

# 5099

82L/1W

GEOCHEMICAL SOIL SURVEY REPORT

on the

FOX AND DK MINERAL CLAIMS  
Yeoward Mountain Area  
Vernon Mining District

N.T.S. 82L/1W; 118°23'W.LONG.; 50°10'N.LAT.

on behalf of

Mr. David King

82L/1W

by

NIELSEN GEOPHYSICS LTD.  
Vernon, B.C.

August 20, 1974

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <b>5099</b> MAP
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<u>CLAIM NAME</u>	<u>RECORD NUMBER</u>	<u>ANNIVERSARY DATE</u>
FOX #1 - #14	13418 - 13431	August 13
FOX #15 - #21	14374 - 14380	August 13
DK #1 - #12	15906 - 15917	July 26

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## INTRODUCTION

During the period from July 13 to July 25, 1974 a program consisting of linecutting and a geochemical soil survey was executed on some FOX and DK mineral claims on the southwest slopes of Yeoward Mountain approximately 57 miles east of Vernon, B.C.

The purpose of the work was to explore for quartz veins which might contain significant amounts of gold-bearing arsenopyrite known to occur in the area. It was hoped that this information might delineate favourable areas for future geophysical and/or trenching investigations.

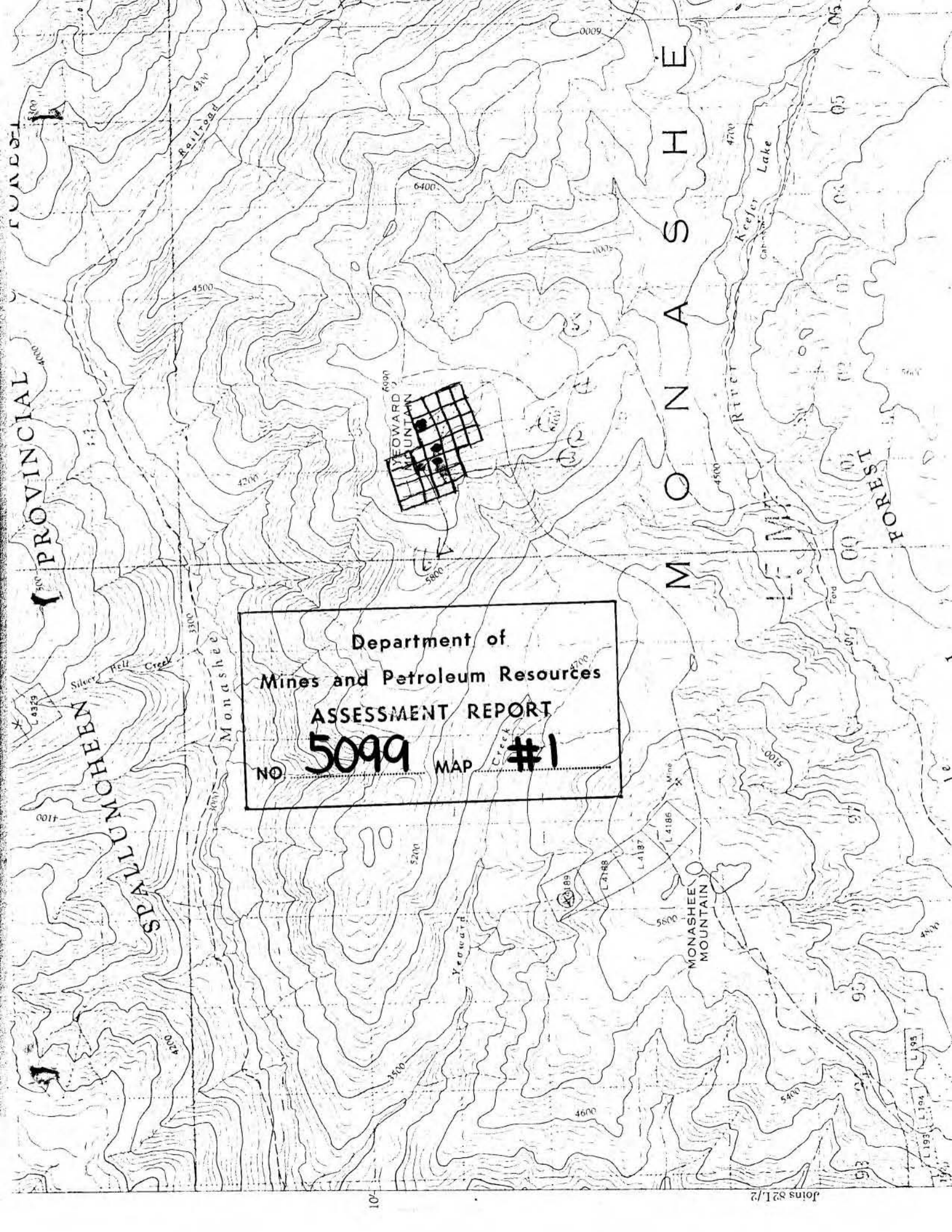
A grid was installed totalling 7.8 line miles and 197 soil samples were collected along cross-lines totalling 7.1 line miles.

The program was conducted on behalf of Mr. David King by Nielsen Geophysics Ltd. The work was supervised by and the soil samples were collected by P.P. Nielsen, the author of this report.

## LOCATION AND ACCESS

The property is located 57 miles east of the City of Vernon on the southwest slopes of Yeoward Mountain at Long.  $118^{\circ}23'W$ . and Lat.  $50^{\circ}10'N$ .

