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PROPERTY AND SUMMARY REPORT  
ON THE PROPERTY OF  
FOREST KERR MINES LIMITED (N.P.L.)

92-1-2

KINSKUCH LAKE, ALICE ARM  
SKEENA MINING DIVISION  
PROVINCE OF BRITISH COLUMBIA

SULMAC EXPLORATION SERVICES LIMITED  
JUNE 24th, 1966

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Certification

In Pocket:      Map - Property Location for  
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Introduction

Forest Kerr Mines Limited, (N.P.L.) holds a group of 160 mining claims in the Kinskuch Lake area, approximately 90 miles north of Prince Rupert, in the Skeena Mining Division, Province of British Columbia.

The first recorded mineralization in this area dates back to 1938 with the discovery of copper mineralization off the southeast corner of Kinskuch Lake.

In 1958 Kennco Exploration Limited conducted a preliminary drill programme in the immediate discovery area. During the period of June 13 to September 19, 1965, Sulmac Exploration Services Limited performed work around Kinskuch Lake, consisting of an induced polarization survey, magnetometer survey, geological mapping, and some diamond drilling.

The results of the diamond drilling were inconclusive. The I.P. survey located several anomalous areas, with one of the anomalies being located southwest of Kinskuch Lake. This anomaly is on the Forest Kerr Mines Limited, (N.P.L.) property and is the area under discussion.

Summary

The Forest Kerr Mines Limited, (N.P.L.) property, consisting of 160 mining claims, has been partially explored by Sulmac Exploration Services from June to September 1965. The Surveys consisted of:

- 1) induced polarization survey,
- 2) magnetometer survey, and
- 3) geological mapping.

The results obtained from these surveys indicate favourable conditions for copper mineralization.

The I.P. survey indicated an anomalous area measuring approximately 2,000 feet by 1,200 feet and open in all directions. The extent of the anomaly was not determined due to the survey being confined by the lake to the north and east, the glacier to the south, and the property boundary to the west. The geological survey and subsequent information indicate that a strong structure passes through the southwest corner of the property striking in a northerly direction. This structure passes through the I.P. anomalous area. Sporadic copper mineralization exposures are present in this area. Reported geochemical assays in the area are anomalous. Minor copper stains are observed in the area and also along

the west shore of Kinskuch Lake. This shoreline parallels the strike of this structural feature. The area due east and across the southern portion of Kinskuch Lake exposes visible sulphide mineralization. The visible sulphide mineralization is estimated in excess of 5%. This mineralization includes some minor lenses and disseminated chalcopyrite.

The extensive mineralization, the induced polarization anomalous area, and the indicated structural feature, justify the exploration of the anomalous area on the Forest Kerr Mines Limited property by diamond drilling. The results will assist in determining the extent of the copper mineralization. The diamond drilling programme should consist of two cross-section lines to test the indicated structural feature and anomalous area. This would require a minimum of 5,000 feet of diamond drilling. The expenditure required to complete this programme would be in the nature of some \$75,000. to \$100,000. The costs of the drilling are influenced directly by the difficult access of the property. Results obtained from this drilling will determine the future programme.

Property

The property consists of 160 contiguous mining claims located in the Skeena Mining Division, Alice Arm Area, Province of British Columbia.

The 160 claims are numbered as follows: King #1 - 142 (inclusive), and Cora #1 - 18 (inclusive).

Location

Latitude 55°39' North

Longitude 129°22' West

The property is located at Kinskuch Lake, five miles east of Kinsault River, 13 miles north-northeast of Alice Arm, British Columbia, and 90 miles north of Prince Rupert, British Columbia.

Accessibility

The property is at an elevation of some 3,750 feet above sea level at Kinskuch Lake and is accessible only by float plane or helicopter. Aircraft are available at both Prince Rupert and Terrace, British Columbia. Kinskuch Lake is ice-free generally from mid-July to early November.

Alice Arm, British Columbia, is a coastal town with very limited facilities, not serviced by road

but serviced by boat weekly by Northern Navigation Limited, from Vancouver, and daily by Pacific Western float plane from Prince Rupert. A gravel road extends northward from Alice Arm along the west shore of Kinsault River and passes within five miles west of Kinskuch Lake.

