

Geological & Geochemical Report
on the Mt. Vanarsdoll Property

Nar Claims 103 1 9/10

Located 6 miles northeast of Terrace

Latitude ⁵⁴~~56~~°36' Longitude 128°31'

By A. Gambardella & J.F. Allan P. Eng.
(B.C.) for Amax Exploration, Inc.

Work carried out between September
3 - Oct. 5/67 & August 15 - 25/68

1661

1661

GEOLOGICAL AND GEOCHEMICAL REPORT
ON THE
MT. VANARSDOLL PROPERTY

Skeena-Omineca Mining Divisions
103 I

September 1968

A. Gambardella
J. F. Allan P. Eng. (B.C.)

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SUMMARY AND CONCLUSIONS

The Vanarsdoll Property was discovered in 1966 by a crew of the Usk Prospecting Program. A group of 84 claims and one fraction were staked in the fall of 1967.

Molybdenum geochemical anomalies occur along three miles of the south slope of Mt. Vanarsdoll. Molybdenite mineralization was found in outcrop at the headwaters of Newton Creek and in south flowing tributaries of Deep Creek. The molybdenite is associated with quartz-mica veins and aplitic dykes within a zone of intense shearing trending northwest. Elsewhere in the property occasional flakes of molybdenite are found in quartz biotite veins intruded along widely spaced joints. Most of the property is underlain by a white biotite granite intruded into Triassic sedimentary and volcanic rocks of the Takla Group. The sediments and volcanics outcrop on the northwest and southeast portion of the property. Locally, along shear zones exposed in creek beds, the granite exhibits intense argillic and K-feldspar alteration. The geochemistry has outlined several anomalous areas.

INTRODUCTION

Location and Access

The property is six miles northeast of Terrace, B.C. on the south flank of Mt. Vanarsdoll at latitude $56^{\circ}36'$ and longitude $128^{\circ}31'$. The lower part of the property is accessible by a gravel road from Terrace to the water reservoir north of town.

Property

A group of 84 claims and one fraction were staked between August 25th and August 28th, 1967 to cover an area of anomalous silts and waters in creeks draining the south slope of Mt. Vanarsdoll. The claim group straddles the Skeena-Omineca Mining Divisions border. The claims were recorded in Terrace on September 1st, 1967. A location map for the claims is shown in Figure 2. The relevant data for the claims are given in Appendix I.

Topography, Vegetation and Climate

The property lies on a rugged, heavily timbered slope typical of the Coast Range physiographic province between 1000 and 4300 feet elevations. The topography is controlled by two steeply dipping sets of joints and one shallow dipping set which gives the slope a terraced pattern with steep cliffs and intervening flats. Below the 3500 foot level the property is blanketed by heavy timber consisting of hemlock, fir, and cedar with undergrowths of blueberry bush. Above 3500 feet, patches of dwarfed spruce and alpine meadows are common. The annual precipitation for

the area averages 70 inches. Snow remains at higher elevations until the end of June and in the deeply incised creeks until the end of July.

SUMMARY OF WORK DONE IN 1967

Work on the property was started on September 3rd, 1967. The work consisted of geochemical soil sampling along the claim location lines and on a detailed grid centered near the head waters of Newton Creek. In the detailed grid, compass and chain lines were spaced at 400 foot intervals. The sampling on both the claim location lines and on the grid was spaced at 200 foot intervals. A total of 675 geochemical samples were collected. The results and locations of the geochemical samples are shown in Figure 6. Geological mapping was confined along the creek bed near the head waters of Newton Creek.

An x-ray hole 48 feet long was drilled at station 18 (See Figure 5). Only five feet of badly fractured rock were recovered. The results of the 1967 geochemical sampling program outlined areas of significant Mo anomalies which warranted further work in 1968.

WORK DONE IN 1968

Between August 19th and 25th, 1968, work on the property consisted of geological mapping and prospecting. The objective of this work was to outline areas of visible surface MoS_2 mineralization indicated by the widespread geochemical anomalies.

REGIONAL GEOLOGY

The property is on the eastern flank of the Coast Range intrusive complex near its contact with Triassic sedimentary and volcanic rocks of the Takla Group. Several intrusive facies of the Coast Range complex ranging in composition from diorite to granite have been mapped in the area. The age relationship of the various phases are not well known.

