Occurrence Details

Occurrence Number: 105L 045
Occurrence Name: Clear Lake
Occurrence Type: Hard-rock
Status: Deposit
Date printed: 4/29/2025 4:46:03 AM

General Information

Primary Commodities: lead, silver, zinc
Secondary Commodities: barite, phosphorus, titanium
Deposit Type(s): Sediment hosted Sedimentary Exhalative Zn-Pb-Ag (Sedex)
Location(s): 62°47'4" N - -135°8'36" W
NTS Mapsheet(s): 105L14
Location Comments: .5 Kilometres
Hand Samples Available: Yes
Last Reviewed:

Capsule

Work History

This occurrence was first staked in 1965 by Conwest Exploration Company Ltd, as part of a 734 claim block, following the discovery of the Faro orebody 80 km to the southeast. Limited prospecting, mapping, ground and airborne EM and magnetometer surveying was carried out. Reportedly, six EM anomalies were tested by diamond drilling and one of these drillholes intersected 0.45 m of massive pyrite. Due to a lack of understanding of the geological environment and geophysical character of other known deposits no significant mineralization was detected and the claims were allowed to lapse.

Restaked as Sue cl 1-1070 (80651) in Aug/74 by a syndicate of Conwest companies (Chimo Gold Mines Ltd, Consolidated Canadian Farday Ltd and International Mogul Mines Ltd) and Teck Corporation Ltd. U.S. Steel Western Hemisphere Inc acquired the Teck interest early in 1975 and formed the Macmillan Joint Venture. The joint venture carried out extensive bulldozer gridding, linecutting, EM, magnetometer and gravity surveying and geological mapping in 1975; additional gravity surveying in 1976 and 1977; drilled 17 holes (2,531 m) in 1978; MaxMin EM surveying, airstrip construction and drilling of 10 holes (2,481 m) in 1979.

Welcome North Mines Ltd tied on RSVP, PVA and Pelly cl (YA25299) in Aug/79 and optioned the claims to E and B Exploration Inc (Pelly Project), which carried out airborne magnetometer and EM surveying and geochemical sampling in 1980.
The Conwest syndicate's interest was acquired by Getty Canadian Metals Ltd in the spring of 1980 which staked various Get A, Get B, Get C and Get D claims (YA49085) in Jun/80 and carried out geological mapping, soil geochemical sampling, MaxMin EM and gravity surveying in 1980; EM and magnetometer surveying, soil and lake bottom geochemical sampling, prospecting and drilling of 3 holes (709.3 m) in 1981; linecutting, geochemical sampling, EM and gravity surveying and drilling of 3 holes (943.7 m) in 1982; linecutting, drilling of 69 overburden holes (531 m) and 2 diamond drill holes (2,045.5 m) in 1983; and diamond drilling of one hole (457.2 m) in 1984.

Most of the Sue claims surrounding the showing were subsequently abandoned and were restaked as Clear cl 1-490 (YB25815) in Jun/89 by Total Energold Corporation, which also purchased Conwest's NPI interest. Total Energold staked Clear cl 491-598 (YB27222) in April and May/90 and carried out geochemical soil and rock sampling and geological mapping to evaluated 18 target areas later in the year. The geochemical sampling included hand-augered soil samples and 35 samples of glacial overburden collected down-ice from the deposit using an overburden drill. The property was optioned to Mitsui Kinzoku Resources of Canada Inc, a wholly owned subsidiary of Mitsui Mining and Smelting Company Ltd in 1991. At the same time Total Energold purchased U.S. Steel's interest in the property.

Work carried out in 1991 consisted of diamond drilling of 19 holes (4,588.2 m), geological mapping, IP and gravity surveying, geochemical sampling, linecutting and trenching and staking of Clear cl 599-674 (YB36109) in Jul/91. In 1992 Total Erickson Resources Ltd, a wholly owned subsidiary of Total Energold carried out diamond drilling of 10 holes (3,100.1 m), geological mapping, soil geochemical sampling, trenching, linecutting and IP, gravity and Power Line magnetotelluric surveying.

