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Geophysical and Geological Report
on the
LG -1 Mineral Claim
Kamloops Mining Division
British Columbia

NTS 82L/14E
Latitude 50° 48' North
Longitude 119° 03' West

Covering the LG-1 Claim (12 units)
located near Sicamous, B. C.

Work performed between April 7, 1986 - January 15, 1987

by
Owners and Operators

D. A. Leishman, B. Sc. and W. Gruenwald, B. Sc.

Kamloops, B. C.

January 26, 1987

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Summary

Recent geophysical and geological work has been completed on the LG-1 mineral claim in the Kamloops Mining Division near Sicamous B. C. Stratabound lenses of massive sulphides with grades up to 12% combined lead-zinc and 5 ounces silver have been indicated. Limited geological examination has indicated the presence of mafic volcanics within a package of siliceous sediments of the Mara Formation (Archean age). Known mineralized horizons show a strong electromagnetic (E.M) and magnetic response. Previous surveys have indicated numerous E. M. conductors, most of which have not been properly evaluated. In addition, it appears the precious metal potential of the LG-1 claim has been overlooked. Recent logging and road building activity has resulted in the exposure of fresh outcrop.

Indications from previous work , untested geophysical targets and a favourable geological setting gives the LG-1 claim excellent exploration potential for the discovery of stratabound massive sulphide mineralization.

Introduction

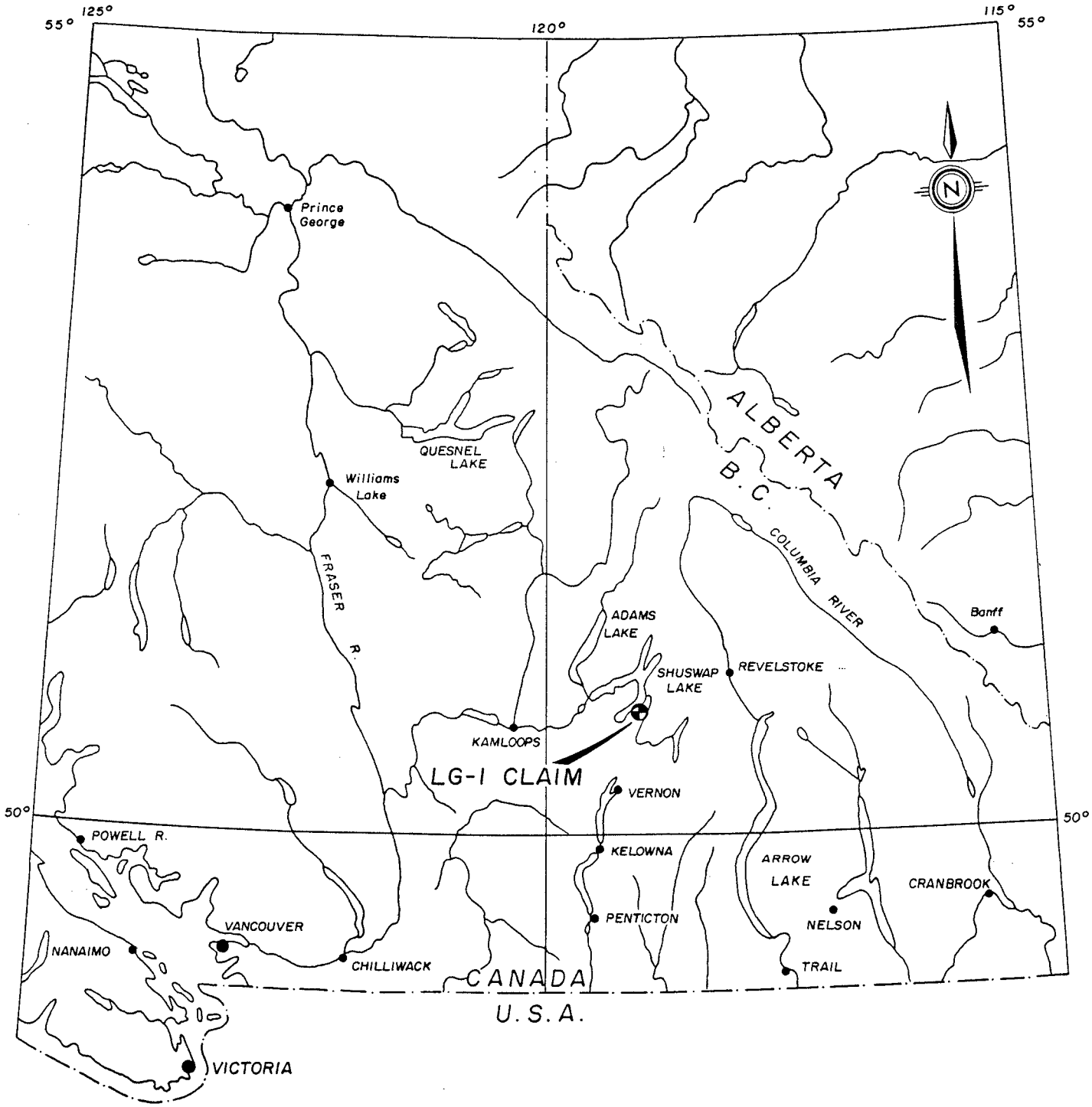
Recent work by the owners of the LG-1 mineral claim has more accurately delineated the massive sulphide horizon by geophysical methods. This work was a preliminary step towards the re-evaluation of the property which will include a complete compilation of past data, the expansion of the newly established grid for future geological, geochemical and geophysical surveys and the dewatering of the adit for examination of the underground workings.

