

4051

92I/7E

ELECTROMAGNETIC SURVEY

AND

GEOCHEMICAL SURVEY

JG 14, 19-28, 30 and 31

120-51SE

6-10-72 : 16-11-72

Department of
Mines and Petroleum Resources

ASSESSMENT REPORT

NO. **4051** MAP

For:

NICOLA COPPER MINES LTD. (N.P.L.)

9897 138A Street

Surrey, B.C.



By:

ALLEN GEOLOGICAL ENGINEERING LTD.

601 - 325 Howe Street

Vancouver, B.C.

December 15, 1972.

CONTENTS

INTRODUCTION.....	1.
LOCATION AND ACCESSIBILITY.....	2.
TOPOGRAPHY.....	2.
PROPERTY.....	2.
GEOLOGY.....	3.
ELECTROMAGNETIC SURVEY.....	3.
ELECTROMAGNETIC RESULTS.....	4.
GEOCHEMICAL SURVEY.....	5.
GEOCHEMICAL RESULTS.....	5.
SUMMARY AND CONCLUSIONS.....	6.
RECOMMENDATIONS.....	7.

MAPS:

- #1 JG - 1 Location
- #2 JG - 2 Claim
- #3 JG - 3 Electromagnetic
- #4 JG - 4 Geochemical

* * * * *

ELECTROMAGNETIC AND GEOCHEMICAL SURVEYS

J G GROUP

KAMLOOPS M.D.

INTRODUCTION

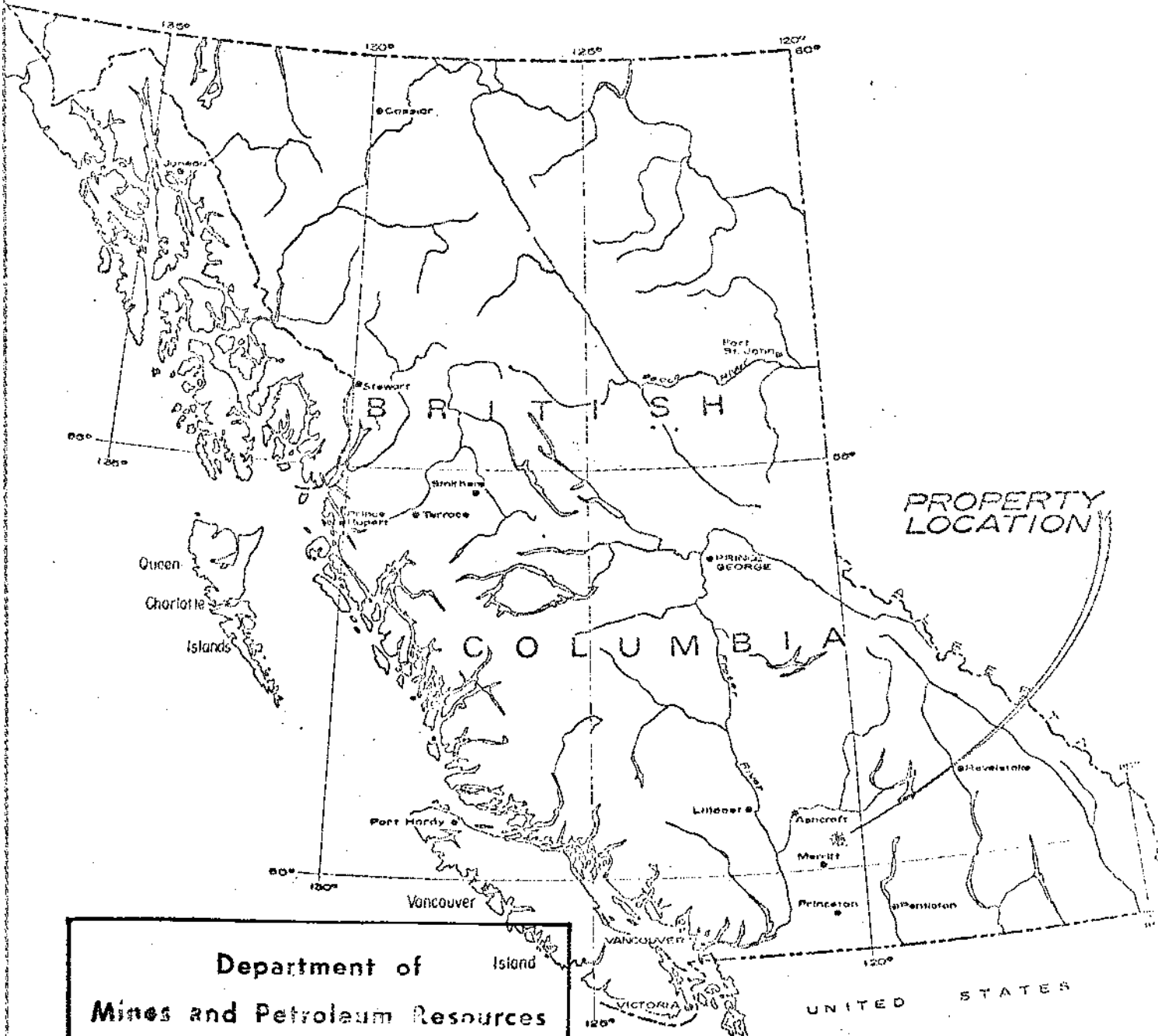
The easterly portion of the JG group of mineral claims was investigated by geochemical and VLF electromagnetic techniques between the October 6 and November 16, 1972.

