HI-LO GROUP

Geological Report

Owner: COPPER HORN MINES LIMITED

Claims: HI-LO Numbers 2, 3, 6 to 39 inclusive mineral claims.

Location: Kootenay Lake at Schroeder Creek

Latitude: 50°

Longitude: 116° SW

Slocan Mining Division

Author: D.C. Malcolm, P. Eng.

Dates of Work: June 15, 1967
August 12, 1967
October 10 to October 31, 1967.

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HI-LO GROUP

GEOLOGICAL REPORT

BY

D.C. MALCOLM, P. ENG.

Vancouver, B. C.
November 1, 1967

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TABLE OF CONTENTS

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INTRODUCTION

The claim area was mapped in the spring and fall of 1967; (a drought prevented summer work). The area was previously mapped by J.F. Walker: Kootenay Lake District--Geological Survey of Canada--Summary Report 1928 part A and as part of the Nelson map area--East Half by H.M.A. Rice Memoir 228. More recently J.T. Fyles of the British Columbia Department of Mines in Bulletin 49 covering the Geology of the Duncan Lake Area mapped the adjoining area to the north. The writer did extensive mapping and work on the economic geology of the Kootenay Arc between 1946 to 1955 for Cominco.

The rocks are part of the Lardeau Series of lower Cambrian Age intruded by Nelson intrusives of Jurassic and Cretaceous ages. The sediments are folded into the complicated Kootenay Lake anticline and the property lies on the west limb of this structure.

The mineralization is varied and controlled by fissures which cross the formations and by favorable folded beds.

LOCATION

Latitude 50°04' Longitude 116°55' Elevation 1,750 to 3,500'

The claims are along the west shore of Kootenay Lake north of Schroeder Creek 8 to 11 miles north of Kaslo. The Kaslo-Lardeau highway runs through the claims at elevation 2,000 feet.

TOPOGRAPHY

The property extends along the Kootenay Lake shoreline and up the mountainside to the west. Schroeder Creek, which flows easterly to Kootenay Lake, occupies a steep walled canyon and forms a delta in the lake. Several small creeks flowing easterly across the claims form steep walled shallow canyons.

The property is along a series of northwest trending timber covered flat areas or benches separated by cliffs. The lake shore is rocky with steep cliffs and talus slopes to the highway. On the northern claims several areas are underlain by thick deposits of sorted glacial gravel.

GENERAL GEOLOGY

The area is underlain by a succession of metamorphosed sedimentary and volcanic rocks folded in an arch spanning Kootenay Lake and complicated by subsidiary folds. The layered rocks are intruded by the Nelson, Kuskanax and Fry Creek batholyths. A marker, the Badshot limestone, has been traced

along the "Kootenay Arc" from the United States through Salmo, Ainsworth, the Lardeau and north of Revelstoke and has allowed part of the structural picture to be revealed.

Mineralization is extensive and a number of mines have produced from the belt; mostly silver-lead-zinc replacements and veins in dolomites and limestones of the Badshot formation.

CLAIM GEOLOGY

The HI-LO claim group lies along the western limb of the Kootenay anticline in the Lardeau and adjoining groups of rocks. The Badshot limestone is exposed at Schroeder Creek and on the southern claims of the property as an anticline overturned to the east and plunging 25° to the north. The overlying Index Formation is exposed in the same structure and the underlying Marsh Adams Formation covers most of the claim area in the anticline and in a shallow plunging (5 to 10° to the north) syncline. The Marsh Adams Formation contains extensive irregular areas of hornblend schist and a number of northwest striking dikes of altered feldspar porphyry.

Faulting throughout the property is extensive. Along the highway the rock bluffs expose numerous small faults joints, some wide areas of shearing and several breccia zones. These strike northwest and northeast and dip nearly vertically.

The mine workings show several small north striking faults and the mapping shows an area of graphitic schist which strikes slightly west of north which the writer suspects is a graphite filled fault zone.

Numerous quartz veins fill bedding openings and cross-cutting fault zones.

ROCK TYPES

Index Formation

The Index Formation rocks outcrop south of the claim area and are green to grey siliceous biotite schists. The rocks are not uniform and some harder members form prominent cliffs while the softer micaceous rocks form benches.

Badshot Formation

The Badshot Formation is well exposed in Schroeder Creek and in the bluffs north and south of the creek. The base of the formation is a white very fine grained siliceous dolomite which grades along strike to a calcareous sericite schist. This member is 10 to 20' in thickness. A white coarser grained marble in a bed up to 20 feet in thickness overlies the dolomite and 50 to 100 feet of white, brown or grey cavernous limestone overlies the marble. Outcrops to the north and west are poor and many of the exposures are of the upper limestone in isolated rounded boulder-like outcrops. The streams and creeks crossing the limestones are in part underground and have formed marl deposits in low areas along their courses.

