

1980 Geochemical and Geological
Assessment Report

TITLE Anticlimax Property
CLAIMS Hunch 1 to 5 inclusive
COMMODITY Mo
LOCATED 20 km north-^{west}~~north~~ of Little Fort
Latitude 51°35½'N Longitude 120°18½'W
Kamloops Mining Division 92 P/9W
BY S.G. Enns
FOR AMAX of Canada Limited
WORK PERIOD June 1 to August 22, 1980

AMAX VANCOUVER OFFICE

3492

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SUMMARY

This report presents results on geological mapping and geochemical soil sampling on the HUNCH 1 to 5 claims of the Anticlimax property conducted between June 1 and August 22, 1980. The property consists of five claims totalling 81 units, wholly owned by AMAX of Canada Limited and located 20 km north-northwest of Little Fort, B.C.

The claims surround the old Anticlimax molybdenite prospect, and cover a portion of the Early Tertiary high-level granite stock (Tuloon Stock) situated in the Quesnel Trough near its eastern fault-bounded contact with the Shuswap Metamorphic Complex. Jurassic andesitic agglomerate forms the country rock to the mineralized Tuloon stock, which consists of leucocratic quartz feldspar porphyry, leucocratic coarse granite, aplite, quartz porphyry, felsite and a late quartz feldspar porphyry. Mineralization near the southeast end of the stock consists of sparse quartz-molybdenite veinlets and minor white quartz-wolframite veins. These veins are commonly accompanied by quartz-sericite-pyrite envelopes.

Soil sampling traverses over the property outlined five anomalous environments. These are:

- 1) a strong W and Mo anomaly over mineralized quartz feldspar porphyry at the southeast end of the Tuloon stock
- 2) a strong Ag anomaly with elevated Mo background partly coincident with the northwest contact zone of the stock
- 3) a Zn-Mo anomaly immediately east of the road east of Moose Lake associated with black argillite
- 4) a weak Zn anomaly in the southeast corner of the Hunch 2 claim overlying argillite and andesitic agglomerate
- 5) an unexplained local Mo anomaly immediately east of central Tuloon Lake.

INTRODUCTION

General Statement

Results are presented of 1980 geologic mapping and geochemical sampling on the HUNCH 1-5 claims. Work was conducted during the period June 1 to August 22, 1980 by S. Enns and S. Gentleman assisted by S. Stallard and G. Skok.

Location, Access and Topography

The HUNCH claims (81 units) surround the old Anticlimax property and are situated near the headwaters of Lemieux and Fourteen Mile Creeks, immediately south of Taweel Lake, approximately 20 km north-northwest of Little Fort. The claims are centred at latitude $51^{\circ}35\frac{1}{2}'$, longitude $120^{\circ}18\frac{1}{2}'W$.

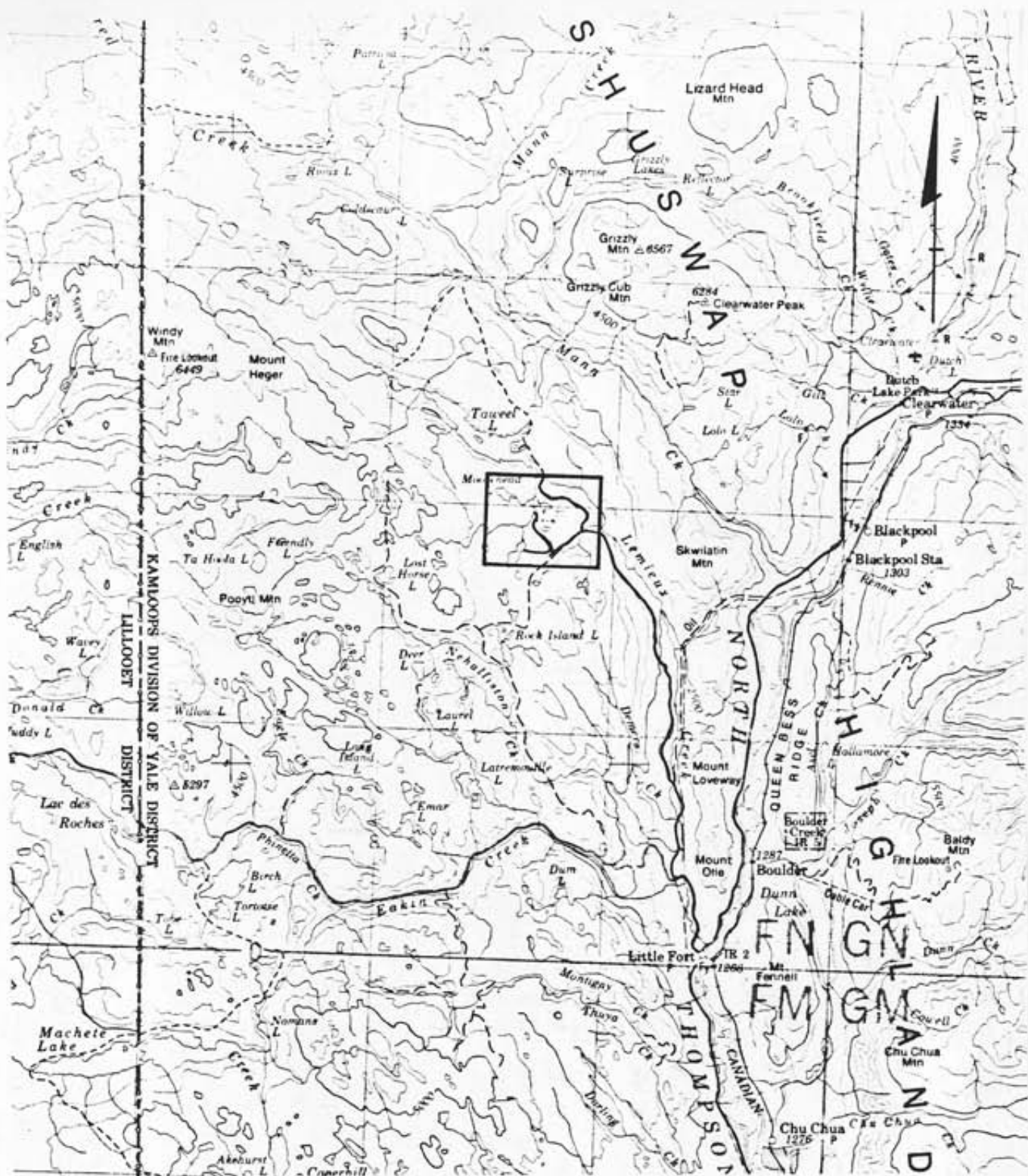
Access is by road approximately 25 km from Little Fort, along Lemieux Creek. The last 12 km require a four-wheel drive vehicle, particularly in wet weather.

Accommodations are available at the Tuloon Lake Lodge and the Nehalliston Fishing Lodge on the south tip of Taweel Lake.

The property lies near the eastern border of the Fraser Plateau just within the Thompson Plateau physiographic province. Topography is gently rolling with elevations ranging from 3,500 feet (1370 m) to 4,500 feet (1070 m). Bush is relatively open jackpine and outcrop is scarce except along ridge tops; the low lying areas are commonly occupied by wet swamps and thicker bush consisting of willow, alder and devil's club in a few places.

Claims Data

The Hunch 1 to 5 claims are located in the Kamloops Mining Division and their disposition is shown on Figure 2. These claims surround eight prior claims (Seven Up, Blue Jay, Moose, etc.) which cover most of the Anticlimax prospect and are owned by Ken Calder of White Rock, B.C.



