



TORU KIKUCHI, Ph.D., P.Eng.  
CONSULTING GEOLOGICAL ENGINEER

702, 402 WEST PENDER ST., VANCOUVER 3, B.C., CANADA

October 28th, 1969.

Our File No. 41.

Mr. Harry Fromme, President  
General Enterprise Ltd.  
P.O. Box 2029  
WHITEHORSE, Y.T.

Dear Mr. Fromme:-

I am enclosing my report entitled

GENERAL GEOLOGICAL REPORT ON  
"FREEGOLD MOUNTAIN" PROPERTY  
WHITEHORSE M.D., Y.T.

This is my certificate that you may use the said  
report for your further financial purpose.

Very truly yours,



Toru Kikuchi, P. Eng.

TK/dc  
Enc. 2.

GENERAL GEOLOGICAL REPORT ON

"FREEGOLD MOUNTAIN" PROPERTY

WHITEHORSE M.D., Y.T.

for

Mr. Harry C. Fromme

Toru Kikuchi, Ph.D., P. Eng.  
Consulting Geological Engineer

October 28, 1969.

Vancouver, B.C.

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GENERAL GEOLOGICAL REPORT ON  
"FREEGOLD MOUNTAIN" PROPERTY  
WHITEHORSE M.D., Y.T.

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I. INTRODUCTION AND GENERAL STATEMENT

At the request of Mr. H.C. Fromme, Whitehorse, Y.T. the writer was at the property on October 9, 1969, in the company of Mr. R.A. Granger, Whitehorse, Y.T., for general geological investigation.

The following geological reference is used:-

H.S. Bostock: CARMACKS DISTRICT, YUKON, G.S.C. Memoir 189,  
First print in 1936, reprinted in 1956.

The property consists of 28 mineral claims as follows:-

<u>Name of Claim</u>	<u>Grant No.</u>	<u>Name of Claim</u>	<u>Grant No.</u>
Excelsior 1	63639	Shear Zone 1	60420
Excelsior 2	63640	Shear Zone 2	60421
Excelsior 3	63641		
Liberty	63638	Green Stone 1	90465
		Green Stone 2	90466
		Green Stone 3	90467
Augusta	15494	Green Stone 4	90468
		Green Stone 5	91058
Margarete	15505	Green Stone 6 Fr.	Y21094
Gold Star	15519	Hope	Y21249
Protection Fr.	15677	Best 1	Y25895
		Best 2	Y25896
Vindicator 1	60422	Best 3	Y25897
Vindicator 2	60423	Best 4	Y25898
		Best 5	Y25899
Peerless	15549	Best 6	Y 25900
Progress 1	73464		
Progress 2	73465		

These claims are wholly owned by Mr. Paul Fritz Guder, prospector,

of Carmacks, Yukon Territory and have been optioned by a five person group (Mr. Harry Fromme, Mr. Harry Johannes, Mr. Robert Warner, Mr. Archie Bruce and Mr. Ronald Granger). They are located at about  $62^{\circ} 17' N$ ,  $137^{\circ} 10' W$ , at the west side of Freegold Mt. (4772') in Claim Sheet 115-I-6. It is approximately 110 airmiles northwest of Whitehorse and about 30 airmiles west of Carmacks on the Dawson Highway. There is a truck road from Carmacks to the property, a distance of about 43 road miles.

This area has long been known as placer gold, which is believed to have been first found in 1899. A detailed explanation is seen on pp. 51 - 58 of the Bostock report above mentioned and the writer is not repeating here the old history of the area, except to mention that Mr. P.F. Guder, the present owner of the property the writer investigated at this time, was the first finder and the first locator (he staked the first claim "Augusta" in June, 1930) of lode mineral claims in this area.

## II. GEOLOGY, MINERALIZATION AND ORE DEPOSIT

The property is underlain by Pre-Cambrian metamorphic rocks of Yukon Group. The Coast Intrusive (Granitic Rock) has intruded later (Jurassic or later). Some kind of dykes intrude both formations afterward.

Yukon Group, which is generally located in the northeast part of the property, mainly consists of green schist, granitic gneiss and limestone. Granitic Intrusive, generally granodiorite, is located at the southwest side of the property, having some parts which seem to be called syenite or monzonite, especially at the contact zone of the Yukon Group.

The contact zone between Yukon Group and Granitic Intrusive runs through the property, striking generally N 50° W with a width range of 1,000' to 2,500'. This is the host zone of the mineralization of this area and consists of mainly hybridized (physically and/or chemically) materials of both types of rocks, that is, some kind of porphyritic rock with a large amount of brecciated part with magnetite, some skarn minerals and tourmaline, being altered by the hydrothermal addendas, such as calcite, quartz and K-element.

Some excerpts from pp. 53 and 54 of Bostock's report above mentioned will help the reader to know what happened in the early 1930's in the property;

" The lode prospects cover the upper part of Freegold mountain, its spurs and parts of some of the neighbouring hills. They embrace a variety of types of deposits, including contact metamorphic deposits and veins carrying different mineral assemblages of high, intermediate, and low temperature types.

