Property Submission -





# **CORPORATION FALCONBRIDGE COPPER**

6415 - 64th Street Delta, B.C., Canada V4K 4E2 Telephone (604) 946-5451 Lupus 1,3.4,5+6 claims 826249 92F/14E

May 5, 1986

C. G. Verley
Proquest Resource Corporation
422 - 470 Granville Street
Vancouver, B. C.
V6C 1V5

Dear Carl;

Thank you very much for sending along the report on your Vancouver Island Lupus property. I agree with you that potential exists for both high grade - small deposits and bulk tonnage - low grade deposits on the property, our present priority. However due to our present priorities and ongoing projects we are unable to make an offer to participate at this time.

Thank you again for bringing this to us.

fours truly,

A. J. Davidson

Senior Exploration Geologist

AJD/ik

(604)689-1966

Mr. Dave Watkins Corporation Falconbridge Copper 6415 - 64th Street Delta, B.C. V4K 4E2

Dear Dave:

Attached is a copy of the report on our Vancouver Island property that I mentioned I would send to you.

Title to the claims is held by Proquest and I am the sole shareholder in Proquest.

If you would like to discuss the possibility of becoming involved in the development of this ground please contact menat your earliest convenience.

It would be appreciated if, after your inspection of this material, you would return the report to the address on the letterhead.

Yours truly

Carl G. Verley

CGV/cv Attmt 9/12

# GEOLOGICAL AND GEOCHEMICAL REPORT on the LUPUS 1, 3, 4, 5 and 6 CLAIMS

NANAIMO MINING DIVISION, B.C. NTS 92F/14E (49°46'N, 125°10'W)

for

PROQUEST RESOURCE CORPORATION
422 - 470 Granville Street
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by

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April 1986

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### SUMMARY AND CONCLUSIONS

The Lupus 1, 3, 4, 5, 6 mineral claims, held by Proquest Resource Corporation, consist of 72 units located in the Nanaimo Mining Division (NTS 92F/14E). The property is situated 15.7 kilometres northwest of Courtenay and is accessible by road.

The property is underlain by a sequence of Upper Triassic Karmutsen basic volcanics which are unconformably overlain by Upper Cretaceous sandstones and siltstones of the Nanaimo group. This succession is intruded by Tertiary dacite porphyries.

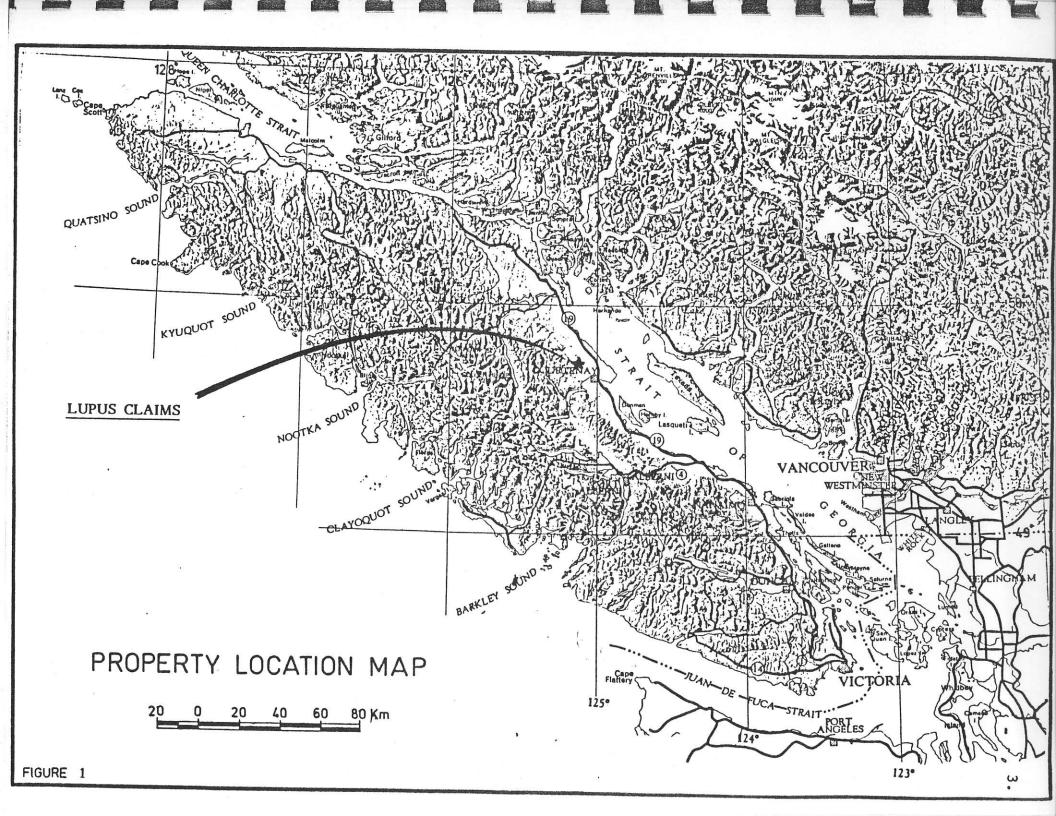
During the 1985 field season, Homestake Mineral Development Company conducted a limited exploration program on the claims before deciding that the "prospect does not contain sufficient potential for large tonnages to warrant further investigation at this time." However, it is believed that Homestake did not address the high grade small tonnage potential, nor adequately test the bulk mineable possibilities of the property.