The FOX and DK claims are reached by taking paved Highway No.6 from Vernon to a point 47 miles east and thence northeasterly along the Keefer Lake gravelled road for six miles and the remaining four miles



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PROVINCIAL

MONASHEE

SPLITCOMBEEEN

Monashee

MONASHEE MOUNTAIN

YEOWARD MOUNTAIN

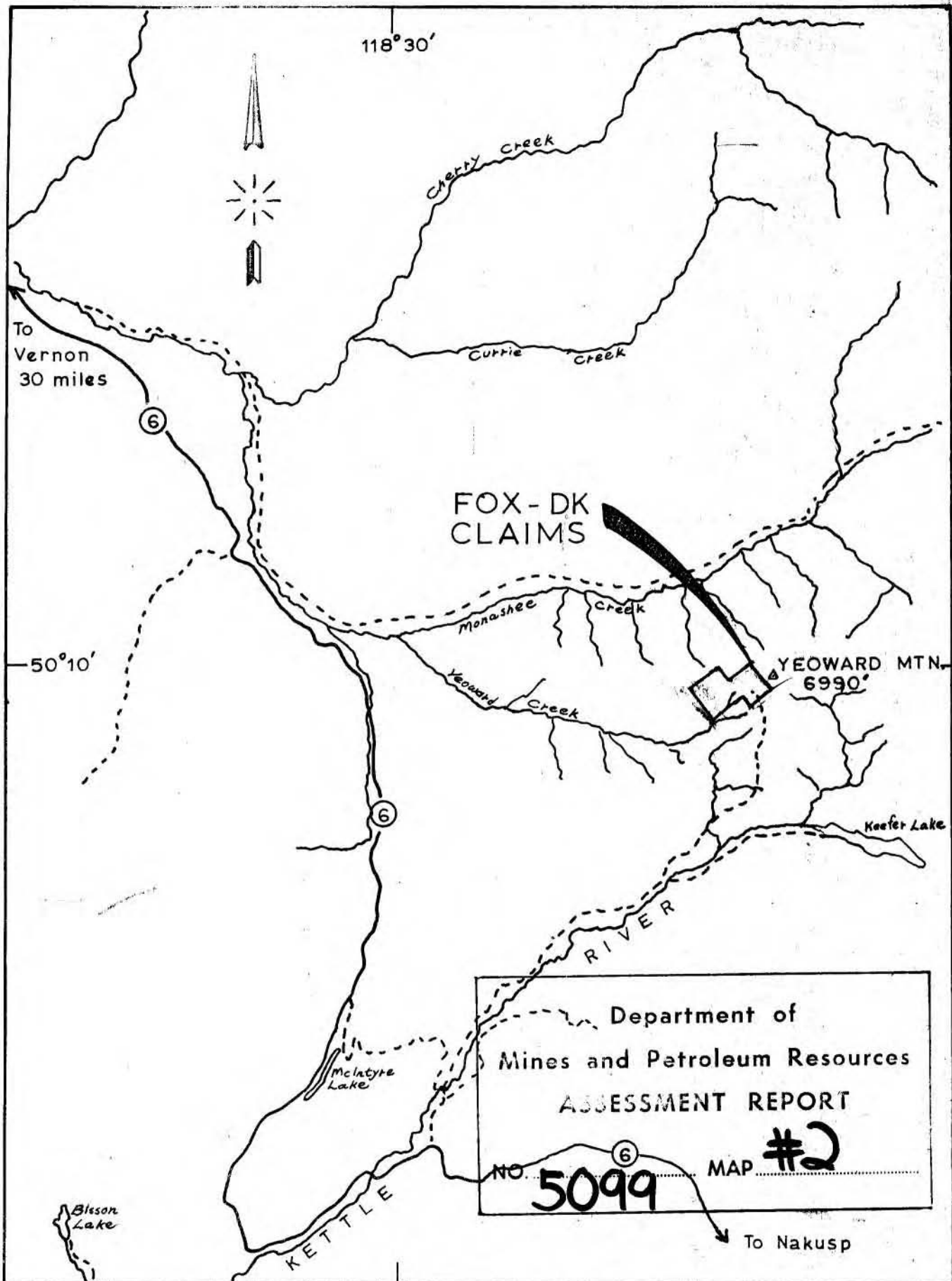
Railroad

Keefler Lake

Yeoward Creek

RIVER

FOREST



LOCATION MAP

Scale 1" = 2 Miles

up a forestry access road using a four-wheel drive vehicle to the property (see Location Map), which is at a mean elevation of 6400 feet A.S.L. Average driving time to the property from Vernon is 2.5 hours. At the time of the survey the last 4 miles were very difficult to negotiate due to washouts and mud-holes with much time being devoted to digging out, winching and repair of the vehicles.

#### TOPOGRAPHY AND VEGETATION

The general area consists of rugged topography with mountain peaks in excess of 6500 feet A.S.L. whose slopes are incised by steep creek canyons and V-shaped valleys. The grid area is located on the southwest slope of Yeoward Mountain which peaks to 6990 feet A.S.L. Average slope is about 20°. Numerous small creeks fed by snow-melt as late as August cross the property.

Vegetation varies from clusters of fir trees in alpine meadows at the higher elevations on the northeast grid extremities to thick mature stands of spruce, fir and pine lower down. Underbrush including willows, alder, huckleberry bushes, is patchy but quite thick over most of the survey area.

Soils are covered by a thick mat of grass and weeds.



CLAIMS

The 34 contiguous FOX and DK mineral claims are owned by Mr. H. Arnold and are optioned to Mr. D. King who supplied the following information:

<u>Claim Name</u>	<u>Record Number</u>	<u>Anniversary Date</u>
FOX #1 - #14	13418 - 13431	August 13
FOX #15 - #21	14374 - 14380	August 13
DK #1 - #12	15906 - 15917	July 26

PREVIOUS WORK

There is no record of work having been done within the boundary of the claims by other than the present owner, although an old exploratory shaft on a quartz vein over four feet thick was observed at the northwestern corner of the grid.

Since 1970, cat trenching, road construction and drilling have been carried out on the FOX #15, #16 and #17 claims.

GEOLOGY

The claims are located in the Vernon map area and the geology is described in G.S.C. Memoir 296 by A. G. Jones.

Most of the Vernon map area is underlain by rocks of the Shuswap terrane (Precambrian) which consist of a series of highly metamorphosed sedimentary and volcanic rocks. At Yeoward Mountain these rocks are overlain by westerly to northwesterly striking argillites tuffaceous andesites and minor quartzite and limestone which have been intruded by quartz veins varying in thickness from  $\frac{1}{4}$ " to over 4 feet. Some quartz veins contain gold-bearing arsenopyrite, argentiferous galena and sphalerite. Minor disseminations of pyrite and chalcopyrite have been observed in the wall-rock at two trenches on the claim block.

