

86-946-15472

GEOCHEMICAL AND GEOPHYSICAL REPORT

on the

MERIT SOUTH CLAIM

Record No. 4145  
Slocan Mining Division, British Columbia,  
North Lat.  $50^{\circ}01'$  West Long.  $117^{\circ}13.8'$

82 - K - 3E

for

*Owner/Operator:* KOBOLD RESOURCES LTD.  
205 - 701 West Georgia Street

Vancouver, B.C.  
V7Y 1B6  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

15,472

by  
BOA SERVICES LTD.  
Suite 302 - 119 West Pender Street  
Vancouver, B.C.  
V6B 1S5

FILMED

January 20, 1987

Paul P.L. Chung  
Consulting Geologist

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## INTRODUCTION

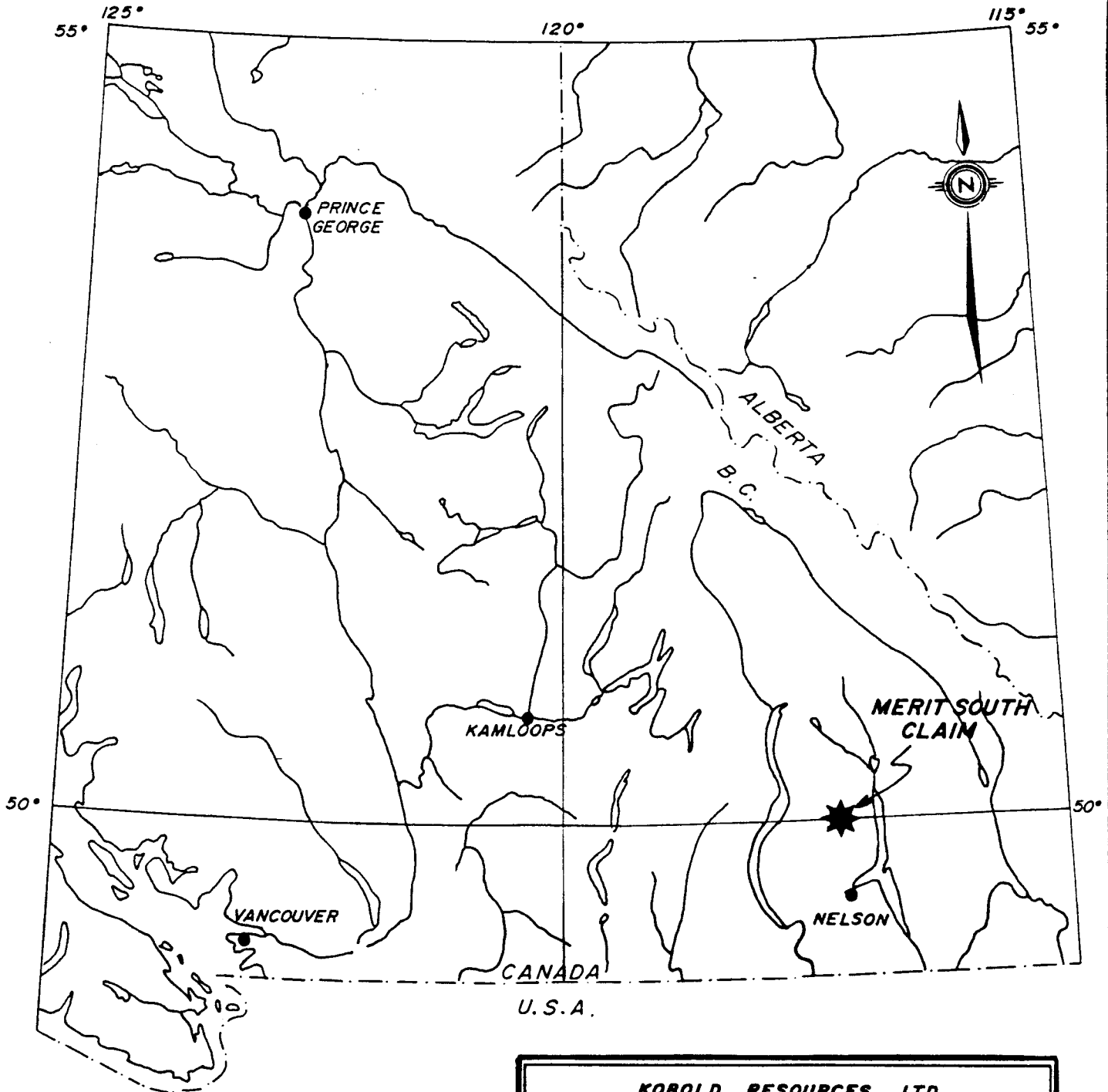
Kobold Resources Ltd. of Suite 215 - 701 West Georgia Street, Vancouver, British Columbia, owns the MERIT SOUTH property, which consists of one mineral claim containing eight claim units situated in the Slocan Mining Division, British Columbia. This report on the MERIT SOUTH claim was prepared at the request of the directors of the company and described the 1986 exploration program. The program included: establishment of a survey grid, geochemical survey, VLF-EM survey, and proton magnetometer survey.

The purpose of the program was to evaluate the exploration potential of the property. This exploration work, including report preparation, was undertaken between August 23, 1986 and January 20, 1987.

## SUMMARY

The MERIT SOUTH property is located near the headwaters of McGuigan Creek on the south side of Seaton Creek and about a kilometer south of the former Zincton Townsite on Highway 31A between Kaslo and New Denver. The town of Sandon is situated some five kilometers to the south of the claim area. The geographic co-ordinates of the property area  $50^{\circ}01'$  North latitude by  $117^{\circ}13'$  West longitude (N.T.S. 82 K/3E).

Road access to the property is available from Highway 31A up the valley areas of McGuigan Creek and Dardanelle Creek using a four wheel drive vehicle.



Scale : 1" = 64 Miles

<u>KOBOLD RESOURCES LTD.</u>	
LOCATION MAP	
MERIT SOUTH CLAIM	
SLOCAN MINING DIVISION	
DEC. 1986	FIG. 1
<u>BOA SERVICES LTD.</u>	

To accompany report by P.P.L. Chung

The property consists of one mineral claim containing eight claim units for a total land area of 200 hectares (494 acres). Kobold Resources Ltd. owns all interests in this property.

The ground now held by the MERIT SOUTH mineral claim appears to contain the old St. Kaverne mining property and part of the former Payne Group of claims. Workings found on the property consists of an adit at the southern portion of the claim.

Metasediments belonging to the Slocan Group underlie the property area. This group of sedimentary rocks is host to several important former silver, lead and zinc mines nearby.

Results of the recent work are encouraging. The geochemical results are quite high with values up to 2100 ppm lead, 13,000 ppm copper. The geophysical surveys have produced a number of anomalies, some of which are coincident.

Mapping of the property and the adit, and completion of the geophysical surveys are recommended for the next phase of exploration. Cost estimates of this proposed work is \$6000.

### PROPERTY AND OWNERSHIP

The MERIT SOUTH property consists of eight claim units covering 200 hectares (494 acres) of land in the Slocan Mining Division, British Columbia.

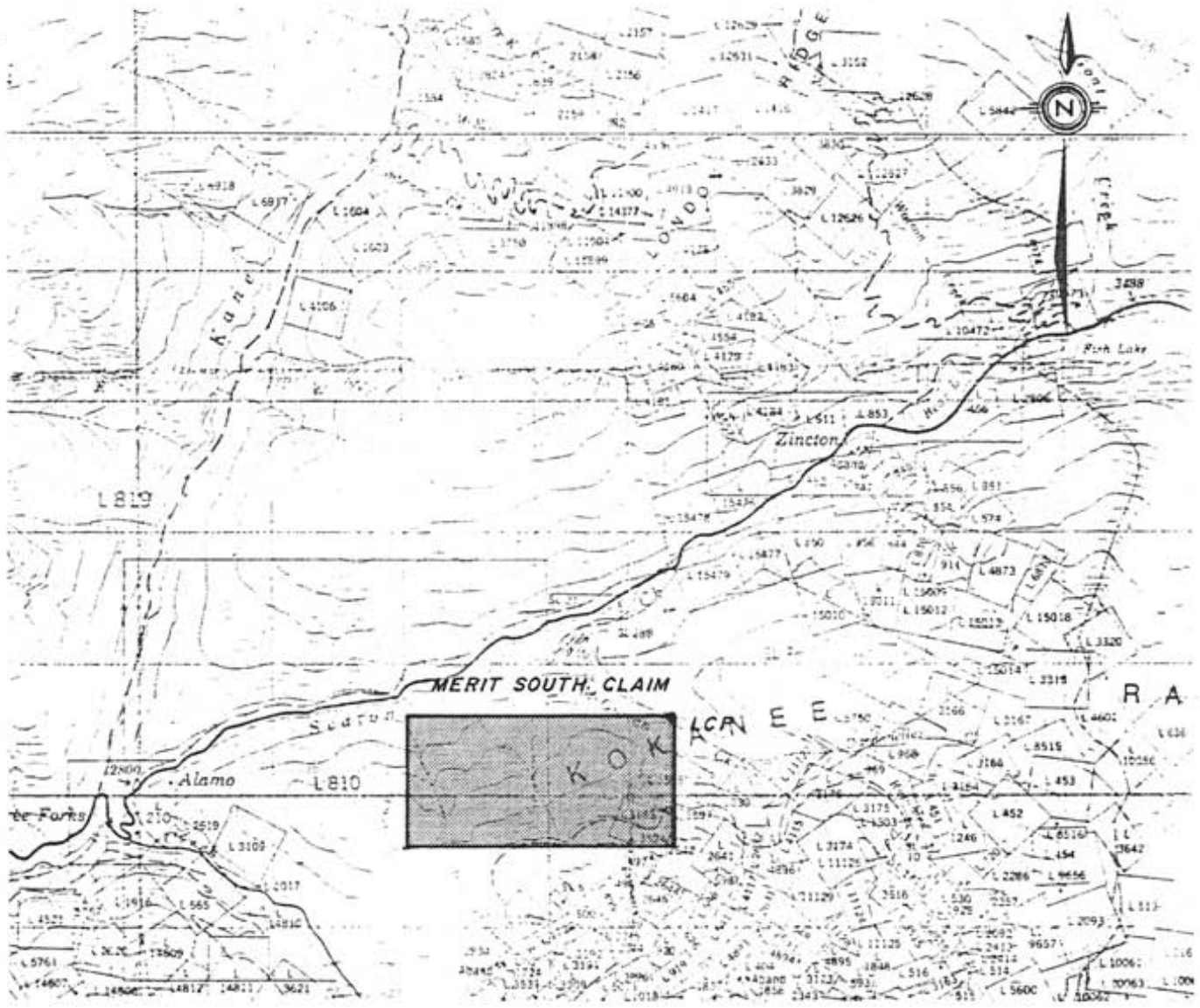
Claim Name	Record No.	Units	Record Date	Record Holder
MERIT SOUTH	4145	8	Oct. 31, 1983	Rene Delarrabeiti*

\*All interest transferred to Kobold Resources Ltd. on February 14, 1984.

### LOCATION AND ACCESS

The MERIT SOUTH property is located in the Slocan Mining Division, and the Kootenay Land District. The claim is located on the south side of Highway 31A, west of McGuigan Creek and occupies part of the valley of Seaton Creek. The ground is situated some five kilometers north of the Town of Sandon, British Columbia.

Road access is readily available along Highway 31A from either Kaslo or New Denver to McGuigan Creek, where a bush road leads southeasterly up the creek valley and eastward into the valley of Dardanelle Creek towards the property.



Scale 1: 50,000

KOBOLD RESOURCES LTD.  
**CLAIM MAP**  
**MERIT SOUTH CLAIM**  
**SLOCAN MINING DIVISION**  
 DEC. 1986 FIG. 2  
BOA SERVICES LTD.

To accompany report by P.P.L. Chung



## PHYSIOGRAPHY

Topographically, the property is situated on a steep north facing slope. Elevations range from 3100 feet in the northwest sector of the property to 6400 feet in the southeast corner of the claim.

Vegetation is dense throughout the claim area with abundant devil's club, alder especially along creek beds, currant and rose bushes. Evergreens, mainly spruce and cedar are interspersed throughout the property.

## HISTORY

The ground now held by the MERIT SOUTH mineral claim appears to have been the St. Keverne mining property and part of the former Payne Group of claims. The adit near the southern border of the property is probably the St. Keverne adit, and the Payne Vein is immediately south of the MERIT SOUTH claim.

The St. Keverne claim was managed by O.C. Garde and work was performed on the property in 1902 and 1904. During 1902, 459 feet of tunnel was driving with 47 feet of upraise and winze, shipping 7 tons of ore. In 1905, a further 9 tons of silver-lead ore was shipped for a total of 16 tons averaging 144 ounces in silver to the ton 78 per cent lead.

The Payne vein was discovered in 1891 and was operated by Payne Mines and Payne Consolidated Mining Company until 1905. The

mine is developed by seven adits and tunnels over a vertical range of 1450 feet below the outcrops of the vein. The various workings include over 10,000 feet of drifts.

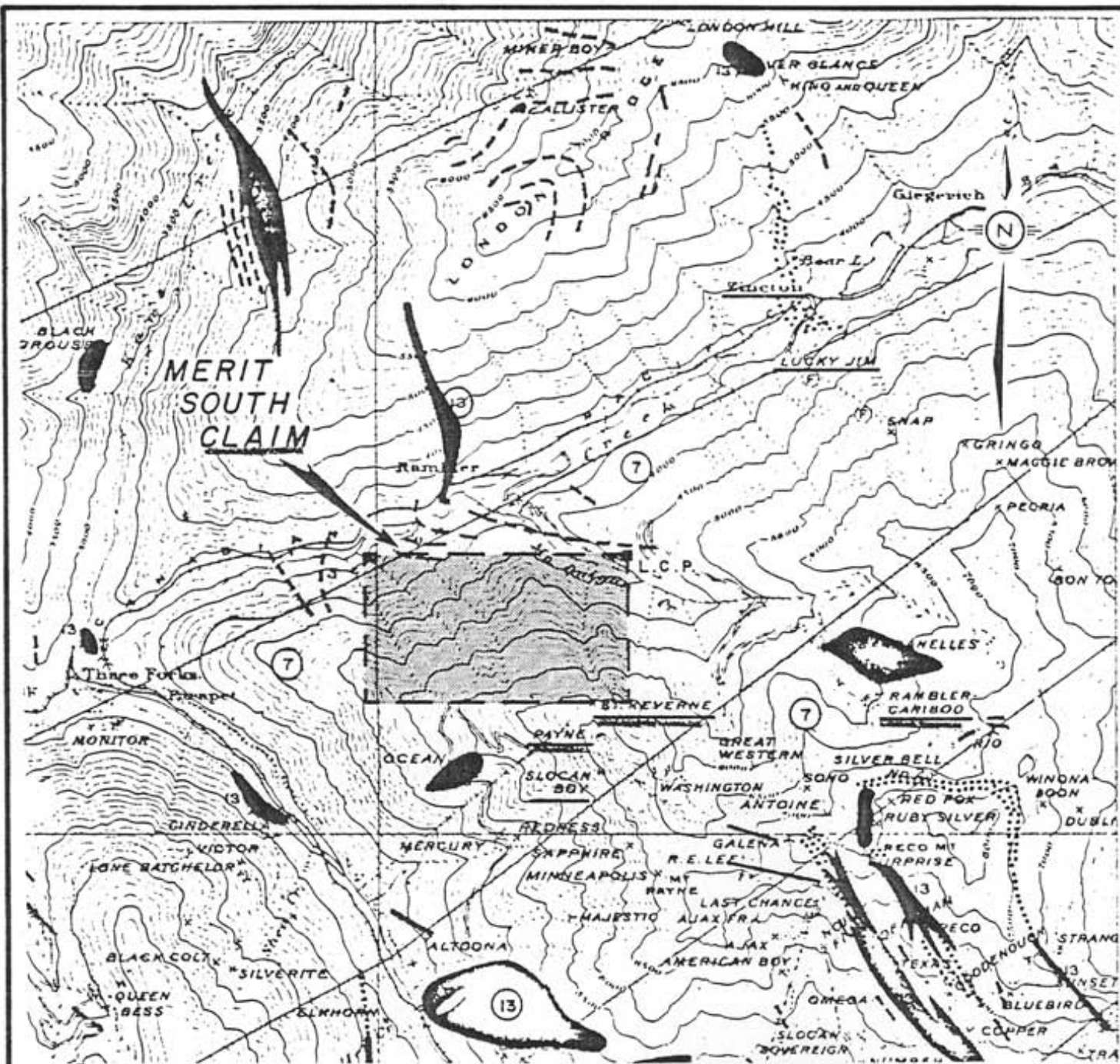
Records of production are incomplete up to 1905, shipments amount to over 50,000 tons of silver-lead ore, averaging 120 ounces of silver to the ton and 68 percent lead, with some 6,000 tons of zinc blende. The aggregate value of this ore is estimated at about \$5,000,000.

