

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3005 MAP

82E/10w GROUND MAGNETOMETER SURVEY
LOTTIE "F" AND STAR GROUP
18 MILES N.E. OF BEAVERDELL,
49° 37' N., 118° 49' W., NTS 82E10
G. V. LLOYD, G. V. LLOYD EXPLORATION LTD.
MAY 25TH - JUNE 5TH, 1970

3005

GROUND MAGNETOMETER SURVEY
OF THE LOTTIE "F" AND STAR GROUP,
COPPERKETTLE CREEK, GREENWOOD MINING
DIVISION, BRITISH COLUMBIA

BY

G. V. Lloyd Exploration Ltd.
Calgary, Alberta

June, 1970

GROUND MAGNETOMETER SURVEY
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 COPPERKETTLE CREEK, GREENWOOD MINING
 DIVISION, BRITISH COLUMBIA

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GROUND MAGNETOMETER SURVEY
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DIVISION, BRITISH COLUMBIA

INTRODUCTION

Summary

This report presents the results of a ground magnetometer survey carried out on the Lottie "F" and Star Group of mineral claims, and includes our interpretation of the data. The survey was made to determine the locations and extent of any magnetic anomalies on the property. The association of copper and molybdenum-bearing minerals with chalcopyrite in the known mineral deposits in the claims made this type of survey advisable.

Properties and Their Location

The Lottie "F" and Star Group consists of eleven full mineral claims and two patented claims (L.2949 and L.19015) at the time of this survey. They collectively form a contiguous block. No examination of the ownership of the subject properties or of the claim boundaries was undertaken by us, and those relating facts given us were accepted without further examination.

These groups are situated near the junction of Sandrift and Copperkettle Creeks, or about four miles upstream on the Copperkettle from where it joins with the Kettle River. This places it in the Beaverdell Range, about 60 miles north of Greenwood, B. C.

Accessibility

The subject groups are easily accessible from Rock Creek, B. C., via the Monashsee Highway and thence by either various forestry or mining roads. Rock Creek lies on the southern Trans-Canada Highway (No. 3) about 33 miles east of Osoyoos, B. C. The area can also be reached from Kelowna, along Highway No. 33 to Beaverdell, thence along the State Creek forestry road to Christian Valley. An alternate route is from Vernon, along Highway No. 6 to the Monashsee Highway and thence southward to near Christian Valley.

History

The geology of the area was mapped on a scale of four miles to one inch

in 1953-1956 by H. W. Little of the Geological Survey of Canada, and is shown on the east half of the Kettle River Sheet (Map 6-1957).

A fairly comprehensive account of the geology of the Lottie "F" Group was prepared by Reincke (1917).

The area was prospected for gold, silver, and copper during the early 1900's. It was during this time that numerous pits, small shafts, several adits, and so on, were constructed in the properties.

In addition, a small amount of diamond drilling was done during 1959.

OPERATIONAL DATA

Instrument Used

The survey was carried out with a Sharpe MF-2 Fluxgate Magnetometer which had the serial number 002129. The sensitivity at 10,000 gammas f.s.c. is 200 gammas per scale division. The temperature coefficient is less than one gamma per degree centigrade, or 1/2 gamma per degree fahrenheit. This instrument is extremely sensitive to variations of the intensity of the magnetic field, and the results are read directly.

Operator

All measurements with the instrument were made by the operator. The geophysical field crew consisted of two men: J. Young and R. Young. The survey grid was laid out by D. Beaumont and D. Kraynick. In addition, T. O'Neill and D. Huntsman prospected the claims. Two men were also employed to clear out the road to the property. A base camp was constructed on Copper-kettle Creek not far from the subject claims.

Period of Survey

The survey was commenced on May 25 and completed on June 5, 1970, a period of 15 days. This includes the time spent in establishing the grid control.

Survey Control

The survey was conducted along picket lines spaced 400 feet apart, and having a bearing of east. A baseline was established through the centre of the claims by means of pickets, in order to establish and control the cross-lines. The picket lines were chained and a station was established every

50 feet. A total of 49,500 feet of crosslines, plus 5,200 feet of baseline was marked through the bush or established by pickets.

Frequency of Measurements

Measurements of the intensity of the magnetic field, relative to a base station, with an arbitrary intensity of 10,000 gammas, were made every 50 feet along the crosslines. At least one station was rechecked every hour in order to determine the magnetic drift. Diurnal variations were obtained by taking measurements of the base station several times daily.

