

BACON & CROWHURST LTD.

4725

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL REPORT

on the

LION I and II CLAIM GROUPS

TAKLA LAKE AREA, 55°54'N, 126°05'W

OMINECA MINING DIVISION

by

W.R. BACON, Ph.D., P.Eng.

Vancouver, B.C.

Department of Minerals and Energy Resources	November 30th, 1973.
File No. 4725	MRP
NO. 4725	MIC

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INTRODUCTION

The following report describes the results of an examination of the 70 LION 1-84 claims which were staked following discovery of copper mineralization in fractured volcanics.

Geological mapping was done by Johan Shearer, a 1973 honours graduate of U.B.C., assisted by Bryan Fraser, a second year U.B.C. geology student with three summers previous experience.

The IP survey was conducted by Dennis F. Morrison, an independent geophysical contractor.

The silt sampling and soil sampling were done by Bryan Fraser and two junior assistants.

PROPERTY

Location of the LION claims is indicated on Figure I.

<u>Group</u>	<u>Claims</u>	<u>Record Numbers</u>	<u>Record Date</u>
LION I (30)	1-14	126515-528	July 23, 1973
	15-20	127110-115	July 31, 1973
	75-84	127100-109	Aug. 29, 1973
LION II (40)	25-42	127120-137	July 31, 1973
	51-62	127146-157	July 31, 1973
	65-74	127160-169	July 31, 1973

LOCATION AND ACCESS

The LION claims are located approximately 30 miles north of Takla Landing. The B.C. Railway is located in the Driftwood River valley, 13 miles southwest of the property.

Access to the property for purposes of this work was by helicopter with supplies being obtained from Takla Landing.

TOPOGRAPHY

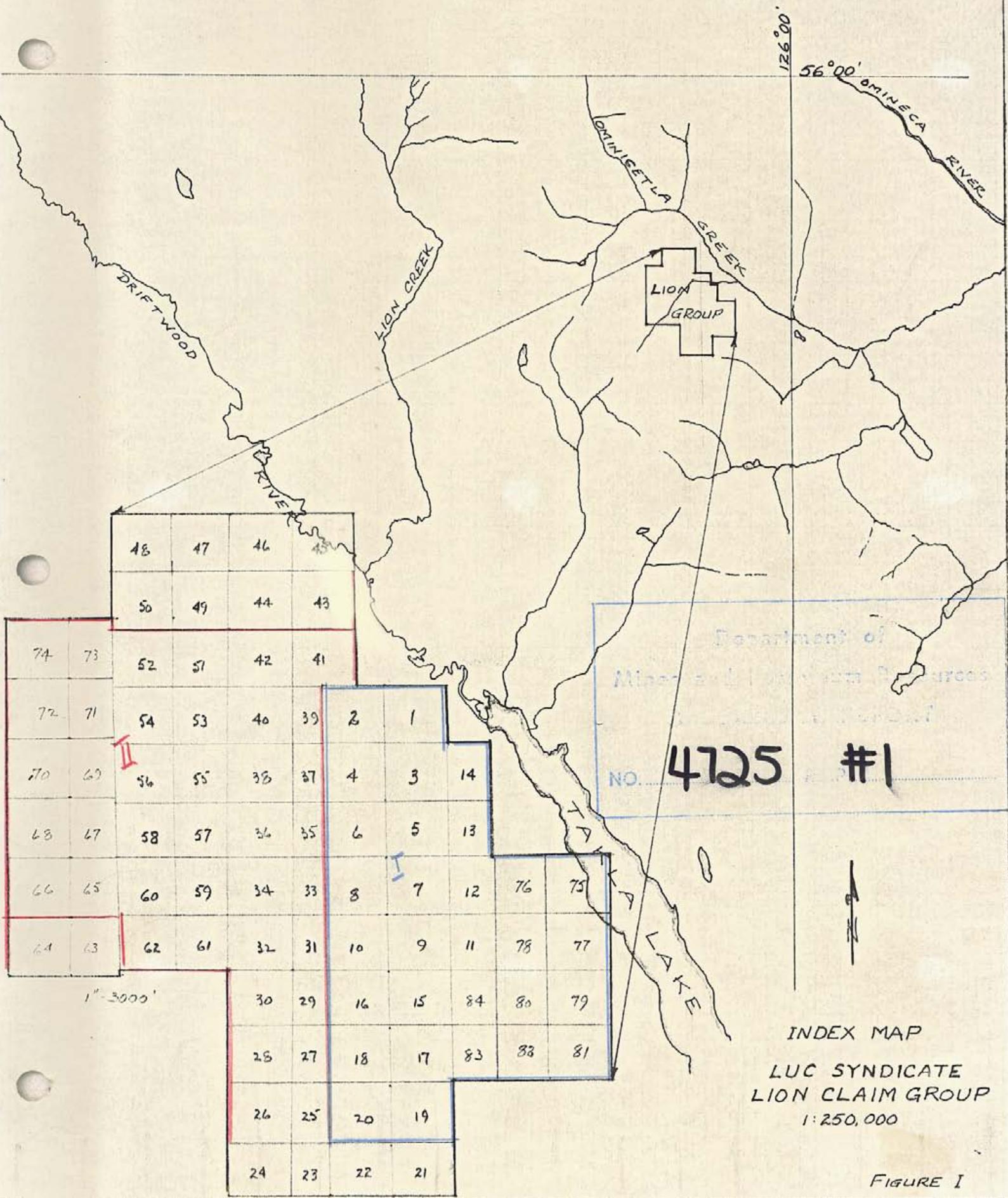
Elevations on the property range from about 3500' to about 5500'. Topography is moderately rugged with steep cliffs in the northeast portion of the property overlooking Ominicetla Creek.