In 1985, Mr. M. Linn, a independent geologist, was commissioned by Kobold Resources Ltd. to put in a survey grid. However, the work was terminated due to weather conditions and only four kilometers of line was completed.

#### REGIONAL GEOLOGY

The property is situated regionally within the Kootenay area near the Nelson Batholith.

In the McGuigan Creek-Zincton area where the Merit Smith claim is located (Figure 3), rocks of mainly Triassic age occur in sequences that vary from place to place in lithology and thickness. The predominant lithological unit in this area is the Slocan Group. This formation of metasediments include fine grained, grey to black, commonly limy phyllites, massive, fine-grained argillites, and a mostly fine grained, massive, grey to almost black limestone. Fine-grained, green, massive to schistosed flow breccias of andesitic composition belonging to



**LEGEND**

- 13
 Granite, syenite, granodiorite, quartz-diorite, their porphyry and felsic equivalent.
- 7
 Slate, argillite, limestone, quartzite, and tuffaceous sediments.

Scale 1: 48,000

KOBOLD RESOURCES LTD.

**GENERAL GEOLOGY MAP**  
(AFTER GSC MAP 273A)

**MERIT SOUTH CLAIM**

**SLOCAN MINING DIVISION**

DEC. 1986 FIG. 3

BOA SERVICES LTD.

To accompany report by P.P.L. Chung

the Kalso Series also occur in the area, as does acid intrusives belonging to the Nelson Batholith.

The structure of this area is rather complex as the Slocan Group is a quite deformed formation, probably due to it consisting of alternating bands and layers of different structural competence. Broadly viewed, the Slocan strata lie in numerous dome shaped and basin shaped folds; but closer examination indicates various styles of repeated folding and faulting. Generally, the planar and linear elements trend northwesterly along apparent fold axes.

This region is best known for the silver-lead-zinc deposits in the Slocan area. Generally, the productive lodes strike northeasterly and dips to the southeast following the regional shearing and jointing systems. The northeast trending fissures cut sharply across the strata and offer a more permanent opening for injection of ore fluids. These veins tend to be found in competent rocks and not in slaty or otherwise fissile or thinly laminated rocks except where they have been supported by adjacent, more massive beds or by igneous ribs.

## 1986 EXPLORATION PROGRAM

### Introduction

During August 1986, Boa Services Ltd. of Vancouver B.C., was commissioned to establish a survey grid and then to conduct geochemical, magnetic, and VLF-EM surveys on the MERIT SOUTH claim. Unfortunately, due to budget restraints, the magnetic and VLF-EM surveys were not completed. This work program commenced on August 23rd and was terminated on September 16th, 1986.

### Survey Grid

Given the 1986 exploration budget, the grid was established using a belt chain and compass. All lines were flagged and labelled. A total of 14.2 kilometers of line were established, including two baselines and one tieline bearing north-south and seven east-west bearing survey lines. The survey lines were spaced at 100 and 200 meter intervals and sample stations were established every 25 meters.

## VLF-EM Survey

### Instrument and Field Procedures

A Geonics EM-16 VLF Electromagnetometer (Serial No. 18975) was used to conduct the survey. This instrument acts as a receiver only. It utilizes the primary electromagnetic fields generated by very low frequency (VLF) marine communication stations. These stations operate at a frequency between 15 to 25  $\text{KH}_z$ , and have a vertical antenna current, resulting in a horizontal primary field. Thus, the VLF-EM-16 measures the dip angle of the secondary field induced in a conduction.

For maximum coupling, a transmitter station located perpendicular to the survey lines should be selected since the direction of the horizontal electromagnetic field is perpendicular to the direction of the transmitting station. Thus, the receiver was tuned to a U.S. military transmitter situated in Lualualei, Hawaii and broadcasting at 23.4  $\text{KH}_z$  throughout the entire survey. The operator faced west for all measurements.

Measurements of In-Phase and Quadrature components of the EM field were recorded every 25 meters along the survey lines. The In-Phase data was filtered by the operator as described by D.C. Fraser, Geophysics vol. 34, No. 6 (December, 1969).

The advantage of this method is that it removes the dc (dynamic range) and attenuates long spatial wave lengths

to increase resolution of local anomalies, and phase shifts the dip angle data by  $90^{\circ}$  so that crossovers and inflections will be transformed into peaks to yield contourable quantities.

### **Discussion of Results**

As a result of the orientation of the chosen transmitter station with respect to the grid, conductors oriented more or less north-south will respond preferentially to the signal; whereas those conductors oriented east-west will couple poorly with the signal and will be discriminated against.

The plotted profile data (Figure 4) indicates a number of well defined but apparently incoherent anomalies. Fraser filtering of the data (Figure 5) enables the anomalies to be contoured in a coherent fashion and 10 conductive trends can then be identified. These trends are characterized by mainly moderate or strong anomaly amplitudes and are oriented in a predominantly north-south direction. A few of the conductive trends fall on creek beds, therefore, they are probably of little economic interest. However, conductors do exist over the adit and surrounding areas, coincident with geochemical anomalies. Unfortunately, the VLF coverages do not extend to the north where the majority of the geochemical anomalies occur.

## Magnetometer Survey

### Instrumentation and Field Procedure

The magnetic survey was carried out using a Barringer GM-122 proton magnetometer (Serial No. 7534) with a standard 5 foot staff for the sensor head. This instrument measures the earth's total magnetic field and has an accuracy of  $\pm 1$  gamma. Diurnal variation corrections were established by conducting looped traverses to pre-established control readings on baseline 90E and tieline 100E. Measurements were made every 50 meters along the survey lines.

### Discussion of Results

Diurnal variations for the entire survey was found to be less than 30 gammas. The corrected data are presented in contour form on Figure 6.

Examination of the contour magnetic field response indicates a number of isolated magnetic "highs" and magnetic "lows"; and one continuous, linear "low" feature, which can be traced from line 99N-86E to line 93N-86E. This feature is coincident with a VLF anomaly but does not have a geochemical response.

It is not possible to distinguish between lithological units underlying the grid on the basis of magnetics. The argillites, phyllites, quartzites and limestones, which



are the dominant rock types in the area, appear to have little susceptibility contrast and cannot, therefore, be distinguished by their magnetic response.

### **Soil Geochemical Survey**

Soil geochemical samples of the "B" and "C" soil horizons were collected using a grub hoe. Survey notes of sample location, origin, type, character, texture, horizon, colour, depth, topographic slope and direction, and any possible contaminations were made at each sample station. From the notes, the soil samples were composed predominantly of a mixture of clay and sand from the residual and colluvial overburden cover. The "B" and "C" soil samples were usually collected from 15 to 30 centimeters below the surface depending on soil development.

The soil samples were collected by Mr. J. McLennan and Mr. J.O. Yeager. A total of 228 samples were collected.

The soil samples were placed in kraft paper envelopes, field dried and delivered to MIN-EN Laboratories Ltd. in Vancouver, B.C. There, the samples were dried at 60°C, sieved to -80 mesh and analysed for copper, lead, zinc, and silver by atomic absorption spectrophotometric methods.

At the writer's request, MIN-EN Laboratories Ltd. carried out a geostatistical analysis of the soil geochemical

results using a conventional statistical software program. Frequency percent, cumulative frequency percent and probability data were plotted graphically to aid in the determination of background, and anomalous values for each element.

The Certificate of Analysis for the soil samples accompany this report as Appendix I. Appendix II contains the geostatistical data. Figure 7 to 10 show the results of the soil geochemical survey. Figure 11 is a compilation of anomalous soil geochemical values correlated with the geophysical results.

#### **Discussion of Results**

A study of the soil geochemical results indicates there are two populations of values superimposed upon each other for all four elements, though it is more subtle in copper than in lead, zinc and silver. The first population of values which represents approximately 96 percent of the class have relatively normal distributions. The second population, which represents 3.9 percent of the class in lead, zinc, silver and 1.32 percent in copper, have much higher values than the first population. Thus, the mean values for each element is skewed towards a higher level and this second population also significantly increases the standard deviation. A summary of the geostatistical results for the 228 soil samples collected follows.

Element	Minimum Value (ppm)	Maximum Value (ppm)	Mean (ppm)	Standard Deviation	Coefficient Variation
Lead	7.0	2,100.0	47.6	152.2	3.3
Zinc	20.0	13,000.0	397.1	932.7	2.5
Silver	0.2	60.6	1.7	4.1	2.5
Copper	11.2	385.0	43.5	38.7	0.9

With the elevated mean values and the large standard deviations as a result of the two populations, the anomalous levels were determined by inflection points on the cumulative probability plots. Based on this method of interpretation, the following anomalous levels are indicated. (In each element, the definitely anomalous population is less than 7 percent of the total population).

Element	Possibly Anomalous	Definitely Anomalous
Lead (ppm)	60.0	85.0
Zinc (ppm)	470.0	700.0
Silver (ppm)	2.5	3.25
Copper (ppm)	60.0	105.0

All the lead-in-soil anomalies occur in the eastern portion of the grid. The two main areas of interest are:

1. Line 91N-107E, just topographically above the adit. Here, a value of 10 ppm was obtained and the anomalous values extend northward for about 200 meters.

2. The northeastern corner of the grid, where the highest value (2100 ppm) occurs is an anomalous area that straddles the McGuigan Creek.

Areas anomalous in zinc values occur mostly in the eastern location of the grid and correlates quite well with the lead anomalous areas. Typically, zinc anomalies show a greater downhill dispersion than lead. There are also single point anomalies west of tieline 100E, at line 99N 99+50E and at line 97N 90E. The latter anomalous value may be a result of contamination from a nearby old dilapidated railway.

Silver-in-soil anomalies are again concentrated in the eastern portion of the grid. Anomalous areas included line 91N 107E with a discontinuous extension downhill to line 100N 101E; and again, the northeast corner of the grid, where the highest value (60.6 ppm) occurs.

Copper-in-soil values are more normally distributed than the other elements, but majority of anomalies still occurs in the eastern portion of the claim. The highest values, again, comes from the northeast corner. The anomaly above the adit is much weaker (reaching only possibly anomalous level) and slightly displaced to the west. There is also an area west of tieline 100E that is anomalous only in copper at line 95N 94E to line 97N 93+50E, as well as the anomalous station by the old railway.

Results of the soil sampling survey indicates a number of interesting areas, especially in the eastern part of the grid. Also, there is a close relationship in occurrence of the elements, especially silver, lead and zinc. The Pearson Correlation Matrix clearly demonstrates this inter-element relationship, and even though the inter-element correlation coefficients for copper are lower, the relationship to the other three elements is strong enough to suggest a copper mineral of probably tetrahedrite or chalcopyrite.

#### **Rock Geochemical Survey**

During the exploration program, four rock samples were collected by Mr. J. McLennon from the stockpile of mineralized vein material near the adit. These samples were collected as they represent various types of stockpile material present. The samples were described and labelled by the writer and then delivered to MIN-EN Laboratories in Vancouver for analyses.

At the laboratory, the samples were ground to -80 mesh and analysed for copper, lead, zinc and silver by atomic absorption spectrophotometric methods. The Certificate of Analysis for the rock geochemical samples accompanies this report as Appendix III. The location and analytical results of each sample have been plotted on Figure 11. Appendix IV contains the descriptions of the samples.

### **Discussion of Results**

The results from the limited rock geochemical sampling returned some very high values, up to 49.80 percent zinc and 10.94 ounces per ton silver. Though the values are high, it must be remembered that the samples were collected from a stockpile of vein material that is undoubtedly high picked and high grade.

### **CONCLUSIONS**

The results of the 1986 exploration program is quite encouraging. The soil geochemical survey identified a number of multi-element anomalous areas, especially around the adit and in the northeast portion of the grid, where values up to 2100 ppm lead, 13,000 ppm zinc, 60.6 ppm silver, and 385.0 ppm copper were obtained. The rock geochemical survey, though limited and collected from the stockpile at the adit, returned values up to 49.8 percent zinc and 10.94 ounces per ton silver.

The magnetic and VLF surveys identified a number of geophysical anomalies, some of which are coincident with each other. Though some of the VLF responses are probably due to topographical features. Some conductors appear to be related to geochemical responses. However, since the VLF survey do not cover the northeast portion of the grid, where the majority of the geochemical anomalies occur, the relationship between VLF conductors and geochemical anomalies, if any, cannot be clearly determined at this point.

**RECOMMENDATIONS**

The following work is recommended to further evaluate the potential of the property.

1. Geological mapping of the property and rock geochemical sampling in favourable locations.
2. Examination and mapping of the adit to determine the trend and character of the vein.
3. Completion of the magnetic and VLF surveys.

**COST ESTIMATES**

Geological mapping	\$1,800.00
Rock Geochemical Sampling 50 samples	500.00
Magnetometer and VLF Survey	1,200.00
Field Support Lodging, meals, truck rental	2,000.00 5,500.00
Contingencies (approximately 10%)	<u>500.00</u>
<b>Total</b>	<b>\$6,000.00</b>

Submitted by,

**BOA SERVICES LTD.**

*Paul Chung*

**Paul P.L. Chung**  
Consulting Geologist

January 20, 1987  
Vancouver, B.C.

**STATEMENT OF COSTS**

Re: Establishment of survey grid  
 Collection and analysis of 228 soil geochemical samples  
 Collection and analysis of 4 rock geochemical samples  
 Proton magnetometer survey  
 VLF-EM survey  
 Collation, plotting, drafting, interpretation and  
 documentation of all resultant data from the 1986  
 program.

**1. Field Program**

P.P.L. Chung, Geologist 1.5 days at \$200/day	\$ 300.00
J. McLennan, soil sampler, VLF operator 15 days at \$180/day	2,700.00
J.O. Yeager, soil sampler, magnetometer operator, 16.5 days at \$180/day	2,970.00
Vehicle expenses - 18 days at \$35/day and 3094 km at \$0.35 km	1,712.90
Lodging - 33 mandays at \$22.08 per manday	728.67
Food: 33 mandays at \$17.98 per manday	593.38
Field supplies - flagging, soil bags, topo thread	132.51
Equipment rental - proton magnetometer and EM-16, each 1 week at \$200 per week	400.00
Sample analysis - 228 soil and 4 rock samples	1,428.40



**2. Report Writing**

P.P.L. Chung - data compilation, review,  
collation, documentation, and  
drafting of all maps.

4 days at \$200 per day 800.00

Typing 154.77

Report reproduction and printing 389.99

**Total cost of 1986 Exploration Program \$12,310.62**

**STATEMENT OF QUALIFICATIONS**

I, Paul P.L. Chung, of the city of Richmond, Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Consulting Geologist with business address office at Suite 302 - 119 West Pender Street, Vancouver, British Columbia, V6B 1S5, and President of Boa Services Ltd.
2. I am a graduate in geology with a Bachelor of Science (Major: Geology) degree from the University of British Columbia, in 1981.
3. I have practised my profession for the past five years.

Pre-graduate experience in Geology, Geochemistry, Geophysics in British Columbia and Yukon (1979-1980).

Two years as Exploration Geologist with Sulpetro Minerals Limited conducting Geological and Geophysical programming British Columbia, Yukon, Ontario, Quebec, and Nova Scotia (1981-1982).

Three years as Consulting Geologist with Boa Services Ltd.

4. I supervised the 1986 exploration program on the Merit South claim and wrote this report which documents the results.
5. I am a director of Kobold Resources Ltd.

  
**Paul P.L. Chung**

Dated at Vancouver B.C. this 20th day of January, 1987.

**REFERENCES**

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Descriptions of Properties,  
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- Report of the Zinc Commission  
1906, p.194-197
- Tully, D.W., 1984  
Report on the Merit South  
Mineral Claim; private report  
for Kobold Resources Ltd.  
dated April 2, 1984.

APPENDIX I

MIN-EN Laboratories Ltd.  
Certificate of Geochem - Soil Samples

**MIN-EN LABORATORIES LTD.***Specialists in Mineral Environments*

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524

TELEX: VIA USA 7601067 UC

**Certificate of GEOCHEM**

Company: KOBOLD RESOURCES/BOA SERVICES

Project: B611

Attention:

File: 6-848/P1

Date: SEPT 26/86

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L91N BL 90+00E	34	480	2.2	44
L91N BL 90+50E	20	320	1.4	28
L91N BL 91+00E	28	245	1.6	50
L91N BL 91+50E	19	220	1.9	34
L91N BL 92+00E	23	175	0.8	58
L91N BL 92+50E	20	190	1.0	54
L91N BL 93+00E	42	180	0.8	24
L91N BL 93+50E	7	137	0.3	12
L91N BL 94+00E	30	144	0.8	25
L91N BL 94+50E	24	113	1.0	23
L91N BL 95+00E	29	143	1.2	30
L91N BL 95+50E	23	205	1.7	44
L91N BL 96+00E	21	86	0.7	23
L91N BL 96+50E	13	65	0.4	16
L91N BL 97+00E	27	185	1.5	42
L91N BL 97+50E	26	160	0.9	40
L91N BL 98+00E	30	270	1.3	55
L91N BL 98+50E	29	146	1.9	44
L91N BL 99+00E	16	90	0.6	20
L91N BL 99+50E	20	91	1.6	43
L91N TL 100E	ND	SAMPLE		
L91N TL 100+50E	30	122	0.7	66
L91N TL 101+00E	17	114	1.1	38
L91N TL 101+50E	28	180	1.4	49
L91N TL 102+00E	20	123	1.0	26
L91N TL 102+50E	40	92	0.9	22
L91N TL 103+00E	72	115	0.7	24
L91N TL 103+50E	34	118	0.9	33
L91N TL 104+00E	16	92	0.4	14
L91N TL 104+50E	22	105	0.5	20

Certified by

MIN-EN LABORATORIES LTD.