GEOLOGY

Regional Geology

Maps prepared by the Geological Survey of Canada (Map 6-1957) show the survey area to be in the contact zone between three rock types. To the east lie mainly east dipping volcanics of the Paleocene Phoenix Volcanic Group. To the west are granites of the Cretaceous Valhalla intrusions. Between these two units, and exposed as a "window", are granodiorites and related rocks of the Cretaceous Nelson intrusions.

The Highland-Bell silver-lead mine, at Beavertell, is about seventeen miles to the Southwest of the surveyed area. The Phoenix copper mine is about forty miles to the south. Other properties on which exploration has been done recently are present throughout the general area.

Local Geology

The local geology is fairly complex. The area is one of contact metamorphism. Limestone and quartzite have been intruded by granitic rocks. These sediments are probably correlative with the Permian Anarchist Group.

The principal mineralization is copper, with lesser amounts of molybdenite and silver. It is massive locally and disseminated at other places. The chief ore mineral reportedly is hornite, but chalcopyrite, malachite and azurite are also seen.

The general geology is summarized in the following table:

(See next page.)

TABLE OF FORMATIONS

Cenozoic	Paleocene or Eocene	Phoenix Volcanic Group	Andesite, trachyte, basalt interbedded tuff, shale, siltstone
Mesozoic	Cretaceous	Valhalla Intrusions Nelson Intrusions	Granite, porphyritic granite Granodiorite, porphyritic granite, diorite, quartz monzonite, monzonite
Paleozoic	Permian	Anarchist Group	Limestone, graywacke, quartzite

GEOPHYSICS

Magnetometer Survey

The isogamma contours indicate that the general trend of the magnetic intensities is northeasterly.

Two zones are of interest in the central part, and two others in the flanks of the grid. One anomaly in the central part consists of a sinuous northeasterly trending magnetic "low", that is flanked on the west by a sub-parallel "high". "High" readings were obtained on each side of the grid, with the highest found on the east side (see Map No. 2). The position of these anomalies, relative to the grid, is shown on Map No. 2.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The Fluxgate Magnetometer survey results show a northeasterly trending magnetic "low" in vicinity of outcrops of copper and molybdenite mineralization in the central part of the survey grid.

A magnetic "high" is present a short distance to the west. Two other "highs" are present; one on the eastern side, and another on the western side.

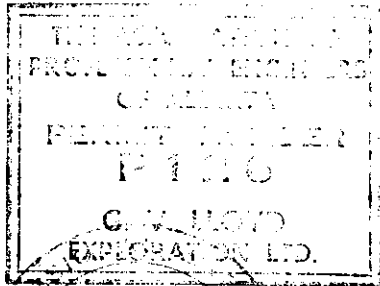
The persistent trend, and number of anomalies, in addition to their size, suggest that they may be important.

Recommendations

All of the magnetic anomalies should be checked with an electromagnetic unit. If any conductors are found that are more extensive than their magnetic

equivalent, they should be rechecked with the magnetometer.

The magnetic "low" anomaly should be prospected along its length for further indications of molybdenite, copper and silver.



G. V. LLOYD EXPLORATION LTD.

G. V. Lloyd, P. Geol.

Calgary, Alberta
August 19, 1970

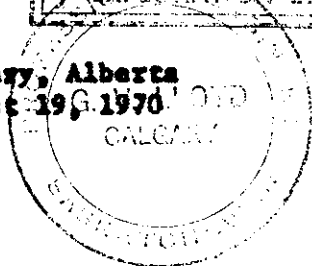


FIGURE 71



SELECTED BIBLIOGRAPHY

Little, H. W. (1957)

**Kettle River (East Half), Map
6-1957, Geological Survey, Canada**

Reinecke, L. (1915)