AMAX OF CANADA LIMITED

ANTICLIMAX PROPERTY
 KAMLOOPS MINING DIVISION - BRITISH COLUMBIA

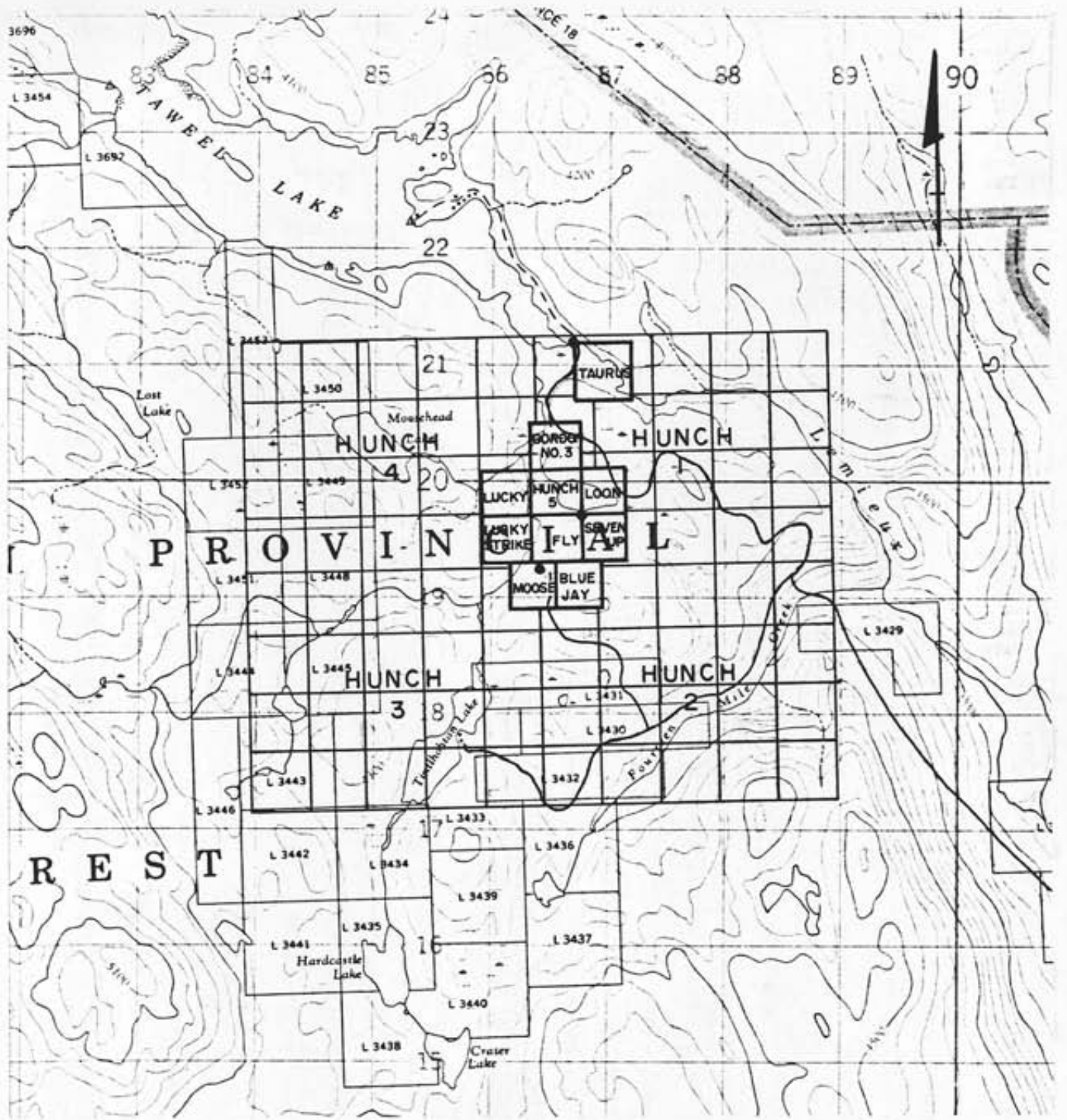
LOCATION MAP



1:250,000

N.T.S. Ref. 92 P 9

FIG. 1



AMAX OF CANADA LIMITED

ANTICLIMAX PROPERTY
 KAMLOOPS MINING DIVISION - BRITISH COLUMBIA

CLAIM MAP



1:50,000

N.T.S. Ref. 92 P 9

FIG. 2

Pertinent claims data are summarized in the following table:

CLAIM	(Units)	Record No.	Type	Date of		
				Location	Recording	Expiry
Hunch 1	20	2241	MGS	10/21/79	10/24/79	10/24/82 *
Hunch 2	20	2242	MGS	10/21/79	10/24/79	10/24/82 *
Hunch 3	20	2243	MGS	10/21/79	10/24/79	10/24/82 *
Hunch 4	20	2244	MGS	10/21/79	10/24/79	10/24/82 *
Hunch 5	1	49270	MGS	01/31/80	02/05/80	02/05/83 *

* After application of 1980 work to claims

Seven Up	1	13874	2 Post	07/24/54	08/09/54	08/09/89
Blue Jay	1	13875	2 Post	07/24/54	08/09/54	08/09/89
Moose	1	13876	2 Post	07/24/54	08/09/54	08/09/89
Lucky Strike	1	13877	2 Post	07/24/54	08/09/54	08/09/89
Loon	1	46679	2 Post	07/02/64	07/06/64	07/06/89
Fly	1	46680	2 Post	07/02/64	07/06/64	07/06/89
Lucky	1	46681	2 Post	07/02/64	07/06/64	07/06/89
Gordon No. 3	1	43991	2 Post	07/10/63	07/22/63	07/22/89

REGIONAL GEOLOGY

The property lies within the Quesnel Trough, near its eastern border with the Shuswap Metamorphic Complex. A northwest splay of the north-trending North Thompson fault passes near the northern margin of the property.

A small mineralized granitic stock (the Tuloon Stock) of possibly Early Tertiary age intruded Triassic-Jurassic augite, andesitic agglomerate and black argillite, and is the focus of exploration interest. The Raft batholith, 15 km to the north and the Baldy batholith, 25 km to the south-east have both been dated as Cretaceous in age.

Block faults of mid-Tertiary age, common throughout the Central British Columbia Interior probably underlie prominent north-northeast trending valleys in the vicinity of the property.

Ice movement during the last continental glaciation on the property was towards the south-southeast.

PROPERTY GEOLOGY

General Statement

Field mapping was conducted on the HUNCH 1 to 5 claims surrounding the main Anticlimax showing using hip-chain and compass traverses. A 1:5,000 scale uncontrolled air-photo mosaic was used for ground control. Much of the country is overlain by glacial drift and outcrops are sparse.

Rock Units

Six mappable units in the area of Figure 3 are described in order of decreasing age.

Triassic-Jurassic black argillite, grey phyllite and minor greywacke (Unit 1) underlies the northeast portion of the property. The strata display well developed slaty cleavage, generally subparallel to the northwesterly striking bedding.

Siliceous interbeds of quartzite and thinly bedded tuff are present. These strata generally form subdued outcrops with best exposures in incised stream courses along Lemieux and an unnamed Creek in the southeast corner of Hunch 2.

Hornfelsed argillite (Unit 1b) is present in the vicinity of the Tuloon stock east of Moosehead Lake and near Rong Lake.

Dark green andesitic agglomerate (Unit 2) forms rounded and massive outcrops over much of the property. Large green clasts 10 to 30 cm across and composed of coarse pyroxene porphyry andesite are set in a crystal and lithic matrix of chlorite, pyroxene and biotite. Rare, thin, fine grained black pyroxene porphyry flows are present. Patches and irregular veins of epidote, calcite and minor pyrite are present locally. In the vicinity of Tuloon Lake argillite is interbedded with agglomerate.

Leucocratic quartz feldspar porphyry (Unit 3) of the Tuloon stock underlies Hunch 2. This unit, best exposed in the old trenches east of Rong Lake is made up of 20-40% smokey bipyramidal quartz, 20-30% subhedral 3-6 mm orthoclase and 10-15% subhedral 1-2 mm plagioclase. Biotite is usually absent and textural variation, particularly in grain size is common. Feldspar and quartz phenocrysts are locally foliated.

Coarse grained leucocratic granite (Unit 4) identical to that in the main Tuloon stock is exposed in small isolated outcrops east of Moosehead Lake. This unit is compositionally very similar to the porphyry unit and varies texturally from subporphyritic to equigranular. Although biotite deficient, the rock contains 1-2% biotite locally in pockets. Field relations on the Anticlimax prospect suggest that Unit 4 is related to, though slightly younger than, quartz feldspar porphyry (Unit 3).

One small isolated outcrop of aplite (Unit 5) was mapped west of Moose Lake. Relation of this aplite to either Unit 3 or 4 is unknown. At least two phases of aplite are known to be present within the main Tuloon stock on the Anticlimax prospect.

Quartz feldspar porphyry (Unit 6) is a late phase dyke exposed in Trench 14, east of Rong Lake.

Basalt dykes (Unit 7) are the youngest rocks in the vicinity and have been mapped only on the Anticlimax prospect.

Structure

There is an overall northwesterly structural grain reflected by the slaty cleavage of the black argillite, interbedded quartzose bands in the sediment and the elongate direction of the Tuloon stock.

Several inferred transverse topographic and photo lineaments are indicated on Figure 3. The possibility of differential uplift of segments of the mineralized Tuloon stock is suggested by these transverse structures.

Mineralization and Alteration

One 10 cm quartz-wolframite-pyrite vein is exposed in Trench 14 east of Rong Lake. Molybdenite occurs in widespaced quartz-molybdenite veinlets commonly accompanied by envelopes of quartz-sericite-pyrite. Rare fluorite accompanies both types of veins. The rock has, overall, an unaltered appearance.

Hornfels alteration of argillite is present along the stream draining Rong Lake and also east of Moosehead Lake.

GEOCHEMICAL SURVEY

General Statement

A total of 303 soil and stream sediment samples were collected along traverses spaced approximately 500 m apart (Figure 4). Soil samples were collected at a depth of 20 cm every 100 m, and consisted of the iron rich (B) horizon of woodland brown soils.

All samples were submitted to Rossbacher Laboratories, Burnaby, B.C. and analyzed by Atomic Absorption for Mo, Cu, Ag, Pb, Zn. Some samples were additionally analyzed for W and F. Analytical methods are given in Appendix I.

Results

Analysis for individual samples are given in Appendix I and anomalous areas are outlined on Figure 4 using the following thresholds determined by inspection:

<u>Metal</u>	<u>Threshold (ppm)</u>	<u>Peak (ppm)</u>
Mo	+ 10	86
Ag	+ 2.0	5.0
Zn	+300	640
W	+ 50	450

A broad and intense W-Mo soil anomaly overlies the southeast portion of the intrusive stock on Hunch 2, in the vicinity of Rong Lake.

