

784

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED
TRAIL, B.C.

REPORT OF GEOLOGICAL, GEOCHEMICAL AND
GEOPHYSICAL SURVEYS
ON THE W.D.R. GROUP OF CLAIMS, OWNED BY VALLEY COPPER MINES
LTD., LOCATED IN THE HIGHLAND VALLEY (50°, 120° NE)

<u>Claim</u>	<u>Record No.</u>	<u>Credit Requested</u>	<u>Total</u>
<u>W.D.R. NO. 1 GROUP</u>			
W.D.R. 5-10	42813-18	-	-
W.D.R. 20,27,28	42828,35,36	-	-
W.D.R. 15,17,19	42823,25,27	1 year each	3
W.D.R. 21-26	42829-34	1 year each	6
W.D.R. 33,35	42841,43	1 year each	2
W.D.R. 37-46	42845-54	1 year each	10
W.D.R. 49,50	42857,58	1 year each	2
W.D.R. 59,60	43442,43	1 year each	2
	TOTAL:		25 yrs.
<u>W.D.R. NO. 2 GROUP</u>			
W.D.R. 1-4	42809-12	-	-
W.D.R. 12,14,16,18	42820,22,24,26	-	-
W.D.R. 11,13	42819,21	2 years each	4
W.D.R. 29-32	42837-40	1 year each	4
W.D.R. 34,36	42842,44	2 years each	4
W.D.R. 47,48	42855,56	2 years each	4
W.D.R. 51-58	43434-41	1 year each	8
W.D.R. 61-62	43444-45	1 year each	2
	TOTAL:		26 yrs.

Work was carried out on the above claims during the period from June 1 to July 30, 1965

REPORT BY

J.M. ALLEN, UNDER THE SUPERVISION OF

J. RICHARDSON P.ENG.

JMA:ss
April 20, 1966

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED
TRAIL, B.C.

REPORT OF GEOLOGICAL, GEOCHEMICAL AND
GEOPHYSICAL SURVEYS
ON THE W.D.R. GROUP OF CLAIMS, OWNED BY VALLEY COPPER MINES
LTD., LOCATED IN THE HIGHLAND VALLEY (50° N, 120° W)

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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED
TRAIL, B.C.

EXPLORATION REPORT
ON THE W.D.R. GROUP OF CLAIMS, OWNED BY VALLEY COPPER MINES
LTD., LOCATED IN THE HIGHLAND VALLEY (50°, 120° NE)

INTRODUCTION

The W.D.R. group consists of 69 claims located on the northeast side of the Guichon batholith north of Witches Brook and immediately west of the Merritt-Savona road. Good access to the group is provided by a road through the Horison farm which extends northerly through the center of the group.

The area is generally flat or gently rolling and is for the most part heavily overburden covered. Numerous small streams drain the area and two small lakes lie in the central and northern part of the group. The largest of these is named Big Meadow Lake.

The claims straddle the Guichon quartz diorite - Nicola volcanic contact and are therefore a site for either Cragmont or Bethlehem type mineralization. Work done to date has consequently been directed toward investigation of the contact area and to searching for prominent north-south structures of the Bethlehem type.

WORK DONE

Work done on the group has included bulldozer trenching, road construction, geological mapping, geochemical and magnetometer surveying and linecutting. Trenching and road construction were done prior to 1965 and have already been applied for assessment credit. This report deals only with the geological, geochemical and magnetometer work accomplished during 1965.

GEOLOGICAL MAPPING

The whole property has been mapped at a scale of 1" = 1000 feet. Control for mapping was provided by aerial photographs and three picketed lines. On the accompanying map additional geology from the surrounding area is included to provide a better overall picture since total outcrop on the property is only about 5%.

The most distinctive geological feature is the Guichon-Nicola contact which strikes northwestward through the east-central part of the group. This contact is a gradational one showing a change from unaltered Nicola volcanics on the east through baked, hornfelsic Nicola into medium grained diorite which becomes progressively lighter coloured and coarser grained to the west. The width of the transition hybrid zone varies from 1000' to 4000 feet. The western half of the property is underlain by Guichon quartz diorite. Further west, on the property, narrow north-south dikes of younger quartz diorite were mapped but none were seen on the property. A small exposure of Tertiary volcanics of the Kamloops group occurs near the northwest corner of the group.

