

Geological Assessment Report on the ROB  
Claims Red and Blue Groups

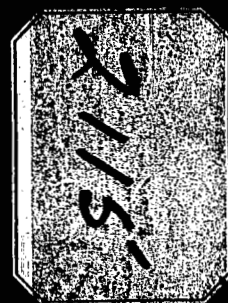
NADIRA COPPER PROPERTY

Located six miles west of Cowichan Lake,  
Vancouver Island

Latitude 48°55' Longitude 124°33'

By J.E.Christoffersen, and D.K.Mustard,  
P.Eng. (B.C.)

Work was carried out during the period  
June 16, 1969 - September 10, 1969



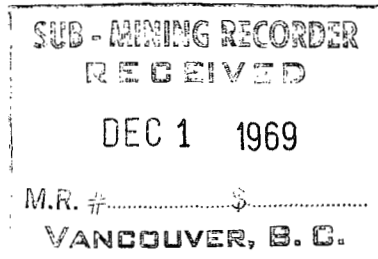
APPENDIX II

2115

SAMPLE HANDLING PROCEDURE

**In the Matter of** itemized breakdown of expenses  
incurred on the Rob 1 - 44 incl. Rob #1 Frac. & Rob #2 Frac.  
(Nadira Property) between June 16 and September 10, 1969

TO WIT:



**I,** Donald K. Mustard,

#601 - 535 Thurlow St., Vancouver

in the Province of British Columbia

do solemnly declare :

- I - I am agent for Amax Exploration, Inc. and as such am duly authorized to make this declaration.
- II - The detailed account of expenses on Rob 1-44 incl. Rob #1 Fr. & Rob #2 Fr. mineral claims between June 16 and September 10, 1969 is as follows:

SUMMARY OF WORK

- Geological Mapping (1" = 400') - 3 square miles
- Geological Mapping (1" = 100') - 1 square mile
- Geochemical soil and stream sampling - 200 samples
- Bulldozer and hand trenching - 1075 linear feet

PERSONNEL AND SALARIES

J.E. Christoffersen, B.Sc. Geologist i/c - 100 Mineola Rd. Port Credit, Ont.	40 days @ \$36.00/day	\$ 1,440.00
R.F. Horsnail, PhD. Geochemist - 1954 Barclay St. Vanc. BC	3 days @ \$60.00/day	180.00
P.E. Fox, Geologist - 1721 Oughton Dr. Port Coquitlam, BC	5 days @ \$66.00/day	330.00
D. Colley, Jr. Asst. - 4359 Harder Rd. Victoria, BC	24 days @ \$13.00/day	312.00
M. Legros, Jr. Asst. - 16 Lake St. Huntingdon, P.Q.	28 days @ \$12.00/day	336.00
W. Deans, Prospector, Box 619 Lake Cowichan, B.C.	36 days @ \$20.00/day	720.00
F. Lehman, Prospector, 618 Cook St., Victoria, B.C.	41 days @ \$15.00/day	615.00
M. Fenwick-Wilson, Jr. Asst. - Box 241, Osoyoos, B.C.	3 days @ \$16.00/day	48.00
K. Carter, Sr. Asst. - 247 Balmoral Road, N. Vancouver BC	15 days @ \$19.00/day	285.00
		<u>4,266.00</u>
<u>ACCOMMODATION &amp; BOARD</u> - 195 man days @ \$6.00/day		1,170.00
<u>GEOCHEMICAL SAMPLES</u> - 200 samples for Cu and Mo @ \$2.00		800.00
<u>TRENCHING</u> 1075 linear feet bulldozer & hand trenching on Rob 1,3,4, by W.O. Brown Ltd. Box 257, Duncan, B.C.		995.00
<u>MATERIAL &amp; SUPPLIES</u> - camp construction		100.00
<u>DRAFTING &amp; REPORT PREPARATION</u>		<u>100.00</u>
	TOTAL	\$7,431.00

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

DECLARED before me at Vancouver in the  
Province of British Columbia, this  
day of Dec.  
A. D., 19 69.

John Suran  
A Notary Public in and for the Province of British Columbia.  
A Commissioner for taking affidavits within British Columbia.

DATED \_\_\_\_\_ 19\_\_\_\_

IN THE MATTER OF

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**Statutory Declaration**

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Procedures for Collection and Processing  
of Geochemical Samples

Amax Exploration, Inc.

