

2395

1970

92 I / 6E, ~~100~~

Geochemical and Reconnaissance

Geological Report

Jay Zone: Cowbird - D.S. Claims

Karloops M.D., B.C.

Largo Mines Ltd.

Showing
Plotted
and
begin
50' 28'
1/16"

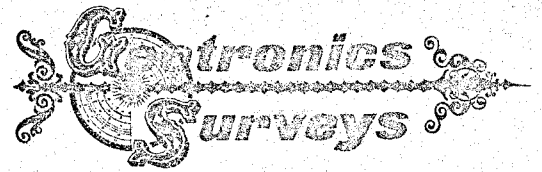
October - November - December, 1969

Location: 8 miles E of Spences Bridge

50°, 121° SW

Report by: L. W. Saleken, B. Sc.
Geologist

February, 1970



517 - 602 West Hastings Street, Vancouver, British Columbia, Canada * Telephone 688-4342

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SUMMARY

The Jay Zone claims are located about 8 miles east of Spences Bridge on the southwest fringe of the Highland Valley mining camp, Kamloops M.D., B.C. The area consists of 6 Cowbird and 10 D.S. claims owned by Largo Mines Ltd. (N.P.L.), Vancouver, B. C.

The general geology on the claims is Hybrid phase diorites. Shearing and alteration is associated with the mineralization. Hematite, chalcopyrite and pyrite mineralization occur on the claims. The Toketic iron deposit is southwest of the group.

Line-cutting and soil sampling were done on the claims. A total of 8.47 miles was cut and 428 samples collected. Analysis was for copper by hot acid, HCl extraction methods. Reconnaissance geology of the trenches and cuts was made.

Several anomalies were located, having a northwest-southeast trend. Some of the closely associated anomalies were grouped into the Jay Zone.

Additional geochemical soil sampling, line-cutting and geological mapping are recommended. An induced polarization survey and possibly an E.M.-magnetic survey are also required.



INTRODUCTION

The writer visited the area on November 15th to 18th, 1969 and examined the cut lines and soil surveying. A reconnaissance of the known mineralization was made. The writer has been closely associated with the work on the claims.

The conclusions and recommendations are based on the results obtained from the survey. Government geological maps and other publications pertaining to the subject have been reviewed.

The writer feels that the survey work was conducted conscientiously and to the best ability of the field crews.



LOCATION AND ACCESS

Approximate Co-ordinates: Longitude 121° 12'

Latitude / 50° 28'

The Fimainus Creek, Jay Zone, is located on the southwestern fringe of the Highland Valley mining camp, Kamloops M.D., B.C. The claims are bound to the southwest by Fimainus Creek. The group is approximately 8 miles northeast of the community of Spences Bridge.

Access to the claims is by dirt road along the north side of Fimainus Creek. The road is situated 2 miles east of Spences Bridge along the east side of the Thompson River. The claims are located about 12 miles along the road. Access from the Highland Valley is along the O.K.-Calling Lakes road. The state of the roads depends on weather conditions; access by four wheel drive is advised.

PROPERTY

The Fimainus Creek, Jay Zone, consists of 16 fractional and full sized mineral claims:

- a) DS 1-10 (inclusive)
- b) Cowbird 1-6 (inclusive)

CLAIM NAME	RECORDING NUMBER	RECORDING DATE
DS 1-10 incl.	77392 - 77401	March 10, 1969
Cowbird 1-6 incl.	85648 - 85653	November 20, 1969



The staking procedure of the claims was checked and it appears to have been done to the best of the staker's ability, in accordance with the Mineral Act.

PHYSIOGRAPHY

The Fimainus Creek, Jay Zone, lies in the southern portion of the Thompson Plateau. The plateau is a gently rolling upland of low relief lying between 4,000 and 5,000 feet A.S.L. Local relief on the group is moderate. Tributaries of Fimainus Creek and Nicola River drain the area. The bedrock is covered by a mantle of glacial drift.

Climate is generally of the dry belt type, influenced by elevations and the Coast Range Mountains. Average precipitation is greater than 15 inches per year. Temperatures vary with seasons with minimum winter conditions reaching 40 degrees below zero.

Pine, fir and other conifers along with scrub brush inhabit the valleys and hillsides.



HISTORY AND PREVIOUS WORK

The Jay Zone was part of a large group of claims which included the old Toketic deposit. The Toketic as reported by Cockfield consists of fracture fillings of specular hematite with minor chalcopyrite. The hematite occurs as narrow discontinuous stringers that lie along shear planes or as a cement between broken fragments of the wall-rock. B.C. Minister of Mines, 1926, reports that the hematite had, at that time, been prospected along a zone 3,000 feet long and 300 feet wide. The relationship between the Toketic occurrence and the Jay Zone is not known.

Toketic Showings
Jay zone do.
that included the Toketic Showings

Several mining companies worked on the mineral showings during the 50's and 60's. Some geological mapping, geochemical sampling and geophysical prospecting was done along with cat trenching and hand diggings.

Ownership of Jay Zone was acquired by Largo Mines Ltd. (N.P.L.) in 1969. An interpretation of the government aeromagnetic map by R. H. Parker, geophysicist, on the claims, November-December, 1969, outlined a magnetic anomaly. Field work was conducted to further evaluate its significance: reconnaissance geological mapping, geochemical soil sampling using 100 foot centres and line cutting were conducted.

7
1969



GENERAL GEOLOGY

As indicated on the geological map (S. Duffell and K.C. McTaggart, 1952), the Jay Zone is largely underlain by Jurassic Guichon Creek batholith rocks. K. E. Northcote has mapped the rocks as Hybrid phase granodiorite and quartz diorite.