GEOLOGY OF THE VANARSDOLL PROPERTY

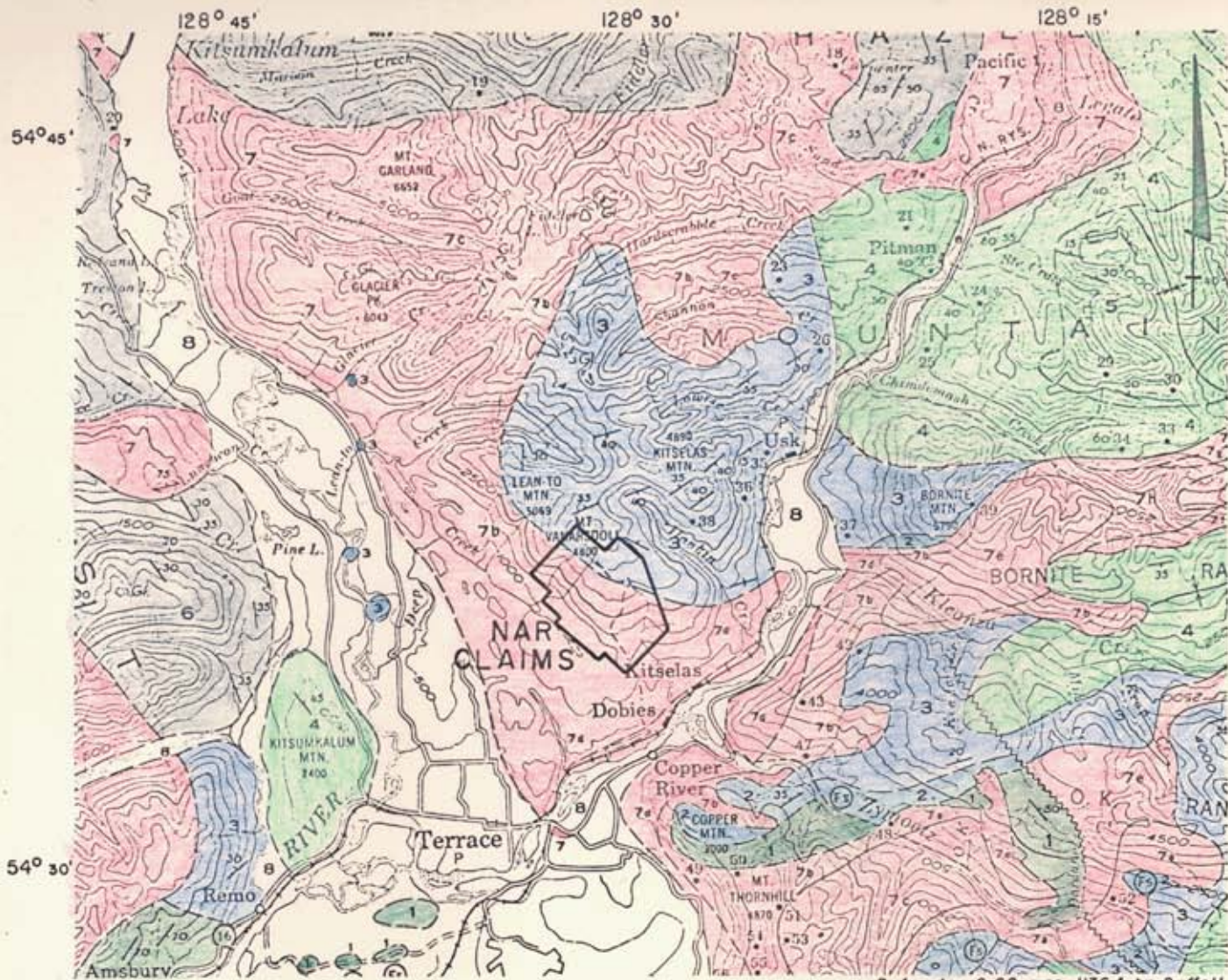
The property was mapped on a scale of 1" = 500 feet (See Figure 4). A small area at the head waters of Newton Creek was mapped on a scale of 1" = 100 feet (See Figure 5). Claim lines located by chain and compass and flagged at 100 foot intervals provided the basic control.

Volcanic and Sedimentary Rocks

Triassic sedimentary and volcanic rocks of the Takla Group outcrop on the northern and eastern portions of the property. Small roof pendants and xenoliths occur throughout the property. They consist of banded tuffs, conglomerates and argillites. The elongation of fragments observed in the conglomerate indicate that the sedimentary and volcanic sequences have undergone plastic deformation near their contacts with the intrusive mass.

Igneous Rocks

Three intrusive rock types have been mapped in the area: biotite granite, aplite, and basalt. The biotite granite is by far the predominant rock type. It varies in color from light grey



Refer to G.S.C. map 1136 A by Duffell Souther

L E G E N D

QUATERNARY	JURASSIC
8 Sand, gravel, clay, alluvium	4 Andesite, breccia, tuff, greywacke, argillite.
CRETACEOUS OR LATER	TRIASSIC 2
7 Undifferentiated Coast Range intrusions.	3 Limestone-boulder conglomerate, greywacke, banded volcanic sandstone, chert.
JURASSIC AND ? CRETACEOUS	CARBONIFEROUS OR PERMIAN
6 Greywacke, conglomerate, argillite, minor tuff.	2 White crystalline limestone.
	1 Greenstone shale, argillaceous limestone, limestone.

AMAX EXPLORATION INC.

VANARSDOLL PROPERTY
SKEENA AND OMINECA MINING DIVISIONS - BRITISH COLUMBIA

REGIONAL GEOLOGY

SCALE 1" = 4 MILES

To accompany report "VANARSDOLL PROPERTY" by: A. Gambardella and J. F. Allan
Aug. 1968

to buff and in texture from medium grained equigranular to porphyritic. Biotite is the only mafic constituent and varies in amount from 2 to 8 percent. The porphyritic variety, seen only in a few outcrops, contains pink poikilitic porphyroblasts of K-feldspar up to $\frac{1}{2}$ inch in length and generally contains less biotite (2 - 3 percent) than the more common equigranular biotite granite. The textural and compositional differences indicate that i) either two phases of granite are present or that ii) faulting has brought different levels of the same intrusive mass adjacent to each other.

Several aplite dykes have been mapped. They range in width from less than 1 inch to 2 feet and are generally intruded along joints in the biotite granite. They have a fine grained texture and little or no mafics.

Basalt dykes ranging in width from a few inches to four feet occur throughout the property. They are dark brown, unaltered and fine grained. They intrude all rock types in the area and therefore represent the last period of intrusive activity.

STRUCTURAL GEOLOGY

The dominant structural features in the map area are faulting and jointing. Three main directions of faulting have been recognized: i) N30 E, ii) N70-80 W, and iii) due north. All three fault directions are reflected by the drainage pattern within the property. Because of the absence of structural marker horizons, the relative amount and direction of displacement along the

faults could not be determined. The most conspicuous fault mapped occurs at the headwaters of Newton Creek. At this location the fault trends north-northwest and is marked by a zone of intense argillic and K-feldspar alteration with associated molybdenite mineralization.

Three dominant joint sets have been mapped: i) N70W/20S, ii) N30E/vertical, iii) Due north/vertical. The last two sets correspond closely with two shear directions in the property, indicating that faulting took place mainly along pre-existing joint planes. The joints probably represent normal cooling joints.

SULPHIDE MINERALIZATION

Molybdenite, pyrite and chalcopyrite are the sulphide minerals found on the property.

Molybdenite occurs as fine flakes associated with mica and quartz in veins ranging from 1/16" to 1/2". Less commonly, it occurs along fractures in aplitic dykes which intrude the biotite granite.

At the headwaters of Newton Creek, molybdenite was noted in a heavily sheared zone over a horizontal distance of 2000 feet. Visual estimates at this location range from nil to 0.03% MoS₂. The lateral extent of the mineralization is not known because of overburden.

Elsewhere in the property, sporadic flakes of MoS₂ occur in quartz-mica veins filling flat, widely spaced joint fractures.

