Occurrence Details

Occurrence Number: 105G 098
Occurrence Name: Ant
Occurrence Type: Hard-rock
Status: Prospect
Date printed: 12/16/2025 9:46:04 PM

General Information

Secondary Commodities: copper, lead, silver, zinc
Aliases: Hat Trick
Deposit Type(s): Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn
Location(s): 61°11'38" N - -130°34'28" W
NTS Mapsheet(s): 105G02
Location Comments: 0.2 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Staked as Ant cl 1-6 (Y7373) in Apr/66 by Atlas Explorations Ltd over a geophysical anomaly outlined by an airborne geophysical survey flown earlier in the year. Atlas conducted ground mag and EM surveys later in the summer.
Restaked as T & B cl (Y74571) in March/74 by L. Tyerman.
Restaked within Hat Trick cl 1-50 (YB59061) in Mar/95 by Expatriate Resources Ltd. Between Jun/95 and Feb/96. The company added Hat Trick cl 51-396 (YB59941, not consecutively numbered). In 1995 Expatriate carried out geological mapping, prospecting and grid soil sampling on Hat Trick cl 1-50.
In 1996 Expatriate carried out airborne and ground geophysical surveys, geological mapping, prospecting and soil sampling programs and drilled 5 diamond drill holes (998 m). In 1997 the company carried out limited hand trenching and additional soil sampling.