The Clear and Sue claims were transferred to Energold Minerals Inc in Nov/92. In 1993, Mitsui and Energold carried out gravity and magnetometer surveying, auger assisted soil sampling, rock chip sampling, geological mapping and drilling of 6 holes (1,364 m). Baseline environmental studies were also carried out before Mitsui dropped its option. Energold Mining Ltd changed its name to Energold Drilling Corporation in Sep/2005.

2005-2010 not summarized yet.

A resource estimate was prepared by SRK Consulting for Copper Ridge Explorations Inc in February 2010.

Capsule Geology

The Clear Lake deposit is a proximal exhalative massive pyritic sulphide body within which drilling has outlined approximately 30 million tonnes of massive sulphides (mostly pyrite), including a geological reserve of 5,570,114 million tonnes grading 11.4% Zn, 2% Pb and 38.01 g/t Ag. The deposit is hosted by carbonaceous argillite, siltstone, chert and tuff of the Devonian to Mississippian Earn Group.

The property is bisected by the Tintina Fault. North of the fault are phyllite of the Lower Cambrian Mt Mye Formation and calcareous phyllite and limestone of the Cambrian to Ordovician Vangorda Formation. South of the fault are Ordovician to Lower Devonian Road River Group shale, and the Devonian to Mississippian Earn Group clastic rocks which host the Clear Lake deposit. Glacial overburden 5 to 26 m thick covers the property, and the geology is known mainly from drillholes and interpretations of geophysical surveys.
The main sulphide body was discovered in 1978 while drilling a 3 mgal residual gravity anomaly. The gravity anomaly coincides with magnetic and EM anomalies and is situated beside a small acidic lake containing geochemically anomalous lake bottom sediments. Lake bottom samples assayed up to 19,000 ppm Zn, 1.2 ppm Ag, and 20 to 40 ppm Cu. A subtle gossan was later recognized over the target.

The deposit is sigmoidal in shape, approximately 1 000 m long and up to 120 m wide, and pinches at depth. It dips steeply to the east, and Bouma sequences in drill core indicate that it is overturned. Sulphide minerals are laminated and consist largely of framboidal pyrite which is slumped and fragmented in places. The best drill intersection assayed 18.3% Zn, 2.15% Pb and 58.6 g/t Ag across 13 m. Tuffaceous rocks intercalated with the sulphides reach a thickness of 30 m in the original footwall, stratigraphically beneath the main massive sulphide lens. The tuff exhibits relict pyroclastic texture, with both matrix and fragments largely altered to soft grey clay, and local concretions of galena, sphalerite, barite, siderite and calcite.

Argillite which lies stratigraphically beneath the overturned footwall tuff is silicified to a depth of 90 m below the deposit. The overturned hanging wall is formed by a layer of argillite which

is silicified so extensively it resembles mottled to laminated chert. Irregular pyrite stringers and masses are common throughout both the hanging wall and footwall argillite. Massive barite in several drillholes appears to be peripheral to the deposit and forms a partial cap over it. Barite and tuff lenses intersected at depth in the 1991 drillholes indicate that there is potential for another sulphide lens below the main orebody.

A trace element study of the tuffaceous rocks by Jim Morin of DIAND revealed high Ti and P contents and high K_2O/Na_2O ratios, consistent with an alkaline volcanic environment. The mineral deposit is inferred to be an exhalative deposit related to Devonian rifting. Worm tubes replaced by quartz and calcite surrounded and partly replaced by sphalerite and pyrite have been found in drill core, and the sulphides are believed to have precipitated from a hydrothermal fluid hotter than 350°C which mixed with cold seawater at a black smoker vent.

Soil sampling using hand augers and an overburden drill in 1990 located anomalies in several new areas. North of the Tintina Fault, stratiform galena and sphalerite outcrop at the transition between Mt Mye and the Vangorda Formation rocks, the same stratigraphic interval as the Faro deposits. Specimens from this area assayed up to 2.68% Zn, 0.78% Pb and 13.7 g/t Ag.
Drilling in 1992 showed that some gravity anomalies are due to bedrock highs adjacent to conductive graphitic shear zones which trend east-west through the main deposit. No new massive sulphide lenses were discovered.

