

985

GEOCHEMICAL AND GEOPHYSICAL REPORT

ON

K. R. GROUP

(K.R. 3 - 10 Mineral Claims incl.)

Miszezula Lake Area, Similkameen M.D., B.C.

49° 120° NW

by

Charles A. R. Lammle

Adera Mining Limited

Claims held by

Plateau Metals Ltd.

Vancouver, B.C.

Work performed between Aug. 27 - Oct. 18, 1966



LOCATION MAP

K.R. GROUP
SIMILKAMEEN M.D, B.C.

1" = 10 mi.

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Vancouver, B. C.,
March 15, 1967.

ADERA MINING LIMITED

K. R. GROUP

Similkameen M.D., B. C.

GEOCHEMICAL AND GEOPHYSICAL REPORT

by

Chas. A. R. Lammle, P.Eng.

INTRODUCTION

Adera Mining Limited signed an option agreement on May 25, 1966 with Plateau Metals Ltd., the terms of which required Adera to spend \$5,000 forthwith on the property whereby Adera was granted an option to earn 45% interest in the 40 claim copper prospect by spending an additional \$5,000 on exploration work in 1966 and a further \$10,000 on similar work in 1967. The initial work carried out under the terms of the agreement was the taking-over and continuation of a modest drill program initiated by Plateau. This drilling was terminated by Adera in June 1966. In August and October, 1966, further work involving soil sampling, magnetometer surveying and bulldozing was carried out. The purpose of this report is to describe the latter work but reference is also made to the general geology and to the drilling results. Assessment credit for the geochem, mag, and bulldozing is applied for.

SUMMARY AND CONCLUSIONS

Geochemical and geophysical work done on the K.R. Claims in 1966 has generally confirmed the presence of anomalous copper concentrations in soil over two areas, the north central

area of the area surveyed and the south central area. The work does not indicate any areas of greater interest than those already explored, but some northerly and southerly extensions of the known mineralization is likely. Bulldozing and diamond drilling has explored in preliminary fashion both areas of anomalous soils. 60' of core from hole A3 on KR3 assayed 0.265% Cu and 30' of core from hole A4 on KR10 assayed 0.10% Cu. Although these preliminary holes cannot be considered a completely diagnostic test of the property, it is felt that they adequately test the most likely targets on the area surveyed. Bulldozing has not disclosed any pervasive mineralization better in grade than these two short diamond drill core intersections. Reconnaissance prospecting east and west from the central area has not returned any intriguing results.

RECOMMENDATIONS

As the drilling and bulldozing results do not indicate appreciable ore grade mineralization in the two most likely target zones of the surveyed area, and as reconnaissance prospecting east and west from the explored zone has not yielded intriguing results, no further exploration on the property is recommended at this time. Hence, it is advised that notice terminating the K. R. Group portion of the Adera - Plateau Metals agreement of May 25, 1966, be forwarded to Plateau Metals Limited.

Respectfully submitted,

Chas. A. R. Lamble

CHAS. A. R. LAMBLE, P. Eng.

March 15, 1967

PROPERTY AND HISTORY

The property consists of the 40 contiguous K.R. Claims (K.R. 1-40) held in the name of Plateau Metals Ltd. of Vancouver, B. C. Fred D. Riley and Kolbjorn Lovang, prospectors, share an undivided 10% interest in the 40 claims. Pertinent details regarding the claims are tabulated below:

<u>K. R. Claim No.</u>	<u>Record No.</u>	<u>Assessment Anniversary</u>
1 - 2	12795 - 96	Nov. 16, 1967
3 - 4	10828 - 29	Oct. 29, 1968
5 - 6	12809 - 10	Nov. 16, 1967
7	15793	Mar. 23, 1968
8 - 9	11252 - 53	Mar. 22, 1969
10	11254	Mar. 22, 1970
11 - 12	11255 - 56	Mar. 22, 1969
13 - 24	12797 - 808	Nov. 16, 1967
25 - 40	13954 - 69	Feb. 2, 1968

Map 2, attached, shows the portions of the claims K.R. 3 - 10 inclusive on which work was performed.

Copper mineralization was discovered on the ground in 1962 by prospectors Lovang and Riley during the course of their work for Plateau Metals. Plateau then staked the area and began an exploration program involving road work, line cutting, rubianic acid soil testing and further prospecting. At this time the writer, although employed elsewhere, examined the ground and carried out a limited magnetometer survey. During the following years Plateau excavated a series of bulldozer trenches and in early 1966 prepared several drill sites by bulldozer and drilled three short holes. It was at this time that Adera took an interest in the property.