#### Topography and Vegetation

The terrain is fairly rugged and considered high relief with differences in elevation at Kinskuch Lake level of 3,750 feet to 7,620 feet on Lavender peak.

The property is divided into three lithologic divisions designated as: Lake Area, Glacial and Peak Area, and Workable Area.

The areas are described as follows:

1. Lake Area: This comprises approximately 20% of the property and is located in the northwest portion of the property.
2. Glacial and Peak Area: This comprises approximately 60% of the property and covers the entire area south of Kinskuch Lake and an area approximately four claims wide along the east boundary of the property. This area includes Lavender Peak where work is impractical.

3. **Workable Area:** This area comprises approximately 15% of the property and is located in an area approximately four claims wide directly east of Kinskuch Lake and includes a small area southwest of Kinskuch Lake. Parts of this area are rugged, but work could be performed.

Vegetation, consisting mainly of scrub pine, is very sparsely distributed. This growth is located mainly in the area adjacent to and east of Kinskuch Lake, from the E-W baseline north.

#### Climate

The climate of the area is influenced by the Pacific Ocean. The property, being situated at an elevation of over 3,700 feet, receives approximately 350 inches of snow annually. Snow is not uncommon in June and in September.

#### Previous Work Performed

The mineralization and gossans at the southeast end of Kinskuch Lake have been known since 1938. No appreciable work had been performed on the mineralization until 1955 at which time Kennco Explorations Limited carried



out a drill programme in an attempt to assess the economics of the mineralization. Prior to this only sporadic sampling had been performed. The property was inaccessible and values returned at that time were too low to be considered of interest.

In 1965, Sulmac Exploration Services Limited performed an I.P. and magnetometer survey over this area and also tested the peninsula with two bore holes. The bore holes confirmed the results obtained by Kennco Explorations Limited and also that the I.P. anomaly was caused by sulphide mineralization.

#### Work Performed

All work performed on the property during the period of June to September, 1965, was carried out under the supervision of Sulmac Exploration Services Limited. The work consisted of geological and geophysical surveys, (I.P.- and magnetometer).

The geological, magnetometer and induced polarization surveys were carried out over a line grid system of 400 foot spaced lines and 100 foot stations. The baseline of the grid was established in an east-west direction and the traverse lines were turned off at right

angles. Due to the short season, all the claims were not surveyed.

The induced polarization data was obtained using the "three-electrode array". This array consists of one current electrode ( $C_1$ ), two potential electrodes ( $P_1$  and  $P_2$ ) being moved along the survey line. The second current electrode ( $C_2$ ) remained fixed at "infinity".

A basic electrode spacing of 200 feet was used for the reconnaissance survey.

The instrument used for the I.P. survey was a pulse-type and is similar in design and operation to that described by R.W. Baldwin in "A Decade of Development in Over-voltage Survey", A.I.M.E. Transactions, Vol. 214, 1959.

Geologic mapping was performed using the established grid as control.

The geology of the property is described in detail in "Geological and Summary Report of Work Performed on the Property of Forest Kerr Mines Limited", (N.P.L.), written by E. Amendolagine, September 16, 1965.

#### General Geology

The consolidated rocks of the area are of

Mesozoic-Jurassic age, mainly the Hazelton group. The Hazelton group consists of sediments and igneous rocks. The sediments are composed of argillites, greywacke, quartzite, limestones and tuffs. The igneous rocks are composed of massive and fragmental rhyolite, dacite, augite, porphyrite syenite and gabbros. Reference: Canada Department of Mines, Map 307A, Portland Canal Area, 1935.

Table of Formations

Mesozoic	Jurassic and/or Cretaceous	Quartz porphyry and quartz diorite dikes.  Coast Range Intrusive- granite, granodiorite, quartz diorite.
	Jurassic	Hazelton Group - possibly in part. Triassic and Lower Cretaceous sediments and igneous rocks. Sediments-argillite, greywacke, quartzite, limestones, tuffs.  Igneous-massive and fragmental rhyolite, dacite, augite por- phyrite syenite and gabbros.