The Hybrid phase forms the periphery of the batholith. The rocks range in composition from hornblendite through diorite to quartz diorite and granodiorite, although most of the rocks are quartz diorite. Petrographically, the rocks are equigranular, commonly foliated, consisting of quartz, plagioclase, orthoclase, biotite, augite and minor hypersthene. Sulphides occurring are pyrite, chalcopyrite, some bornite and molybdenite. The Hybrid phase is cut by dykes and irregular bodies of other phases and is the oldest intrusive rock of the batholith (Northcote, 1969).

Structured features within the Hybrid phase include foliation, joints, shear and fault zones. Mineralization occurring in the batholith is associated with faults.

Spences Bridge Group, Lower Cretaceous, of lavas, pyroclastic rocks and minor sediments occur to the south of Fimainus Creek. The group is unconformable with the Guichon Creek batholith.

The mantle of glacial drift covers the claim area. Outcrop exposure is from 5 to 10%.



LOCAL GEOLOGY

The Jay Zone area is covered by a mantle of till, varying in thickness.

Outcrops are sparse and restricted to old trenches and road cuts.

Rocks are of dioritic composition containing equigranular and foliated minerals of quartz, feldspars and micas. The mineralized area contains

pyrite, chalcopyrite and hematite associated with a shear zone.

Epidote and chlorite alteration accompanies the mineralization.

showing

Several old trenches are located near L15N, 15E. A mineralized shear zone approximately 60 feet wide, trending easterly, containing hematite, chalcopyrite and pyrite was intersected by some of the trenches. The chalcopyrite occurs as blebs within the hematite and altered rock. A random chip sample over 30 feet was taken (sample 11000). Fresh rock away from the shear is generally void of sulphide mineralization and alteration.

ECONOMIC GEOLOGY

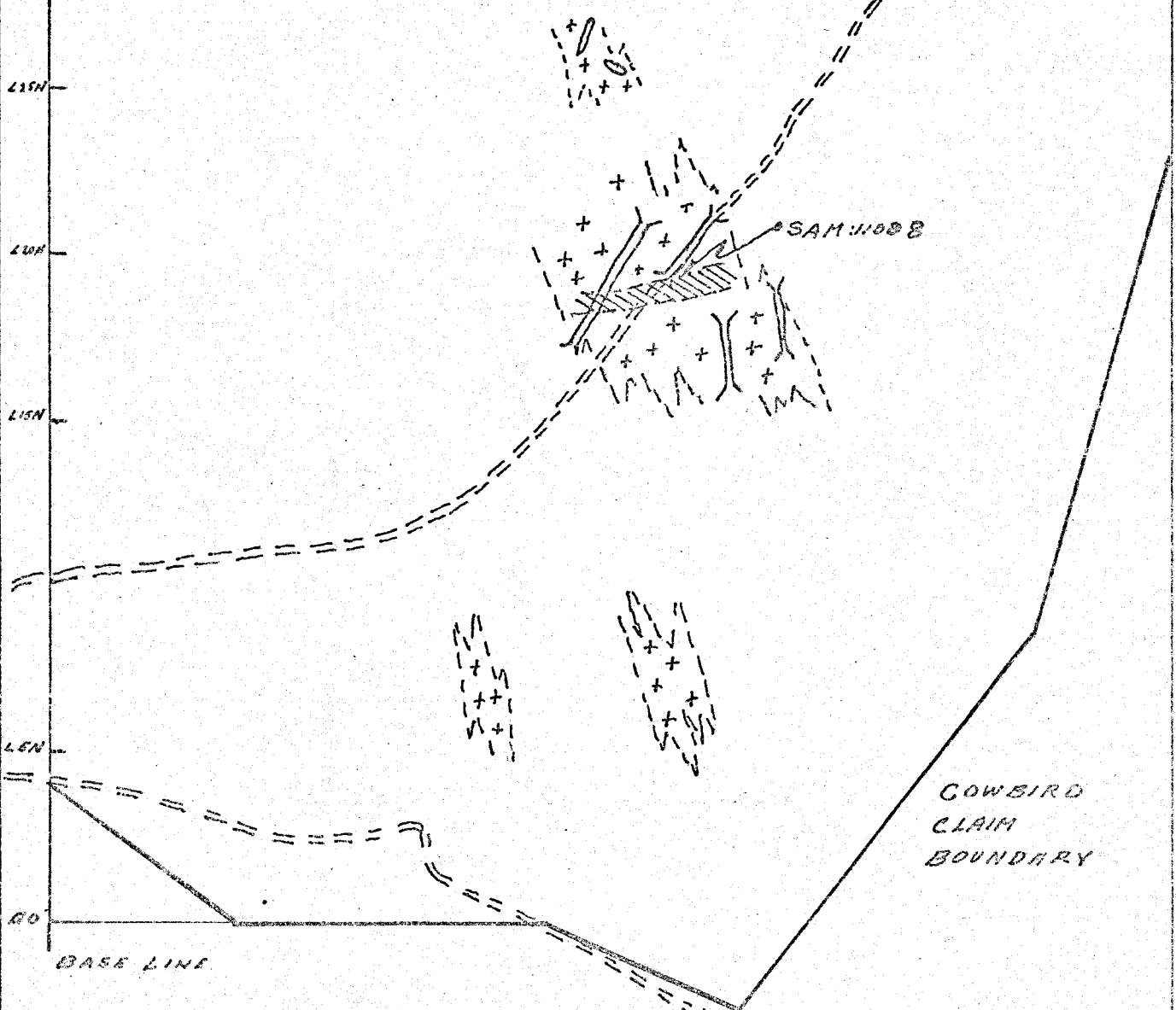
The only known mineral showings on the property are around the Jay Zone. Hematite and chalcopyrite minerals are associated with a shear zone. The proximity to other mineralization (Toketic Deposit to the west) and favorable host rock, Hybrid phase diorites, facilitate further exploration potentials.