Overburden appears to be less than four feet thick throughout the grid area and could average two feet thick. Rock exposure is sparse over most of the claims with most outcrops having been observed near the baseline between Line 8E and Line 16E. Schistose rocks are exposed at the northern extremity of the grid along a bluff and creek canyon.

Ore controls in the area appear to be faulting, proximity of Cretaceous or Tertiary granitic intrusions, and Cache Creek group rocks as a host.



### GRID INSTALLATION

A grid totalling 7.8 line miles (including a baseline 3600 feet long) was installed in the trenched area of the claim block in order that an accurate geochemical soil survey could be executed and to facilitate possible future geophysical, trenching and drilling investigations.

The Baseline was cut on a bearing of  $330^{\circ}$  passing through the initial posts of FOX #15 and FOX #16 mineral claims. Linecutting was carried out by a two-man crew using axes and machetes to blaze and limb trees and to cut through patches of thick brush. Stations were installed every 100 feet using marked flagging tied to trees. Pickets were installed at the intersection of cross-lines and the baseline.

The cross-lines were spaced 400 feet apart and varied in length as shown on the maps.

### GEOCHEMICAL SOIL SURVEY

#### Sampling Procedure

The soil profile throughout the grid area was found to be residual and very poorly developed. The samples were taken from one to one and one-half feet below the ground surface usually in

fragmental rocks just above the bedrock surface. Soils above this layer were extremely organic composed of decayed leaves, grass and shrub roots.

Samples were collected in 4"x 6" kraft bags after screening at each station. The samples were then dried in the bags and shipped to the laboratory for analysis. The sampling interval was 200 feet. Notes regarding soil colour and texture and drainage were taken.

#### Analysis Procedure

197 soil samples were shipped to Vangeochem Lab Ltd. in North Vancouver and analysed for Copper (Cu), Silver (Ag), and Arsenic (As) under supervision by Mr. Conway Chun.

##### (a) Sample Preparation:

The samples were dried in a ventilated oven and sifted using an 80 mesh sieve. The minus 80 mesh fraction was transferred to a new bag for later analysis.

##### (b) Method of Digestion and Analysis:

(i) Arsenic - 0.25 gram of the minus 80 mesh sample was heated in a sand bath with 70-72% H Cl O<sub>4</sub> by weight at a medium heat for four hours and then diluted with demineralized water.

Potassium iodide and stannous chloride in H Cl were added to the sample, Zinc metal was introduced and the Arsenic in solution was

gassed off as arsene through a glass wool scrubber plug saturated with lead acetate and into a solution of silver diethyldithiocarbonate in chloroform with 1-ephedrine, forming a red complex with the silver diethyldithiocarbonate.

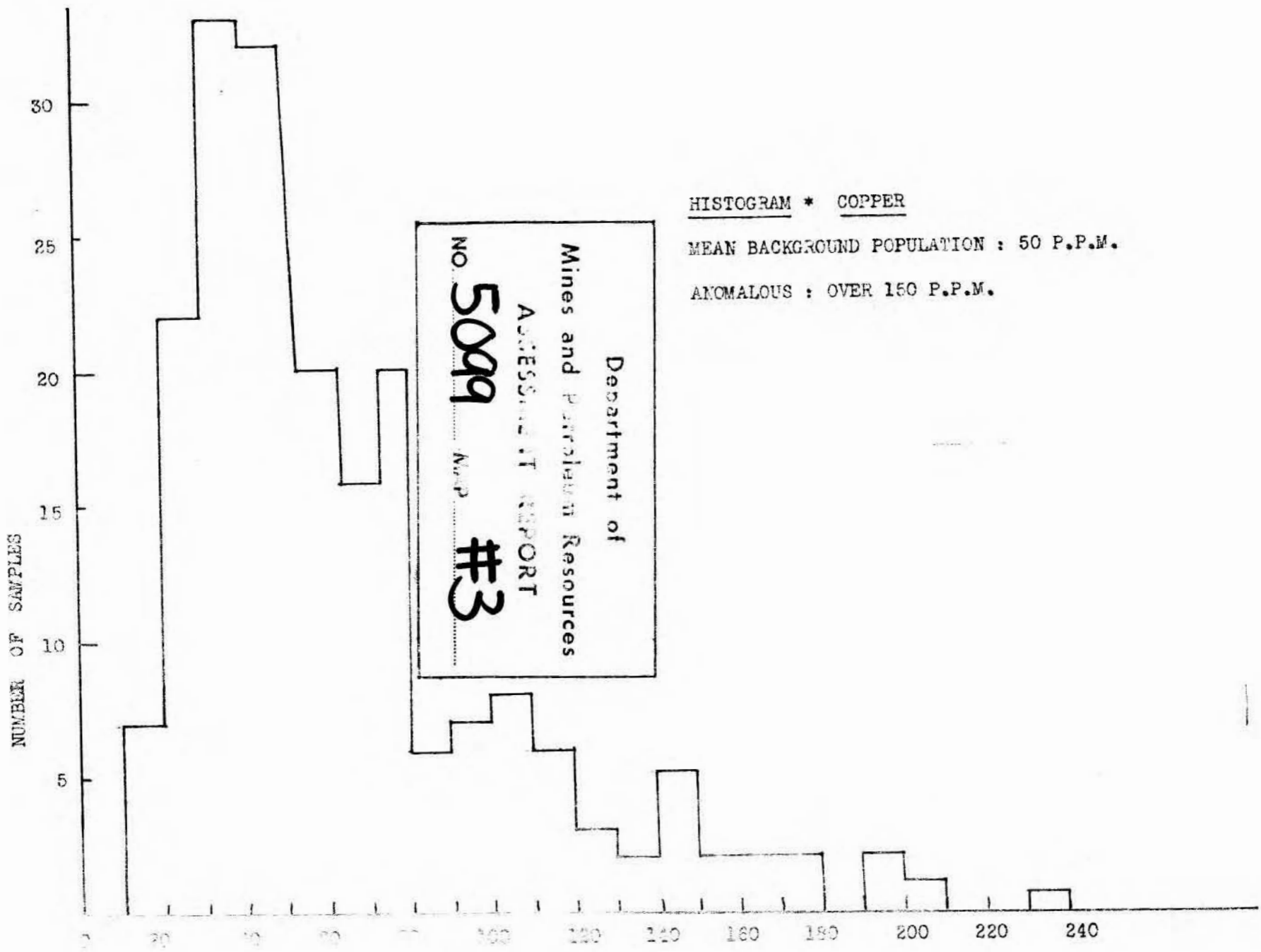
The concentration of the Arsenic was determined colourimetrically by comparing the intensity of the colour of the red complex with a set of known standards.