To the southwest, topography is generally rounded and fairly open.

Valleys are broad and gentle to a point about midway across the property where drainage drops abruptly into the Ominicetla valley.

Timber is well developed on the northeast-facing, lower slopes above Ominicetla Creek but, to the west and at higher elevations, growth decreases with timberline occurring at about 5200' elevation.

Large, grassy meadows occur along the broad valley bottoms above 4000'.



GEOLOGYPROCEDURE

No published geological maps are available for this area. Most of map sheet 93M/16E southwest of Ominicetla Creek was mapped on a scale of 1" = $\frac{1}{2}$ mile during the prospecting program and this information was useful as background for mapping the property.

On the property, traverses were run along ridges exhibiting extensive outcrop, along creek bottoms, and along east-west trending traverses to fill in intervening areas.

Airphotos at 1" = $\frac{1}{2}$ mile were of assistance in this work and the maps presented with this report are constructed from these airphotos with adjustment from chained lines used for soil sampling and the IP survey.

The geological map (Plate I) shows large areas indicated as outcrop. These are generally areas of small intermittent outcrops where bedrock is considered to be close to surface but obscured by felsenmeier. Actual rock outcrop covers very much less area than is indicated by the present map.

ROCK TYPES(1) Volcanics

The greater part of the claim group is underlain by an assemblage of basic volcanics including andesites, tuffs, breccias and agglomerates.

Within this assemblage, no structural pattern has been recognized and, due to the lack of adequate horizontal control, it was found impractical to attempt to separate the various units.

In general, the andesites are massive, dark green, fine-grained rocks but in some areas they are altered and contain abundant hematite and epidote.

In the vicinity of the copper showings, the volcanics are pyritized and in places, especially around the pyrite gossans, are silicified producing a quartz vein stockwork.

In the southwest portion of the claim group, the andesites are generally a lighter green in colour, massive and very fine-grained.

(2) Sediments

There are possibly two ages of sedimentation. The first is represented by limited outcrops of silty mudstone, argillite and minor black, pyritic limestones in the creek east of LION 14. These rocks may predate the volcanics or may be interbedded with them.

The second sequence consists of red to grey conglomerate, tuffaceous conglomerate, agglomerate and minor siltstone represented by outcrop areas on LION 17, 19, 83, LION 37, 38, LION 2 and 41, and north of LION 1 and 2. This is a younger sequence considered to lie unconformably above the volcanic sequence.

To the southwest of the LION group, this conglomerate sequence is widespread and contains a number of very small copper showings, mainly of chalcocite and bornite.

(3) Quartz and Hornblende Feldspar Porphyries

Two small areas of intrusive rock occur on LION 36, 57 and LION 73, 74. The more northerly (LION 73, 74) is a hornblende feldspar porphyry which is fairly magnetic and may be related to the diorite body to the south.

The intrusive on LION 36, 57 is a quartz feldspar porphyry containing scattered pyrite mineralization.

(4) Silicified and Chloritized Zones

Outcrops of these rocks are confined to the main creek on LION 1, 2 and 4 in the vicinity of No. 1 copper showing.

On initial investigation, this was considered to be a zone of alteration related to the period of mineralization.

After compilation of preliminary results, it seems more probable that this is a sequence of rhyolitic and cherty rocks underlying the more basic volcanic sequence.

(5) Biotite-Hornblende Diorite

This is a coarse-grained, dark green to mottled gray and black diorite. Hornblende is generally somewhat chloritized. Magnetite is common as small disseminated specks and the intrusive shows as a strong north to northwest trending aeromagnetic anomaly.

The intrusive locally contains minor pyrite and rare chalcopyrite. Hematite and epidote alteration with minor mineralization occurs adjacent to the diorite contact.

MINERALIZATIONNo. 1 Showing

Chalcopyrite occurs in fractures in dark green to black andesite and in grey, cherty rhyolite over a width of about 4 feet on the south bank of the creek just north of the pond on the location line for LION 3 and 4.

A picked sample assayed 3.21% Cu, 0.55 oz. Ag and Tr. Au.