The geochemical survey was conducted over a grid with lines at south 75 degrees east spaced at 500 feet and stations picketed at 250-foot intervals along each line. The operator was G.S. Blacklaws and assistant was G.W. Halliwell.

At each station soil samples were taken from the B zone.

The VLF electromagnetic survey was conducted on the same grid as that used for the geochemical survey, but extended westerly. Lines at south 75 degrees east were spaced at 500-foot intervals and VLF observations noted at stations every 500 feet along each line. Notes and maps were maintained in the field and the data interpreted and finalized into report form by the writer in Vancouver.

The purpose of the survey was to detect and outline areas with higher than normal copper content in the overburden, and to attempt to detect zones of shearing and/or mineralization.



Department of Mines and Petroleum Resources
ASSESSMENT REPORT
 No. **4051** MAP #1

NICOLA COPPER MINES LTD. (NPL)
LOCATION MAP

SCALE: 1" = 136 Miles.

Drawn by	Date	ALLEN GEOLOGICAL ENGINEERING LTD.
Checked by	22/10/72	
	30-1	

LOCATION AND ACCESSIBILITY

The property is located one mile east of the Logan Lake townsite.

The geographical location is $120^{\circ}-44'$ west longitude and $50^{\circ}-29'$ north latitude.

Access is via the Logan Lake road from Kaⁿloops.

TOPOGRAPHY

The topography is an upland area with low gently sloping hills separated by open creek valleys. Small lakes, connected by intermittent streams drain mostly westerly into Guichon Creek.

The elevation ranges from 4,000 to 5,000 feet above sea level. The claims lie on the north side of Meadow creek.

PROPERTY

The following mineral claims make up the JG Group.

JG 1-29	Record Numbers,	101063 - 101096
JG 30-32	" "	115871 - 115873

The key lines and posts have been examined by the writer and are located in accordance with the requirements of the British Columbia Mineral Act.

GEOLOGY

The claims area is underlain by rocks of the Nicola Group. These Upper Triassic rocks are chiefly andesite, agglomerate and basalt in the Logan Lake area, but elsewhere in the Kamloops-Merrit region there are included interbands of limestone, argillite and conglomerate.

Four miles to the west, in Guichon Creek valley, the Nicola rocks are in contact with the younger igneous intrusives of the Guichon Creek batholith. At this location both rock assemblages are overlain by volcanic rocks of the Tertiary Kamloops Group.