Location, Access and Physiography

The LG-1 mineral claim is located in south central British Columbia within the Kamloops Mining Division. The claim is situated approximately 8 kilometres southwest of the town of Sicamous on the east side of the Trans Canada Highway. Figs. 20-1 and 20-2 Geographic co-ordinates of the centre of the claim are 50^{o} 48'North Latitude and 119^{o} 03' West Longitude on N.T.S. Map No. 82L/14E.

Access to the property is via a short gravel road that leaves the highway approximately 7.5 kilometres southwest of the town of Sicamous, B. C. This road is followed for 3 kilometres to the southeast and leads to the centre of the claim block. Fig. 20-2 Recent logging activity within the area of the claim block allows for year round access.

The property lies on a ridge between the Salmon Arm of Shuswap Lake and Mara Lake. Fig. 20-2 The central portion of the claim block straddles the relatively flat ridge top, while the northwest and southeast corners of the claim slope steeply to the northwest and southeast respectively. The total relief within the area of the claims is approximately 340 metres ranging from approximately 610 metres a.s.l. in the northwest corner to 950 metres a.s.l. along the south central portion of the claim group. The known mineral occurrences are located near the 850 metre



LOCATION MAP

LG-1 CLAIM

KAMLOOPS MINING DIVISION, B.C.

Technical Work By: D.Leishman B.Sc. W.Gruenwald B.Sc	Scale: 1:2,500,000 (1cm=25km)	
Date: Jan., 1987.	Drawn By: W.G.	Fig. No. 20-1

elevation in the west central portion of the claim group.

Outcrops are limited with the exception of the sections along the road cuts and small knolls along the ridge tops. Overburden cover appears to be minimal (less than 5 metres) as indicated by previous trenching .

The property is covered by moderately thick stands of cedar, fir, hemlock and pine with minimal undergrowth. Recent logging activity has resulted in the clearing of large areas of the claim group. Also related road building activity has resulted in the exposure of outcrops that warrant further examination.

Property

The LG-1 mineral claim consists of 12 contiguous units covering an area of approximately 300 hectares. All claim posts have been placed and the claim lines are well marked.

Claim Name	Units	Record No.	Expiry Date
LG-1	12	6487	January 15, 1989

The ownership of the claim is divided by D.A. Leishman and W. Gruenwald of Kamloops, B. C.

History

The area covered by the LG-1 mineral claim has undergone intermittent periods of work since 1958. It was in 1958 that a 85 foot adit was driven to intersect surface showings of massive sulphide mineralization. In 1964, as documented in the M.M.A.R., Annis Mines Ltd. trenched the property in the area of lead-zinc-copper mineralization. In 1965 the same company extended the adit to 125 feet. Trenching and prospecting was also continued. By 1966 the adit was extended to

160 feet and 5 short holes were drilled by the company. Mineralization was reported in all 5 holes however no logs or assay values are readily available. It was reported in 1967 that further trenching had extended the strike of known mineralization to 2,000 feet.