L90N
L85N
L80N
L75N
L70N
L65N
L60N
L55N
L50N
L45N
L40



RECONNAISSANCE GEOLOGY SKETCH

JAY ZONE: COWBIRD 1-6
LARGO MINES LTD.



COWBIRD
CLAIM
BOUNDARY

TO HIGHLAND VALLEY

SCALE: 1 in. = 500 ft.

L. W. Selker Feb. 1970

LEGEND



OUTCROP



HYBRID PHASE DIORITES



SHEAR : HEMATITE - CHALCOPYRITE - PYRITE
MINERALIZATION ASSOCIATED



CUTS & HAND PITS



CAT TRENCHES



ROAD



CLAIM BOUNDARY



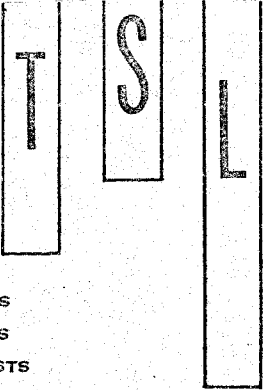
CUT GRID LINE

N-S BASE LINE

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. **2395** MAP **#2**

Gen. Saibawa Feb 70



Laboratories Limited

325 HOWE STREET - VANCOUVER 1, B.C.

TELEPHONE 688-3504

ASSAYERS
CHEMISTS
GEOCHEMISTS

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM

GEOTRONICS SURVEYS

REPORT NO.

SAMPLE(S) OF

ROCK

JAY ZONE.

V-7133

Sample No.

Copper (Cu)%

11008

0.11

DATE

December 2, 1969.

SIGNED

R. D. Fletcher



GEOCHEMICAL ENVIRONMENT

The Jay Zone is covered by a mantle of transported drift of varying thickness. The exposed outcrop on the claims is about 10% and consists of Guichon Creek batholith rocks.

The soil is a glacial drift having a moderate to poorly developed eluvial horizon. The B horizon is located 6-14 inches below the surface and ranges in color from brown-red to yellow-red. An organic layer approximately 2 to 4 inches thick constitutes the surface horizon (L-H). The soil is moderately drained. According to the taxonomic system of soil classification, the soil is of the order of brunisolic to podzolic.

Brunisolic soils by definition are well to imperfectly drained soils developed under forest, mixed forest and grass and fern, or heath and tundra vegetation, with brownish colored soil and without marked eluvial horizons (7). Podzolic soils by definition are well and imperfectly drained soils developed under forest or heath, having under virgin conditions organic surface horizons (L-H), light colored eluviated horizons (Ae) and illuvial (B) horizons with accumulations of organic matter, sesquioxides or clay or any combinations of these (7).



FIELD WORK

Field work on the Jay Zone was conducted during October, November and December, 1969 and consisted of line-cutting and soil sampling. The writer spent from November 15 to 18, 1969 examining the cut lines and supervising the soil sampling in the field. A geological reconnaissance of the old trenches and cuts around the Jay Zone was made. A chip sample over 30 feet was taken for assay (11008).

A total of 8.47 line miles was cut and 428 soil samples were collected. The grid was cut using 500 foot line spacing and 250 foot lines for detail work. The lines are picketed, flagged and blazed for easy recognition. Samples were taken on 100 foot centres from the B horizon and analysed for Cu ppm by hot acid HCl extraction methods. T.S.L. Laboratories Ltd., Vancouver, B. C. did the analysis.

Figure 1 (in folder) shows the location of the cut lines, sample stations and claim boundaries; figure 2 is an interpretation of the geochemical results. Contour interval is 20 ppm starting at 40 ppm; 100 and 150 ppm contours are indicated; values greater than 200 ppm are shown in solid color.



DISCUSSION OF RESULTS

The background value for the area was calculated at 19 Cu ppm with a threshold value of 40 Cu ppm. Anomalies with a value two times threshold were considered significant. Single high values that appeared separately were ignored or considered contaminated.

