24-71 (YB56931).
In May/95 Cominco staked Jays cl 1-172 (YB59412) to the northeast. In 1995 the company carried out ground HLEM, magnetic and gravity surveys on the Chit claims followed by further geological mapping, prospecting and soil sampling. On the Jays claims, Cominco carried out a helicopter-borne geophysical survey and a silt sampling program. In Oct/95 Cominco staked Tua cl 75-122 (YB68990) and Jays cl 172-431 (YB63270). In Nov/95 the company staked Chit cl 147-216 (YB71033).
In Jan/96 Cominco staked Tuc cl 1-84 (YB71767) 7 km to the northeast. The company added Tuc cl 85-96 (YB5735) in Jul/96. During the 1996 field season the company carried out a HLEM/Mag ground geophysics program on the Jay claims followed by detailed geological mapping, soil and rock sampling programs. On the Chit claims the company carried out detailed geological mapping, soil sampling and ground geophysics on 4 grids and on the Tua and Tuc claims limited geological mapping, geochemical sampling and prospecting programs.
In Jul/97 Cominco carried out two days of detailed geological mapping to further define the area west of the Kneil showing.

Capsule Geology

The Finlayson Lake district is underlain by the Yukon-Tanana Terrane: a Late Proterozoic to Paleozoic metamorphosed volcano-sedimentary assemblage. It is regionally bounded to the southwest by the Tintina Fault. This terrane hosts several known volcanogenic massive sulphide (VMS) deposits and occurrences, including Kudz Ze Kayah (Minfile Occurrence #105G 117), Wolverine (Minfile Occurrence #105G 072) and Ice (Minfile Occurrence #105G 118).
The occurrence area has not yet been re-mapped by the Yukon Geology Program although portions of the surrounding Jays claims were covered by Murphy in 2000 (Murphy, 2000, 2001). Comparison of field observations recorded by Cyprus Anvil and Cominco with detailed mapping completed by Murphy (1999, 2000, 2001) to the northwest and northeast suggests that the area is underlain by a sequence of Devonian to Mississippian metavolcanic and metasedimentary rocks which have not yet been assigned a specific succession. These rocks are overlain by Pennsylvanian to Permian mafic and ultramafic rocks formerly believed to belong tothe Slide Mountain Terrane, but recently assigned by Murphy and Piercey (2000) to the Campbell Range Succession. Murphy and Piercey¿s work suggests that the contact between the two units is depositional in nature and that the entire package, including the Campbell Range Succession represents a transitional island arc/continental arc to marginal basin/ocean (back-arc?) basin environment and together constitute Yukon-Tanana Terrane. A large Mississippian age, porphyry stock, tentatively identified as part of the Simpson Range Plutonic Stock intrudes the sequence to the south.
The Kneil (original occurrence), Chit and Tua claims appear to be underlain by a thick package of Devonian to Mississippian metavolcanic and metasedimentary rocks. A large, foliated, fine equigranular to coarse-grained quartz-feldspar porphyry stock, tentatively assigned to the Simpson Range Plutonic Suite, intrudes along the southern margin of the claims.
The original Kneil occurrence consists of a small lens of semi-massive pyrite and pyrrhotite with lesser sphalerite, galena and chalcopyrite in micaceous quartzite. The lens is of limited extent and about one metre thick. It occurs in a sequence of foliated metasedimentary rocks including siliceous and graphitic phyllite and minor felsic metavolcanic rocks near the contact with a foliated granodiorite body of Mississippian age. Geochemical response was weak and the best lead values appear related to galena veins within the pluton. MacRobbie, a Cominco geologist, examined the showing and described it as representing a VMS style of mineralization. A grab sample returned 1.8% Zn, 0.6% Pb, 0.9% Cu and 53 g/t Ag.
Contour soil sampling completed in 1994 returned significant Ag and Cu anomalies with supporting weaker Pb, Zn, Cd and locally elevated Ba values in the area surrounding the occurrence. A soil line located approximately 4 km to the east and downslope of the Kneil occurrence returned a series of strong Ag anomalies with supporting, though weaker Cu-Zn-Pb-Cd values. Soil sampling on the Tua claims returned very strong Pb, Ag, As and elevated Ba anomalies over a 400 m length. Ground geophysics carried out on the Tua claims did not identify any anomalies of interest. Mapping on the Tua claims in 1977 (Bannister et al, 1997) located two beds of massive barite and chert breccia with massive barite 6 m and 20 m thick respectively.
Geophysical surveys carried out on the Chit claims in 1995, identified four HLEM conductors with locally associated magnetic anomalies. Follow-up geochemical surveys outlined several moderately anomalous areas with Cu values up to 199 ppm, Pb values to 233 ppm and Ag up to 6.9 ppm.
Geological mapping on Chit grids 2 & 4 outlined a sequence of cherty to phyllitic crystal-rich felsic tuffs and flows with intercalated black, carbonaceous shale, siltstone and quartzite as well as chloritic intermediate to mafic tuffs and or flows. Proximal to this package of rocks is a Mississippian age synvolcanic granitic /granodiorite pluton. As both the Kudz Ze Kayah (Minfile Occurrence #105G 117) and the Fyre (Minfile Occurrence #105G 034) occurrences are hosted by felsic volcanic sequences this sequence was of great interest to Cominco.
Follow-up grid soil sampling outlined several small zones moderately to strongly anomalous in Cu, Pb and Zn. Geophysics outlined several conductors with associated magnetic response in the same general area. Mapping in 1997 continued to outline zones of favourable lithologies in areas of geochemical anomalies.
As shown on Murphy¿s map (Murphy 2000) the Jays claims are underlain by northwest trending folded strata composed of Mississippian intermediate meta-volcanic rocks (unit Mv) overlain by Pennsylvanian and/or Lower Permian marble (unit Pc) and carbonaceous argillite and other siliciclastics (unit Pcl). Work by Cominco in 1995 yielded three Cu or Zn stream sediment anomalies and several samples anomalous in Ba. The airborne geophysical survey outlined several moderate to strong EM conductors, most of which are coincident with linear magnetic features. Follow-up work in 1996 did not highlight any areas of interest and the Jays claims were allowed to lapse.
The Tuc claims appear to be underlain by a thick package of metasedimentary rocks which are comprised of massive, grey to brown, silicified, locally carbonaceous and pyrite fine-grained chert with local interbeds of quartzite, mudstone and mafic volcanics. These rocks likely belong to the Pennsylvanian to Permian age,
Campbell Range Succession.