(ii) Copper and Silver - 0.50 gram of the minus 80 mesh samples were heated in a sand bath with nitric acid and perchloric acids and then diluted with demineralized water to a fixed volume and then shaken. Cu and Ag analyses were determined using a Techtron Atomic Absorption Spectrophotometer Model AA4 with the appropriate hollow cathode lamp. The digested samples were aspirated directly into an air and acetyline flame. The results, in parts per million, were calculated by comparing a set of standards to calibrate the atomic absorption unit.

#### Treatment of the Data

The geochemical results were statistically analysed to determine background and anomalous populations which would indicate meaningful contour intervals and delineate areas for further investigation.

Histograms of frequency versus absolute value expressed in parts per million (p.p.m.) were plotted for each of the three elements

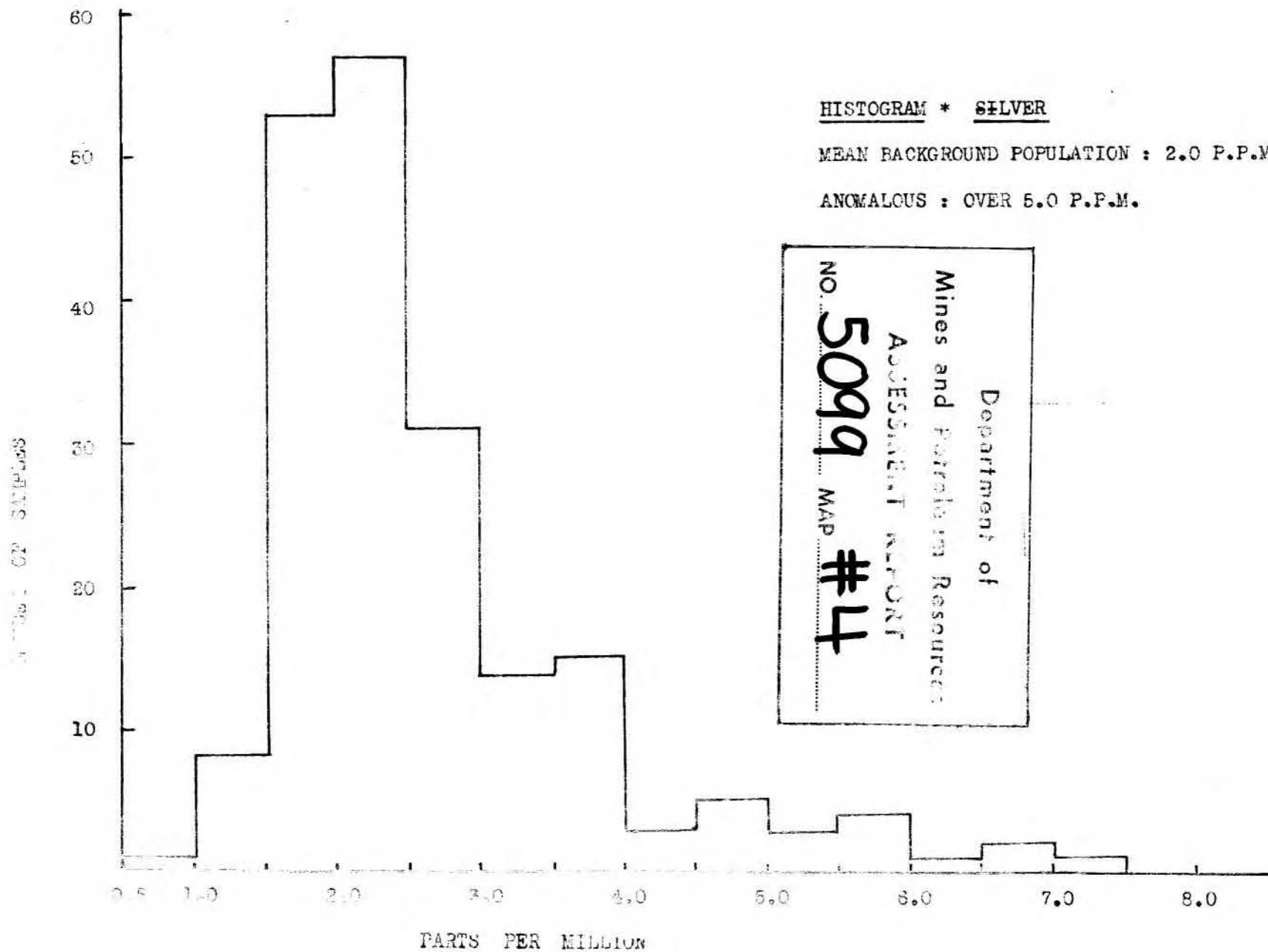


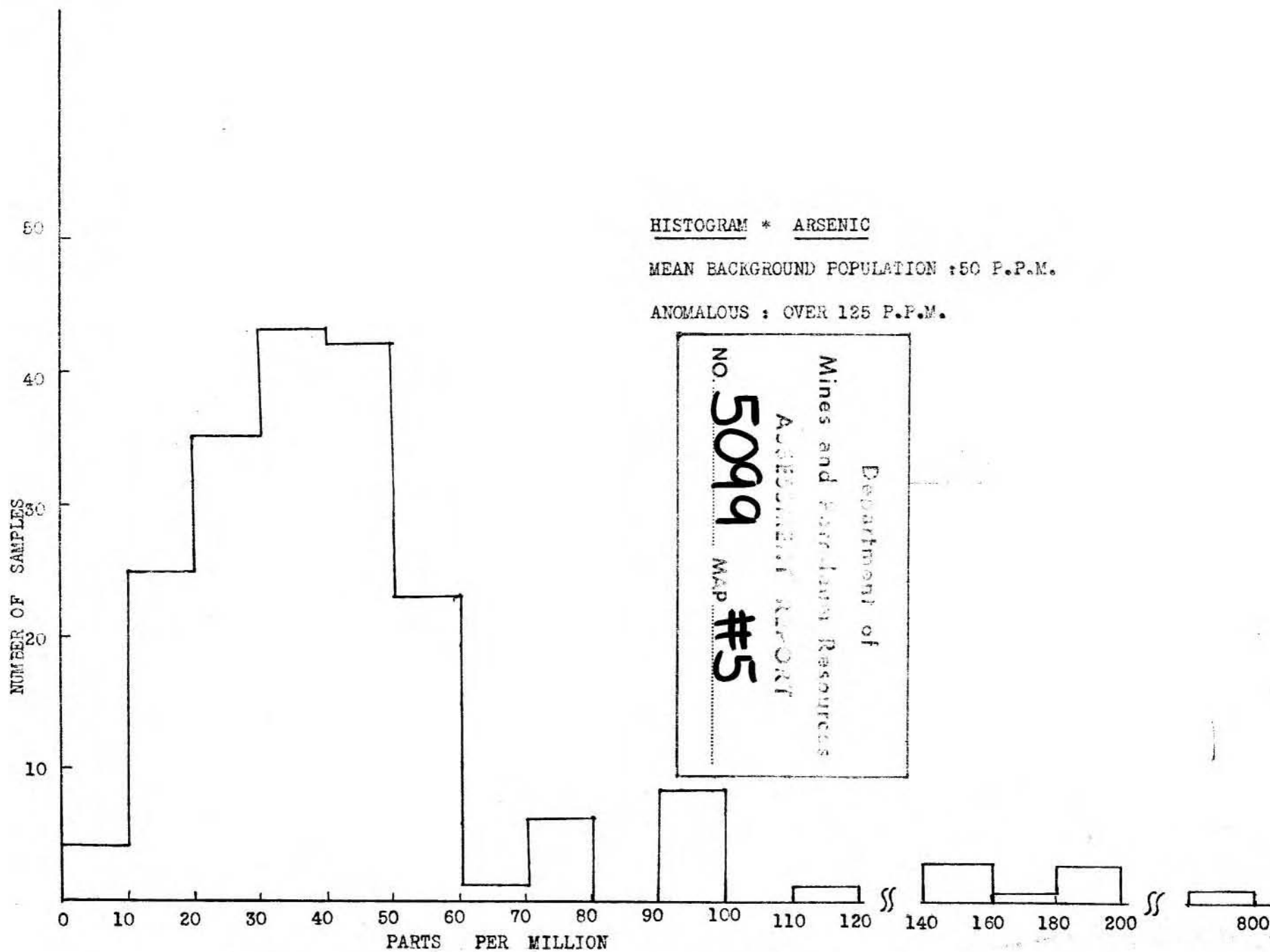
HISTOGRAM \* COPPER

MEAN BACKGROUND POPULATION : 50 P.P.M.

ANOMALOUS : OVER 150 P.P.M.

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 Map #3







analysed. The copper indicated a mean of 50 p.p.m. with values greater than 150 p.p.m. two standard deviations (i.e. 150 p.p.m.) considered to be anomalous. The histogram for arsenic showed a mean of 50 p.p.m. with values greater than 125 p.p.m. being anomalous. The histogram for silver showed a mean of 2.0 p.p.m. with values greater than 5.0 p.p.m. considered anomalous.

The values in parts per million were plotted on plan maps at a scale of 1" = 400 feet and contoured. Contours below the threshold values as determined from the histograms were added to determine possible trends or continuity between anomalous highs.

Anomalous contours are shown "hachured".

#### Discussion of Results and Interpretation

The elements Cu, Ag, and As were chosen for analysis due to the following reasons:

- 1) The known mineralized quartz veins contain auriferous arsenopyrite and argentiferous galena and/or tetrahedrite;