Adjacent to the narrow mineralized andesite band, fractures in massive rhyolite are mineralized with pyrite for several tens of feet. Beyond these, fractures contain iron carbonates and impart a rusty brown colour to the rock.

No. 2 Showing

Chalcopyrite and pyrite occur on the cliff face in a zone which appears to fold to the west into the ridge, without reaching the top of the ridge.

This showing is located approximately one mile south of No. 1 showing.

Sampling along the exposed face following the slope of the talus from top to bottom gave 0.17%/30°, 0.08%/40° and 0.17%/60°. Highest assay was 0.29%/10°.

No. 3 Showing

Approximately 2000 feet south of No. 2 showing, a third showing outcrops on the cliff face. Due to topography, this showing has not been sampled. Fragments with $\frac{1}{2}$ " veins of chalcopyrite have been picked up from the talus below.

Miscellaneous Showings

Fractures filled with barite have been found at the top of the ridge between No. 2 and No. 3 showings.

On the west side of the ridge opposite the No. 2 and No. 3 showings, several fairly extensive gossan zones exhibit silicification and heavy pyrite mineralization. Only traces of copper have been found in these areas.

On the main creek through the central portion of the claims, widespread pyrite mineralization is present in both volcanics and quartz feldspar porphyry.

On LION 69, deep red hematite coloured soil is anomalous for copper. Fine-grained pyrite and chalcopyrite mineralization has been found in the area in volcanics.

STRUCTURE

Insufficient data is available to formulate any coherent picture of the structure on the claim group.

The Ominicetla valley to the northeast of the claim group is the site of a major northwest-trending fault.

Strong shearing in the creek east of LION 14, together with airphoto linears and mapping southeast of the claim group, suggests strong, south-trending faults which separate the host rocks on the LION group from older sediments to the east.

An east-trending airphoto linear running along the creek east from LION 69 suggests a transverse fault.

GEOCHEMISTRYPROCEDURE

Soil samples were taken at 200-foot intervals on east-west traverse lines run by tape and compass. Claim lines were chained and used as base lines. Traverses were spaced at 800' and 400' intervals.

Grubhoes were used to take samples from the 'B' horizon where this was developed. Due to the fairly rugged nature of the ground and the high elevations, soil profiles are very poorly developed. In practice, samples were taken of whatever material was available. An attempt was made to cover as much of the property as possible in a reconnaissance manner.

Soil samples were collected in kraft paper bags and shipped to the base camp where they were dried and sifted to 40 mesh. This fraction was shipped to Core Labs Ltd., Vancouver, for determination of copper, silver and zinc content. Hot acid extraction methods followed by atomic absorption determinations were used.

RESULTS

Plate II "Soil Sample Results" shows copper and silver determinations from the soil sampling program. Soil conditions are assumed to vary considerably from quite acid over the pyrite gossans to basic in areas where fractures in the volcanics are filled with carbonate minerals. No determinations for the pH of the soil were carried out. Values range up to greater than 3000 ppm copper but those values greater than 200 ppm copper represent only 4.6% of the total samples taken.