Gold-bearing veins on the claims are new discoveries in the district. They are hosted by Upper Triassic volcanics and Upper Cretaceous sediments. The age of the mineralization is, therefore, believed to be Early Tertiary. Chip samples across the sulphide-rich core of one vein system assay up to 2.303 oz/ton Au, 4.234 oz/ton Ag, 9.48% Zn, 7.21% As, 1.151% Pb and 0.72% Cu.

Gold and arsenic are closely related in mineralized zones on the property. Anomalous arsenic in streams therefore suggests that further targets exist on the property and warrant follow-up work.

The age, tenor of gold and regional setting of the mineralized zones combined with subtle, reconnaissance geochemical signatures in soils, strongly suggests that there is a high probability for locating potentially economic goldbearing veins on the claims.

An exploration program is recommended to further evaluate the claims. The total estimated cost of the proposed exploration work is \$280,000.



#### INTRODUCTION

This report is a summary of work conducted to date on the Lupus claims. The ground was acquired as a result of a stream sediment sampling and prospecting program carried out in late 1983, early 1984 by H.J. Keyser and C.G. Verley. The group covers gold-arsenic and gold-silver-zinc-arsenic-bearing vein structures which are believed to represent new mineral discoveries in this district.

#### Location

The property is located 15.7 kilometres northwest of Courtenay in the Nanaimo Mining Division (NTS 92F/14E). Centered at latitude 49<sup>o</sup>46'N and longitude 125<sup>o</sup>10'W, the claims cover the north end of Wolf Lake.

## Access

Excellent access is provided by Crown Forest Industries Ltd's logging roads, from the Courtenay area, which cross the property as well as pass within a few feet of each showing.

#### **Previous Work**

Considerable exploration work was carried out in the vicinity of the Lupus claims at Mt. Washington in the 1950's. This work led to limited production

of Cu, Au and Ag from high grade lodes associated with Tertiary intrusives. During a two and a half year period between 1965 and 1967 377,639 tons of ore were milled to yield 4,128 oz of Au, 224,570 oz of Ag and 7,592,186 pounds of Cu.

In the late 1960's and early 1970's various companies explored the old workings. An intense program was conducted by Imperial Oil Limited for porphyry copper deposits, resulting in the definition of reserves reported at 610,000 tons averaging 1.4% Cu, 0.015 oz/t Au and 1.20 oz/t Ag. More recently Better Resources Ltd. has optioned the Mt. Washington copper properties, acquired additional ground and carried out exploration specifically for "epithermal gold deposits" associated with the Tertiary intrusive complex of the area.

In 1985, Proquest optioned the Lupus claims to Homestake Mineral Development Company. Homestake conducted a brief evaluation of the ground before relinquishing the option.

## Physiography

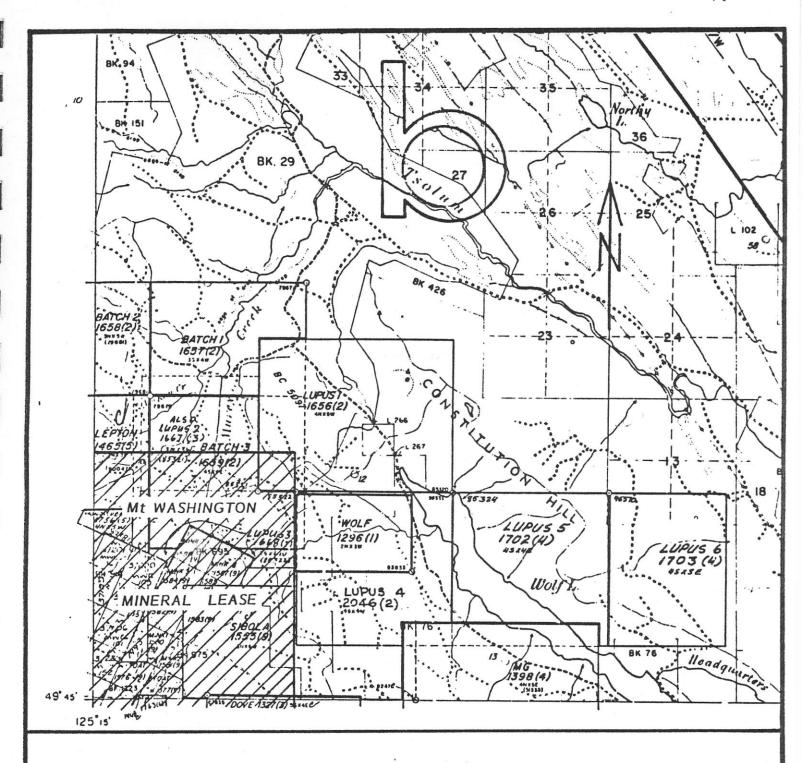
The claims are forested with second growth timber. Terrain is relatively subdued over most of the group with elevations ranging from 100 to 500 metres above sea level. The property is in an area that is not as environmentally sensitive to recreational use as Mt. Washington proper. Sufficient water and timber occur in most areas of the property to meet exploration needs. A power line passes close to the east boundary.