# MIN-EN LABORATORIES LTD.

Specialists in Mineral Environments

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

PHONE: (604)980-5814 OR (604)980-4524

TELEX: VIA USA 7601067 UC

## Certificate of GEOCHEM

Company: KOBOLD RESOURCES/BOA SERVICES

Project: 8611

Attention:

File: 6-B48/P2


Date: SEPT 26/86

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L91N TL 105+00E	10	29	0.6	12
L91N TL 105+50E	29	115	0.7	38
L91N TL 106+00E	41	146	2.8	90
L91N TL 106+50E	88	245	1.5	54
L91N TL 107+00E	1000	1500	6.4	48
L91N TL 107+50E	16	110	1.3	22
L91N TL 108+00E	63	96	0.8	24
L91N TL 108+50E	40	148	2.0	37
L91N TL 109+00E	8	55	0.2	16
L91N TL 109+50E	18	88	0.9	22
L91N TL 110+00E	15	72	0.6	20
L93N BL 90+00E	20	156	1.2	58
L93N BL 90+50E	22	149	0.7	48
L93N BL 91+00E	20	164	1.5	29
L93N BL 91+50E	16	170	1.8	44
L93N BL 92+00E	21	172	0.9	27
L93N BL 92+50E	20	127	0.7	18
L93N BL 93+00E	22	173	1.0	22
L93N BL 93+50E	19	255	2.0	20
L93N BL 94+00E	20	154	1.8	22
L93N BL 94+50E	16	180	1.0	30
L93N BL 95+00E	20	148	1.1	42
L93N BL 95+50E	20	152	1.5	25
L93N BL 96+00E	27	164	1.7	24
L93N BL 96+50E	21	235	1.4	36
L93N BL 97+00E	26	250	2.2	30
L93N BL 97+50E	19	310	2.4	40
L93N BL 98+00E	27	160	2.0	25
L93N BL 98+50E	22	144	1.6	34
L93N BL 99+00E	22	146	1.6	30

Certified by



MIN-EN LABORATORIES LTD.

**MIN-EN LABORATORIES LTD.**

*Specialists in Mineral Environments*

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524

TELEX: VIA USA 7601067 UC

Certificate of GEOCHEM

Company: KOBOLD RESOURCES/BOA SERVICES

File: 6-848/P3

Project: B611

Date: SEPT 27/86

Attention:

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L93N BL 99+50E	36	238	0.9	64
L93N TL 100+00E	↑25	200	2.3	25
L93N TL 100+50E	26	174	1.0	70
L93N TL 101+00E	16	130	1.3	52
L93N TL 101+50E	12	83	0.8	32
L93N TL 102+00E	17	106	1.1	35
L93N TL 102+50E	17	66	0.8	27
L93N TL 103+00E	16	124	0.8	44
L93N TL 103+50E	12	29	0.3	15
L93N TL 104+00E	17	92	0.4	33
L93N TL 104+50E	20	75	1.4	28
L93N TL 105+00E	10	67	0.5	26
L93N TL 105+50E	20	90	0.4	35
L93N TL 106+00E	NO SAMPLE			
L93N TL 106+50E	195	1550	2.0	34
L93N TL 107+00E	23	140	1.3	53
L93N TL 107+50E	46	180	0.4	30
L93N TL 108+00E	22	160	0.6	30
L93N TL 108+50E	21	125	1.2	26
L93N TL 109+00E	43	238	0.9	47
L93N TL 109+50E	38	124	0.5	34
L93N TL 110+00E	20	109	0.3	38
L95N BL 90+00E	↓21	155	1.2	49
L95N BL 90+50E	19	150	1.0	26
L95N BL 91+00E	52	225	1.0	33
L95N BL 91+50E	25	245	2.2	45
L95N BL 92+00E	21	133	0.7	17
L95N BL 92+50E	28	210	0.9	48
L95N BL 93+00E	25	300	1.2	49
L95N BL 93+50E	28	176	1.1	34

Certified by

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Specialists in Mineral Environments

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

PHONE: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

## Certificate of GEOCHEM

Company: KOBOLD RESOURCES/BOA SERVICES

Project: 8611

Attention:

File: 6-848/P4

Date: SEPT 26/86

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L95N BL 94+00E	51	235	2.2	128
L95N BL 94+50E	44	114	0.7	22
L95N BL 95+00E	23	67	0.4	25
L95N BL 95+50E	16	20	0.2	11
L95N BL 96+00E	20	295	1.5	36
L95N BL 96+50E	24	240	1.1	29
L95N BL 97+00E	17	172	0.7	22
L95N BL 97+50E	30	150	0.9	26
L95N BL 98+00E	45	119	1.1	30
L95N BL 98+50E	29	180	0.7	50
L95N BL 99+00E	23	128	0.6	16
L95N BL 99+50E	34	245	2.0	37
L95N TL 100+00E	↑ 22	153	1.2	24
L95N TL 100+50E	33	154	1.5	34
L95N TL 101+00E	22	91	1.9	23
L95N TL 101+50E	23	72	1.6	35
L95N TL 102+00E	23	157	1.5	26
L95N TL 102+50E	24	140	1.0	25
L95N TL 103+00E	21	75	1.0	30
L95N TL 103+50E	25	185	1.2	44
L95N TL 104+00E	24	112	0.8	23
L95N TL 104+50E	26	166	1.4	74
L95N TL 105+00E	22	210	1.8	26
L95N TL 105+50E	30	920	3.8	154
L95N TL 106+00E	27	275	1.7	40
L95N TL 106+50E	39	340	1.2	66
L95N TL 107+00E	42	320	2.7	65
L95N TL 107+50E	34	615	2.4	77
L95N TL 108+00E	46	310	2.3	40
L95N TL 108+50E	30	465	1.6	148

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PHONE: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

**Certificate of GEOCHEM**

Company: KOBOLD RESOURCES/BOA SERVICES

Project: 8611

Attention:

File: 16-848/P5

Date: SEPT 27/86

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L95N TL 109+00E	30	150	1.2	25
L95N TL 109+50E	19	285	1.1	29
L95N TL 110+00E	14	275	0.9	46
L97N BL 90+00E	57	735	2.5	140
L97N BL 90+50E	31	345	0.4	36
L97N BL 91+00E	24	173	1.6	40
L97N BL 91+50E	20	174	0.5	16
L97N BL 92+00E	25	157	0.8	28
L97N BL 92+50E	24	260	0.6	41
L97N BL 93+00E	36	152	1.1	108
L97N BL 93+50E	30	470	2.3	46
L97N BL 94+00E	25	220	1.1	76
L97N BL 94+50E	41	265	1.5	57
L97N BL 95+00E	25	255	1.0	27
L97N BL 95+50E	32	135	0.5	14
L97N BL 96+00E	24	215	1.1	16
L97N BL 96+50E	32	108	0.4	24
L97N BL 97+00E	30	208	0.8	32
L97N BL 97+50E	28	179	1.6	34
L97N BL 98+00E	28	405	1.6	48
L97N BL 98+50E	30	214	2.0	22
L97N BL 99+00E	32	310	1.7	32
L97N BL 99+50E	27	240	1.8	28
L97N TL 100+00E	34	130	1.2	25
L97N TL 100+50E	43	118	1.4	28
L97N TL 101+00E	26	187	1.4	29
L97N TL 101+50E	55	460	1.2	36
L97N TL 102+00E	47	350	0.8	32
L97N TL 102+50E	38	250	0.8	42
L97N TL 103+00E	53	365	0.9	38

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TELEX: VIA USA 7601067 UC

## Certificate of GEOCHEM

Company: KOBOLD RESOURCES/BOA SERVICES

Project: 8611

Attention:

File: 6-B48/P6

Date: SEPT 26/86

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L97N TL 103+50E	35	116	2.9	19
L97N TL 104+00E	38	136	3.0	18
L97N TL 104+50E	24	73	0.9	12
L97N TL 105+00E	85	116	1.7	18
L97N TL 105+50E	24	160	0.3	33
L97N TL 106+00E	24	122	0.4	52
L97N TL 106+50E	20	123	0.7	27
L97N TL 107+00E	21	180	0.7	31
L97N TL 107+50E	28	500	0.8	34
L97N TL 108+00E	35	655	0.6	27
L97N TL 108+50E	48	370	1.0	28
L97N TL 109+00E	22	215	0.5	42
L97N TL 109+50E	26	154	0.9	34
L97N TL 110+00E	42	385	1.0	46
L98N TL 107+00E	30	635	1.7	54
L98N TL 107+50E	42	405	1.8	64
L98N TL 108+00E	22	300	2.1	89
L98N TL 108+50E	73	3350	3.3	235
L98N TL 109+00E	25	510	0.8	46
L98N TL 109+50E	25	230	0.9	38
L98N BL 110+00E	24	340	1.6	44
L99N BL 90+00E	30	420	0.4	28
L99N BL 90+50E	17	134	0.3	12
L99N BL 91+00E	28	395	0.3	48
L99N BL 91+50E	19	205	1.4	20
L99N BL 92+00E	26	310	0.4	90
L99N BL 92+50E	34	330	1.0	48
L99N BL 93+00E	29	250	0.6	40
L99N BL 93+50E	30	260	0.6	19
L99N BL 94+00E	22	225	1.4	14

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TELEX: VIA USA 7601067 UC

## Certificate of GEOCHEM

Company: KOBOLD RESOURCES/BOA SERVICES

Project: 8611

Attention:

File: 6-848/P7

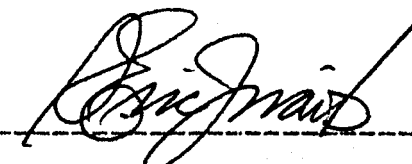
Date: SEPT 27/86

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM
L99N BL 94+50E	24	290	0.9	19
L99N BL 95+00E	26	250	0.8	36
L99N BL 95+50E	14	112	1.6	62
L99N BL 96+00E	25	188	1.0	19
L99N BL 96+50E	19	115	0.5	22
L99N BL 97+00E	18	81	0.6	12
L99N BL 97+50E	25	235	1.4	28
L99N BL 98+00E	23	167	1.2	32
L99N BL 98+50E	29	395	1.8	38
L99N BL 99+00E	26	410	1.6	30
L99N BL 99+50E	58	1650	1.5	96
L99N TL 100+00E	21	320	1.8	22
L99N TL 100+50E	24	285	0.6	25
L99N TL 101+00E	30	605	0.5	28
L99N TL 101+50E	27	375	1.5	30
L99N TL 102+00E	34	1320	1.6	82
L99N TL 102+50E	29	980	2.5	49
L99N TL 103+00E	28	645	1.2	57
L99N TL 103+50E	57	920	10.8	104
L99N TL 104+00E	24	395	1.6	29
L99N TL 104+50E	25	144	1.2	40
L99N TL 105+00E	21	154	0.7	26
L99N TL 105+50E	19	165	0.8	46
L99N TL 106+00E	64	730	2.0	96
L99N TL 106+50E	22	415	1.0	34
L99N TL 107+00E	98	725	1.7	58
L99N TL 107+50E	36	690	3.0	66
L99N TL 108+00E	9	85	1.0	23
L99N TL 108+50E	18	132	0.7	22
L99N TL 109+00E	22	340	0.6	42

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*Specialists in Mineral Environments*

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

PHONE: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

**Certificate of GEOCHEM**

Company: KOBOLD RESOURCES/BOA SERVICES

File: 6-848/P8

Project: 8611

Date: SEPT 27/86

Attention:

Type: SOIL GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	PB PPM	ZN PPM	AG PPM	CU PPM	
L99N TL 109+50E	17	235	5.6	55	
L99N TL 110+00E	15	215	1.0	22	
L100N TL 101+50E	37	4350	5.3	385	
L100N TL 102+00E	76	3200	4.0	200	
L100N TL 102+50E	74	1120	2.9	104	
L100N TL 103+00E	40	900	1.5	32	
L100N TL 103+50E	37	640	0.9	42	
L100N TL 104+00E	53	645	0.9	52	
L100N TL 104+50E	50	630	1.6	46	
L100N TL 105+00E	25	245	0.3	40	
L100N TL 105+50E	24	255	0.4	29	
L100N TL 106+00E	38	710	1.1	50	
L100N TL 106+50E	545	2100	4.7	98	
L100N TL 107+00E	50	625	1.4	53	
L100N TL 107+50E	43	380	0.8	58	
L100N TL 108+00E	2100	13000	60.6	240	
L100N TL 108+50E	48	260	6.0	40	
L100N TL 109+00E	146	2550	2.7	52	40MESH
L100N TL 109+50E	350	2200	9.1	66	
L100N TL 110+00E	44	425	3.3	24	

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APPENDIX II

Geostatistics for Soil Geochemical Results

**MIN-EN LABORATORIES LTD.**

SPECIALISTS IN MINERAL ENVIRONMENTS

775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167    PHONE: (604)980-5814 OR (604)988-4524

**STATISTICAL SUMMARY ON PB**

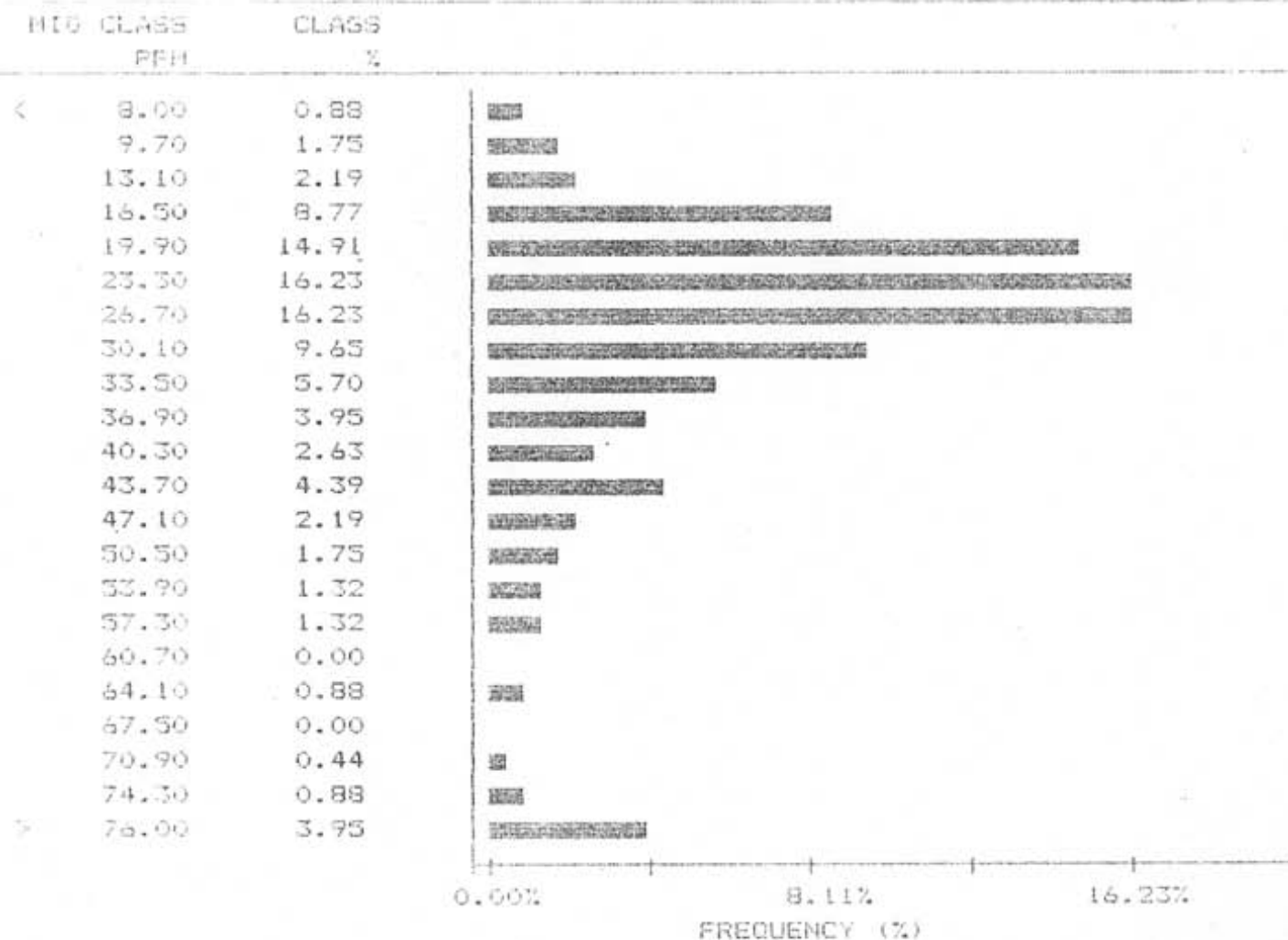
COMPANY: KOSOLO RESOURCES  
 ATTN:  
 PROJECT: B&L1  
 FILE#: 6-848

DATE: OCTOBER 1, 1986  
 SAMPLE TYPE: SOIL GEOCHEM  
 ANALYSIS TYPE: ATOMIC ABS.