Several soil samples taken immediately east of central Tuloon Lake range in value from 12 to 30 ppm Mo. This anomaly is unexplained.

A strong Ag anomaly with soils ranging from 2.0 to 5.0 ppm Ag and with associated elevated background Mo values is situated on Hunch 4 between Moosehead and Moose Lakes and is open to the south. This anomaly is underlain by small outcrops of andesitic agglomerate, hornfels altered sediments and granite and in part coincides with the inferred northwest

contact of the Tuloon stock. A stream sediment taken in lower Lost Creek contains 27 ppm Mo.

A small Zn-Ag anomaly with soils 300 to 600 ppm Zn and Mo ranging 6 to 25 ppm lies east of the road, east of Moose Lake. This anomaly is underlain by black argillite and phyllite.

On the extreme southeast corner of Hunch 2 claim several soil samples taken over argillite and andesitic agglomerate contain weakly anomalous Zn values (364 to 422 ppm).

S. Enns. Nov. 21/80.

S.G. Enns

APPENDIX I

Kossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

BURNABY, B.C.
CANADA
TELEPHONE 299 6910
AREA CODE 604

April 30, 1974

SUMMARY OF SOME ANALYTICAL TECHNIQUES CURRENTLY IN USE AT ROSSBACHER LABORATORY

A ANALYTICAL TECHNIQUES FOR GEOCHEMICAL SAMPLES

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 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

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 or air.

Procedures for Collection and Processing
of Geochemical Samples

Analytical Methods for Ag, Mo, Cu, Pb, Zn,
Fe, Mn, Ni, Co and W in sediments and soils;
Mo, Cu, Zn, Ni and SO_4^{--} in waters.

Amex Exploration, Inc.
Vancouver Office.

September 1970

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.

Drainage Sediments

Active sediments are taken by hand 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. Water samples are taken at all appropriate sites. Approximately 100 ml 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.

screen. When samples are appreciably heavier than 7 mg the material is split after jaw crushing by means of a Jones mill. After pulverizing the sample is mixed by rolling on paper and is then placed in a Kraft paper bag.

SAMPLE PREPARATION

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-G-Gran 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 5% perchloric acids. Ends 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, Mo, Pb, Sn, Ag, Fe, Mn, Ni and Co determination by a Perkin-Elmer 30B atomic absorption spectrophotometer. Analytical procedures are given on the following pages.

ANALYTICAL PROCEDURES

Silver

1. Scope - This procedure covers a range of silver in the sample from less than .5 to 1000 ppm
2. Summary of Method - The sample is treated with nitric and perchloric acid mixture to oxidize organics and sulphides. The silver then is present as perchlorate in aqueous solution. The concentration is determined by atomic absorption spectrophotometer
3. Interferences - Silver below 1 gamma/ml is not very stable in solution. Maintaining the solution in 20% perchloric prevents silver being absorbed on the glass container. Determination must be completed on the same day as the digestion.

Samples high in dissolved solids, especially calcium, cause high background absorbance. This background absorbance must be corrected using an adjacent Ag line.

Silver AA Settings P.E. 290

Lamp - Ag

Current 4 ma position 3

Slit 7 A

Wavelength 3281A Dial 287.4

Fuel - acetylene - flow - 14

Oxidant - air - flow - 14

Burner - techtron AB_51 in line

Maximum Conc. 3 to 4x

Calibration

1. Set 1 gamma/ml to read 40 equivalent to 20 gamma/gm
Factor $\frac{1}{2}$ x meter reading
Check standards
4, 10, 20, 40 ppm Ag in sample
2. Set 15 gamma/ml to 100 equivalent to 100 ppm
Check standards
40, 100 ppm
Factor directly in ppm Ag
3. Rotate burner to maximum angle
Set 10.0 gamma/ml Ag to read 100
Check standards
100, 200, 400, 1000 ppm Ag
Factor 10x scale reading
4. Samples higher than 1000 ppm should be re-analyzed by assay procedure
5. Background correction for sample reading between 1 to 5 ppm
Calibrate AA in step 1
Dial wavelength to 300 (peak)
Read the samples again
Subtract the background reading from the first reading

Standards

1. 1000 gamma/ml Ag - 0.720 gm Ag_2SO_4 dissolved in 20 ml $HxIO_3$ and dilute to 500 ml
2. 100 gamma/ml Ag - 10 ml of above + 20 ml $HClO_4$, dilute to 100 ml

3. Recovery spiked standard

5 gamma/ml Ag - 5 ml 100 gamma/ml dilute to 100 ml with "mixed" acid

Working AA Standards

Pipette .2, .5, 1, 2, 5, 10 ml of 100 gamma/ml and 2, 5 ml 100 gamma/ml dilute to 100 ml with 20% $HClO_4$. This equivalent to 4, 10, 20, 40, 100, 200, 400, and 1000 ppm Ag in the sample .50 g diluted to 10 ml.

Recovery Standard

Pipette 2 ml of 5 gamma/ml Ag in mix acids into a sample and carry through the digestion. This should give a reading of 20 ppm Ag + original sample content.

Follow the general geochemical procedure for sample preparation and digestion.

For low assay Ag, the same procedure is used. Ag is then calculated in oz/ton.

$$1 \text{ ppm} = .0292 \text{ oz/ton}$$

conversion factor

$$\text{oz/ton} = .0292 \times \text{ppm Ag}$$

Mn Geochemical AA Setting

Lamp Multi element Ca, Ni, Co, Mn Cr

Current 10 #4 Slit 7A

Wave length 4030.8 Dial 425.2

Fuel - Acetylene Flow 14.0

Oxidant - Air Flow 14.0

Burner - P.E. short path (or AB 50)

Range

0 - 100 gamma/ml Factor 20x - 0 to 2000 ppm

0 - 200 gamma/ml Factor 40x - 0 to 4000 ppm

Burner 90°

0 - 1000 gamma/ml Factor 200x - 0 to 20,000 ppm

0 - 2000 gamma/ml Factor 400x - 0 to 40,000 ppm

EDTA Extraction - use AB 51 in line

0 - 20 gamma/ml Factor 4x - 0 to 400 ppm

Standards

Fisher 10,000 gamma/ml (ml)

10x Dilution 1000 gamma/ml

Pipette

.5, 1, 2, 3, 5, 8, 10, ml of 1000 gamma/ml

2, 3, 5, 8, 10, 15, 20 ml of 10,000 gamma/ml dilute to 100
mls with 20% HClO₄. This gives5, 10, 20, 30, 50, 80, 100, 200, 300, 500, 800, 1000, 1500,
2000 gamma/mlMn Geochemical AA Setting

Lamp ASL H/C Mo

Current 5 #5 Slit 7A

Wavelength 3133 Dial 260.2

Fuel - Acetylene Flow 12.0 to give 1" red feather

Oxidant - Nitrous oxide Flow 14.0

Burner - AB 50 in line

Caution read the operation using N₂O and acetylene flame at

end of general AA procedure

Range

0 - 10 gamma/ml Factor 2x - 0 to 200 ppm

Rotate burner to max. angle

0 - 50 gamma/ml Factor 10 x 0 to 1000 ppm

0 - 100 gamma/ml Factor 20 x 0 to 2000 ppm

Standards 1000 gamma/mlDissolve .750 gms MoO₃ (acid molybdic) with 20 mls H₂O, 6
lumps NaOH, when all dissolved, add 20 mls HCl, dilute to 500 mls
100 gamma/ml - 10 x dilution

Pipette

.2, .5, 1, 2, 3, 5, 8, 10 mls of 100 gamma/ml

2, 3, 5, 8, 10 mls of 1000 gamma/ml add 5 mls 10% AlCl₃
and dilute to 100 mls with 20% HClO₄

This gives

.2, .5, 1, 2, 3, 5, 8, 10, 20, 30, 50, 80, 100 gamma/ml Mo

Zn Geochemical AA Setting

Lamp Zn

Current 3 #3 Slit 29A

Wave length 2133 Dial 84.9

Fuel - Acetylene Flow 14

Oxidant - Air Flow 14

Burner - P.E. short path 90°

Range

0 - 20 gamma/ml Factor 4x - 0 to 400 ppm

0 - 50 gamma/ml Factor 10x - 0 to 1000 ppm

For Waters - Burner AB- 51 in line 1 gamma/ml read 100 to give 0
to 1000 ppb

High Zn Burner Boling in line. Wavelength 3075. Dial 250 Slit 7A

Fuel 14 Air 14.5

0 to 1000 gamma/ml read 0 to 20 Factor 400 x

Pure Standard 10,000 gamma/ml

1 gm Zn dissolved, H₂O, HCl, HNO₃, HClO₄, fumed to HClO₄ -
make up to 100 mls H₂O

1000, 100 gamma/ml and 100 ml by dilution in 20 % HClO₄

0 to 200 gamma/ml Zn use combined Cu, Ni, Co, Pb, Zn standards

Pipette

1, 2, 3, 5, 8, 10 mls of 10,000 gamma/ml - dilute to 100 mls
with 20% HClO₄ to give