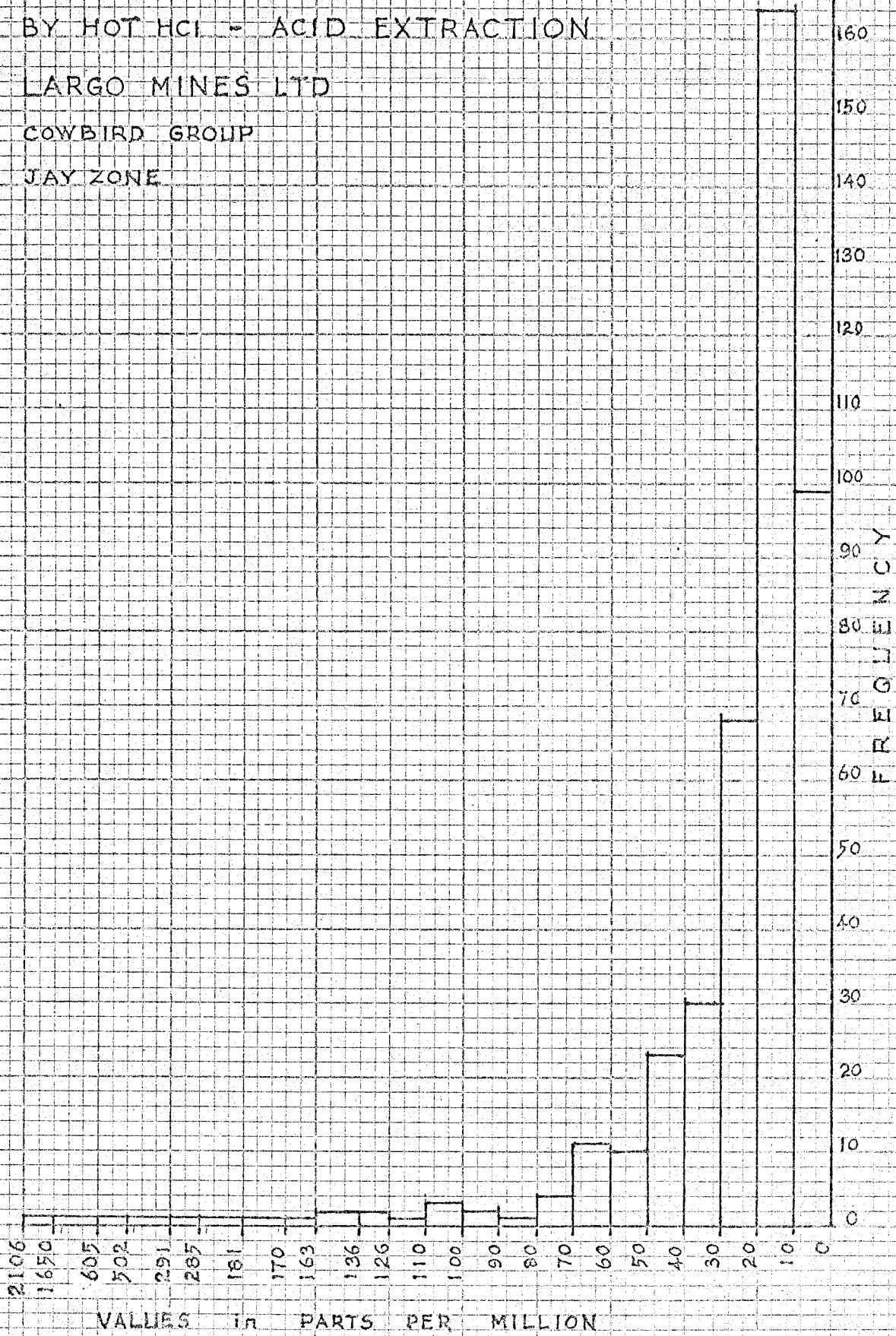
Significant geochemical anomalies occur at:

Co-ordinates	Threshold
L 7 + 50 N, 10 E	2.50
L 10 N, 14 E	3.75
L 10 N, 17 E	2.50
L 12 + 50 N, 13 E	7.25
L 17 + 50 N, 17 E	41.25
L 20 N, 15 E	2.50
L 20 N, 28 E	2.00
L 20 N, 17 E	15.00
L 22 + 50, 11 E	50.00
L 25 N, 12 E	3.75
L 40 N, 6 E	3.75

The values 41.25 and 50 times threshold are near exposed copper mineralization and may be considered contaminated.

The Jay Zone is indicated by the dashed line and has the approximate dimensions of 2,000 feet long and 1,200 feet wide.

HISTOGRAM OF SOIL SAMPLES TESTED
BY HOT HCl - ACID EXTRACTION
LARGO MINES LTD
COWBIRD GROUP
JAY ZONE





CONCLUSIONS

1. The Cowbird-Jay Zone claims have several known occurrences of hematite-chalcopyrite mineralization associated with shearing and alteration.
2. The rock types are Hybrid phase diorites (Northcote, 1969) and are known to contain mineralization.
3. A total of approximately 847 line miles were cut and 428 soil samples were collected.
4. The topography and overburden have a moderating effect on the geochemical results. The general slope of the ground is in a gentle southwesterly direction. The overburden on the property is of a varying thickness.
5. The soil survey located a major anomalous zone, known as the Jay Zone, which has the dimensions of 2000 feet long and 1200 feet wide. Several smaller anomalies occur in proximity to the Jay Zone - refer to figure 2.
6. The general trend of the copper anomalies is in a northwest-southeast direction. Additional soil surveying is needed to clearly define the significance of all anomalies and their relationship to each other.
7. The writer feels that the soil survey and line cutting were done conscientiously and to the best ability of the field crew.



RECOMMENDATIONS

The following additional work is recommended:

1. Complete the soil survey by expanding and tightening the soil sampling grid. Additional 250 foot lines should be cut and sampled.
2. Geological mapping and prospecting along the cut grid should be done on a scale of 1 inch to 200 feet or less.
3. Geophysical surveying as recommended by R. H. Parker, "Examination of Government Aeromagnetic Survey, Largo Mines Ltd., Pimainus Creek Claim Group, 1969". Parker recommends:
 - a. locating anomalous magnetic zone relative to the claims.
 - b. induced polarization survey.
4. A combined electro-magnetic - magnetic survey may be useful in outlining structure and possible conductors. This survey should be done prior to the I.P.
5. Geophysical work and line-cutting should commence as soon as possible.

Respectfully submitted,

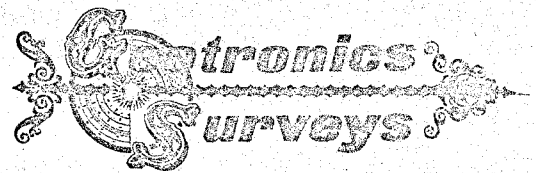
L. W. Saleken

L. W. Saleken, B. Sc.
Geologist



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1. Barakso, J. J., Rowles, C. A., and Lavkulich, L. M.,
1969, Geochemical Prospecting in B.C.,
Western Miner, June, 1969, pp 22-32.
2. Carr, J. M., 1966, Geology of the Bethlehem and Craigmont
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the Western Cordillera, C.I.M.M., Special Vol. No. 8,
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Nicola Map Area, British Columbia, G.S.C. Mem. 249.
4. Duffell, S. and K. C. McTaggart, 1951, Ashcroft Map - Area,
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5. Hawkes, H. E. and Webb, J. S., 1962, Geochemistry in Mineral
Exploration, Harper's Geoscience Series, New York.
6. Northcote, K. E., 1969, Geology and Geochronology of the
Guichon Creek Batholith, B.C.D.M. Bull. 56.
7. Report on the Sixth Meeting of the National Soil Survey
Committee of Canada, Laval University, Quebec, 1965.