- 2) Chalcopyrite has been observed in the wall rock peripheral to the quartz veins;
- 3) As. is less expensive to analyze than Au.
- 4) Due to the size of the area covered, the relatively broad sampling interval used and the budget available, it was thought that the Ag and the Cu values related to the veins might be sufficiently high so as to delineate specific vein targets for further investigation.

It was appreciated that because of the 200 x 400 foot grid interval used, each anomalously high value encountered regardless of adjacent low values would require follow-up sampling or other forms of exploration. The poor soil profile could mean that sub-anomalous values could also be important.

#### 1. Copper Values and Contour Map

The copper values vary from 25 p.p.m. to 244 p.p.m. over the grid area. Numerous single value anomalous highs greater than 150 p.p.m. are observed but can be grouped into three basic areas of interest. Lower contours suggest a definite N-S elongated trend roughly 2000 feet long by 800 feet wide centered at grid co-ordinates 6E;4N with the north end of the feature being coincident with Trench #1. A smaller anomaly striking northeasterly through Trench #2 is also of interest.

Three small highs in the southwest grid quadrant could be due to narrow N-S striking mineralization.

A small sub-anomalous open contour at Line 20W, Station 2S - 6S could be of interest as it is adjacent to a four foot wide quartz vein exposed by an old shaft at grid co-ordinates 19 50W; 7 50S.

The sub-anomalous value of 135 p.p.m. at Line 8E; Str. 20N is supported by 80 p.p.m. and 85 p.p.m. on adjacent lines and further sampling to the northeast could delineate higher Cu values of interest.

## 2. Silver Values and Contour Map

The Silver (Ag) values vary from 0.9 p.p.m. to 7.1 p.p.m. resulting in four areas worthy of further investigation. The two largest anomalies are roughly coincident with the copper anomalies discussed above. The large N-S striking feature northeast of the baseline is the most interesting and suggests that the causative source continues off the present grid to the northeast.