100, 200, 300, 500, 800, 1000 gamma/ml Zn for high standards

Co Geochemical AA Setting

Lamp - 5 multi element

Current 10 #4 Slit 2A

Wavelength 2407 Dial 133.1

Fuel - Acetylene Flow 14

Oxidant - Air Flow 14

Burner - AB 51 in line

Range

0 - 10 gamma/ml read 100 Factor 2 x reading to 200 ppm

0 - 20 gamma ml read 100 Factor 4 x reading to 400 ppm

Burner at maximum angle

0 - 100 gamma/ml read 100 Factor 20 x reading to 2000 ppm

0 - 200 gamma/ml read 100 Factor 40 x reading to 4000 ppm

Standards - 1000 gamma/ml

1.000 gm cobalt metal dissolved in HCl, HNO₃, and fumed into
HClO₄, dilute to 1 liter

Pipette

1, 2, 10, 20 mls into 100 ml vol flasks diluted to mark
with 20% HClO₄

This gives

10, 20, 100, 200 gamma/ml Co

Mixed - combination standards of Cu, Ni, Co, Pb, Zn

of

1, 2, 5, 10, 20, 30, 50, 80, 100, 150, 200 gamma/ml are used
for calibration

Cu Geochemical AA Setting

Lamp Single Cu or

5 multi element

Current 10 for multi element #4 Slit 7A

4 for single #3 Slit 7A

Wavelength 3247 Dial 280

Burner Techtron AB 51 (For Cu in natural waters)

P.E. Short Path (For geochem)

Fuel Acetylene Flow 14

Oxidant Air Flow 14

Range

0 - 5 gamma/ml Factor 1x to 100 ppm (for low Cu)

0 - 20 gamma/ml Factor 4x to 400 ppm

Burner 90°

0 - 200 gamma/ml Factor 40x to 4000 ppm

Wavelength 2492 Dial 147

Burner in line

Range

0 - 1000 gamma/ml Factor 200x to 20,000 ppm

0 - 2000 gamma/ml Factor 400x to 40,000 ppm

Higher range than 40,000 ppm requires 10x dilution

Standards

10,000 gamma/ml

1.000 gm metal powder, H₂O, HCl, HNO₃ until dissolved, addHClO₄, fume dilute to 100 ml1000 gamma/ml 10x dilution above in 20% HClO₄2000 gamma/ml 20 mls 10,000 gamma/ml - dilute to 100 mls in
20% HClO₄100 gamma/ml 10x dilution 1000 gamma/ml dilute to 100 mls in
20% HClO₄200 gamma/ml 10x dilution 2000 gamma/ml dilute to 100 mls in
20% HClO₄

Pipette

1, 2, 3, 5, 8, 10 mls 100 gamma/ml - dilute to 100 mls with
20% HClO₄ to give 1, 2, 3, 5, 8, 10 gamma/ml

Combined standards Cu, Ni, Co, Pb, Zn

1, 2, 5, 10, 20, 30, 50, 80, 100, 150, 200 gamma/ml

Fe Geochemical AA Setting

Lamp - Fe

- Do not use multi element Fe

Current 10 #4 Slit 2A

Wavelength 3440.6 Dial 317.5

Fuel - Acetylene Flow 14.0

Oxidant - Air Flow 14.0

Burner - PE Short Path 90°

Range

0 - 5000 gamma/ml 0.1 x % - 0 to 10.0%

0 - 10,000 gamma/ml 0.2 x % - 0 to 20.0%

Higher Fe - 10 x dilution

Standards 10,000 gamma/mlWeigh 5.000 gms iron wires, into beaker, add H₂O, HCl, HNO₃,HClO₄, heat to HClO₄ fumes. Add HClO₄ to 100 mls + 100 mlsH₂O, warm, dilute to 500 mls

Pipette

1, 5, 10, 20, 30, 50, 80 mls 10,000 gamma/ml dilute to 100 mls with 20% HClO₄ to give

100, 500, 1000, 2000, 3000, 5000, 8000 gamma/ml to be equivalent to .2, 1.0, 2.0, 4.0, 6.0, 10.0%, 16.0% Fe in geochem sample

Ni Geochemical AA Setting

Lamp P.E. H/C. Ni or multi element Cu, Ni, Co, Mn, Cr

Current 10 #4, Slit 2A

Wave length 3415 Dial 312.5

Fuel - Acetylene Flow 14.0

Oxidant - Air Flow 14.0

Burner AB 51 in line

Range

0 - 20 gamma/ml Factor 4x - 0 - 400 ppm

0 - 100 gamma/ml Factor 20x - 0 - 2000 gamma

45° 0 - 200 gamma/ml Factor 40x - 0 - 4000 ppm

0 - 500 gamma/ml Factor 100x - 0 - 10,000 ppm

Ni in waters and very low ranges

Wave length 2320 Dial 113

Range 0 - 5 gamma/ml Factor 1x - 0 - 100 ppm

Standards 10,000 gamma/ml1.000 gm pure Ni metal dissolved in HCl, HNO₃, HClO₄ to perchloric fumes, dilute to 100 ml H₂O1000 gamma/ml and 100 gamma/ml Successive 10x dilutions in 20% HClO₄

1, 2, 5, 8, 10 mls of 100 gamma/ml

2, 5, 9, 10 mls 1000 gamma/ml

2, 5, 8, 10 mls 10,000 gamma/ml - dilute to 100 mls in 20%

HClO₄. This gives

1, 2, 5, 8, 10, 20, 50, 80, 100, 200, 500, 800, 1000 gamma/ml Ni

Combined Standards - Cu, Ni, Co, Pb, Zn is used as a working standard

2. Sinter in rotary for 2 to 3 minutes (Flux dull read for one minute)
3. Cool, add 10 mls H_2O , heat in sand bath to boiling, cool, let sit overnight
4. Stir, crush, and mix. Let settle
5. Take 2 ml aliquot into screw cap test tube
6. Add 7 mls $SnCl_2$, heat in hot water bath for 5 minutes ($80^\circ C$)
7. Cool to less than $15^\circ C$
8. Add 1 ml 20% KSCN, mix (if lemon yellow; compare color standard 10x)
9. Add $\frac{1}{2}$ ml extractant, cap, shake vigorously 1 minute
10. Compare color

Molybdenum in Water Samples

1. Transfer 50 mls to 125 separatory funnel
2. Add 5 ml .2% ferric chloride in conc HCl
3. Add 5 mls of mixed KSCN and $SnCl_2$
4. Add 1.2 mls isopropyl ether, shake for 1 minute, and allow phases to separate
5. Drain off water
6. Compare the color of extractant

Standardization

Pipette 0, .2, .5, 1, 2, 3, 4, 5, mls of 1 gamma/ml and 1, 1.5, 2, mls of 10 gamma/ml dilute to 50 mls with demineralized H_2O , and continue step #2.

This equivalent to

1, 4, 10, 20, 40, 60, 80, 100, 200, 300, 400 ppb Mo

Artificial color - Nabob orange extract dilute with 1:1 H_2O to methanol to match. Seal tightly

$SnCl_2$ - 15% in 15% HCl

300 gm $SnCl_2 \cdot 2H_2O$ + 300 mls HCl, until $SnCl_2$ dissolved
dilute to 2 liters

KSCN - 5% in H_2O

Mixed $SnCl_2$ - KSCN

3 parts $SnCl_2$ to 2 parts KSCN

Pb Geochemical AA Setting

Lamp ASL H/c Pb

Current 5 ma Slit 7A

Wave length 2833 Dial 208

Fuel - acetylene Flow 14

Oxidant - air Flow 14

Burner AB 51 in line

Range

0 - 20 gamma/ml to read 0 to 30. Factor 5x 0 to 500 ppm

0 - 200 gamma/ml to read 0 to 30. Factor 50x 0 to 5000 ppm

Standards - 10,000 gamma/ml

1.000 pure metal, dissolved in HNO_3 , fumed to HClO_4 make up to 100 mls in 20% HClO_4

1000 gamma/ml and 100 gamma/ml Successive 10x dilutions in 20% HClO_4

Pipette

1, 2, 5, 8, 10 mls 100 gamma/ml

2, 5, 8, 10, 20 mls 1000 gamma/ml dilute to 100 mls in 20%

HClO_4 this gives

1, 2, 5, 8, 10, 20, 50, 100, 200 gamma/ml

Combined Standards Cu, Ni, Co, Pb, Zn, are used as working standards

W in Soils and Silts

Reagents and apparatus

Test tubes - pyrex disposable

Test tubes - screw cap

Bunsen Burner

Flux - 5 parts Na_2CO_3

4 parts NaCl

1 part KNO_3 pulverized to -80 mesh

7% SnCl_2 in 70% HCl

20% KSCN in H_2O

Extractant - 1 part tri-n-butyl phosphate

9 parts carbon tetrachloride

Standards

1000 gamma/ml W

.18 gms $\text{Na}_2\text{WO}_4 \cdot 2\text{H}_2\text{O}$ dissolved in H_2O , make up to 100 mls