The intrusive-volcanic contact was considered to be of particular importance because of the possibility of finding Cragmont type mineralization in limsy sections along it. No such mineralization was found, no limestone was detected and geochemical and magnetic work has indicated no such possibilities. The contact is intrusive showing evidence of assimilation of Nicola rocks over widths of $\frac{1}{2}$ mile or more. This is in conflict with recently published K/Ar dates which show a Permian age for the Guichon intrusion. Obviously if the Guichon is of Permian age it could not have intruded the Nicola rocks of upper Triassic age, however, the field evidence seems, in this case to be

more conclusive.

Structural data from mapping does not indicate any significant zones of shearing or fracturing. Narrow zones of shearing were noted, one of which is lightly mineralized, but these appear to be isolated and unrelated to any larger structures. Jointing, in the same way, does not indicate major fracture zones and seems for the most part to reflect normal stresses attendant on consolidation and unloading.

Mineralization on the W.D.R. group is of sporadic occurrence and always is in very small amount. North of the small lake near the north end of the property minor malachite staining was observed in a northeasterly shear zone in Guichon quartz diorite. This shear zone is about two feet wide and cannot be traced along strike beyond the trench in which it occurs. At various other places on the property trace amounts of chalcopyrite were observed but in no case was the mineralization found to be associated with a favourable structure or rock type and in all cases the indicated size potential was very small.

GEOCHEMICAL SURVEY

The purpose of the geochemical survey was to delimit targets for detailed work. No such targets were found. The survey was conducted in three stages. The initial stage consisted of silt sampling in the drainage pattern over the area. The second stage was limited to soil sampling on a grid pattern around known copper occurrences. The purpose of this was to establish the strike and extent of the mineralization. The third stage consisted of analyzing representative rock samples for copper content.

A total of 60 stream silt samples were analyzed and of these only four or 7% showed higher than background values. (background 40 P.P.M.) All of these higher values were found in a swampy creek near the north boundary where it is probable that a higher content of organic material has contributed to the higher values. Overall the silt sampling has indicated that no significant mineralization is accessible to drainage in the area sampled.

Soil sampling around known copper occurrences failed to indicate any significant extent of mineralization. A total of 268 soil samples were analyzed and of these only 8 samples (3%) gave more than the background value of 30 P.P.M. This sampling indicates that known mineralization is of little extent and apparently unrelated to any larger bodies.

Analysis of rock specimen was related to a larger program dealing with the various rock types found in the Guichon batholith. Seven samples were taken from the W.D.R. Four of these were of dioritic composition and representative of the contaminated border phase of the Guichon, two of Guichon quartz diorite and one of younger i.e. Bethlehem type, quartz diorite. Results are:

	<u>Diorite</u>	<u>Quartz Diorite</u>	<u>Younger Quartz Diorite</u>
	120 P.P.M. Cu	45 P.P.M. Cu	- P.P.M. Cu
	280	160	
	110		
	<u>140</u>		
Avg.	<u>162</u>	<u>102</u>	-

The number of samples is sufficient to draw firm conclusions but there is a suggestion that copper content varies directly with mafic mineral content. This type of correlation has been noted elsewhere and is of little direct use in prospecting.

MAGNETOMETER SURVEY

Three east-west lines were cut across the property. These lines roughly trisect the group and were selected to traverse the Nicola-Guichon contact. The purpose of the surveying was to determine whether

the contact was magnetically distinctive and to prospect for magnetite-chalcopyrite bodies along it.

The magnetic results are plotted as profiles on the accompanying map. These profiles show that the three principal rock types are magnetically distinctive. Nicola volcanics to the east are characterized by low magnetic relief over a range of about 500 gammas (1,000 - 1,500 gammas). The contact zone is distinctly higher with a range of 2,000 to 2,500 gammas over distances of 2,000 to 4,000'. Guichon quartz diorite on the west shows a background to the Nicola volcanics but relief is greater and changes much more abruptly. The magnetic bulge over the contact zone suggests that the assimilation of Nicola rock was accompanied by the conversion of a part of the silicate and possibly sulphide iron in the Nicola to magnetite. There is no indication, however, that this process gave rise to anything similar to the Craigmont mineralization perhaps because there are no carbonate rocks along this part of the contact.


CONCLUSIONS AND RECOMMENDATIONS

Response to exploration work to date has been poor and in view of this, recommendation for further work is difficult to make. One possibility suggested by the magnetometer work, is for extended coverage along the contact to establish trends and to prospect for zones of magnetic low or high. This could be followed up by geochemical sampling. In the case of magnetic lows, these may reflect alteration and accompanying mineralization as at Bethlehem and highs may indicate Craigmont type mineralization.