The 3 p.p.m. contour in the Trench #2 area is also intriguing as it peaks up-slope from the exposed mineralization at Line 0; Stn.3 50S.

Although the contours at Line 20W near the baseline are open to the northwest, its near proximity to the old shaft quartz vein is of interest and should be investigated.

Of less importance but possibly significant are the 5.1 p.p.m. and 5.9 p.p.m. values along Line 8W.

## 3. Arsenic Values and Contour Map

The As readings varied in value from 15 p.p.m. to 200 p.p.m. with one non-detectable (N.D.) reading at Line 20W; Stn.6S and one highly anomalous value of 800 p.p.m. at Line 4E; Stn.12N. The survey resulted in 7 anomalous areas, most of which were single value highs.

The most interesting features are northeast of the baseline in the general area of Trench #1. The 800 p.p.m. high is less than 100 feet from the trenched quartz vein and could reflect an extension to the east of that vein. Intermediate sampling between this high

and the 180 p.p.m. reading at adjacent Line 8E; Stn.16N could show continuity between them.

No significant response is observed at Trench #2, in fact, low background values were found for a radius of over 400 feet from this trench.

Four small anomalous zones are noted southwest of the baseline. Three peak at 200 p.p.m. and one peaks at 150 p.p.m. on two adjacent survey lines.

#### 4. Correlation of Survey Results

When a comparison is made between the three elements analysed, two areas of high correlation are observed. The most significant zone occupies the area from Line 0 to Line 12E from Station 3N to 16N. Within this zone is a higher coincident geochemical anomaly striking easterly from Trench #2 to Line 8E; Stn. 16N.

Another, although smaller, area which exhibits a high Cu-Ag-As correlation is at Line 8W; Stn.8S. The trend is elongated towards the old shaft (i.e. on a bearing of 330°).

A moderate Cu-Ag correlation exists centered at Line 20W; Stn.4S and is open to the northwest.

CONCLUSION: RECOMMENDATIONS

The geophysical survey results have indicated two areas of possible Ag-Au mineralization believed to be related to quartz veins. These areas are in the Trench #1 region and between Line 4W and Line 16W at Station 8S and require further exploration.

Of lower priority but possibly important is the Line 20W; Stn.4S area which would require that further lines be cut and sampled to the northwest.

Lines 4E, 8E, 12E and 16E should be extended and sampled to the northeast to test for a possible extension of the Trench #1 anomalies in that direction.

The numerous single station anomalous readings in the Station 16S - 28S region of the northwest lines should not be discounted as possible vein targets but no immediate work in that area is recommended.

Due primarily to the short field season remaining, it is recommended that trenching be carried out using a backhoe in the two high priority areas mentioned above. Overburden should be less than three feet thick with vegetation and topography presenting little or no access problems.

The results of the trenching and rock sampling in these

two areas will determine if further soil sampling and/or geophysics is warranted both on the present grid and over the remainder of the claims.

Respectfully submitted,

A handwritten signature in cursive script, reading "P. P. Nielsen".

P. P. Nielsen, B.Sc.  
Nielsen Geophysics Ltd.



STATEMENT OF AUTHOR'S QUALIFICATIONS

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I DO HEREBY CERTIFY THAT:

1. I am the author of this report.
2. I supervised the linecutting program and carried out the geochemical soil survey covered by this report.
3. I have been actively and responsibly involved in all phases of mineral exploration throughout western Canada, Alaska and the southwestern United States for the past nine years.
4. I graduated with a B.Sc. degree in Geophysics from the University of British Columbia in 1969. I also attended U.B.C. one extra year acquiring further geology and oceanography courses.
5. I am president of Nielsen Geophysics Ltd. with business address at 2603 - 25th Street, Vernon, B.C. V1T 4P6.
6. I am a member of the Society of Exploration Geophysics, the Canadian Institute of Mining and Metallurgy and the B.C. Geophysical Society.

Signed:

P.P. Nielsen  
P.P. Nielsen, B.Sc.

Date:

Aug 23, 1974

PERSONNEL

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NIELSEN GEOPHYSICS LTD.

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R. Klanjscek	- linecutter	)	July 13
		)	to
B. Sergent	- linecutter	)	July 25, 1974
P. Nielsen, B.Sc.	- Supervisor and		July 6,
	soil sampler		July 13 to
			July 25, 1974.

NIELSEN GEOPHYSICS LTD.