NUMBER OF SAMPLES: 228  
 MAXIMUM VALUE: 2100.0 PPM  
 MINIMUM VALUE: 7.0 PPM  
 MEAN: 47.6 PPM  
 STD. DEVIATION: 157.2 PPM  
 COEFF. OF VARIATION: 3.3

5 HIGHEST PB VALUES:  
 L100N TL 108+00E 2100.0 PPM  
 L91N TL 107+00E 1000.0 PPM  
 L100N TL 106+50E 545.0 PPM  
 L100N TL 109+50E 350.0 PPM  
 L93N TL 106+50E 195.0 PPM

HISTOGRAM FOR PB                      CLASS INTERVAL = 3.40



**MIN-EN LABORATORIES LTD.**

**SPECIALISTS IN MINERAL ENVIRONMENTS**

775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167 PHONE: (604) 980-5814 OR (604) 988-4524

**CUMMULATIVE PROBABILITY PLOT ON FB**

COMPANY: KOBOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

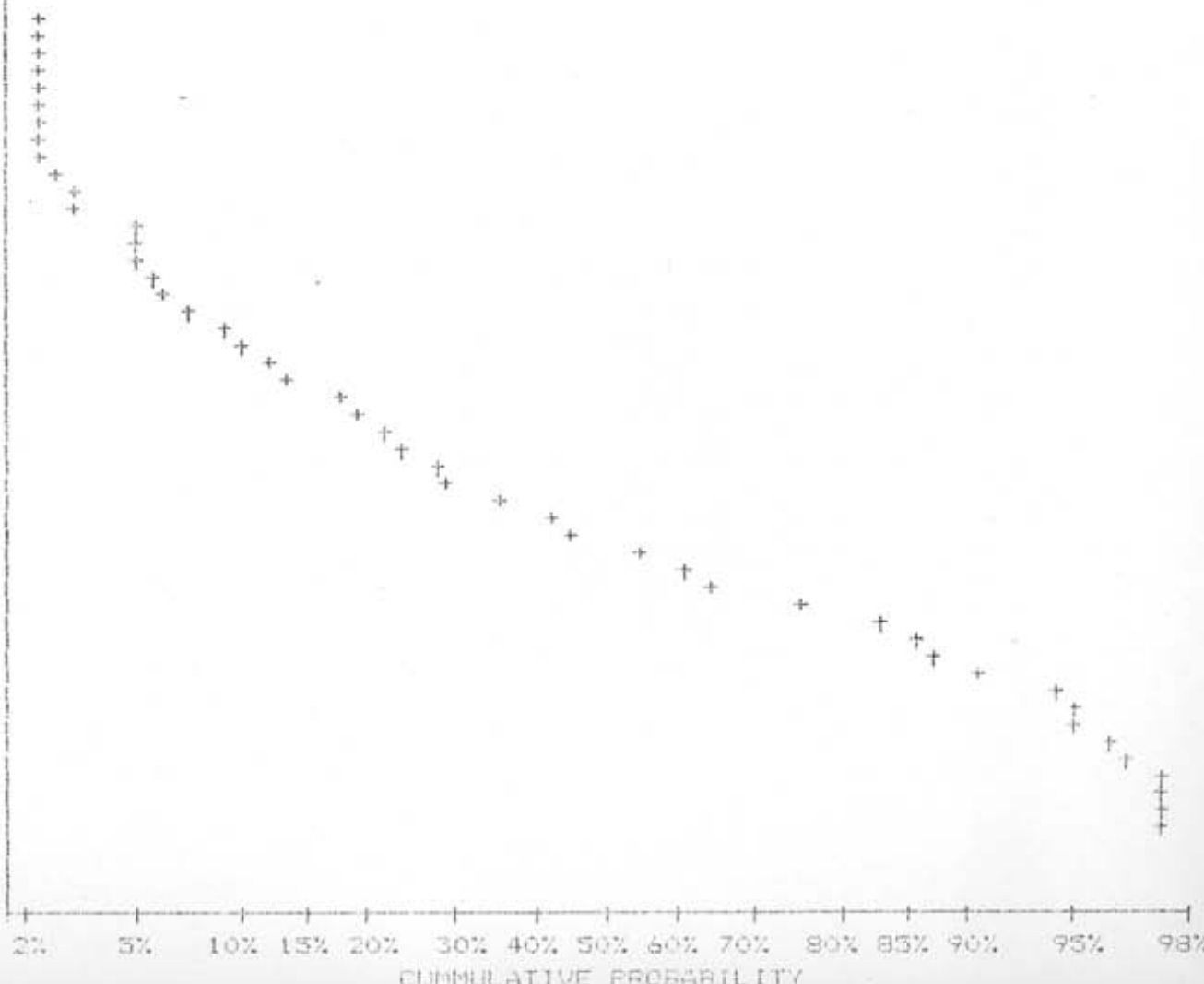
SAMPLE TYPE: SOIL GEOCHEM

PROJECT: B&LL

ANALYSIS TYPE: ATOMIC ABS.

FILE#: G-848

UPPER LIMIT (PPM)	CUMMUL. FREQ. (%)
515.17	0.88
460.32	0.88
411.02	0.88
367.53	0.88
329.40	1.32
293.43	1.32
262.19	1.32
234.28	1.32
209.34	1.32
187.05	1.75
167.14	1.75
149.34	1.75
133.44	2.19
119.24	2.19
106.54	2.19
95.20	2.63
95.06	3.07
76.01	3.51
67.91	5.26
60.68	6.14
54.22	7.89
48.45	10.53
43.29	14.04
38.68	19.74
34.56	24.56
30.89	29.82
27.60	42.98
24.66	55.26
22.03	65.35
19.69	82.89
17.59	87.72
15.72	94.30
14.05	95.18
12.55	96.49
11.21	97.37
10.02	97.37
8.95	98.68
0.88	99.12



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775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167 PHONE: (604) 980-5814 OR (604) 986-4524

**STATISTICAL SUMMARY ON ZN**

COMPANY: KOGOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

SAMPLE TYPE: SOIL GEOCHEM

PROJECT: 8611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

NUMBER OF SAMPLES: 228  
 MAXIMUM VALUE: 13000.0 PPM  
 MINIMUM VALUE: 20.0 PPM  
 MEAN: 397.1 PPM  
 STD. DEVIATION: 982.7 PPM  
 COEFF. OF VARIATION: 2.5

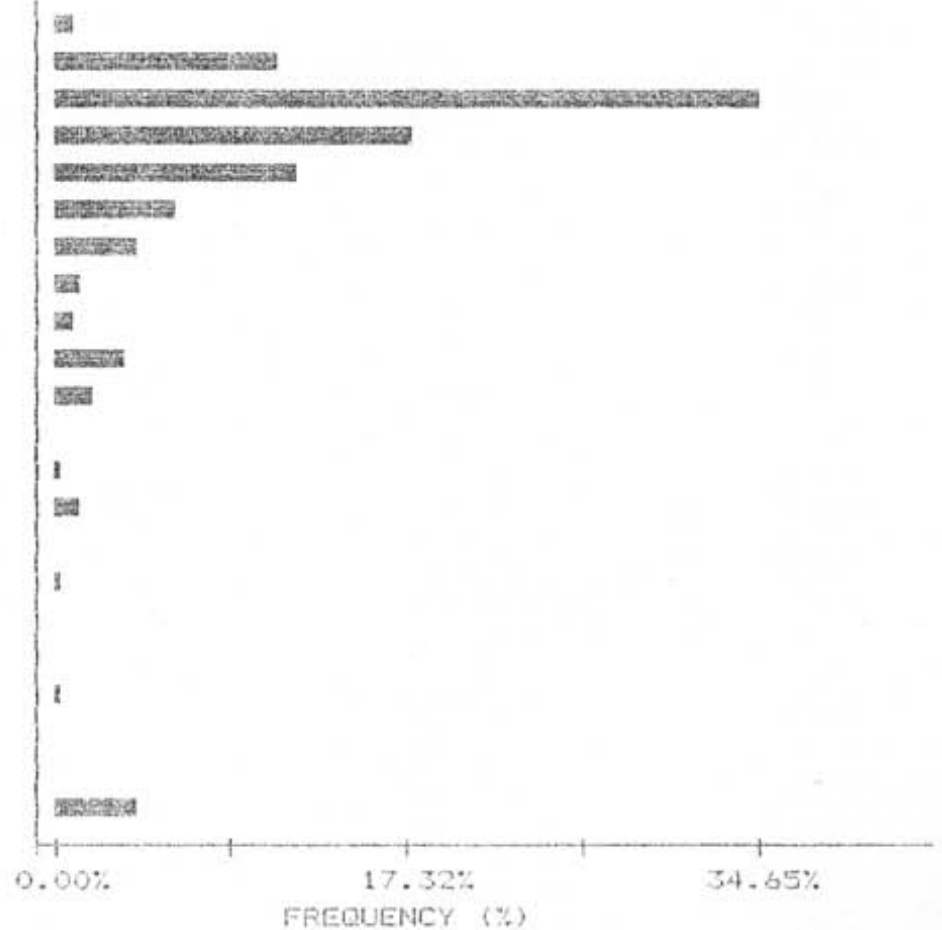
5 HIGHEST ZN VALUES:  
 L100N TL 108+00E 13000.0 PPM  
 L100N TL 101+50E 4350.0 PPM  
 L98N TL 108+50E 3350.0 PPM  
 L100N TL 102+00E 3200.0 PPM  
 L100N TL 109+00E 2550.0 PPM

HISTOGRAM FOR ZN

CLASS INTERVAL = 73.55

MID CLASS PPM	CLASS %
------------------	------------

<	29.00	0.68
	63.77	10.96
	139.32	34.65
	212.87	17.54
	286.42	11.84
	359.97	6.14
	433.52	3.95
	507.07	1.32
	580.62	0.88
	654.17	3.51
	727.72	1.75
	801.27	0.00
	874.82	0.44
	948.37	1.32
	1021.92	0.00
	1095.47	0.44
	1169.02	0.00
	1242.57	0.00
	1316.12	0.44
	1389.67	0.00
	1463.22	0.00
>	1500.00	3.95





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**CUMMULATIVE PROBABILITY PLOT ON ZN**

COMPANY: KOBOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

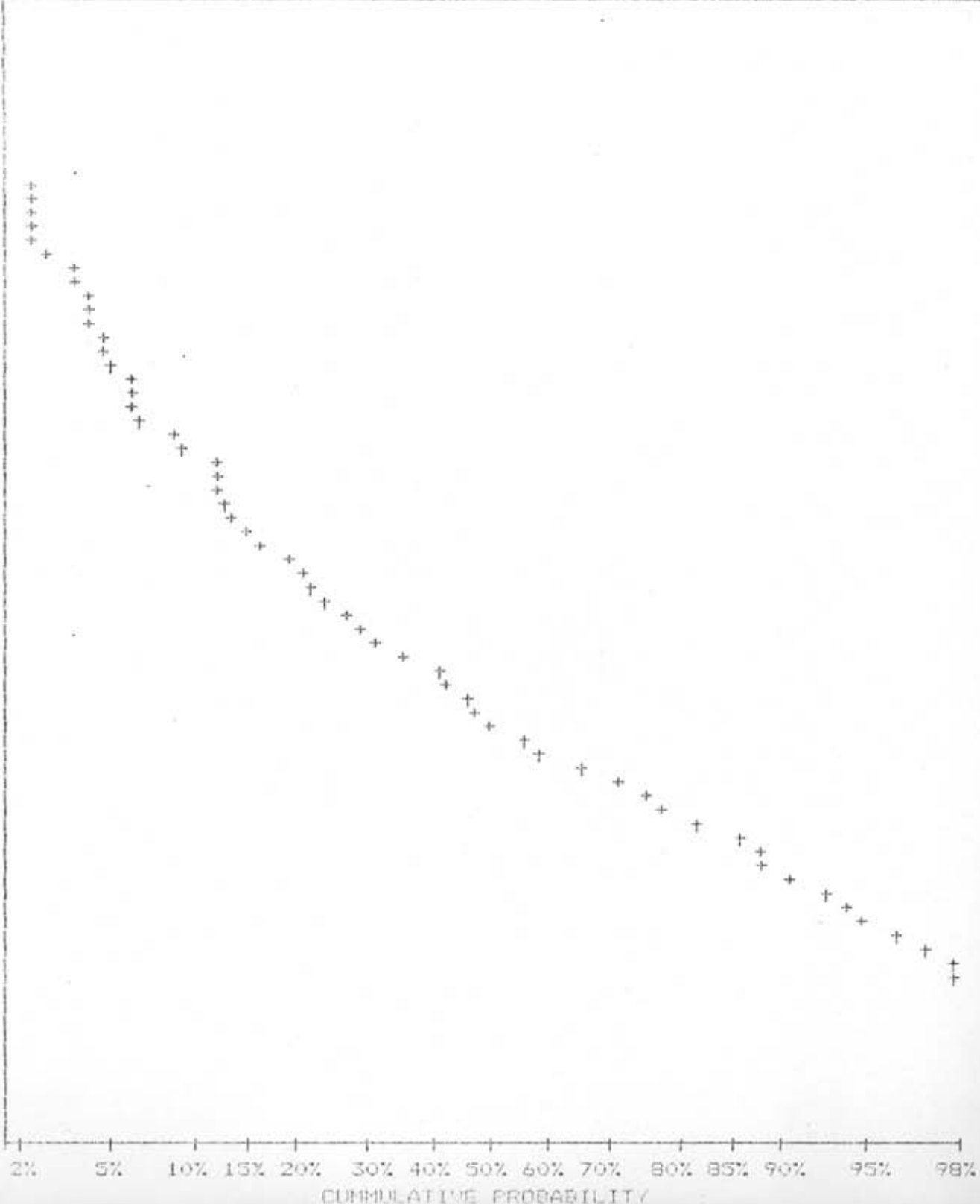
SAMPLE TYPE: SOIL GEOCHEM

PROJECT: 8611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

UPPER LIMIT (PPM)	CUMMUL. FREQ. (%)
3144.44	1.32
2770.38	1.32
2446.92	1.75
2150.46	2.19
1894.64	2.63
1667.26	2.63
1470.68	3.95
1295.73	4.39
1141.59	4.39
1005.79	4.82
886.14	6.58
780.73	6.58
687.85	8.77
606.03	12.28
533.93	12.72
470.42	14.04
414.46	16.67
365.15	21.05
321.72	24.12
283.44	29.82
249.73	35.96
220.02	42.98
193.85	48.25
170.79	57.02
150.47	66.23
132.57	75.00
116.80	81.58
102.91	88.16
90.66	90.79
79.88	93.86
70.38	96.05
62.00	97.81
54.63	98.35
48.13	98.25
42.40	98.25
37.36	98.25
32.92	98.25
0.88	99.12



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775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167    PHONE: (604)980-5814 OR (604)988-4524

**STATISTICAL SUMMARY ON AG**

COMPANY: ROSSOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

SAMPLE TYPE: SOIL GEOCHEM

PROJECT: B611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

NUMBER OF SAMPLES: 228  
 MAXIMUM VALUE: 60.6 PPM  
 MINIMUM VALUE: 0.2 PPM  
 MEAN: 1.7 PPM  
 STD. DEVIATION: 4.1 PPM  
 COEFF. OF VARIATION: 2.5