### **PROPERTY**

Proquest Resource Corporation is the beneficial owner of the Lupus mineral claims (Figure 2). The claims, located in the Nanaimo Mining Division (NTS 92F/14E), consist of 72 units in total. However, the Lupus 3 partly overlaps the Batch 3 and Mink Claims and as a consequence that part of the Lupus 3 which Proquest has title to is not contiguous with the other Lupus claims and may only be one unit in area. The Lupus 4 claim overlaps the Wolf claim. Furthermore, the Lupus 3 claim and a portion of the southwest corner of the Lupus 1 claim, approximately 1 unit in area, are located in the Mount Washington Mineral Lease. This lease is held by Canpac Minerals Ltd. The lease entitles Canpac to base metal rights, however gold and silver rights reside with the Crown and are open to normal mineral claim acquisition. The writers are therefore of the opinion that Proquest has the rights to gold and silver in that portion of Lupus 1 and 3 covered by the Mount Washington Mineral Lease and that Proquest has the rights to all metallic minerals in the rest of Lupus 1, 4, 5 and 6.

Table 1

Claim	Units	Record Number	Expiry Date	
Lupus 1	20	1656	February 28, 1988	
Lupus 3	8	1668	March 13, 1987	
Lupus 4	16	2046	February 21, 1987	
Lupus 5	16	1702	April 6, 1988	
Lupus 6	12	1703	April 6, 1988	



# CLAIM LOCATION MAP

Lupus Mineral Claims

Proquest Resource Corporation

Nanaimo Mining Division, B.C. NTS 92F/14E

Scale 1:50,000

4

500 0 500 1500 2500m

Figure 2.

#### **GEOLOGY**

The Lupus claims are situated 8 kilometres east of Mt. Washington in the southern part of the Insular Tectonic Belt: the Vancouver Island Ranges. The area is underlain by a succession of gently northeasterly dipping Upper Triassic Karmutsen basic volcanics which are unconformably overlain by Upper Cretaceous Nanaimo Group sandstone and siltstone. This sequence is intruded by Tertiary quartz diorite and related dacite porphyries. Several types of intrusive breccias are associated with the Tertiary rocks (Carson, 1973). Air photographs indicate a pronounced set of radial and concentric lineaments is centered about a point 3.5 kilometres east of Mt. Washington. Aeromagnetic data over part of the area indicates a magnetic high is nearly coincident with the centre of the fracture pattern, possibly suggesting that an unroofed pluton may be buried beneath this area. The Mt. Washington intrusives may be expressions of this deeper seated intrusion and may have been emplaced along zones of weakness where concentric subsidence fractures developed as a result of pulsating activity of the parent magma.

Detailed geological mapping of the whole claim area has not been carried out at present. The distribution of lithologies (Plate 1) is taken from Carson (1973), with lithologic descriptions as observed during the course of prospecting.



OLIGOCENE

Th MOUNT WASHINGTON INTRUSIVES: breccias

Tqd quartz diorite

Td dacite porphyry

UPPER CRETACEOUS

Kn NANAIMO GROUP: sandstone and shale

uR KARMUTSEN GROUP: basics volcanics

X gold-bearing mineralization - LUPUS CLAIMS

airphoto lineaments concentric fractures \_\_ \_ radial fractures

aeromagnetic response
contours in 50,000's of gammas, contour interval: 100

L.\_\_. limit of aeromagetic data

\_\_ claim boundaries (approximate)

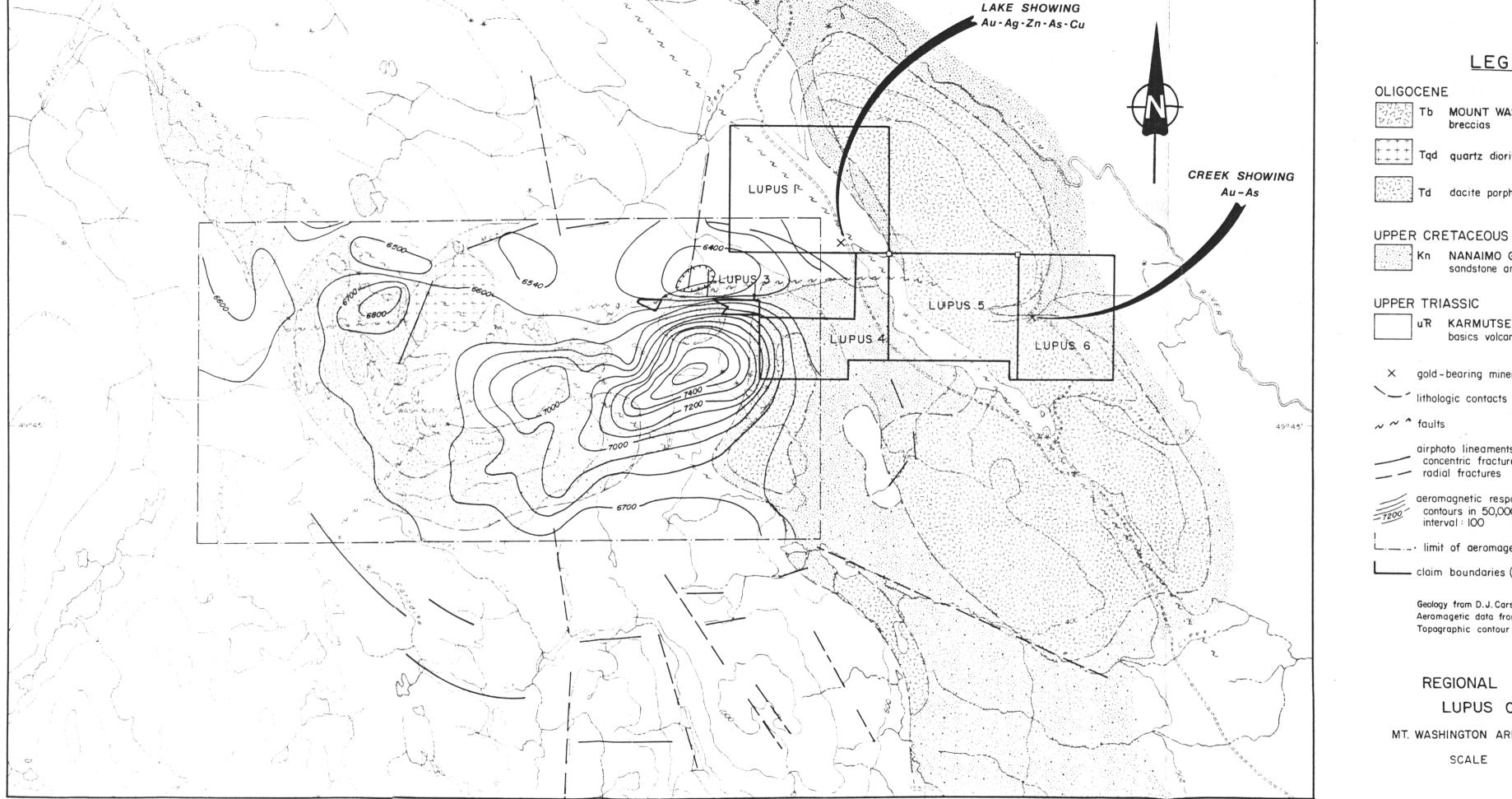
Geology from D.J. Carson, G.S.C. Paper 72 - 44