A resource estimate was prepared by SRK consulting for Copper Ridge Explorations in February 2010. SRK estimates that the Clear Lake deposit contains 7.765 million tonnes of Inferred Mineral resource grading 1.08% Pb, 7.6% Zn and 22 g/t Ag at a 4% (Pb+Zn) cut-off, with Pb grades capped to 1.5% and Ag grades capped at 60 g/t.

Work History

Date	Work Type	Comment
2/1/2011	Studies	KRK Consulting, 2010, for Copper Ridge Explorations Inc.
12/31/1993	Ground Geophysics	Also magnetic survey.
12/31/1993	Drilling	Six holes, 1,364 m.
12/31/1993	Geology	
12/31/1993	Geochemistry	Also rock sampling.
12/31/1992	Drilling	Ten holes, 3,100.1 m.
12/31/1992	Geology	
12/31/1992	Geochemistry	
12/31/1992	Ground Geophysics	Also gravity.
12/31/1992	Trenching	
12/31/1991	Drilling	Nineteen holes, 4,588.2 m.
12/31/1991	Geology	
12/31/1991	Ground Geophysics	Also gravity survey.
12/31/1991	Trenching	
12/31/1990	Geology	
12/31/1990	Geochemistry	Also rock sampling.
12/31/1984	Drilling	One hole, 457.2 m.
12/31/1983	Drilling	Two holes, 2,045.5 m.
12/31/1983	Drilling	
12/31/1982	Drilling	Three holes, 943.7 m.
12/31/1982	Geochemistry	
12/31/1982	Ground Geophysics	Also gravity survey.
12/31/1981	Drilling	Three holes, 709.3 m.
12/31/1981	Geochemistry	Also silt sampling.
12/31/1981	Ground Geophysics	Also magnetic survey.
12/31/1980	Geology	
12/31/1980	Geochemistry	
12/31/1980	Ground Geophysics	Also gravity survey.
12/31/1979	Development, Surface	
12/31/1979	Drilling	Ten holes, 2,481 m.
12/31/1979	Ground Geophysics	Also magnetometer survey.
12/31/1978	Drilling	Seventeen holes, 2,531 m.
12/31/1977	Ground Geophysics	
12/31/1976	Ground Geophysics	

12/31/1975	Geochemistry	
12/31/1975	Ground Geophysics	Also magnetic and gravity surveys.
12/31/1966	Geology	
12/31/1966	Airborne Geophysics	Also magnetic survey.
12/31/1966	Other	
12/13/1975	Geology	

