Forest Kerr Project 921/2

# 811072

#### REPORT

### MINERAL CLAIM GROUPS AT KINSKUCH LAKE

ALICE ARM, B.C.

Skeena Mining Division

British Columbia

Submitted to: Forrest Kerr Mines Ltd. N.P.L.

Vancouver, B. C. May 17, 1965

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92-1-2

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#### APPENDIX:

Claim location sketch General geological plan Geological plan of Hole 12 Area Diamond drill assay plan of No. 2 Area Vertical drill sections - No. 2 Area (3) Drill sections - Holes 5 and 7 Drill sections - Holes 13 and 14 Drill sections - Holes 10 and 12 Drill section - Hole 11 Page No.

#### INTRODUCTION

At the request of Forrest Kerr Mines Limited, N.P.L. all available technical data on the Kinskuch Lake area was gathered for study and assessment. Most of this data was supplied indirectly through the Vancouver office of Kennco Explorations Ltd. and included detail maps covering work completed during 1956.

The Kinskuch Lake was visited on April 12, 1965 by Mr. K.G. Sanders, P. Eng., during which time the No. 2 Area was inspected and most of the remainder of the claim area was inspected by helicopter to complete a general reconnaissance of the area.

Sufficient information on the area was gathered on which to base the conclusions and recommendations outlined in this report.

#### SUMMARY AND RECOMMENDATIONS

The Kinskutch Lake copper showings are covered by 181 contiguous located claims 6 miles east of the camp of the former Torbrit Silver Mines, which is 14 miles due north of Alice Arm, B. C.

The area is underlain by a volcanic, igneous complex exhibiting strong hydrothermal alteration of the volcanic members. Andesite, agglomerate, and tuff have been intruded by diorite and porphyry dikes which have completely altered the intruded volcanics over large areas. Four types of alteration have been recognized and designated as sericitepyrite; chlorite-pyrite; carbonate and epidote.

Chalcopyrite mineralization occurs disseminated with the pyrite and also in fractured zones in both the sericite and chlorite alteration zones. During the 1955 and 1956 field seasons Kennecott Copper Corporation completed 7262 feet of surface diamond drilling in 25 holes.

Two mineralized zones were explored by this work and were designated No. 2 Area and Hole 12 Area. No tonnage of ore grade material was indicated in the Hole 12 Area but results in the No. 2 area roughly outlined 1.3 million tons grading 0.49% copper. Hypothetical calculations have shown between 1.3 and 8.0 million tons of 0.3% copper for the Hole 12 Area. Both of these areas have not been fully delimited and possibilities of increasing both tonnage and grade are good. The regionally mineralized section in which these two known areas occur is up to 8000 feet wide and has been traced for four miles.

The occurrence of near-ore grade mineralization in tonnages of open pit proportion within an extensive potential area not fully explored

#### SUMMARY AND RECOMMENDATIONS (cont'd.)

to date provides an excellent locus for a large scale geophysical exploration programme.

Such a programme, to include magnetometer, electro-magnetics and induced polarization surveys concurrent with an AX wire line diamond drilling programme of 5000 feet to more fully test the Hole 12 and No. 2 Areas is recommended for the Kinskuch Lake area. The work should be done in progressive stages leading to decisions for a more extensive wire line diamond drilling programme if favorable geophysical results provide the necessary targets.

Financial appropriation in the amount of \$150,000 should be provided in order to initiate and ensure completion of the recommended programme including the additional diamond drilling phase.

K. D. S.m.

K. G. Sanders, P. Eng.

L. G. White, P. Eng.

Vancouver, B. C. May 17, 1965

#### GENERAL CONDITIONS

# 1. Location - Latitude 55° 39' North Longitude 129° 22' West

The copper showings occur along the south-east corner of Kinskuch Lake which is 4 miles long by  $l\frac{1}{2}$  miles wide. The lake lies  $4\frac{1}{2}$  miles east of the Kitsault River and at the same latitude as the Torbrit Silver mine. The Kitsault River flows due south for 18 miles to the Pacific Ocean at Alice Arm, B. C. Alice Arm is a small village 500 air miles north-west of Vancouver, B. C. The Kinskuch copper showings are 13 air line miles north-north-east of Alice Arm.