NUMBER OF SOIL SAMPLES

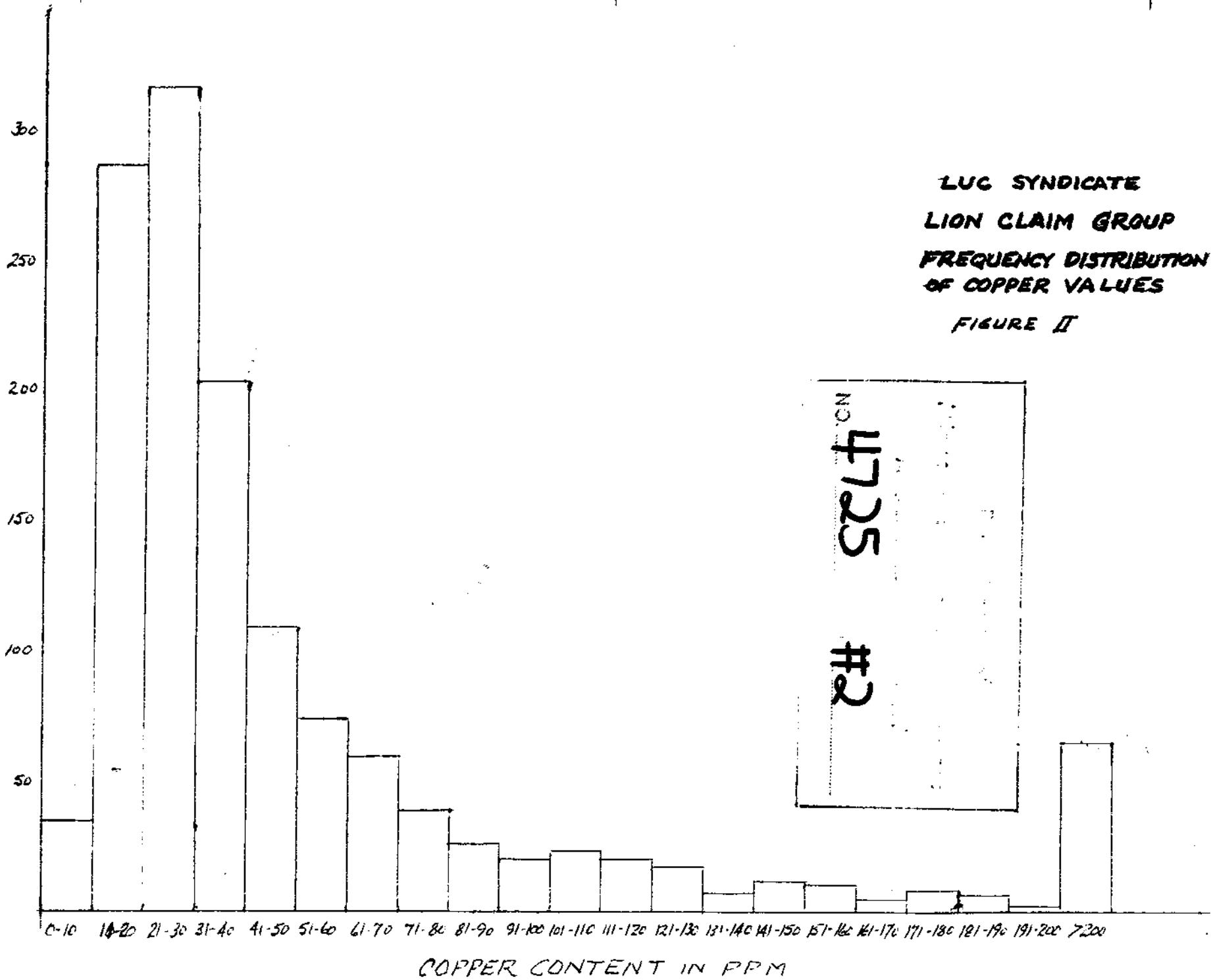


Figure II "Frequency Distribution of Copper Values"

suggests that values over 100 ppm are anomalous and a contour at this value is plotted on Plate II. Samples above this value represent 12.8% of the samples taken.

A fairly extensive area of anomalous results occurs in the vicinity of the No. 2 and 3 showings covering most of the pyrite gossans.

A series of apparently disconnected values trends to the northwest into LION 69 where indications of copper mineralization were found.

Silver determinations show no significant anomalies. Values are generally somewhat higher in areas of high copper values but seldom exceed 2 ppm.

Zinc determinations were made on all samples but no significant values were obtained. Background values appear to be about 50-60 ppm with a relatively small percentage of the values over 100 ppm and only 5 or 6 samples running over 300 ppm. There does not appear to be a direct correlation between zinc and copper values.

CONCLUSIONS

Soil sampling indicates the area north of LION 69, 56, 55, 38, 37 to be quite barren and so far this is confirmed by prospecting and mapping.

Zones of alteration and sulphide mineralization are indicated by soil sampling and the pattern of anomalous results suggests a folded pattern trending south along the main ridge from No. 1 showing and then trending northwest to LION 69.

Several gaps occur in the soil sample pattern and additional detail sampling should be carried out to confirm and further define the pattern.

No significant zinc values appear to be present.

IP SURVEY

PURPOSE

An IP survey was conducted on several widely spaced lines in an attempt to:

- (1) Determine whether continuity of sulphide mineralization could be established between No. 2 copper showing and the pyritic gossans on the west side of the ridge.
- (2) Explore, in part, the overburden area on LION 69 and to the southeast along the trend of the geochemical anomalies in the vicinity of pyrite and chalcopyrite mineralization.

Work was severely hampered and final results were much reduced by extremely adverse weather conditions.

PROCEDURE

Location of IP lines 1 and 6 in the vicinity of No. 2 copper showing was governed largely by topography and the short length of the lines was dictated by steep slopes.

Lines 2 and 3 were proposed to explore across the geochemical trend in the vicinity of the pyritized quartz feldspar porphyry while line 4 was surveyed along the geochemical trend. Line 3 was not surveyed due to adverse weather. Lines 5 and 7 explored the area in

the vicinity of geochemical results, pyrite and minor copper mineralization on LION 69.

The equipment utilized for the induced polarization survey consisted of a multi-frequency P660 unit manufactured by McPhar Geophysics.

The field procedure employed a dipole-dipole array with a dipole spacing of 200 feet. Measurements were taken to the fourth separation. The two frequencies employed were .31 and 5 Hertz.

A 200 foot dipole spacing was used to negate the need for secondary, detailed surveying which may have been necessary if a larger spacing was utilized.

The fourth separation was employed in an attempt to adequately penetrate the overburden cover and yield information attributable to bedrock physical properties.