100 gamma/ml, 10 gamma/ml by dilution

Standardization

Pipette .5, 1, 2, 3, 5, 8, 10 ml of 10 gamma/ml

and 1.5, 2 mls of 100 gamma/ml - dilute to 10 mls

continue from step #4

Artificial colors - Nabob pure Lemon Extract, dilute with 1:1 ethanol and water to match. Tightly seal these for permanent standards

Procedure

1. Weigh 1.0 gram sample, add 2 gm flux, mix

Water Samples Run for AA

1. Cu - 2 gamma/ml reads 80 scale therefore 1 unit = 25 ppb
2. Zn - 1 gamma/ml reads full scale therefore 1 unit = 10 ppb
3. Ni - 2.5 gamma/ml reads 50 scale therefore 1 unit = 50 ppb

Burner: long slot techtron burner in line

Sulphate in Natural Waters

1. Pipette 0.5 ml sulphate reagent mix into a colorimetric tube
2. Add 5 ml water sample and mix
3. Read at 343 μ against a demineralized water blank
4. Read again at 400 μ and subtract from sulphate reading
5. Calculate ppm sulphate from the graph


Reagent

Dissolve 54 grams red mercuric oxide (J.T. Baker 2620- Can Lab) in 185 ml 70% perchloric acid and 20 ml H₂O, shake for one hour. Add 46.3 grams ferric perchlorate [Fe(ClO₄)₃ . 6H₂O] (GFS 39) and 47 grams aluminum perchlorate [Al (ClO₄)₃ . 3H₂O] (GFS 2) Add 400 ml water to dissolve, let settle overnight, decant into bottle and make to 1 liter

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 Acument 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.

ROSSBACHER LABORATORY



P. Rossbacher

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

2225 S. SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604
CERTIFICATE NO. 80181-1

INVOICE NO.

DATE ANALYSED JUNE 20, 1980
PROJECT 1064, ANTICLIMAX

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	No.
01	WIPSS 1		10	326	2.6	540	16	01
02	2		3	58	0.8	220	10	02
03	3		3	36	0.4	276	8	03
04	4		2	60	1.0	264	12	04
05	5		6	52	0.4	176	8	05
06	6		4	32	0.4	156	8	06
07	7		1	20	0.4	130	8	07
08	8		1	42	0.6	120	8	08
09	9		4	84	1.0	364	6	09
10	10		3	32	0.2	122	4	10
11	11		6	68	0.2	264	6	11
12	12		4	42	0.4	272	8	12
13	13		3	64	0.2	212	4	13
14	14		1	26	0.4	150	6	14
15	15		3	22	0.2	128	4	15
16	16		2	36	0.4	220	6	16
17	17		3	48	0.2	126	4	17
18	18		1	44	0.8	132	2	18
19	L19		2	62	0.2	170	4	19
20	STD E		3	80	0.2	136	14	20
21	21		2	92	0.2	90	2	21
22	S21		3	52	0.4	142	6	22
23	23		4	86	0.2	206	6	23
24	24		3	64	0.2	138	4	24
25	L24		2	74	0.2	150	4	25
26	S25		3	52	0.4	138	8	26
27	27		2	52	0.2	84	6	27
28	28		2	42	0.2	136	6	28
29	29		1	32	0.2	210	6	29
30	30		2	40	0.4	364	10	30
31	31		3	40	0.4	366	6	31
32	32		4	94	0.6	370	4	32
33	33		2	90	0.8	422	18	33
34	34		2	16	0.4	174	8	34
35	35		1	56	0.2	258	6	35
36	36		1	62	0.2	112	6	36
37	37		3	120	0.2	140	12	37
38	38		1	44	0.2	98	6	38
39	39		1	46	0.2	110	2	39
40	STD E		4	82	0.2	144	14	40

Certified by

J. Rossbach

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

2225 S. SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604
CERTIFICATE NO. 80181-2

INVOICE NO.

DATE ANALYSED JUNE 20, 1980
PROJECT 1064, ANTICLIMAX

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	No.
01	WIPSS 31		1	48	0.2	80	2	01
02	L41		1	112	0.2	92	2	02
03	S41		4	36	0.2	74	4	03
04	42		2	28	0.4	80	6	04
05	43		2	30	0.2	204	4	05
06	44		3	54	0.2	128	2	06
07	45		2	30	0.2	112	4	07
08	46		2	36	0.2	98	14	08
09	47		2	26	0.2	112	4	09
10	48		3	48	0.2	114	4	10
11	49		1	26	0.2	132	4	11
12	50		1	28	0.2	78	6	12
13	51		2	36	0.4	92	4	13
14	52		2	42	0.4	106	6	14
15	53		1	30	0.2	106	6	15
16	54		3	64	2.4	130	8	16
17	L55		7	66	0.4	104	4	17
18	S56		9	124	1.6	172	8	18
19	57		1	30	0.2	210	6	19
20	58		6	26	0.2	40	22	20
21	59		4	48	0.2	142	6	21
22	60		4	30	0.8	192	6	22
23	61		5	56	0.2	108	6	23
24	62		5	46	0.2	148	6	24
25	63		4	46	0.4	158	6	25
26	64		2	26	0.4	136	4	26
27	65		3	80	0.4	152	4	27
28	66		2	22	0.6	172	8	28
29								29
30								30
31								31
32								32
33								33
34								34
35								35
36								36
37								37
38								38
39								39
40								40

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J. Rossbach

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CERTIFICATE OF ANALYSIS

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

VANCOUVER OFFICE DATE ANALYSED July 1980

PROJECT 1064

2225 S. SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE 604
CERTIFICATE NO. 80295-1
INVOICE NO.

AMAX

JUL 21 1980

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb				No.
01	80ASS117	1	4	28	0.5	116	6				01
02	68	1	5	88	0.2	242	4				02
03	69	1	1	12	0.2	70	2				03
04	70	1	2	42	0.4	133	12				04
05	71	1	3	54	1.0	160	10				05
06	72	1	3	18	0.2	136	2				06
07	73	1	3	24	0.2	126	2				07
08	74	1	4	44	0.8	243	2				08
09	75	1	3	16	0.4	72	2				09
10	80ASS 76	✓	3	18	0.8	84	2				10
11	77	1	3	24	0.6	82	2				11
12	78	1	2	20	0.4	52	2				12
13	79	1	3	80	1.0	120	4				13
14	80	1	2	14	0.2	62	2				14
15	81	1	2	28	0.4	88	2				15
16	82	1	3	40	0.2	104	2				16
17	83	1	1	10	0.2	58	2				17
18	84	1	3	24	0.2	148	4				18
19	85	1	4	20	0.2	92	2				19
20	SID C	1	17	190	0.4	108	78				20
21	80ASS 86	1	3	32	0.2	262	10				21
22	87	1	2	20	0.4	114	2				22
23	88	1	4	32	0.2	490	2				23
24	89	1	3	36	0.2	142	4				24
25	90	1	12	32	0.2	156	4				25
26	91	1	16	68	0.2	154	8				26
27	92	1	8	28	0.2	350	2				27
28	114	✓	9	30	0.2	284	8				28
29	115	1	1	24	0.2	136	2				29
30	80ASS 116	1	2	34	0.2	328	2				30
31	117	1	3	78	0.2	230	166				31
32	118	1	4	140	0.2	240	4				32
33	119	1	3	58	0.2	176	2				33
34	120	1	1	6	0.2	114	2				34
35	121	1	2	14	0.2	104	2				35
36	122	1	2	32	0.2	132	4				36
37	123	1	4	68	0.2	142	4				37
38	125	1	3	24	0.2	640	2				38
39	80ASS 128	1	6	132	0.2	232	4				39
40	SID C	1	18	194	0.4	116	78				40

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GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

VANCOUVER OFFICE

2225 S. SPRING
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE 604
CERTIFICATE NO. 80295-2
INVOICE NO.

JUL 21 1980

DATE ANALYSED July 1980

PROJECT 1064

No.	Sample	pH	Mo	Ag	Cu	Zn	Pb				No.
01	80ASS 127	1	1	0.2	24	174	4				01
02	128	1	2	0.2	24	136	8				02
03	129	1	1	0.2	28	170	2				03
04	130	1	1	0.6	24	130	2				04
05	131	1	1	0.4	38	144	2				05
06	132	1	2	0.2	28	170	2				06
07	133	1	2	0.2	52	98	2				07
08	134	1	2	0.2	70	132	2				08
09	135	1	2	0.2	46	170	2				09
10	80ASS 137	✓	3	0.2	36	526	2				10
11	138	1	5	0.2	18	100	10				11
12	139	1	2	0.4	18	182	6				12
13	140	1	6	0.2	58	172	12				13
14	141	1	7	0.2	36	180	14				14
15	142	1	11	0.2	60	126	10				15
16	143	1	18	0.2	44	98	12				16
17	144	1	18	0.8	80	174	12				17
18	145	1	3	0.2	48	130	8				18
19	146	1	12	0.2	32	240	2				19
20	SID A	1	5	0.2	20	26	18				20
21	80ASS 147	1	33	0.2	24	228	8				21
22	148	1	14	0.2	28	120	6				22
23	149	1	19	0.2	36	184	6				23
24	150	1	49	0.2	52	172	8				24
25	151	1	34	0.2	82	132	6				25

31	157	1	4	0.2	38	92	6				31
32	158	1	6	0.4	100	112	14				32
33	159	1	3	0.2	28	106	8				33
34	160	1	3	0.6	16	106	16				34
35	161	1	3	0.4	34	88	6				35
36	162	1	2	0.2	6	62	6				36
37	163	1	4	0.2	28	90	8				37
38	164	1	3	0.2	8	110	6				38
39	80ASS 166	1	7	0.2	36	178	6				39
40	SID C	1	6	0.2	20	32	14				40

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J. Rossbacher

Rossbacher Laboratory AMAX

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

VANCOUVER OFFICE

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604
CERTIFICATE NO. **80295-3**
INVOICE NO.