The Ford copper prospect is located in the western portion of the claims. Disseminated copper was mined from a porphyry bluff, and 30 tons was shipped which carried 2.14% copper and 0.3 ounces per ton silver.

ELECTROMAGNETIC SURVEY

A VLF electromagnetic survey was conducted over the JG 14, 19-28, 30 and 31 claims between October 6, and November 16, 1972.

A surveyed grid was established over the claims area. Parallel lines at 500-foot spacing were surveyed south 75 degrees east by chain and Brunton compass. Along each line stations were set at 500-foot intervals. Stations were picketed and marked with grid locations. Lines were blazed and flagged.

The transmitter station at Jim Creek, Washington, U.S.A., 18.6 k Hz, 250 KW, provided clear VLF reception. A Geonics 16 VLF instrument was used to detect quadrature and tilt angles at each grid station. Data was recorded in a field book and on a preliminary map. All data were re-mapped and interpreted in Vancouver by the writer.

The field operator was G.S. Blackstock and assistant G.W. Halliwell.

SURVEY RESULTS

The interpretation of VLF electromagnetic results are shown on the accompanying map JG E - 2.

The locations of seven indicated conductor zones are as follows:

From 18 - 5W to 6N - 6+150W at N 10 W
 From 3S - 1+300E to 3N - 2+100W at N 15 W
 From 4N - 3+250W to 6N - 3+400W at N 20 W
 From 3N - 1+400E to 6N - 1+250E at N 5 W
 From 3S - 2+200E to 1S - 3+250E at N 30 E
 From 3S - 6+300W to 1S - 8+100W at N 38 W
 From 3S - 12W to 0+250S - 10W at N #6 E

The areas which include the conductor zones should be closely prospected, followed by stripping and trenching at selected locations to check for copper mineralization.

GEOCHEMICAL SURVEY

The easterly claims of the JG group were investigated by a geochemical survey over a 500- by 250 - foot grid. The grid on the JG 25-28, 30 and 31 comprised lines every 500 feet directed south 75 degrees east. Stations were located by marked pickets every 250 feet. Soil samples were taken from the B zone at each station.

The samples were dried, screened to -80 mesh, treated with hot HNO_3 and HClO_4 , and assayed for copper with atomic absorption equipment.

Copper content was reported in parts per million.

The results are shown on the map accompanying this report.

SURVEY RESULTS

The copper content of the soil samples taken over the grid on the JG 25-28, 30 and 31 claims are shown on the accompanying map # JG - G-3.

The B zone on most of the area contains soil carrying 40 to 69 parts per million copper.

The following areas sampled higher than 70 parts per million copper.

- A. An irregular area from 1N to 3S and 1 to 4 W
The samples assayed from 70 to 100 ppm copper
- B. An "L" shaped area from 2N to 5N and 2E to 3W
Sample range was from 70 to 74 ppm copper

- C. From 2+300N to 200S and 2E to 3E
Sample range was from 72 to 94 ppm copper.
- D. From 1+150 to 2E+150 and 1S+350 to south boundary
Sample range was 72 to 86 ppm copper
- E. 2E + 400 to 3E+300 and 3N+400 to 5N+250
Sample range was 78 and 1,120 ppm copper.

Selected areas on the higher ranges of copper content from the B zone should be checked for bedrock mineralization by stripping and trenching.

SUMMARY AND CONCLUSIONS

Electromagnetic VLF results over the eastern portion of the JG group resulted in the detection of seven conductor zones.

Simultaneous soil sampling over the northeasterly six claims resulted in outlining five irregular areas where soil from the B zone carries more than 70 ppm copper - one spot sample assaying 1120 ppm.

It is concluded that the east half of the JG group warrants thorough investigations to check for possible copper mineralization in bedrock, and that the west half should be surveyed by electromagnetic VLF and geochemical techniques.