LOCATION AND ACCESS

The property is located on the eastern slopes of an unnamed mountain 19 airmiles due north of Princeton, B. C. Elevation of the showings is about 4900'. Summers Creek lies in a deep valley immediately to the east of the ground and B. C. Highway 5 runs northerly 4 miles to the west. Access is 22 miles north from Princeton on this highway, then

6 miles easterly via a microwave station road to a turnoff 1/2 mile south of the station, and then 1-1/2 miles via truck road to the showings. The location map, faceplate, shows the location of the property with respect to main geographic features.

PROGRAM AND EMPLOYEES

The drilling program carried out on the ground consisted of 5 short AX holes, three by Plateau Metals, P1, P1a and P2 totalling 516', and two by Adera, A3 and A4, totalling 657'. Assessment credit resulting from this drilling has already been filed. In an effort to locate additional exploration targets, Adera then undertook a soil geochemical survey and a magnetometer survey as well as a short program of bulldozing. Some 212 soil samples were taken at 100' intervals on 9 east-west lines spaced 500' apart, and magnetometer readings were taken at the same intervals on the same lines. During the bulldozing 7 separate trenches totalling 820 lineal feet and averaging 3-1/2' in depth were excavated.

Employees under the writer's direct supervision were Fred D. Riley, Vernon, B.C., and G. A. Webster, A. C. Webster and Wm. Armstrong, all of Princeton, B.C. Time distribution in days of the Adera field work (other than the diamond drilling) is as follows:

	<u>Lammle</u>	<u>G. Webster</u>	<u>A. Webster</u>	<u>Armstrong</u>
Magnetometer	1	3	-	-
Geochem	1	-	3	-
Bulldozing	2	-	-	2

GENERAL GEOLOGY

The K. R. Claims lie centrally in an 8 mile wide, northerly trending belt of the Upper Triassic Nicola Group. Granodiorites of the Coast Intrusions lie 5 miles to the east of the property and 3 miles to the west. The major Allison and Summers Creek faults project northerly into the vicinity and in addition the axis of a regional syncline passes NNE through the claims.

The rocks on the mapped portion of the claims are poorly exposed but seem to consist of a fairly uniform massive assemblage of fine grained, gray to greenish gray andesite, which in places is slightly porphyritic. As disclosed by bulldozer trenches, these andesites have been reduced to crumpled, foliated, light gray talc-chlorite schists near the western side of K.R. 10. Exposures further north along road cuts and in other trenches reveal relatively unaltered andesite, in places pyritized, and in places crushed and oxidized due to faulting. Weak chalcopyrite disseminations with considerable malachite staining are exposed on K.R. 3 and K.R. 10.

GEOCHEMICAL REPORT

INTRODUCTION

Plateau Metals previously carried out a rubianic acid soil survey for copper on the property. The survey herein described was undertaken to further resolve anomalies developed in that previous survey. Generally speaking the overall results are comparable with anomalous areas coinciding very well.

The surveyed area is relatively flat plateau country which drains via an intermittent stream flowing northerly along a gentle swale just east of the base line. Beyond the limits of the survey area the slopes steepen considerably, rising to the mountain crest to the west and falling abruptly to Summers Creek to the east.

SAMPLING AND ANALYTICAL DETAILS

Soil profiles on the property are not well developed and consist principally of glacial and normal erosional material covered by a thin humus horizon derived from the forest floor. Samples were taken by A. C. Webster, Princeton, B.C., under the writer's supervision. Holes were dug with a garden trowel through the organic rich material, the A horizon, to the brown or rusty coloured soil, the B horizon, and

the actual samples were taken by hand from as near to the top of the B horizon as could reasonably be determined. The depth to this level of the soil profile on the property is quite variable, usually being between 3" and 10".

The samples were packaged in waterproof, bond paper soil sample bags purchased for that purpose, labelled appropriately, stapled shut and forwarded to Technical Service Laboratories, Vancouver, for analysis.

The analytical technique consisted of drying by suspending the bags in a dryer, screening on 80 mesh nylon and performing the analysis on the undersize material by dissolving the contained copper in hot nitric acid and making copper determinations by atomic absorption spectrophotometer.