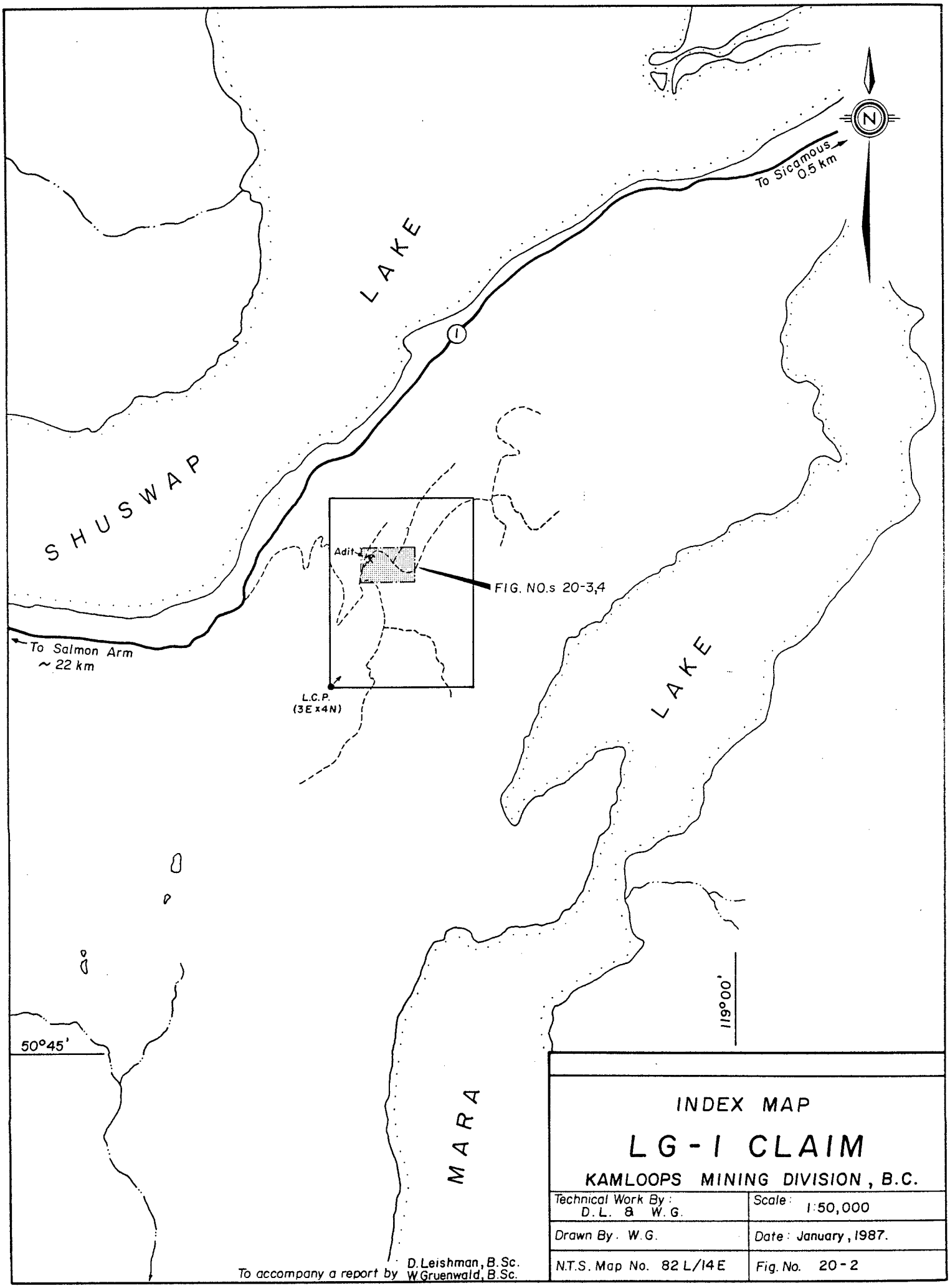
Further work within the claim area was recorded by Sicamous Resources Ltd. in June 1973. This work was followed up in 1976 by the same company in the form of a geochemical soil survey which outlined a large zinc anomaly. It was likely based on this work that the property was optioned to Granges Exploration from a Mr. J. Hussein. In that year (1977), Glen White Geophysical Consulting Services Ltd. carried out a pulse type E.M. survey.

In 1978 Maverick Mountain Mines completed a geochemical soil survey and followed this up with the drilling of 13 shallow diamond drill holes. (1794 feet drilled) The property lay idle until picked up by Caltex Hydrocarbons Inc. in 1981.

The work completed by Caltex Hydrocarbons Inc. included a magnetometer and soil sampling survey over areas of E.M. response as indicated by Whites previous survey. This work was considered quite useful as the area with the strongest magnetics with co-incident geochemical values was in an area where there had been no surface trenching or indicated mineralization. One short drill hole (by Maverick Mountain Mines Ltd.) in this area was reported to have intersected sulphide mineralization over an interval of 1.5 metres however it is believed this intersection was at least 100 metres from the magnetic anomaly described above (Gruenwald 1982). Unfortunately drill records are not available. This zone is in an area that lies south of the projected strike of the known mineralized horizon followed by the adit. It is believed this work by Caltex was the last work completed on this claim group

Regional Geology

Mapping by the Geological Survey of Canada indicates that the LG-1 claim is underlain by rocks of the Archean (or later) Mount Ida Group. Units of the Mara Formation consisting of quartzites, argillites, limestones, and schists (sericite and chlorite) underly the immediate area of the claim . The main foliation within these metamorphosed units strike approximately east to west



INDEX MAP

LG-1 CLAIM

KAMLOOPS MINING DIVISION, B.C.