Capsule Geology

The area is underlain by a layered sequence of Devonian-Mississippian metasedimentary and metavolcanic rock units belonging to the Yukon Tanana Terrane (YTT). The YTT is a volcanic-plutonic, pericratonic arc assemblage that was strongly deformed and metamorphosed by late Triassic time. Volcanic hosted massive sulphide deposits exist at different stratigraphic positions within the YTT including the Fyre Lake deposit (Minfile Occurrence #105G 034) in Upper Devonian to Lower Mississippian Fire Lake mafic meta-volcanic unit (DF), the Kudz Ze Kayah deposit (Minfile Occurrence #105G 117) in the Mississippian Kudz Ze Kayah felsic meta-volcanic unit (DK), and the Wolverine deposit (Minfile Occurrence #105G 072) within the Early Mississippian Wolverine Succession.
Geological mapping completed by Expatriate Resources on the Hat Trick claim block, generally agrees with regional geology published by Murphy and Piercey (1999) of the Yukon Geology Program. They report that the claims are underlain by a layered succession of Devonian to Mississippian aged metavolcanic and metasedimentary rocks which have been intruded by several Mississippian aged meta-plutonic intrusions and a Cretaceous granitic intrusion.
The oldest rocks are biotite-muscovite-feldspar-quartz schist, micaceous quartzite and psammite and marble (units Dq and Dqm) which outcrop in the northwest corner of the claim block. They are in turn overlain by two coeval yet different stratigraphic sections separated by a steep, north-dipping fault which cuts through the northeastern portion of the claim block. North of the fault, biotite-actinolite-chlorite schist of the Fire Lake mafic meta-volcanic unit (unit DF) passes upward into siliceous and carbonaceous schist (unit DKcp) with upwardly increasing amounts of quartz-muscovite schist (felsic metavolcanic rock, unit DK).
South of the fault, a thick section of locally gossanous and highly altered magnetite-bearing felsic schist, massive siliceous rock and lesser mafic and carbonaceous schist (unit DFr) occurs between unit DF and the carbonaceous schist of unit DFcp. The presence of the thick felsic schist section (unit DFr) between units DF and DFcp south of the fault is reminiscent of the lateral change of unit DF at the Fyre Lake Deposit (Minfile Occurrence #105G 034, located 4 km to the northeast) and is attributed to the presence of a syn-volcanic fault. The fault between the two sections dips to the north and was initially inferred to be a southwest-directed thrust fault. However, the small thrust-sense off-sense offset of the top of unit DF, combined with the stratigraphic difference across the fault, suggest that it is better interpreted as an originally steep, south-dipping, syn-volcanic fault that rotated through the vertical and was possibly re-activated during Cretaceous southwest-directed deformation.
In the southwest corner of the claim group, Early Mississippian meta-plutonic intrusions belonging to the Simpson Range and Grass Lakes Plutonic Suites intrude the geologic domain. A Cretaceous age granitic pegmatite which intrudes the entire sequence outcrops along the southeast side of the claim block.
The original occurrence consisted of an EM conductor flanked in part by magnetic highs although neither geophysical anomaly was coincident. Follow-up ground geophysics and geological mapping and sampling programs attributed the anomalies to graphitic horizons and magnetite bearing ¿greenstone intrusive bodies¿ respectively.
Expatriates¿s 1995 exploration program was centred around the southern end of its claim block. Grid soil sampling delineated a large anomaly (Main Anomaly) centred over a recessive, pyritic quartz-muscovite schist horizon (Murphy¿s unit DFr). The horizon ranges from 10 m to 30 m in thickness and extends for a strike length of approximately 2 000 m. Soil sampling over the horizon returned weakly to moderately anomalous values for Pb, Cu, Ag, Mo, and Zn. Float specimens ranging in size from pebbles to boulders and consisting of medium to coarse grained, semi-massive sphalerite, galena, chalcopyrite and pyrite associated with barite, quartz and muscovite gangue were discovered weathering out of the schist. These samples returned peak values of 17.6% Zn, 5.68% Pb, 4.00% Cu, 302 g/t Ag, and 1.5 g/t Au.
The 1996 airborne EM/magnetic survey outlined 15 anomalous conductive responses designated for investigation as well as numerous northwest-southeast high amplitude magnetic trends underlain by resistive rock units. Ground follow-up of airborne data by a grid based HLEM ground survey confirmed the location of a conductor coincident with the recessive, pyritic quartz-muscovite schist horizon.
The 1996 soil sampling program extended the 1995 grid 2 000 m to the north and 1 800 m to the west. In addition the company collected reconnaissance samples over the rest of the claim block. Results of the program outlined 1 major geochemical anomaly (Main Anomaly), seven secondary targets (labelled A - G) and numerous single point anomalies. Expatriate judged the Main Anomaly and Target G as the areas with the greatest potential and thus focussed their subsequent exploration efforts towards exploring these two areas.
The Main Anomaly, located 3 km west of the original occurrence, forms an ¿L¿ shaped contour pattern which trends northwest and northeast. The northwest trending limb closely follows the surface trace of the recessive, pyritic quartz-muscovite schist horizon. The southeast trending limb is about 2 000 m long and represents the downslope and downstream dispersion from a cirque face which cuts into the mineralized horizon. Target G, located 7 km to the northwest, is approximately 3 000 by 1 500 m in size and covers an area of moderate to strongly anomalous response emanating from two north-facing cirques. The target is partially underlain by chlorite-actinolite schist and biotite chlorite phyllite schist (Murphy¿s unit DF). Similar stratigraphy hosts the nearby Fyre Lake deposit (Minfile Occurrence #105G 034). However, rare earth element studies conducted by Sebert and Hunt (1999) on the deposit suggests that the chlorite schist which hosts the deposit is unique in the Fire Lake area.
Expatriate tested the Main Anomaly with 5 diamond drill holes, totalling 998.22 m. The program tested the anomaly for a strike length of 425 m and a downdip extent of up to 200 m. All 5 holes intersected the targeted quartz-muscovite schist but none of the holes intersected massive sulphides or barite. The best result was recorded from hole HT96-01, where a 0.81 m intersection consisting of disseminated sphalerite, chalcopyrite and galena in the quartz-sericite schist horizon, returned 1.56% Zn, 20.2 g/t Ag, 3 460 ppm Cu, and 2 460 ppm Pb. Mineralized intersections from the program indicate the extent and continuity of mineralization decreases in the downdip direction. Magnetic susceptibility measurements show that both the footwall and hanging wall sides of the quartz-sericite schist unit are magnetic, thus verifying the presence of disseminated magnetite throughout themineralized intervals.
The 1997 exploration program concentrated on Target G and the Main Anomaly. Seven hand trenches were dug along the Main Anomaly, most of which failed to reach bedrock. The best results were returned from trenches 1 and 6 which returned weakly to strongly anomalous values in several elements.
Detailed geological mapping carried out at Target G, outlined 3 mineralized showings. Showing 1 consists of finely disseminated pyrite in stratiform zones up to 1 m thick within fractured chlorite-biotite phyllite. Showing 2 consists of a 3 m thick stratiform zone of disseminated pyrite, pyrrhotite and chalcopyrite in amphibolite and showing 3 is a 2 m thick malachite stained chlorite-biotite phyllite band in calcareous quartzite. All 3 showings are hosted by unit DF, Fire Lake metavolcanic unit. A grab sample collected from showing 3 returned 2 010 ppm Cu. Contour soil carried out over Target G returned strongly anomalous copper values which form a V-shaped contour pattern along the top of a northerly facing cirque. The two limbs of the V-shaped pattern are 800 m long and relate to