Aeromagetic data from B.C.D.M. assessment report no. 1691 Topographic contour interval: 200 m.

REGIONAL SETTING LUPUS CLAIMS

MT. WASHINGTON AREA NTS 92F/IIE,14E

SCALE 1:50,000



#### LITHOLOGIES

# Upper Triassic - Karmutsen Group

A sequence of brownish weathering, massive, basic to intermediate volcanic flows underlies the Lupus I claim. Massive flows are dark green coloured, amygdaloid basalts and andesites. Amygdules are filled with chlorite, quartz, calcite and epidote. Primary layering between flows is difficult to discern. The Karmutsen hosts gold-silver-zinc-arsenic-copper mineralization on Lupus I, exposed in veins in a quarry at the north end of Wolf Lake.

# Upper Cretaceous - Nanaimo Group

Nanaimo group sediments unconformably overlie the Karmutsen. On the property exposures of the Nanaimo consist of sequences of thin-bedded, fine to medium grained brown weathering, brown to grey coloured greywacke and interbedded siltstone. Locally, near contacts with Tertiary intrusives, the sediments are pyritic, hematitic and altered to clays. Gold mineralization at the Creek Showing is situated in this sequence. The thickness of the Nanaimo group sediments on the property is unknown.

# Tertiary - Mt. Washington Intrusives

Grey weathering dacite porphyry is the predominant Tertiary lithology underlying the claims. Dacite consists of acicular hornblende

phenocrysts (to 1 cm long, 15%) which exhibit a vague alignment, white subhedral feldspar phenocrysts (to 4 mm long, 10%) and rare quartz eyes (1%) in a pale grey medium-grained ground mass of feldspar and quartz.

Dacite has presumably intruded Nanaimo group sediments on the Lupus claims as a large laccolith (Carson, op.cit.). In general the dacite is a resistant cliff forming unit: exposures commonly show well developed vertical joint sets - possibly cooling-contraction joints. An unusual recessive exposure of dacite forms a distinct orange gossan on the east side of Wolf Lake and lies on strike with gold-bearing veins of the Creek Showing. At the gossan dacite is shattered and contains disseminated pyrrhotite. Mafics are chloritized and in some cases completely gone (sericitized?). Feldspars are clouded and locally altered to clays.

#### **GEOCHEMISTRY**

Limited soil, silt and rock sampling was conducted on the claims by the writers on behalf of Proquest in 1984.

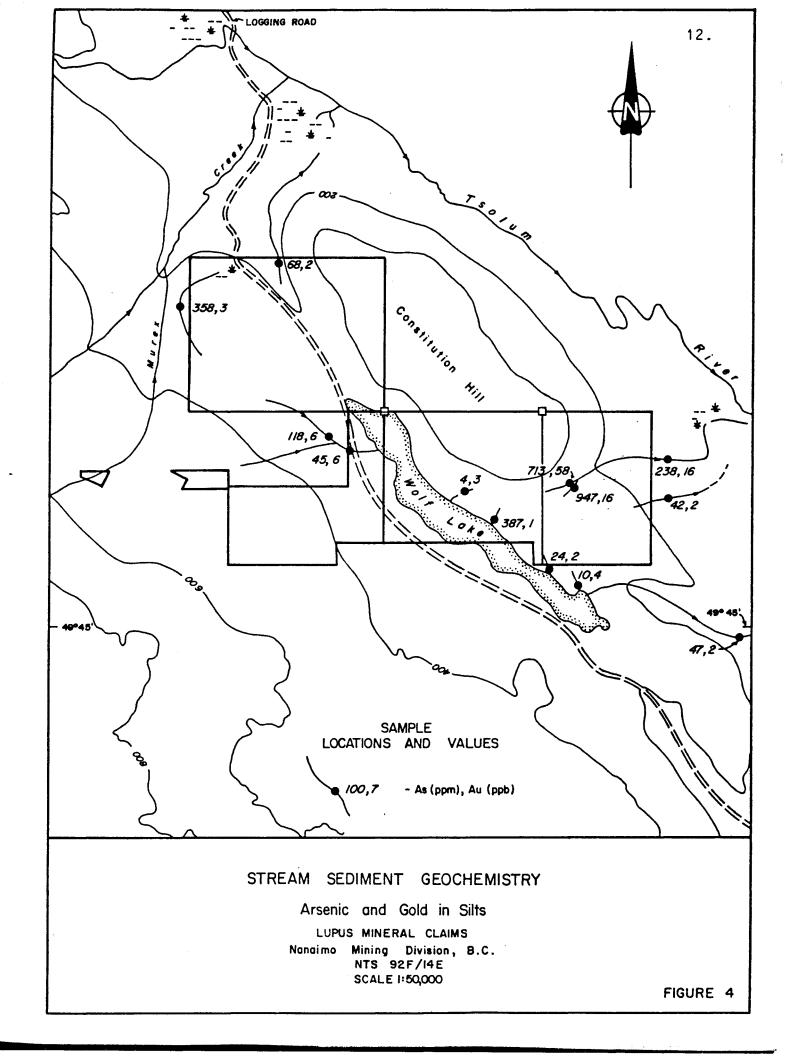
Stream silt sampling (Figure 4) indicates the known mineralization in the Creek Showing has a distinct geochemical signature. Two drainages on the Lupus I claim are anomalous in arsenic (358 and 118 ppm). A small seep draining the gossan on the east side of Wolf Lake is also anomalous in arsenic (387 ppm).