The molybdenum mine of Kennco Explorations Ltd. is 3 miles south of Alice Arm, B. C. and the molybdenum prospect of Corex Mines Ltd. is 2 miles west.

### 2. Accessibility

Alice Arm, B. C. is serviced daily by float planes of Pacific Western Airlines from Prince Rupert, B. C. and is serviced weekly by boat (Northern Mavigation Ltd.) from Vancouver, B. C.

A well-maintained gravel road follows the Kitsault River north for 15 miles to within 5 miles of the Kinskuch copper showings.

To date, access to the lake has been by aircraft. Kinskuch Lake is ice-free from early July to early November and float planes have been used extensively for access to the lake. No problems exist for helicopter access at any time - weather permitting.



#### GENERAL CONDITIONS (cont'd,)

If and when required, road construction from the Kitsault road to Kinskuch Lake would encounter few difficulties. The mean lake level is 3790 feet above sea level, which is 2790 feet above the level of the Kitsault Road due west of the south end of the lake.

#### 3. Topography and Surface Features

The topography around Kinskuck Lake is not rugged. Seventeen percent of the claim area is occupied by Kinskuch Lake and 45 percent is permanently covered by glaciers and snow fields.

Elevations range from 3790 at lake level to 7620 on Lavender Peak in the east central part of the claim area. Most of the glaciers and mountain tops can be traversed on foot without undue difficulty.

Most of the uncovered claim area is free of timber and about 50 percent is well exposed outcrop. The remaining half is moderately covered with moraine and glacial debris.

Of the 181 claim areas, less than 20 percent is rock outcrop. The complete exploration of such an area requires the extensive use of geophysics.

#### 4. Climate

Climate in the area is not agreeable. Precipitation throughout the year is heavy. The area is within the influence of the Pacific Ocean and experiences winter snowfall greater than 350 inches. Temperatures,

#### GENERAL CONDITIONS (cont'd.)

however, are moderate. Winter cover on the lake consists of clear ice of moderate thickness and 5 to 7 feet of snow cover. 6.

Flying weather is unpredictable throughout the whole year but has not seriously affected previous work at the lake because of the minimum low elevation required to reach it by air from sea level.

A normal field season at Kinskuch Lake is 5 months from early June to early November.

#### 5. Facilities

An excellent camp site on the east shore of the lake, north of the showings, was used by Kennco Explorations Ltd. for their field work in 1956. One permanent building remains. This is a log cabin owned by prospector G. Fiva of Alice Arm.

Float planes and helicopters have easy access to this camp site.

#### PREVIOUS DEVELOPMENT WORK

Although the gossan zones at the south-east end of Kinskuch Lake have been known for at least 30 years, it was not until the fall of 1955 that appreciable exploration work was carried out. The showings had been examined by many companies before 1955 primarily for their possible gold-silver content but because of the low values found and the inaccessibility of the area up to that time nothing more extensive was done on the ground.

The showings were worked on in 1955 and 1956 by Kennco Explorations Ltd. to assess the copper content. Pack-sack diamond drilling was started late in 1955 and was continued in the 1956 season along with AX diamond drilling, extensive surface mapping and prospecting, and silt sampling. A total of 7262 feet of diamond drilling (964' pack-sack, 11 holes and 6298' AX, 14 holes) in 25 holes was completed.

> From the results obtained, the following figures were derived. No. 2 Area - 1.3 million tons of 0.49% copper - open on strike. Hole 12 Area - 1.3 million tons of 0.30% copper - incompletely tested.

Kennco relinquished their option on the property in 1957 and no additional work has been done since. No geophysical exploration has been done. A larger programme had been planned for 1956 but because of the unforeseen higher costs the programme was never completed.