517 - 602 West Hastings Street, Vancouver, British Columbia, Canada * Telephone 688-4302

RESUME OF LEONARD WILLIAM SALEKEN, B. Sc.

EDUCATION

Graduate of the University of British Columbia,
Faculty of Science, Geology, B. Sc.

Member of the Canadian Institute of Mining and Metallurgy
(C.I.M.M.) and the Geological Association of Canada (G.A.C.)


TECHNICAL AND FIELD EXPERIENCE

Summers of 1964, 1965, 1966: engineering aide, Materials
Testing Branch, B. C. Dept. of Highways in engineering geology,
soils investigation and analysis, gravel exploration,
hydrological field testing, surveying; drill crew supervision.

Summer, 1967: assistant geologist, Duval Corporation in
general prospecting for base metals using geochemical and
geological methods; geological mapping and property evaluation.

May 1968 - October 1969: exploration geologist, Denison Mines
Ltd., Vancouver, B. C. in uranium prospecting, geological mapping
and interpretation, report writing, geochemical surveys,
radiometric surveys (ground and airborne), office management,
personnel hiring and public relations. Field specialization:
sedimentary uranium. Particular interests: Tertiary Stratigraphy
and Volcanism.

October, 1969: Consultant, Geotronics Surveys Ltd., Vancouver,
B. C.


L. W. SALEKEN, B. Sc.
Consultant Geologist

E. P. SHEPPARD & ASSOCIATES LTD.

CONSULTING GEOLOGISTS

314-402 WEST PENDER STREET,
VANCOUVER 3, B.C.

February 28, 1970

Mr. Tom Rolston
Geotronics Surveys
517-602 W. Hastings Street
Vancouver, B. C.

Dear Mr. Rolston:

At your request I have reviewed the references cited below and examined the report and maps prepared by employees of your company, "Geochemical and Reconnaissance Geological Report, Jay Zone: Cowbird-D.S. Claims, Kamloops M.D., B.C., Largo Mines Ltd."

The Jay Zone claims are located about 8 miles northeast of Spences Bridge in the southwest part of the Highland Valley mining area. The claims consist of 6 Cowbird and 10 D.S. claims, owned by Largo Mines Ltd. (N.P.L.).

The claims are underlain by Hybrid phase diorites. Shearing and alteration are associated with the mineralization. Hematite, chalcopryrite and pyrite mineralization occur on the claims.

The geochemical survey outlined several anomalies having a general northwest trend, on claims Cowbird 3 & 4, D. S. 4, 5 & 6. They consist of isolated, local highs which have been grouped into the Jay Zone. The survey results are shown on two maps submitted with the report; Fig. 1 shows the extent of the survey, Fig. 2, the plot of the results.

Closer line spacing, with additional geochemical sampling, is necessary before a complete geochemical picture is obtained. Detailed geologic mapping and sampling

.... cont.

Jay Zone

- 2 -

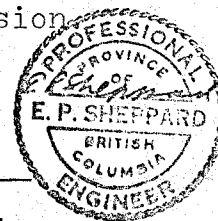
of trenches and mineralized showings is essential before geophysical surveys are undertaken.

The geochemical report, accompanied by suitable maps submitted by your company shows careful preparation. I am satisfied that the field work performed was of the same high caliber as that carried out on assignments where your crews were under my direct supervision.

Respectfully submitted,

E. P. Sheppard

E. Percy Sheppard, P. Eng.
Consulting Geologist

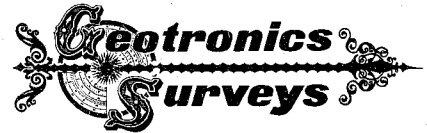


EPS:d

References

1. Barakso, J.J., Rowles, C.A., & Lavkulich, L.M., 1969, Geochemical Prospecting in B.C., Western Miner, June 1969, pp 22-32.
2. Carr, J.M., 1966, Geology of the Bethlehem & Craigmont Deposits, Tectonic History & Mineral Deposits of the Western Cordillera, C.I.M.M., Spec. Vol. No. 8, pp 321-328.
3. Cockfield, W.E., 1948, Geology & Mineral Deposits of the Nicola Map Area, B.C., G.S.C. Mem. 249.
4. Duffell, S. & McTaggart, K.C., 1951, Ashcroft Map Area, B.C., G.S.C. Me. 262.
5. Hawkes, H.E. & Webb, J.S., 1962, Geochemistry in Mineral Exploration, Harper's Geoscience, N.Y.
6. Northcote, K.E., 1969, Geology & Geochronology of the Guichon Creek Batholith, B.C.D.M., Bull. 56.
7. Report on the 6th Meeting of the National Soil Survey Committee of Canada, Laval University, Quebec, 1965.