Vancouver Office

December 1968

R.F. Horsnail

## SAMPLE COLLECTION

### Soils

B horizon material is sampled and thus organic rich topsoil and leached upper subsoil are avoided. Occasionally organic rich samples have to be taken in swampy depressions.

Samples are taken by hand from a small excavation made with a cast iron mattock. Approximately 200 gms of finer grained material is taken and placed in a numbered, high wet-strength, Kraft paper bag. The bags are closed by folding and do not have metal tabs.

Observations as to the nature of the sample and the environment of the sample site are made in the field on standard forms, examples of which are shown overleaf.

### Drainage Sediments

Active sediments are sampled with stainless steel trowels from tributary drainages which are generally of five square miles catchment or less. Composite samples are taken of the finest material available from as near as possible to the centre of the drainage channel thus avoiding collapsed banks. More than one sample is taken if marked mineralogical or textural segregation of the sediments is evident.

Some 200 gm of finer material is collected unless the sediment is unusually coarse in which case the weight is increased to 1 kg. Samples are placed in the same type of Kraft paper bag as are employed in soil sampling.

RECCE SAMPLE DATA SHEET

Camp \_\_\_\_\_

Collector \_\_\_\_\_

Project \_\_\_\_\_

Area (lake, highway, etc.) \_\_\_\_\_

Date \_\_\_\_\_

Plotted (map, photo) \_\_\_\_\_

MOCC	Number		Type			Location		Environment		Sample Description		Analytical Results			Remarks (Geology, Geomorph, Culture, Float)	
	Sample Number	Rock	Soil	Water	Silt	Veg.	General	Sample Site	TOPO. Terrain TYPE	DIRECTION Drainage TYPE	SIZE Texture TYPE	TONE Colour BASE	pH	Mo		Cu
1					a b c		N	E								
2					a b c		N	E								
3					a b c		N	E								
4					a b c		N	E								
5					a b c		N	E								
6					a b c		N	E								
7					a b c		N	E								
8					a b c		N	E								
9					a b c		N	E								
10					a b c		N	E								
11					a b c		N	E								

General Remarks:

REFERENCE FOR COMPLETING RECCE SAMPLE DATA SHEET

- Code Number - Year, project, samplers initial and type of sample
- Sample Number - Each sampler is to number consecutively irrespective of sample type or area.
- Sample Type  
 Rock - Put check mark in appropriate column. In case of silt (stream sediment) more than one sample is commonly taken at given site, therefore, identify different samples by subscript a,b,c, and check accordingly. If only one sample, check "a" and add subscript to number on sample envelope.  
 Soil  
 Water  
 Silt  
 Veg.
- Location - Location information is used to assist accurate plotting and re-locating site in field:
- | <u>General</u>   | <u>Sample Site</u>   |              |   |
|--|--|--------------|---|
| Given with reference to plot on map or photo, e.g., highway, lake, river, creek, mountain, traverse, etc.  | Detailed location of actual sample site; e.g., side of road, mountain slope, distance from lake, stream junction, bridge, swamp, culture, etc. |              |   |
| <table border="0" style="margin: auto;"> <tr> <td style="text-align: center; width: 50px;"><u>  N  </u></td> <td style="text-align: center; width: 50px;"><u>  E  </u></td> </tr> </table> | <u>  N  </u>   | <u>  E  </u> | - The "N" and "E" spaces refer to some numerical coordinate, i.e., latitude or longitude, <u>leave blank in field</u> , for office use later. |
| <u>  N  </u>   | <u>  E  </u>   |              |   |
- Environment Terrain - Topo - mountainous, hilly, rolling, flat, dissected, (other) (specify other)  
 - Type - deciduous, coniferous, grassland, swamp, cultivated, grazing, orchard, jungle, rock, (other)
- Drainage - Direction - N, NE, E, SE, S, SW, W, NW, ?  
 - Type - groundwater, sheetwash: for streams-mature or meandering, youthful or eroding; PLUS size in actual feet at water level - seepage, 1 ft, 1-5 ft, 5-15 ft, over 15 ft.
- Sample Description Texture - Size - very fine, fine, medium, coarse, very coarse, unsorted, mixed, (other)  
 - Type - Rock -- acid granitic, intermed. granitic, basic granitic, acid volc., basic volc., sandstone, carbonate, shale, metamorphic, (other)  
 Soil -- A<sub>0</sub>, A<sub>1</sub>, B<sub>1</sub>, B, C (if recognized) PLUS clay, loam, silt, sand, and approximate proportion of organic content - 1/4, 1/2, 3/4, if any  
 Silt -- clay, loam, silt, sand, (other); PLUS amount of organic material-1/4,1/2,3/4, if any
- Colour - Tone - pastel, light, medium, dark, deep, speckled, spotted, (other)  
 - Base - white, gray, black, brown, yellow, orange, red, mixed, (other)