CLAIM OWNERSHIP

Claim Name	Record No.	Reg. Owner	Address
Kinskuch 5	15372K	Gunn Fiva	Alice Arm, B. C.
Kinskuch 6	15373K	Gunn Fiva	Alice Arm, B. C.
Kinskuch Fr.	15369к	Gunn Fiva	Alice Arm, B. C.
Woodland	15371K	Gunn Fiva	Alice Arm, B. C.
MS	15370K	Margaret Stewart	Alice Arm, B. C.
Grizzly	20948m	Allen Neilson	Alice Arm, B. C.
Lavender No. 1	16112N	Peter Neilson	Alice Arm, B. C.
Reina Blanca No. 3	15310G	Peter Neilson	Alice Arm, B. C.
Reina Blanca No. 5	15319G	Peter Neilson	Alice Arm, B. C.
Reina Blanca No. 2	15321G	William Maclean	Alice Arm, B. C.
Reina Blanca No. 4	15322G	William Maclean	Alice Arm, B. C.
Reina Blanca No. 6	15323G	William Maclean	Alice Arm, B. C.
Reina Blanca No. 8	15324G	William Maclean	Alice Arm, B. C.
King #1 - 142 ) New	staking in M	ay 1965 by R. Zie	linski, D.J. McDonald
Cora #1 - 18 ) J. M	cDonald and	F. Merryth of Van	couver, B. C. Record
Kin #1 - 8 ) numb	ers not yet	available.	

The agent for the above 181 claims is D.J. McDonald, prospector of 700 Chilco Street, Vancouver,,B. C.

The claims are registered in the Skeena Mining Division and are currently in good standing.

#### GEOLOGY AND STRUCTURE

Volcanic and sedimentary rocks of the Hazelton Group of broad Jurassic age underlie the claim area. The sediments are found mainly on the west side of Kinskuch Lake and are not herein discussed.

The rocks in the mineralized area are massive andesite, agglomerate and massive tuff. These are broadly flexed and tilted gently to the east in a homocline of local extent. Intrusive into the volcanics are basic dikes, hornblende porphyry dikes, feldspar porphyry dikes and a large diorite mass.

The diorite is an augite quartz diorite having gradational contacts with all the volcanics which it intrudes. In some cases banding is found in the diorite which suggests remant bedding from the intruded volcanics. The diorite is rich in chlorite.

Folding and faulting in the area is relatively unimportant and very little schistosity has been developed. The four types of alteration produced from the diorite intrusion are the host rocks for the copper mineralization and are discussed here following.

#### ALTERATION AND MINERALIZATION

Pyrite and chalcopyrite occur in the alteration zones in the volcanics produced by the diorite intrustion. Alteration has been found over an area 8000 feet wide and 4 miles long north-westerly across the south end of Kinskuch Lake but intense pyritization is localized to an area  $l\frac{1}{2}$  miles in diameter at the south-east corner of the lake. Four types of alteration have been recognized and are sericite-pyrite, chlorite-pyrite, carbonation, and epidotization. Chalcopyrite is mainly associated with the chlorite-pyrite phase but has been found with all the remaining phases and especially with the sericite-pyrite alteration. Six copper showings have been found but only 2 have shown sufficient promise to merit description. They are the No. 2 area and the Hole 12 Area.

<u>No. 2 Area</u>: This is the area roughly 500 feet square occupying the southernmost peninsula at the south-east corner of the lake. This was the discovery showing and has received the most work to date. In this area chalcopyrite occurs in innumerable veinlets with pyrite in a tabular open zone 600 feet long by 200 feet wide with a thickness of about 110 feet within a green mottled andesitic alteration zone. The tabular ore zone strikes northwest and dips moderately south-west. The prevailing attitude of the veinlets in the zone is N65E with vertical dip. The veinlets are usually less than 2 feet long.

The chloritized host rock for the mineralization is probably derived more from the diorite than the rocks it intruded. The diorite has been found by diamond drilling to underlie the showings at depths between 200 and 300 feet, thus limiting the vertical extent of this showing. The diorite also appears to truncate the east end of the zone. The zone, then, remains open

#### ALTERATION AND MINERALIZATION (Cont'd.)

on the west under the lake. The structural control for the chalcopyrite in the No. 2 Area is the fracturing and the shape of the diorite itself. Most of the Kennco diamond drilling was done on this showing.

<u>Hole 12 Area</u>: This showing lies 4500 feet north of east of the No. 2 Area and 600 feet higher. The sericitized rocks in this area are derived more from the volcanic rocks than the diorite. The chalcopyrite here is more disseminated than at No. 2 Area, and is controlled by innumerable minute fractures. Much less associated pyrite occurs here. The minute fractures strike in all directions but the most predominant are slightly east of north, whereas the zone itself strikes west-north-west and dips steeply north-east.