Resultant observations were plotted in typical "pseudosection" profile form at a scale of 1" = 200 feet. In addition, the resistivity and frequency effect measurements taken at the first and third separations have been plotted separately and contoured in plan form at a scale of 1" = 400'.

RESULTS

Line 1 Resistivities are relatively high in this area with a decrease indicated at about SW, 10W and at 7E.

Increases in frequency effect occur west from 7W and are suggested east of 9E.

These results on the west coincide generally with pyrite mineralization although the main gossan outcrops to the west of the IP readings.

The slight indications at the east end of the line lie above and south of No. 2 showing.

Readings at larger separations suggest a tendency for the two zones to merge.

Line 6 This line was run north-south, more or less normal to Line 1. Again, topography limited the amount of survey possible.

A decrease in resistivity, with a more or less coincident increase in frequency effect, occurs at about 4N but readings at N-3 and N-4 suggest this zone might dip somewhat to the north.

Line 2 Some variations occur along this line from 4NE to about 36NE but, in general, resistivities are relatively high and frequency effect low and flat, corresponding to generally unmineralized volcanic outcrops.

A decrease in resistivity and increase in FE to about twice background occurs from 36NE to 64NE in part, corresponding to pyrite mineralization.

From 47NE to 51NE, the strongest effects correspond to pyritized quartz feldspar porphyry.

From 55NE to 60NE, low FE near surface probably reflects the conglomerate beds.

Line 3 This line was not surveyed due to bad weather and time limitations.

Line 4 The survey covered the area along the geochemical trend.

Resistivity at N-3 and N-4 in the area from about 6NW to 10NW shows an increase which may represent a change in rock type with depth.

From 10NW to about 23NW, no apparently significant changes occur.

Between 23NW and 42NW, resistivity increases except for a narrow low resistivity band at about 31NW.

Frequency effects along this line are generally low except for a narrow anomalous zone at about 7NW which might be related to the increased resistivity indicated at greater depth.

Frequency effects also rise to about three times background, more or less in accordance with the increased resistivity from 23NW to the end of the line.

Line 5 Moderately low resistivity occurs along the surveyed portion of this line. The resistivity low at 41NE being attributed to the creek at that point and perhaps to faulting.

The frequency effects southwest of the creek (28NE-41NE) are well above background for the area and can be considered anomalous.

On crossing the creek to the northeast, these effects decrease somewhat gradually to approximately background levels.

Line 7 Resistivities along this line are generally more erratic than on Line 5.

The increase in resistivity at about 48NE may be related to the hornblende feldspar porphyry outcropping to the northwest.

Variable resistivity and frequency effects between 30NE and 40NE are probably marginal to the more anomalous effects on Line 5.

CONCLUSIONS

In general, the IP surveying so far done has not indicated any strong anomaly which would immediately represent a drill target. Results do, however, suggest that:

- (1) Copper mineralization of No. 2 showing and pyrite mineralization on the west side of the ridge may be parts of the same zone.
- (2) Showings of pyrite and minor chalcopyrite on LION 69 are a small part of a fairly large IP anomaly.
- (3) Pyrite mineralization on LION 36, associated with quartz feldspar porphyry, is partially outlined by IP effects but the copper anomaly indicated by soil sampling appears to lie to the southwest of this zone.

TABLE OF EXPENDITURES

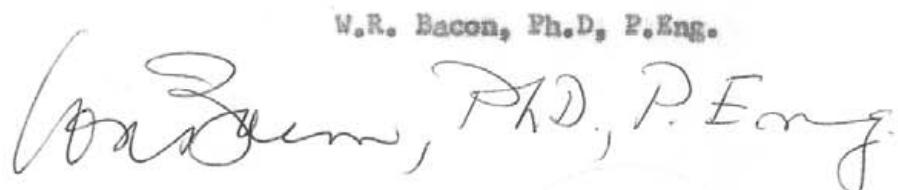
<u>Name</u>	<u>Occupation</u>	<u>Dates</u>	<u>Rate</u>	<u>Total</u>
<u>GEOLOGY</u>				
J. Shearer	Geologist	July 21-24, 29-31, Aug. 1-7, 9	\$750/m	\$400
B. Fraser	Assistant	July 21-24, 29-31, Aug. 1-7, 9	\$600/m	\$320
J. Talsania	Draftsman	Aug. 1-7, 9, Sep. 6, 7	\$20/day	\$40
Camp supplies - 30 mandays @ \$6/day				\$180
Helicopter support - proportional time				<u>\$275</u>
				\$1,215
<u>GEOCHEMISTRY</u>				
M. Douglas	Sampler	July 22 - Aug. 28	\$400/m	\$505
D. Wood	Sampler	July 22 - Aug. 28	\$425/m	\$540
Camp supplies - 76 mandays @ \$6/day				\$456
Sample handling & analysis - 1355 samples @ \$1.50				\$2030
Helicopter support - proportional time				<u>\$1050</u>
				\$4,581
<u>GEOPHYSICAL</u>				
Linecutting - G. Auger - Contractor - Sept. 5-14				\$560
IP Survey - D. Morrison & M. Arsenault - Contractor - Sep. 5-14				\$1600
J. Talsania - helper - Sep. 5-14 @ \$650/m				\$216
J. Shearer - helper - Sep. 5-14 @ \$750/m				\$250
Camp supplies - 50 mandays @ \$6/day				\$300
Helicopter support - proportional time				<u>\$850</u>
				\$3,776

SUMMARY - TABLE OF EXPENDITURES

Geological	\$1,215
Geochemical	\$4,581
Geophysical	\$3,776
Total	\$9,572



W.R. Bacon, Ph.D., P.Eng.