NOTE: In describing Environments and Samples pick one word only for each section; (put any additional comments under the "Remarks" column).

Remarks - Any additional information not covered by other columns that may be pertinent to interpretation of results, e.g., geological features such as faults, dikes, quartz veining, geology of float, use of fertilizers on cultivated soils, sample below culvert, old mine, etc.

General Remarks - Any comments worth noting either with respect to area in general or taking and handling of samples including analytical remarks noted in lab report.



Water samples are taken at all sites where appreciable water is present. Approximately 100 mls are sampled and placed in a clean, screw sealed, polythene bottle.

Observations are made at each site regarding the environment and nature of the sample. The same standard sheet that is used for soil sampling is employed.

#### Rock Chips

Composite rock chip samples generally consist of some ten small fragments broken from unweathered outcrop with a steel hammer. Each fragment weighs some 50 gms. Samples are placed in strong polythene bags and sealed with non-contaminating wire tabs. Samples are restricted to a single rock type and obvious mineralization is avoided.

Soil, sediment and rock samples are packed securely in cardboard boxes or canvas sacks and dispatched by road to the AMAX geochemical laboratory in Vancouver.

#### SAMPLE PREPARATION

Packages of samples are opened as soon as they arrive at the laboratory and the bags placed in numerical sequence in an electrically heated sample drier (maximum temperature 70°C).

After drying soil and sediment samples they are lightly pounded with a wooden block to break up aggregates of fine particles and are then passed through a 35 mesh stainless steel sieve. The coarse material is discarded and the minus 35 mesh fraction replaced in the original bag providing that this is undamaged and

not excessively dirty.

Rock samples are exposed to the air until the outside surfaces are dry; only if abnormally wet are rocks placed in the sample drier. Rock samples are processed in such manner that a fully representative  $\frac{1}{2}$  g sample can be obtained for analysis. The entire amount of each sample is passed through a jaw crusher and thus reduced to fragments of 2 mm size or less. A minimum of 1 kg is then passed through a pulverizer with plates set such that 95% of the product will pass through a 100 mesh screen. Where samples are appreciably heavier than 2 kg the material is split after jaw crushing by means of a Jones splitter. After pulverizing the sample is mixed by rolling on paper and is then placed in a Kraft paper bag.

#### WEIGHING AND DIGESTION FOR Cu and Mo ANALYSIS

Digestion tubes (100 x 16 mm) are marked at the 5 ml level with a diamond pencil. Tubes are cleaned with hot water and concentrated HCl. 0.5 g samples are weighed accurately, using a Fisher Dial-0-Gram balance, and placed in the appropriate tubes.

To each of the samples thus prepared are added 2 ml of an acid mixture comprising 15% nitric and 85% perchloric acids. Racks of tubes are then placed on an electrical hot plate, brought to a gentle boil ( $\frac{1}{2}$  hour) and digested for  $4\frac{1}{2}$  hours. Samples unusually rich in organic material are first burned in a porcelain crucible heated by a bunsen burner before the acid mixture is

added. Digestion is performed in a stainless steel fume hood.

After digestion tubes are removed from the hot plate and the volume is brought up to 5 ml with deionized water. The tubes are shaken to mix the solution and then centrifuged for one minute. The resulting clear upper layer is used for Cu and Mo determination.

MOLYBDENUM DETERMINATION

1. Transfer a 1 ml aliquot of digestion solution into a clean test tube.
2. Add 2 ml of a freshly prepared mixture comprising 1:1 5% KSCN solution and 15% SnCl<sub>2</sub> solution.
3. Make up to 10 mls with demineralized water.
4. Add 1 ml isopropyl ether, cork tube and shake for 45 minutes.
5. Estimate Mo content by matching intensity of amber-yellow colour in solvent phase with a standard series.

