



Occurrence Details

Occurrence Number: 105G 136
Occurrence Name: White Creek
Occurrence Type: Hard-rock
Status: Prospect
Date printed: 4/29/2025 9:37:23 PM

General Information

Secondary Commodities: barite, copper, lead, silver, zinc
Deposit Type(s): Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn
Location(s): 61°13'40" N - 130°15'44" W
NTS Mapsheet(s): 105G01
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

In early 1994 Cominco flew an airborne geophysical survey over large parts of Yukon-Tanana Terrane in the Finlayson Lake area. In Apr/94, the company staked numerous small claim groups, i.e. Pop cl 1-26 (YB47372) etc. to cover various airborne geophysical anomalies. In Aug/94 Cominco staked Expo cl 1-277 (YB51952) in the area to cover the occurrence and consolidate the individual claim groups into 1 contiguous block referred to as the Expo property. During the 1994 field season, Cominco exploration personnel discovered VMS mineralization along the edge of White Creek.

In Dec/94 Cominco added Expo cl 278-417 (YB56791) to the south. During the 1995 exploration season the company carried out more advanced exploration work including, geological mapping, soil sampling and ground geophysical surveys. Between Aug and Sep/95, Cominco staked Expo cl 418-714 (YB60296) to the north and east.

In 1996 Cominco continued exploration work on and around the occurrence area. The company completed further geological mapping, soil sampling and geophysical surveys the results of which were used to locate and drill 1 diamond drill hole (120.4 m). In 1997 the company carried out geological mapping, prospecting and contour soil sampling to the north and west of the occurrence area. A second drill hole (173.7 m) was collared approximately 400 m northeast of the previous hole.

In Aug/98 Cominco transferred the Expo and Pop claims to R. Berdahl. In 2003 Berdahl prospected and silt sampled creeks in the vicinity of this occurrence.

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 Kudzu Ze Kayah (Minfile Occurrence #105G 117), Wolverine (Minfile Occurrence #105G 072) and Ice (Minfile Occurrence #105G 118).

The occurrence lies within an area recently re-mapped by Murphy et al. (2004) of the Yukon Geological Survey. The occurrence is located north of the Money Creek Thrust, in the hanging wall of the thrust. The area is underlain by the Upper Devonian Waters Creek Formation (unit DWC) a siliceous felsic metavolcanic rock and lesser intermediate to mafic rock intercalated with carbonaceous phyllite and siliceous rock thought to be a meta-chert. It is overlain by metamorphosed, primarily intermediate volcanic, volcanoclastic and epiclastic rocks with lesser chert and limestone assigned to the Early Mississippian Tutchitua River formation (Unit MTR). The Tutchitua River formation is unconformably overlain by the Lower Permian Money Creek formation (unit PMC) which consists of a poorly organized succession of carbonaceous phyllite, dark grey to black chert, chert-pebble conglomerate, quartzofeldspathic sandstone to pebble conglomerate and locally, matrix-supported diamictite. A pair of reverse faults located to the west thrust the sequence to the northwest onto a large granitic pluton assigned to the Early Mississippian Simpson Range Plutonic suite. Several small granitic plugs, likely satellite bodies associated with the pluton intrude the sequence north and south of the occurrence. The occurrence consists of bedded barite and at least 3 thin intervals (up to 1 m thick) of baritic, banded pyrite with local pyrrhotite-sphalerite +/- rare magnetite hosted in banded/bedded siliceous and barite-carbonate altered felsic flow/tuff and argillite (unit DWC). In the occurrence area, the mineralized sequence is about 10 m thick with the sulphide intervals occurring near the top of the sequence. Grab samples collected from the upper and lower bands returned up to 0.9% zinc, 8.2 g/t silver and 43% barite.

Grid soil sampling completed over the occurrence area in 1995 and 1996 returned weak to moderate zinc (582 ppm max), copper (320 ppm max) and silver (6.9 ppm max) anomalies. Ground HLEM/Mag geophysical surveys conducted in 1995 and centered over the occurrence failed to return any features.

In 1996 Cominco tested the occurrence with a single drill hole (EX96-02 = 120.4 m). The hole returned a package of felsic rocks with good silica-chlorite-iron-carbonate alteration and sulphide mineralization (although thin and low grade), of clearly volcanogenic origin.

Contour soil sampling in 1997 outlined an area of elevated copper (>100, up to 321 ppm) and zinc (246 ppm up to 786 ppm) response over a ½ km arc, located about 500 m north of the main showing. Geological mapping and prospecting outlined additional bedded barite occurrences within the felsic volcanic unit, some of which possessed minor pyrite-pyrrhotite-galena-sphalerite mineralization. The 1997 drill hole intersected stratigraphy similar to that encountered in the previous hole with the addition of a cherty argillite containing pyrite-pyrrhotite-sphalerite veinlets and Fe carbonate-quartz filled tension gashes. Following the completion of the 1997 exploration program Cominco concluded that the felsic volcanic package and associated barite and sulphide mineralization is consistent with the "interpretation of this area as a potential host of a VMS style deposit".