Results of soil sampling in the Creek Showing area (Plate 2) and to the west exhibit a distinctly anomalous geochemical signature in Au, As, Ag, Zn and Cu that is associated with the showing. A subtle increase in arsenic along the line to the west suggests the presence of bedrock mineralization in this area as well.

Homestake Mineral Development Company, during the tenure of their option on the property, collected 113 soil, 42 rock and 2 silt samples. Soils were collected in the Creek Showing area. Gold values range from 1 to 46 ppb, arsenic from 2 to 1016 ppm and silver from 0.1 to 1.1 ppm. The results are similar to those obtained by Proquest. High values appear to reflect mineralization close to or at the Creek showing.

Rock sampling by Homestake essentially confirmed values obtained by Proquest at this showing. Gold values range from 1 to 890 ppb, arsenic from 2 to 8620 ppm and silver from 0.1 to 7.0 ppm.

The results of the sampling clearly outline known mineralization. It is the writers' opinion that the intensity and extent of anomalous values reflects a mineralized source that is poorly exposed.



# **MINERALIZATION**

To date, two areas of gold mineralization have been located on the Lupus claims. Each showing is associated with arsenopyrite. Streams anomalous in arsenic that drain the property could yield further showings following a program of detailed prospecting.

The Lake Showing, situated by the north end of Wolf Lake on the Lupus 1 claim, is a new discovery. Gold, silver, zinc, arsenic and copper mineralization was exposed in 1983 by Crown Forest Industries Ltd. during the course of quarrying roadbed material.

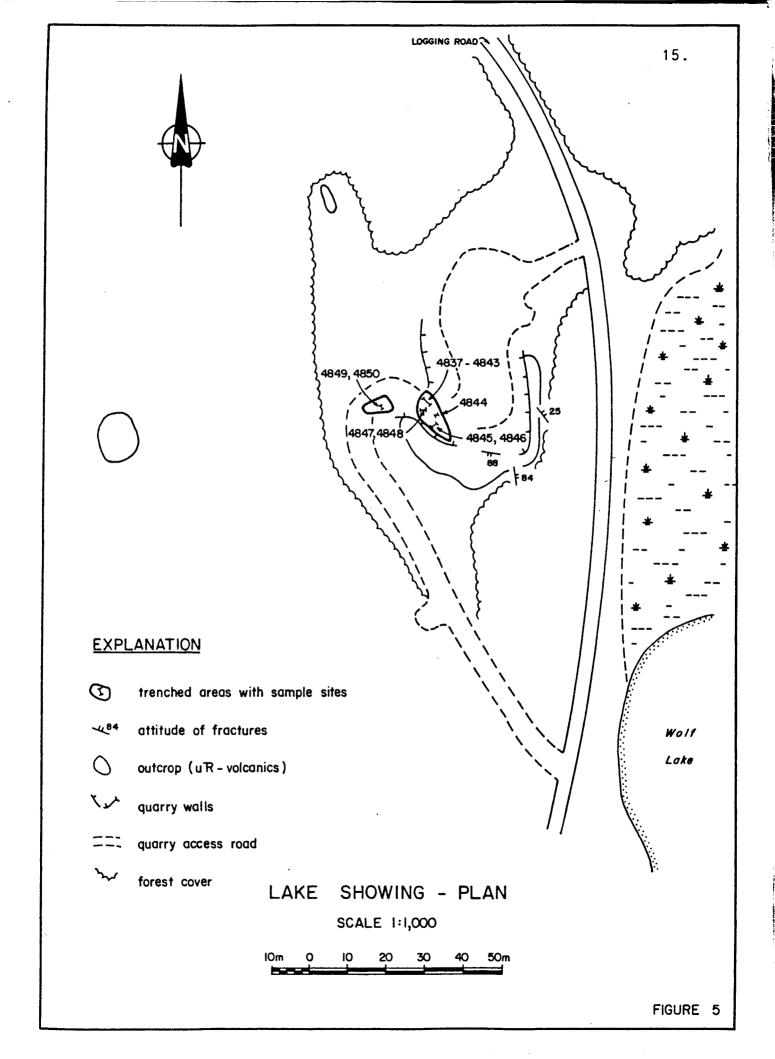
Trenching was conducted on behalf of Homestake Mineral Development Company by Amerlin in October 1985. Approximately 130 cubic metres of material were stripped away to expose a relatively open antiformal vein surface across a strike length of 16 metres. The structure plunges  $30^{\circ}$  toward  $080^{\circ}$  and is associated with a parallel joint set which forms a crude sheeting in the quarry walls.