Property Geology

The consolidated rocks of the Kinskuch Lake

area consist mainly of a thick sequence of andesitic volcanic rocks ranging in a thickness measured in thousands of feet. These can be divided into the "Upper Member" and "Lower Member". The base of this formation is not exposed on the property, but is exposed in the Dak Valley to the south and indicates that this formation is underlain by black argillites assigned to the Hazelton group of Jurassic Age. The sequence following the volcanics is represented by a complex period of metamorphism which included fracturing, shearing, and faulting, with chloritization, sericitization, epidotization, mineralization of mainly pyrite and chalcopyrite, and intrusions of more than one period of dykes.

A glacier present on the southern and eastern portion of the property is influential and contributing to the topographic features of the property and is represented by hog-back ridges and a delta plane located on the southeast shore of Kinskuch Lake.

#### Metamorphism

It is possible that the metamorphism of the volcanic series is associated with the injection of

the Coast Range Batholith, which outcrops some fifteen miles to the west.

#### Thermal Metamorphism

Thermal and hydrothermal alteration is indicated by the presence of chlorite, pyrite, and epidote, with minor quartz and sericite.

#### Dynamic Metamorphism

There has been intense tectonic activity in the area. Observation of aerial photographs discloses a net of lineations of many orientations. The complexity continues down to a much smaller scale and indicated by detailed mapping.

The earliest shearing was prior to mineralization. In the best mineralized areas of the peninsula, there are sequences of east-west shears, which are often well mineralized, followed by another set of north-south shears which are rarely well mineralized.

#### Mineralization

The host rock for the major portion of the mineralization is the lower member. The ore mineral

present is chalcopyrite with galena as a rarity. The surface expression of the presence of copper is staining by malachite, azurite, and with chalcopyrite without any visible surface stains.

The association between pyrite and chalcopyrite is variable. A few veinlets are composed purely of chalcopyrite. Many veins contain both pyrite and chalcopyrite with pyrite the major mineral. Many pyritic seams contain little or no chalcopyrite. Although most of the chalcopyrite is connected with veins or in shear zones, some chalcopyrite is disseminated in the host rock on the peninsula. It is clear that mineralization was by no means the last step in the evolution of these rocks.

Minor galena and molybdenum have been identified in surface exposures. There is a striking display of galena visible in a tiny vein in the southeastern area, close to the glacier and some 2,200 feet east of the lake shore.

Surface staining by malachite, occasionally by azurite, is widespread. The results were always negative.

#### Dyke Rocks

The dykes, though not numerous, are of

several distinct types. They are later than much of the shearing, and are not mineralized to any extent.

The variety of the dykes, and their small number, raises a question as to the nature of the magmas that formed them, whether a single magma of gradually changing composition could account for all the varieties, or whether several sets of magmas must be postulated.

#### Glaciation - Topography

The present landscape is extremely immature. There are numerous perched boulders, and rubble slopes occurring close to the critical angle for sliding. Many high and steep ridges are composed entirely of incompetent glacial rubble.

The deeper character of weathering in the area east of the lake, where the rocks are extremely fractured and incompetent, indicates a possibility that this area was exposed to preglacial weathering and was somehow protected from glacial gouging. The area is still partially covered by the glacier.

The lake level has been stable for some time. It is suggested by the sizeable alluvial plain built up by two small streams on the east shore, and by

the presence of a number of beaches. The beach sands, even the finest grains, are composed of volcanic rocks for the most part, and an examination of fine sand with the hand lens reveals that the little grains have exactly the same appearance and composition as the pebbles and boulders.

#### Conclusions and Recommendations

The geological and geophysical surveys and the reported geochemical results have returned favourable results on the Forest Kerr Mines Limited property in the Alice Arm, British Columbia area.

Numerous ore bodies are being developed within a reasonable distance of the property. Molybdenum Company Limited, (Kennco), has a large molybdenum ore body developed twelve miles south of Kinskuch Lake. Favourable results are being received by Newmont Mining Corporation of Canada Limited, two miles south of the property, and the Granduc Mines Limited, large ore body lies within fifty miles northwest of Kinskuch Lake.

The favourable results returned by the surveys conducted on the property plus the numerous ore bodies being developed in the area, justify the further exploration of the Forest Kerr property at Kinskuch Lake.