**Ore Deposits of the Beaverdell
Map Area, Memoir 79, Geological
Survey, Canada**

STATEMENT OF QUALIFICATIONS

of

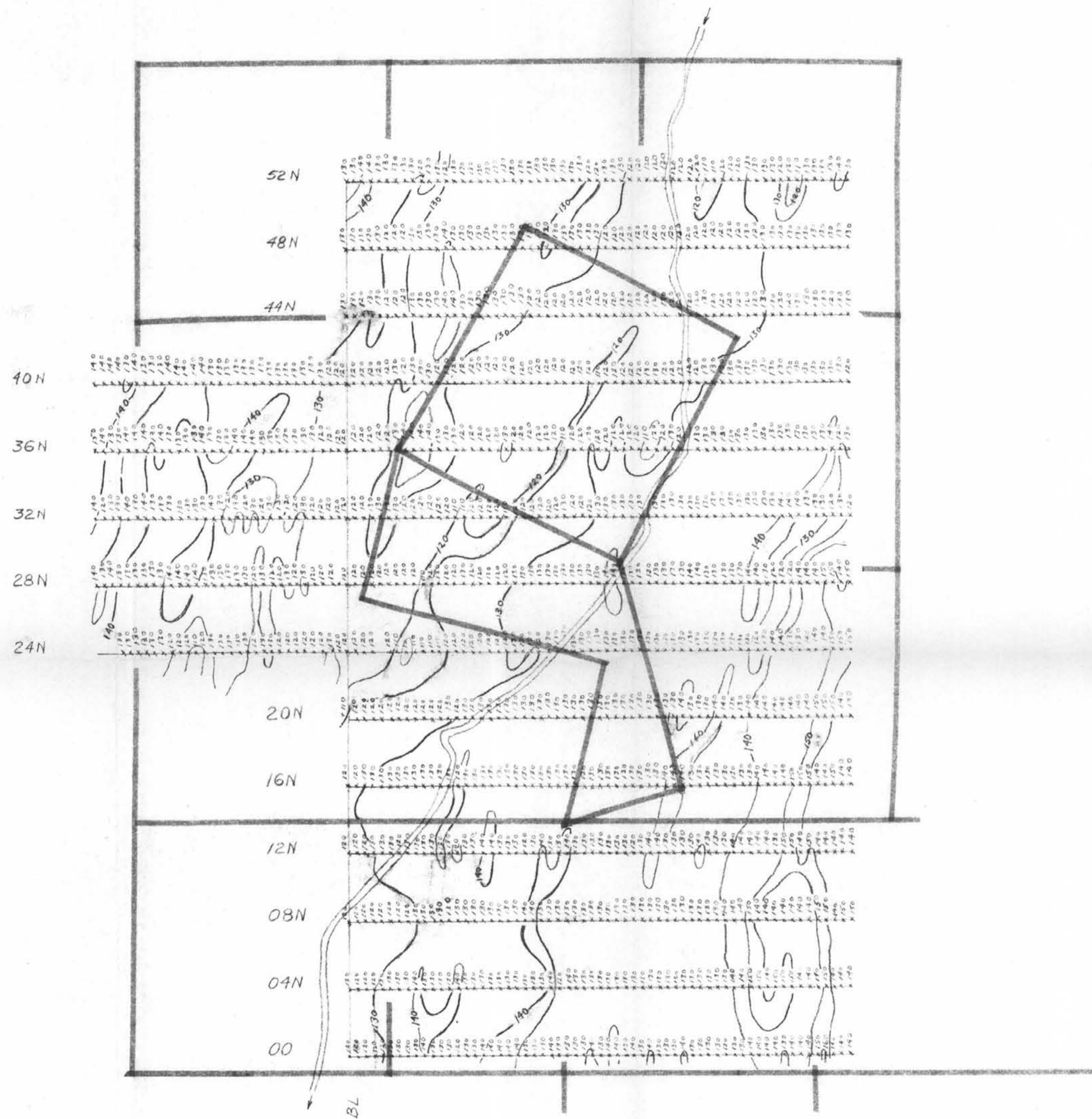
G. V. Lloyd, P. Geol., P. Eng.

- 1) I, Griffin V. Lloyd, hereby certify that I carry out a geological consulting practice, with offices at 703 Fifth Street, S. W., Calgary 2, Alberta.
- 2) I am a graduate in Honours Geology from the University of British Columbia (1951) and have also studied postgraduate geology at the same University (1953).
- 3) I have been employed as a geologist since that time and have held responsible positions, including that of Exploration Manager of a medium-sized Canadian resource company.
- 4) I am a registered Professional Geologist in the Province of Alberta, and am a member of the Alberta Society of Petroleum Geologists and the Society of Economic Paleontologists and Mineralogists. G. V. Lloyd Exploration Ltd., is licensed to practice as Professional Engineers in the Province of Alberta. I am also licensed as a Professional Engineer in the Province of Saskatchewan.
- 5) I have a financial interest in the properties described.



G. V. Lloyd, P. Geol.

Calgary, Alberta
August 19, 1970



3005
M-2

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **3005** MAP **#2**

THE ASSOCIATION OF
PROFESSIONAL ENGINEERS
OF ALBERTA
PERMIT NUMBER
P126
G. V. LLOYD
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MAP NO. 2
MAGNETIC INTENSITY MAP
LOTTIE "F" AND STAR GROUP MINERAL CLAIMS
COPPERKETTLE CREEK
GREENWOOD MINING DIVISION, B. C.

1,000 500 0 Feet 1,000

Values by R.Y., J.Y. Interval 1,000 gammas
Interpretation by G.V.L. Datum 10,000 gammas
Drawn by _____ Date June, 1970

G. V. LLOYD EXPLORATION LTD.