The vein itself consists of a narrow (to 9 cm) sulphide-rich core that is overlain by a narrow clayey zone (14 cm) typically with broken sulphide-quartz material. These zones are enveloped in a dark grey to black alteration zone (to 20 cm) which grades out into a bleached pale grey to creamy coloured envelope (to 430 cm) which, in turn, grades into unaltered dark green Karmutsen volcanics. The dark alteration envelope may contain carbon, chlorite or secondary biotite. The bleached alteration envelope is presumably a clay altered or carbonatized zone. Sulphide-rich vein material consists of coarse pyrite and black to dark bluish sphalerite, fine-grained arsenopyrite and rare galena. A crude layering of

sulphide minerals in discernable. Vugs lined with quartz and sulphide crystals, some encrusted with dolomite, are relatively common. Altered wall rock fragments are not uncommon in the vein. Thin (to 3 cm) quartz-sulphide (FeS<sub>2</sub>-ZnS-FeAsS) stringers extend into the alteration zones and are typically oriented parallel to the main vein. Locally the dark alteration envelope above the vein is brecciated such that angular fragments are either supporting themselves or are locally supported by a matrix of coarse quartz and sulphides.

A total of 14 samples were taken across vein and associated rock (Figure 5). The results of this sampling, with sample descriptions, are appended.

Samples 4845 and 4846 are continuous chip samples taken across the alteration envelope above the vein. The samples average 0.175 oz/ton Au, 0.747 oz/ton Ag, 2.86% Zn, 1.26% As over the 94 cm interval. Samples 4847, 4848 are taken across altered material above the vein. These samples average 0.056 oz/ton Au, 0.211 oz/ton Ag, 1.08% Zn, 0.58% As over the 69 cm interval. Sample 4849, taken from the pit excavated above the main trench, assayed 0.318 oz/ton Au, 0.406 oz/ton Ag, 1% Zn and 1.23% As over 43 cm across the weathered upward extension of the vein. A grab sample of mineralized vein material from this pit (4850) assayed 2.442 oz/ton Au, 12.422 oz/ton Ag, 4.45% Zn, 7.38% As and 0.54% Cu. Sample series 4837 to 4843 (Figure 8) are continuous chips taken across true thicknesses of vein and alteration envelope types. A tabulation of weighted averages of assay data across this zone follows.



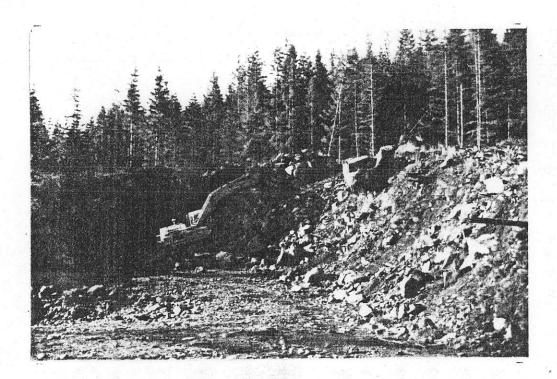


Figure 6. Trenching, Lake Showing.

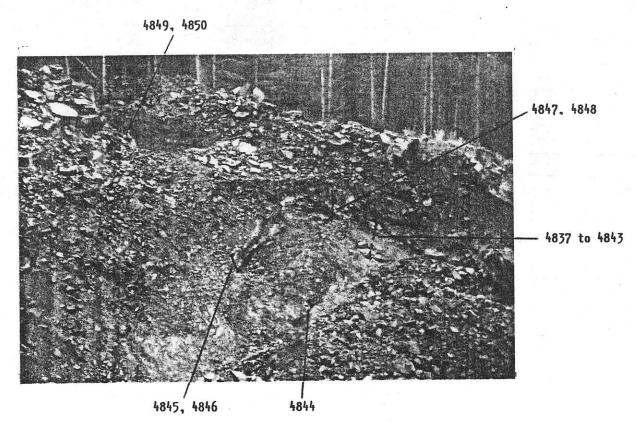


Figure 7. Sample sites.