The distribution of molybdenite mineralization shows a strong structural control since MoS_2 was noted only in shear zones and along joint fractures.

Chalcopyrite, in trace amounts, is sometimes associated with molybdenite. Pyrite, in accessory amounts, generally less than 0.5%, occurs in all rock types.

ALTERATION

Argillization, K-feldspathization, chloritization, epidotization, and silicification have been noted in varying degrees throughout the property.

Molybdenite mineralization shows a strong relationship both in grade and extent to argillization, K-feldspathization, and silicification (as quartz veins). The amount of molybdenite in quartz-mica veins, as well as the veining intensity is highest in zones of intense argillization and K-feldspathization, decreasing rapidly in unaltered to weakly altered zones.

Argillization and, to a minor extent, K-feldspathization are intensely developed along shear zones.

Chloritization is found as an alteration product of biotite along shear zones and is peripheral to argillization, K-feldspathization and molybdenite mineralization.

Epidote alteration is confined to the volcanic and sedimentary rocks near their contacts with the intrusive mass.

GEOCHEMISTRY

A total of 675 geochemical samples were collected on the property between September 3rd, 1967 and August 25th, 1968.

The samples were analysed at the Amax Laboratory in North Burnaby.

The analytical methods and laboratory procedures are outlined in detail in Appendix II.

The analyses for each sample type are shown below.

Sample Type	Analyses			
	Total Mo	Cu	THM	pH
Soil	x	x	x	x
Silt	x	x	x	x
Water	x			x
Rock Chip	x	x		

The sample locations and results (only Mo shown) are given in Figure 6.

Three anomalous areas have been outlined by geochemical sampling.

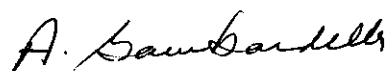
1) At the head of Newton Creek, between lines 28+00E and 48+00E. This area is approximately 4500 x 2500 feet elongated in a northwesterly direction, parallel to the course of Newton Creek. Soil sample values range from 0 to 480 ppm. The anomalies are partially explained by molybdenite mineralization exposed in the creek bed. Swampy areas adjacent to the creek, minimize the significance of a large part of the anomalous samples.

2) A second anomaly, 2000 x 2000 feet in dimensions is centered at 56+00E, 45+100S. Soil sample values range from 8 to 355 ppm. No molybdenite mineralization was noted in outcrops within the area. The anomalies are explained by concentration

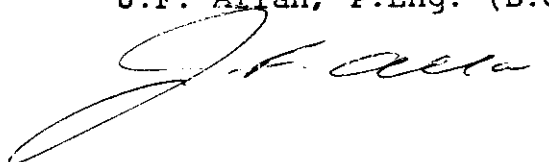
of Mo in swamps which underlie most the area.

3) A third, weakly defined anomalous area extends from line 28+00W to 28+00E. It is approximately 6000 x 3500 feet in dimension and elongated eastwest. Soil sample values range from 0 to 70 ppm. No visible MoS_2 mineralization was noted in this area. The anomalies, which are relatively weak, are attributed to high Mo background content in acid phases of the biotite granite.

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APPENDIX I - ASSESSMENT DATA

A total of \$2,876.15 is herewith shown to be applicable
as assessment work made up as follows.

	<u>1967</u>	<u>1968</u>
Salaries	\$1,341.45	\$299.70
Cost of sample analyses	740.00	
Cost of board	375.00	75.00
Drafting expenses	<u> </u>	<u>45.00</u>
	\$2,456.45	\$419.70
Total	<u>\$2,876.15</u>	

The claims for which work is applied are located in
the Omineca and Skeena Mining Divisions as follows.

OMINECA MINING DIVISION

<u>Claims</u>	<u>Record Number</u>	<u>Recorded</u>
Nar 5	53675	September 1, 1967
7	53677	"
43	53679	"
45	53681	"
47	53683	"
48	53684	"
46	53682	"
58	53688	"
59	53689	"
60	53690	"
61	53691	"
62	53692	"
56	53686	"
57	53687	"
70	53694	"
72	53695	"
16	53678	"
44	53680	"
55	53685	"

SKEENA MINING DIVISION

32	32082	"
34	32084	"
36	32086	"
38	32088	"
49	32093	"
<u>50</u>	<u>32094</u>	"
25 claims		

It is proposed to apply 1 (one) years assessment work to the following:

Nar 5, 32, 34, 36, 38, 7, 43, 45, 47, 49, 50, 48, 46, 58, 59, 61, 62, 60, 57, 56, 70, 72

and 2(two) years assessment to the following:

Nar 16, 44, and 55.

APPENDIX I

SAMPLE HANDLING PROCEDURE

BURNABY GEOCHEMICAL LABORATORY

SAMPLE HANDLING PROCEDURE

Vancouver Office

August 1967

I. Rokus

STREAM SEDIMENTS AND SOILS

Drying and Sieving

Sample boxes should be opened as soon as they arrive in the laboratory. If dryer is full, spread samples to air dry. As soon as possible, samples should be placed in dryer.

After drying, samples are to be sieved to minus 35 mesh. As much -35 material as possible is recovered from sample. Dump the -35 mesh material on a square of brown paper and mix by rolling several times. Place mixed -35 mesh material in a coin envelope and place envelope in original sample bag. Arrange samples in units of 40, if possible, and in numerical order.

ROCK AND CORE SAMPLES

General Handling

Rock or core samples need, usually, to be only air dried. If samples seem particularly wet they may be force dried by placing in numbered pans in the drying oven. No attempt is made to completely dry rock samples, that is, expel all the water from the pores of the rock. The samples are ready to crush when the outside surfaces are dry.

Crushing and Pulverizing

Rock and core samples are to be processed in such a manner that a representative 1/2 gram sample can be obtained. The entire amount of each sample is to be passed through the jaw crusher. At jaw crusher size the smallest sample that can be split out is 5 pounds. If sample is five pounds or less in size, pass the entire sample through pulverizer with plates set to

produce material of a maximum 8 mesh size. If sample is larger than 5 pounds then pass sample through Jones splitter to produce a sample of approximately 5 pounds. Pass this sample through pulverizer to produce -8 mesh material as above.