stratiform rusty weathering chlorite-biotite phyllite. Peak values for the six VMS indicator minerals are 930 ppm Cu, 30 ppm Mo, 61 ppm Co, 848 ppm Zn, 2.4 ppm Ag, and 84 ppm Pb.

References

ATLAS EXPLORATIONS LTD, May/67. Assessment Report #017942 by J.S. Brock.

EXPATRIATE RESOURCES LTD, Aug/96. Assessment Report #093492 by W.A. Wengzynowski.

EXPATRIATE RESOURCES LTD, News Release. 10 May/96, 4 Sep/96.

EXPATRIATE RESOURCES LTD, May/97. Assessment Report #093620 by W.D. Eaton.

EXPATRIATE RESOURCES LTD, May/98. Assessment Report #093811 by W.A. Wengzynowski.

EXPATRIATE RESOURCES Ltd, Feb/97. Assessment Report #093655 by R.W. Woolham.

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 et al., 2001. Prelimnary Bedrock Geology Map of Northern Finlayson Lake Area (NTS 105G), Yukon Territory (1:100 000 scale), Open File 2001-33

MURPHY et al., 2001. Finlayson Lake Targeted Geoscience Initiative (southeastern Yukon), Part 1: Bedrock Geology. In Yukon Exploration and Geology, 2001, Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 189-207.

SEBERT, C. AND HUNT, J.A. 1999. A note on preliminary lithogeochemistry of the Fire Lake area. In: Yukon Exploration and Geology 1998, C.F. Roots and D.S. Emond (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 139-142.

YUKON EXPLORATION AND GEOLOGY 1996, p. 17.

Work History

Date	Work Type	Comment
12/31/1997	Geochemistry	
12/31/1997	Trenching	
12/31/1996	Drilling	Five holes, 998 m.
12/31/1996	Geology	
12/31/1996	Geochemistry	
12/31/1996	Airborne Geophysics	Also magnetic survey.
12/31/1996	Other	
12/31/1995	Geology	
12/31/1995	Geochemistry	
12/31/1995	Other	
12/31/1966	Airborne Geophysics	Also magnetic survey.
12/13/1997	Geology	
12/13/1996	Ground Geophysics	Also Maxmin.
12/13/1966	Ground Geophysics	Also magnetic survey.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096515	2013	2013 Satellite Mapping on the Fyre Lake Property	Orthophoto - Airphotography		
093811	1997	Assessment Report Describing Geological Mapping, Soil Sampling and Hand Trenching at the Hat Trick Property	Soil - Geochemistry, Bedrock Mapping - Geology, Hand - Trenching		
093620	1996	Assessment Report Describing Geological Mapping, Soil Sampling, Geophysical Surveys and Diamond Drilling	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Diamond - Drilling, Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other, Prospecting - Other	5	998
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		
017942	1966	Magnetic and Electromagnetic Geophysical Surveys, Ant Mineral Claim Group	EM - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other		