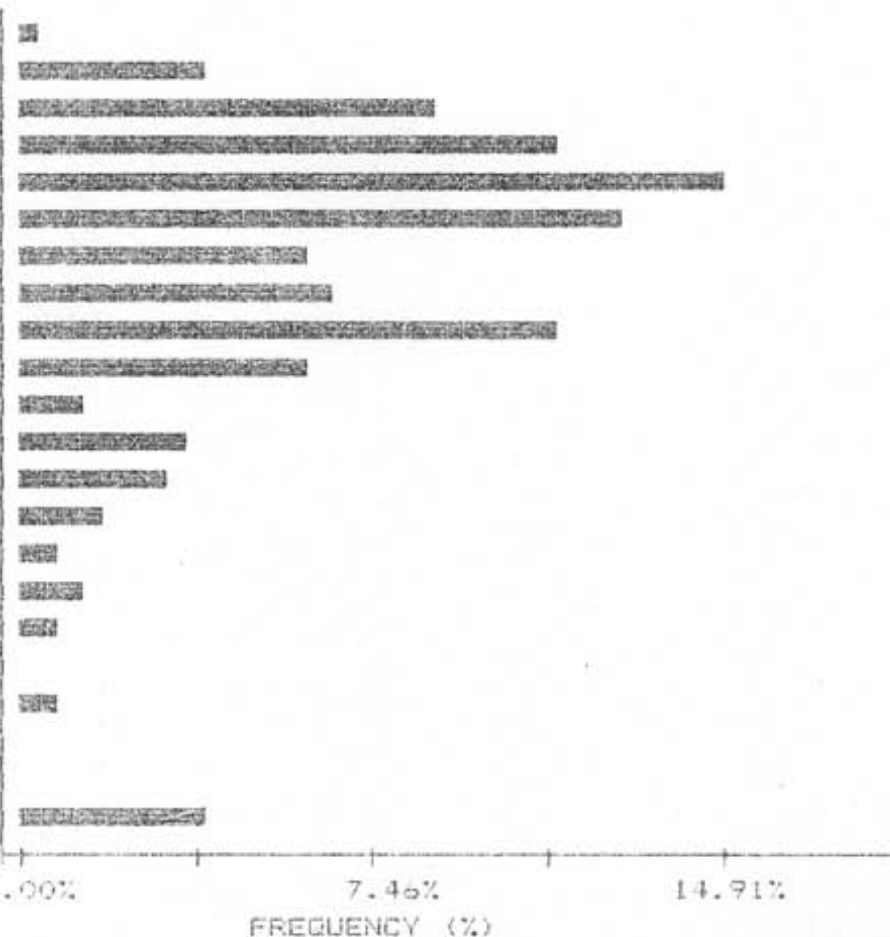
5 HIGHEST AG VALUES:  
 L100N TL 108+00E 60.6 PPM  
 L99N TL 103+50E 10.8 PPM  
 L100N TL 109+50E 9.1 PPM  
 L91N TL 107+00E 6.4 PPM  
 L100N TL 108+50E 6.0 PPM

HISTOGRAM FOR AG

CLASS INTERVAL = 0.18

MID CLASS	CLASS
PPM	%

<	0.20	0.44
	0.29	3.95
	0.47	8.77
	0.65	11.40
	0.83	14.91
	1.01	12.72
	1.19	6.14
	1.37	6.58
	1.55	11.40
	1.73	6.14
	1.91	1.32
	2.09	3.51
	2.27	3.07
	2.45	1.75
	2.63	0.88
	2.81	1.32
	2.99	0.88
	3.17	0.00
	3.35	0.88
	3.53	0.00
	3.71	0.00
>	3.80	3.95



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775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167 PHONE: (604)980-5814 OR (604)988-4524

**CUMMULATIVE PROBABILITY PLOT ON AG**

COMPANY: KOBOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

SAMPLE TYPE: SOIL GEOCHEM

PROJECT: 8611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

UPPER LIMIT ( PPM)	CUMMUL. FREQ. (%)
8.65	0.98
7.81	6.38
7.06	9.38
6.37	1.32
5.76	1.75
5.20	2.63
4.70	3.07
4.24	3.07
3.83	3.51
3.46	3.95
3.12	4.82
2.82	6.58
2.55	7.89
2.30	9.65
2.08	13.16
1.88	17.54
1.70	23.68
1.53	30.26
1.38	39.91
1.25	41.67
1.13	47.81
1.02	52.63
0.92	60.53
0.83	67.98
0.75	75.44
0.68	81.58
0.61	81.58
0.55	86.84
0.50	90.35
0.45	90.35
0.41	90.35
0.37	95.61
0.33	95.61
0.30	95.61
0.27	98.68
0.25	98.68
0.22	98.68
0.88	99.56



**MIN-EN LABORATORIES LTD.**

**SPECIALISTS IN MINERAL ENVIRONMENTS**

775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167 PHONE: (604)980-5814 OR (604)988-4524

**STATISTICAL SUMMARY ON CU**

COMPANY: KOBOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

SAMPLE TYPE: SOIL GEOCHEM

PROJECT: 8611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

NUMBER OF SAMPLES: 228  
 MAXIMUM VALUE: 385.0 PPM  
 MINIMUM VALUE: 11.0 PPM  
 MEAN: 43.5 PPM  
 STD. DEVIATION: 38.7 PPM  
 COEFF. OF VARIATION: 0.9

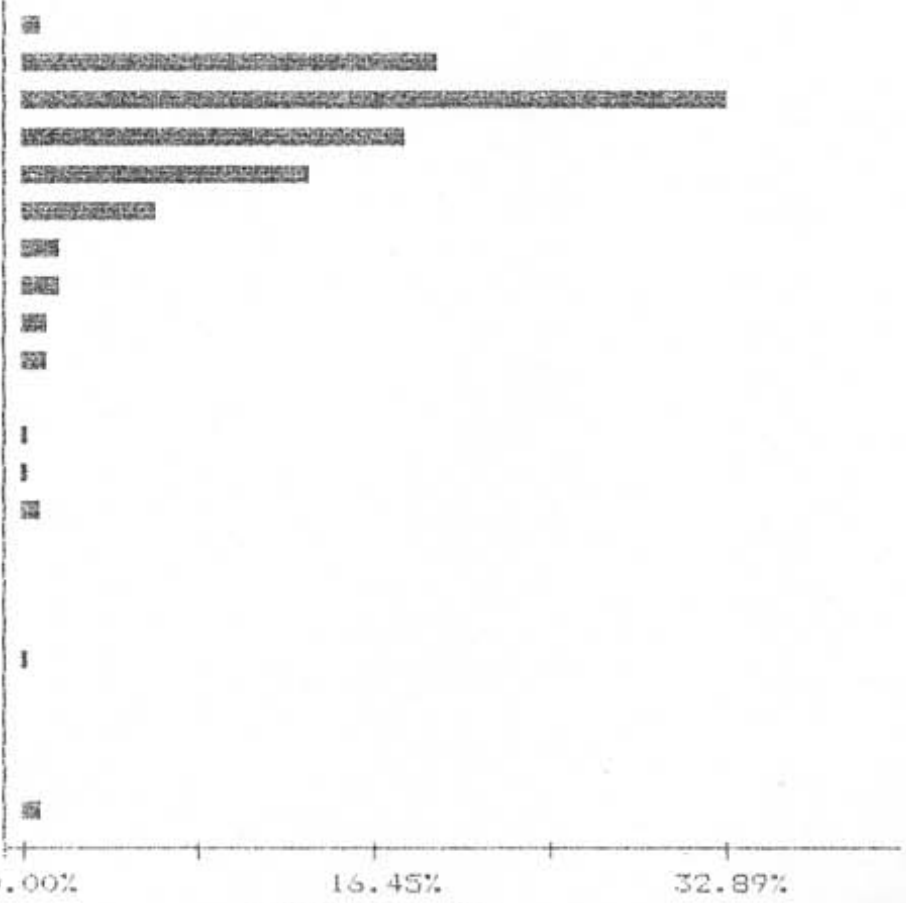
5 HIGHEST CU VALUES:  
 L100N TL 101+50E 385.0 PPM  
 L100N TL 108+00E 240.0 PPM  
 L98N TL 108+50E 235.0 PPM  
 L100N TL 102+00E 200.0 PPM  
 L95N TL 105+50E 154.0 PPM

HISTOGRAM FOR CU

CLASS INTERVAL = 11.15

MID CLASS	CLASS
PPM	%

<	12.00	0.88
	17.57	19.30
	28.72	32.89
	39.87	17.98
	51.02	13.60
	62.17	6.14
	73.32	1.75
	84.47	1.75
	95.62	1.32
	106.77	1.32
	117.92	0.00
	129.07	0.44
	140.22	0.44
	151.37	0.88
	162.52	0.00
	173.67	0.00
	184.82	0.00
	195.97	0.44
	207.12	0.00
	218.27	0.00
	229.42	0.00
>	235.00	0.88



FREQUENCY (%)

**MIN-EN LABORATORIES LTD.**

**SPECIALISTS IN MINERAL ENVIRONMENTS**

775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167 PHONE: (604)980-5814 OR (604)988-4524

**CUMMULATIVE PROBABILITY PLOT ON CU**

COMPANY: KOBOLD RESOURCES

DATE: OCTOBER 1, 1986

ATTN:

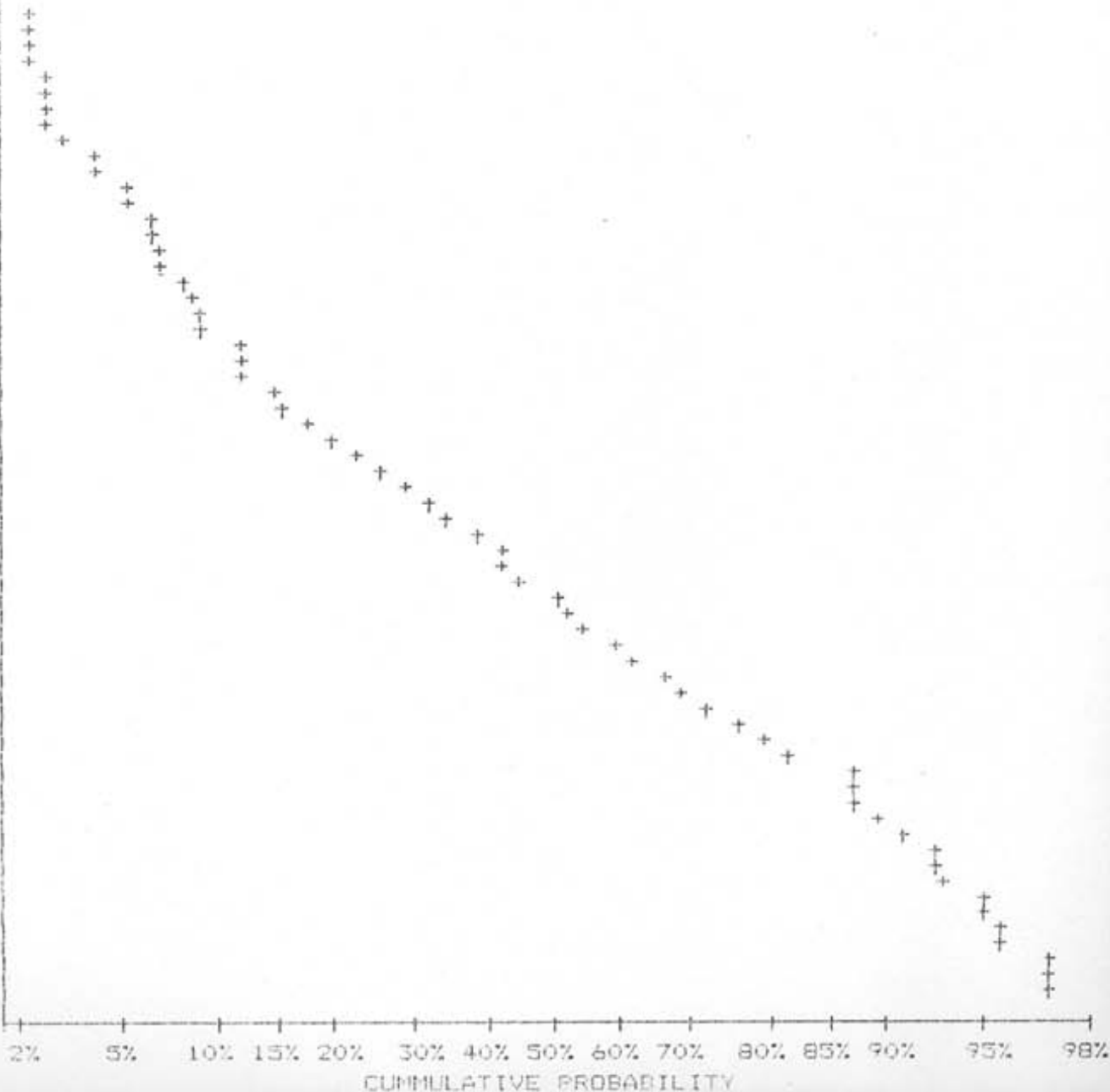
SAMPLE TYPE: SOIL GEOCHEM

PROJECT: 8611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

UPPER LIMIT ( PPM)	CUMHUL. FREQ. (%)
225.86	0.88
208.64	0.88
192.73	1.32
178.03	1.32
164.45	1.32
151.91	1.75
140.33	2.19
129.63	2.63
119.74	3.07
110.61	3.07
102.17	4.39
94.38	5.70
87.18	7.02
80.54	7.46
74.39	8.33
68.72	9.21
63.48	12.28
58.64	12.72
54.17	16.23
50.04	20.18
46.22	26.32
42.70	32.89
39.44	39.91
36.43	43.42
33.65	51.32
31.09	55.70
28.72	63.16
26.53	69.30
24.50	76.75
22.64	82.02
20.91	87.28
19.31	89.47
17.84	92.54
16.48	92.98
15.22	95.18
14.06	95.61
12.99	96.93
0.88	99.12



**MIN-EN LABORATORIES LTD.**

**SPECIALISTS IN MINERAL ENVIRONMENTS**

775 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

TELEX: USA 760167 PHONE: (604) 980-5814 OR (604) 988-4524

**CORRELATION COEFFICIENTS**

COMPANY: KOBOLD RESOURCES .

DATE: OCTOBER 1, 1986

ATTN:

SAMPLE TYPE: SOIL GEOCHEM

PROJECT: 8611

ANALYSIS TYPE: ATOMIC ABS.

FILE#: 6-848

THE TABLE BELOW REPRESENTS THE PEARSON CORRELATION MATRIX SHOWING THE INTER-ELEMENT CORRELATION COEFFICIENTS. THOSE VALUES THAT EXCEED THEIR CRITICAL VALUE FOR .01 LEVEL OF SIGNIFICANCE ARE SHOWN IN DARKER PRINT AND UNDERLINED.

	PB	ZN	AG	CU
PB	1.00	<u>0.85</u>	<u>0.90</u>	<u>0.35</u>
ZN		1.00	<u>0.90</u>	<u>0.66</u>
AG			1.00	<u>0.45</u>
CU				1.00

APPENDIX III

MIN-EN Laboratories Ltd.  
Certificate of Assay - Rock Samples

**MIN-EN LABORATORIES LTD.**

*Specialists in Mineral Environments*

705 West 15th Street North Vancouver, B.C. Canada V7M 1T2

PHONE: (604) 980-5814 OR (604) 988-4524

TELEX: VIA USA 7601067 UC

**Certificate of ASSAY**


Company: KDBOLD RESOURCES/BOA SERVICES  
Project: 8611  
Attention:

File: 6-848  
Date: SEPT 25/86  
Type: ROCK ASSAY

We hereby certify the following results for samples submitted.

Sample Number	CU %	PB %	ZN %	AG G/TONNE	AG OZ/TON
8611-1	.012	.09	1.18	7.0	0.20
8611-2	.188	.12	13.20	58.0	1.69
8611-3	.452	1.40	49.80	225.0	6.56
8611-4	.132	.10	25.40	375.0	10.94

Certified by



MIN-EN LABORATORIES LTD.



APPENDIX IV

Rock Sample Descriptions

## Sample Descriptions

Sample No.	Description
8611-1	Quartz vein material, bleached zone with abundant pyrite (up to 80%). The pyrite is euhedral, massive and occurs throughout the sample, while sphalerite occurs as distinct very thin bands or laminations.
8611-2	Quartz vein with high content of sulphide. Sphalerite accounts for up to 50% of mineralization along with some pyrite and galena.
8611-3	Massive sulphide. Well formed crystals of sphalerite and galena indicating open space growth. The sample consists of a distinct layer of galena below a layer consisting of large (up to 1 cm) dark brown crystals of sphalerite.
8611-4	Massive sulphide, very similar to 8611-3 except with much less galena, but with presence of tetrahedrite.

APPENDIX V

EM-16 Electromagnetometer  
Principle of Operation  
Specifications

## EM-16 VLF-EM METER

### Principles of Operation

The VLF-transmitting stations operating for communications with submarines have a vertical antenna. The Antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. This equipment measures the vertical components of these secondary fields.

The EM-16 is simply a sensitive receiver covering the frequency band of the VLF-transmitting stations with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentage. The remaining signal in this coil is finally balanced out by a measured percentage of a signal from the other coil, after being shifted by  $90^\circ$ . This coil is normally parallel to the primary field.

Thus, if the secondary signals are small compared to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation  $\pi/2$ -signal from the horizontal coil is a measure of the quadrature vertical signal.

## EM 16 SPECIFICATIONS

Measured Quantity	Inphase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field (i.e., tangent of the tilt angle and ellipticity).
Sensitivity	Inphase: $\pm 150\%$ Quad-phase: $\pm 40\%$
Resolution	$\pm 1\%$
Output	Nulling by audio tone. Inphase indication from mechanical inclinometer and quad-phase from a graduated dial.
Operating Frequency	15 - 25 kHz VLF Radio Band. Station selection done by means of plug-in units.
Operator Controls	ON/OFF switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
Power Supply	6 disposable 'AA' cells.
Dimensions	42 x 14 x 9 cm.
Weight	Instrument: 1.6 kg Shipping: 5.5 kg.