* *



COST BREAKDOWN:

Expenses incurred to conduct line cutting and geochemical survey on the Cowbird, DS, Ken, Pat, Don and Scot groups of mineral claims

November 1 to December 20, 1969:

Wages: P. Skinner, 2 months @ \$800.00	\$ 1,600.00	
D. Morris, 2 months @ \$600.00	1,200.00	
D. Kirshner, one month @ \$600.00	600.00	
L. Salonen, 4 days (December) @ \$100.00	400.00	
T. Holston, 15 days @ \$75.00	1,075.00	
4 wheel drive vehicle, 3 months @ \$450.00	1,350.00	
Camp, 2 months @ \$500.00	<u>1,000.00</u>	\$ 7,225.00

January 1 to February 28, 1970:

Wages: K. Colombo, 6 weeks @ \$200.00	\$ 1,200.00	
P. Skinner, one week @ \$200.00	200.00	
G. Olhaiser, 4 weeks @ \$200.00	800.00	
B. Conley, one week @ \$200.00	200.00	
J. Bubois, one week @ \$200.00	200.00	
Ski-Doo rental, 2 months @ \$500.00	1,000.00	
Camp, 2 months @ \$500.00	1,000.00	
Survey materials, 5 months @ \$50.00	<u>250.00</u>	\$ 4,850.00

Reports, maps and engineering fees:		
Airmag. interpretation	\$ 600.00	
Jay Zone	650.00	
North	600.00	
Printing costs	<u>300.00</u>	\$ 2,150.00

Soil sample analysis 1,277.65

\$ 15,502.65

October 20 to December 20, 1969:

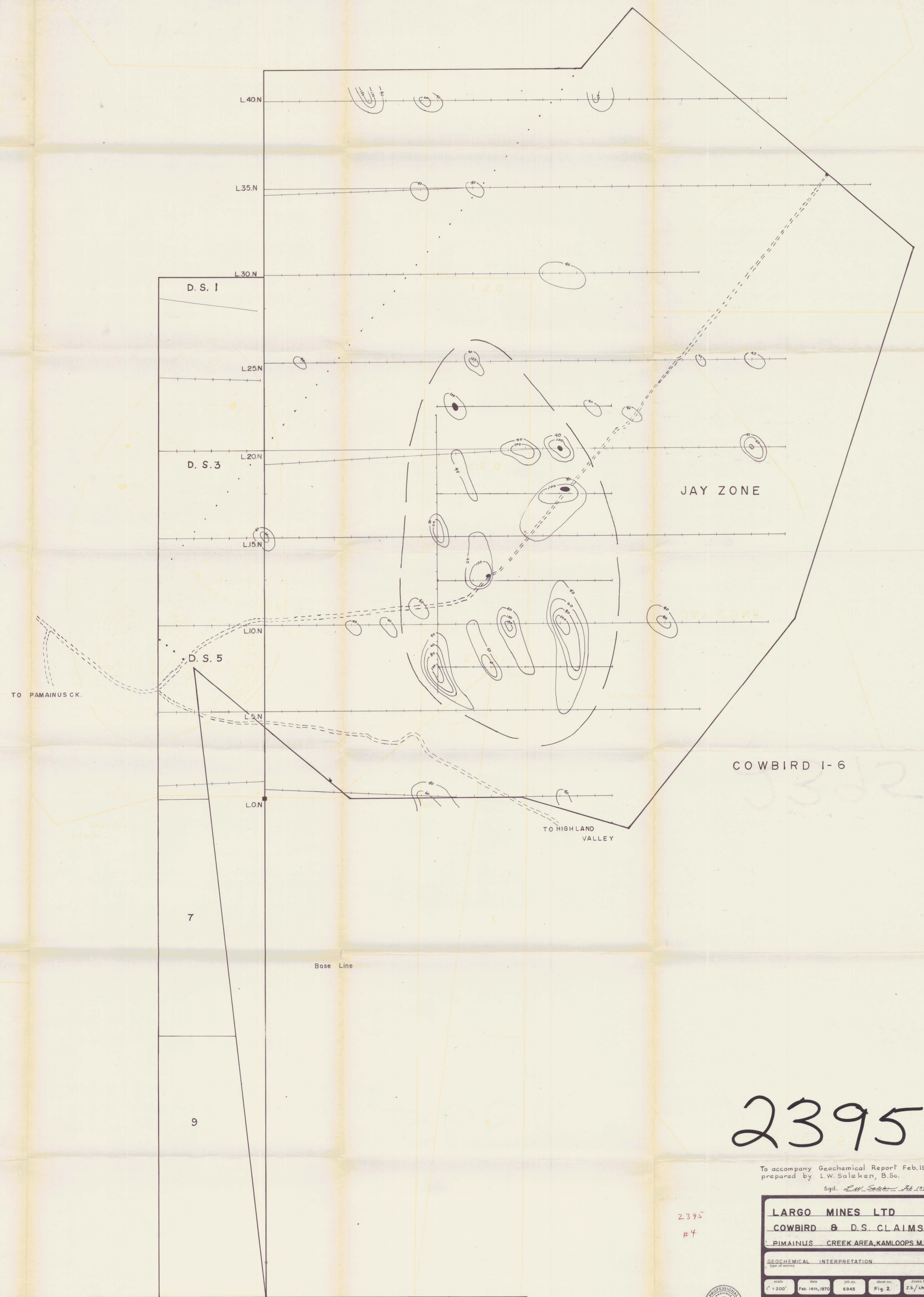
Wages: H. Buckholz, 2 months @ \$600.00	\$ 1,200.00	
H.S. Wagenitz, 3 months @ \$1,000.00	3,000.00	
Camper rental, 2 months @ \$140.00	280.00	
4 wheel drive vehicle	1,250.00	
Survey materials	100.00	
Mapping and report	600.00	
Engineering fees	400.00	
Camp supplies, 2 men, 43 days @ \$15.00	1,290.00	
one man, 7 days @ \$15.00	105.00	
Soil sample assays	<u>1,235.75</u>	\$ 9,460.75

Declared before me at the City of Vancouver, in the Province of British Columbia, Cts 10 day of March 1970, A.D.