DETERMINATION OF THRESHOLD VALUES

The threshold value, that is the concentration of copper separating the background population from the higher population, was determined statistically by two methods -- a frequency distribution plot and a logarithmic probability plot. The frequency distribution shows two separate populations overlapping in part between the concentration range of 58 - 62 p.p.m. Cu, and the log probability plot shows a distinct break at the same concentration range. Hence a threshold value of 60 p.p.m. was chosen and the higher population, 18% of the samples, is assumed to be anomalous. A common practice in interpreting geochemical anomalies is to consider only those anomalies with concentrations exceeding twice the threshold value as significantly anomalous. Seven percent of the samples taken from the property exceed this "significantly anomalous" value of 120 p.p.m.

RESULTS AND INTERPRETATIONS

The results of the survey are plotted on Map 2, attached, which shows the soils at the north-central and south-central portions of the surveyed area to contain higher concentrations of copper. An elongate anomaly 2000' long NS by 200 - 400' wide and open to the south occurs in the southern area, and a smaller anomaly at least 500' long NS by 300' wide, perhaps, and open to the north occurs in the northern

area. Both areas contain low grade disseminated chalcopyrite as disclosed by a few outcrop, bulldozer trenches and limited diamond drilling. Threshold values fall off in concentration in irregular fashion from these two central anomalies such that at the eastern and western limits of the survey, the concentrations are generally well below 30 p.p.m.

Although the two anomalies developed have widths in the order of several hundred feet, it does not necessarily follow that bedrock mineralization persists for comparable widths. Normal mechanical and chemical dispersions of soils and copper ions from limited mineralized sources could easily account for the relative large size of the anomalies. Mineralization comparable to that exposed can be expected to continue both north and south of the mapped area.

GEOPHYSICAL REPORT

INTRODUCTION

Several years ago while previously employed, the writer carried out a limited magnetometer survey on portions of K.R. 3 - 6 claims inclusive. The survey described herein extends this magnetometer coverage to the south. Although different instruments and a different arbitrary magnetic intensity base were used in the two surveys, the results can be readily correlated by the simple addition of a common factor to one survey to make it relative to the other. Results from both surveys are comparable -- general low relief with higher magnetic intensities to the west and a broad, northerly elongate area of uniform low magnetic intensity to the east.

INSTRUMENT AND FIELD PROCEDURE

The instrument used in the survey was a McPhar M500 direct reading fluxgate magnetometer, an instrument designed to measure the vertical component of the earth's magnetic field. It can measure a range of magnetic intensity of 300,000 gammas, either positive or negative by using 6 selector ranges. Its sensitivity ranges

with the selector range used; the sensitivity being 20 gammas per scale division on the selector range used in the survey.

The operation of the instrument at each station consists of establishing and maintaining a constant instrument-operator-magnetic field orientation, hand levelling and reading the direct reading galvanometer to the nearest one-half scale division - 10 gammas. Readings at 100' intervals on lines 500' apart were carried out on all of the lines of the survey area in this fashion. The actual survey was started by assuming a magnetic intensity value of 0 gammas at the station on the base line on line OS. During the course of the survey the instrument was reread at this station to correct for any diurnal variations and to make all readings relative to the arbitrarily assumed value at the station.

FACTORS INFLUENCING THE EARTH'S MAGNETIC FIELD

1. Variations in the amount of magnetic minerals in bedrock.
2. Variations in the amount of detrital magnetic minerals in overburden.
3. Concentrations of magnetic minerals.
4. Depth to the center of influence of an anomalous magnetic material.
5. Alteration and/or destruction of magnetic minerals.
6. Combinations of the above.

RESULTS AND INTERPRETATIONS

Results of the survey are plotted and contoured on Map 3, attached, which shows an overall magnetic intensity relief of about 500 gammas. Local relief due to a couple of isolated single station highs is about 1700 gammas. A broad northerly elongate area, east of the base line, shows a remarkable uniform low magnetic susceptibility, bounded to the west by general higher readings. Within the western half of the surveyed area, several low order magnetic highs^{are} defined by readings at 6 or less adjacent stations occur.