Marsh Adams Formation

Thin beds of white blocky quartzite and thin bedded white quartzite outcrop along the Kootenay Lake shore and

throughout the claim area. The beds are not distorted but are folded concentrically. Many of them are sericitic and they are interbedded with biotite schist, knotted schists and thin limestone beds and lenses.

Unclassified Rocks

Throughout the claim area there are many altered rocks whose original type is not known. These include fine and coarse grained hornblend schists, hornblend biotite schist and some biotite schists.

Dike Rocks

Numerous feldspar porphyry dikes varying in width from 6 inches to 20 to 30 feet strike northwest and dip 30 to 50 degrees northeast. These are fine grained granitic rocks with small feldspar phenocrysts and minor femics. They are generally blocky and fresh appearing; but some were seen which locally showed kaolinization, silicification or sericitization.

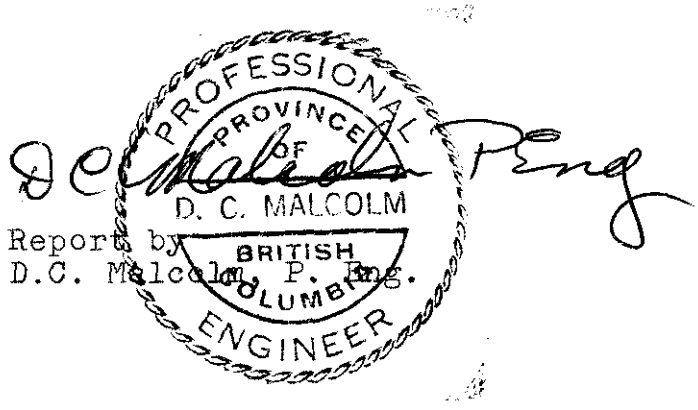
MINERALIZATION

Mineralization occurs as quartz filled fissure veins containing galena, scheelite and traces of chalcopyrite and as replacements of hornblend and biotite schists by pyrrhotite with traces of sphalerite.

Both types of mineralization are common in the Kootenays and have produced ore bodies in the Badshot calcareous rocks, in quartzites and in hornblend schists. The deposits are associated with strike and cross faults, with the crests and troughs of the folds and with the favorable rock types.

SUMMARY

The claims are underlain by folded Lardeau Series rocks which are part of the Kootenay Arc. The Badshot limestone is folded into an overturned anticline plunging 25 degrees to the north and the Hamill or Marsh Adams quartzites are folded along the same fold and in an overturned syncline which plunges 5 to 10 degrees to the north. Areas of hornblend and biotite schist on the trough of this latter fold contain fine grained pyrrhotite with traces of sphalerite as a replacement on northwest striking shear and breccia zones. Some of the numerous bedded and crosscutting quartz veins contain galena, scheelite and traces of chalcopyrite in the Badshot Formation.



Report by
D.C. Malcolm, P. Eng.

A P P E N D I X I.

ACCOUNTING STATEMENT

D.C. Malcolm Geologist	August 12, 1967 October 10 to 31,1967	$2,200
Robert Joy Assistant	August 12, 1967 October 12, 1967	50
P.D. Malcolm Assistant	October 10 to 20, 1967	250
	Total	$2,500

A P P E N D I X II.

LIST OF CLAIMS

Claim		Record No.	Record Date
HI-LO	2	8405	March 12, 1966
"	3	8477	April 4, 1966
"	6	8976	May 7, 1966
"	7	8977	"
"	8	8978	"
"	9	8979	"
"	10	8980	"
"	11	8981	"
"	12	8982	"
"	13	8983	"
"	14	8984	"
"	15	10265	November 10, 1966
"	16	10266	"
"	17	10267	"
"	18	10268	"
"	19	10269	"
"	20	10270	"
"	21	10271	"
"	22	10272	"
"	23	10273	"
"	24	10274	"
"	25	10275	"
"	26	10276	"
"	27	10277	"
"	28	10278	"
"	29	10279	"
"	30	10280	"
"	31	10281	"
"	32	10282	"
"	33	10283	"
"	34	10284	"
"	35	10285	"
"	36	10286	"
"	37	10287	"
"	38	10288	"
"	39	10289	"

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of Financial accounting on work done during 1967 on the HI-LO Group of Claims Record No. 8404, 8477, 8976-8984, 10265-10289.

I, DOUGLAS COLE MALCOLM, Free Miner No. 58419

of the City of Vancouver

in the Province of British Columbia, do solemnly declare that the following work was performed on the HI-LO Group of Mineral Claims for 1967 for a total of $2,500.