Standard Molybdenum Solutions

Stock Standard Solution (100 µg/ml) - Dissolve .015 gms of MoO<sub>3</sub> in 5 ml conc. NaOH and make up to 100 ml with demineralized H<sub>2</sub>O. This solution must be made up bi-monthly.

Working Standard Solution (10 µg/ml) - Pipette 10 ml of 100 gamma/ml stock solution in a 100 ml volumetric flask and make up to 100 ml with demineralized H<sub>2</sub>O.

Molybdenum Standards of Analyses for Soil, Silt & Rock Chip - To 11 clean 16 x 100 mm test tubes marked at 5 ml mark, pipette the following amounts of standard solution:

<u>mls of 10 µg/ml Mo Solution</u>	<u>ppm</u>
0.2	4
0.4	8
0.8	16
1.2	24
2.0	40

<u>mls of 100 µg/ml Mo Solution</u>	<u>ppm</u>
0.4	80
0.6	120
0.8	160
1.2	240
1.6	320
2.0	400

- then make up to 5 ml

To 16 x 150 ml test tubes pipette 1 ml from each of the 11 standards made above. After the standard solution has been added, the following solutions are to be pipetted in the standard tubes.

- 1) 1 ml of HCl
- 2) 2 drops of  $\text{FeCl}_3$  (1% solution)
- 3) 1 ml of 5% KSCN solution
- 4) 1 ml of 15%  $\text{SnCl}_2$  solution
- 5) Make up to 10 ml with  $\text{H}_2\text{O}$
- 6) 1 ml isopropyl ether
- 7) Stopper and shake for 45 seconds.

#### Molybdenum Determination in Waters

- 1) Measure pH of samples with pH meter
- 2) Transfer 50 mls of sample into 125 ml separatory funnel
- 3) Add 5 mls dilute (1:1) HCl
- 4) Add 4 mls of a mixture comprising 1 part 1%  $\text{FeCl}_3$  solution to 3 parts 5% KSCN solution and shake
- 5) Add 3 mls 15%  $\text{SnCl}_2$
- 6) Add 2 mls isopropyl ether, shake for 30 seconds and allow phases to settle
- 7) Drain off water layers, retaining organic layer into 13 x 100 mm test tube. Compare with standards.

Molybdenum Standards - Label 10 clean test tubes 0, 4, 10, 16, 20, 40, 50, 60, 70, and 80 ppb, to the respective tubes pipette the following volumes of 1 gamma/ml Mo work solution:

<u>mls of 1 <math>\mu\text{g}/\text{ml}</math> Mo Solution</u>	<u>ppb</u>
.20	4
.50	10
.80	16
1.00	20
2.00	40
2.50	50
3.00	60
3.50	70
4.00	80

After the standard solution has been added, the following solutions are to be pipetted into the standard tubes:

- 1) 1 ml 1:1 HCl solution
- 2) 2 drops of 1%  $\text{Fe}_2(\text{SO}_4)_3(\text{NH}_4)_2\text{SO}_4$
- 3) 2 mls of 15% KSCN solution
- 4) 1 ml of 15%  $\text{SnCl}_2$  solution
- 5) 1 ml of isopropyl ether
- 6) Stopper and shake for 45 seconds.

COPPER DETERMINATION

The digestion solution is sprayed directly into a Perkin-Elmer 290B atomic absorption spectrophotometer from which the Cu concentration is read on the scale.

Instrument settings are:

Coarse Wavelength Control	280.1
Slit Width	7 A°
Lamp Current	5 ma
Acetylene Flow	14.0
Air Flow	14.0

The instrument is calibrated such that the maximum scale reading corresponds to 20 ppm in solution ie: 200 ppm in the sample. Samples with Cu contents of over 200 ppm are diluted until a reading is obtained on the scale. It is practical to measure concentrations in the range 5 ppm to 1%.

pH MEASUREMENTS

Soil and drainage sediment samples are dampened with water in a glass beaker to a pasty consistency. Demineralized water is used for this purpose as it has a low buffer capacity and thus does not influence the pH of the sample. Measurement is made with a Fisher Acumet pH meter. Electrodes are stored in buffer overnight. A 30 minute warm up time is allowed for the instrument each morning. A 10 ml aliquot is taken from water samples for pH measurement.