The uniformity and northerly trend of the magnetics suggest the principal cause to be bedrock. The eastern area of uniform low readings

probably reflects a general deeper overburden cover and in part the destruction of magnetic minerals due to strong fault or fold structures in this area; the higher readings to the west probably reflect shallower overburden. The local single station highs are likely caused by minor, localized, near surface concentrations of magnetic minerals in bedrock. The long narrow high at the extreme northwestern edge of the surveyed area might reflect a layer of rock with somewhat higher magnetic susceptibility.

As far as presently known, the copper mineralization on the property occurs near areas of low magnetic susceptibility, at or near the northern limits of modest, central magnetic highs. There is, however, no indication of an association of copper with the magnetics.

Respectfully submitted,



CHAS. A. R. LAMBLE, P.Eng.

March 15, 1967

TRENCHING DETAILS

Seven separate trenches were excavated by TD25 caterpillar to expose bedrock over presumed extensions of known copper mineralization. Details regarding these trenches are tabulated below:

<u>Trench</u>	<u>Width (ft.)</u>	<u>Depth (ft.)</u>	<u>Length (ft.)</u>	<u>Length x Depth</u>
1	15	3	150	450
2	15	3	110	330
3	15	5	110	550
4	15	3	60	180
5	15	4	200	800
6	15	3	90	270
7	15	3	100	300
			820	2880

In all 820 lineal feet of trench averaging 3-1/2' in depth were excavated.

DRILLING DETAILS

During 1966 a total of 1173' of AX diamond drilling was completed on the property, 516' in three holes by Plateau Metals and 657' in two holes by Adera. The drilling was found to be very difficult because of badly broken ground, faulting and possibly strong folding in the area of interest. Details regarding the holes are tabulated below and additional details may be found in the attached logs.

<u>Drill Hole</u>	<u>Length</u>	<u>Brg.</u>	<u>Dip</u>
P1	100	S79°W	-40°
Pla	140	S79°W	-50°
P2	276	S79°W	-45°
A3	305	East	-48°
A4	352	N80°W	-47°

STATEMENT OF EXPENDITURES INCURRED

(Applicable for Assessment Credit)

				<u>Sub Totals</u>
<u>Geochem.</u>	Lammle	1 day @ \$38	38.00	
	A. Webster	3 days @ \$20	60.00	
	Sample bags, misc.		2.78	
	Analyses		253.20	
	Report of Drafting	3 days @ \$38	114.00	
	Map Reproduction		<u>3.22</u>	\$ 471.20
<u>Mag.</u>	Lammle	1 day @ \$38	38.00	
	G. Webster	3 days @ \$20	60.00	
	Instrument Rental	8 days @ \$ 9	72.00	
	Report and drafting	3 days @ \$38	114.00	
	Map Reproduction		<u>5.26</u>	289.26
<u>Bulldozing</u>	Lammle	2 days @ \$38	76.00	
	Armstrong	2 days @ \$24	48.00	
	TD 25	17 hrs. @ \$27	<u>459.00</u>	583.00
Total applicable expenditures incurred				<u>\$1,343.46</u>
Assessment credit applied for				\$1,300.00

Declared before me at the

city of Vancouver, in the
Province of British Columbia

this *19* day of *April*, 1967, A.D.

S. M. Fenbu.

Sub-mining Recorder

Chas. A. R. Lammle

CHAS. A. R. LAMMLE, P. Eng.

DIAMOND DRILL RECORD

PROPERTY K. R. Group.

HOLE No. P2

DIP TEST		
Footage	Angle	
	Reading	Corrected

Hole No. P2 Sheet No. 1
 Section _____
 Date Begun _____
 Date Finished _____

Lat. 24+90S
 Dep. 1+80E
 Bearing S79°W
 Elev. Collar _____

Total Depth 276'
 Logged By RL
 Claim KR 8
 Core Size AX
 Recovery 79%

DEPTH	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE			
0-28	Over burden, boulders					
28-50	fg. dark gray andesite, poor pebbly recovery					
50-61	fg. light gray to pale green andesite - mud 54-57					
61-93 (A)	fg. - aphanitic, broken green andesite and andesite breccia healed by hematite, calcite, quartz-feldspar; some streaks of pyrite					
93-108	fg. purple, fractured andesite, healed with calcite and some quartz; brecciated contact at 93					
108-127	As in "A" above					
127-137	mud					
137-235 (B)	fg. light gray-green, pyritic porphyritic andesite; approx. 5% pyrite. - mud at 213 - fractured at 228, healed with qtz, calcite, pyrite					
235-236	dense green pyritized andesite					
236-276	as in "B" above - mud at 248					