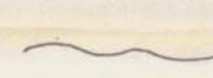



Tan Ralib

\$ 24,963.40

Joan Turner



LEGEND



-  Contour interval 20 p.p.m.
-  Threshold Contour
-  Greater than 200 Cu. p.p.m.
-  Jay Zone boundary

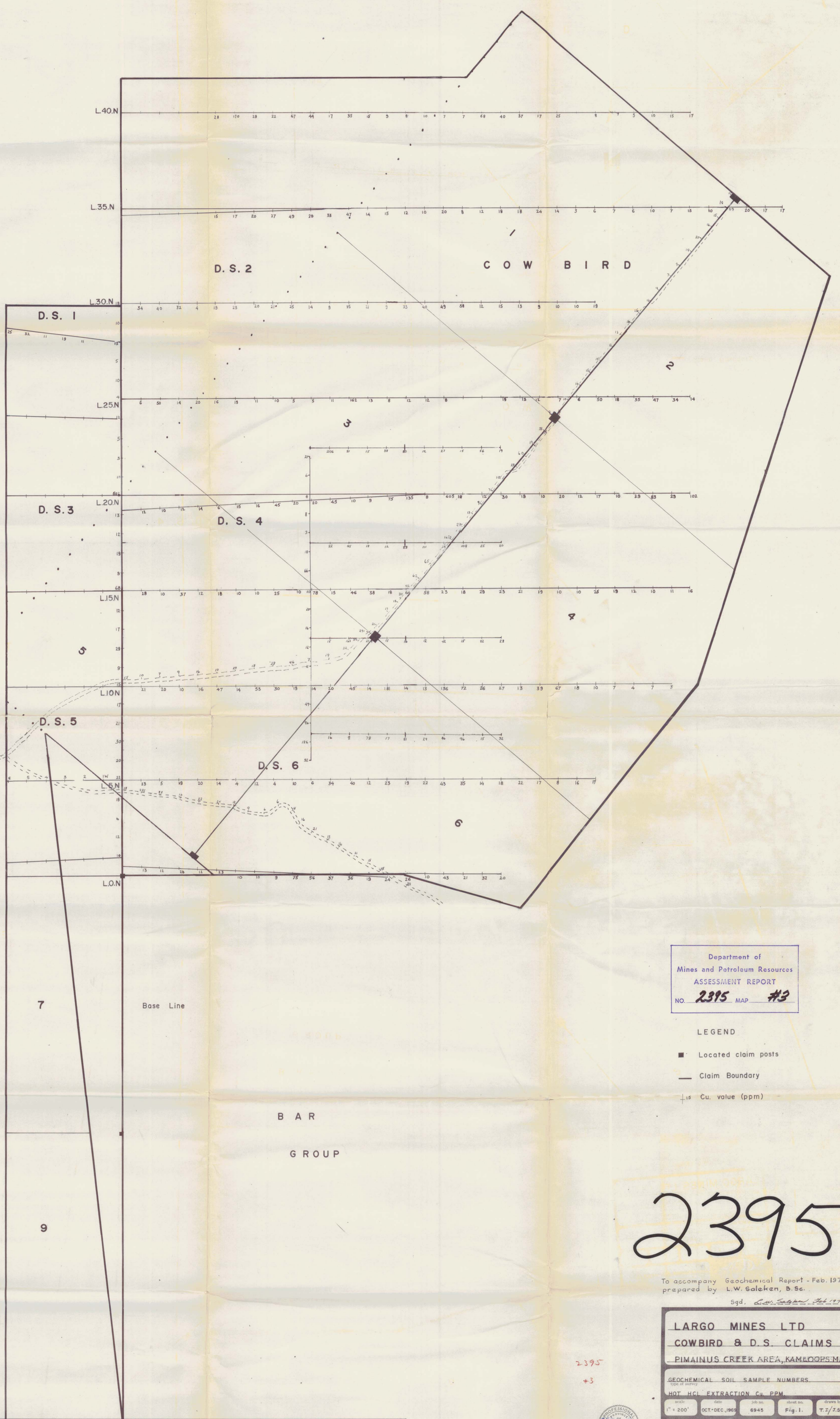
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2395** MAP **#4**

2395

To accompany Geochemical Report Feb. 1970
prepared by L.W. Salonen, B.Sc.
Sgd. *L.W. Salonen Feb 1970*

2395
#4

LARGO MINES LTD				
COWBIRD & D.S. CLAIMS				
PIMAINUS CREEK AREA, KAMLOOPS M.D.				
GEOCHEMICAL INTERPRETATION				
Type of survey				
Scale	Date	Sheet no.	Sheet no.	Drawn by
1" = 200'	Feb. 14th, 1970	6945	Fig. 2	T.S./L.W.S.
				



T. J. M.

G R O U P

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2395** MAP **#3**

LEGEND
 ■ Located claim posts
 — Claim Boundary
 | is Cu. value (ppm)

BAR GROUP

2395

To accompany Geochemical Report - Feb. 1970
 prepared by L.W. Galeken, B.Sc.
 Sgd. *L.W. Galeken Feb 1970*

LARGO MINES LTD
COWBIRD & D.S. CLAIMS
 PIMAINUS CREEK AREA, KAMLOOPS M.D.