Technical Work By: D.L. & W.G.	Scale: 1:50,000
Drawn By. W.G.	Date: January, 1987.
N.T.S. Map No. 82 L/14E	Fig. No. 20-2

To accompany a report by D. Leishman, B.Sc. W Gruenwald, B.Sc.

with an indicated dip of 35to 45 degrees to the north. A major northerly striking fault is indicated by the G.S.C to pass through the claim group.

Property Geology

The description of the property geology is taken from Gruenwald (1982) and from observations made by the authors during visits to the property in 1986.

The LG-1 claim is underlain by units of the Mara Formation which consist mainly of quartzites, micaceous quartzite, micaceous schists, granite gneisses and pegmatites. Graphitic schists were also observed. Not noted in previous surveys was a dark green mafic volcanic? unit seem in the area of trenching south and east of the adit.

The mica schists, a more common rock type observed, are a pale beige white colour, fine to locally coarse grained and weakly to moderately fissile. Muscovite mica is dominant in these schists, however lenses rich in biotite and chorite have been observed. Intercalated with the mica schist are lenses of massive, generally fine grained, micaceous quartzites. Granitic and pegmatite dykes were observed, in places cutting the local planes of schistosity . These intrusives are generally narrow (less than 1 metre width) and considered more likely products derived from partial melting during the intense metamorphism of the schists . Granitic rocks appear to become more abundant near the western portion of the claim area.

Schistosity attitudes observed were variable, ranging in strike from 70 to 145 degrees azimuth, while dips range from 40 to 50 degrees to the north.

Mineralization observed in the dump immediately adjacent to the adit and in-situ in the road cut above the adit consist of massive to semi-massive sulphides made up of pyrite, sphalerite, galena and minor chalcopyrite. Pyrrhotite is also found. Mineralized horizons (up to 1 metre thick) observed in the road cut above the adit appear to be conformable to bedding. Character samples taken in this zone returned values up to 12% combined lead-zinc with up to 5 ounces of silver. Copper and gold values were low. Scattered fragments of sulphide mineralization were found

within the area of trenches however due to slumping and an inadequate grid system it was not possible to properly map mineralized horizons during the initial examination.

Geophysical Surveys

Introduction

A magnetometer and VLF-EM survey were carried out simultaneously over a small portion of the LG-1 claim (Fig. 20-3 and 20-4) The objective of this work was to re-establish a grid system in a more favourable orientation than previous operators and to accurately locate the adit and corresponding mineralized horizons relative to the geophysical response. Descriptions of the individual surveys follow:

VLF-EM Survey

Instrumentation and Survey Method

All lines were surveyed with a Sabre Electronics VLF-EM unit, model 27, with readings taken at 25 metre intervals along all cross lines. Since the direction of the grid lines was north-south, the Annapolis transmitting station was used as the source of the primary field. A total of 2.15 kilometres were surveyed.

The Sabre Electronics VLF-EM unit and method of reading is similar to other VLF-EM equipment. The method of reading is to locate the orientation of the transmitting station (in this case Annapolis) from the null of the field strength. From orientation at right angles to the transmitting station, the maximun field strength (100%) is adjusted by a gain control knob. Turning back and facing the transmitter station the unit is then held vertical. The coil now at right angles to the transmitting station is rotated to locate the field strength null position. The angle of rotation is then recorded either to the right (+) or left (-).

Lines were recorded in field notes as if all lines were surveyed in a south to north direction.

This was done to facilitate the use of the Fraser Filter Method in order to calculate and display anomalies. The following calculation illustrates the Fraser Filter Method:

South a b F c d North where a, b, c, d are station readings. F is the Filtered Value with $F = (a + b) - (c + d)$.

The Fraser Filter Method serves three useful purposes in the display and interpretation of results:

(1) Crossovers (normal anomaly interpretation) are displayed as high positive numbers, which may be contoured to correlate the varying strength of a conductor along its axis , and to enhance interpretation and display of the better conductors.

(2) Topography has a major effect in the reading of ground EM equipment. Steep hills will influence either the positive or negative orientation of the hill. Consequently ridges will be displayed as apparent crossovers. The Fraser Filter Method helps to smooth out some of the topographic effect, consequently apparent anomalies are not as enhanced as if they had been shown as profiles of the raw data.

(3) For the same topographic reasons, strong anomalies may in fact not produce an actual crossover in steep terrain. The Fraser Filter Method enhances these anomalies to their proper perspective.

