

#717

STATEMENT OF QUALIFICATIONS

of

PERSONS EMPLOYED DURING THE
INVESTIGATION OF THE LOT
GROUP OF CLAIMS IN THE SOUTH
SCUD RIVER-GALORE CREEK AREA,
PROVINCE OF BRITISH COLUMBIA.

- (1) Supervision by - Henry L. Hill, P. Eng.
- (2) Geological Survey and Field Soil Sampling by R. Dawson, B.So.
University of B. C.

Two years intermittently with the
firm of H. L. Hill & Associates Ltd.
in exploration.

- (3) Assisted during all surveys by L. M. Hill

Thirteen seasons exploration and
development work.

and J. McGoran -

Ten seasons exploration and
development work.

R E P O R T

on

THE "LOT" MINERAL CLAIMS, No. 34 - 75,
SITUATED IN THE SOUTH SCUD RIVER -
GALORE CREEK AREA, LIARD MINING DIVISION
PROVINCE OF BRITISH COLUMBIA.

by: H. L. Hill & Associates Ltd.

May 19, 1965.

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MAPS:

Geology of the LOT Group.

H. L. HILL & ASSOCIATES LTD.

CONSULTING MINING ENGINEERS

844 WEST HASTINGS STREET
VANCOUVER 1. B.C.

May 19th, 1965.

R E P O R T

on

THE LOT GROUP OF MINERAL CLAIMS
SITUATED IN THE SOUTH SCUD RIVER-
GALORE CREEK AREA, LIARD MINING
DIVISION, PROVINCE OF BRITISH
COLUMBIA.

LOCATION AND ACCESS

The LOT group of claims covers part of the mountain ridges east of Galore Creek. This creek drains northward into the Scud River which flows into the Stikine River some 50 miles downstream from Telegraph Creek in the eastern section of the Coast Mountains.

Telegraph Creek is a small settlement of approximately 100 persons. It is serviced weekly by Richie Navigation Company which uses flat bottomed barges to transport all goods for about 120 miles up the Stikine from Wrangell, Alaska. Float planes can land along this river and at several lakes in the area. A runway for small aircraft has been constructed near the permanent camp of Stikine Copper on Galore Creek. Although there are no trails, most of the ridges are accessible by helicopter.

TOPOGRAPHY

The watershed of the Stikine River occurs within the Coast Mountains, and has been extensively glaciated. This area is characterized by U shaped valleys with steep slopes rising to ridges at 6,000 to 8,000 feet that are covered by snow and ice. Much of the ground held by Copper Soo is covered by till, but exposures are good with numerous steep bluffs. Some sections are inaccessible and can not be efficiently prospected.

CLAIMS AND OWNERSHIP

Copper Soo Mining Company holds the following mineral claims by right of location:

<u>Claim Group</u>	<u>Claim No.</u>	<u>Total</u>	<u>Assessment Date</u>
LOT	34-75	42	May 27, 1965
L.T.	1-32	32	Sept. 28 to Oct. 8, 1965
S.S.	1-34	34	September 16, 1965
SOO	1-33	33	July 7, 1965

GEOLOGY

Although the general geology of the Stikine area has been described by Kerr (G.S.C. Memoir 246), there is little published information regarding the detailed geology of Galore Creek and vicinity.

(a) General

Kerr shows that rocks in the Stikine area include Upper Paleozoic and Lower Mesozoic fine-grained, clastic sediments, limestones, cherts and volcanic rocks within which there are numerous intrusions of granite, granodiorite and diorite, together with dykes and small stocks of porphyritic rocks. One particular rock type of porphyritic syenite appears to be associated with copper mineralization. Scattered throughout the area there are several extinct volcanos, and Tertiary to Recent sediments and lava flows cover sections of the valley floors.

(b) Local Geology

The claims of Copper Soo cover a ridge east of Galore Creek formed by a group of volcanic rocks in which several showings with chalcopyrite have been located. The rocks, exposed on the ridge and in the canyon of the South Scud River directly to the west, trend in a northerly direction sub-parallel with the ridge.

At lower elevations, and within the canyons of Galore Creek and South Scud River, there is a thick sequence of light grey, weathering, medium to massive limestones with thick local units of red argillites. Fossils within the limestones indicate a Permian age.