APPENDIX VI

GM-122 Proton Magnetometer  
Principle of Operation  
Specifications

## GM-122 PROTON MAGNETOMETER

### General Description, Principle of Operation

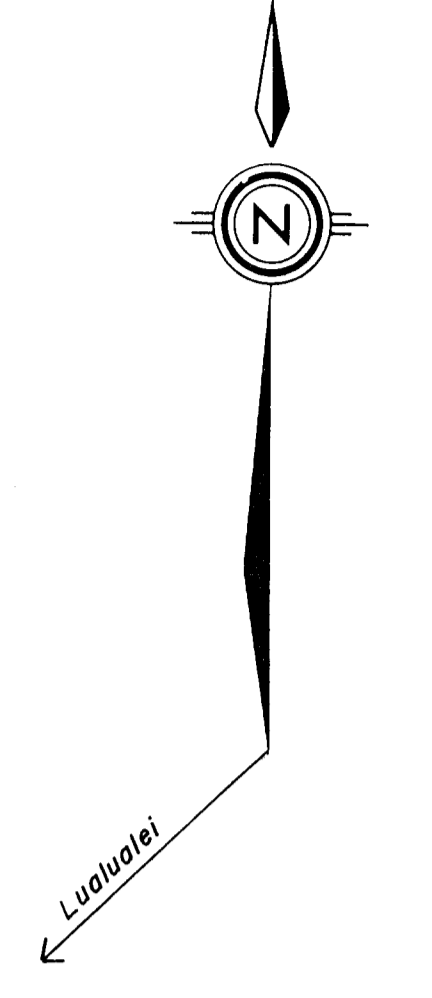
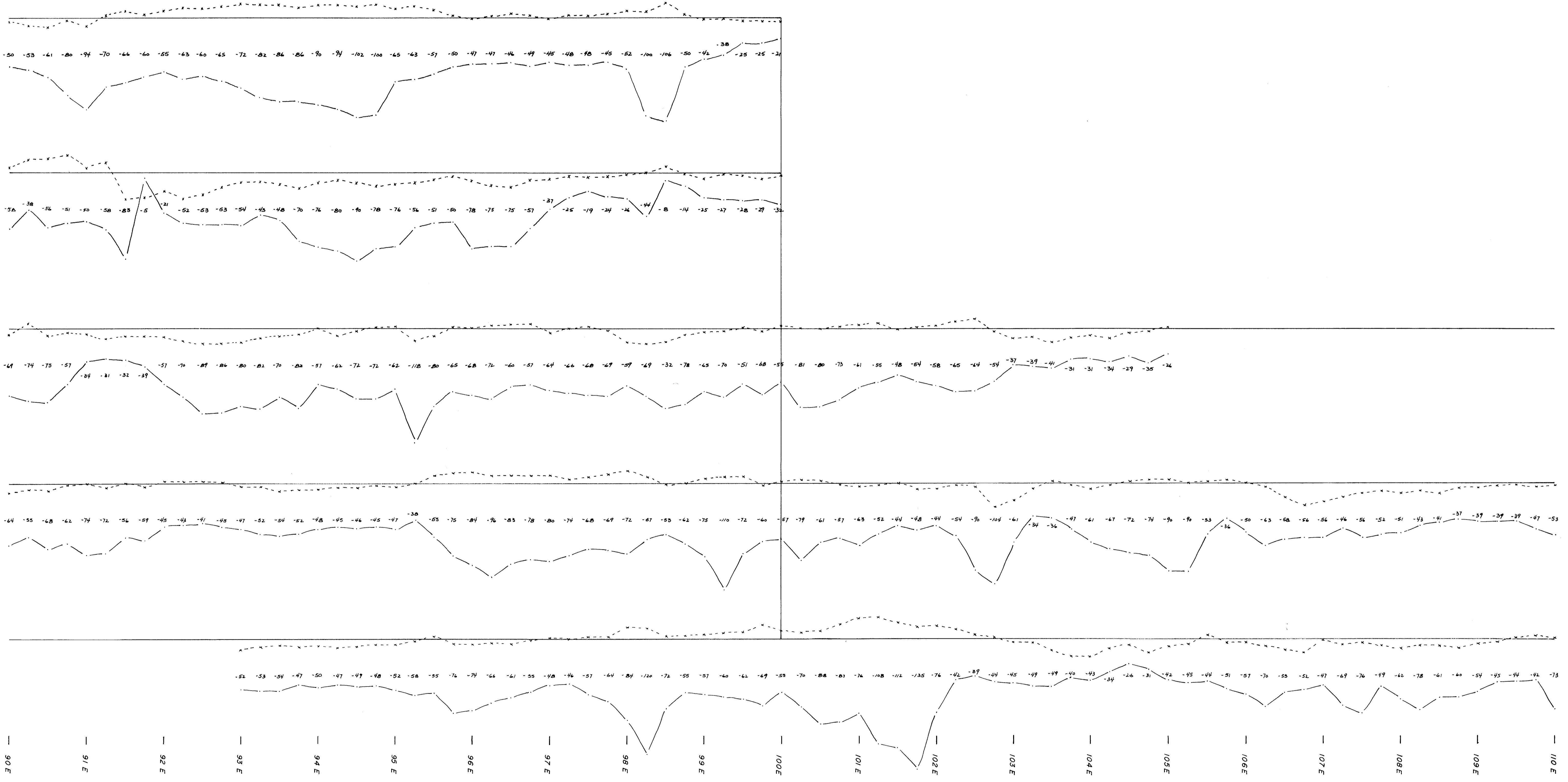
If a proton rich fluid such as kerosene, jet fuel, heptane, etc. is placed into a magnetic field the protons will align along the magnetic field vector. The magnetic field is induced in the sensor upon depressing the pushbutton. Then this field is suddenly removed. Protons which behave as elementary gyroscopes will start precessing around the remaining magnetic field - that of the earth. The precession frequency is directly proportional to the magnetic field of the earth. The magnetometer counts this frequency, divides it by the appropriate constant to obtain a reading in gammas ( $1 \gamma = 10^{-5}$  gauss) and displays the reading in the form of a 5 digit number.

## SPECIFICATIONS

## GM-122 PROTON MAGNETOMETER

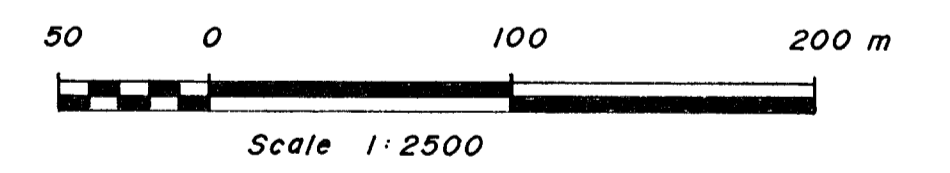
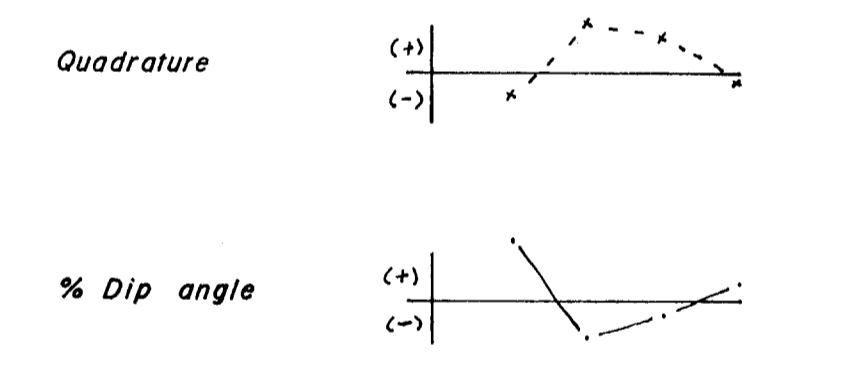
Range:	20,000 to 99,999 in 12 ranges
Accuracy:	$\pm 1 \gamma$ through operating temperature range.
Sensitivity:	1 $\gamma$
Gradient Tolerance:	600 $\gamma$ /ft.
Power:	12 "D" cells
Power Consumption:	50 Joules (Wsec) per reading.
Polarizing Power:	0.8 A @ 13.5 V for 1.5 sec. (3 second cycle). 0.8 A @ 13.5 V for 3 sec. (6 second cycle).
Number of Readings with 1 Battery Set:	2,000 - 10,000 depending on type of batteries
Frequency of Readings:	1 every 3 seconds. 1 every 6 seconds.
Controls:	Pushbutton switch - Slide switch for 3 and 6 sec. located on P/C Board.
Output:	5 digit incandescent filament readout.
Indicators:	LED point. Lock Indicator - last three digits of the display blanked off when phaselock not achieved. Segment Function Indicator - all segments light up to permit visual inspection of the display function.





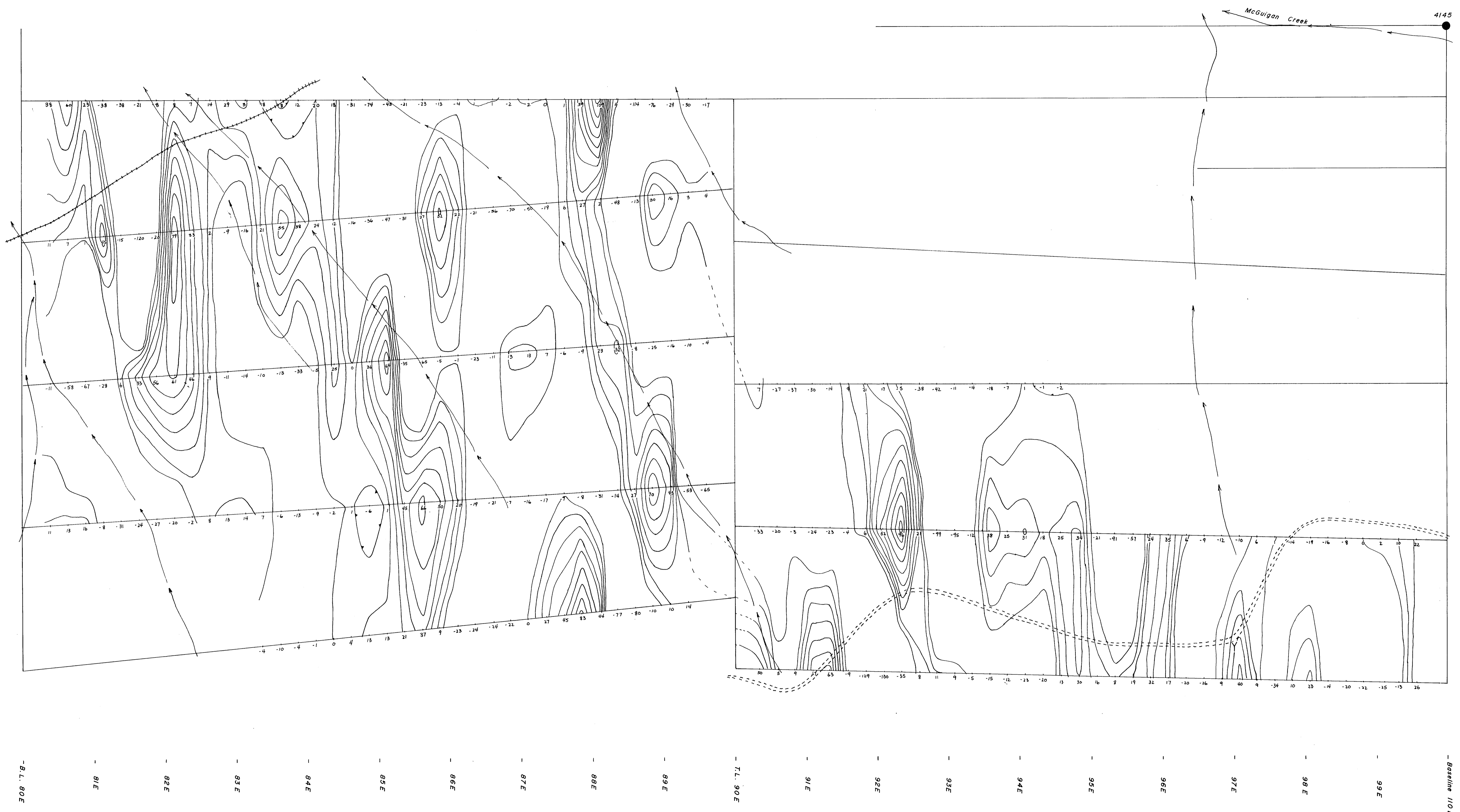
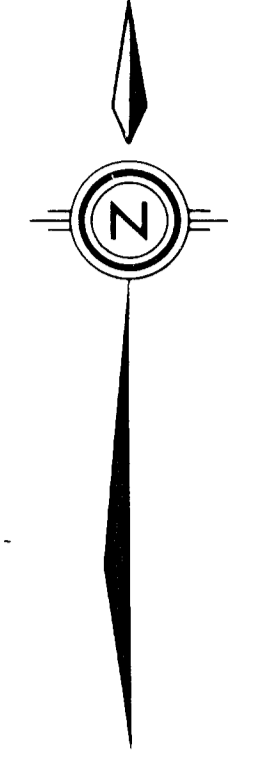
**LEGEND**

Instrumentation    Geonics    EM - 16  
 Transmitter station    Luahaiei, Hawaii  
 Frequency    23.4 KHz  
 Line interval    200 meters  
 Station interval    25 meters  
 Personnel    J. McLennen  
 Profile scale    1 cm = 20 %



**15,472**  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

KOBOLD RESOURCES LTD.  
 MERIT SOUTH CLAIM  
 VLF-EM SURVEY  
 DIP ANGLE PROFILE  
 SLOCAN MINING DIVISION  
 NTS 82 K3  
 DEC. 1, 1986.    FIG. 4  
 BOA SERVICES LTD.



L 100 N  
L 99 N  
L 98 N  
L 97 N  
96 N  
L 95 N  
94 N  
L 93 N  
92 N  
L 91 N

LEGEND

Creek

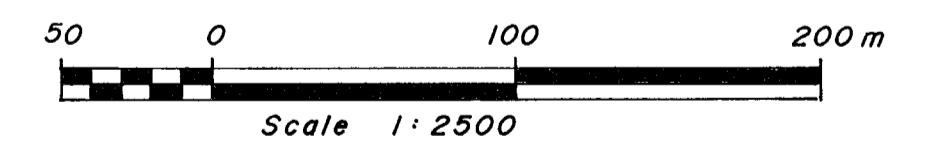
Road

Railroad (dilapidated)

Legal corner post

Adit

Contour interval 10%

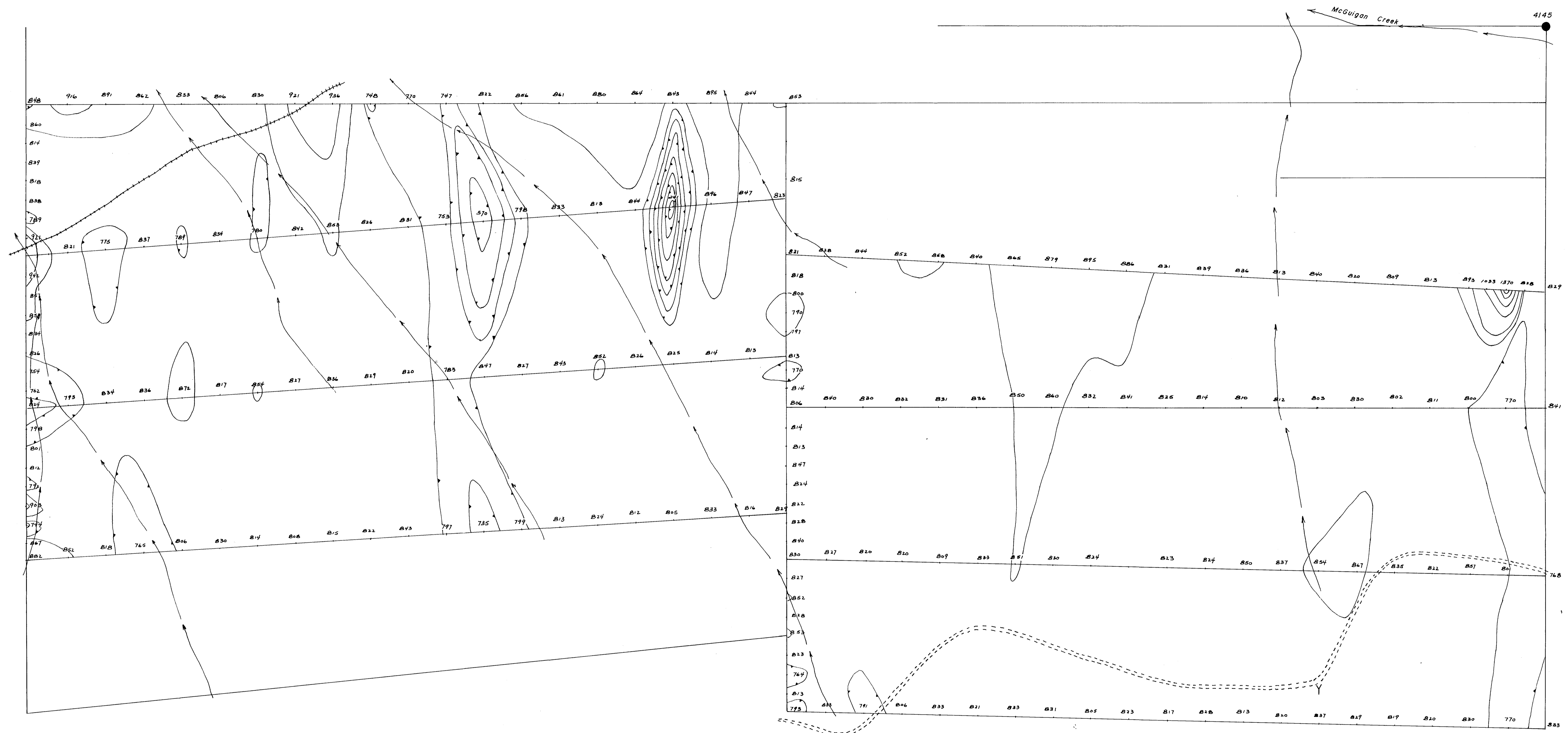
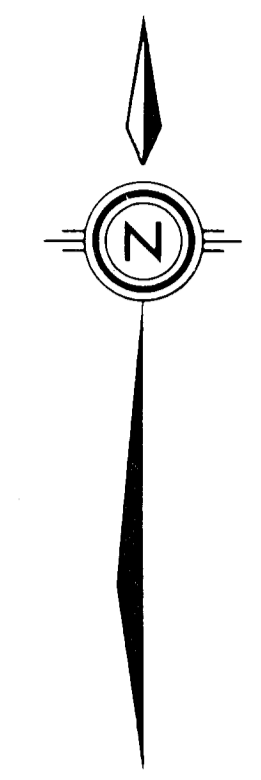