Presentation of Results

All readings are plotted on a 1:2,000 scale base plan with the raw data to the left and the filtered data to the right (see Figure 20-4).

All data was contoured at $+5^{o}$ intervals to illustrate the interpreted anomalies. Results were classified as anomalous if over $+10^{o}$.

Discussion of Results

Three anomalies were detected with the VLF-EM survey. The most significant anomalous zone was detected near the adit and corresponds to the projected strike of the mineralized horizon as indicated by the adit and visible in surface trenches. Here Fraser Filtered values up to 60^{o} are found on Line 4+00W at approximately 2+37 N. The value immediately above the adit on Line 5W returned a Fraser Filtered value of 32^{o} . The strike direction of this anomaly is approximately 290 degrees (to the NW) and although it appears to fade out to the east the conductor is open to the northwest.

A second smaller anomaly located on lines 4+00W and 3+50W at 1+63N and 1+37N respectively has a maximun amplitude of +13 ^{o} (Fraser Filter Value). Its limited strike length and rather small amplitude relegate this anomaly to a secondary importance at this time.

A third anomalous zone is indicated on one line only (Line 5W) at 0+37N where a maximun value of +43^{o} is found. It is clear that the grid must be extended to the west to further delineate this anomaly.

Magnetometer Survey

Instrumentation and Survey Method

A Unimag Proton Magnetometer with a digital readout was used for this survey. A total of 2.75 line kilometres was surveyed along north south lines as indicated on Fig. 20-3. This magnetometer measures the total field magnetics in gammas. A base station was established however due to the lack of any major diurnal drift it was not necessary to make any "drift" corrections. Readings were taken every 25 metres with the operator facing in a north direction.

Presentation of Results

All survey values are plotted on a base plan of a scale of 1:2,000. All readings were plotted including intermediate stations (12 1/2 metre intervals) . The results were contoured at 500 gamma intervals as indicated on Fig. 20-3.

Discussion of Results

The magnetic gradient within the survey area is greater than 6,500 gammas and the contoured data (500 gamma contours) appears to be quite irregular. However there is a strong correlation between the magnetic and the E. M. survey data. This is illustrated in the area of the adit where a strong magnetic anomaly has a direct association with the E. M. anomaly centred on Line 4W and 3+50W. The magnetic anomaly (+59,800 gammas) with a corresponding low value of (+57,250 gammas) located to the south indicates a conductor dipping to the north.

The weak E.M. response as indicated in the previous section shows an associated magnetic response. Further information on the underlying geology is necessary to understand the importance of this association.

A significant change in the magnetic gradient occurs south of the baseline. Whereas north of the base line magnetic data is very irregular and bumpy south of the baseline the magnetic gradient is much more regular. This is probably a reflection of the underlying geology. However further work is necessary to confirm this.

Conclusions and Recommendations

The limited work completed by the owners on the LG-1 claim has clearly indicated that the known mineralized horizons have a good E. M. and Magnetic response. There appear to be numerous E. M. responses as indicated by the previous surveys by Glen White that are totally

untested. Mineralization as seen by the authors in-situ appears to be strata controlled. Also with the location of possible mafic volcanics in the trenches it appears that the geology has never been properly mapped. There appears to have been a lack of gold assay data in previous evaluations of this prospect.

The LG-1 mineral claim appears to have the potential for hosting stratabound massive sulphide mineralization of economic potential. Further work should be orientated towards the re-evaluation of this claim both geologically and geophysically . Included in this evaluation should be an attempt to obtain drill data from the work of Maverick Mountain Mines Ltd.

Following this data compilation further field work should be contemplated particularily the mapping of the new outcrops as uncovered by the recent logging and road building activities.

Douglas A. Leishman

Douglas A. Leishman, B.Sc.

GEOLOGICAL ASSOCIATION OF CANADA W. GRUENWALD FELLOW

Werner Gruenwald, B.Sc.

January 24, 1987
Kamloops, B. C.