Scattered mineralization has been traced north-north-west for 4000 feet. This showing is essentially undelimited. The glacier obscures its extension to the south-east and a glacial moraine obscures it to the north-west.

Additional copper mineralization has been found in the large zone of alteration and some re-assessment of these showings is recommended for the 1965 season. Two such areas are known as Pack-Sack Hole 10 Area and Holes 13 and 14 Area.

Gold and silver values up to \$1.50 per ton have been reported from the Kinskuch mineralization but the copper content alone is regarded as the critical factor on which the ore grade must be proven.

#### TONNAGE POSSIBILITIES

<u>No. 2 Area</u>: From the results of the 17 holes drilled by Kennco in this area 1.3 million tons grading 0.49% copper have been estimated. As described, this showing is apparently limited in depth and on strike to the south-east. However, the portion extending under the lake to the north-west has not been delimited. It appears certain that the tonnage in this zone can be increased but to what extent is unknown. The grade of this zone also has not been conclusively established at less than 0.5% copper. However, a tonnage in the tens of millions, grading at least 0.6% copper, is considered necessary for an economic mining venture in this area. Part or all of this tonnage may underlie Kinskuch Lake.

<u>Hole 12 Area</u>: This area was incompletely drilled off (6 holes) but as a result 1.3 million tons grading 0.3% copper have been inferred. However, this zone is open in all directions and a figure of 8 million tons has been ventured for the potential of this area. It is here concluded that no estimate can yet be given for the potential of this showing.

Considering the size of the alterated area and its small percentage of outcrop area, the possibility of increasing the tonnage of known grade material (0.4% copper) into the tens of millions of tons is better than the possibility of increasing the grade to 0.6% copper. The larger problem is, therefore, grade. The overall grade can only be more definitely established by more complete diamond drilling of the extensions of the two known areas.

#### PROPOSED EXPLORATION PROGRAMME

A moderate footage of diamond drilling (AX wire line, 5000 feet) is proposed for the extensions of the No. 2 Area and the Hole 12 Area. The bulk of this footage should be concentrated on the Hole 12 Area and the proposed plan has been shown on the maps appended to this report. This drilling will check the grade established by Kennco in 1956. Previous recovery in the No. 2 Area was greater than 80% but in the Hole 12 Area this figure was not obtained and it is hoped with wire line equipment to increase the core recovery and the grade of copper. Some drilling of the No. 2 Area under the lake may be possible from a raft if one can be constructed. An allowance for additional drill footage should be made to check anomalous areas which may be found by geophysics.

A large scale geophysical programme is proposed as the major part of the 1965 programme. Three types of survey are recommended - magnetometer, electro-magnetic and induced polarization. The complete area as outlined on the General Plan appended to this report should be surveyed on a 400 foot grid with readings at 200 foot spacing. As many readings as possible should be attempted on the lake, and if necessary the lake should be surveyed in the winter of 1965-1966. Anomalous target areas should be immediately tested by diamond drilling.

Silt sampling was carried out by Kennco in 1956 but only served to emphasize the anomalous nature of the south-east corner of the lake. Geochemistry is not recommended for 1965.

# ESTIMATED COSTS AND WORK SCHEDULE

<u>Phase 1</u>: Mobilization, freighting and camp construction - 3 weeks. To be completed by July 1. Tent camp for 5 diamond drillers, 3 geophysical operators, one superintendent, and one cook.

Purchase tent camp and hardware for 10 men	\$ 5,000
Mobilization of crew and equipment plus its transportation by boat and plane to Alice Arm, and pre-season administration, reports, etc.	5,000
Air freight from Alice Arm to Kinskuch Lake usin Sikorsky S-55 helicopter	g 3,000
Costof erecting tents included in total wages t July l	o 3,000
Food	500
Total cost of Phase 1	\$

Phase 2: Diamond drilling and geophysics - 3 months. To be

completed by October 1.