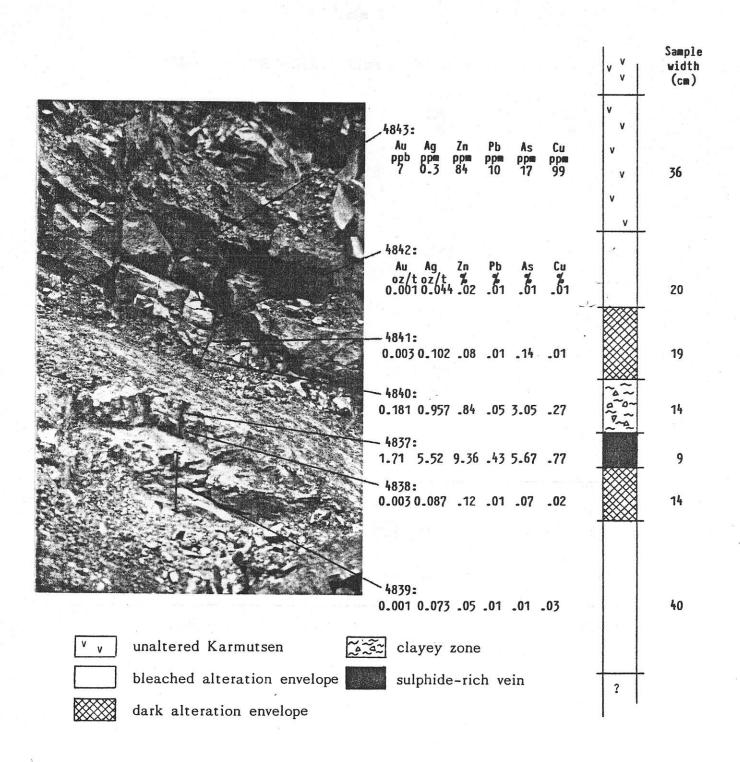


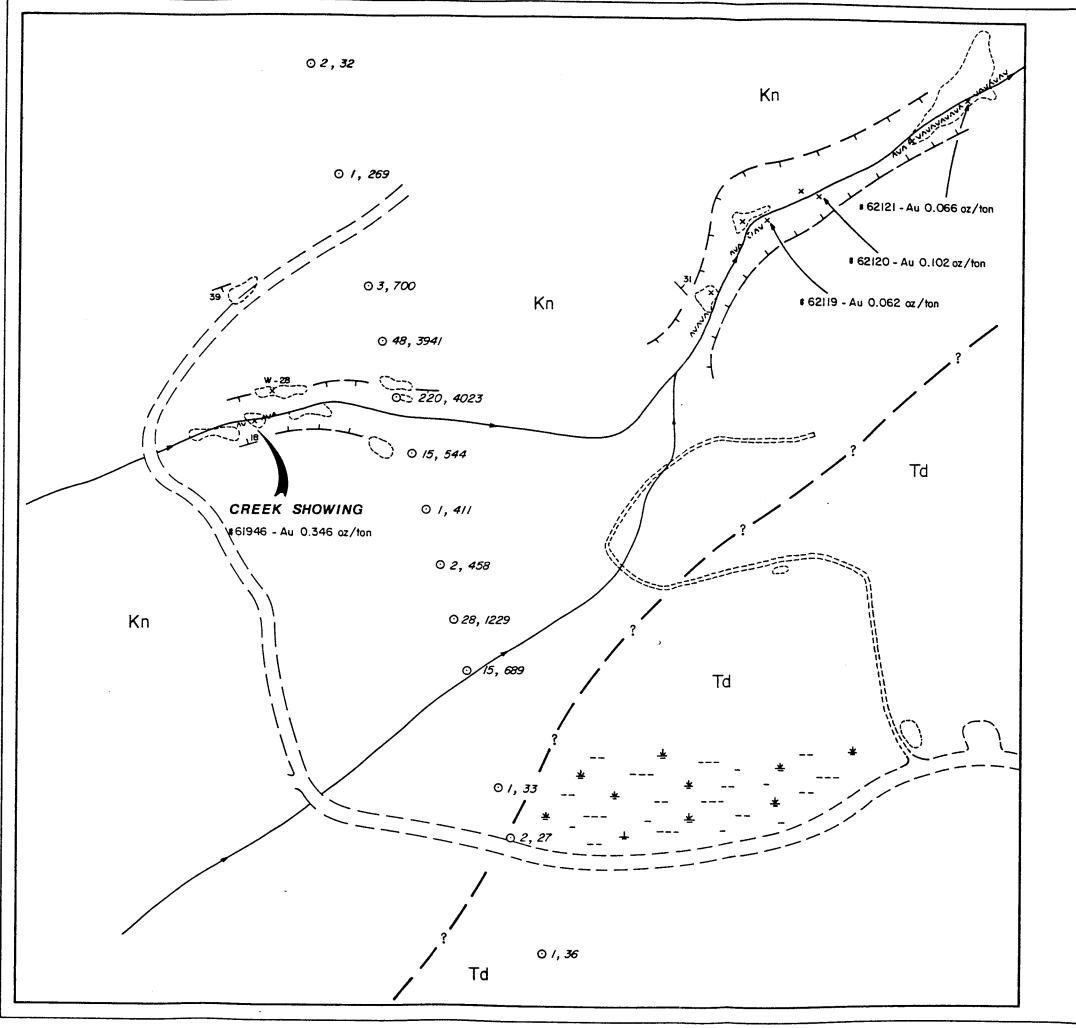
Figure 8. Sample Series 4837 to 4843.

Table 2
WEIGHTED AVERAGES, SAMPLE SERIES 4837 TO 4842

Samples	Width (cm)	Au oz/ton	Ag oz/ton	Zn %	Pb %	As %	Cu %
4837) 4840)	23	0.779	2.743	4.17	0.20	4.08	0.47
Or: 4837) 4838) 4840) 4841)	56	0.333	1.164	1.77	0.09	1.74	0.20
Or: 4837) 4838) 4839) 4840) 4841) 4842)	116	0.156	2.604	0.88	0.04	0.84	0.11

The nature of the alteration, habit and type of mineralization at the Lake Showing suggests that it has the potential of being an exceptional, high-grade vein structure. Further work is strongly recommended to test this zone.

The Creek Showing located on the Lupus 6 claim at the south end of Constitution Hill was apparently previously staked, but there are no written records of mineralization being found in this area. Mineralization extends along a poorly exposed zone for approximately 200 metres (Figure 9) and occurs in narrow breccia veins (up to 10 cm wide) and on fracture and shear surfaces.