2603 - 25th Street  
Vernon, B.C.  
V1T 4P6

August 20, 1974

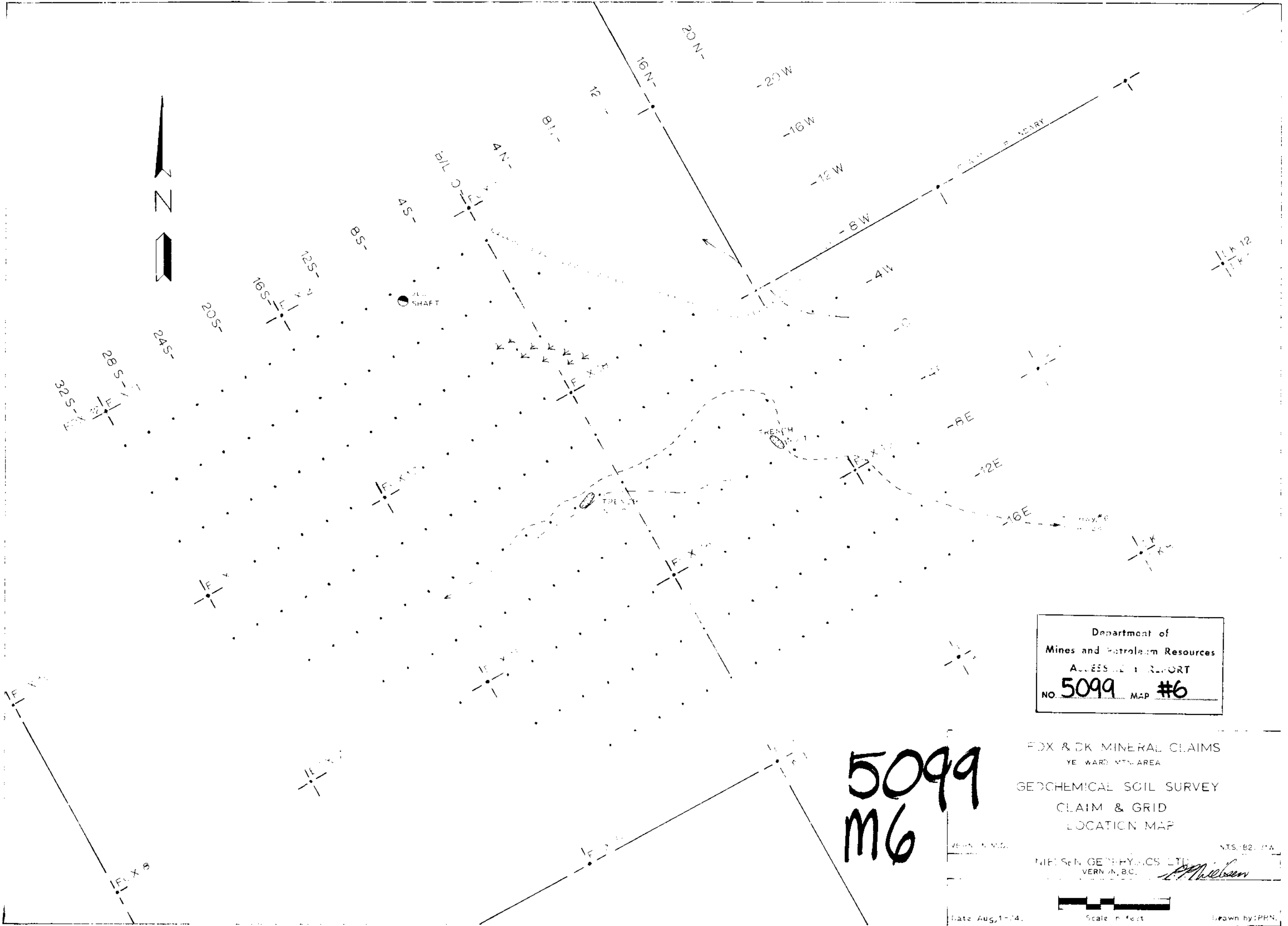
Mr. David King  
3304 - 20A Street  
Vernon, B.C.

I N V O I C E #121

RE: Linecutting and Geochemical Soil Survey  
FOX and DK Claims, Yeoward Mtn. Area  
July 13 - 26, 1974

TO SERVICES RENDERED:

1. Linecutting - 7.80 miles @ \$140/mile .....	\$ 1092.00
(includes labour, food and accommodation)	
2. Geochemical Soil Survey - 7.80 miles @	
\$125/mile .....	885.00
(includes labour, food and accommodation)	
3. Sample Analysis, bags and shipping .....	681.00
(197 samples for Cu, Ag and As)	
4. Transportation:	
(a) Mobilization - Demobilization .....	\$350
(b) Truck rental, gas & oil	
12 days @ \$25/day .....	<u>300</u> 650.00
5. Expenses:	
(a) Winch rental, chains, cable .....	\$ 70
(b) Truck repairs .....	82
(c) Flagging, axe files, pens, etc. ....	<u>40</u> 192.00
6. Report and Property Examination .....	500.00
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	\$ 4000.00
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FOX & DK MINERAL CLAIMS  
 YE WARD MTS. AREA  
 GEOCHEMICAL SOIL SURVEY  
 CLAIM & GRID  
 LOCATION MAP

VERNON, B.C.

NTS. B2. 11A

NIELSEN GEOPHYSICS LTD.  
 VERNON, B.C.