ATTACHMENTS

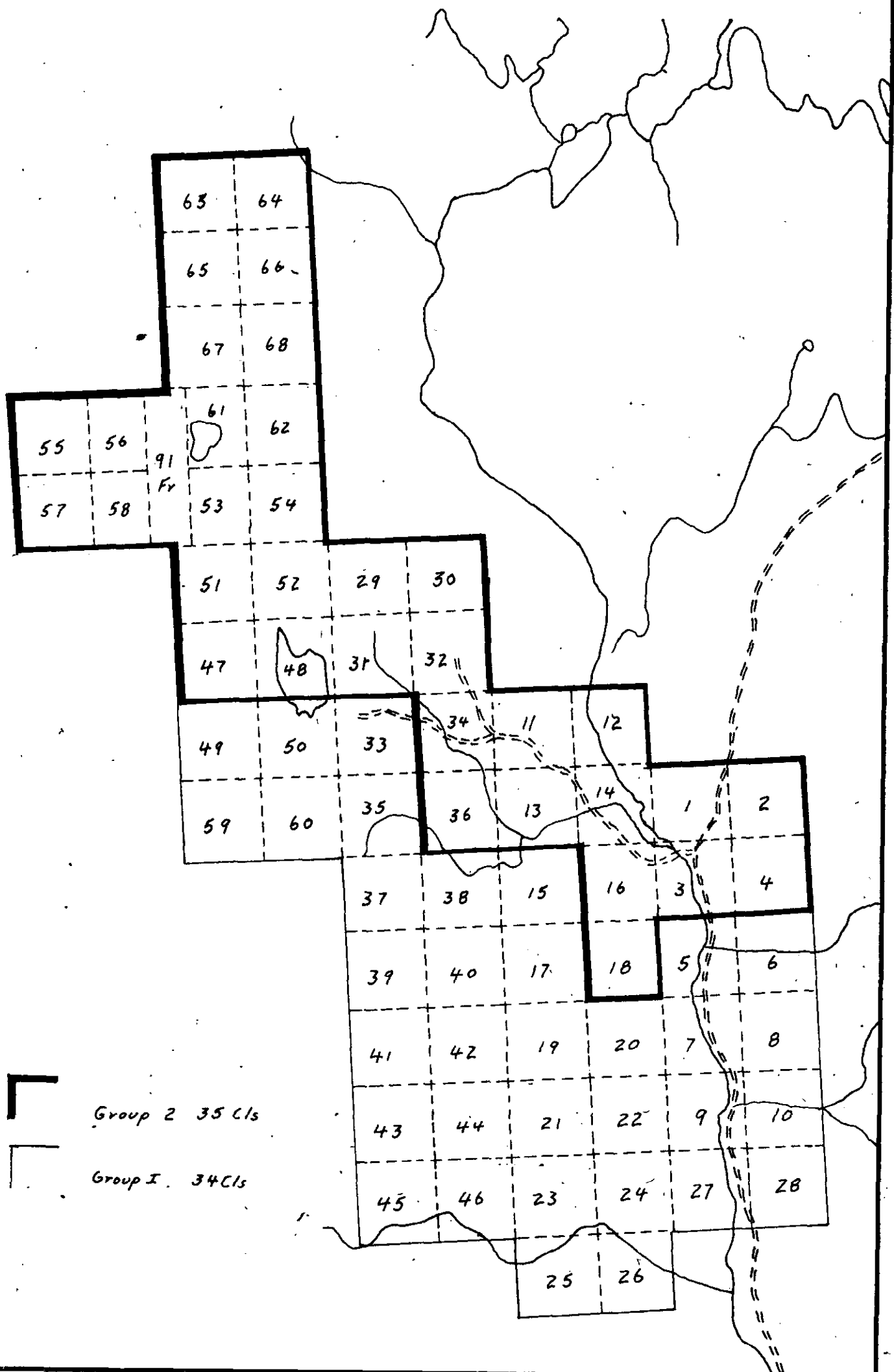
- (1) Map 1" - 1,000' - Geology, Geochemical Results, Magnetic Profiles.
- (2) Map 1" - 1/2 mi. - Grouping Plan W.D.R. Claims.
- (3) Statement of Expenditures.
- (4) Statutory Declaration Relating to Expenditures.
- (5) Appendix.

Report by:


J.M. Allen
Senior Exploration Geologist

JMA:ss
Trail Exploration Office, Western District
April 20, 1966
Distribution: Mining Recorder (Kamloops) (2)
Western District Expl'n (2)

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┌
 Group 2 35 Cls
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 Group I 34 Cls
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The Consolidated Mining and Smelting Company of Canada Limited

DRAWN BY: J.M.A.		TRACED BY:	
REVISED BY	DATE	REVISED BY	DATE

Grouping Plan
 W.D.R. Claims Kamloops M.D.