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
097206	2018	Assessment Report on 2018 Surface Work on the Clear Lake Property	Rock - Geochemistry		
095140	2009	2009 Ground Geophysical Program Clear Lake Project	Gravity Survey - Ground Geophysics, IP - Ground Geophysics		
095047	2008	2008 Airborne Geophysical Program Clear Lake Project	VTEM - Airborne Geophysics		
093145	1993	1993 Geological, Physical, Geophysical, Geochemical and Diamond Drilling Assessment Report on the Clear Lake Property	Diamond - Drilling, Drill Core - Geochemistry, Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Regional Bedrock Mapping - Geology, Gravity Survey - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other	6	1364
093060	1992	Geological, Physical, Geophysical, Geochemical and Diamond Drilling Assessment Report on the Clear Lake Property	Diamond - Drilling, Soil - Geochemistry, Regional Surficial Mapping - Geology, Gravity Survey - Ground Geophysics, IP - Ground Geophysics, Resistivity - Ground Geophysics, Line Cutting - Other, Environmental Assessment/Impact - Studies, Mechanical - Trenching	10	3100
093013	1991	Geological, Physical, Geophysical, Geochemical and Diamond Drilling Assessment Report on the Clear Lake Property	Diamond - Drilling, Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Regional Bedrock Mapping - Geology, Regional Surficial Mapping - Geology, Gravity Survey - Ground Geophysics, IP - Ground Geophysics, Line Cutting - Other, Prospecting - Other, Mechanical - Trenching	19	4588.20
092871	1990	Geochemical and Geological Assessment Report on the Clear Lake Property	Auger - Drilling, Rock - Geochemistry, Soil - Geochemistry, Regional Bedrock Mapping - Geology		
092895	1990	Geochemical and Geological Assessment Report on the Clear Lake Property	Auger - Drilling, Portable - Drilling, Rock - Geochemistry, Soil - Geochemistry, Regional Bedrock Mapping - Geology		
090932	1981	Macmillan Joint Venture, Clear Lake Area, Yukon / by C. W. Payne	Diamond - Drilling	3	478.80
091036	1981	Macmillan Joint Venture Assessment Report - Aerial Photography, Orthophoto and Line Maps Report	Orthophoto - Airphotography		
090659	1980	Macmillan Joint Venture Geophysical Surveys March to May, 1980 Sue Claims Whitehorse Mining District	EM - Ground Geophysics, Gravity Survey - Ground Geophysics		
090478	1979	Macmillan Joint Venture Geophysical Surveys March - April 1979	EM - Ground Geophysics, Magnetics - Ground Geophysics		
091269	1979	[Diamond drill hole logs] / Getty Canadian Metals Ltd. on the Clear Lake Property	Diamond - Drilling, Drill Core - Geochemistry, Line Cutting - Other	4	1545
090011	1975	Macmillan Joint Venture Progress Report Number 1 Geophysical Surveys February - May 1975	Winter Road - Development, Surface, EM - Ground Geophysics, Gravity Survey - Ground Geophysics, Magnetics - Ground Geophysics, Line Cutting - Other, Photogrammetry - Remote Sensing, Mechanical - Trenching		

Related References

Number	Title	Page(s)	Reference Type	Document Type
ARMC020070	Annual report 1989 - Total Energold Corporation		Property File Collection	Report
ARMC020099	Project summary and business proposal - MacMillan joint venture/Clear Lake project		Property File Collection	Report
ARMC020100	Property summary - Total Energold Corporation - Clear Lake property - May 1990		Property File Collection	Report
ARMC020101	Memo to C.H. Frame Re: Clear Lake/Yukon Territory with location map		Property File Collection	Miscellaneous Company Documents
ARMC020102	Memo to M.H. Pelley Re: Clear Lake		Property File Collection	Miscellaneous Company Documents
ARMC020103	Memo to M.H. Pelley Re: Clear Lake lead zinc property, Yukon		Property File Collection	Miscellaneous Company Documents

Resource/Reserve

Year	Zone	Type	Commodity	Grade	Tonnage	Amount	Reported Amount	43-101 Compliant	Cut-off
2010	Clear Lake (Underground)	Inferred	zinc	7.6 %	7,765,000		No	Yes	4% (Pb+Zn)
SRK Consulting, 2010.									
2010	Clear Lake (Underground)	Inferred	lead	1.08 %	7,765,000		No	Yes	4% (Pb+Zn)
SRK Consulting, 2010.									

2010	Clear Lake (Underground)	Inferred	silver	22 g/t	7,765,000	170830	No	Yes	4% (Pb+Zn)
SRK Consulting, 2010.									
1991	CLEAR LAKE (UNDERGROUND)	Historical Estimate	lead	2 %	5,570,114		No	No	Unknown
Reported as preliminary reserves.									
1991	CLEAR LAKE (UNDERGROUND)	Historical Estimate	silver	38.1 g/t	5,570,114		No	No	Unknown
Reported as preliminary reserves.									
1991	CLEAR LAKE (UNDERGROUND)	Historical Estimate	zinc	11.4 %	5,570,114		No	No	Unknown
Reported as preliminary reserves.									

Drill core at YGS core library

Number	Property	Year Drilled	Core Size	Photos	Data
91-50	Clear Lake	1991	NQ	12	1
91-51	Clear Lake	1991	NQ	2	1
91-52	Clear Lake	1991	NQ	8	1
91-54	Clear Lake	1991	NQ	6	1