DATE ANALYSED **July 1980**
PROJECT **1064**

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	No.
01	BOASS 167		3	28	1.0	332	22	01
02	168		14	184	0.4	102	24	02
03	169		1	16	2.0	12	18	03
04	170		2	20	0.4	58	18	04
05	171		1	12	0.2	56	10	05
06	172		1	8	0.4	80	8	06
07	173		1	8	0.2	44	4	07
08	174		1	20	0.2	136	8	08
09	175		1	4	0.2	40	4	09
10	176		1	20	0.4	12	8	10
11	177		1	48	0.2	24	10	11
12	BOASS 178		1	32	0.2	76	4	12
13	STO 2		29	160	0.8	138	98	13
14								14
15								15
16								16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24
25								25
26								26
27								27
28								28
29								29
30								30
31								31
32								32
33								33
34								34
35								35
36								36
37								37
38								38
39								39
40								40

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Rossbacher Laboratory AMAX

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

VANCOUVER OFFICE

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604
CERTIFICATE NO. **80443-1**

INVOICE NO.
DATE ANALYSED **AUG, 1980**
PROJECT **1064**

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	No.
01	BO ASS 93		12	88	0.8	130	10	01
02	94		30	28	1.4	190	8	02
03	95		20	180	1.4	174	6	03
04	96		6	52	0.4	276	6	04
05	97		3	24	1.0	274	10	05
06	98		4	22	0.4	146	10	06
07	99		3	20	0.2	82	8	07
08	100		4	68	1.0	138	10	08
09	101		14	22	0.8	136	10	09
10	BOASS 102		4	20	0.4	62	10	10
11	103		8	74	0.8	184	6	11
12	104		7	38	0.2	176	6	12
13	105		4	88	0.4	298	2	13
14	106		2	24	1.0	120	28	14
15	107		5	26	0.6	132	12	15
16	108		5	34	0.6	180	10	16
17	109		17	90	0.2	126	8	17
18	110		11	38	0.2	198	6	18
19	111		6	44	0.2	116	10	19
20	STO 3		32	152	0.8	144	102	20
21	BOASS 112		3	62	1.0	148	12	21
22	113		4	86	1.0	278	10	22
23	BOASS 124		3	68	1.0	244	12	23
24	BOASS 179		11	82	0.4	254	20	24
25	180		25	46	1.4	304	28	25
26	181		2	16	0.6	132	12	26
27	182		1	20	0.4	166	10	27
28	183		3	16	0.2	244	24	28
29	184		3	20	0.6	156	78	29
30	BOASS 185		4	18	0.2	222	20	30
31	186		3	14	0.8	138	16	31
32	187		1	4	0.4	48	22	32
33	188		4	28	0.6	214	20	33
34	189		3	20	1.2	234	14	34
35	190		8	22	0.4	106	10	35
36	191		1	18	0.6	36	4	36
37	192		1	8	0.4	32	6	37
38	193		4	20	0.8	184	14	38
39	194		3	14	0.6	216	16	39
40	STO 3		32	148	1.2	144	96	40

Certified by P. Rossbach

225 S SPRINGER AVE
 BURNABY, B.C.
 CANADA
 TELEPHONE: 299-6910
 AREA CODE 604
 CERTIFICATE NO. 80443-2
 INVOICE NO.
 DATE ANALYSED AUG 1964
 PROJECT 1064
 VANCOUVER OFFICE

CERTIFICATE OF ANALYSIS

GEOCHEMICAL ANALYSTS & ASSAYERS

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	W	F
01	80A55195	10	0.8	22	12				
02	196	4	0.5	92	10				
03	197	1	0.6	74	8				
04	198	3	0.6	172	8				
05	199	1	0.5	48	12				
06	200	4	0.2	118	8				
07	201	5	0.6	146	16				
08	202	1	1.4	120	24				
09	203	2	0.8	212	22				
10	80A55204	4	0.8	200	36				
11	205	30	0.6	322	40				
12	206	2	1.2	154	20				
13	207	4	0.2	182	10				
14	208	4	0.4	144	12				
15	209	18	0.2	216	10				
16	210	4	0.4	142	6				
17	211	2	0.8	84	12				
18	212	3	1.0	156	12				
19	213	3	0.6	126	14				
20	770 D	2	0.4	528	104				
21	80A55214	2	0.6	140	6				
22	215	3	0.6	126	28				
23	216	4	0.2	92	8				
24	217	3	0.2	96	8				
25	218	3	0.2	114	10				
26	219	2	0.2	98	6				

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23	216	7	0.4	132	16	200	400		
24	217	9	0.2	114	8	200	380		
25	218	2	0.2	114	10	15	500		
26	219	2	0.2	98	6				

225 S SPRING
 BURNABY, B.C.
 CANADA
 TELEPHONE: 299-6910
 AREA CODE 604
 CERTIFICATE NO. 80443-3
 INVOICE NO.
 DATE ANALYSED Aug, 1964
 PROJECT 1064
 VANCOUVER OFFICE

CERTIFICATE OF ANALYSIS

GEOCHEMICAL ANALYSTS & ASSAYERS

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	W	F
10	80A55242	3	0.2	144	26	450	650		
11	243	11	0.2	138	16	100	600		
12	244	10	0.2	194	12	85	530		
16	248	19	0.4	134	20	70	530		
17	249	21	0.2	144	22	180	530		
18	250	33	0.2	166	12	55	250		
19	251	33	0.2	166	12	55	250		
20	770 A	7	0.2	38	20	30	920		
21	80A55252	7	0.8	198	10	40	440		
22	253	3	0.4	84	6	8	340		
23	254	5	0.2	432	6	12	330		
24	255	14	0.2	82	8	25	320		
25	256	14	0.6	136	12	70	310		
26	257	52	0.6	90	10	70	260		
27	258	20	0.2	90	6	20	370		
28	259	11	0.2	120	10	160	270		
29	80A55260	11	0.2	120	10	160	270		
30	770 A	10	0.2	34	20	30	700		

Certified by *J. Hancock*

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

VANCOUVER OFFICE

2225 S SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE 299-6910
AREA CODE 604
CERTIFICATE NO. 80443A

INVOICE NO.

DATE ANALYSED AUG. 1980

PROJECT 1064

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	W	F	No.
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32	12	54	0.2	144	26	240	650			33
33	8	8	0.2	56	8	20	330			34
36	6	10	0.2	114	12	60	260			37
37	10	16	0.2	156	16	45	260			38
BOAKS38	8	32	0.4	280	14	5	440			39
510 D	3	130	4.6	514	116	8	320			40

Certified by

J. Rossbach

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

VANCOUVER OFFICE

2225 S SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE 299-6910
AREA CODE 604
CERTIFICATE NO. 80443B

INVOICE NO.

DATE ANALYSED Aug. 1980

PROJECT 1064

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	W	F	No.
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49	16	6	0.4	134	12	280	530			11
50	29	22	0.4	336	14	110	600			12
51	4	12	0.8	98	10	35	380			13
52	4	40	0.6	264	4	15	480			14
53	39	36	1.6	290	26	140	760			15
54	9	30	0.2	76	10	30	490			16
55	6	19	0.6	150	10	35	440			17
56	8	12	0.6	220	12	25	400			18
57	5	12	0.4	126	10	30	440			19
510 B	33	162	1.2	144	98	15	700			20
BOAKS58	13	38	0.2	76	6	60	500			21
59	12	40	0.4	154	10	90	380			22
60	42	36	0.2	64	8	40	330			23
61	23	24	0.6	222	10	20	320			24
62	34	20	1.4	116	14	30	400			25
63	8	8	0.2	46	6	35	270			26
64	4	20	0.6	144	10	10	300			27
65	18	24	0.6	132	12	80	410			28
66	68	26	0.6	118	22	400	500			29
BOAKS67	86	34	0.6	132	22	450	600			30
68	5	36	0.2	164	4	80	480			31
69	5	38	0.6	250	12	50	400			32
70	4	34	0.4	306	6	30	520			33
71	18	52	1.2	70	14	100	470			34
72	15	40	0.8	76	12	90	470			35
73	13	40	0.8	66	12	70	430			36
BOAKS74	16	28	0.8	74	10	50	350			37
510 B	35	154	1.4	144	100	15	700			38
										39
										40