SCALE: 1" = 1/2 Mi. DATE: March 29, 1966 PLATE:

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED
TRAIL, B.C.

1965 GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL SURVEY
EXPENDITURES - W.D.R. NO. 1 CLAIM GROUP

GEOLOGICAL SURVEY

Graduate Geologists - G.R. Rosseau, T.W. Muraro, 25 man-days at \$40/day during period June 1-July 15, 1965	\$ 1,000
Assistants - R. Robertson, G. Rahan, 25 man-days at \$20/day during period June 1-July 15, 1965	500
Supervision - J.M. Allen, 5½ man-days at \$40/day, July 1-6, 1965	220
Transportation - Truck rental 20 days at \$4.50/day	90
Total:	<u>\$ 1,810</u>

Work performed on the W.D.R. claims 5-10, 15, 17, 19-26, 33-35, 37-46 during the period June 1-23, 1965, and on the W.D.R. claims 49, 50, 59, 60 during the period June 24-July 15, 1965.

MAGNETOMETER SURVEY

Linecutting 10,900' at \$50/mile	\$ 100
Chaining 2½ days at \$20/day	50
Magnetometer Survey - G. Rosseau, R. Robertson 2½ days at \$30/day, June 15-17, 1965	75
Supervision - J.M. Allen, 1 day at \$40/day, June 16/65.	40
Total:	<u>\$ 265</u>

GEOCHEMICAL SURVEY

Salaries - Geochemist S.L. Lee at \$35/day	\$ 175
- Assistant R. Robertson at \$20/day - 8 days	160
- Supervision J.M. Allen 1½ days at \$40/day	60
Transportation - 10 days at \$4.50/day	45
Total:	<u>\$ 440</u>

Work performed during the period June 21-30, 1965.

TOTALS - GROUP I

Geological Survey	\$ 1,810
Magnetometer Survey	265
Geochemical Survey	440
TOTAL:	<u>\$ 2,515</u>

J.M. Allen
Senior Exploration Geologist

Endorsed by:


G. Rahan
Branch Accountant

This is Exhibit "A" to the Statutory Declaration of J.M. Allen, declared before me the day of A.D. 1966.

A Commissioner for taking Affidavits
for British Columbia

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED
TRAIL, B.C.

1965 GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL SURVEY
EXPENDITURES - W.D.R. NO. 2 CLAIM GROUP

GEOLOGICAL SURVEY

Graduate Geologists - G.R. Rosseau, T.W. Muraro, 30 man-days at \$40/day during period June 1-July 15, 1965	\$ 1,200
Assistants - R. Robertson, G. Raham, 25 man-days at \$20/day during period June 1-July 15, 1965	500
Supervision - J.M. Allen, 5½ days at \$40/day, July 6-July 11, 1965	220
Transportation - Truck rental - 20 days at \$4.50/day	90
Total:	\$ 2,010

Work performed on the W.D.R. claims 1-4, 11-14, 16, 18, 29-32, 34, 36 during the period June 1-23, 1965, and on the W.D.R. claims 47, 48, 51-58, 61-68, 91 Fr., during the period June 24-July 15, 1965.

MAGNETOMETER SURVEY

Linecutting 10,900' at \$50/mile	\$ 100
Chaining 2½ days at \$20/day	50
Magnetometer Survey - G.R. Rosseau, R. Robertson, 2½ days at \$30/day, June 17-19, 1965	75
Supervision - J.M. Allen, 1 day at \$40/day	40
Total:	\$ 265

GEOCHEMICAL SURVEY

Salaries - Geochemist - S.L. Lee, 5 days at \$35/day	\$ 175
- Assistant R. Robertson, 8 days at \$20/day	160
- Supervision - J.M. Allen 1½ days at \$40/day	60
Transportation - 10 days at \$4.50/day	45
Total:	\$ 440

Work performed during the period July 3-12, 1965.

TOTALS - GROUP 2

Geological Survey	\$ 2,010
Magnetometer Survey	265
Geochemical Survey	440
TOTAL:	\$ 2,715


TOTAL - BOTH GROUPS: \$ 5,230


J.M. Allen
Senior Exploration Geologist

Endorsed by:


G. Hanson
Branch Accountant

This is Exhibit "B" to the Statutory Declaration of J.M. Allen, declared before me the day of A.D. 1965.