The chief mineral of the contact metamorphic deposits is magnetite.

A number of the magnetite deposits have been discovered on the west side of the top of Freegold mountain. Those on which most work has been done are on the Augusta and Margarete claims, owned by Mr. Guder. Others occur on the adjacent Badger and Morning claims. The deposits are exposed in a number of trenches and by one prospect pit a little over 20 feet deep. As they are in the unglaciated part of the district they are deeply weathered. The surrounding rocks are quartzites, schists, gneiss, and small bodies of limestone belonging to the Yukon group, and a

variety of intrusive dykes of Mesozoic and Tertiary ages. Silicates, including actinolite, garnet, and epidote, have been developed in these rocks, and occur in places in the mineral deposits. These consist mainly of magnetite, hematite, and abundant limonite. Quartz, pyrite, and chalcopryrite are also present. The gold occurs in the limonite in small specks, sometimes large enough to be visible to the unaided eye. The float of these deposits is widely scattered over this part of the mountain, as if the deposits were of considerable extent. The excavations so far made fail to indicate the form and dimensions of the deposits. The one on which most work has been done may be as much as 30 feet wide and 200 to 300 feet long, and assays carrying several ounces in gold have been obtained from it.

On the Augusta claim, in addition, to the magnetite deposits, a vein has been exposed near the west boundary carrying pyrite chalcopryrite, arsenopyrite, galena, sphalerite, quartz, calcite, siderite, limonite, azurite and malachite. When examined this vein had been uncovered over a length of 16 feet, and one wall, thought to be the hanging-wall, had been reached.

On the Margarete claim, west of the Augusta claim, another vein has been explored by a shaft 20 feet deep from which it is intersected by a crosscut. The vein is reported to be vertical, 2 feet wide, and to lie between quartzite and schist on one side and quartz porphyry on the other side. It consists of quartz carrying pyrite, arsenopyrite, and chalcopryrite. Several samples taken from the deposit are reported to have carried high gold values, one being as much as 60.3 ounces a ton in gold. "

This means the deposit is not a simple gold-bearing quartz vein. The deposit seems to be a complex ore deposit. At least the following three

are the main sorts of mineralization in the property, from the genetical point of view:

- (1) Contact metamorphic deposit at the contact of limy rock of Yukon Group and the granitic intrusive with a large amount of magnetite and some copper. This is the highest temperature mineralization (Contact - Pneumatolytic) among them.
- (2) Molybdenum, copper, lead, zinc and gold impregnation in the "Hybrid". High (hypothermal) to medium (Mesothermal) temperature.
- (3) Epigenetic molybdenite-gold-quartz vein and veinlet-network in the "Hybrid". Medium (Meso thermal) to low (Epithermal → Telethermal) temperature.

This property has been known as lode gold carrying high assay, but suffered from the complexity of the deposits making it uneconomical with old mining methods. According to the geological sketch by Mr. R.A. Granger, one of the option-holders, there is a wide (about 1,500') zone of mineralized "Hybrid", where the writer also checked the rocks and found the complexity of the combination of the three kinds of mineralization above mentioned.

Any systematic exploration work has not yet been done on the property for the purpose of learning the whole mode of the mineralization of gold, molybdenum and copper, which should be considered together for modern mining.

No investigation has been done by the writer of the "BEST" and

"HOPE" claims.

III. CONCLUSIONS AND RECOMMENDATIONS

The old famous lode gold property has been looked at again for modern consideration. The mineralization seems to be complicated with different stages, and it is strong and wide enough to consider possibilities for a complex deposit of gold, molybdenum and copper.

The following, therefore, are recommended for next season's exploration;

FIRST STAGE PROGRAMME:

- |   |                 |
|---|-----------------|
| (1) To prepare topographic map made from air photos (Government's) by contract  | \$ 2,000.00     |
| (2) A contract systematic grid geochemical soil sampling with geological mapping using the topo map above prepared. The grid should be 200' x 300' (line span). It should be done after the ground has been un-frozen (after August?). The soil sample should be extracted by complete extraction method (e.g. HNO <sub>3</sub> and HClO <sub>4</sub> method) | 5,000.00        |
| (3) Overhead and consulting for above two   | <u>2,000.00</u> |
|   | \$ 9,000.00     |

SECOND STAGE PROGRAMME:

This programme should be done after consideration

of the results of the FIRST STAGE PROGRAMME.

Cat trenching, systematic rock sampling and some diamond drill holes	<u>\$30,000.00</u>
TOTAL	<u>\$39,000.00</u>

Respectfully submitted,



Toru Kikuchi, P. Eng.  
Consulting Geological Engineer.

Vancouver, B.C.  
October 28th, 1969.