*M Nielsen*

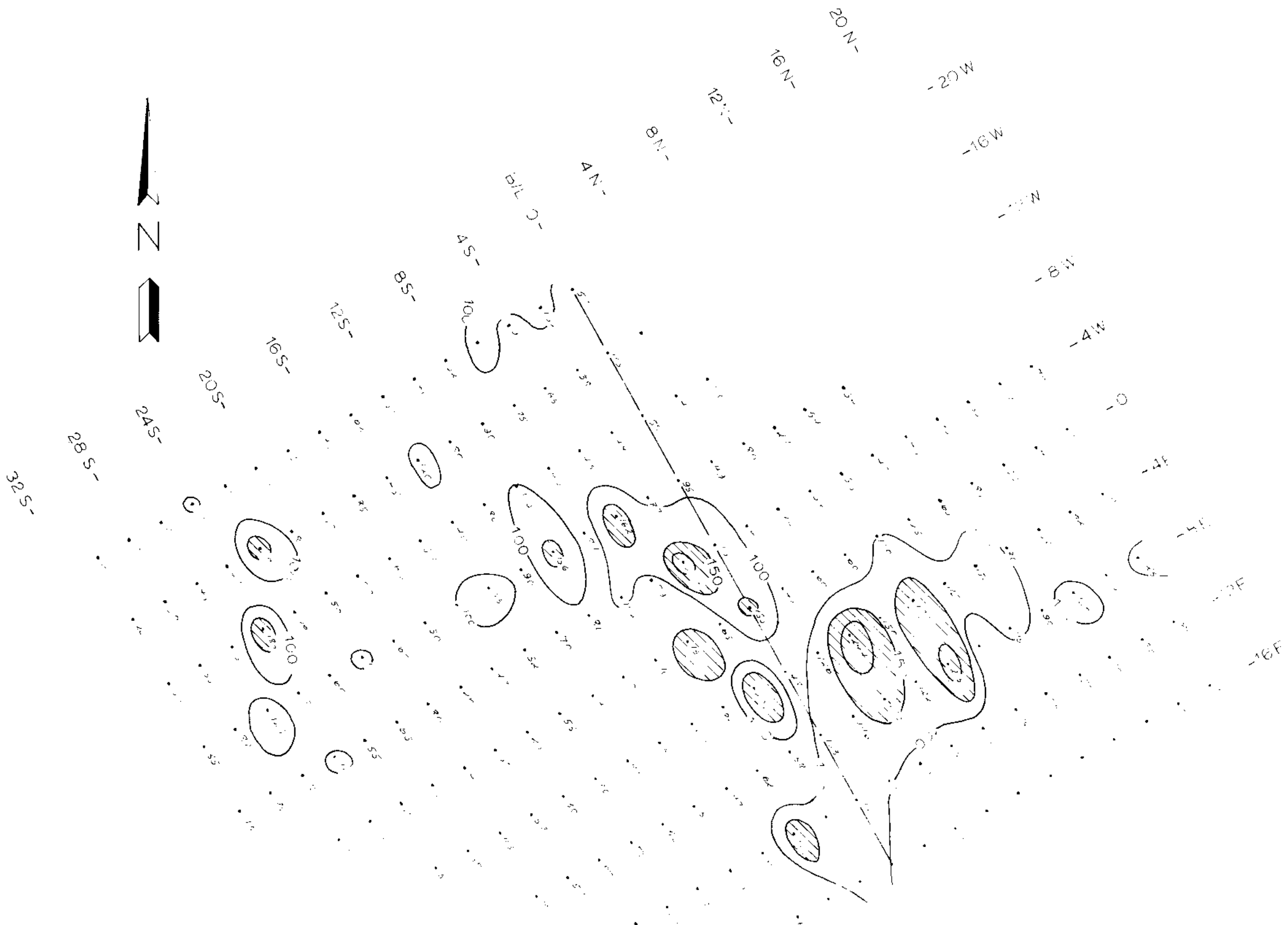


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Scale in feet

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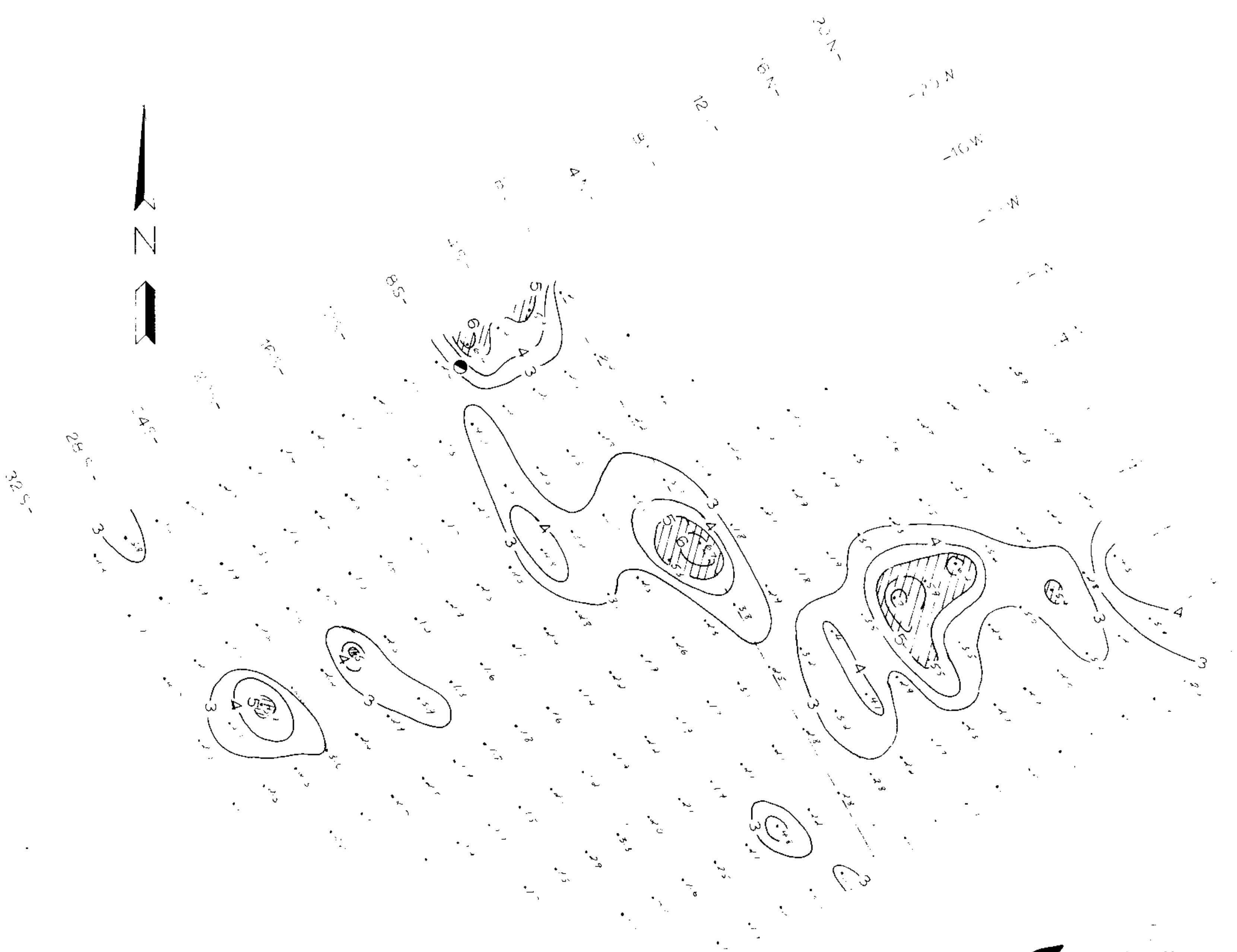
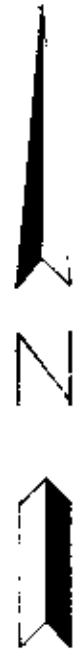


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Mines and Petroleum Resources	
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NO. 5099	MAP #7

FOX & CO. MINERAL CLAIMS  
 YE WAST MOUNTAIN AREA  
 GEOCHEMICAL SOIL SURVEY  
 COPPER (PPM.)

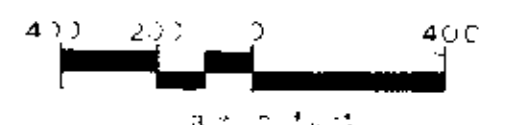
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 P. A. Nelson



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5099  
MB

SILVER (PPM)



*P. Nielsen*

14





5099  
M9

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ARSENIC (PPM)

400 200 0 400  
P. A. Nicholson