## GEOPHYSICAL REPORT

"SUMMIT" GROUP

Trophy Mountain Area, British Columbia
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JANUARY - OCTOBER 1967
by
A. Allan, P. Eng.

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## SUMMARY

During the months January to October 1967 an electromagnetic and an Askania magnetometer survey was carried out on a portion of a claim group which includes claim nos. 1-26 inclusive, record nos. 61558-61567 inclusive, 61628-61643 inclusive, in the Summit Lake area, Kamloops Mining Division.

The area in general (see Map 48-1963, "Geology Adams Lake, Seymour Arm, West Half") has been mapped as metamorphosed sedimentary rocks, ranging from quartz mica schists to biotite and granite gneiss.

Part of the surveyed area includes the old "Ady" claim and the west zone originally held by Ormsby Mines, and described in "Report of Minister of Mines - 1956', page 69.

The mineralization is described as a replacement by pyrrhotite, sphalerite, pyrite, galena and chalcopyrite along bedding planes and is conformable with the bedding. The surveys as indicated were initiated to trace the mineralization along strike as to size and continuity between the "Ady" and the west zones. The original survey (January - February 1967) included the area from $5+00$ East to $18+00$ West. The results of this work established a strong magnetic pattern along strike with supporting E. M. conductivity. Additional geophysical work was laid out to investigate the claims along strike to the west; this includes the area from $18+00$ West to $48+00$ West, "Map \#2 - October 1967 - J. E. M. "

Adverse weather conditions precluded any mapping of the area and 'tie-ins' for the survey re claim positions are approximate.

## LOCATION AND ACCESS

The claim block is approximately $1.1 / 2$ miles north-east of Summit Lake on the south side of Trophy Mountain about 18 miles :- - north-fosest of Clearwater Station, lying between the Clearwater and Raft Rivers.

The area was reached from Kamloops by helicopter to the claim site.

## LINE: CUTTING

A south-west trending base line was established some 30 feet north of the claim line separating claims \#1 and \#2, record \#61558 and \#61559 respectively. This line was cut 500 feet east and 4, 800 feet west.

Reconnaisance lines were turned off at $90^{\circ}$ to the base line at 200 foot intervals and picketed every 100 feet north and south. Total mileage including the base line was 9.82 miles.

TYPE OF SURVEYS EMPLOYED
(1) J. E. M. electromagnetic survey. Separation - 200 feet.
(2) Askania magnetometer survey. Station intervals - 50 feet.

## METHOD AND INTERPRETATION OF ELECTROMAGNETIC RESULTS

The survey was carried out with a J. E. M. unit, manufactured by Crone Geophysics of Toronto, Canada. This is a battery-powered unit employing 2 coils and operating at frequencies of $1800 \mathrm{C} . \mathrm{P} . \mathrm{S}$. and 480 C. P.S. This method is independent of receiver to transmitter alignment, distance of separation or elevation differences even on extremely rough terrain.

Electromagnetic readings were taken every 100 feet along precut lines spaced 200 feet apart. In areas of recorded conductivity, readings were taken every 50 feet.

A 200 foot coil separation was used throughout the survey. H. F. readings were plotted on the right of the line. L. F. readings were plotted to the left of the line. Conductivity is measured from the ratio of maximum resultant angles of the high and low frequency employed. The shape and position of the conductor can be determined from a profile of the J.E. M. results.

Interpretation of the results are as follows:

1. Positive resultant dip angles are obtained only when the 2 operators straddle a vertical or near-vertical conductor.
2. Negative resultant dip angles are obtained under two conditions:
(a) When the 2 operators are over a flat conductor.
(b) When both men are on one side of a vertical or near-vertical conductor.

A conductor with a dip of $45^{\circ}$ has a considerable vertical component and thus acts both as a vertical and a flat conductor. Hence, the use of the term, "near-vertical conductor" to cover such cases.

When positive angles are present then the top of the conductor is centered within the positive angles.
(a) The top of the conductor lies within 75 feet of surface. Dip of the conductor is determined by the relative size of the negative angles.

The conductor dips underneath the larger of the negative angles. When negative angles only are present the shape of the profile is very important. With deep conductors the conductor is accurately outlined by simply contouring the readings. When double negative humps occur with peaks $200^{\prime}-300^{\prime}$ apart, the cause is due to a conductor located midway between the two peaks. The top of the conductor in this case lies between $50^{\prime}-100^{\prime}$ from the surface.

## METHOD AND INTERPRETATION OF MAGNETOMETER RESULTS

The magnetic survey was carried out with an Askania torsion magnetometer. It is a weatherproof, temperature compensated to 1 gamma per ${ }^{\circ} \mathrm{C}$ over a $-40^{\circ}$ to $+40^{\circ}$ spread magnetometer. Gamma range is from 0 to 100,000 and accuracy is $1 \%$ or better.

Magnetic readings were taken every 50 feet along lines spaced 200 feet apart. In areas of increased gamma range, readings were taken at 25 foot intervals. Base line stations were recorded and used throughout the survey for diurnal correction. The magnetics are expressed by the magnetic contours on the accompanying maps.

## CONCLUSIONS

The magnetic survey has outlined three zones - A, B and C which have been marked on the accompanying map.