References

COMINCO LTD, Jan/96. Assessment Report #093328 by P. MacRobbie.

COMINCO LTD, Mar/96. Assessment Report #093392 by I. Jackish.

COMINCO LTD, Mar/96 Assessment Report #093393 by P.A. MacRobbie.

COMINCO LTD, May/96. Assessment Report #093456 by D. Senft and R. W. Holroyd.

COMINCO LTD, Apr/97. Assessment Report #093609 by D. Senft.

COMINCO LTD, Apr/98. Assessment Reports #093862 by V.L. Bannister.

COMINCO LTD, May/98. Assessment Report #093762 by L.Bannister, D.C. Hall and J. Puzic.

CYPRUS ANVIL MINING CORPORATION, Aug/82. Assessment Report #091067 by G.A. Jilson.

MURPHY, D.C. and PIERCEY, S.J., 1999. 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., 2000. Preliminary geological mapping of ¿Tuchitua River North¿ area (105H/4), southeastern Yukon (1:50,000 scale). Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 2000-16.

MURPHY, D.C., 2001. Yukon-Tanana Terrane in southwestern Frances Lake area (105H/3, 4 and 5), southeastern Yukon. In: Yukon Exploration and Geology 2000, D.S. Emond and L.H. Weston, Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p.217-233.

PLINT, H.E., and GORDON, T.M., 1997. The Slide Mountain Terrane and the structural evolution of the Finlayson Lake Fault Zone, southeastern Yukon. In: Canadian Journal of Earth Science, 34: 105-126.

YUKON EXPLORATION AND GEOLOGY 1982, p. 132-133.

Work History

Date	Work Type	Comment
12/31/1997	Geology	Detailed mapping of previously mapped area in vicinity and west of the original showing.
12/31/1996	Geology	
12/31/1996	Geochemistry	Also rock sampling.
12/31/1996	Ground Geophysics	Also HLEM survey.
12/31/1995	Geology	
12/31/1995	Geochemistry	
12/31/1995	Ground Geophysics	Also HLEM, and gravity surveys.
12/31/1995	Other	
12/31/1994	Geology	
12/31/1994	Geochemistry	
12/31/1994	Airborne Geophysics	Also magnetic survey.
12/31/1981	Geology	
12/31/1981	Geochemistry	
12/13/1997	Other	

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
093862	1997	1997 Assessment Report Chit Property	Regional Bedrock Mapping - Geology		
093609	1996	1996 Assessment Report on the Tuc, Chit, Tua and Jays Properties	Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics, Gravity Survey - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other		
093393	1995	1995 Assessment Report Chit Property	Rock - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, EM - Ground Geophysics, Gravity Survey - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other		
093328	1994	1994 Assesment Report Chit and Tua Properties	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, EM - Ground Geophysics, Gravity Survey - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other		
091067	1982	A Report on a Geochemical Survey of the Kneill Claims	Soil - Geochemistry		

Related References

Number	Title	Page(s)	Reference Type	Document Type
ARMC009050	Geochemical survey map - Ag, Ba, As, Hg, Au - Kneil claims - Map No. 4		Property File Collection	Geochemical Map
ARMC009051	Geochemical survey map - Ag, Ba, As, Hg, Au - Kneil claims - Map No. 3		Property File Collection	Geochemical Map
ARMC009052	Geochemical survey map - Ag, Ba, As, Hg, Au - Kneil claims - Map No. 2		Property File Collection	Geochemical Map
ARMC009053	Geochemical survey map - Ag, Ba, As, Hg, Au - Kneil claims - Map No. 1		Property File Collection	Geochemical Map
ARMC016603	Geochemical map - 105H/4 - Tuchitua River		Property File Collection	Geochemical Map
ARMC016605	Geological map - 105H/4 - Tuchitua River		Property File Collection	Geoscience Map (Geological - Bedrock)
ARMC016995	Geochemical report sheets - Grass Lakes (Kneil claims)		Property File Collection	Assays
ARMC018652	Air photos A24796-67 and A24796-68 with overlays - Kneil claim group		Property File Collection	Geoscience Map (General)
ARMC017615	Geochemical map of Tuchitua River Cu, Pb, Zn, Mn		Property File Collection	Geochemical Map