RECOMMENDATIONS

It is recommended that the JG 14, 19-28, and 30 and 31 claims area be thoroughly investigated for possible copper deposition.

The JG 25, 28, 30 and 31 claims should be closely prospected and so far as practical, trenched to bedrock where the conductors and highest geochemical results have been outlined.

Respectfully submitted,

ALLEN GEOLOGICAL ENGINEERING LTD.

Per Alfred R. Allen P.Eng.

Alfred R. Allen

Vancouver, B.C.

December 15, 1972.

ALFRED R. ALLEN

VLF ELECTROMAGNETIC AND GEOCHEMICAL SURVEYS

JG 14, 19-28, 30 and 31 CLAIMS

6-10-72 : 16-11-72

EXPENDITURES

Crew

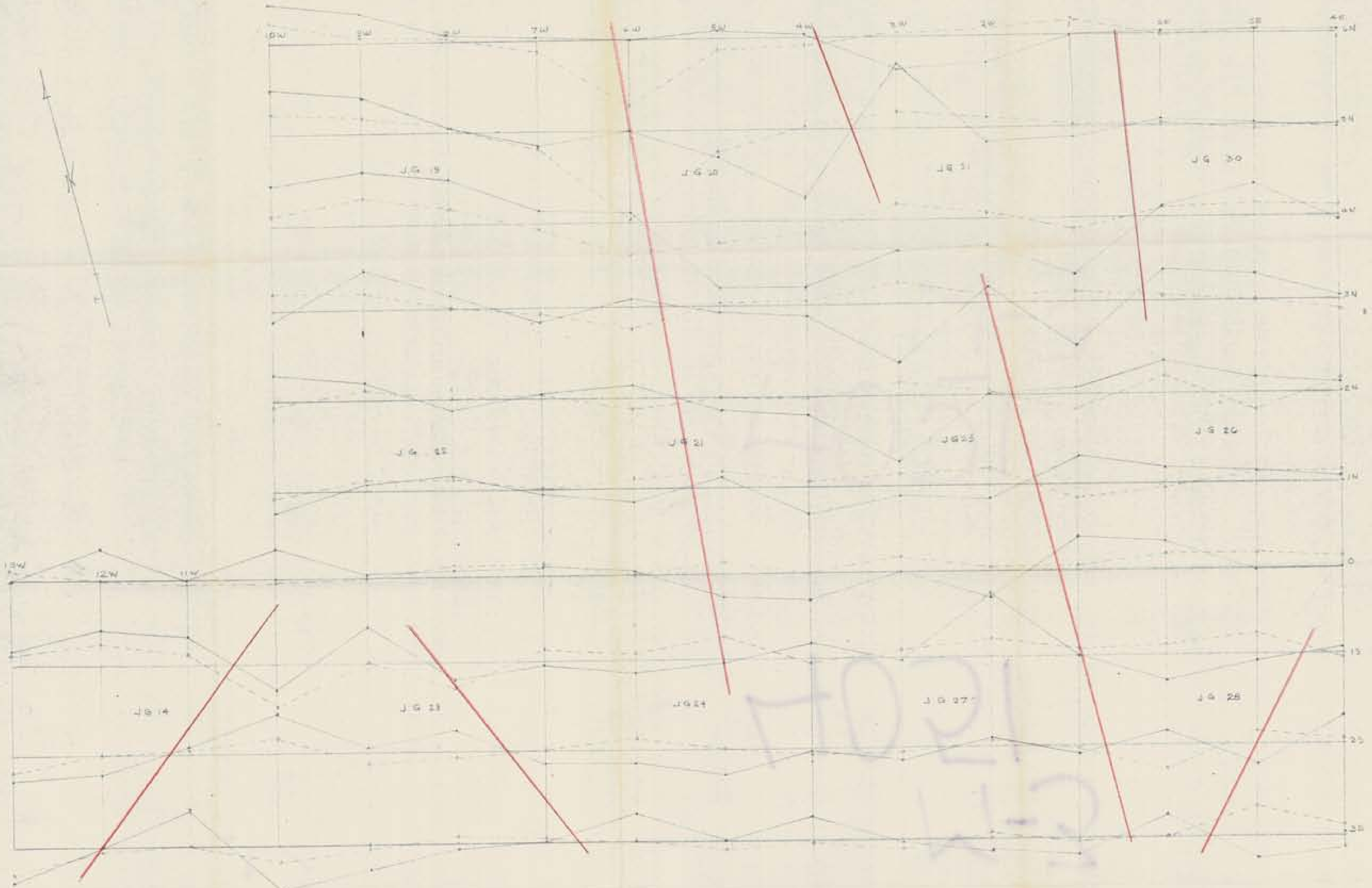
Alfred R. Allen, P.Eng., Vancouver, B.C., Operator, July 18, Nov. 26-29	\$ 522.00
Gordon S. Blacklaws, Surrey, B.C., Operator, Oct.6- Nov. 16	1,200.00
G.W. Halliwell, Surrey, B.C., Assistant, Oc t. 6- Nov. 16	900.00