References

Black, J. M., P.Eng.	Geological, Geochemical and Geophysical Report, Sicamous Resources Ltd., June 1973
Black, J. M., P.Eng.	Geochemical Report on the Bon Claim, Sicamous Resources Ltd., May 1976
Gruenwald, W., B.Sc.	Report on the Jeff & Big J3 Claims, Sicamous Area, for Caltex Hydrocarbons Inc., Sept. 1981
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Jones, A.G.	Memoir 296, Vernon Area, G.S.C., 1959
White, Glen E.	Geophysical Report on a Pulse E. M. Survey, Jeff & Big J Claims, Granges Exploration, Dec. 1977
Maverick Mountain Mines Ltd.	Report on Soil & Geochemical Surveys & Diamond Drilling Jeff & Big J Claims, 1978
B. C. M. M. A. R.	1964 page 105 1965 page 205 1966 page 146 1967 page 135
M.E.M.P.R.	Mineral Inventory, NTS 82L/NW, Occurrence #21,#23,#24,#25, Annis Property

Appendix I

List of Personnel

D. A. Leishman , B.Sc.	April 7, 1986 - January 15, 1987
W. Gruenwald, B.Sc.	April 7, 1986 - January 15, 1987
Paul Mullen, Senior Technician	January 14 - 15, 1987

Appendix II

Statement of Costs

Labour

D. A. Leishman, B.Sc. 4 days @ $250./day	$1000.00
W. Gruenwald, B.Sc. 3.5 days @ $250./day	875.00
Paul Mullen, Senior Technician 2 days @ $180./day	360.00
Total	**$2235.00**

Expenses and Disbursements

Assay Costs 6 rocks x $30.50 (5 elements)	$183.00
Truck Rental and Mileage (4 x 4) 2days x $40./day = $80.00	
330 kilometres x .25/km = $82.50	162.50
Equipment Rental: Unimag Magnetometer 2 days x $15./day	
Sabre VLF-EM 2 days x $15./day	60.00
Room and Board	155.40
Enlargements, Sepias, xeroxing, printing and binding	95.00
Total	**$655.90**

Total Costs **$2,890.90**

Appendix III

Certificates of Qualifications

DOUGLAS A. LEISHMAN, B.Sc., A.R.S.M.
Geologist

#74 -1750 Summit Drive, Kamloops, B. C.

Mailing Address: P. O. Box 1288 M.P.S. Kamloops, B.C. V2C 6H3
Telephone 604-374-4788

CERTIFICATE

I, DOUGLAS A. LEISHMAN, of Kamloops, British Columbia, Do Hereby Certify That:

(1) I am a self employed Consulting Geologist with an office at the above address.

(2) I am a graduate of the Northern Alberta Institute of Technology, Exploration Technology (Minerals Option), 1971, Edmonton, Alberta.

(3) I am a graduate of the Imperial College of Science and Technology, Royal School of Mines, London, England, B.Sc. (Hons.) Mining Geology, 1981. I have been actively involved in mineral exploration since 1971.

(4) I am the co-author of this report which is based on an examination of all available published and unpublished data. The field work described herein was carried out with Werner Gruenwald of Kamloops, B. C. and the assistance of one field technician.

Douglas A. Leishman

Douglas A. Leishman, B.Sc. (Hons.)

Geologist

Kamloops, B. C.
January 26, 1987

Certificate of Qualifications

I, **Werner Gruenwald** Of Kamloops, British Columbia Do Hereby Certify That:

1. I am a geologist employed by Geoquest Consulting Ltd., Suite #94 - 137 McGill Road, Kamloops, B. C.

2. I am a graduate of the University of British Columbia and hold a B.Sc. awarded by the department of geology in 1972. I have practised my profession continuously for the past 15 years.

3. I am a Fellow of the Geological Association of Canada.

4. I am the co-author of this report which is based upon an examination of all available published and unpublished data. The work described herein was carried out by myself and Douglas Leishman of Kamloops, B.C. with the assistance of one field technician.