-B.L. 80 E  
- 81 E  
- 82 E  
- 83 E  
- 84 E  
- 85 E  
- 87 E  
- 88 E  
- 89 E  
- T.L. 90 E  
- 91 E  
- 92 E  
- 93 E  
- 94 E  
- 95 E  
- 96 E  
- 97 E  
- 98 E  
- 99 E  
- Baseline 110 E

15,472

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

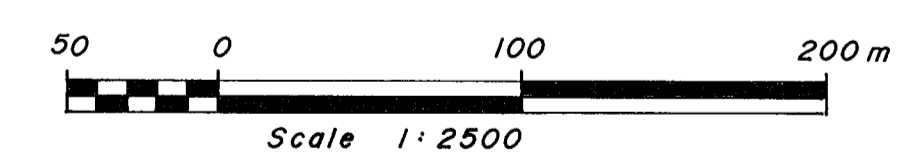
KOBOLD RESOURCES LTD.  
MERIT SOUTH CLAIM  
VLF-EM SURVEY  
FRASER PLOT  
SLOCAN MINING DIVISION  
NTS 82 K 3  
DEC. 1, 1986. FIG. 5  
BOA SERVICES LTD.



L 100 N  
L 99 N  
L 98 N  
L 97 N  
96 N  
L 95 N  
94 N  
L 93 N  
92 N  
L 91 N

LEGEND

- Creek
- Road
- Railroad (dilapidated)
- Legal corner post
- Adit
- Personnel J.O. Yeager
- Datum subtracted 57000 gammas (±)
- Contour interval 0-700 : 100 ±  
700-900 : 50 ±  
> 900 : 100 ±



15,472

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

KOBOLD RESOURCES LTD.  
MERIT SOUTH CLAIM  
PROTON MAGNETOMETER SURVEY  
SLOCAN MINING DIVISION  
NTS 82 K 3  
DEC. 1, 1986. FIG. 6  
BOA SERVICES LTD.

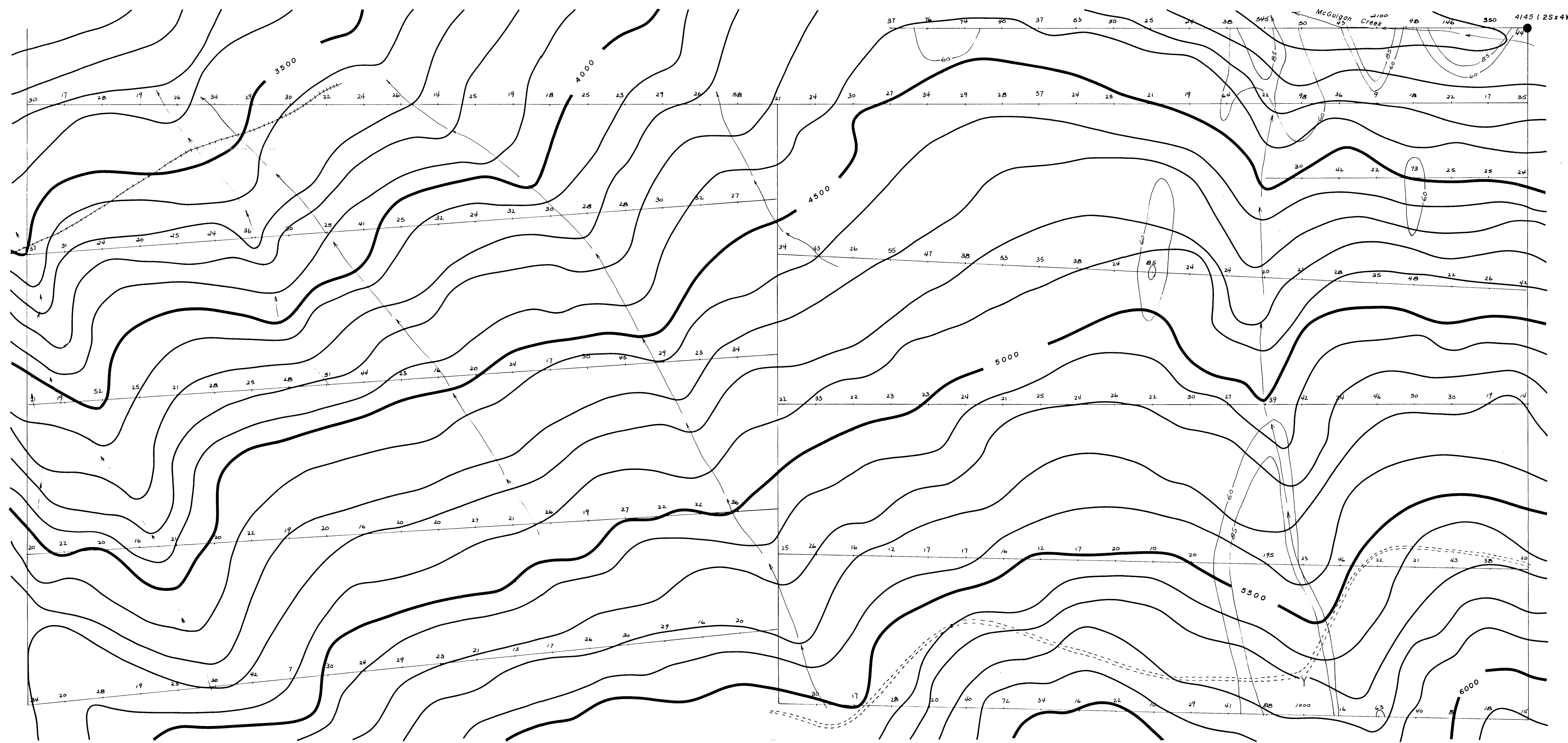
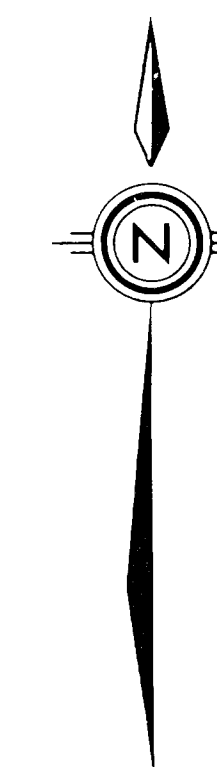
-B.L. 90E

95E

-T.L. 100E

105E

-Baseline 110E

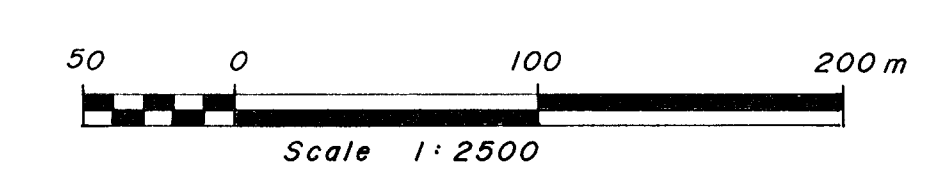


L 100 N  
L 99 N  
L 98 N  
L 97 N  
96 N  
L 95 N  
94 N  
L 93 N  
92 N  
L 91 N

LEGEND

- Creek
- Road
- Railroad (dilapidated)
- Legal corner post
- Adit
- Topographic contour lines
- Lead contour lines (ppm)
- Possibly anomalous
- Definitely anomalous

Contour interval is 100 feet. Topographic control from enlarged 1:50,000-scale topographic map.

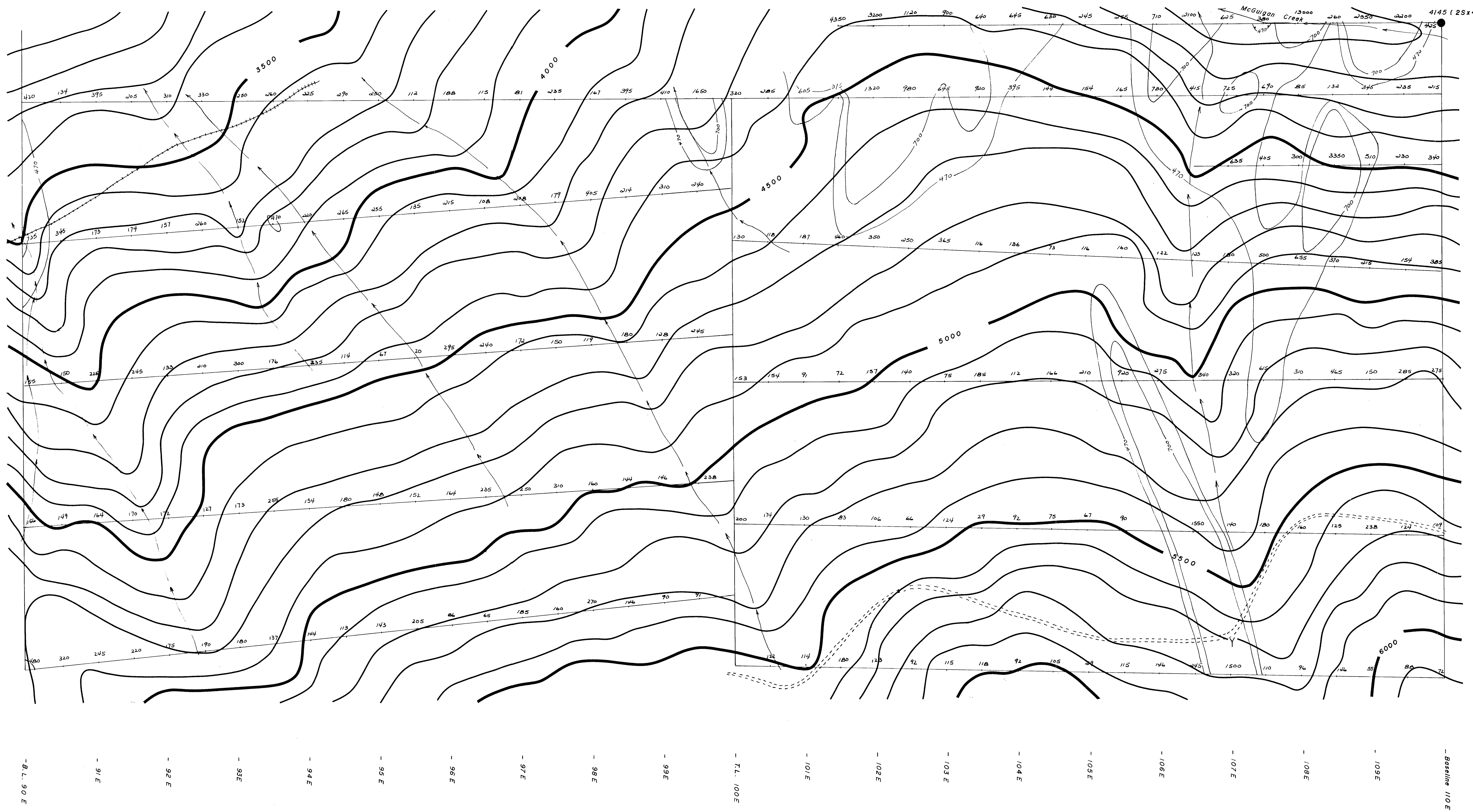
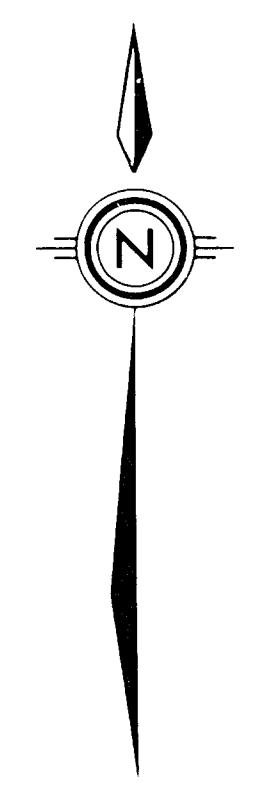


- B.L. 90 E  
- 91 E  
- 92 E  
- 93 E  
- 94 E  
- 95 E  
- 96 E  
- 97 E  
- 98 E  
- 99 E  
- T.L. 100 E  
- 101 E  
- 102 E  
- 103 E  
- 104 E  
- 105 E  
- 106 E  
- 107 E  
- 108 E  
- 109 E  
- Baseline 110 E

15,472

GEOLOGICAL BRANCH ASSESSMENT REPORT

KOBOLD RESOURCES LTD.  
MERIT SOUTH CLAIM  
GEOCHEMICAL PLAN  
LEAD (p.p.m.)  
SLOCAN MINING DIVISION  
NTS 82 K 3  
DEC. 1, 1986. FIG. 7  
BOA SERVICES LTD.