1969 Geological Report

ROB CLAIMS - NADIRA COPPER PROPERTY

Alberni Mining Division  
92 C 15

AMAX Vancouver Office

November 24, 1969

J.E. Christoffersen

D.K. Mustard, P. Eng. (B.C.)

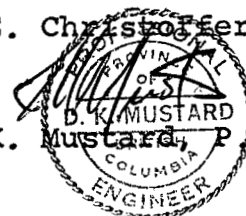




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Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2115 MAP.....

INTRODUCTION

The Nadira Property was staked by AMAX crews in November 1968. Forty-six claims are currently in good standing. Prior to our claims, the prospect was held for several years by Cowichan Copper Company of Vancouver. Some copper production is reported from the site in 1955 when Cowichan Copper developed several open cuts in a number of high grade pockets. The ore was shipped to Cowichan's Mill at the Blue Grouse Mine near the town of Honeymoon Bay some 16 miles east of Nadira.

Location and Access

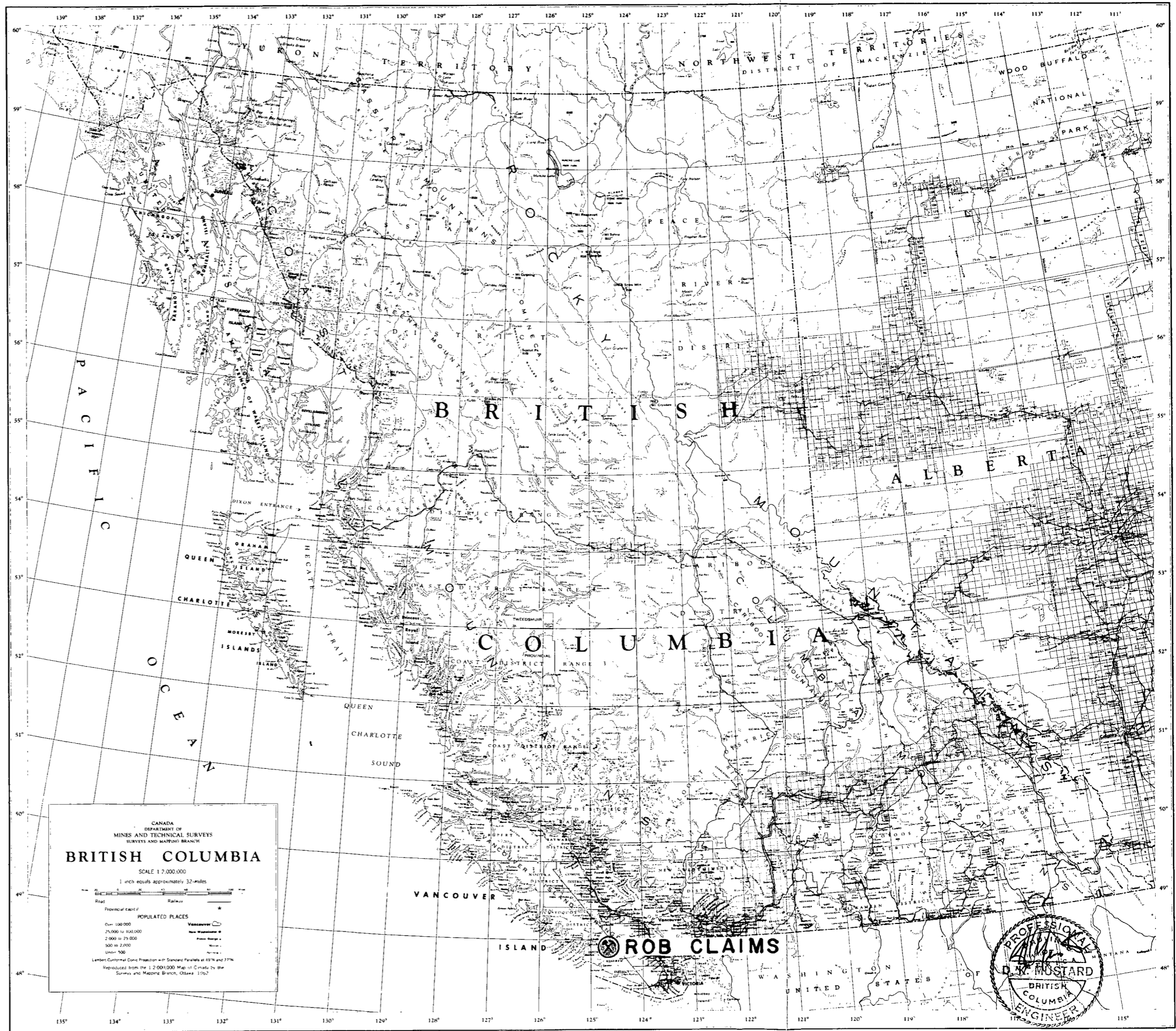
The Nadira Prospect is approximately six miles west of Cowichan Lake on Vancouver Island (Figure 1). The claims can be reached by four wheel drive vehicles via logging roads, some of which are barely passable, from the village at Lake Cowichan. A complex road network has formed over many years of timber production so that considerable familiarity with the district is desirable.