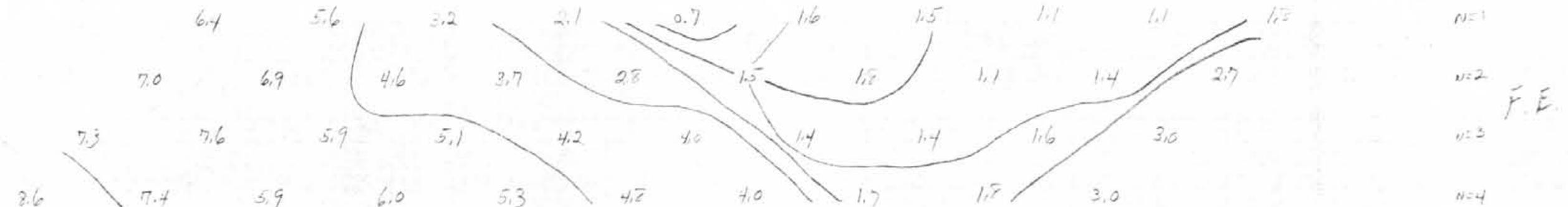
Declared before me at the
of Vancouver, City
Province of British Columbia, this 27
day of November, 1973, A.D.

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

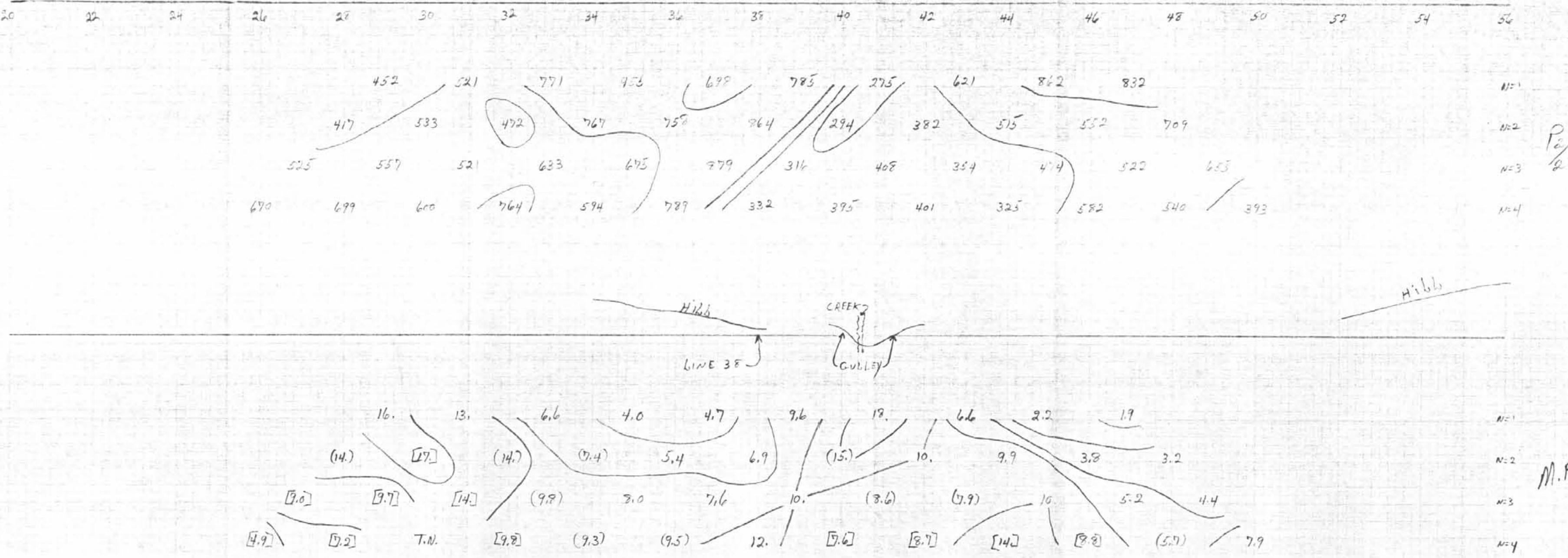
18W 16W 14W 12W 10W 8W 6W 4W 2W 0+20 2E 4E 6E 8E 10E 12E