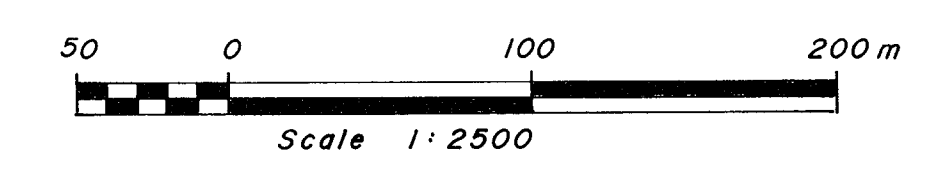
L 100 N  
L 99 N  
L 98 N  
L 97 N  
96 N  
L 95 N  
94 N  
L 93 N  
92 N  
L 91 N

- B.L. 90 E  
- 91 E  
- 92 E  
- 93 E  
- 94 E  
- 95 E  
- 96 E  
- 97 E  
- 98 E  
- 99 E  
- T.L. 100 E  
- 101 E  
- 102 E  
- 103 E  
- 104 E  
- 105 E  
- 106 E  
- 107 E  
- 108 E  
- 109 E  
- Baseline 110 E

LEGEND

- Creek
- Road
- Railroad (dilapidated)
- Legal corner post
- Adit
- Topographic contour lines
- Zinc contour lines (ppm)
- Possibly anomalous
- Definitely anomalous

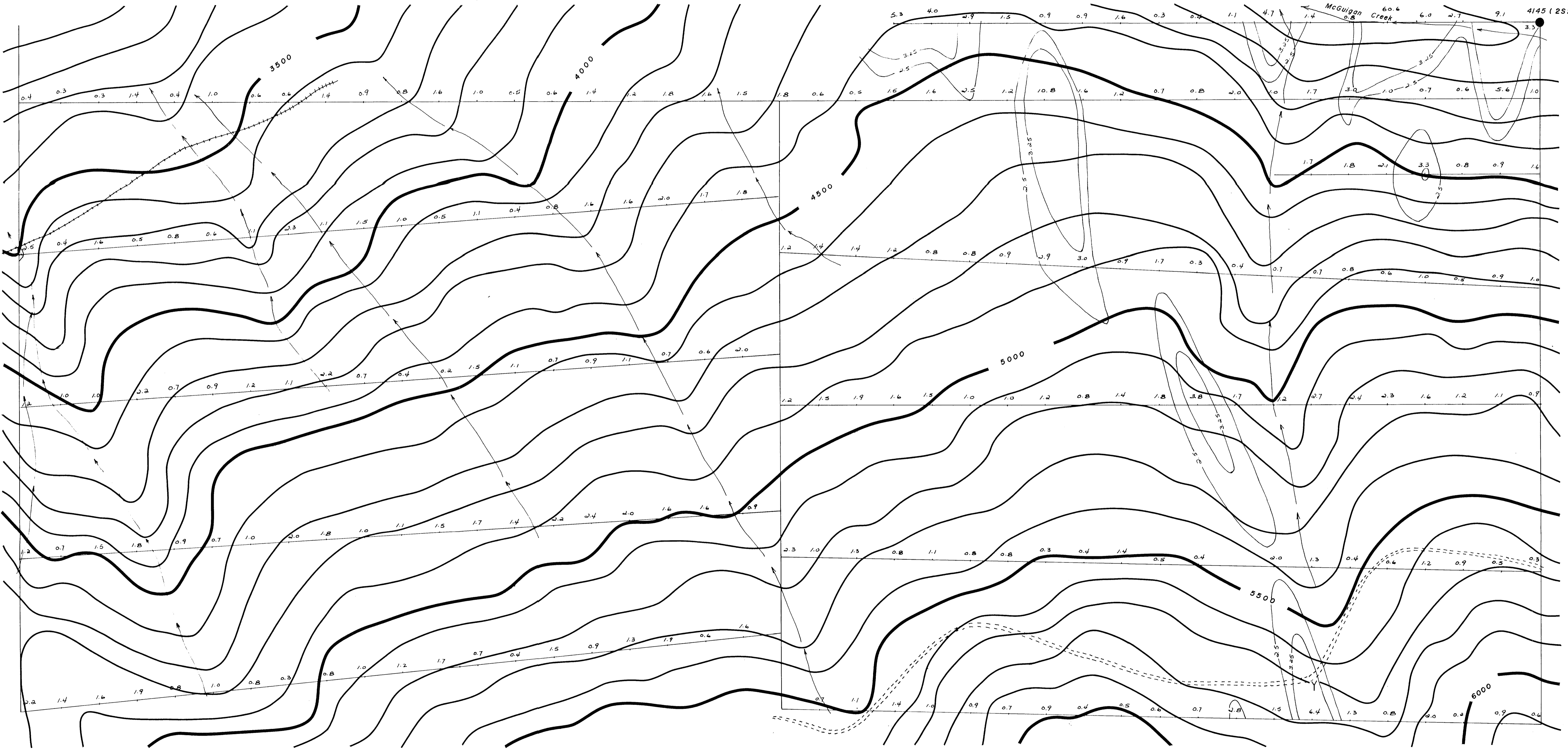
Contour interval is 100 feet. Topographic control from enlarged 1:50,000-scale topographic map.



15,472

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

KOBOLD RESOURCES LTD.  
MERIT SOUTH CLAIM  
GEOCHEMICAL PLAN  
ZINC (p.p.m.)  
SLOCAN MINING DIVISION  
NTS 82 K 3  
DEC. 1, 1986. FIG. 8  
BOA SERVICES LTD.



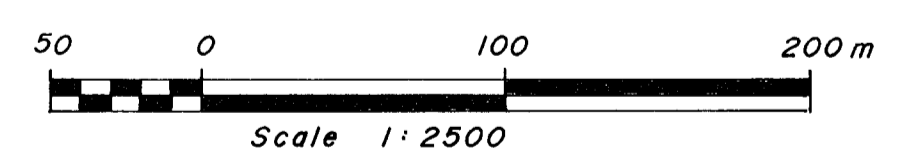
L 100 N  
L 99 N  
L 98 N  
L 97 N  
96 N  
L 95 N  
94 N  
L 93 N  
92 N  
L 91 N

- BL 90 E  
- 91 E  
- 92 E  
- 93 E  
- 94 E  
- 95 E  
- 96 E  
- 97 E  
- 98 E  
- 99 E  
- TL 100 E  
- 101 E  
- 102 E  
- 103 E  
- 104 E  
- 105 E  
- 106 E  
- 107 E  
- 108 E  
- 109 E  
- Baseline 110 E

LEGEND

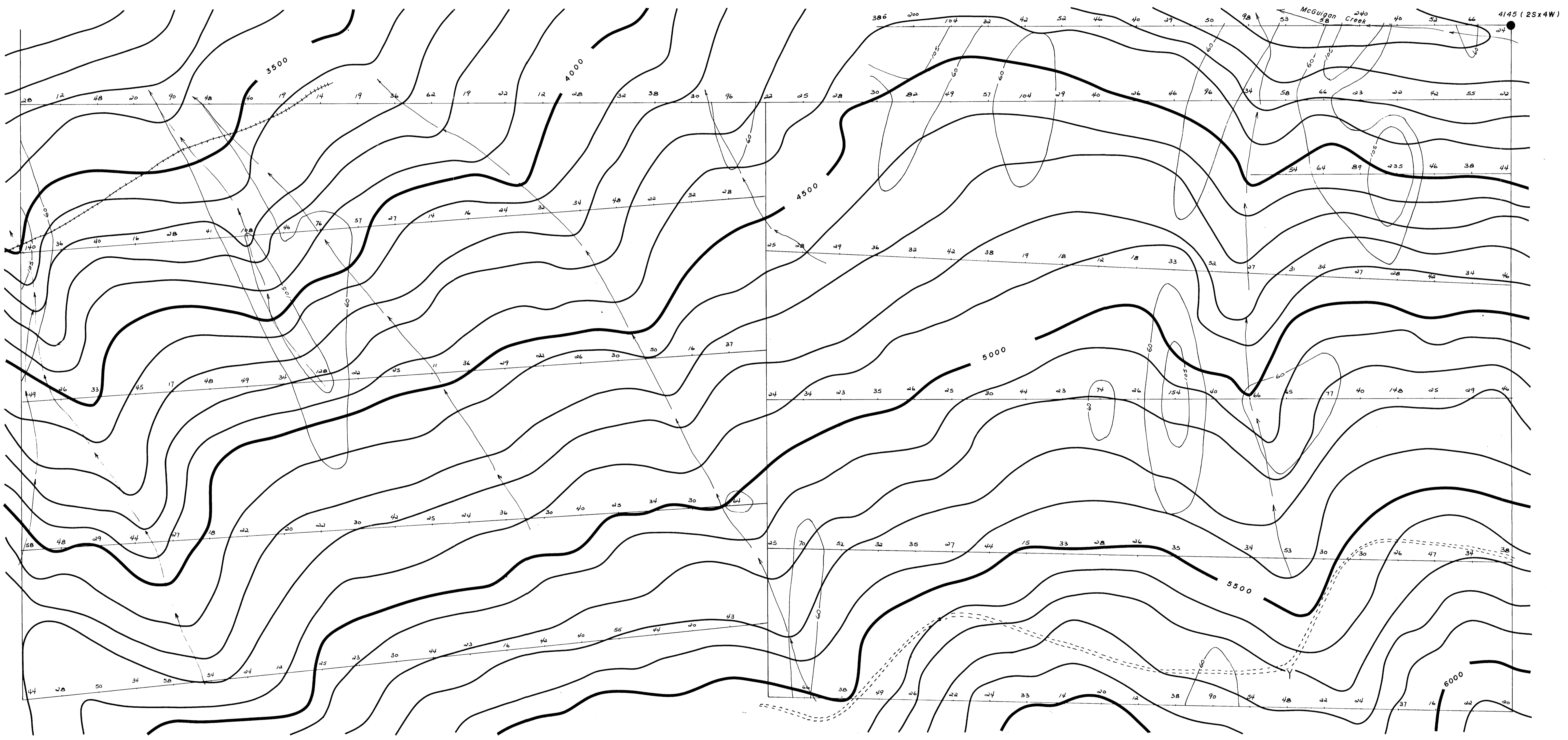
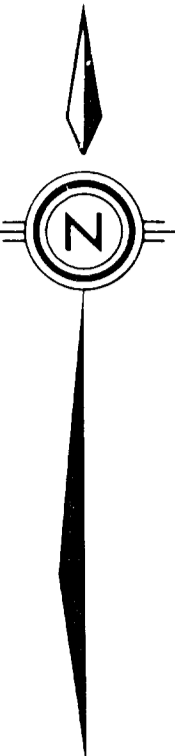
- Creek
- Road
- Railroad (dilapidated)
- Legal corner post
- Adit
- Topographic contour lines
- Silver contour lines (ppm)
- Possibly anomalous
- Definitely anomalous

Contour interval is 100 feet. Topographic control from enlarged 1:50,000-scale topographic map.



**15,472**  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

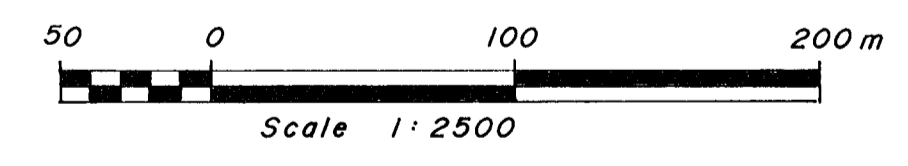
KOBOLD RESOURCES LTD.  
MERIT SOUTH CLAIM  
GEOCHEMICAL PLAN  
SILVER (p.p.m.)  
SLOCAN MINING DIVISION  
NTS 82 K 3  
DEC. 1, 1986. FIG. 9  
BOA SERVICES LTD.



LEGEND

- Creek
- Road
- Railroad (dilapidated)
- Legal corner post
- Adit
- Topographic contour lines
- Copper contour lines
- Possibly anomalous
- Definitely anomalous

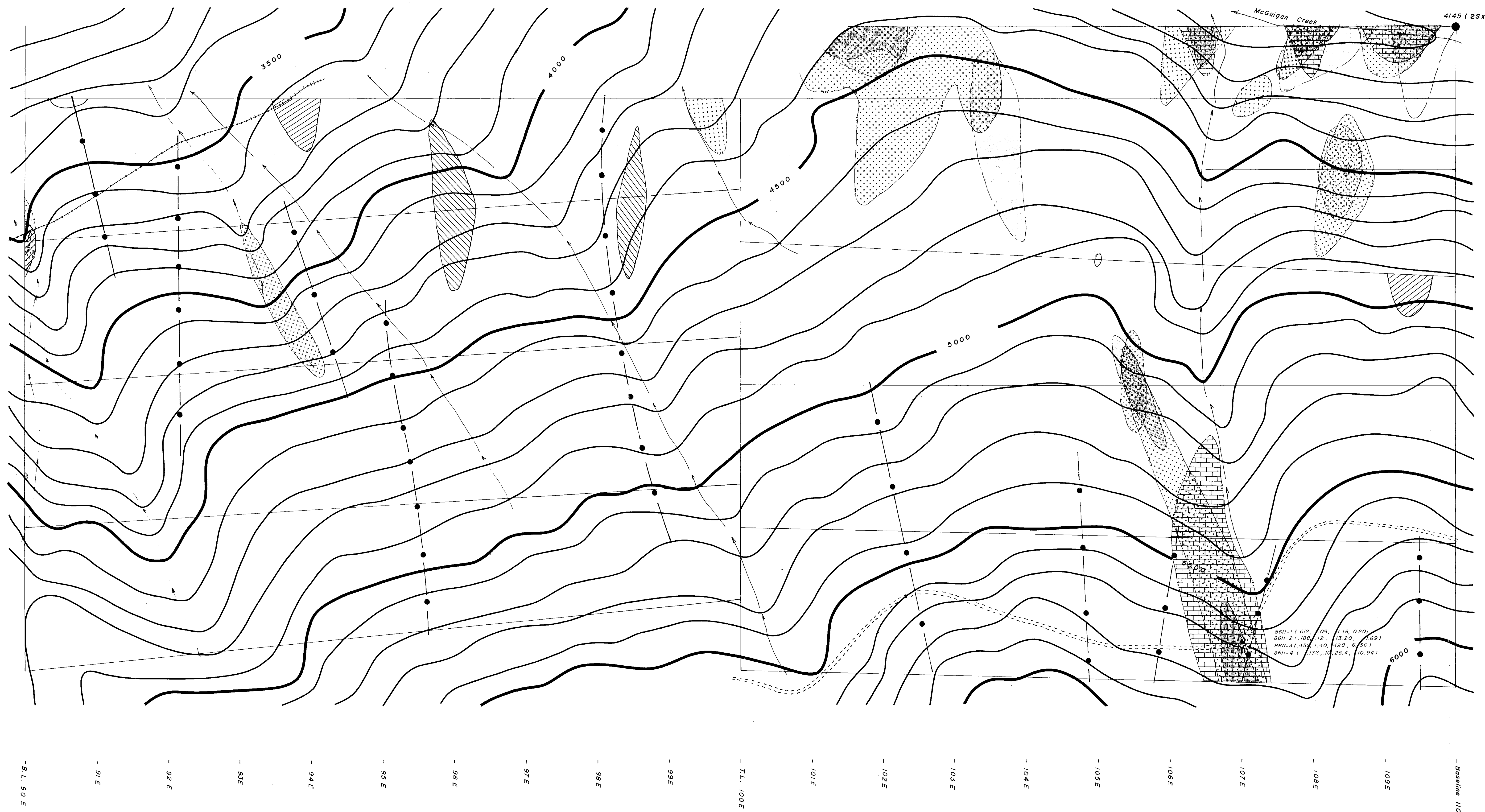
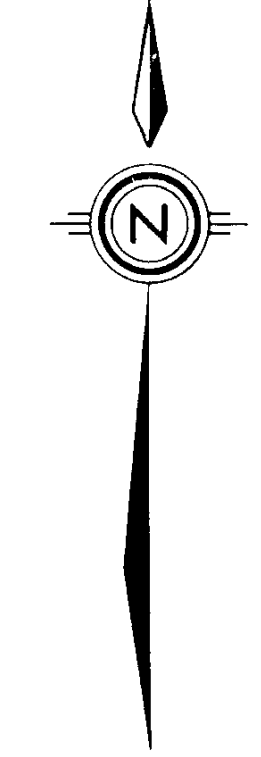
Contour interval is 100 feet. Topographic control from enlarged 1:50,000-scale topographic map.



15,472

KOBOLD RESOURCES LTD.  
 MERIT SOUTH CLAIM  
**GEOCHEMICAL PLAN**  
 COPPER (p.p.m.)  
 SLOCAN MINING DIVISION  
 NTS 82 K 3  
 DEC. 1, 1986. FIG. 10  
 BOA SERVICES LTD.

- B.L. 90 E
- 91 E
- 92 E
- 93 E
- 94 E
- 95 E
- 96 E
- 97 E
- 98 E
- 99 E
- TL. 100 E
- 101 E
- 102 E
- 103 E
- 104 E
- 105 E
- 106 E
- 107 E
- 108 E
- 109 E
- Baseline 110 E



8611-1	1.02	29	1.18	0.20
8611-2	1.08	12	1.20	0.49
8611-3	1.45	1.40	498	6.56
8611-4	1	132	10.25	10.94

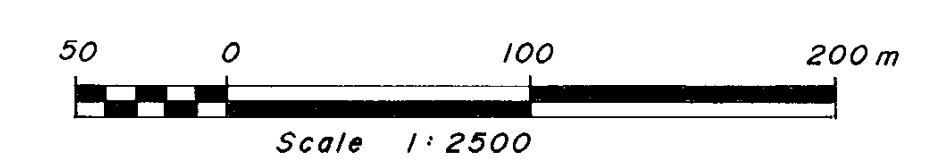
L 100 N  
 L 99 N  
 L 98 N  
 L 97 N  
 96 N  
 L 95 N  
 94 N  
 L 93 N  
 92 N  
 L 91 N

- B.L. 90 E  
 - 91 E  
 - 92 E  
 - 93 E  
 - 94 E  
 - 95 E  
 - 96 E  
 - 97 E  
 - 98 E  
 - 99 E  
 - TL 100 E  
 - 101 E  
 - 102 E  
 - 103 E  
 - 104 E  
 - 105 E  
 - 106 E  
 - 107 E  
 - 108 E  
 - 109 E  
 - Baseline 110 E

LEGEND

- Creek
- Road
- Railroad (dilapidated)
- Legal corner post
- Adit
- Topographic contour lines
- Magnetic anomalies  $\geq 900\%$   $\geq 700\%$
- VLF Conductors
- Copper 105 ppm
- Zinc 700 ppm
- Lead 85 ppm
- Silver 3.25 ppm

▲ 8611-1 (Cu%, Pb%, Zn%, Ag oz per ton)  
 Contour interval is 100 feet. Topographic control from enlarged 1:50,000-scale topographic map.



15,472

GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

KOBOLD RESOURCES LTD.  
 MERIT SOUTH CLAIM  
 COMPILATION MAP  
 SLOCAN MINING DIVISION  
 NTS 82 K 3  
 DEC. 1, 1986. FIG. 11  
 BOA SERVICES LTD.