Prospecting by Berdahl located a zinc, silver and lead banded float boulder approximately 700 m west of drill hole EX96-02. The boulder assayed 13.53% zinc, 44.5 g/t silver and 0.17% copper. The source of the boulder was not determined. Three float rock samples collected in the vicinity of this boulder returned extraordinarily high mercury (up to 4 889 ppm) and selenium (>99 ppm) values.

References

BERDAHL, R.S., Oct/2004. Assessment Report #094474 by R.A. Berdahl.

COMINCO LTD, Feb/96. Assessment Report #093338 by P.A. MacRobbie.

COMINCO LTD, Apr/96. Assessment Report #093426 by P.A. MacRobbie.

COMINCO LTD, Apr/96. Assessment Report #093427 by I. Jackish.

COMINCO LTD, Apr/ 97. Assessment Report #093581 by L.A. Tulk.

COMINCO LTD, Jun/98. Assessment Report #093816 by V.L. Bannister.

JACKSON, L.E., Jr., 1993. Surficial geology, Rainbow Creek, Yukon Territory; Geological Survey of Canada, Map 1797A, scale 1:100 000.

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. Preliminary bedrock geological map of northern Finlayson Lake area (NTS 105 G), Yukon Territory (1:100 000 scale). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 2001-33.

MURPHY, D.C. ET AL., 2002. Finlayson Lake Targeted Geoscience initiative (southeastern 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.

MURPHY D.C., 2004 Devonian-Mississippian metavolcanic stratigraphy, massive sulphide potential and structural re-interpretation of Yukon-Tanana Terrane south of the Finlayson Lake massive sulphide district, southeastern Yukon (105G/1, 105H/3, 4, 5). In Yukon Exploration and Geology 2003, D.S. Emond and L.L. Lewis (eds.), Yukon Geological Survey, p. 157-175.

MURPHY, D.C., ET AL. 2004. Geological map of part of Waters Creek and Fire Lake map areas (part of NTS 105G/1 and 2), southeastern Yukon (1:50 000 scale).

YUKON EXPLORATION & GEOLOGY 1996, p. 17.

YUKON MINING AND EXPLORATION OVERVIEW 1988, p. 25.

Work History

Date	Work Type	Comment
12/31/2003	Geochemistry	By Berdahl
12/31/2003	Geochemistry	By Berdahl.
12/31/2003	Other	By Berdahl.
12/31/1997	Drilling	One hole, 173.7 m. Hole drilled north east of 1996 hole.
12/31/1997	Geology	
12/31/1997	Geochemistry	
12/31/1997	Other	
12/31/1996	Drilling	One hole, 120.4 m. Drilled to test White Creek showing.
12/31/1996	Geology	
12/31/1996	Geochemistry	
12/31/1996	Ground Geophysics	
12/31/1995	Geology	
12/31/1995	Geochemistry	
12/31/1994	Geology	
12/31/1994	Geochemistry	
12/31/1994	Airborne Geophysics	Also EM survey. Company flew regional airborne geophysical survey.
12/31/1994	Other	
12/13/1995	Ground Geophysics	Also gravity survey.
12/13/1994	Ground Geophysics	Also gravity survey.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
096745	2014	Report on a Helicopter-Borne, Versatile Time Domain Electromagnetic (VTEM) and Aeromagnetic Geophysical Survey, Expo Block and Ellen Creek Block	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics		
096178	2012	Airborne Geophysical Survey Report on the Expo Block	Gamma-Ray Spectrometry - Airborne Geophysics, Magnetic - Airborne Geophysics		
094760	2005	Prospecting & Geochemical Report on the Finlayson Project	Rock - Geochemistry, Soil - Geochemistry		
094474	2003	Prospecting and Geochemical Report on the Finlayson Project	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Prospecting - Other		
093816	1997	1997 Assessment Report Expo/Xpo/Pop/Fly (Including Areas of Base, Ball, Bat, Home & Run Blocks) Properties	Diamond - Drilling, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Prospecting - Other	2	368
093581	1996	1996 Assessment Report Expo Property (Including the Pop, Home, Run and Fly Properties) Picketting, Ground Geophysics (HI EM/MAG), Soil Geochemistry, and Geological Mapping	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Diamond - Drilling, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, EM - Ground	6	816.40

		(HLEM/MAG), Soil Geochemistry and Geological Mapping	Geophysics, Magnetics - Ground Geophysics, Prospecting - Other		
093427	1995	Geophysical Surveys on the Expo/Mony Claims of the Pelly Mtn Properties Watson Lake Mining District Yukon	EM - Ground Geophysics, Magnetics - Ground Geophysics		
093426	1995	1995 Assessment Report Expo Property (Including the Pop, Home, Run, Fly and Bat Properties) Linecutting, Ground Geophysics (HLEM/Mag and Gravity), Soil Geochemistry and Geological Mapping	Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other		
093338	1994	1994 Assessment Report, Pop, Base, Home, Run, Ball, Fly and Bat Properties (Expo Property)	Gravity - Airborne Geophysics, Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics, Magnetics - Ground Geophysics		