Occurrence Details

Occurrence Number: 115H 034
Occurrence Name: Hopper Porphyry Zone
Occurrence Type: Hard-rock
Status: Prospect
Date printed: 8/5/2025 8:27:18 AM

General Information

Secondary Commodities: copper, molybdenum
Aliases: Hopper, Hopper North, Hopkins
Deposit Type(s): Porphyry Cu-Mo-Au
Location(s): 61°17'47.21" N - -136°54'38.04" W
NTS Mapsheet(s): 115H07
Location Comments: Approximate centre point of porphyry mineralization. Mitsu West = 396380 W 6769515 N, Mitsu East = 398575 W 679395 N.
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

According to D.D. Cairnes (1910) of the Geological Survey of Canada, prospectors first explored the area in 1907 and hand trenched the numerous quartz-bearing mineralized lenses carrying magnetite, chalcopyrite and malachite formed along the contact between granite and limestone. The area was worked intermittently by various individuals.

Modern staking appears to have begun in Aug/62 when J. Allen staked Copper AA cl 1-2 (77945) and Copper A cl 1-2 (77947) over porphyry mineralization located west of the occurrence. P. Nuotio staked a single Duck claim (85089) south of the Copper claims in Jun/63. The Duck claim appears to cover the current Mitsu West zone. In Jun/64 L. Nault restaked the Duck claims as H.M. claim (86382).

In Jul/64 R.Holway and G. Washington surrounded the HM claim with Pony cl 7-8 (90391), cl 1-2 (90394) and cl 5-6 (90395). Later in the month, J. Allen staked single Fox (90469) and Linck (90470) claims between Pony claims 5 and 8.

Mitsubishi Metal Mining Company Ltd. staked the occurrence location within AD cl 1-40 (Y24945) and cl 41-56 (Y25049) in Jun/68. In Jul/68 the company added AD cl 57-64 (Y25374) to their holdings. The claim block surrounded the surviving HM claim and portions of the Hopper South occurrence (Minfile Occurrence #115H 019) located 1.5 km to the south. The staking of the AD claims marks the first time the majority of the porphyry mineralization was contained within one property.

Later in the summer (1968) Mitsubishi carried out airborne electromagnetic, magnetic and radiometric surveys, and a helicopter supported soil and rock sampling program.

In 1969 Mitsubishi carried out bulldozer trenching and an Induced Polarization (IP) survey on the AD claims.

It appears that in Oct/75, Mitsubishi Metal Mining Company Ltd. restaked the majority of porphyry mineralization (including the occurrence location) within ML cl 1-15 (YA3955). The company carried out radiometric prospecting in 1976.

In Oct/75 M. Jorgensen staked Cu cl 1-12 (YA4021) to the south and southeast. The Cu claims covered outlying areas of mineralization associated with the Hopper South occurrence.

In Apr/76 the Mug Joint Venture (Malabar Silver Mines Ltd, Union Oil Company of Canada Ltd and Getty Mining Pacific Ltd) staked AG cl 1-46 (YA4268) around the ML and Cu claims and parts of the Hopper South occurrence.

In Mar/89 Casau Exploration option the Hopper South occurrence (which were covered by Acme cl 1-13 – (YA94105) from D. Baird and immediately surrounded the claims with Hop cl 1-74 (YB25531). The Hop claims also covered the majority of the Hopper North occurrence.
In May/89 Casau Exploration entered into a joint venture agreement with Aurora Gold Ltd whereby Aurora obtained a 75% interest in the Acme and Hop claims. In Jun/89, the companies added Hop cl 75-102 (YB26329). The newly staked Hop claims encompassed the remainder of the porphyry mineralization associated with the Hopper North occurrence. The companies appear to have ignored, for the most part the porphyry mineralization associated with the Hopper North occurrence and concentrated their efforts on the skarn mineralization associated with the Hopper South occurrence.

In 1991 the Hop and Acme claims were returned to D. Baird who performed blast trenching on the Hopper South occurrence in 1992. A 33.3% interest in the Acme and Hop claims was transferred to each of A.E. Thom and Patricia Lattin in March/93. In June/94, Baird et al carried out further drilling and blasting on the Hopper South occurrence. The assessment credit obtained from these programs was used to fulfil assessment requirements on both the Acme and Hop claim groups.

In Aug/95 the remaining Hop and Acme claims were transferred to J.C. Stephen. The last of the remaining Hop and Acme claims lapsed at the end of 2000.

G. Delorme restaked the south occurrence as Guy cl 1-16 in May 2002. In May/2003 the claims were transferred to G. MacDonald.