Related References

Number	Title	Page(s)	Reference Type	Document Type
ARMC016592	Geochemical map - 105G/2 - Upper Black River		Property File Collection	Geochemical Map
ARMC013941	Report on the Ant mineral claim group - Fyre Lake area - June 28 to July 29, 1967		Property File Collection	Report
ARMC013873	Airborne EM-mag & photogeology - Fyre Lake, Central group - Drawing no. 9		Property File Collection	Geophysical Map
ARMC013871	Airborne EM-mag & photogeology - Fyre Lake, East group		Property File Collection	Geophysical Map
ARMC013872	Airborne EM-mag & photogeology - Fyre Lake, West group		Property File Collection	Geophysical Map
ARMC013862	Staking map - Fyre Lake area		Property File Collection	Geoscience Map (General)
ARMC013936	Geochemical map with overlay - Upper Black River		Property File Collection	Geochemical Map
ARMC013901	Magnetometer survey - Fire Lake E zone		Property File Collection	Geophysical Map
ARMC013938	Key map - Fyre Lake area - Grid location - Ant mineral claims		Property File Collection	Geoscience Map (General)
ARMC017625	Geochemical map of Upper Black River - Cu, Pb, Zn, Mn, Mo.W - Copper and lead numbers circled		Property File Collection	Geochemical Map
ARMC013903	Fyre Lake E.M. survey - High and low frequency profile - Ant and Ash claim groups		Property File Collection	Geophysical Map
ARMC013934	Fyre Lake OEX staking claim map		Property File Collection	Geoscience Map (General)
ARMC013935	Fyre Lake OEX staking claim map		Property File Collection	Geoscience Map (General)
ARMC013937	Geochemical stream sediment survey data - Ant group		Property File Collection	Assays
ARMC013940	Ant - Traverse - Geochem		Property File Collection	Geochemical Map
ARMC013939	Geochemistry map - Reconnaissance geochemical traverse - Ant claims		Property File Collection	Geochemical Map
ARMC013906	Airborne EM-mag and photogeology - Fyre Lake, Central group - with notations		Property File Collection	Geophysical Map
ARMC013900	Airborne EM-mag and photogeology - Fyre Lake, East group - Drawing no. 10		Property File Collection	Geophysical Map
ARMC013876	Airborne geophysical survey - Aeromagnetic map - Sheet 1 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013874	Airborne geophysical survey - Aeromagnetic map - Sheet 2 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013875	Airborne geophysical survey - Aeromagnetic map - Sheet 3 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013870	Airborne geophysical survey - Aeromagnetic map - Sheet 4 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013877	Airborne geophysical survey - Electromagnetic map - Sheet 1 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013878	Airborne geophysical survey - Electromagnetic map - Sheet 2 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013879	Airborne geophysical survey - Electromagnetic map - Sheet 3 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013869	Airborne geophysical survey - Electromagnetic map - Sheet 4 of 4 - Fyre Lake area		Property File Collection	Geophysical Map
ARMC013915	Field maps of Fyre Lake showing geology and structure		Property File Collection	Geoscience Map (Geological - Bedrock)
ARMC013931	Cassiar development map - Fire Lake drilling to Sept. 12, 1961		Property File Collection	Geoscience Map (General)
ARMC013930	Development map - Cassiar asbestos - Fyre Lake - E zone - 66-12		Property File Collection	Geoscience Map (General)

Drill core at YGS core library

Number	Property	Year Drilled	Core Size	Photos	Data
HT-96-03	Hat Trick	1996	NQ	18	2