DIAMOND DRILL RECORD

PROPERTY K. R. GROUP

HOLE No. A3

DIP TEST		
Footage	Angle	
	Reading	Corrected

Hole No. A3 Sheet No. 1
 Section _____
 Date Begun _____
 Date Finished _____

Lat. 2440N
 Dep. 1450W
 Bearing East
 Elev. Collar _____

Total Depth 305'
 Logged By RL
 Claim KR3
 Core Size AX
 Recovery 86%

DEPTH	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE	CORE % Cu			
0-15	Overburden	140-150	10	0.32			
15-21	Boulders - mg. light green, feldspathic andesite	150-160	10	0.22			
21-200	mg. light green feldspathic andesite, numerous calcite seams - 8" intervals, hairline seams of epidote, 2-4% disseminated pyrite some talcose slips	160-170	10	0.22			
	- chalcopyrite disseminated and along fractures with calcite and epidote at	170-180	10	0.26			
	145-147, 151-153, 155, 160, 162, 165, 182-183, 197	180-190	10	0.26			
200-236	Dark gray, altered, limy pyritized andesite	190-200	10	0.31			
236-305	light green, mg. porphyritic (feld) andesite pyritized, gougy at 248-250 occasional seams of calcite up to 1/2" wide, becoming badly fractured with pebbly recovery near bottom of hole						

DIAMOND DRILL RECORD

PROPERTY K. R. GROUP

HOLE No. A 4

DIP TEST		
Footage	Angle	
	Reading	Corrected

Hole No. A 4 Sheet No. 1
 Section _____
 Date Begun _____
 Date Finished _____

Lat. 36+20S
 Dep. 2+85E
 Bearing N 80° W
 Elev. Collar _____

Total Depth 352'
 Logged By RL
 Claim KR 10
 Core Size AX
 Recovery 69%

DEPTH	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE	CORE % Cu			
0-20	Overburden	240-250	10	0.14			
20-89 (A)	fg. light gray, talc, chlorite kaolinite rock with 1% pyrite	250-260	10	0.06			
89-90	strong argillic alteration	260-270	10	0.10			
90-115	A						
115-120	strong argillic alteration						
120-128	A						
128-138	white pebbles and gouge						
138-148 (B)	hard white talc, kaolinite rock						
148-195	breccia of above "B" unit healed by fg. black non magnetic material, non limy. minor sulphides						
195-207	B.						
207-210 (C)	gradational contact into fg. pale green andesite; seams disseminations and spotty aggregates of pyrite, ≈ 10% pyrite						
210-213	C, about 1% pyrite						
213-271	Varicoloured, gray green white, dense brittle rock, with talcose, carbonate seams. perhaps 10% pyrite between 240-271, perhaps some chalcobyrte in ab - interval.						

QUALIFICATIONS OF GEOPHYSICAL OPERATOR

K.R. GROUP, SIMILKAMEEN M.D., B.C.

THIS IS TO CERTIFY THAT GORDON A. WEBSTER, PRINCETON,
B. C., MAGNETOMETER OPERATOR ON THE K.R. GROUP:

1. IS A HIGH SCHOOL GRADUATE
2. IS A CONSCIENTIOUS, RELIABLE PERSON
3. WAS TRAINED TO OPERATE THE MCPHAR M500
MAGNETOMETER BY MYSELF PERSONALLY
4. HAS CARRIED OUT SEVERAL MAGNETOMETER SURVEY
JOBS COMPARABLE TO THAT ON THE K.R. GROUP
DURING THE SUMMER OF 1966 UNDER MY SUPERVISION,
AND
5. IN MY OPINION IS A CAPABLE AND QUALIFIED
MAGNETOMETER OPERATOR.