Claims

Forty-six full claims and two fractions are currently in good standing on the Nadira Property (See Figure 2). Staking and anniversary dates are listed below.

	<u>Staked</u>	<u>Date Recorded</u>
Rob #1 - 4 inclusive	November 21, 1968	December 2, 1968
Rob #5 -24 inclusive	November 23, 1968	December 2, 1968
Rob #25-32 inclusive	June 16, 1969	June 27, 1969
Rob #33-36 incl., 38, 40	June 18, 1969	June 27, 1969
Rob #41-44 inclusive	June 21, 1969	June 27, 1969
Rob #37, 39	June 25, 1969	June 27, 1969
Rob #1, 2 fractional	June 26, 1969	June 27, 1969

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. **2115** MAP **#1**



LOCATION MAP

For assessment purposes, all claims have been grouped as follows.

RED Group - Rob #2, #4, #6-20 inclusive	
Rob #1, #2 fractional	19 claims
BLUE Group - Rob #1, #3, #5, #21-44 inclusive	27 claims

#### Description of Work Done

Approximately four weeks were spent on the Rob claims between June 16 and September 10, 1969. Crews operated from a camp located on Parker Creek. Work consisted of the following.

- Geological mapping (1"=400') - 3 square miles
- Geological mapping (1"=100') - 1 square mile
- Geochemical soil and stream sampling, 200 samples collected, analyzed at AMAX Burnaby laboratory for Cu and Mo

Bulldozer and hand trenching as follows:

- Rob Claim #3, overburden 400 linear feet, (150 cu.yds.), Rock 125 linear feet (20 cu.yds.)
- Rob Claim #4, rock trenches, 350 linear feet (60 cu.yds.)
- Rob Claim #1, 100 linear feet (20 cu.yds.), Overburden, rock 100 linear feet (50 cu.yds.)
- Old roads, largely impassable, were graded and cleared of windfalls, not for assessment work

Geological work was supervised by J.E. Christoffersen and the geochemical work by R.F. Horsnail.

#### Physical Features

The Rob claims are situated near the summit and on moderate to steep slopes of a prominent ridge immediately west of Tuck Lake and Parker Creek. The terrain is thickly wooded and considerable underbrush is encountered in creek beds and swampy depressions. Average elevation is 1000 feet and nearby summits are 2000 feet above sea level. Overburden is not excessive, being

two to five feet thick, and bedrock is usually well exposed in gullies, logged areas and steep terrain. Rainfall is considerable here as elsewhere on Vancouver Island; 100 inches per year can be expected.

#### LITHOLOGY

The geology of the Rob Claim Group and the surrounding area is shown in Figures 3 and 4.

#### Volcanic Rocks (Unit 1)

Volcanic rocks at Nadira belong to the Vancouver Group of Triassic Age, which are divided into three units on the property. Light green and grey, fine grained lithic tuffs occur east of the property and dark andesitic and dioritic flow rocks predominate in the central and eastern part of the claim group. Some of the fine grained rocks contain amygdules filled with quartz and epidote. Dioritic varieties are dark and medium grained (1-2 mm), and normally are inequigranular to porphyritic, phenocrysts being plagioclase and indistinct mafic minerals.