Luc SYNDICATE
TAKLE LAKE AREA B C
Lion GROUP CLAIMS
H. P. I.P. (DIPLO-E-DIPLO-)
FREQ. : 0.3 430 CPS
LINE: I.P. # 1
SCALE: 1" = 200'
DATE: 5/19/73
OP: S. A. Place call

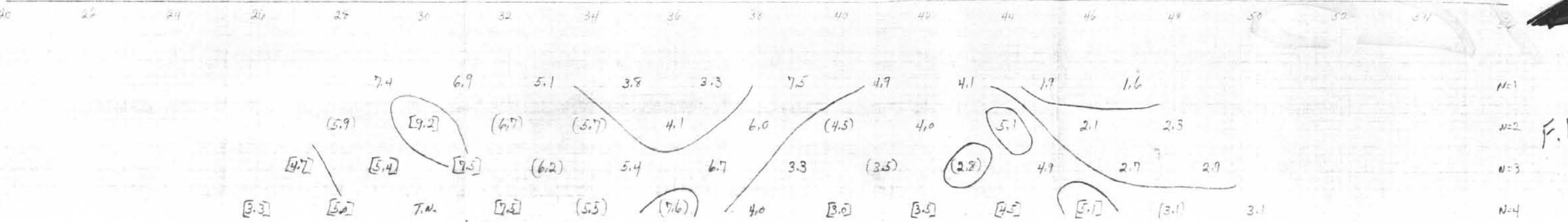
Description of
Minerals and Mineral Deposits
ASSESSMENT REPORT
NO. 4725



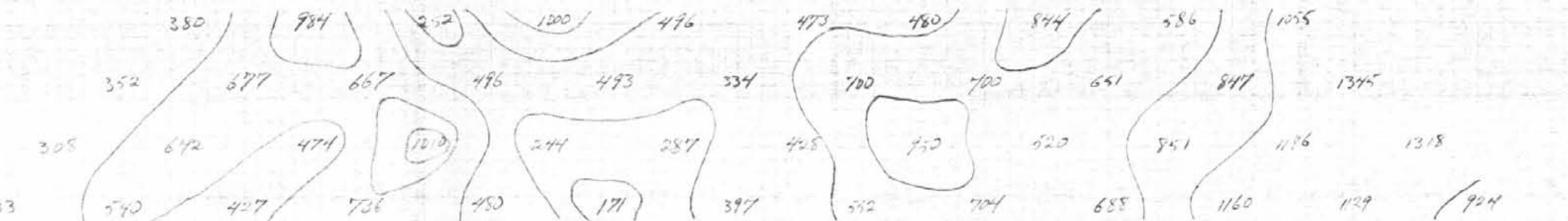
Department of
Mines and Natural Resources
ASSESSMENT REPORT
NO. 4725