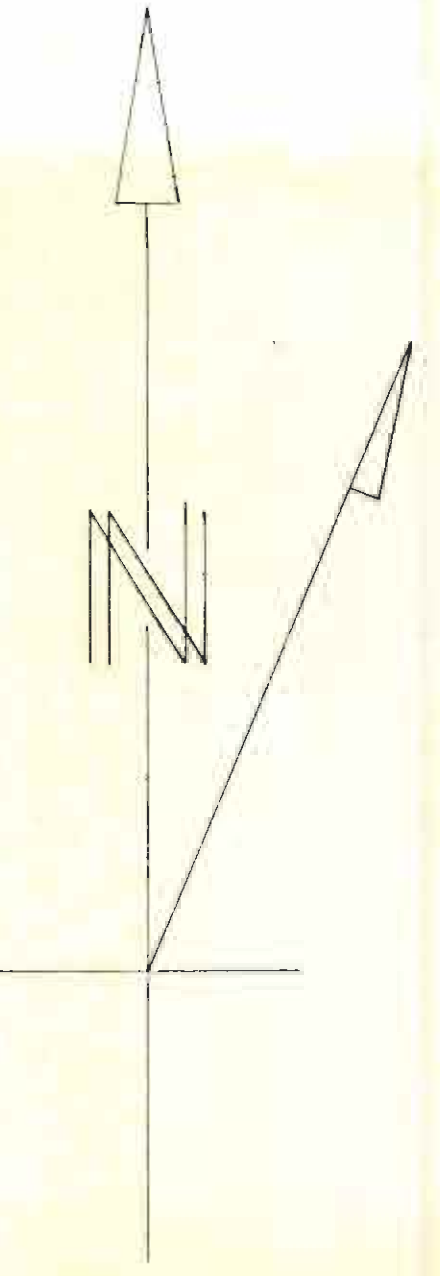
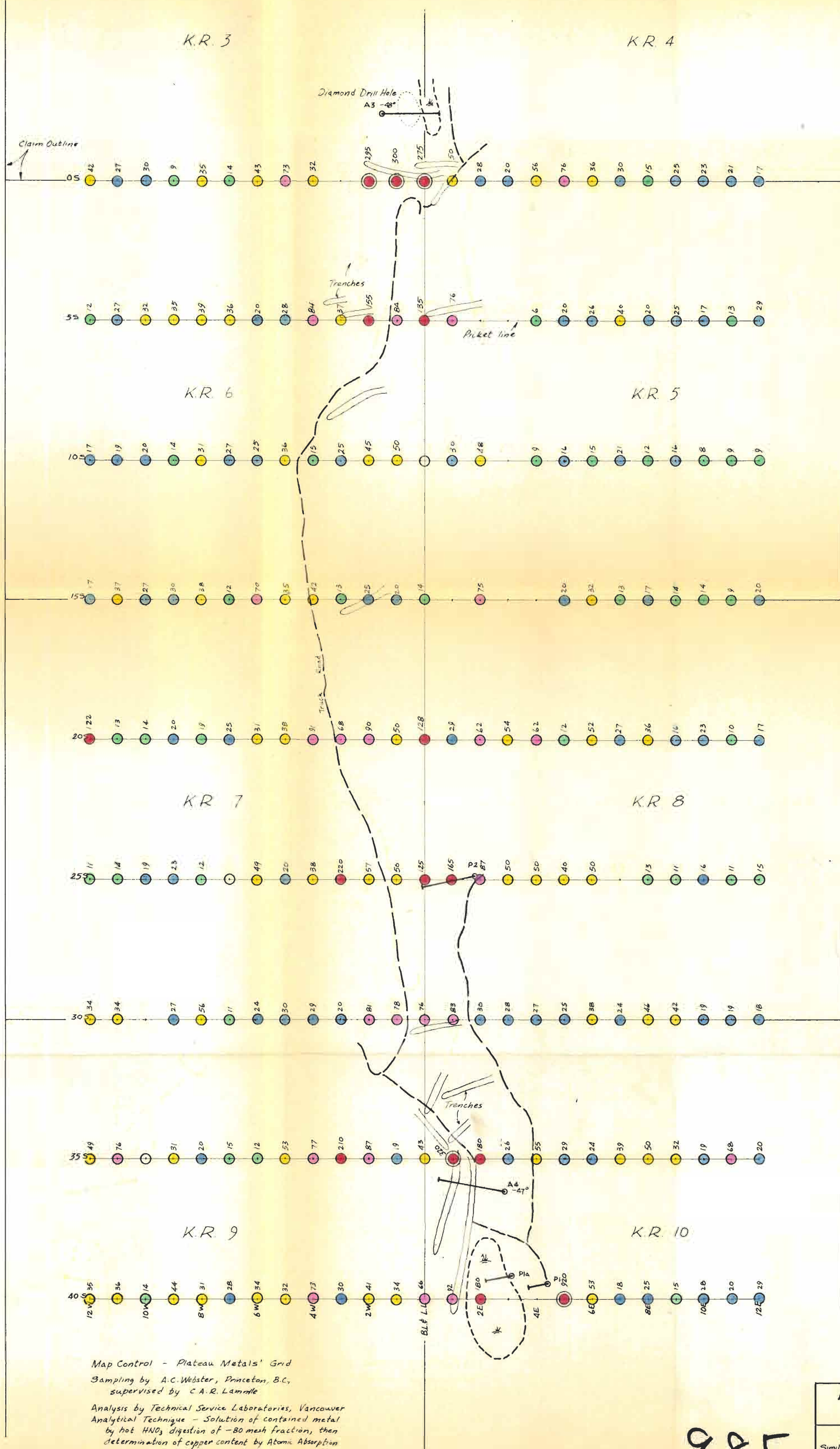
Charles A. R. Lammle

