Occurrence Details

Occurrence Number: 105G 139
Occurrence Name: On
Occurrence Type: Hard-rock
Status: Prospect
Date printed: 12/17/2025 6:56:17 PM

General Information

Secondary Commodities: copper, lead, zinc
Deposit Type(s): Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn
Location(s): 61°28'54" N - -130°23'28" W
NTS Mapsheet(s): 105G08
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Staked as On cl 1-20 (YB47740) in May/94 by Cominco Ltd to cover geophysical anomalies detected by an airborne survey flown earlier in the year.
Atna Resources Ltd staked Toe cl 1-16 (YB56214) 1 km to the north in Oct/94. In May/95 Atna transferred the claims to Westmin Resources Ltd as part of a joint venture agreement. In Jun/95 the joint venture group staked Toe cl 17-36 (YB59962). During 1995 and early 1996 the joint venture group carried out preliminary exploration programs on the Toe claims.
In Oct/95 Cominco staked On cl 21-244 (YB62677) to the east, west and south. Westmin staked Toe cl 43-154 (YB63794) over top the same area but their application was withdrawn in Mar/96. Cominco flew a combined helicopter-borne EM/magnetic survey over all the On claims in March and April of 1996. Following completion of the survey, Cominco entered into a joint venture agreement with Westmin Resources Ltd and Atna Resources Ltd (Cominco 50%, Westmin 30%, Atna 20%) to explore On cl 21-101, 104-113, 116-129, 134-146, 162-173, and 197-198. In 1996 the joint venture group carried out grid soil sampling, geological mapping and prospecting programs.
Cominco continued to hold 100% interest in On cl 1-20 and in 1996 carried out a small soil sampling and prospecting program on the claims.
The Westmin-Atna Resources joint venture staked Jill cl 1-24 (YB86778) north of Wind Lake in Aug/96 and Cap cl 1 Fr, Lin cl Fr and Jill cl 25-41 (YB87468) east and northeast of the lake in Sep/96. During this period the companies carried out regional geological mapping and soil sampling on the Toe and Jill claims in association with a larger program on the neighbouring Foot claims (Minfile Occurrence #105G 040). In the fall of 1996 they drilled 4 holes on the Toe claims to test stratigraphy and follow-up geophysical and geochemical targets and in 1997 they carried out geochemical soil sampling, magnetometer and MaxMin geophysical surveying.
In 1997 Cominco carried out a brief ground geophysical survey on, On cl 1-20. The joint venture group (for On claims) carried out further soil sampling and drilled 1 diamond drill hole (308 m) 1 km east of the occurrence. (see Minfile Occurrence #105G 116 for other information concerning On claims).
In Jul/2001 Expatriate Resources Ltd staked Bug cl 1-27 (YB93298) at the southeast end of the On claim block, overtop lapsed On claims (On cl # 103 etc.). In 2001 the company collected a line of soil samples across the length of the claim block and carried out reconnaissance geological mapping.