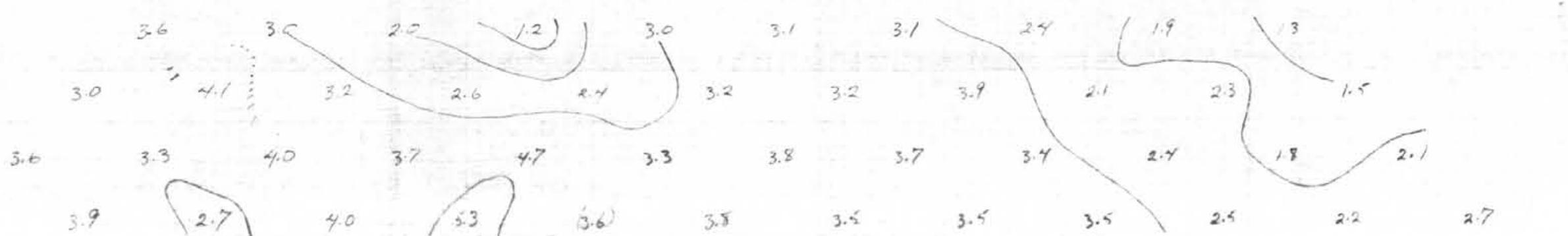
4725



20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56

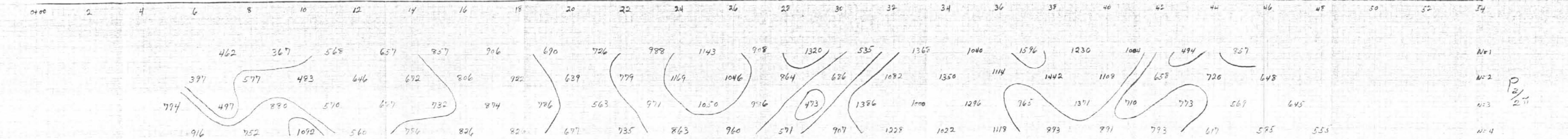


J.P. Lines & 4 Holes →

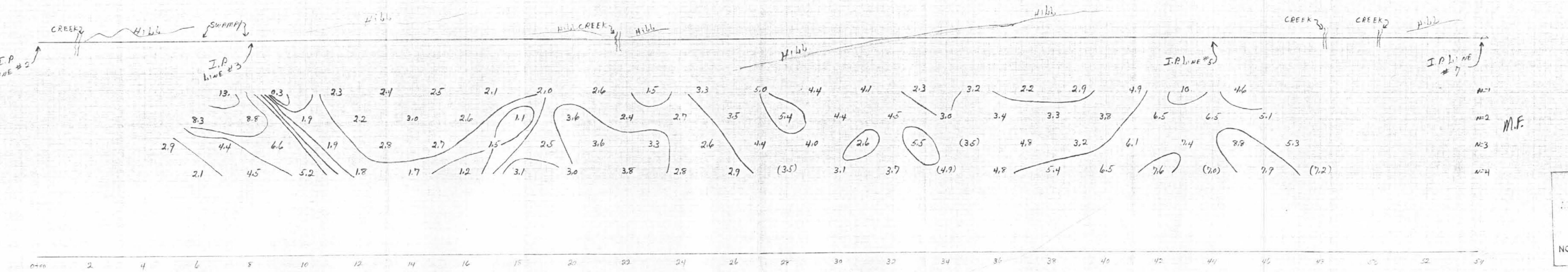


LAC SYNDICATE,
TABLE LAKE AREA B.C.
LION GROUP CHIMES
Horn Power T.P. (Dinner 1,800 ft).
Line # I.P. # 7
Base: 59.342
Scale: 1" = 200'
Sept. 9, 1973.
Operator: D.F. Morrison.

4725



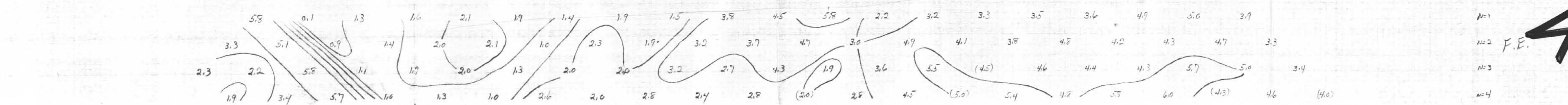
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TAKLA LAKE AREA, B.C.
LION GROUP CLAIMS
H.P. I.P. (DIPOLE-DIPOLE)
FREQ. : 0.345 C.P.S.
LINE : I.P. #4
SCALE : 1" = 200'
DATE :
OP. : D. F. MORRISON



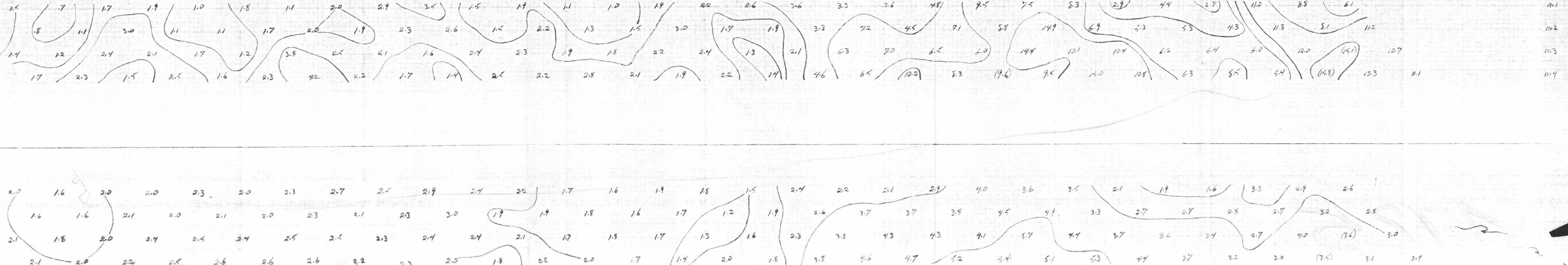
LEGEND
(20) - NOISY READING

**Department of
Post and Telegraph Department
Government of India**

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LUC SYNDICATE.
TAKLA LAKE AREA, B.C.
HIGH POWER I.P. (DIPOLE-DIPOLE)
LINE # I.P. #2.
LION GROUP CLAIMS
FREQ : 543 Hz
SCALE: 1" = 200'
SEPT. 13, 1972
OPERATOR: D.J. MARRISON



4725






Department of
Mines and Petroleum Resources
ANNUAL REPORT
NO. 4725 M.P. #4


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
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P.M

**LUC SYNDICATE
LION CLAIM GROUP
93 M/16E
SOIL SAMPLE RESULTS**







LUC SYNDICATE
 LION CLAIM GROUP
 93M/16E
 IP SURVEY FREQUENCY EFFECT
 THIRD SEPARATION
 Scale 1"- 400'
 Oct. 1973
 PLATE V

4725 M7

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 4725 MAP #7

To accompany
 GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL REPORT
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 Dated November 30, 1973.
 [Signature]

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