When the approximate 5 pound split has been pulverized to -8 mesh, then sample can be split to smaller size for final pulverizing. Using the Jones splitter, split sample down until a portion weighing 100 - 200 grams is obtained. This portion is then passed through the pulverizer, with plates pulled up tight so that product will pass 100 mesh screen. Regular checks, by screening, should be made to be sure the pulverizer, with plates pulled up tight, is producing a product 95% of which will pass a 100 mesh screen. After pulverizing, the sample should be mixed by rolling on brown paper or rubberized cloth. Rejects should be saved according to instruction from sampler.

WEIGHING FOR COPPER AND MOLYBDENUM

Digestion tubes (100 x 16 mm) should be marked at 5 ml level. Using diamond pencil, mark each tube carefully at bottom of meniscus.

Samples for digestion and analysis should be handled in units of 40 where possible. Prepare a laboratory data sheet for each batch of 40 samples.

Weigh accurately on balance 1/2 gram sample and put in marked test tube.

DIGESTION AND DILUTION FOR COPPER AND MOLYBDENUM

To each of the samples prepared above add 1:1 HNO₃ to the 5 ml mark. Place samples in the digestion racks in order. Adjust heat so that samples are gently boiling. Digest for three hours at this gently boiling rate. Remove from digestion rack and bring volume back to 5 ml with demineralized water. Mix well and then centrifuge for 1 minute. Use clear upper layer for copper and molybdenum determination.

MOLYBDENUM TESTProcedure for Silt, Soil and Rock

1. Transfer a 1 ml aliquot of digested solution from above into clean test tube for determination.
2. Add 1.0 mls KSCN shaking gently - 5%
3. Add 1.0 mls SnCl₂ shaking gently - 15% in 2NHCl
4. Make up to 10 mls with water.
5. Add 1 ml isopropyl ether, add stopper and shake for 45 seconds.
6. Match colour of ether layer with standards against a white background and record ppm.

Standard Molybdenum Solutions

Stock Standard Solution (100 μ /ml) - Dissolve .015 gms of MoO₃ in 5 ml conc. NaOH and make up to 100 ml with demineralized H₂O. This solution must be made up bi-monthly.

Working Standard Solution (10 μ /ml) - Pipette 10 ml of 100 μ /ml stock solution in a 100 ml volumetric flask and make up to 100 ml with demineralized H₂O.

Molybdenum Standards for Soil, Silt and Rock Chip - based on 1/2 gm sample aliquot.

1. Take 15 clean 100 x 16 test tubes which are calibrated to 5.0 ml mark by a diamond pencil.
2. Pipette the following aliquots;

	10 %/ml	gammas	Factor Used	ppm
a)	0.2 ml	2 %	} X 2	4
b)	0.4 ml	4 %		8
c)	0.6 ml	6 %		12
d)	0.8 ml	8 %		16
e)	1.0 ml	10 %		20
<u>100 %/ml</u>				
f)	0.125 ml	12.5 %	} X 2	25
g)	0.150 ml	15 %		30
h)	0.20 ml	20 %		40
i)	0.30 ml	30 %		60
j)	0.40 ml	40 %		80
k)	0.50 ml	50 %		100
l)	0.75 ml	75 %		150
m)	1.00 ml	100 %		200
n)	1.50 ml	150 %		300
o)	2.00 ml	200 %		400

3. Make up to 5 ml mark with distilled water.
4. Now take 15 clean 150 x 16 test tubes calibrated to the 10 ml mark. With a pipette take 1 ml out of each of the previous test tubes and pipette them into the new set of test tubes.
5. (A) To the set of 16 x 150 mm test tubes then add the following:
 - a) 1 ml HCl 6N
 - b) 1 ml 1% FeCl₃ - add more if color development is poor
 - c) 1 ml 5% KSCN
 - d) 1 ml 15% SnCl₂
 - e) Make up to 10 ml mark with demineralized water.
 - f) 1 ml iso-propyl ether.
 - g) Shake for 20 - 30 seconds.
 - h) Allow to settle and read.
 (B) Save the original 16 x 100 test tubes with the remaining solutions in them. Stopper them by corks on which the respective concentrations are marked in ppm. Use these in future preparations.

BIQUINOLINE COPPER TEST FOR SILT, SOIL AND ROCK CHIP

This test is selective for copper and is not subject to any metal interferences. Reference: U.S.G.S. Bulletin 1152.

Reagents

1. Buffer solution: dissolve 400 gms sodium acetate and 100 gms sodium tartrate and 20 gms of hydroxylamine hydrochloride in 1 litre of water. Adjust to pH 6.5.
2. Biquinoline solution: add .2 gms 2,2' biquinoline in 900 mls isoamyl alcohol. Heat on hot plate to dissolve. Cool and make to 1 litre with isoamyl alcohol.

Procedure

1. Take a 1 ml aliquot from digestion solution above and transfer to large test tube for determination.
2. Add 10 mls copper buffer.
3. Add 2 mls biquinoline-isoamyl alcohol solution.
4. Stopper tube and shake vigorously for 45 seconds.
5. Allow phases to separate, then compare colour to standards against a white background and record ppm.

Standards

Stock Standard Solution (100% /ml) - Dissolve .2 gms blue CuSO_4 in 400 mls H_2O . Add 5 mls conc. HCl and H_2O to 500 mls.

Working Standard Solution (10% /ml) - Dilute 10 mls stock standard and 1 ml conc. HCl to exactly 100 mls with H_2O

Preparation of Standards

This procedure is the same as the preparation for molybdenum standards except for 5 (A). The section 5 (A) which applies to the preparation for standards of copper is as follows:

- 5 (A) To a set of 16 x 150 mm test tubes then add 1 ml 1:1 HNO_3 , 10 ml copper buffer, 2 ml 2,2' - Biquinoline in isoamyl alcohol. Shake for 5 minutes vigorously. Allow to settle, then read.

THM (Total Heavy Metals) TEST

Test mainly sensitive to zinc, copper and lead (especially zinc). Reference: Bloom, H., Economic Geology, Volume 50-1955.