D.C. Malcolm, Geological Engineer,	August 12, 1967	$ 100
	October 10-31, 1967	2,100
Robert Joy, Geological Assistant,	August 12, 1967	25
	October 12, 1967	25
P. D. Malcolm, Geological Assistant,	October 10-20, 1967	250
	Total	$2,500

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

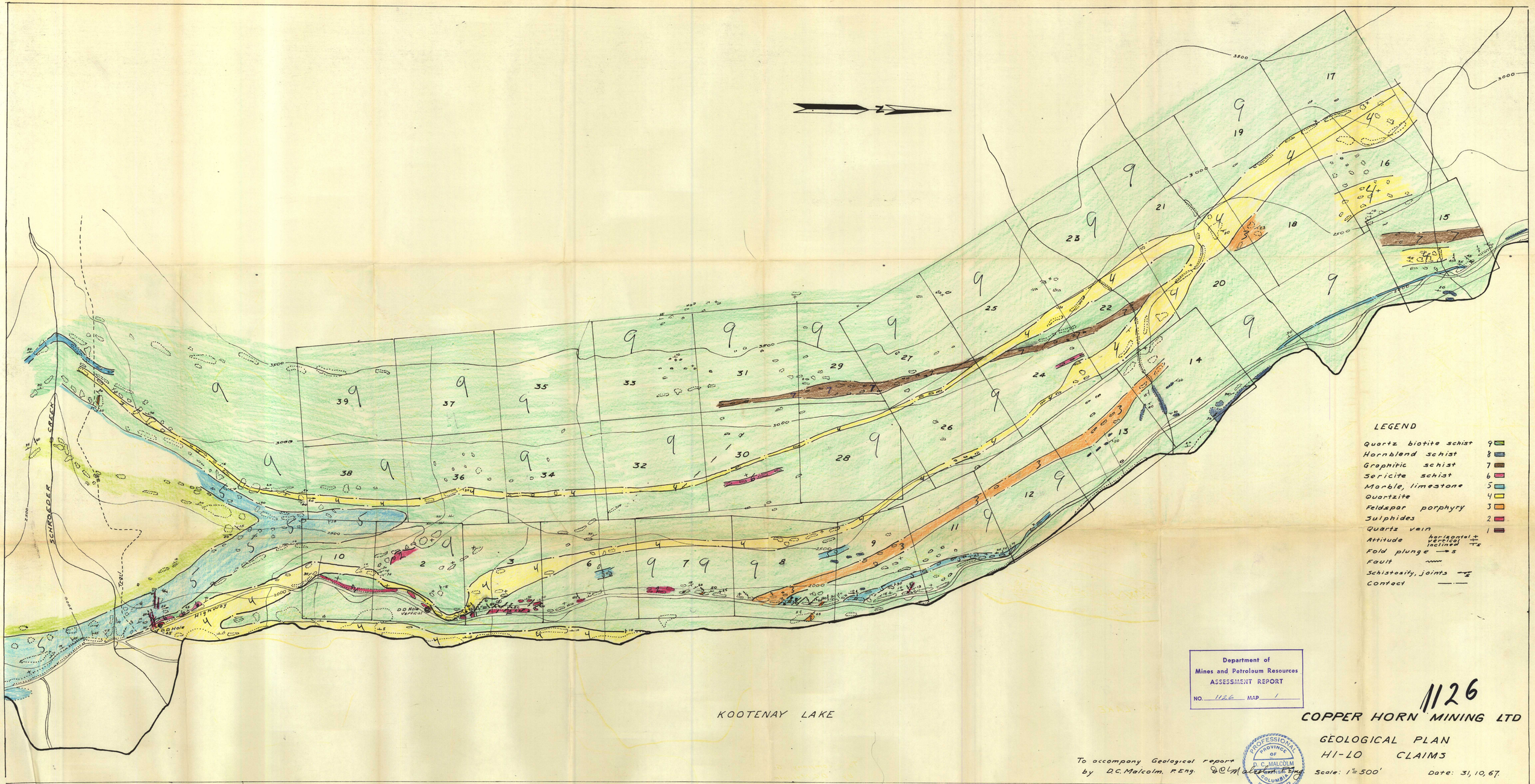
Declared before me at the City of Vancouver, in the Province of British Columbia, this 28th day of November, 1967, A.D.

Douglas Cole Malcolm

DOUGLAS COLE MALCOLM

J. J. Joy

~~A Commissioner for taking Affidavits for British Columbia~~ or
A Notary Public in and for the Province of British Columbia.



1126

COPPER HORN MINING LTD

GEOLOGICAL PLAN
HI-LO CLAIMS

To accompany Geological report
by D.C. Malcolm, P.Eng. D.C. Malcolm P.Eng.

Scale: 1"=500' Date: 31, 10, 67.