# OLIGOCENE

Td

MT. WASHINGTON INTRUSIVES dacite porphyry

# UPPER CRETACEOUS

Kn

NANAIMO GROUP sandstone and shale

outcrop distribution

shear zones / faults

attitude of bedding

mineralization

= -- swamp

logging road, skidder road

\_\_? inferred lithologic contact

soil sample location with values; © 30,647 Au (ppb), Ag (ppm) Refer to PLATE I for further values.

# GEOLOGICAL - GEOCHEMICAL PLAN CREEK SHOWING AREA LUPUS 6 CLAIM

SCALE 1:1,000 10m 0 10 20 30 40 50m

FIGURE 9

Breccia vein material consists of siltstone and sandstone fragments in a matrix of fine to medium-grained pyrite and arsenopyrite, clay, realgar(?) and coarse white calcite. Some breccia-types contain black sphalerite as do veins at the eastern edge of the Creek Showing area. Selected grab samples of mineralized vein material assayed: Au, 0.346 oz/t; Ag, 0.01 oz/t; As, 29,494 ppm. The mineralized veins exposed in the creek are somewhat irregular in attitude, but trend approximately east-northeasterly and have steep northerly dips. Alteration of wallrock is variable and locally intense producing a bleached, fractured rock that is anomalous in Au (325 ppb) and As (1841 ppm). Following the vein trend to the west there is very little exposure until a distinct orange soil gossan is reached on the edge of Wolf Lake. Exposures of altered and shattered dacite containing disseminated pyrrhotite occur adjacent to the gossan.

Further mineralization was noted during the course of prospecting on the Lupus 1 and 3. Narrow (to 4 cm wide) quartz veins occur in the Karmutsen volcanics. Locations of samples of sulphide-bearing volcanic rock are plotted on Plate 1. The Karmutsen in this area appears to be intensely altered (silicified?) and contains actinolite, pyrite, pyrrhotite and chalcopyrite on fracture surfaces and as disseminations. The occurrence of actinolite and pyrrhotite in the volcanics suggests a high temperature origin for this alteration assemblage. The rocks sampled appear to be low in gold. This may be a result of the high temperature alteration they have been subjected to. If this is the case, then perhaps potential for locating low-grade, large tonnage gold mineralization occurs at the transition from this high temperature zone to a low-temperature propylitic alteration assemblage.

Homestake Mineral Development Company, during the course of their work on the claims, located a showing on the Lupus 1. However, there is no description of this occurrence in their report. A presumably selected grab sample (4852) from it is reported to have assayed 0.17 oz/ton Au and 1.595 oz/ton Ag.

## **ECONOMIC POTENTIAL**

Homestake Mineral Development Company's conclusions regarding the economic potential of the Lupus claims are: "From initial work completed and geochemical results, the Lupus claims showed some potential for significant gold mineralization. After a more thorough investigation into the primary showings, it is felt that this prospect does not contain sufficient potential for large tonnages to warrant further investigation at this time." (Harrap, 1986).

While the areal extent of surface indications may make the large tonnage potential difficult to envisage, no effort has been expended to examine extensions of the showings at depth. Furthermore, the small tonnage (500,000 to 1,000,000 tons) high grade (0.5+ oz/ton Au) potential has not been addressed. The development of such a deposit in the area would be very low cost because of the location and existing infrastructure.

The major structures and numerous mineral occurrences of the Mt. Washington area associated with the Tertiary igneous activity there indicates that a large hydrothermal system has affected the area. These features establish an environment that is highly permissive for the development of precious metal veins. Numerous analogues of this setting are found in other mining camps along the North American cordillera, where Tertiary igneous activity is commonly a focal point for precious metal mineralization.

Similarity of age and forceful style of emplacement, resulting in the development of intrusive breccias, is pointed out to exist between Mt. Washington and the Zeballos gold camp (Carson, 1973). The Zeballos area has yielded 331,000 ounces of gold from material averaging 0.5 oz/t (Barr, 1980). It is believed that there is excellent potential for finding similar types of deposits in the Mt. Washington area.

Mineralization found and exposed to date on the Lupus claims contains metal values that are indicative of deposits having economic potential. At the Lake Showing, a spectacular gold-bearing vein system has intense hydrothermal alteration that typifies many high grade vein deposits. In the Creek Showing area, there is evidence that mineralizing events have taken place over a linear zone in excess of 900 metres as demonstrated by arsenic soil and stream geochemistry and hydrothermal alteration. The gold values found in veins at this showing, combined with those at the Lake Showing, make it possible to conclude that large mineralized structures exist on the property. Further work to determine the extent of mineralization at both occurrences is strongly recommended.

### **RECOMMENDATIONS**

A two stage, success-contingent exploration program is recommended to evaluate the potential of the Lupus claims.

## Stage 1

- Geological mapping 1:10,000 scale
- Detailed mapping of showing areas
- Detailed prospecting of property
- Continuation of soil sampling, Creek Showing area
- Reconnaissance soil sampling Lupus 1 claim
- Induced polarization surveys,
  Lake and Creek Showing areas: 10 km
- Diamond drilling, Lake and Creek Showing areas: 600 m

Estimated Costs Stage 1

\$ 80,000

# Stage 2

- Diamond drilling: 2000 metres

Estimated Costs Stage 2

200,000

Total Estimated Cost of Recommended Program

\$280,000

Respectfully submitted,

Carl G. Verley.

Harmen J. Keyser

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