Reagents

1. Demineralized H_2O

2. Dithizone (diphenylthiocarbazone) Reagent grade.
3. Dithizone/chloroform 0.1% solution, dissolve 0.147 gm dithizone in 100 mls chloroform. (Dithizone is more soluble in CHCl_3 than in Benzene).
4. Dithizone stock solution .01% - Dilute 10 mls of 0.1% solution to 100 mls with Benzene.
5. Dithizone working solution .001%: dilute 10 ml of stock solution to 100 ml with benzene; should be made daily; yellow hue indicates breakdown of dithizone.
6. Buffer solution: take 50 gms of ammonium citrate and 8 gms hydroxylamine hydrochloride, making up to 1000 mls with water; adjust pH to 8.5 w/conc. NH_4OH ; purify w/dithizone solution if necessary.

Procedure

1. Measure out with volumetric scoop .5 gm of sample into a test tube.
2. Add 5 mls buffer then 5 mls .001% dithizone solution.
3. Shake for 30 seconds.
4. Observe color against a white background and record ppm from standard chart.

pH MEASUREMENTS

Soil and Silt Samples

The soil and silt samples should be dampened with demineralized water to a pasty consistency. Demineralized water should be used for this purpose because it is thought that water deprived from its ionic content has a low buffer capacity and thus will not influence the pH of the sample.

Experience has borne out the fact that 30 seconds time is sufficient for the meter to come to a reasonable stability. The meter needle will keep on drifting slowly but this will be much slower than at the beginning and therefore can be ignored.

Store electrodes in buffer overnight. When starting in the morning allow 15 minutes warm up for the instrument.

Water Samples

You may use either a sample aliquot from the bottle or simply measure pH right in the bottle by using a combination electrode. If the latter method is chosen, take care that samples have already been analyzed for Mo to avoid contaminations by the

electrode. Use 30 second intervals here as well as between each consecutive measurement.

MOLYBDENUM IN WATER

1. Transfer 50 mls. of sample into 125 ml separatory funnel.
2. Add 10 mls dilute (1:1) HCl
3. Add 1 ml 1% ferric ammonium sulphate or FeCl_3
4. Add 3 ml 10% KSCN and shake.
5. Add 3 ml 15% SnCl_2 in 2NHCl
6. Add 2 ml isopropyl ether, shake for 30 seconds and allow phases to settle.
7. Drain off water layer, retaining organic ether layer in funnel with a little of the aqueous layer remaining.
8. Drain small amount of water plus organic layer into 16 x 150 mm test tube. Compare with standards against white background.

Molybdenum Standards - label 12 clean test tubes 0, 2, 4, 10, 16, 20, 30, 40, 50, 60, 70 and 80 ppb. To the respective tubes pipette the following volumes of 1% /ml Mo work solution.

<u>mls of 1% /ml Mo Solution</u>	<u>ppb</u>
.20	4
.50	10
.80	16
1.00	20
1.50	30
2.00	40
2.50	50
3.00	60
3.50	70
4.00	80

After the standard solutions have been added, make up to 50 ml mark with demineralized water then add the following:

1. 10 ml 1:1 HCl solution.
2. 1 ml of 1% FeCl_3
3. 1 ml of 10% KSCN solution.
4. 1 ml of 15% SnCl_2 solution.
5. 2 ml of isopropyl ether.
6. Stopper and shake for 45 seconds.

Standards must be made up at least three times a week.

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LOCATION MAP

ADDENDA TO APPENDIX II

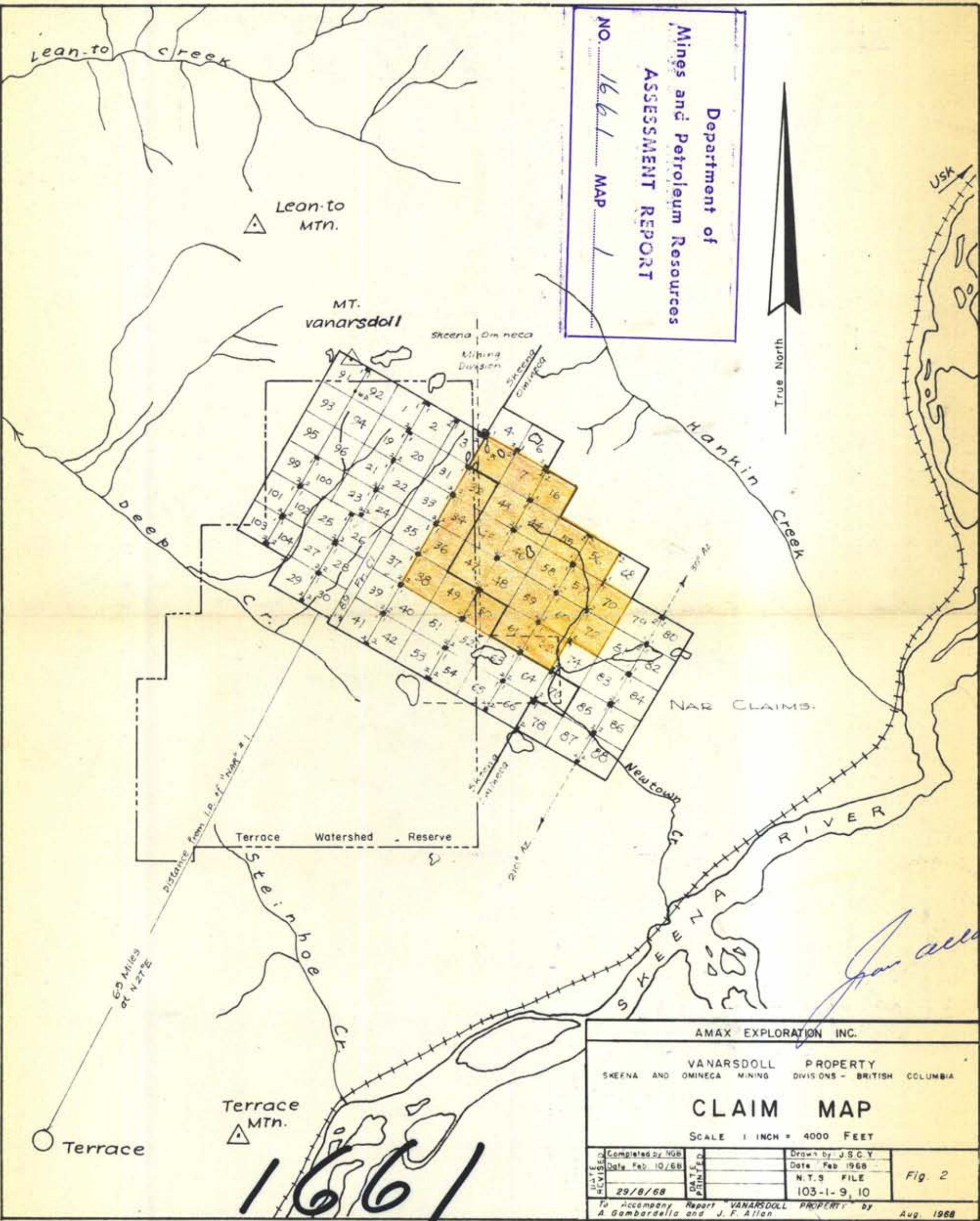
The geochemical sample sites were dug with a maddock with a 5 by 3 inch blade head.