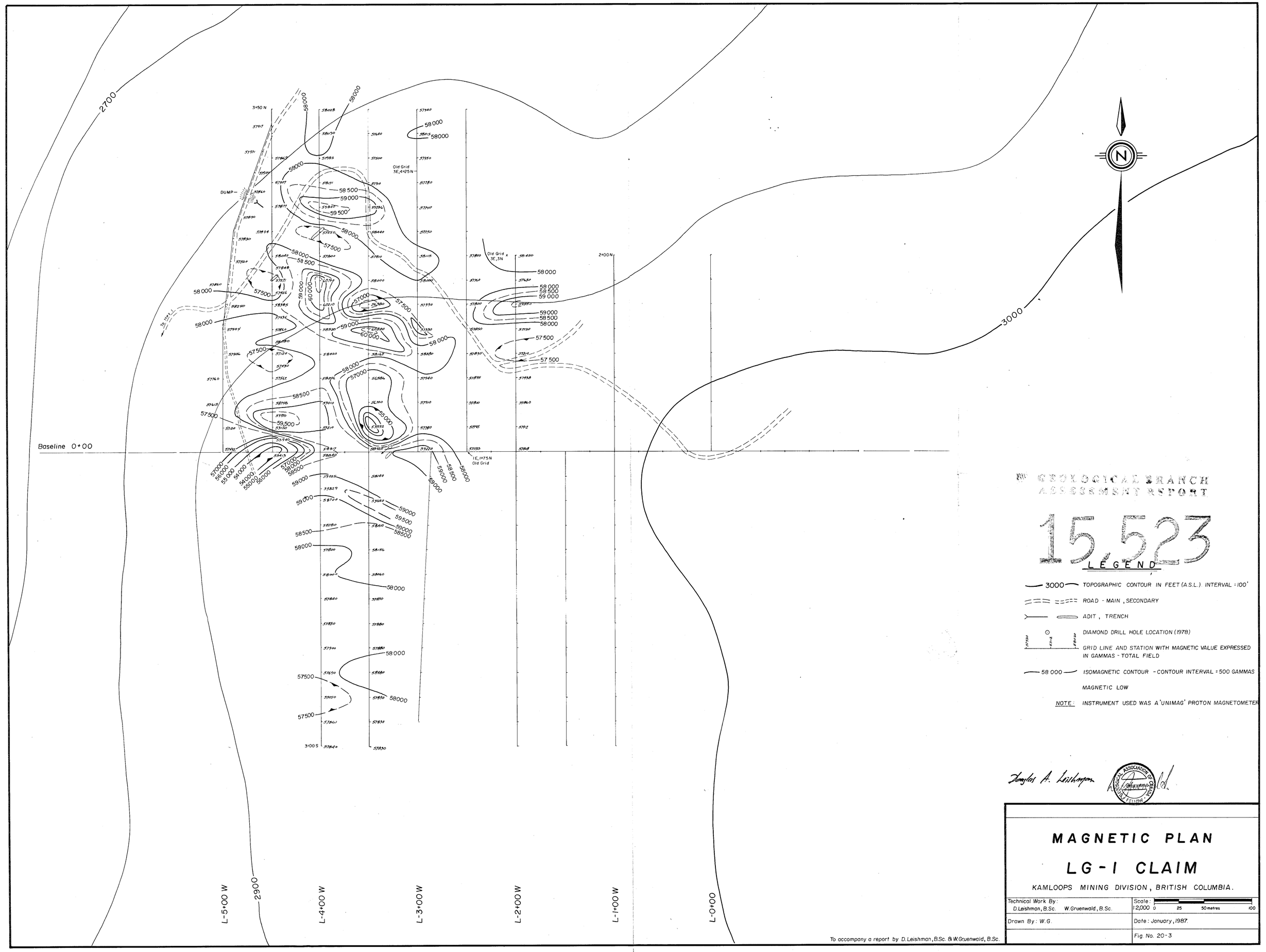
5. I am the co-owner of the LG-1 mineral claim.

Geoquest Consulting Ltd.

GEOLOGICAL ASSOCIATION OF CANADA W. GRUENWALD FELLOW

Werner Gruenwald, B.Sc.
Geologist

Kamloops, B. C.
January 26, 1987



LEGEND

- 3000 — TOPOGRAPHIC CONTOUR IN FEET (A.S.L.) INTERVAL = 100'
- ROAD - MAIN, SECONDARY
- ADIT, TRENCH
- DIAMOND DRILL HOLE LOCATION (1978)
- GRID LINE AND STATION WITH MAGNETIC VALUE EXPRESSED IN GAMMAS - TOTAL FIELD
- 58 000 — ISOMAGNETIC CONTOUR - CONTOUR INTERVAL = 500 GAMMAS
- MAGNETIC LOW