Greywacke is the dominant rock type along the western border of the claims. It is medium grained (2-3 mm) and dark green to reddish brown in color. Grains of feldspar, mafic fragments, and rare lithic fragments are set in a soft, dark colored matrix.

Minor lenses of finely banded sediments are interbedded with the above units. These are light green to grey in color and frequently cherty in appearance.

### Limestone (Unit 2, Sutton Limestone)

Limestone of the Sutton Formation outcrops east of Parker Creek where it forms several northwest-striking bands totalling some 100 feet in thickness. Moderate dips to the southwest are common. Massive, cliff-forming rocks of the Karmutsen Group outcrop to the northeast, and most of the sedimentary rocks outcropping to the southwest are believed to be part of the Lower Bonanza Group. The Sutton Formation here is a fine grained crystalline limestone weathering light grey. It is frequently laced with thin stringers of recrystallized calcite, and rarely, contains a few narrow seams of thinly bedded argillite.

Identical limestone occurs on the main showings west of Parker Creek where it is seen as small outcroppings and unreplaced blocks in skarn. Bedding in associated sediments and relict banding in skarn strikes northwest and dips southeast, parallel to bedding in the Sutton limestone east of Parker Creek.

### Diorite (Unit 3)

Diorite of Jurassic Age outcrops on the northeast portion of the map area, and a narrow tongue extends southerly down Parker Creek. The diorite is a medium grained (2-4 mm) rock made up of about 75% blocky white feldspar and about 25% hornblende laths. It is normally leucocratic but may be notably darker where it is sheared. Near the contact with the volcanics the diorite grades rapidly into a porphyritic rock of hornblende needles set in an aphanitic grey groundmass. At the contact, the

volcanics are hornfelsic for a few tens of feet from the contact.

Feldspar Porphyry and Diorite Porphyry(Units 4 and 5)

Feldspar porphyry dykes occur over the entire map area and cut all the above units. The rock is leucocratic, being greyish-white in color. It is characterized by blocky white feldspar phenocrysts (1-2 mm) set in a fine grained matrix. No mafics are present. Diorite porphyry occurs as dykes near the old workings of the Cowichan Copper Company. It is identical to the feldspar porphyry except that it contains needles of hornblende up to 4 mm in length.

Dark Diorite (Unit 6)

Dark diorite dykes occur in close association with feldspar porphyry dykes near the old workings. In places the diorite borders feldspar porphyry but the intrusive relationships are not known.

The dark diorite is medium grained (2-3 mm) varying from equigranular to porphyritic in texture. It contains grey plagioclase, indistinct chloritized hornblende and dusty magnetite.

Skarn (Unit 7)

Outcrops of skarn, in the central part of the property, form a discontinuous band of rocks about 400 feet thick that trend north-northwest. Unreplaced blocks of barren limestone are common in these outcrops.

The skarn has been divided into three distinct types and are described below.

1) Black Skarn

As the name implies, this type is dark due largely to the presence of ilvaite. Gangue minerals are light brown garnet, actinolite and ilvaite, a rare Ca Fe silicate black in colour. Ore minerals are disseminated and massive magnetite, chalcopyrite, and lesser amounts of bornite.

2) Green Skarn

This skarn is closely associated with the black type, and at one location, the contact between the green and black skarns is concordant with the regional structure. The green skarn is probably an altered volcanic consisting of epidote and lesser amounts of actinolite and garnet. Small amounts of chalcopyrite, pyrite, and hematite are present.

3) Banded Skarn

This type, which is apparently unrelated to the first two types, outcrops in a creek bed 2500 feet southeast of the main showings. It is a laminated skarn consisting of epidote and actinolite interlayered with magnetite, pyrrhotite and chalcopyrite. The bands strike northwest and dip southwest.

STRUCTURE

The geological trend on the eastern part of the map area is defined by northerly trending folds. In the vicinity of the main showings the volcanics strike northwest and dip moderately to steeply to the west (into the hill).

Dyke rocks trend north to north-northeast, and this



direction coincides with major faults in the area. The long tongue of diorite in Parker Creek undoubtedly intruded along a major northsouth break in the volcanics. Subsequent movement along the fault has sheared the diorite. North-northeast and northwest trending faults offset dyke rocks and skarn, near the main showing adding greatly to the complexity of the geology.