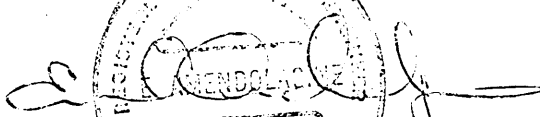
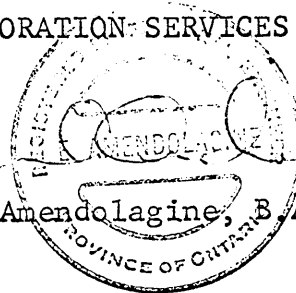


The programme should consist of a minimum of 5,000 feet of diamond drilling to test the favourable area located southwest of Kinskuch Lake. This area should be tested by two cross section lines. In conjunction with the drilling, the area on the south shore and the west shore of Kinskuch Lake should be re-examined geologically.

Due to the difficult access to this property, the sum of \$75,000 to \$100,000 would be required to carry out this programme. The results obtained from this drilling will determine the future programme to be followed.

Respectfully submitted,

SULMAC EXPLORATION SERVICES LIMITED

E. Amendolagine, B.A., M.A., P. Eng.

June 24th, 1966

CERTIFICATION

TO WHOM IT MAY CONCERN:

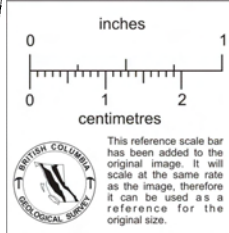
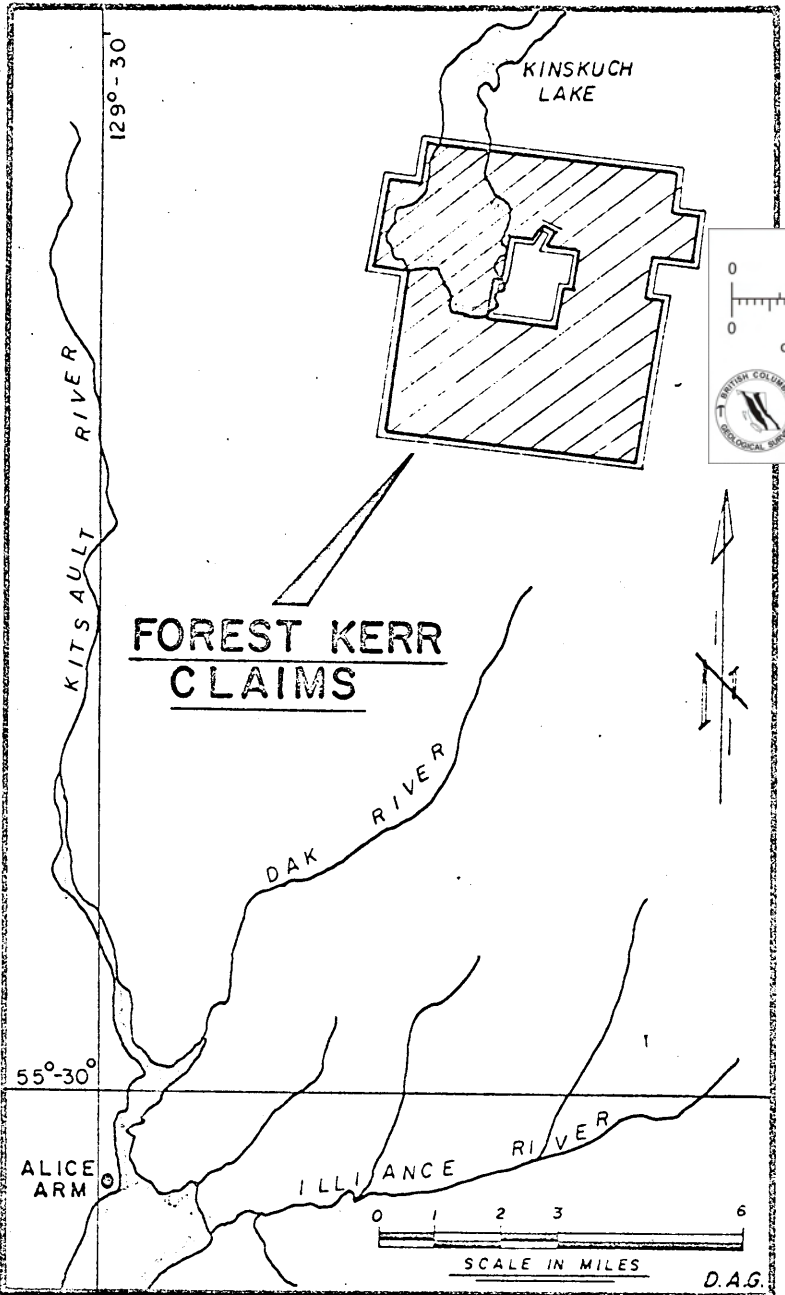
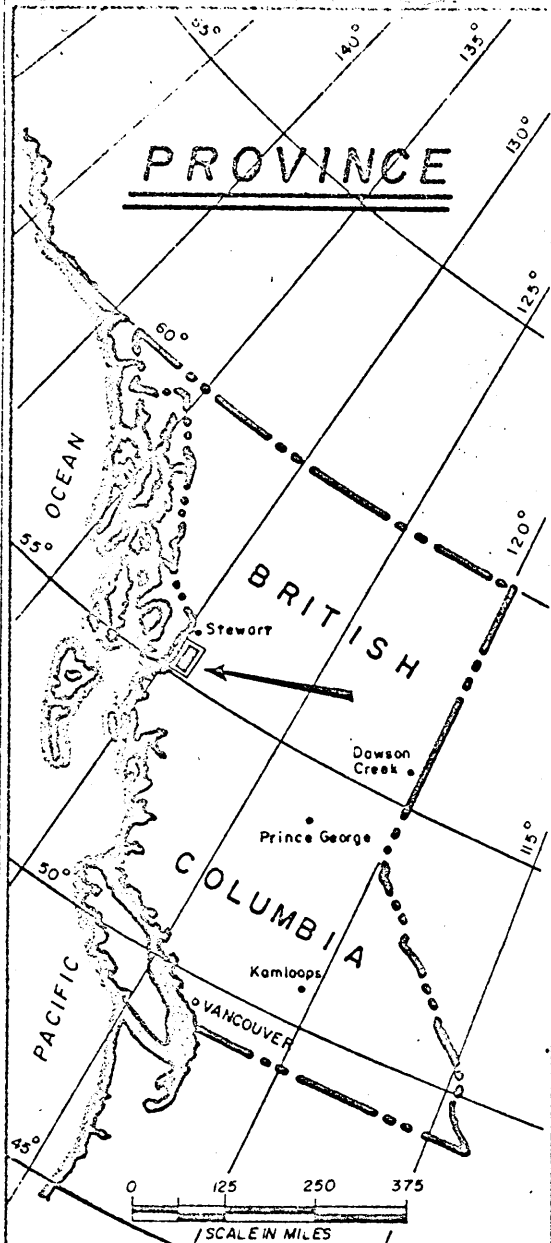
I, EMANUEL AMENDOLAGINE, of the City of Scarborough, in the Province of Ontario, hereby certify:

1. That I am a geologist and reside in Scarborough, Ontario.
2. That I am a graduate of Hunter College of the City of New York, and Columbia University, with a B.A. and M.A. respectively, and that I have been practicing my profession as a geologist for twelve years.
3. That the report was prepared from compilation of:  
published geological information of the Portland Canal Area, B.C; geophysical and geological surveys conducted by Sulmac Exploration Services Limited; and, a personal inspection of the property made by the writer.
4. That the property and the location of the property is believed to be true.
5. That the writer does not have, nor does he expect to receive, either directly or indirectly, any interest in the above property or in the securities of Forest Kerr Mines Limited.
6. That I am a member of the Association of Professional Engineers of the Province of Ontario.

Dated this 24th day of June, 1966.

  
E. Amendolagine, B.A., M.A., P. Eng.

# PROVINCE



## PROPERTY LOCATION FOR FOREST KERR MINES LTD.

ALICE ARM-BRITISH COLUMBIA

SKEENA MINING DIVISION