NOTE: INSTRUMENT USED WAS A 'UNIMAG' PROTON MAGNETOMETER

Douglas A. Leishman

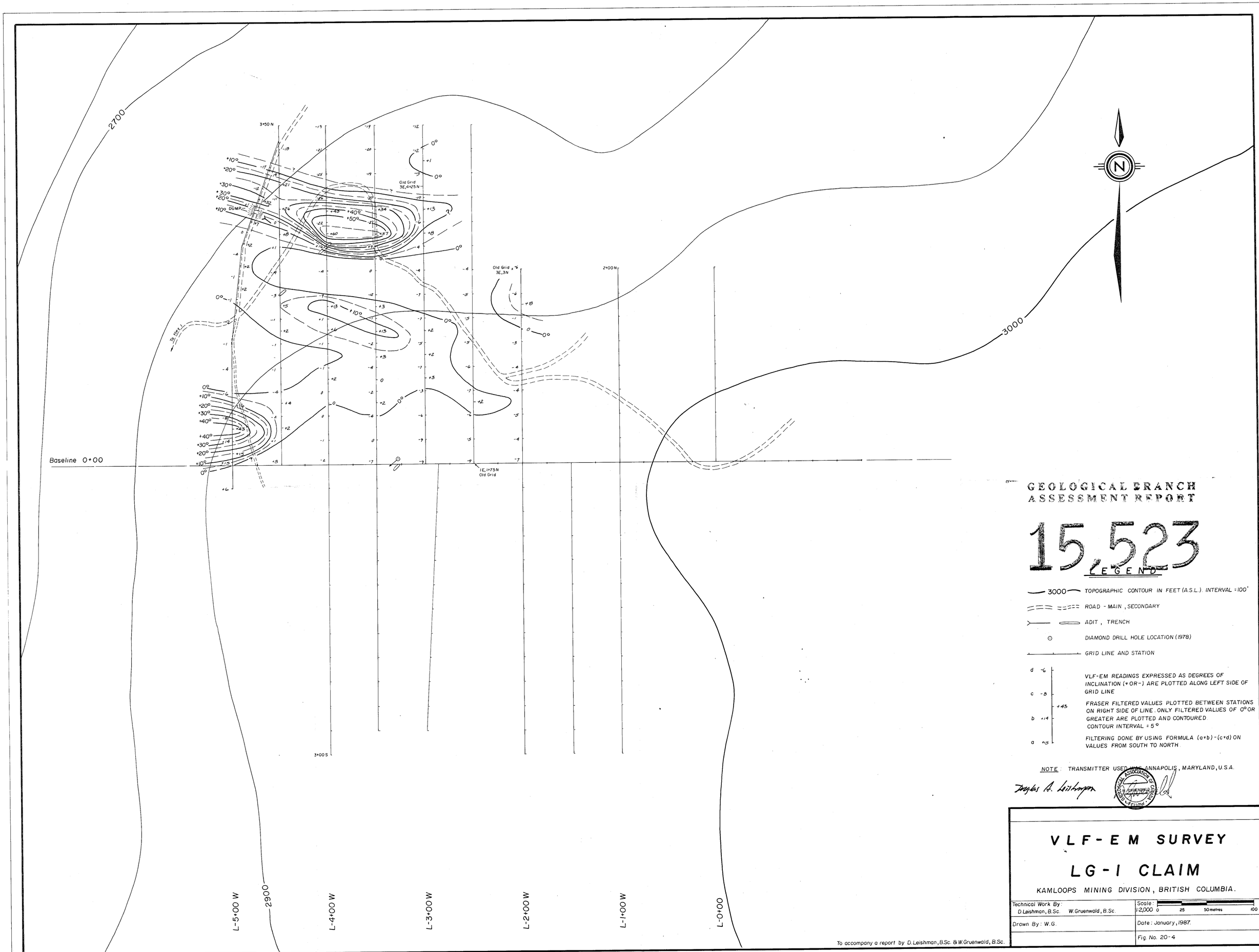
MAGNETIC PLAN

LG-1 CLAIM

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA.

Technical Work By: D.Leishman, B.Sc. W.Gruenwald, B.Sc.	Scale: 1:2,000 0 25 50 metres 100
Drawn By: W.G.	Date: January, 1987.
	Fig. No. 20-3

To accompany a report by D.Leishman, B.Sc. & W.Gruenwald, B.Sc.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

15,523

LEGEND

- 3000 — TOPOGRAPHIC CONTOUR IN FEET (A.S.L.). INTERVAL = 100'
- ROAD - MAIN, SECONDARY
- ADIT, TRENCH
- ⊙ DIAMOND DRILL HOLE LOCATION (1978)
- GRID LINE AND STATION
- d −6
- c −8
- +43
- b +14
- a +5

VLF-EM READINGS EXPRESSED AS DEGREES OF INCLINATION (+ OR −) ARE PLOTTED ALONG LEFT SIDE OF GRID LINE

FRASER FILTERED VALUES PLOTTED BETWEEN STATIONS ON RIGHT SIDE OF LINE. ONLY FILTERED VALUES OF 0° OR GREATER ARE PLOTTED AND CONTOURED. CONTOUR INTERVAL = 5°

FILTERING DONE BY USING FORMULA (a+b)−(c+d) ON VALUES FROM SOUTH TO NORTH

NOTE: TRANSMITTER USED WAS ANNAPOLIS, MARYLAND, U.S.A.

Douglas A. Leishman

VLF-EM SURVEY

LG-1 CLAIM

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA.

Technical Work By: D. Leishman, B.Sc. W. Gruenwald, B.Sc.	Scale: 1:2,000 0 25 50 metres 100
Drawn By: W.G.	Date: January, 1987.
	Fig. No. 20-4

To accompany a report by D. Leishman, B.Sc. & W. Gruenwald, B.Sc.