Certified by

J. Rossbach

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

VANCOUVER OFFICE

225 S. SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE 299-6910
AREA CODE 604
CERTIFICATE NO. 80550-1

INVOICE NO.
DATE ANALYSED SEPT. 1980
PROJECT 1064

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

No.	Sample	pH	Mo	Cu	Zn	Pb	Ag	W.	No.
01	AKS 75		3	8	76	10	1.4	0	01
02	76		2	2	28	6	0.8	10	02
03	77		3	12	96	10	1.4	2	03
04	78		1	24	110	8	1.6	0	04
05	79		3	18	136	8	1.6	0	05
06	80		1	4	38	6	0.8	5	06
07	81		2	22	74	8	1.0	5	07
08	82		2	80	130	10	1.6	0	08
09	83		1	28	118	6	1.6	0	09
10	AKS 84		2	20	158	6	1.4	5	10
11	85		2	14	140	10	1.2	0	11
12	86		4	54	126	8	1.8	0	12
13	87		5	42	100	12	2.2	0	13
14	88		4	28	210	8	1.8	0	14
15	89		1	14	264	10	1.8	0	15
16	90		3	24	116	8	1.0	0	16
17	91		6	34	348	8	1.6	0	17
18	92		3	46	144	6	1.8	0	18
19	AKS 93		3	54	136	6	1.8	0	19
20									20
21	94		5	52	90	12	2.0	0	21
22	95		4	30	114	16	1.4	0	22
23	96		1	30	108	12	1.4	0	23
24	97		1	48	144	10	2.2	0	24
25	98		3	68	120	4	2.0	0	25
26	99		4	36	240	26	1.6	0	26
27	AKS 100		6	36	230	12	1.6	0	27
28	101		3	28	282	12	1.6	0	28
29	102		2	32	384	10	1.8	0	29
30	AKS 103		1	32	406	8	1.8	0	30
31	104		4	38	164	8	2.4	0	31
32	105		4	46	114	10	2.4	0	32
33	106		4	44	126	10	1.8	0	33
34	107		3	42	138	10	1.4	0	34
35	108		3	28	130	8	1.6	0	35
36	109		9	94	208	14	5.0	0	36
37	110		6	58	48	8	4.8	0	37
38	111		5	66	190	8	3.0	0	38
39	AKS 112		3	86	206	10	3.0	0	39
40	G-9		16	208	370	322	1.0	-	40

AKS 113
114

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Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CERTIFICATE OF ANALYSIS

VANCOUVER OFFICE

225 S. SPRINGER AVE.
BURNABY, B.C.
CANADA
TELEPHONE 299-6910
AREA CODE 604
CERTIFICATE NO. 80696-2

TO: AMAX MINERALS EXPLORATION
601 - 535 THURLOW ST.
VANCOUVER, B.C.

INVOICE NO.
DATE ANALYSED SEPT. 1980
PROJECT 1064

No.	Sample	pH	Mo	Cu	Ag	Zn	Pb	No.
01	80 AKS 151		27	44	0.4	192	10	01
02	80 AKS 152		4	8	0.2	16	2	02
03	153		180	6	0.2	6	4	03
04	80 AKS 154		52	26	1.2	8	20	04
05	155		28	128	0.8	140	94	05
06								06
07								07
08								08
09								09
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38								38
39								39
40								40

Certified by

P. Rossbach

APPENDIX II - STATEMENT OF COSTS

Anticlimax Property - Hunch 1-5 claims

Summary of Work - Geological Mapping and Geochemical Sampling

PERSONNEL

S.G. Enns - Staff Geologist, 601-535 Thurlow Street, Vancouver 14 days @ \$158.40	2,217.60
S.M. Gentleman - Geologist, 3400 Barclay Avenue, #14, Montreal 37 days @ \$ 63.12	2,335.44
S.L. Stallard - Jr. Assistant, 112-2401 Ord Road, Kamloops 35 days @ \$ 37.57	1,314.95
G.O. Skok - Jr. Assistant, 2279 Berkley Road, N. Vancouver 3 days @ \$ 35.51	106.53

ACCOMMODATION

Tuloon Lake Fishing Resort, Ltd. Inv. #30, 18, 6 83 man days @ \$ 37.50	3,112.50
Nehalliston Fishing Lodge Inv. #1 6 man days @ \$ 30.90	185.40

GEOCHEMICAL ANALYSIS

Roszbacher Laboratory Ltd. Inv. #182,232,281	
213 samples for Mo,Cu,Ag,Pb,Zn @ \$3.30	702.90
24 samples for Mo,Cu,Ag,Pb,Zn,W,F @ \$8.55	205.20
66 samples for Mo,Cu,Ag,Pb,Zn,W @ \$5.55	366.30

TRANSPORTATION

4x4 Toyota w/winch 14 days @ \$30.00	420.00
4x4 Toyota w/winch 37 days @ \$30.00	1,110.00
Bowmac Truck Rental Inv. #74909 4 days @ \$57.16	228.62

DRAFTING AND REPORT PREPARATION

500.00

TOTAL \$12,805.44

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PAC Account Transferral Request \$3,400.00

Value to be applied as per application on Hunch 1 to 5
claims (81 units) inclusive - 2 years

APPENDIX III

STATEMENT OF QUALIFICATIONS

NAME	S.G. Enns
ADDRESS	601-535 Thurlow Street Vancouver, B.C.
EDUCATION	4 year BSc (Honours Geology) 1967 University of Manitoba MSc (Ec. Geology) 1971 University of Manitoba
EXPERIENCE	Geol. Assistant Manitoba Mines Branch 1964(field season Geol. Assistant Sherritt Gordon Mines 1965 " Geol. Assistant AMAX Exploration 1966-1970 " Staff Geologist Cerro Mining of Can. 1971 Staff Geologist Hudson's Bay Oil & Gas 1972 Staff Geologist BP Minerals of Canada 1973-1975 Staff Geologist BP Alaska Exploration 1975-1979 Staff Geologist AMAX of Canada 1979-

STATEMENT OF QUALIFICATIONS

NAME S.M. Gentleman
ADDRESS 3400 Barclay Avenue #14
Montreal, Quebec H3S 1K4

EDUCATION University of Waterloo 1970-1974
B.Sc. Earth Sciences
Univeristy of Toronto 1974-1975
Special Student

EXPERIENCE Research Assistant - Department of Geology
Univeristy of Toronto 1975-1978
Geological Assistant
AMAX Minerals Exploration, Toronto
May 1978 - September 1978
Geological Assistant
Ontario Geological Survey, Toronto
October 1978 - November 1979
Senior Geological Assistant
AMAX of Canada Limited, Vancouver
May 1980 - August 1980

STATEMENT OF QUALIFICATIONS

NAME S.L. Stallard

ADDRESS 112-2401 Ord Road
Kamloops, B.C.

EDUCATION Secondary School
Kamloops, B.C.

EXPERIENCE Labourer/Junior Assistant
AMAX of Canada Limited
May 1980 - July 1980
September 1980 - October 1980

STATEMENT OF QUALIFICATIONS

NAME G.O. Skok

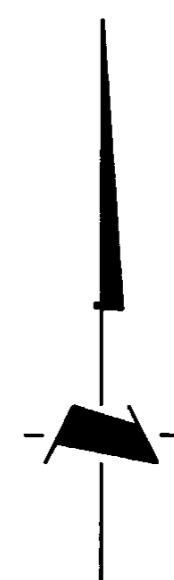
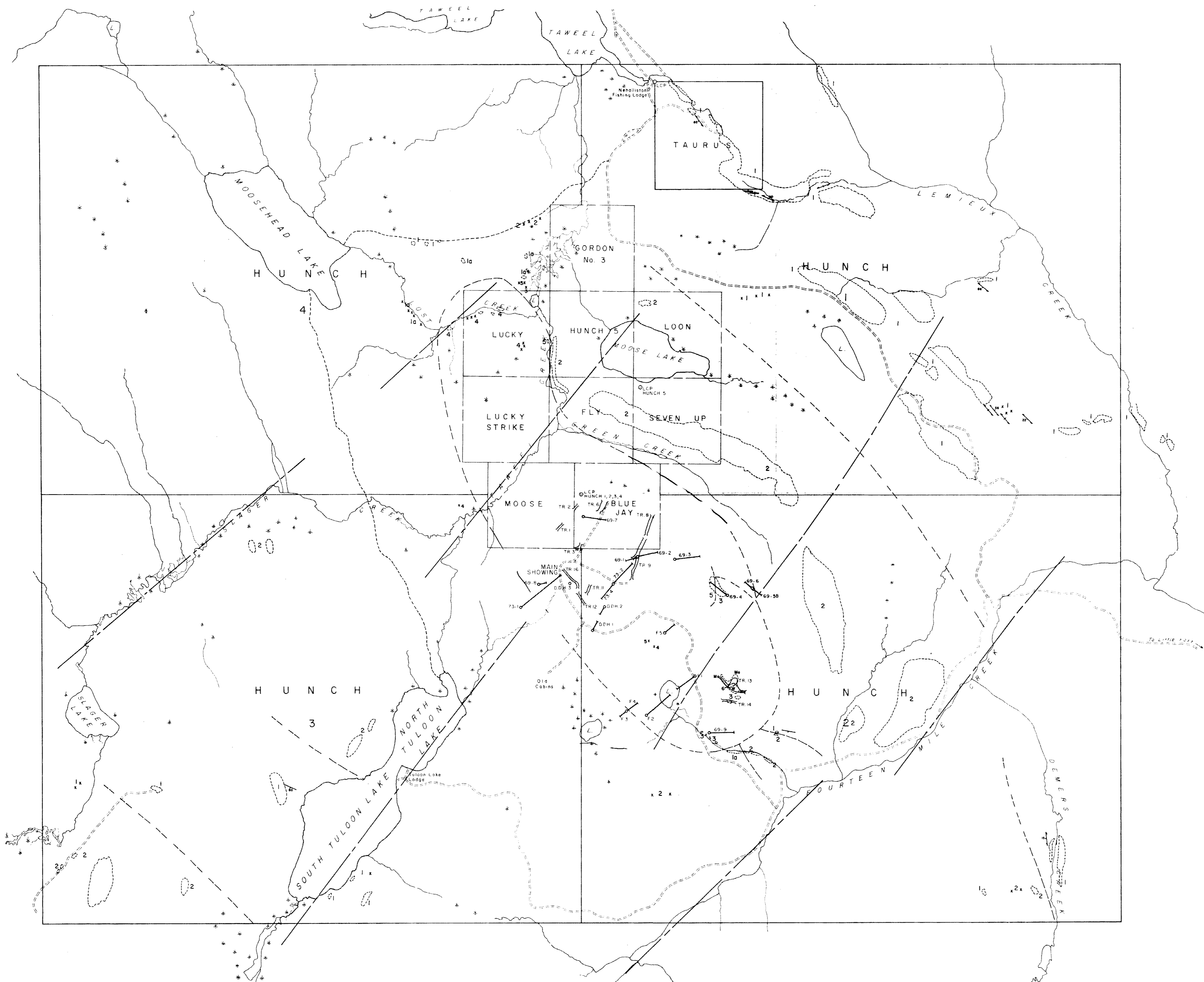
ADDRESS 2279 Berkley Road
North Vancouver, B.C. V7H 1Z6