Capsule Geology

The area surrounding the occurrence was recently re-mapped by Murphy and Piercey (1999b) and Murphy et al (2001) of the Yukon Geology Program. They report that the area is underlain by a layered sequence of Mississippian to Pennsylvanian metavolcanic and metasedimentary rocks 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 Devonian to early Mississippian Fire Lake mafic meta-volcanic unit, the Kudz Ze Kayah deposit (Minfile Occurrence #105G 117) in the Mississippian Kudz Ze Kayah felsic meta-volcanic unit, and the Wolverine deposit (Minfile Occurrence #105G 072) within the Early Mississippian Wolverine Succession.
The occurrence is underlain by the Kudz Ze Kayah felsic metavolcanic unit. It is in turn overlain by quartzite, biotite-chlorite schist and carbonaceous phyllite, quartzite and minor quartzofeldspathic psammite. All four units belong to the Mississippian age, Grass Lakes Succession. Mississippian granitic to monzonitic metaplutonic rocks, belonging to the Grass Lakes Plutonic Suite intrude the sequence to the northeast and southwest.
The occurrence (On cl 1-20) consists of an area where elevated magnetics and associated conductivity were identified by an airborne geophysical survey. A follow-up helicopter borne survey delineated several large magnetic anomalies with strong but variable EM conductivity. Soil sampling and prospecting carried out by Cominco failed to identify any potential mineralization or explain the geophysical anomaly. A small ground geophysical survey completed in 1997 outlined a magnetic feature possessing variable conductivity.
Grid soil sampling completed by the On claims joint venture group, outlined a strong Cu-Zn anomaly with elevated Pb values southeast of the occurrence. Prospecting returned several pieces of quartz-biotite schist containing several percent disseminated pyrite, pyrrhotite and minor chalcopyrite from the same general area but of several samples submitted for assay, none returned anomalous values.
Follow-up soil sampling completed in 1997 helped to better define the extent of the anomaly and a UTEM ground geophysical survey in the same area outlined 2 conductors (A and B) with magnetic associations . The two conductors appear to be associated with the magnetic feature located by Cominco on the neighbouring On 1-20, claim block. As the A anomaly appeared to possess the best combination of geophysical and geochemical values of all the anomalies in the area, the joint venture group decided to test it with a single diamond drill hole (308 m). The hole intersected light grey cherty material (felsic protolith) and jet black cherty siliceous argillite. Although abundant (up to 15%) disseminated and stringer hosted pyrite and pyrrhotite was found, minerals of economic interest were restricted to a 1 cm wide band of disseminated sphalerite.
North of the occurrence on the Toe and Jill claims, the area is probably underlain by metasedimentary and felsic volcanic rocks belonging to the Early Mississippian Wolverine Succession. The contact between the Wolverine Succession and the underlying Grass Lakes Succession is interpreted to be an angular unconformity. Soil sampling, north and east of Wind Lake, returned generally low values for Au and Ag with several scattered non-coincident anomalies for Cu, Pb and Zn. The most significant of these was a two station Cu anomaly with a peak value of 347 ppm. Ground geophysics identified 11 HLEM conductors, four of which display a positive magnetic field, high conductance, narrow width response and are associated with anomalous geochemical response.
The Bug claim block is mainly underlain by Upper Devonian to Lower Mississippian felsic metavolcanics assigned to Murphy¿s (2001) Kudz Ze Kayah felsic metavolcanic unit (unit DK). Early Mississippian granitic to monzonitic metaplutonic rocks (unit MGg) belonging to the Grass Lakes Plutonic Suite intrude the sequence to the east. Coarse meta-sandstones (unit MWcl) assigned to the Early Mississippian Wolverine succession occur at the extreme eastern end of the claim block.
Extrapolation of stratigraphic information compiled from diamond drilling on the adjoining Redline property (Minfile Occurrence #105G 124) indicates that the area covered by the Bug claims hosts stratigraphy thought to be favorable for volcanogenic massive sulphide deposits. Soil sampling identified three separate areas of anomalous soil results, all of which are underlain by favorable Kudz Ze Kayah felsic metavolcanic stratigraphy.

References

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YUKON EXPLORATION AND GEOLOGY 1996, p. 15. 1997, p. 15; 2001, p. 9.

Work History

Date	Work Type	Comment
12/31/2001	Geology	Reconnaissance scale.
12/31/2001	Geochemistry	
12/31/1997	Drilling	One hole, 308 m. Drill hole collared 1 km east of occurrence by On claims joint venture group.
12/31/1997	Geochemistry	
12/31/1997	Ground Geophysics	Also magnetic survey.
12/31/1996	Geology	
12/31/1996	Geochemistry	
12/31/1996	Airborne Geophysics	Also magnetic survey. Flown over On claims.
12/31/1996	Other	
12/31/1995	Geochemistry	
12/31/1994	Airborne Geophysics	Also magnetic survey.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096622	2013	Geochemical Sampling, Hand Trenching, Prospecting, Geological Mapping and Petrographic Studies at the Off Property	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Petrographic - Lab Work/Physical Studies, Prospecting - Other, Hand - Trenching		
094236	2000	Finlayson Project Description Report	Environmental Assessment/Impact - Studies, Geotechnical - Studies, Heritage/Archeological - Studies		
093728	1996	1996 Assessment Report ON Property Geological Mapping and Prospecting	Bedrock Mapping - Geology, Prospecting - Other		
093339	1994	1994 Assessment Report, On Properties	Soil - Geochemistry, Bedrock Mapping - Geology		

Drill core at YGS core library

Number	Property	Year Drilled	Core Size	Photos	Data
OFF-10-01	Off	2010	NTW-BTW	0	7