CHARLES A. R. LAMMLE, P. ENG.

RECEIVED

JUN 2 1967

MINING RECORDER
PRINCETON, B. C.



Legend

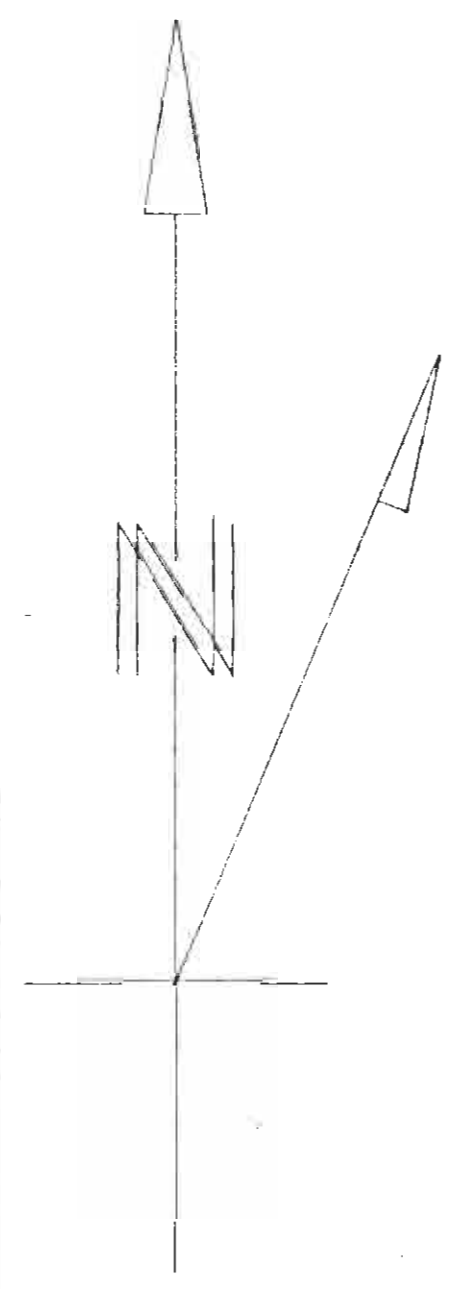
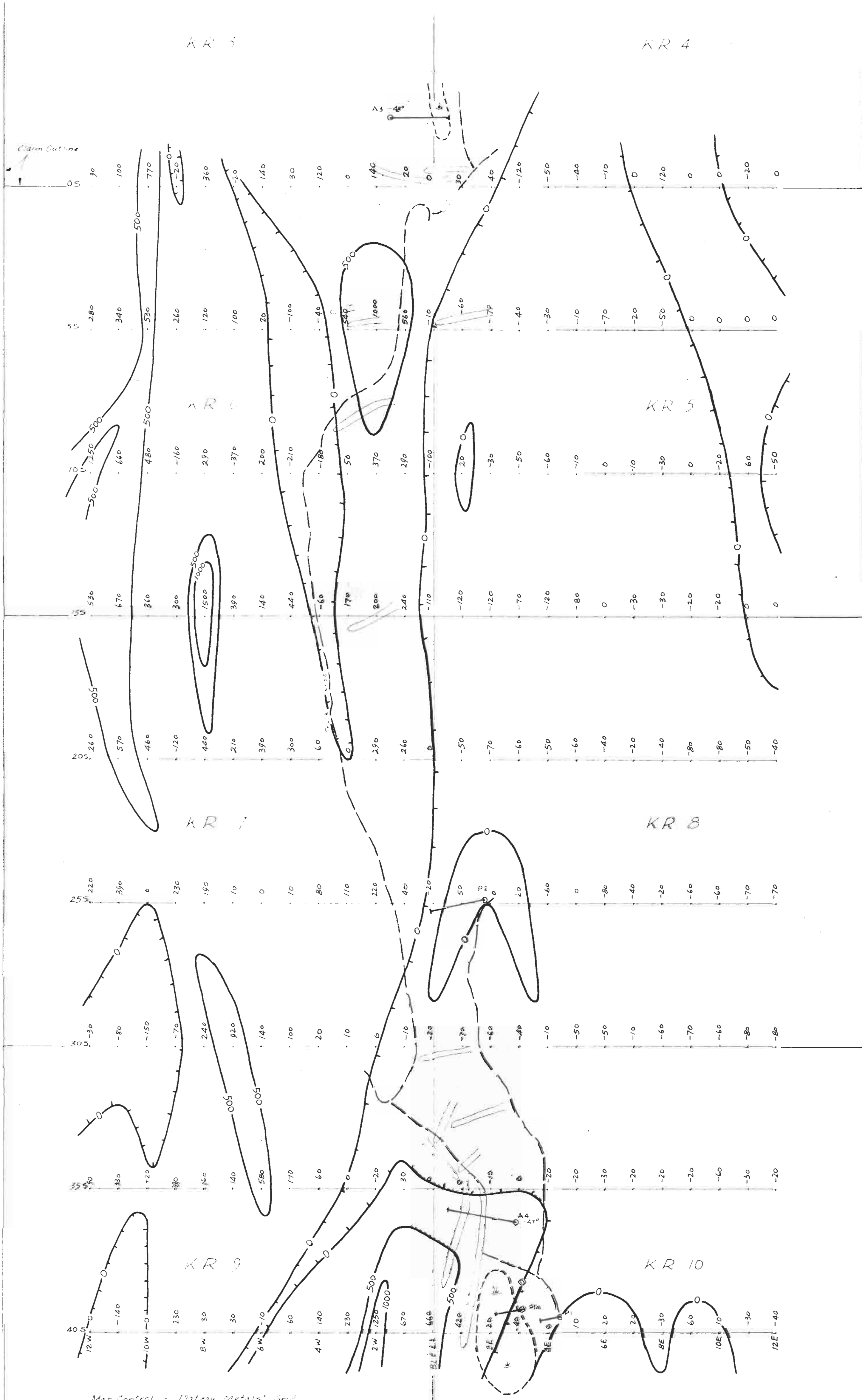
- COPPER P.P.M.
- 0 - 15
 - 16 - 30
 - 31 - 60 Threshold
 - 61 - 120
 - 121 - 240
 - > 240