Logging and meals,	315.00
Truck,	205.00
Instrument rental,	260.00
Assaying.	198.00
	<hr/>
	\$3,600.00

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *28*
day of *December*, 1972, A.D.

Alfred R. Allen

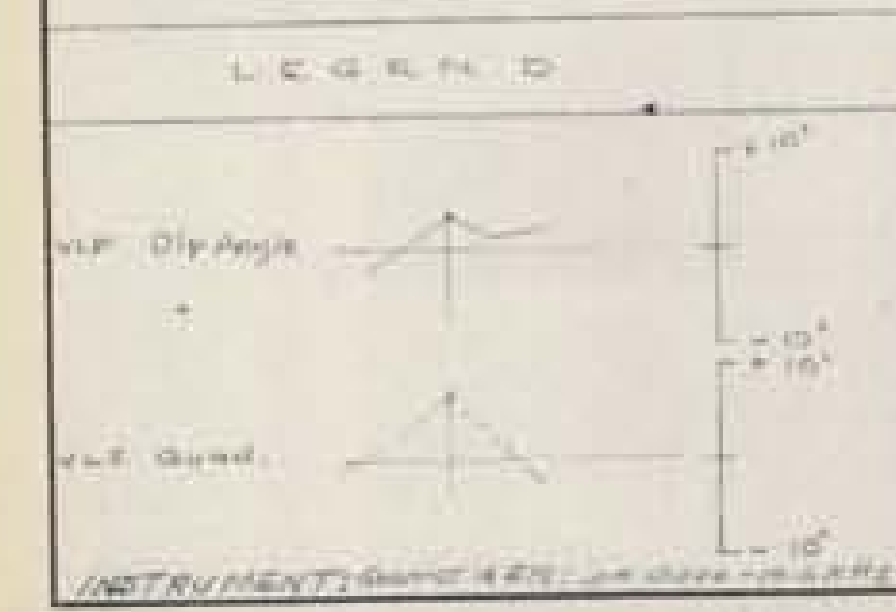
A. J. Jansette
A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