#### GEOCHEMISTRY

The location of water, stream sediment and soil samples are shown in Figure 5. The geochemical samples confirmed the existence of copper anomalies in streams draining the area around the main showings. No new anomalies were discovered.

Detailed soil sampling appears to restrict the area of interest to the vicinity of the main showings. Threshold for copper in the soil is considered to lie in the 80-100 ppm range. Very high ( $> 500$  ppm) copper contents in some soils can be attributed to nearby mineralized skarn (float or outcrop) in most cases.

#### ECONOMIC GEOLOGY

Magnetite, chalcopyrite and minor bornite and pyrite occur in numerous skarn outcrops over an area of about 2000 x 400 feet (see Figures 3 and 4). A few other skarn outcrops occur outside this area.

Sulphides are erratically distributed in the black skarn as lenses, blebs, fracture fillings, and replacements of ilvaite prisms. Grades as high as 7% copper have been reported from this

rock. The green skarn is generally weakly mineralized, containing disseminated chalcopyrite with minor amounts of pyrite and hematite. Banded skarn appears to be very rich in copper; however, only one small outcrop of this rock type was found.

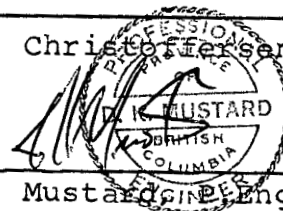
Minor disseminated chalcopyrite and pyrite occur in the volcanics, usually associated with epidote and quartz filled amygdules. In Parker Creek, trace amounts of chalcopyrite and galena were found in limestone and lenses of pyrite occur in sheared diorite.

AMAX Vancouver Office.

November 24, 1969

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J.E. Christoffersen



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D.K. Mustard, Eng. (B.C.)

ROB MINERAL CLAIMS

Rob #1 & #2 Fractional, Rob #2, #4, #6-20 inclusive - Red Group

Rob #1, #3, #5, #21-44 inclusive - Blue Group

Geological mapping (1" = 400') - 3 square miles  
Geological mapping (1' = 100') - 1 square mile  
Geochemical soil and stream sampling - 200 samples

Bulldozer and hand trenching

Rob #1 - overburden 100 linear feet, rock 100 linear feet  
Rob #3 - overburden 400 linear feet, rock 125 linear feet  
Rob #4 - rock trenches 350 linear feet  
Old roads were graded and cleared of windfalls, not for assessment work

Personnel and Salaries

JE Christoffersen, B.Sc. Geologist I/C, 100 Mineola Rd., Port Credit, Ontario	40 days @ \$36.00/day	\$ 1,440.00
RF Horsnail, PhD. Geochemist, 1945 Barclay Street, Vancouver, B.C.	3 days @ \$60.00/day	180.00
PE Fox, PhD. Geologist, 1721 Oughton Drive, Port Coquitlam, B.C.	5 days @ \$66.00/day	330.00
D. Colley, Jr. Assistant, 4359 Harder Road, Victoria, B.C.	24 days @ \$13.00/day	312.00
M. Legros, Jr. Assistant, 16 Lake Street, Huntingdon, Quebec.	28 days @ \$12.00/day	336.00
W. Deans, Prospector, Box 619, Lake Cowichan, B.C.	36 days @ \$20.00/day	720.00
F. Lehman, Prospector, 618 Cook Street, Victoria, B.C.	41 days @ \$15.00/day	615.00
M. Fenwick-Wilson, Jr. Assistant, Box 241, Osoyoos, B.C.	3 days @ \$16.00/day	48.00
K. Carter, Senior Assistant, 247 Balmoral Road, North Vancouver, B.C.	15 days @ \$19.00/day	285.00
		\$ 4,266.00

Accommodation and Board

195 man days @ \$6.00/day \$ 1,170.00

Geochemical Samples - analyzed at AMAX Laboratory,  
2225 Springer Ave., North Burnaby, B.C.  
200 samples for Cu and Mo \$ 800.00

Trenching - overburden and rock, road preparation.  
Contractor W.O. Brown Ltd., Box 257, Duncan, B.C. \$ 995.00

Material and Supplies - camp construction \$ 100.00

Drafting and report preparation \$ 100.00

TOTAL \$ 7,431.00