5000 feet of AX wire line drilling at \$7 per foot	\$	35,000
Magnetometer, electro-magnetic and induced polarization surveys to be completed in 3 months		
at \$5,000 per month		15,000
Camp operating including food and cook		10,000
Servicing by air	•	1,500
Total cost of Phase 2	\$	61.500

#### ESTIMATED COSTS AND WORK SCHEDULE (Cont'd)

<u>Phase 3</u>: Allowance for additional diamond drilling. Bring in a second drill and 4 additional drillers at any time to test anomalous areas until November 15 or better.

<u>Phase 4</u>: Demobilization, return to Vancouver, administration, final report, contingencies, etc.

Demobilization and return all to Vancouver	\$ 5,000
Consulting and administration plus final report	3,500
Contingencies @ 10% for phases 1, 2 and 4	 8,500
Total cost of Phase 4	\$ 17,000

#### SUMMARY OF ESTIMATED COSTS

PHASE	I	\$	16,500
PHASE	II		61 <b>,</b> 500
PHASE	III		55 <b>,</b> 000
PHASE	IV	_	17,000

\$ 150,000

#### GENERAL CONCLUSION

Potentially large tonnages of near-ore grade copper mineralization have been partially developed along the south-east shore of Kinskuch Lake within an extensive zone of hydrothermal alteration. Because the partially explored portions of this extensive zone represent less than ten percent of the total area it is reasonable to expect that the now indicated tonnages and grades can at least be duplicated with an excellent chance of improving both tonnage and grade to the point of economic feasibility for large scale open pit mining in this area. Any copper prospect of this potential is worthy of a large exploration expenditure and it is concluded that the Kinskuch Lake area has the mine-making potential to warrant the expenditure of \$150,000, as recommended in this report

1 B. Sandre

K. G. Sanders, P. Eng. Geological Engineer

L. G. White, P. Eng. Consulting Mining Engineer

Vancouver, B. C. May 17, 1965.

#### CERTIFICATION

I, Kenneth George Sanders, of the City of North Vancouver, in the Province of British Columbia, hereby certify as follows:

- 1. That I am a Registered Professional Engineer of the Province of British Columbia and reside at 1924 Limerick Place, North Vancouver, B. C.
- 2. That I am a graduate of the University of Toronto with a Bachelor of Applied Science in Geological Engineering having practised my profession for sixteen years.
- 3. That I have no interest either directly or indirectly in the claims herein described nor in any claims or securities of Forrest Kerr Mines Ltd. N.P.L., nor do I expect to receive any.
- 4. That my report is based on a ground and aerial examination of the Kinskuch Lake area on April 12, 1965, and on reference to the following reports.

Kinskuch Copper Prospect - C.S. Ney, April 4, 1957.

The Geology of Kinskuch Lake Area, B. C. - R.E. Gale, April 1957.

Report on Kinskuch Pyrite - Gold Showings - J.E. McMynn, October 5, 1939.

7. D. Sonders

K. G. Sanders, P. Eng.

Vancouver, B. C. May 17, 1965

#### CERTIFICATION

I, Leonard George White, of the City of West Vancouver, in the Province of British Columbia, hereby certify as follows:

- That I am a Registered Professional Engineer of the Provinces of British Columbia and Ontario, and reside at 704 Parkside Road, West Vancouver, B. C.
- 2. That I am a graduate of Washington State University with a Bachelor of Science in Mining Engineering, having practised my profession for twenty years.
- 3. That I have no interest either directly or indirectly in the claims herein described nor in any claims or securities of Forrest Kerr Mines Ltd., N.P.L. nor do I expect to receive any.
- 4. That my report is based on my personal knowledge of the area and consultation with engineers of Kennco Explorations Limited.

L. G. White, P. Eng.

Vancouver, B. C. May 17, 1965











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centimetres This reference scale bar has been added to the original image. It will scale at the same rate it can be used as a reference for the original size.

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KINSKUCH COPPER PROSPECT SKEENA M.D., B.C.

SECTION HOLES 5 + 7









ELEN 3700 Bedrock rise inferred from anomalous soundings Northwest -> KINSKUCH COPPER PROSPECT SKEENA M.D., B.C. SECTION HOLE NO. 11 Nov. 1, 1956 SCALE C.S.N. 40 20 0 40 BO FEET