Map Control - Plateau Metals' Grid
Sampling by A.C. Webster, Princeton, B.C.,
supervised by C.A.R. Lammle
Analysis by Technical Service Laboratories, Vancouver
Analytical Technique - Solution of contained metal
by hot HNO₃ digestion of -80 mesh fraction, then
determination of copper content by Atomic Absorption
To Accompany Report on K.R. Group,
Similkameen M.D., B.C., dated Mar. 15, 1967,
by Charles A. R. Lammle, P. Eng.

Chas. G. Rosemille
Mar 15/67

ADERA MINING LTD. K.R. GROUP			
B.C. Similkameen M.D.	SOIL GEOCHEM. COPPER		
SCALE 1" = 200'	DATE Mar '67	DRAWN R.L.	MAP NO 2

985



Instrument reading shown
along picket lines
Contour interval - 500 gammas

Map Control - Plateau Metals' Grid
Instrument - M-Phar M 500 vertical
field fluxgate magnetometer; readings
corrected daily for diurnal variation.
Operator - G.A. Webster, Princeton, B.C.
Supervisor - C.A. R. Lammle, P. Eng.

To Accompany Report on K.R. Group,
Similkameen M.D., B.C., dated Mar 15, 1967,
by Charles A. R. Lammle, P. Eng.

Chas. A. R. Lammle
Mar 15/67

ADERA MINING LTD.
K. R. GROUP

985

B.C. Similkameen M.D.		MAGNETOMETER SURVEY	
SCALE 1" = 200'	DATE Mar 67	DRAWN RL	MAP No 3