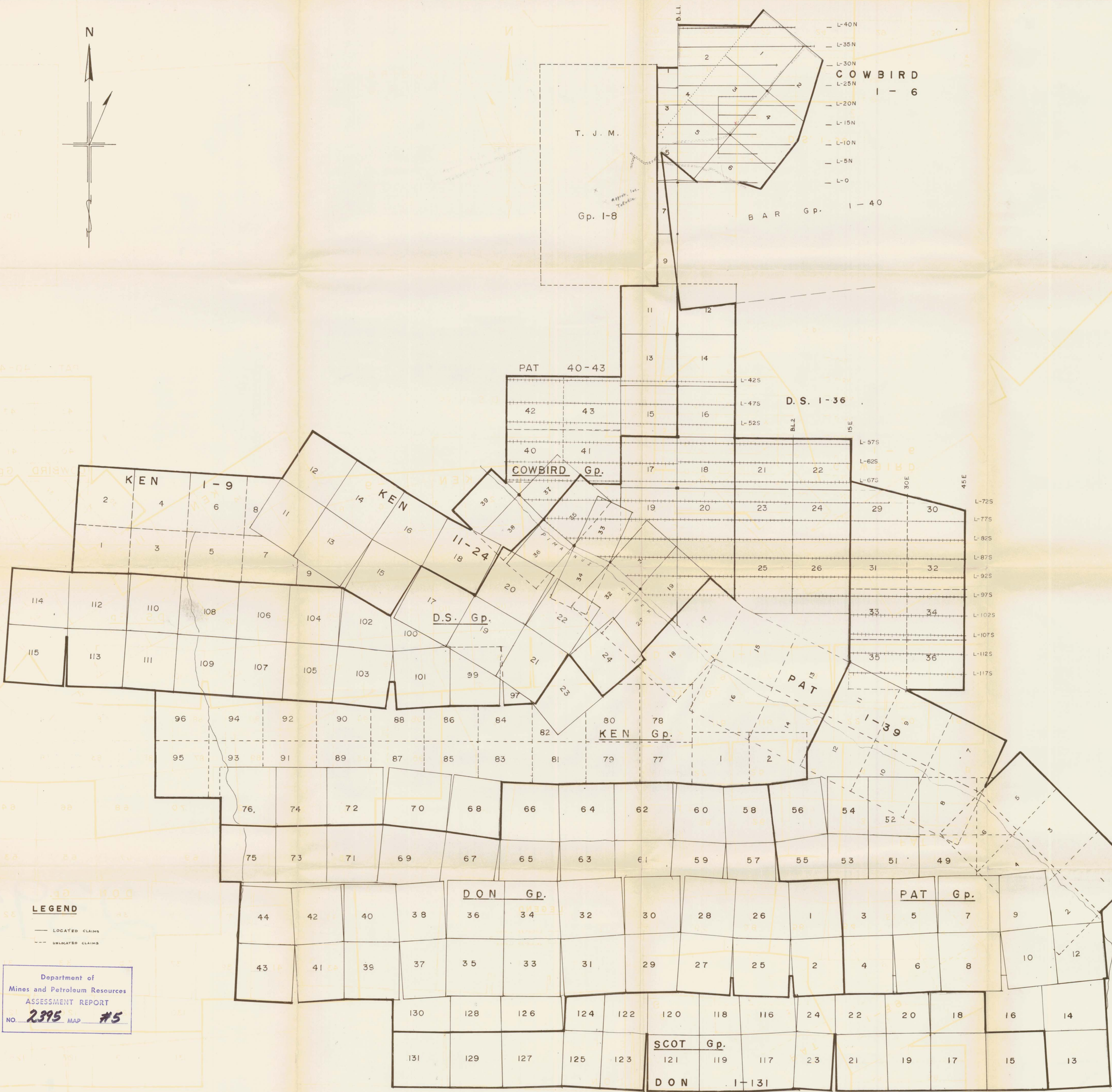
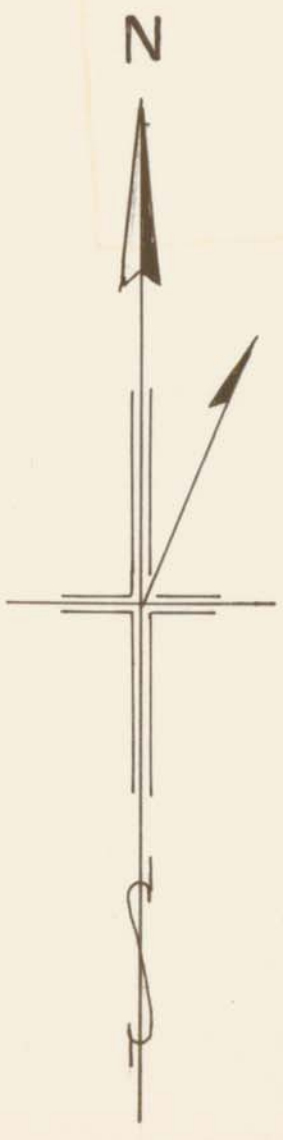
GEOCHEMICAL SOIL SAMPLE NUMBERS
 HOT HCl EXTRACTION Cu PPM

Scale	Date	Sheet No.	Drawn by
1" = 200'	OCT-DEC, 1969	6945	Fig. 1. T.J./T.S.

Geotronics Surveys Ltd.
 627 - 805 West Stirling Street, Vancouver, British Columbia

2395
#3





LEGEND
— LOCATED CLAIMS
--- UNLOCATED CLAIMS

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2395** MAP #5

2395
2395 #5

Refer to Reconnaissance Geochemical Report,
prepared by L. W. Saleken, B.Sc., Dtd. Jan 1970

LARGO MINES LTD. (N.P.L.)
PIMAINUS CREEK, KAMLOOPS M.D.
CLAIM LOCATION MAP

COWBIRD : D.S. : KEN : PAT : DON
SCOT CLAIM GROUPS

1"=1000' Mar. 1970 69 45 1. A.B.O.

Geotronics Surveyors Ltd.
121 - 88 Street Station Street, Vancouver, British Columbia