In Feb/2006 Strategic Metals Ltd restaked the north occurrence as Hop cl 1-20 (YC41091). The company carried out preliminary prospecting and geological mapping programs in and around the porphyry occurrence. Initial results led the company to stake Hop cl 21-162 (YC47017) in Jun/2006. These claims surrounded the Guy claims, which host the Hopper South occurrence.

In 2007 Strategic Metals carried out prospecting, rock and soil sampling and excavator trenching programs in the vicinity of the porphyry occurrence. Later in the season the company carried out helicopter-borne versatile time domain electromagnetic (VTEM) and magnetic geophysical surveys over the entire area including the Guy claims which cover the skarn occurrence. In Oct/2007 the company staked Hopper cl 163-168 (YC65915) and Gal cl 1-8 (YC65907) south of the Guy claims.

In March 2008 Monster Mining Corporation acquired a 100% interest in the Guy claims.

In Aug/2010 Strategic Metals carried out a grid based soil sampling program over the various portions of the Hopper South occurrence including the Guy claims. The Guy claims were sampled as part of an option agreement with Monster Mining which was formalized the following month.

In Sep/2010 Monster Mining optioned an undivided 100% interest in the Guy claims to Strategic Metals in return for 50% of any of the proceeds from the sale, option or disposition of all or any part of the Guy claims as well as from any claims associated with Strategic Metal's Hopper property. The company amalgamated both occurrences into the Hopper property. In Dec/2010 Strategic Metals staked Hopper cl 171-266 (YD123011) around the outer edge of the existing Hopper property.

On December 14, 2010 Bonaparte Resources Inc optioned a 100% interest in the Hopper property from Strategic Metals in return for cash, a 2% net smelter return and certain work commitments.

Bonaparte Resources funded the 2011 exploration program. The company carried out prospecting, geological mapping, and soil sampling programs followed by a diamond and reverse circulation drilling programs. In November and Dec/2011 the company carried out helicopter-borne VTEM and magnetic surveys over areas not covered during the previous survey flown in 2007.

Work carried out on the Hopper North occurrence include; limited rock sampling, grid based soil sampling over areas hosting porphyry and skarn mineralization in the north half of the property, 58 vertical percussion drill holes (1 729.74 m) and airborne VTEM and magnetic surveys flown over newly staked areas. In Oct/2011 Strategic Metals staked Hopper cl 267-342 (YF28607) around the existing claim block.

In 2012 Strategic Metals contracted Condor Consulting Inc to combine the results of the 2007 and 2011 airborne geophysical surveys and then process and interpret the combined data. In Jul/2012 Strategic Metals purchased Monster Mining's interests in the Hopper property, thus becoming the property's sole owner.

In 2013 Strategic Metals carried out aerial photography, topographic surveys, and heritage studies, re-examined all available diamond drill core and percussion chip samples. The company also carried out further grid soil sampling, geological mapping and outcrop sampling.

Capsule Geology

The property is located approximately 70 km northeast of Haines Junction and 115 km northwest of Whitehorse, Yukon. The property lies east of Hopkins Lake and access is via the Aishihik Lake road, which runs along the western property boundary. Access within the property is gained through numerous drill roads, which require the use of 4-wheelers and/or trucks, equipped with 4-wheel drive.

The property lies within the Yukon-Tanana terrane and is situated between the Tintina Fault, 200 km to the northeast and the Denali Fault 50 km to the southwest. Both faults are steeply dipping transcurrent structures with hundreds of kilometers of dextral strike slip offset. The regional geology of the area was remapped at a scale of 1:50 000 in 1997 by Johnston and Timmerman of the Yukon Geoscience Office, a forerunner of the Yukon Geological Survey. The adjacent Ruby Range to the west was remapped, at a scale of 1: 50 000 by Israel Corbett et al. (2011) of the Yukon Geological Survey. In 2014, Morris et al. released U-Pb age, whole rock geochemistry and radiogenic isotopic composition data for the Late Cretaceous volcanic rocks in the central Aishihik area, Yukon (NTS 115 H).

Regionally, the area is underlain by Mississippian and older Snowcap and lesser Finlayson assemblage metamorphic rocks assigned to the Yukon-Tanana terrane, which occur in a northwest-trending belt along Aishihik Lake. They consist of metasedimentary and metamorphic rocks, including quartz-muscovite +/- garnet schist, carbonaceous biotite +/- garnet schist and quartzite, garnet amphibolite and marble as well as rare intermediate composition metaplutonic rocks.