A Commissioner for taking Affidavits
for British Columbia

CANADA
PROVINCE OF BRITISH COLUMBIA
TO WIT:

STATUTORY DECLARATION RELATING TO EXPENDITURES ON A GEOLOGICAL, GEOCHEMICAL AND MAGNETIC SURVEY OF CERTAIN MINERAL CLAIMS THE PROPERTY OF VALLEY COPPER MINES LIMITED.

I, JAMES ALLEN, Professional Engineer (Ontario) of the City of Trail, in the Province of British Columbia, DO SOLEMNLY DECLARE:

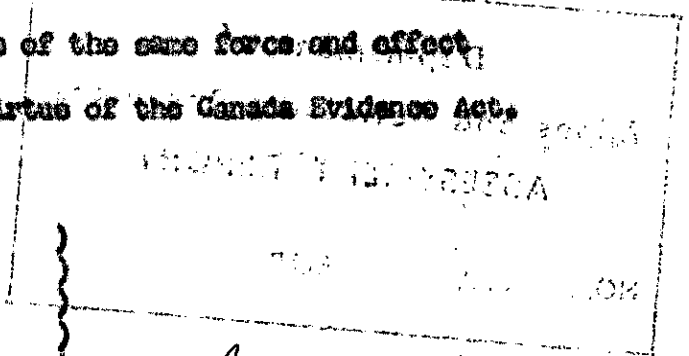
1. That I am the person who prepared a geological, geochemical and geophysical report as the result of surveys carried out of certain mineral claims, the property of Valley Copper Mines Limited, situated in Kamloops Mining Division.
2. That copies of the said report are being filed with the Mining Recorder in Kamloops.
3. That attached hereto and marked with the letters "A" and "B", upon which I have signed my name at the time of declaring hereof, are statements of expenditures incurred in connection with the geological survey of the said claims showing in addition the dates during which those making the said survey performed their work.
4. That I am qualified to make such reports by virtue of 18 years experience in my profession and academic training as shown below:

B.Sc. Queens University 1949
B. A. Syracuse University 1956
Ph.D. Yale University 1959

And I make this solemn declaration conscientiously believing it to be true and knowing it is of the same force and effect, as if made under oath and by virtue of the Canada Evidence Act.

DECLARED before me at the Municipality of Tadenac, in the Province of British Columbia this 3rd day of May, A.D. 1966.

W. J. [Signature]
A Commissioner for taking Affidavits for British Columbia



APPENDIX TO ACCOMPANY THE GEOLOGICAL, GEOCHEMICAL AND
GEOPHYSICAL REPORT ON THE W.D.R. GROUPS
OF CLAIMS BY J.M. ALLEN

SURVEY TECHNIQUES

Magnetometer Survey

The three magnetic profiles were run using a Sharpe M.F.I. fluxgate magnetometer. This is an electronic instrument with a maximum sensitivity of about 10 gammas. To assure maximum sensitivity the instrument was adjusted to its most sensitive scale. In use, the magnetometer was read at each station i.e. 100 feet along the lines and the readings recorded are those shown in the accompanying map. Since only profiles were to be obtained no correction for diurnal or other variation was applied nor were base stations set up.

GEOCHEMICAL SURVEY

Geochemical orientation surveys in other parts of Highland Valley established the procedures used on the W.D.R. claims. Stream sampling was confined in so far as possible to the beds of active streams and an attempt made to avoid organic contamination. Soil samples of about $\frac{1}{4}$ lb. were taken from the A-1 or A-2 horizons i.e. just below the organic litter since prior work had indicated that such shallow sampling could give reliable results.

After collection the samples were dried and screened to pass 80 mesh. A 0.1 gm. portion of the sample was then transferred to a culture tube and digested in hot perchloric acid for approximately one hour. After digestion the sample was diluted, buffered and biquinoline solution added. Copper in the sample causes a red colour to develop in the upper organic layer, the intensity of which is proportional to the amount of copper. Extraction of copper content was made by comparison with prepared standards. In this way as little as 10 parts per million copper can be detected with a precision of $\pm 25\%$.

The biquinoline method offers certain advantages over the more common dithizone method which favoured its use. These advantages are:

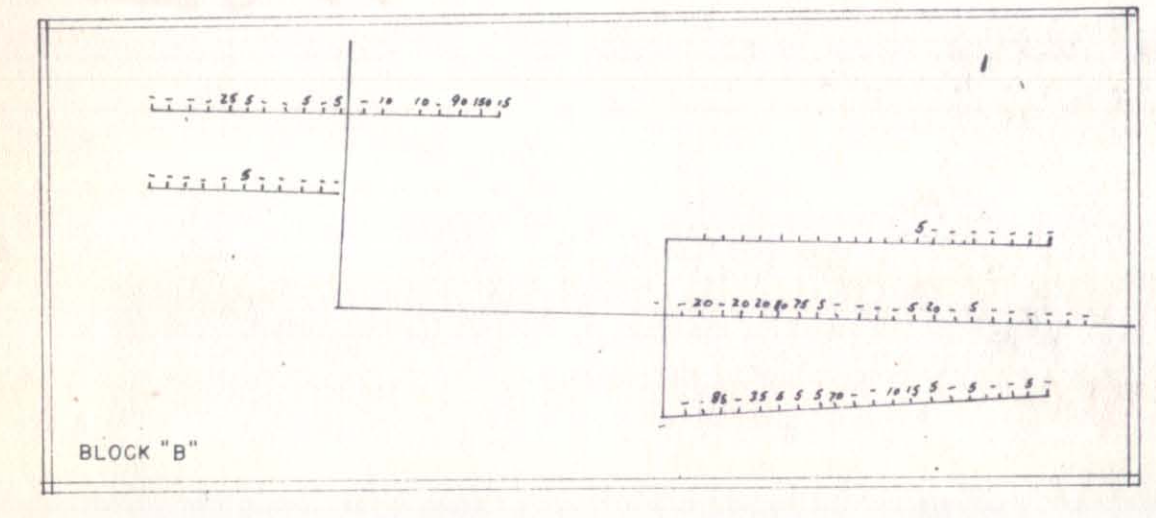
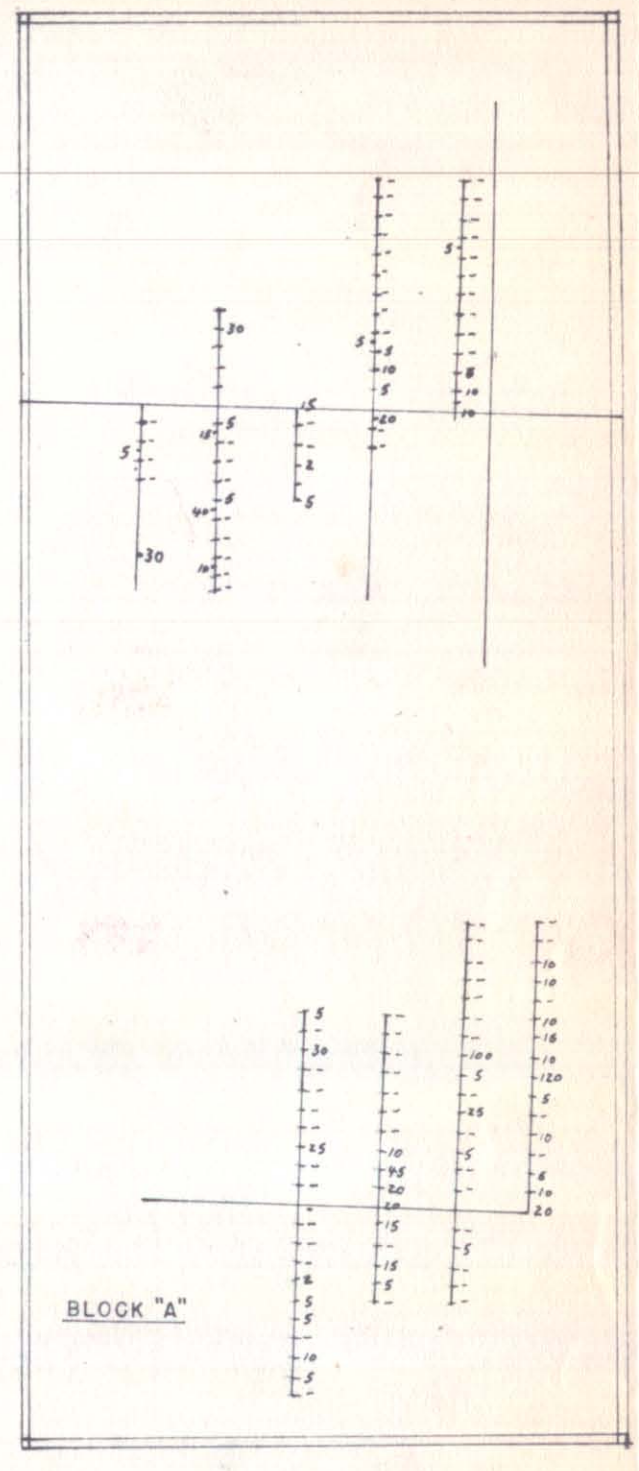
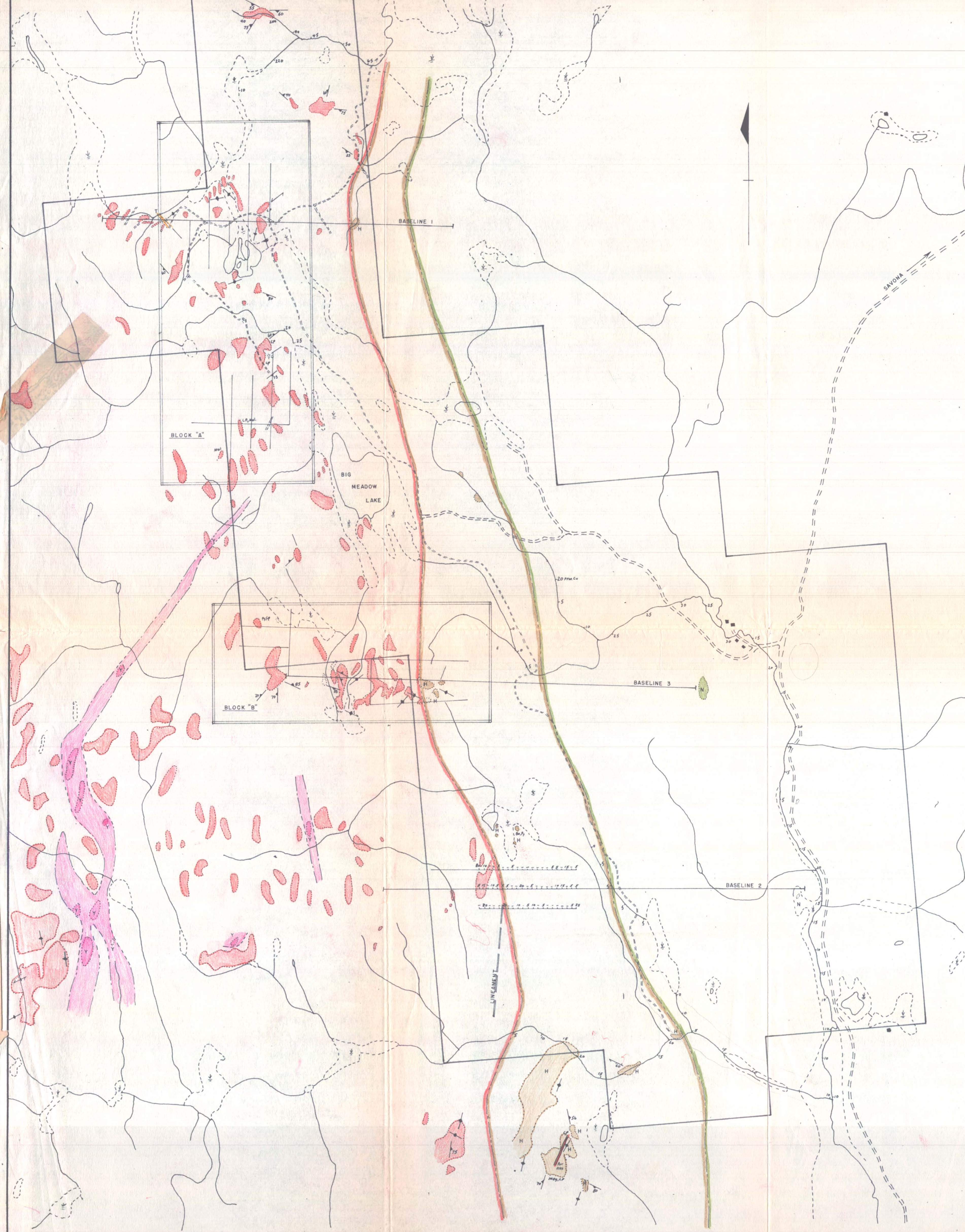
- (1) Biquinoline is specific for copper and is not subject to interference from other metals by Pb, Zn as is dithizone.
- (2) Standards are relatively stable so that new ones are not required daily.
- (3) The colour range before dilution is broad by 10-3000 I.P.M. eliminating the need for many tedious dilutions.
- (4) No toxic materials are used.