EDUCATION Windsor Secondary
Vancouver, B.C.

EXPERIENCE Laboratory Assistant
Rossbacher Laboratory, Burnaby
1978-1970

Lumberland Building Materials
Burnaby 1979

Junior Assistant
AMAX of Canada Limited, Vancouver
May 1980 - October, 1980



LEGEND

TULOOK STOCK	6	Quartz feldspar porphyry - late phase.
	5	Quartz porphyry, felsite and aplite.
	4	Leucocratic coarse grained granite and inequigranular granite.
	3	Leucocratic quartz feldspar porphyry.
	2	Dark green pyroxene andesitic agglomerate and lavas. Minor interbedded argillite and tuffs.
	1	Black argillite, siltstone, gray phyllite, graywacke and rare siliceous bands. 1a Hornfels altered argillite.

SYMBOLS

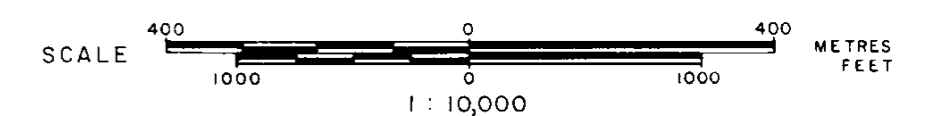
	Outcrop, float.
	Geological contact (defined, approximate, assumed).
	Bedding attitude (inclined).
	Foliation attitude (inclined, vertical).
	Topographic and/or airphoto linear.
	Quartz vein showing attitude.
	Molybdenite, wolframite.
	Diamond drill hole.
	Trench.
	Claim boundary.
	Legal corner post, claim boundary (M.G.S.).
	Road, trail.
	Stream, swamp.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8492
NO.

AMAX OF CANADA LIMITED

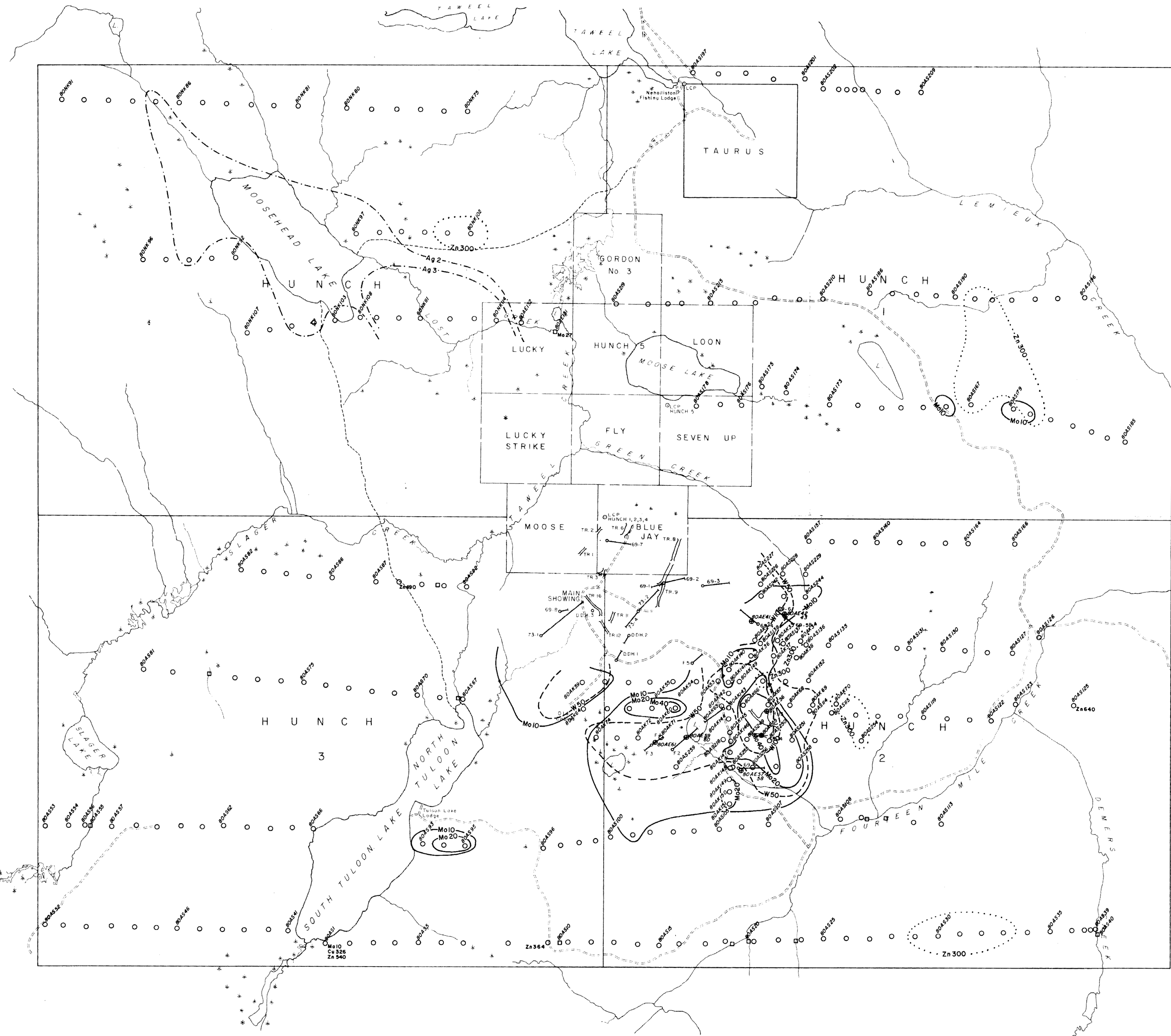
ANTICLIMAX PROPERTY
KAMLOOPS MINING DIVISION - BRITISH COLUMBIA

GEOLOGICAL MAP



To accompany 1980 Property Report by S. G. Enns.
S. Enns. Nov. 2/80

Vancouver — H.P.



S Y M B O L S

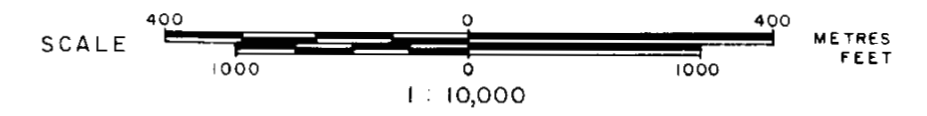
- Limit of Mo values. (10, 20, 40 p.p.m.).
 - Limit of W values. (50, 100 p.p.m.).
 - Limit of Zn values. (300 p.p.m.).
 - Limit of Ag values. (2.0, 3.0 p.p.m.).
 - SOAS 131 Soil
 - BOAE 151 Silt
 - BOAE 56 Rock chip
 - Diamond drill hole.
 - Trench.
 - Claim boundary.
 - Legal corner post, claim boundary (M.G.S.).
 - Road, trail.
 - Stream, swamp
- } Sample site, sample number. (See APPENDIX for individual geochemical values.)

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8492
NO.

AMAX OF CANADA LIMITED

ANTICLIMAX PROPERTY
KAMLOOPS MINING DIVISION — BRITISH COLUMBIA

GEOCHEMICAL MAP



To accompany 1980 Property Report by: S. G. Enns
S. G. Enns Nov. 21/80.

Vancouver — H.P.