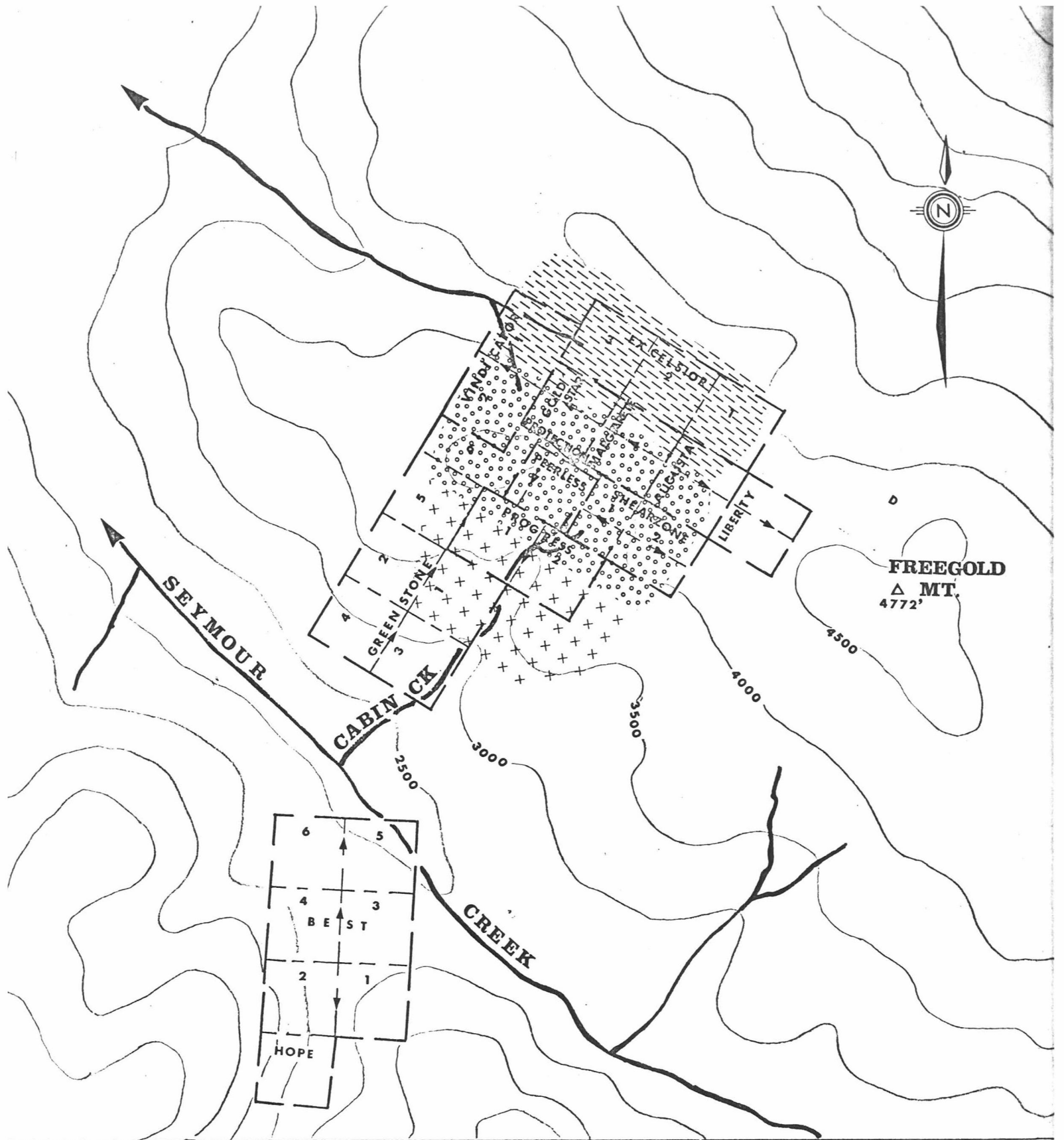
STATEMENT OF QUALIFICATIONS

- I. Toru Kikuchi of the City of Vancouver, B.C., hereby certify that:-
1. I am a graduate of the Hokkaido University, Japan (B.Sc., Geology and Minerology, 1946) and of the Tohoku University, Japan (Ph.D., Economic Geology, 1963).
  2. I am a "GIJUTSUSHI" (a qualification for a consulting engineer authorized by the Japanese Government) and a member in good standing of The Association of Professional Engineers of the Province of British Columbia and of the Yukon Territory.
  3. I am a member of The Society of Mining Geologists of Japan, and of The Canadian Institute of Mining and Metallurgy and of The Engineering Institute of Canada.
  4. I have been practising my profession continuously for the past twenty-three years, and am an independent Consulting Geological Engineer with my office at Room 702 - 402 West Pender Street, Vancouver 3, B.C.
  5. I have no direct or indirect interest in the property, nor do I anticipate receiving any such interest.
  6. This report is based on my personal study and work at the property on October 9th, 1969.



Toru Kikuchi, P. Eng.

Vancouver, B.C.  
October 28th, 1969.





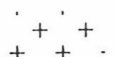
-  Yukon Group
-  Hybrid Zone
-  Granitic Intrusive

Fig.1 "Freegold Mt." Property  
 Whitehorse Mining D.  
 Yukon Territory  
 Scale; 1/2 mile: 1" Oct.28 1969  
 Toru Kikuchi, P.Eng.

*Toru Kikuchi*