Zone "A" extends from $4+00$ west to $4+00$ east. This zone forms a north-east south-west pattern with a maximum width of 75 feet that plunges to the south. Intensity ranges up to 8000 gammas some 5500 gammas above background.

Zone "B" extends from $5+00$ west to $10+00$ west and appears to be a continuation of zone "A", but displaced 100 feet to the south by a north south fault. Intensity is in the same range as anomaly "A".

Zone " $\mathrm{C}^{\prime \prime}$ is shown as a parallel zone some $8+00$ feet to the north. Intensity here is slightly lower than in zones "A" and "B".

The J.E.M. survey conducted on the same grid pattern shows direct correlation with the magnetics outlined.

The best E. M. anomaly appears on line $2+00$ west to $4+00$ east. The conductor is displaced some 50 feet to the south between lines 2 east and $4+00$ east. This conductive zone represents massive sulphides coming to surface with a dip of approximately $45^{\circ}$ to the north. Weak conductivity is associated with anomaly "B" of the magnetics.

Negative resultant angles on anomaly "C" of the magnetics represent a conductor at depth, probably 100'-150'. The J. E. M. survey on the Map \#2 covering the area from $10+00$ west to $48+00$ west reflect only minor conductivity to depths of 75 feet.

The magnetic pattern outlined may in part represent granitic dykes, sills or coarse pegmatites that are known to intrude the sedimentary beds; however the higher intensities probably represent a replacement of pyrrhotite, pyrite and associated minerals along bedding planes of the sedimentary beds.

This assumption is from the direct correlation with the J. E. M. survey, especially on anomaly "A" where the conductivity measurements indicate massive sulphides coming to surface.

## RECOMMENDATIONS

The results of the surveys conducted on the grid systems warrant further investigation, namely:-
(1) Detailed geological mapping on all lines.
(2) Detailed coverage of zones " B " and " C " on grid map \#1 and also on grid map \#2, by use of a 300 foot separation between coils, thereby increasing the depth of penetration.
(3) Extension of the surveyed area to the east to investigate anomaly "A" along strike.
(4) Magnetic coverage on lines $20+00$ west to $48+00$ west.
(5) Upon completion of the above work, drill holes could be located with some accuracy to evaluate the geophysical targets outlined.

Respectfully submitted

A. Allan, P. Eng.

Chief Geologist
Scurry-Rainbow Oil Limited

## APPENDIX

The maps and field procedures have been examined and approved by A. Allan, P. Eng., under whose signature this report is submitted.

The following personnel were also employed on the surveys:
D.R.S. Doal Supervisor
L. Kearney Operator (Magnetics)
L. Loranger Operator (Electromagnetics)
I. Loranger Operator

The above mentioned personnel are all of Scurry-Rainbow Oil Limited, Calgary, Alberta.

## ENCLOSURES



Map No. 1 J. E.M. Resultant Dip Map (In duplicate) Scale: $1^{\prime \prime}=100^{\prime}$

Map No. 2 J.E.M. Resultant Dip Map (In duplicate) Scale: $1^{\prime \prime}=100^{\prime}$

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# VERIFICATION EXPENSES 

## "SUMMIT" GROUP

## Trophy Mountain Area, British Columbia

To accompany submission and Geophysical Report for work carried out in January-October, 1967.

OKANAGAN HELICOPTERS LTD. VANCOUVER AIRPORT, B.C. TELEPHONE: 278.5502

TO

「Scurry Rainbow 0il Ltd., 539 - 8th Avenue S. W., Calgary, Alberta.

| Date October 24, 1967 | Invoice No. | 10/204 | AR 55 |
| :--- | :--- | :--- | :--- | :--- | :--- |

## p.O. No.

## Authority

To charter of Bell G3B-1 helicopter CF-OKAand CF-OKT
Flying October $5 \& 11$, 1967, as per attached reports
4 hours 55 minutes @ $\$ 140.00$ per hour ..... $\$ 688.34$ 4
Less adjustment as per tariff rule 53 (d) .34 ..... $\$ 688.00$
To crew expenses incurred as per attached copy
Siver L. - pilot - \#10036

OKANAGAN HELICOPTERS LTD. VANCOUVER AIRPORT. B. C.
TELEPHONE: 278.5502
TO
$\Gamma$ Scurry Rainbow oil
, St - 8 th Avenue S. W., Calpary,Alberta.
$\qquad$
Date January 31, 1.967 Invoice No. $1 / 133$ AR - 55

To charter of Bell G3B helicopter CF-OKV
Flying January 22, 1967, as per attached report

3 hours 10 minutes (3) $\$ 140.00$ per hour
Less adjustment as per tariff rule 53 (d)

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OKANAGAN HELICOPTERSLTD. VANCOUVER AIRPORT. B.C.
TELEPHONE, 278.5502
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    (3) - 8th Avenue S. W.,
    Galmary, Alberta.
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Date Februnry 10, $1967 \quad$ Invoice No. $2 / 18 \quad$ AR - 55
P.O. No.

Authority

## Th eharter of Bell G3B-1 helicopter CF-PCP

Filyins, February 1, 1967, as per attached report

2 hours 35 minutes @ $\$ 140.00$ per hour $\$ 361.66$
Plus adjustment as per tariff rule $53(\mathrm{~d}) \quad$. 362.00

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