The metamorphic rocks are intruded by intermediate to felsic intrusions of the Early Jurassic Aishihik and Long Lake plutonic suites northeast of Aishihik Lake and felsic intrusive rocks of the Paleocene to Eocene Ruby Range plutonic suite primarily to the southwest of Aishihik Lake. A number of smaller, calc-alkaline, Late Cretaceous plutons (including the Sato and Hopper) intrude the early Jurassic Intrusions and the metamorphic rocks located northeast of the Ruby Range Batholith. These smaller plutons were previously assigned to the Ruby Range batholith but recent age and composition studies completed by Morris et al. suggest they are correlative to the Prospector Mountain suite. Uranium-lead age dating on the Hopper pluton (situated within this property) returned an approximate age of 76 million years placing it in the same metallogenic episode as the Patten Porphyry, host of the mineralization at the Casino porphyry copper-gold-molybdenum-silver deposit (Minfile Occurrence #115J 028) located approximately 190 km to the northwest. A number of Late Cretaceous to Early Tertiary volcanic complexes overlies all of the above lithologies.

The Hopper property is primarily underlain by the 5 by 7 km Late Cretaceous aged Hopper pluton, which intrudes Mississippian and older metasedimentary rocks of the Snowcap assemblage. Both units are intruded by predominantly north-trending feldspar-hornblende, +/-biotite, +/-quartz porphyritic dykes and lesser sills thought to be related to the Hopper pluton. Basalt and rare dykes of Late Cretaceous to possible Eocene age intrude all the units.

The metasedimentary rocks primarily consist of micaceous quartzite which grades to biotite-quartz schist and locally gneiss. This unit correlates with the Snowcap assemblage. The metasedimentary rocks generally trend northerly but strike north-northeast in the northwestern property area and north-northwest in the southwestern property area and dip shallowly to the east.

Due to extensive Quaternary cover, only the western portion of the Hopper pluton has been mapped in detail. Geological contacts for the rest of the pluton have been interpreted from airborne magnetic data. A small satellite plug has been interpreted from aeromagnetic data in the southeast portion of the property, approximately, 1.5 km south of the Hopper pluton. The main phase of the pluton is a grey, coarse-grained, equigranular biotite-hornblende granodiorite with 5 – 15% mafic minerals. A pink coloured medium-grained phase and a local darker coloured phase has also been mapped. Metasedimentary xenoliths are locally abundant within the granodiorite at the contact with the metasedimentary country rocks.

The feldspar-hornblende, +/- biotite, +/- quartz porphyritic dykes and sills are light grey to pinkish-grey in color, commonly weather green-grey and are dacite in composition. The dykes generally trend northerly, persist along strike and range in thickness from 0.5 to 50 m. The dykes generally dip steep east but also steep west to moderately east. The basalt dykes and sills are dark green, grey to black in color, massive to commonly feldspar porphyritic with amygdaloidal to vesicular margins. They are generally only 1 to 3 m thick but are persistent in strike. They primarily trend northerly with steep dips but locally trend easterly and crosscut feldspar porphyry dykes.

The Hopper property hosts two main types of mineralization; copper porphyry (this occurrence and copper skarn (Hopper South – Minfile Occurrence #115H 019). Some copper skarn mineralization occurs adjacent to the porphyry mineralization and further north of the Hopper Pluton.

Exploration carried out to date has identified porphyry copper style mineralization within the Hopper pluton over a 2.3 km (east west) by 650 m area, (open to the south and east) at the western edge of the Hopper pluton. The occurrence location marks the approximate centre point of the mineralization. Mineralization within the porphyry consists of chalcopyrite, with lesser pyrite, pyrrhotite, magnetite and molybdenite as fracture fillings, dissemination and aggregates and within quartz +/-carbonate veins. The quartz +/- carbonate veins measure a few cm to 3 m wide, occur primarily within the pluton, and probably represent "D" veins associated with the porphyry system. The vein parallel and occur orthogonal to the dominant north trending fracture orientation. The quartz is clear to white to smoky and occasionally chalcedonic, exhibits weak banding, druzy cavities and brecciation. The veins are commonly mineralized with isolated coarse blebs and clots of chalcopyrite +/- molybdenite.

Mitsubishi Metals originally discovered the porphyry zone in 1968. Composite chip samples returned significant results; 0.52% copper over 45.72 m, 0.25% copper over 60.96 m, 0.24% copper over 45.72 m etc. Excavator trenching carried out by Strategic Metals encountered difficulties reaching bedrock due to permafrost and heavy overburden, but returned 0.07% copper over 35 m in the vicinity of Mitsubishi's 0.24% copper over 45.72 m result. Grab samples collected by Strategic east of the occurrence location returned up to 2.25% copper.