The samples were taken from the "B" horizon, which varies in depth from 6 to 24 inches. Organic material was generally absent, and, where present, it was less than 5 percent of the sample.

The samples were scooped from the holes with the maddock and transferred directly into wet-strength paper bags, 9 x 4 inches in dimension.

A. Gambardella

A. Gambardella



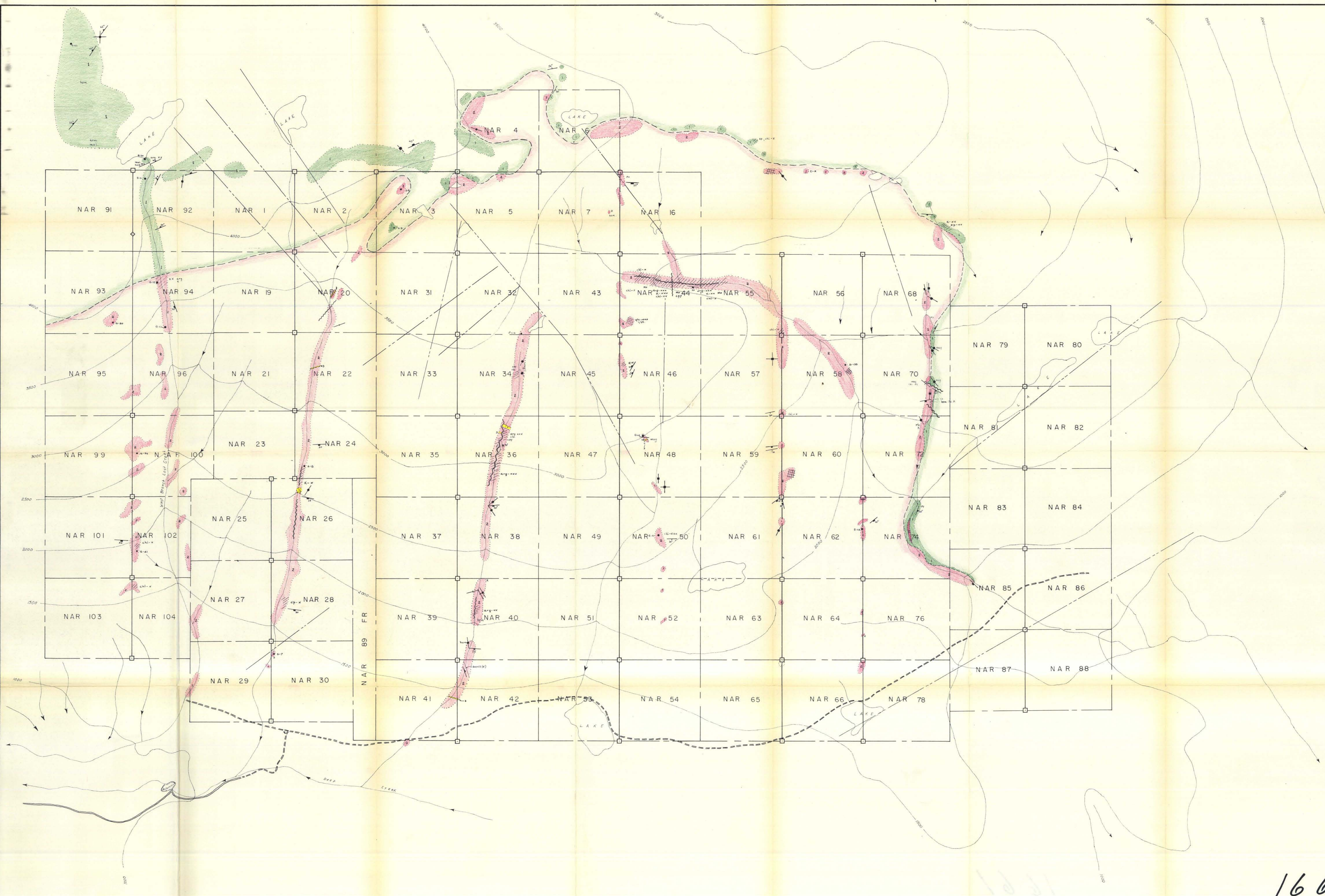
Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 1661 MAP 1



AMAX EXPLORATION INC.			
VANARSDOLL PROPERTY SKEENA AND OMINECA MINING DIVISIONS - BRITISH COLUMBIA			
CLAIM MAP			
SCALE 1 INCH = 4000 FEET			
DATE REVISIONS	Completed by NGB Date Feb. 10/68	Drawn by J.S.C.Y. Date Feb 1968	Fig. 2
DATE PRINTED	29/8/68	N.T.S. FILE 103-1-9, 10	
To Accompany Report "VANARSDOLL PROPERTY" by A. Gambardella and J. F. Allan			
			Aug. 1968

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Jan Allen



- LEGEND**
- CRETACEOUS AND TERTIARY**
- 3 Aplite.
 - 2 Biotite Granite.
- TRIASSIC**
- 1 TAKLA GROUP. Sedimentary and Volcanic Rocks in part metamorphosed.