JMA:ss

Trail Exploration Office, Western District

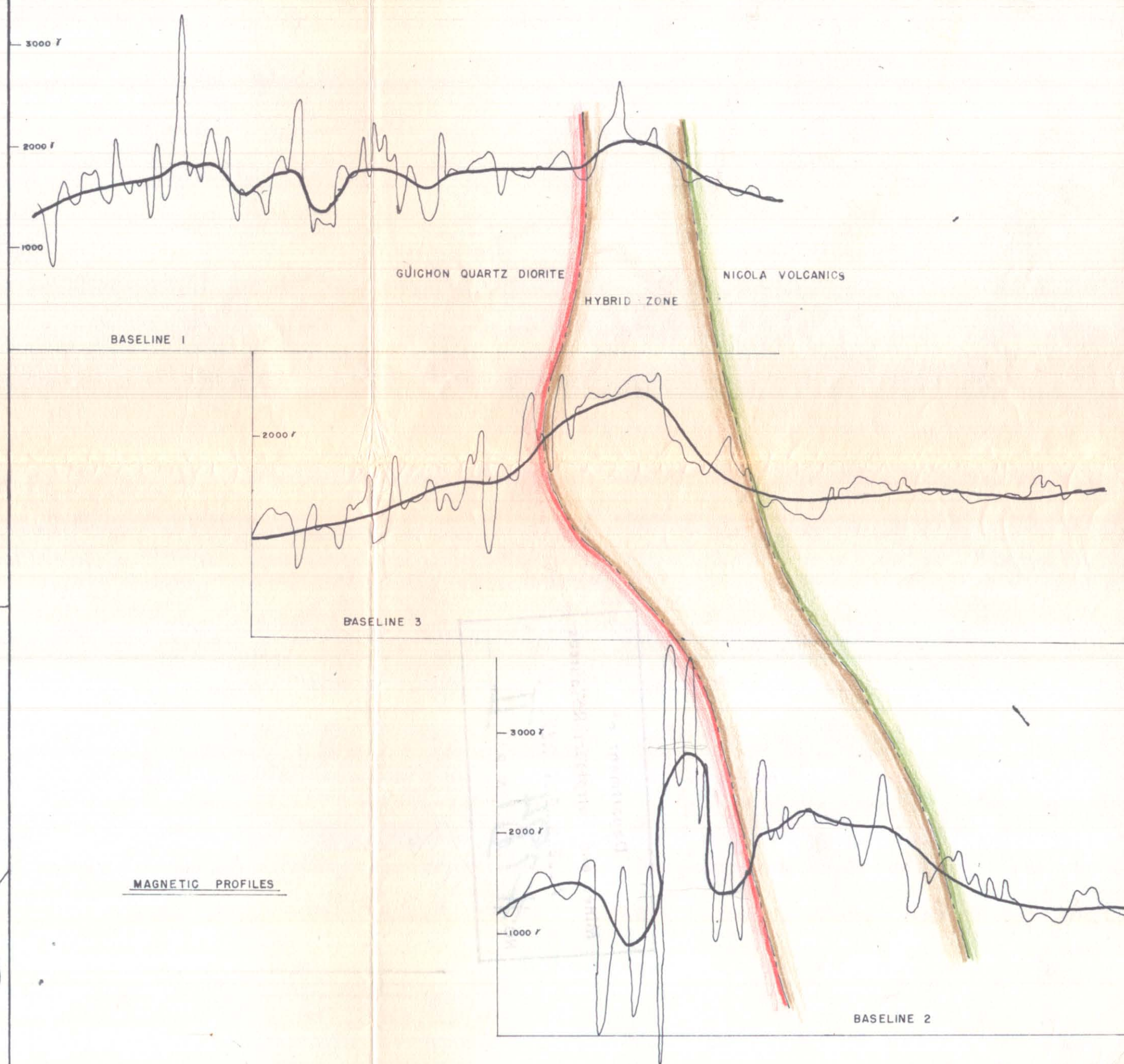
June 9, 1966

Distribution: Mining Recorder (Kamloops) (2)
Western District Expl'n (2)



SOIL SAMPLING

HOT ACID EXTRACTION - BIGNOLINE - CU IN PPM



MAGNETIC PROFILES

SHARPE MF-1 SENS. 10 Gausses ARBITRARY ZERO

- LEGEND**
- TERTIARY VOLCANICS
 - YOUNGER QUARTZ DIORITE
 - HYBRID ZONE
 - GUICHON QUARTZ DIORITE
 - NICOLA VOLCANICS
 - JOINTING
 - SHEARING
 - 20 SILT, SOIL SAMPLES - PPM CU
 - CP, BO CHALCOPYRITE, BORNITE

784

The Consolidated Mining and Smelting Company of Canada Limited

VALLEY COPPER MINES LIMITED
W. D. R. GROUP - GEOLOGY

DRAWN BY: J.M.A.	TRACED BY:
REVISED BY: DATE	REVISED BY: DATE

SCALE: 1" = 1000' DATE: FEB. 1, 1966 PLATE: VC 66-2