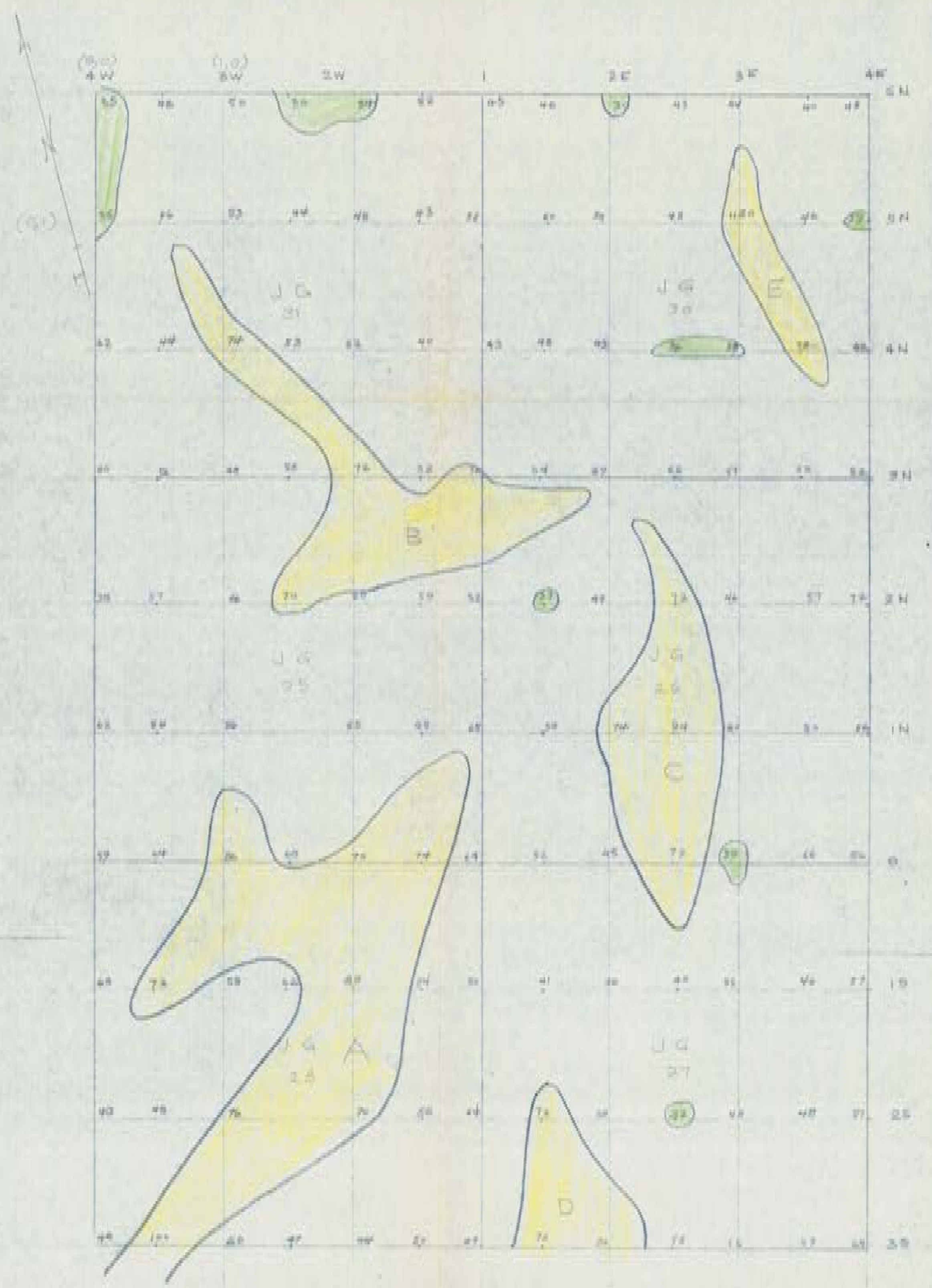


M-3
4051

Department of
Mines and Geology Resources
ASSESSMENT REPORT
NO. 4051 #3

NICOLA COPPER MINES ^{US. 100}
ELECTROMAGNETIC SURVEY
J.G.
Scale - Feet
300 0 300 600 900
NO. JB E-2
ALLAN GEOLOGICAL ENGINEERING
1000 ...





20

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO 4051 MAP #4

LEGEND

0-29	Low Copper	
40-69	"	
70+	"	

NEOLA COPPER MINES (area)

GEOCHEMICAL
JG GROUP

0 300 600 900 1200
Scale - Feet

No	JG G-8	ALLEN GEOLOGICAL ENGINEERING
Date	Dec 5/78	Per. <i>[Signature]</i> A. Eng.