- SYMBOLS**
- Limit of outcrop.
 - Geological contact; defined, assumed.
 - Fault zone showing direction of movement.
 - Joints; vertical, inclined.
 - Banding, Foliation; vertical, inclined.
 - Quartz vein; vertical, inclined.
 - Airphoto linear.
 - Molybdenite, Chalcopyrite, Magnetite, Pyrite, Hematite.
 - Area of quartz veining.
 - Alteration intensity (weak, medium, intense).
 - Alteration showing type and intensity.
 - K - feldspar.
 - chl Chlorite.
 - arg Argillite.
 - ep Epidote.
 - Hand sample location and number.
 - Claim post, Claim location line.
 - Claim boundary.
 - Stream; direction of flow.
 - Topographic contour (contour interval 500').
 - Road, Trail.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 1661 MAP 2

AMAX EXPLORATION INC.

VANARSDOLL PROPERTY
SARAKA AND OMEGA MINING DIVISIONS - BRITISH COLUMBIA

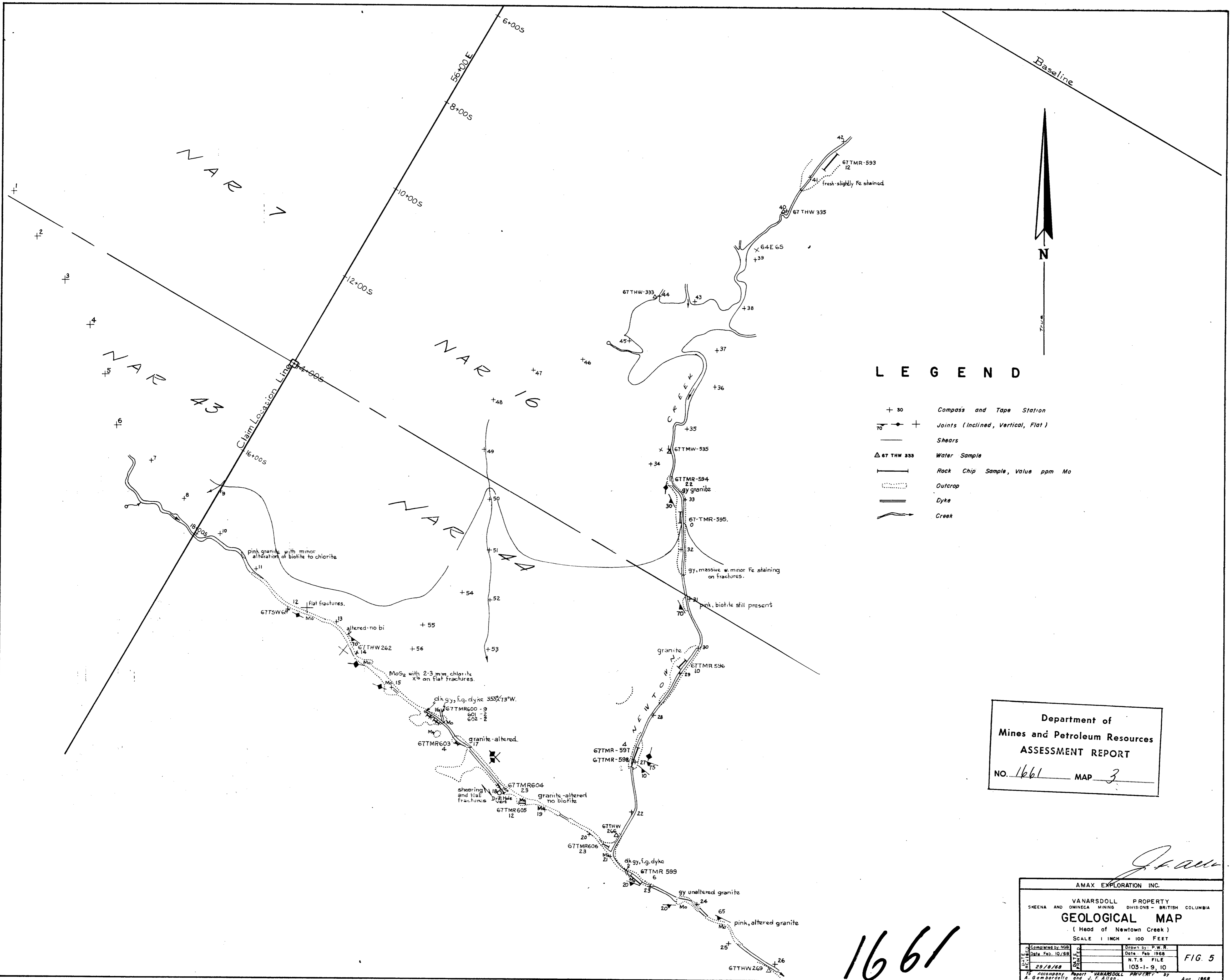
GEOLOGICAL MAP

SCALE 1 INCH = 500 FEET

DATE	30/8/48	DRAWN BY	N.S.B.
SCALE	1/10"	DATE	1/10/48
PROJECT	103-1-9-B-10	N.T.S. FILE	FIG. 4

To Accompany Report "VANARSDOLL PROPERTY" by A. Gombarella and J.F. Allen Aug. 1948