The porphyry zone has not been tested with drilling except for the 58 shallow, vertical rotary percussion holes collared by Bonaparte Resources in 2011, of which 19 were collared in metasedimentary rocks. Despite the holes being unfavorably orientated (vertical); thus too steep to intersect the steep fracture sets controlling mineralization, several of the holes intersected significant copper porphyry mineralization. Hole PDH-11 -19 intersected 0.36% copper over 9.15 m, hole PDH-11-23 intersected 0.33% copper over1.53 m and hole PDH-11-39 intersected 0.24 % copper over its entire 39.62 m length.

The Mitsu West zone is located near the western end of the porphyry zone (approximately 1 km west of occurrence location). The zone covers a contact zone containing large screens and xenoliths of metasedimentary rocks within the Hopper pluton. Chip sampling completed by Mitsubishi Metals in 1968 returned values up to 0.25% copper over 60.96 m and 0.52% copper over 45.72 m. The Mitsu East zone located at the eastern end of the porphyry zone marks the location of coincident, moderately to strongly elevated gold, silver and molybdenum soil values.

Skarn mineralization was also reported along the northern boundary of the Hopper pluton adjacent to the porphyry copper mineralization and individual skarn horizons have been reported 1.5 km further north. Although these skarns are generally of lower average grade than those near Franklin Creek (Hopper South occurrence) in the south, rock exposure is more limited. Geological mapping has outlined a 350 by 350 m area of chalcopyrite mineralization associated with magnetite skarn and calc-silicate alteration within the embayment located along the northern boundary of the Hopper pluton. Two percussion drill holes collared in 2011 but not directly targeting skarn mineralization returned significant intervals of 0.54% copper over 3.05 m and 1.16% copper over 16.76 m.

Work History

Date	Work Type	Comment
12/13/2016	Studies	
12/13/2014	Geochemistry	

12/13/2014	Geology	
12/13/2014	Geochemistry	
12/13/2014	Ground Geophysics	
12/13/2014	Lab Work/Physical Studies	
12/13/2014	Trenching	
12/13/2014	Other	
12/13/2013	Airphotography	
12/13/2013	Pre-existing Data	Re-examined all drill core and percussion drill chips.
12/13/2013	Geochemistry	
12/13/2013	Geochemistry	
12/13/2013	Other	
12/13/2013	Studies	
12/13/2012	Pre-existing Data	Combined results of 2007 and 2011 airborne geophysical results and processed and interpreted results.
12/13/2011	Geochemistry	Limited sampling.
12/13/2011	Other	
12/13/2010	Geochemistry	
12/13/2007	Airborne Geophysics	Also magnetic survey flown. Survey covered entire property.
12/13/2007	Geochemistry	
12/13/2007	Geochemistry	Grid based.
12/13/2007	Trenching	
12/13/2006	Geochemistry	
12/13/2006	Geochemistry	
12/13/2006	Geology	In and around porphyry mineralization.
12/13/2006	Other	In and around porphyry mineralization.
12/13/1990	Geology	
12/13/1990	Ground Geophysics	
12/13/1990	Other	
12/13/1978	Ground Geophysics	
12/13/1978	Ground Geophysics	
12/13/1976	Geochemistry	
12/13/1976	Geology	
12/13/1970	Ground Geophysics	
12/13/1970	Trenching	
12/13/1968	Airborne Geophysics	
12/13/1968	Geochemistry	Reconnaissance scale.
12/13/1968	Airborne Geophysics	Also magnetic and radiometric surveys flown.
12/13/1968	Airborne Geophysics	
12/13/1907	Trenching	Prospector hand trenched mineralized areas
12/13/1907	Other	First reported activity in area.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096768	2014	Geological Mapping, Prospecting, Geochemical Sampling, Hand Trenching, Induced Polarization Surveys, Petrographic Studies and Road Construction at the Hopper Property	All Weather Road - Development, Surface, Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, IP - Ground Geophysics, Petrographic - Lab Work/Physical Studies, Prospecting - Other, Hand - Trenching		
		Air Photos, Access and Heritage Studies, Geochemical Sampling,	Orthophoto - Airphotography, Rock - Geochemistry, Silt -		