A prominent, dark colored band of thinly bedded argillite appears to stratigraphically overlie these bedded argillites, cherts, and limestones. These dark rocks form a long, narrow, north-trending band across the claim block. In many places these rocks have a rusty color due to the presence of an appreciable percentage of pyrite in the rock. This band is separated from the rocks to the east by a

Local Geology (Continued)

major fault, the Copper Canyon Fault, that dips steeply to the east and forms the main structure in the area. In the footwall of this fault there is a thick unit of volcanic rock that forms the main part of the ridge. The stratigraphic and structural sequence of this unit has not been determined. The massive rocks contain no original structures to show the orientation of the beds. Most of the rocks are green to green-grey in color, and vary from aphanitic to fine grained. The most appropriate name for these rocks is greenstone, but one large area near the center of the claims is underlain by a distinct rock type in which about 15% of the rock consists of small phenocrysts of pyroxene set in a dark grey, fine grained groundmass. This type has been mapped as basalt, and like the greenstones has a massive appearance.

Within this Triassic (?) volcanic unit there are many dyke-like intrusions of fine grained andesites that are difficult to distinguish from the lavas. The material in the dykes may represent the "feeders" for the overlying flows.

Irregular bodies of coarse grained rocks, that intrude the volcanic rocks near the Copper Canyon fault, can be separated into two main types, one a granite type and the other a porphyritic type with a syenitic composition. The granites are leucocratic, equigranular rocks containing 15% quartz, abundant orthoclase, lesser amounts of plagioclase and 10% to 15% biotite and hornblende. The composition of these granitic intrusions was observed to change to a diorite near intrusive contacts with the volcanics. Porphyritic rocks occur throughout the claims as narrow dykes and small masses of coarse grained material with numerous large phenocrysts of white to pink orthoclase in a grey colored aphanitic groundmass. It is reported that many phases of orthoclase porphyry can be distinguished elsewhere in the Stikine area, and some of the phases contain copper mineralization. Following is a more detailed description of the various rock types encountered:

(1) Sedimentary and Volcanic Rocks

Permian Limestone Unit - This unit crops out in a wide belt along the Scud and South Scud Rivers, and consists of a thick sequence (2,000 (?) feet) of light grey weathering, medium to massive bedded fossiliferous limestones. In places thick beds of red argillite form a minor proportion of the sequence.

Sedimentary and Volcanic Rocks (Continued)

Permian or Triassic Sedimentary Unit - A prominent thin band of a dark appearing thin bedded sequence of argillites, cherts and limestone crosses the map area from north to south. The unit is frequently very rusty, weathering, and containing much pyrite. This thin bedded unit appears to a structurally weak zone and frequently contains many small faults. The main fault, COPPER CANYON FAULT, occurs along this band.

Triassic Volcanics - This volcanic sequence contains many different rock types. These rocks commonly have a massive structure and attitudes are impossible to obtain. The rock ranges from pale green microcrystalline through grey vine crystalline to green and grey rocks in which feldspar and mafic phenocrysts can be plainly seen. The most common composition would be approximately an andesite, although darker rocks with euhedral phenocrysts of pyroxene may be closer to basalt in composition and these are also quite common in the area (pyroxene porphyry).

(2) Intrusive Rocks

Granite - The granite appears to have a fairly uniform composition and consists of feldspar and quartz with 10 - 15% mafic minerals (mainly hornblende).

Diorite - The diorite is possibly a more basic and marginal phase of the granite mass.

Andesite Intrusive - A possible intrusive andesite crops out on McBeth Creek where the mineral occurrence (4) appears to be a contact deposit related to an intrusion. However, this rock is no different from many of the medium to coarse crystalline andesites of the Stikine area which are usually mapped with the Triassic volcanics.

Orthoclase Porphyry - Small bodies of orthoclase porphyry are present in several parts of the area, and occasionally carry copper minerals. Stikine Copper geologists are said to recognize about eight different types of orthoclase porphyry, only some (or one) of which is related to the copper mineralization phase.

STRUCTURE

Although the true structure has not yet been resolved, from the areal distribution of the lithologic units it has been inferred that the ridge between Galore Creek and the South Scud River is formed by volcanic rocks that occupy the core of a synclinalorium. East of this synclinalorium Permian limestones have been thrust up along the Copper Canyon Fault so they are in fault contact with several different rock units including the dark, thinly-bedded, argillite-chert-limestone unit, the Triassic (?) volcanic rocks and the granite. The thin-bedded unit probably presented a mechanically weak zone along which fault movement could most readily take place. The Copper Canyon Fault is the youngest structural feature recognized in the claim block area as it cuts the granite. The granite is observed to intrude the volcanics. The relationship between the syenitic intrusions and the Fault was not established.

MINERAL OCCURRENCES

The mineral occurrences on the L.T., S.S., S00 and LOT groups are listed below:

- 1) Chalcopyrite and galena associated with quartz stringers cutting the volcanics: The stringers are 4 inches to 4 feet wide and strike N 60° W. This occurrence is situated by a small lake and close to the No. 1 post of S.S. Nos. 15 and 16. It had been examined previously by another company and is exposed in trenches. The showing may be structurally related to the trend of the Copper Canyon Fault.
- 2) Pyrrhotite and chalcopyrite in volcanics near the trace of the Copper Canyon Fault: The mineralization is exposed in an area measuring 50 feet by 100 feet. This showing is located in the south part of the S.S. group.
- 3) McGoran Creek: In this area wide zones of pyrite and magnetite containing chalcopyrite strike north-south and dip 70° to the east. A chip sample over a 15 foot interval assayed 0.38% copper, 0.3 oz. silver and .04 oz. gold per ton (Sample No. M80). This showing is located on the north side of McGoran Creek about 300 feet south of the No. 1 posts of the S.S. 31 and 32 mineral claims.
- 4) McBeth Creek: This showing consists of a 5 ft. 9 in. wide thick pyrite band with visible traces of copper. The assay report gave only traces of copper, silver and gold. The band is located on the L.T. no. 10 mineral claim at the contact between a limestone band and an andesitic rock. The andesite appears to intrude the limestone at this locality.

Mineral Occurrences (Continued)

- 5) Dawson Gulch on the S00 No. 18 and LOT No. 41 claims: This occurrence consists of disseminated pyrrhotite and chalcopyrite in volcanic rock close to the intrusive contact of a small diorite plug with the volcanics.
- 6) Dawson Gulch, west side on the LOT No. 39 claim: A three foot wide pyrite and copper zone occurs in the granite and seems to be structurally controlled by a vertical shear zone striking 130°.
- 7) Head of Dawson Gulch, west side on the S00 No. 24 claim: The showings consist of malachite and chalcopyrite in volcanics and intrusive orthoclase porphyry dykes.
- 8) Near LOT No. 55 mineral claim: Chalcopyrite is found in float which is believed to come from a mineralized zone controlled by the intrusion of the volcanics by the granite.
- 9) Near the northwest corner of the L.T. Group: Traces of chalcopyrite were found in a light grey, fine grained rock belonging to the Triassic (?) sequence. The occurrence did not appear to be economically significant.

PROSPECTING

During the investigation several mineralized showings were located. These showings are not extensive, but they do indicate that copper mineralization is extensive and the area warrents intensive prospecting.

FIELD SOIL SAMPLING

Concurrent with the preliminary geological program a preliminary geochemical survey was made of the silt sediments in all the accessible streams that flow from the ridge towards the South Scud and Galore Creek. These silts, and some soils, were examined for the readily extractible copper, lead and zinc using the dithizone cold extraction method.

The two geochemical maps accompanying this report show the location of each sample and the copper, lead and zinc content. These samples give a background 30 - 50 ppm.

Field Soil Sampling (Continued)

Three geochemical highs were encountered during exploration of the area:

- 1) McGoran Creek
- 2) South Fork of McBeth Creek
- 3) Galore Creek

- 1) One sample from a creek draining into the lower section of the South Scud River gave a value of 150 ppm, and several pieces of float with chalcopryrite were found in the gravels. Because of these encouraging signs the area drained by the creek was prospected and a narrow zone of magnetite and chalcopryrite was located. This area was later staked (S.S. group).
- 2) A series of geochemical high readings was recorded on the south fork of McBeth Creek and small creeks draining into this creek from the east. This area is close to the south border of the L.T. group near L.T. No. 7 mineral claim. The area drained by these small creeks was prospected and orthoclase porphyry dykes carrying traces of chalcopryrite were observed cutting the volcanics.
- 3) The silt sediments of Galore Creek were tested. As was expected a good high reading was given. This high is probably the trace of the large ore body of Stikine Copper on upper Galore Creek.

CONCLUSIONS

The results of the limited exploration program during 1964 were considered encouraging as mineralization was encountered on a number of claims and, in addition, orthoclase porphyry rock, the favorable host rock, was found both as float and in place on the property.

Detailed geological, geochemical and geophysical work, together with intensive prospecting, is in our opinion warranted.

RECOMMENDATIONS

We would recommend an expenditure of \$35,000 to cover the cost of exploration work consisting of prospecting, geological, geochemical and geophysical work during the 1965 season in the following areas:

Recommendations (Continued)

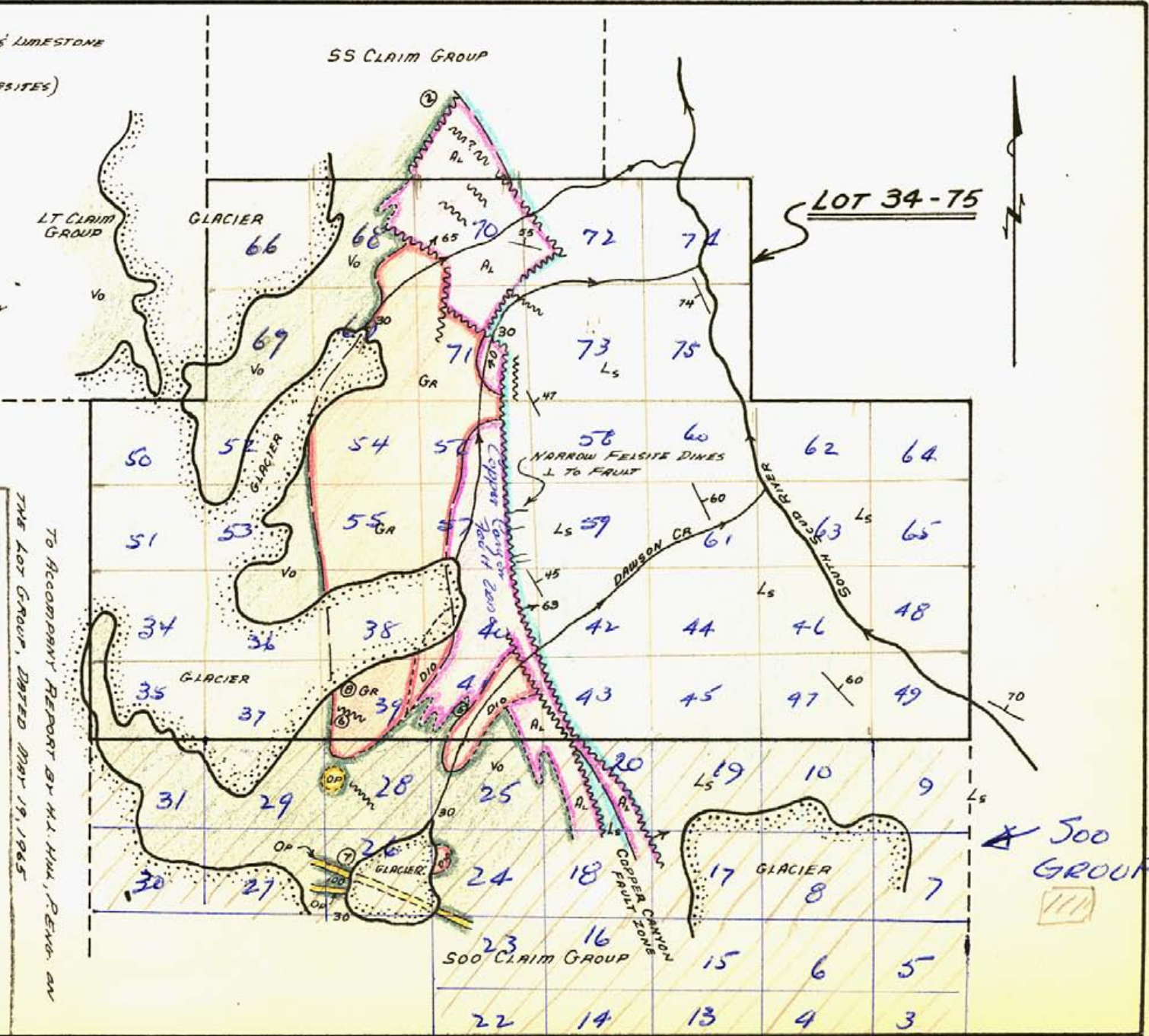
- (a) On the S.S. group adjacent to the Copper Canyon fault;
- (b) On the L.T. group, in particular the nine western claims - No. 7 and 9 to 16 inclusive. Magnetometer and geochemical surveys should be done on some of these claims. Outcrops are few in the area but, due to its proximity to areas which are being actively explored by large companies, it is felt that more work should be done on the claims. All volcanic rocks should be prospected and a limited geochemical survey completed.
- (c) On the S00 Nos. 18, 25 and 24, and Lot Nos. 39 and 41 mineral claims at the head of Dawson Gulch, on the north side of Dublin Gulch, west of Copper Canyon fault.

H. L. HILL & ASSOCIATES LTD.


Henry L. Hill

HLH/mjr

- A_L DARK ARGILLITES, CHEST & LIMESTONE
- V_o VOLCANICS (MAINLY ANDRESITES)
- O_p ORTHOCLEASE PORPHYRY
- GR GRANITIC
- L_s LIMESTONE
- D_{io} DIORITE
- CLAIM GROUP BOUNDARY
- GLACIER
- FAULT
- STRIKE & DIP OF STRATA
- MINERAL OCCURRENCES
- 30 GEOCHEM RESULTS



H. L. HILL & ASSOCIATES LTD.
 CONSULTING ENGINEERS
 VANCOUVER, BRITISH COLUMBIA

COPPER 500 MINING CO.
LOT GROUP GEOLOGY - (STRIKING)

TO ACCOMPANY REPORT BY H. L. HILL, P.E.M.A. ON
 THE LOT GROUP, DATED MAY 19, 1965

DATE **MAY 19, 1965** SCALE 1"=2000'
 SURVEYED BY **R.D.** CHECKED BY
 DRAWN BY **R.F.** FILE NO.
 TRACED BY - - - - - DRG. NO.

* 500
 GROUP
1111

H. L. HILL & ASSOCIATES LTD.

CONSULTING MINING ENGINEERS

844 WEST HASTINGS STREET
VANCOUVER 1, B.C.

May 25, 1965.

The Chief Gold Commissioner,
Department of Mines & Petroleum Resources,
Victoria, B. C.

Dear Sir:

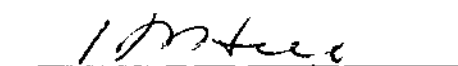
The following summarizes a discussion with Mr. R. Dawson concerning the types of investigations carried out by him and his assistants on the LOT Group of 42 mineral claims situated in the Liard Mining Division.

The base map was compiled primarily from aerial photographs with elevations determined by numerous aneroid readings. With reference to the map entitled "Lot Group Geology (Stikine)", attached to this report, Mr. Dawson has outlined the following:

- (a) Traverse of the N - S trending granite-volcanic contact;
- (b) Traverse of the Copper Canyon Fault system, which runs through the claim group, noting strikes and dips, structural relationships and associated alteration;
- (c) A general reconnaissance of the eastern portion of the claim group to determine the extent of the limestone belt;
- (d) A specific search for porphyry bodies throughout the whole group;
- (e) Field (Dithizone) geochemical tests on the stream sediments associated with the three major creeks flowing into the South Scud River. No anomalous results were encountered with a background established at 30 - 40 ppm (total heavy metals);
- (f) A limited number of soil samples which also gave no encouraging results.

Yours very truly,

H. L. HILL & ASSOCIATES LTD.


Henry L. Hill