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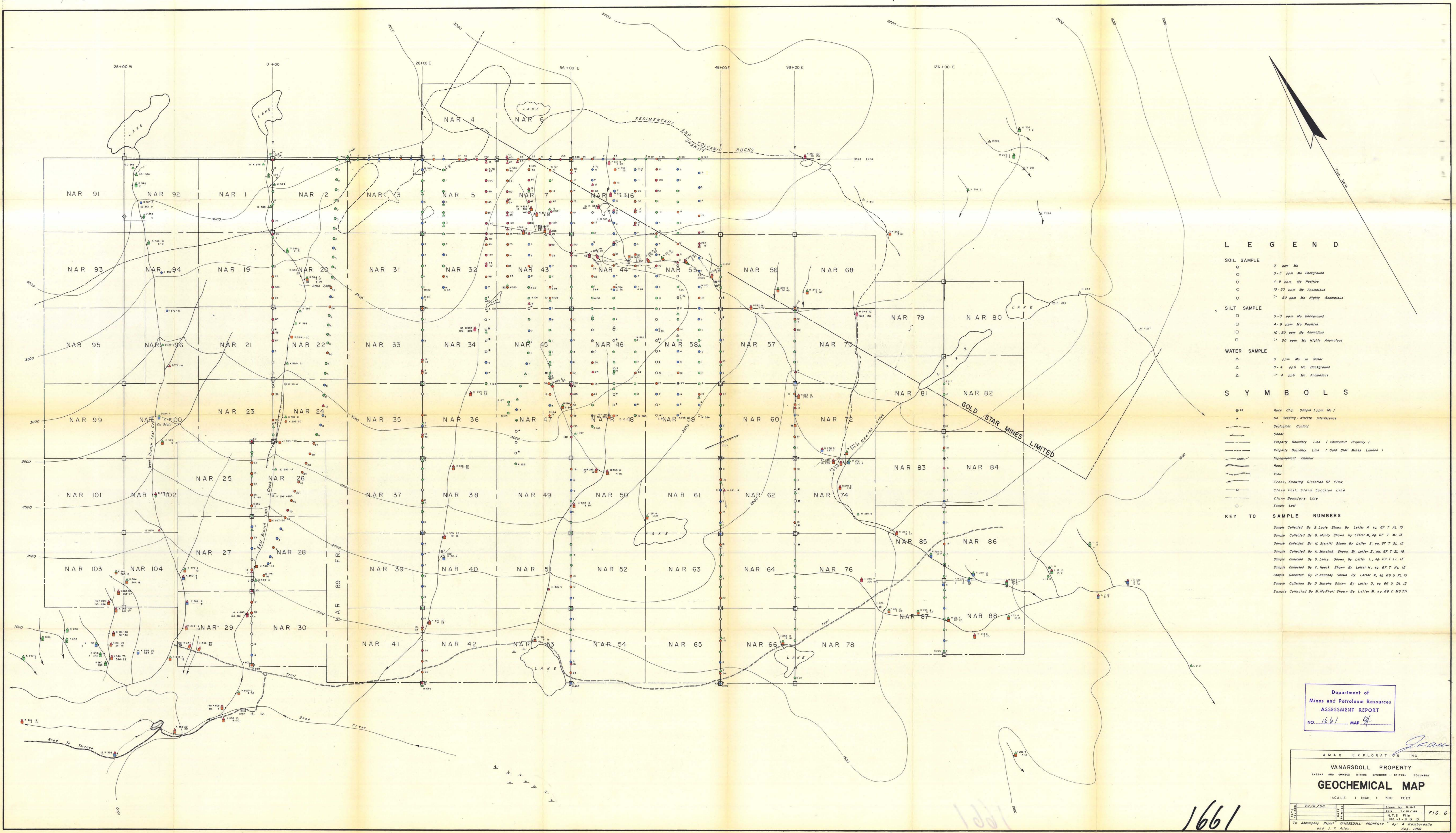


LEGEND

- + 30 Compass and Tape Station
- 70 — + Joints (Inclined, Vertical, Flat)
- Shears
- Δ 67 THW 335 Water Sample
- Rock Chip Sample, Value ppm Mo
- ⋯ Outcrop
- Dyke
- ~ Creek

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ASSESSMENT REPORT
NO. 1661 MAP 3

AMAX EXPLORATION INC.			
VANARSDOLL PROPERTY SKEENA AND OMECEA MINING DIVISIONS - BRITISH COLUMBIA			
GEOLOGICAL MAP			
(Head of Newtown Creek)			
SCALE 1 INCH = 100 FEET			
Completed by: NGB	J	Drawn by: P.W.R.	FIG. 5
Date: Feb. 10, 68	J	Date: Feb. 1968	
Scale: N.T.S.	J	File: 103-1-9, 10	
Date: 29/8/68	J	Scale: 103-1-9, 10	
To Accompany Report VANARSDOLL PROPERTY by A. Gambardella and J. F. Allan. Aug. 1968			



LEGEND

- SOIL SAMPLE**
- 0 ppm Mo
 - 0-3 ppm Mo Background
 - 4-9 ppm Mo Positive
 - 10-50 ppm Mo Anomalous
 - > 50 ppm Mo Highly Anomalous
- SILT SAMPLE**
- 0-3 ppm Mo Background
 - 4-9 ppm Mo Positive
 - 10-50 ppm Mo Anomalous
 - > 50 ppm Mo Highly Anomalous
- WATER SAMPLE**
- △ 0 ppm Mo in Water
 - △ 0-4 ppb Mo Background
 - △ > 4 ppb Mo Anomalous

SYMBOLS

- Rock Chip Sample (ppm Mo)
- No Testing - Nitrate Interference
- Geological Contact
- Shear
- Property Boundary Line (Vanarsdoll Property)
- Property Boundary Line (Gold Star Mines Limited)
- Topographical Contour
- Road
- Trail
- Creek, Showing Direction Of Flow
- Claim Post, Claim Location Line
- Claim Boundary Line
- Sample Lost

KEY TO SAMPLE NUMBERS

- Sample Collected By S. Louis Shown By Letter A, eg. 67 T AL 15
- Sample Collected By B. Mundy Shown By Letter M, eg. 67 T ML 15
- Sample Collected By H. Sturitt Shown By Letter S, eg. 67 T SL 15
- Sample Collected By K. Marsh Shown By Letter Z, eg. 67 T ZL 15
- Sample Collected By G. Leary Shown By Letter L, eg. 67 T LL 15
- Sample Collected By V. Hoek Shown By Letter H, eg. 67 T HL 15
- Sample Collected By P. Kennedy Shown By Letter K, eg. 66 U KL 15
- Sample Collected By D. Murphy Shown By Letter D, eg. 66 U DL 15
- Sample Collected By M. McPhail Shown By Letter M, eg. 68 C MS 711

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AMAX EXPLORATION INC.

VANARSDOLL PROPERTY

EXETER AND OMEGA MINING DIVISIONS - BRITISH COLUMBIA

GEOCHEMICAL MAP

SCALE 1 INCH = 500 FEET

DATE	28/2/88	BY	W. G. B.
DATE	1/10/88	BY	N. S. F.
DATE	10/1/89	BY	N. S. F.

FIG. 6

To Accompany Report "VANARSDOLL PROPERTY" by A. Gombardella and J. C. Allen, Aug. 1988

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