096583	2013	Prospecting, Geological Mapping and Core Re-Logging at the Hopper Property	Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Prospecting - Other, Heritage/Archeological - Studies		
096478	2012	Geophysical Survey Interpretation at the Hopper Property	Process/Interpret - Pre-existing Data		
095817	2011	Geochemical Sampling, Prospecting, Geological Mapping, Reverse Circulation Percussion Drilling, Diamond Drilling and Geophysical Surveying at the Hopper Property	Magnetic - Airborne Geophysics, VTEM - Airborne Geophysics, Diamond - Drilling, Reverse Circulation - Drilling, Soil - Geochemistry, Bedrock Mapping - Geology, Prospecting - Other	64	3039.09
095314	2010	Assessment Report Describing Soil Geochemistry at the Hopper Property	Soil - Geochemistry		
094997	2007	Assessment Report Describing Excavator Trenching, Soil Geochemical Sampling and Geophysical Surveys at the Hopper Property	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Soil - Geochemistry, Backhoe - Trenching		
094628	2006	Assessment Report Describing Prospecting, Geological Mapping and Soil Geochemistry	Rock - Geochemistry, Soil - Geochemistry, Regional Bedrock Mapping - Geology, Prospecting - Other		
092885	1990	Report on Additional Geological Mapping and Preliminary Magnetometer Survey	Bedrock Mapping - Geology, Magnetics - Ground Geophysics		
092857	1990	Preliminary Geological Report on the Hop 75-102 Quartz Claims	Bedrock Mapping - Geology, Prospecting - Other		
092038	1978	Report on the Hop-Acme Claims	Diamond - Drilling, Bedrock Mapping - Geology, IP - Ground Geophysics, Magnetics - Ground Geophysics	3	697.69
090147	1976	Report on the Geological Survey for Mitsubishi Metal Corporation on ML Claims (1-15)	Rock - Geochemistry, Bedrock Mapping - Geology		
060993	1970	Report on Induced Polarization Surveys for Mitsubishi Metal, Mining Company Ltd. on KL and AD Mineral Claim Groups	IP - Ground Geophysics		
019089	1968	Geological, Geochemical and Airborne-Geophysical Report as Representation Work on the AD Claim Groups (1-64 Inclusive)	Electromagnetic - Airborne Geophysics, Gamma-Ray Spectrometry - Airborne Geophysics, Magnetic - Airborne Geophysics, Soil - Geochemistry		

Related References

Number	Title	Page(s)	Reference Type	Document Type
YEG2013_10	U-Pb age, whole-rock geochemistry and radiogenic isotopic compositions of late Cretaceous volcanic rocks in the central aishihik lake area, Yukon (NTS 115H)		Yukon Geological Survey	Annual Report Paper
YEG2010_07	New insights into the geology and mineral potential of the Coast Belt in southwestern Yukon.		Yukon Geological Survey	Annual Report Paper
GM1997-9	Geology of Hopkins Lake Map Area, Yukon (NTS 115H/7)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Geoscience Map (Geological - Bedrock)
MIR1976	Mineral Industry Report 1976	p. 166.	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Geology	Annual Report
MIR1977	Mineral Industry Report 1977	p. 69.	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Geology	Annual Report
YEG1989	Yukon Exploration 1989	p.7, 10, 111.	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report
YEG1979_80	Yukon Geology and Exploration 1979-80	p. 100.	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report
YEG2006_OV	Yukon Mining, Development and Exploration Overview 2006	p. 27.	Yukon Geological Survey	Annual Report
YEG2007_OV	Yukon Exploration and Geology Overview 2007	p.38.	Yukon Geological Survey	Annual Report
YEG2008_OV	Yukon Exploration and Geology Overview 2008	p. 33.	Yukon Geological Survey	Annual Report
YEG2011_OV	Yukon Exploration and Geology Overview 2011	p. 54-55, 70, 73.	Yukon Geological Survey	Annual Report
YEG2013_OV	Yukon Exploration and Geology Overview 2013	p. 44.	Yukon Geological Survey	Annual Report
2011-2	Preliminary bedrock geology of the Ruby Ranges, southwestern Yukon, (Parts of NTS 115G, 115H, 115A and 115B) (1:150 000 scale)		Yukon Geological Survey	Open File (Geological - Bedrock)
1994-1(G)	Geological Map of Aishihik Lake Map Area, Southwest Yukon (115H/6)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Open File (Geological - Bedrock)
1994-2(G)	Geological Map of the Hopkins Lake Area, Southwest Yukon (115H/7)		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Open File (Geological - Bedrock)
YEG1993-pg93	Geology of the Aishihik Lake and Hopkins Lake Map Areas (115 H/6,7), Southwestern Yukon		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper