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REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
PINNACLE CLAIM GROUP
KAMLOOPS AREA

By: P.G. Hallof &
R.A. Bell, Dec. 1966

REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
ON THE
PINNACLE CLAIM GROUP
KAMLOOPS AREA, BRITISH COLUMBIA
FOR
FIDELITY MINING INVESTMENTS LTD.

BY

PHILIP G. HALLOF, Ph. D.

AND

ROBERT A. BELL

NAME AND LOCATION OF PROPERTY

PINNACLE CLAIM GROUP, KAMLOOPS AREA
KAMLOOPS MINING DIVISION, B. C. 120°W - 50°N

DATE STARTED - October 30, 1966

DATE COMPLETED - December 3, 1966

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Plan Map (in pocket)	Dwg. Misc. 3232	
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McPHAR GEOPHYSICS LIMITED

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ON THE
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1. INTRODUCTION

At the request of Mr. L.G. Phelan, Geologic Consultant for the Company, a brief induced polarization and resistivity survey has been carried out on the Pinnacles Claim Group. The property is in the Kamloops Mining Division, just south of Kamloops; it is located in the northeast quadrant of the one degree quadrilateral whose southeast corner is at $120^{\circ}\text{W} - 50^{\circ}\text{N}$.

Previous drilling and underground work on the Claim Group has shown disseminated copper mineralization at the Joker Adit, near 0+00 on the baseline. If enough tonnage of this low grade copper mineralization could be located, an open-pit mining operation might be possible. The induced polarization and resistivity survey at the Pinnacle Claim Group was planned in an attempt to locate and outline any unknown zones of disseminated metallic mineralization that might be present.

2. PRESENTATION OF RESULTS

The induced polarization and resistivity results are shown on the following enclosed data plots. The results are plotted in the manner described in the notes preceding this report.

<u>Line No.</u>	<u>Electrode Interval</u>	<u>Frequencies</u>	<u>Dwg. No.</u>
20N	200'	0.2 - 5.0 cps	IP 2626-1
12N	200'	0.3 - 5.0 cps	IP 2626-2
	200'	d. c. - 5.0 cps	IP 2626-3
east portion	100'	0.3 - 5.0 cps	IP 2626-4
west portion	100'	0.3 - 5.0 cps	IP 2626-5
8N	200'	0.3 - 5.0 cps	IP 2626-6
(electrode interchanged)	200'	0.3 - 5.0 cps	IP 2626-7
0+00	200'	0.3 - 5.0 cps	IP 2626-8
(Repeat)	200'	0.3 - 5.0 cps	IP 2626-9
(electrode interchanged)	200'	0.3 - 5.0 cps	IP 2626-10
	200'	d. c. - 5.0 cps	IP 2626-11
4S	200'	0.3 - 5.0 cps	IP 2626-12
12S	200'	0.3 - 5.0 cps	IP 2626-13
16S	200'	0.3 - 5.0 cps	IP 2626-14

Also enclosed with this report is Dwg. Misc. 3232, a plan map of the grid surveyed at a scale of 1" = 400'. The definite and possible induced polarization anomalies are indicated by solid and broken bars respectively on this plan map as well as the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location

of the transmitter and receiver electrodes when the anomalous values were measured.

Since the induced polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the spread length; i. e. when using 200' spreads the position of a narrow sulphide body can only be determined to lie between two stations 200' apart. In order to locate sources at some depth, larger spreads must be used, with a corresponding increase in the uncertainties of location. Therefore, while the center of the indicated anomaly probably corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

3. DISCUSSION OF RESULTS

The known mineralization on the Pinnacles Claim Group is very disseminated. The copper is contained in altered, fractured diorite; at the surface, only carbonates and other products of weathering are present. Some magnetite has been identified in the rocks in the area; since magnetite is metallic, anomalous IP effects can be expected if concentrations are present.

The IP effects measured on Line 0+00, just east of the baseline, are very weak; however, they are about equal to what could be expected from the weak mineralization known. There are other broad areas of equal magnitude IP anomalies on the Pinnacles Claim Group.

The large magnitude IP anomalies measured west of the base line on Line 20N, Line 12N and Line 8N have been found to be due to a buried pipe. These effects will have masked the effects from any mineralization in this area.

East of the base line, there is a power line along the highway; some noise interference was encountered in this area. The frequency effects measured could be expected to be somewhat inaccurate due to this noise. However, in several places the presence of weakly anomalous IP effects was confirmed by interchanging the current and potential electrodes.

In the vicinity of the known mineralization, the apparent resistivities are moderately high; the anomalous frequency effects are large enough to be definite. To the east, the resistivity level is lower. In this area, the frequency effects are very low in magnitude; it is difficult to consider them definitely anomalous. Some of these weak anomalies have been checked using d. c. - 5.0 cps; the anomalous effects increase as expected.

4. CONCLUSIONS AND RECOMMENDATIONS

The anomalies shown on Dwg. Misc. 3232 show the widespread presence of very disseminated metallic mineralization. Since the recent drill holes just east of the base line on Line 0+00 have intersected native copper and chalcocite, it is possible that very small concentrations of mineralization could be of economic interest. Some of the weakly anomalous areas will have to be tested.

The IP anomalies in the low resistivity area east of the base line have also been tested by a recent drill hole. The hole intersected

basic and ultra-basic rocks; there are appreciable concentrations of metallic magnetite in these rocks. It is therefore probable that some of the IP effects on the Pinnacles Claim Group are due to concentration of magnetite.

The weak IP anomalies should be correlated with the available geological and/or geochemical data to determine their importance. Further drilling can then be planned.

McPHAR GEOPHYSICS LIMITED



Philip G. Hallof,
Geophysicist.



Robert A. Bell,
Geologist.

Dated: January 18, 1967

ASSESSMENT DETAILS

SPONSOR: Fidelity Mining

MINING DIVISION: Kamloops

LOCATION: Pinnacle Claim Group

PROVINCE: British Columbia

TYPE OF SURVEY: I. P.

OPERATING MAN DAYS: 22 3/4

DATE STARTED: Oct. 30

EQUIVALENT 8HR. MAN DAYS 169

DATE FINISHED: Dec. 3

CONSULTING MAN DAYS: 2

NUMBER OF STATIONS: 402

DRAUGHTING MAN DAYS: 5

NUMBER OF READINGS: 2070

TOTAL MAN DAYS: 176

MILES OF LINE SURVEYED: 13

FIELD TECHNICIANS:

J. Parker, Box 340, Choiceland, Saskatchewan.

R. Quesnel, 36 Penhurst Ave., Etobicoke, Ontario.

Helper - Lee Ferguson, Barry Slater, John Bentley.

DRAUGHTSMAN:

Paul Coulson, 6 Paradise Ave., Markham, Ontario.

S. Woods, Apt. 401, 1222 York Mills Road, Don Mills, Ontario.

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Geophysicist.

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STATEMENT OF COSTS

Fidelity Mining Inc. - B. C.

Crew

20 days Operating	@ \$215.00/day	\$4,300.00
2 3/4 days Operating	@ \$205.00/day	563.75
5 days Bad Weather)		
1/2 days Standby) 5 1/2 days	@ \$ 75.00/day	<u>412.50</u>
		5,276.25

Expenses

Transportation - Air	109.00	
Rented Vehicles	922.02	
Taxis	4.50	
Freight and Brokerage	21.99	
Meals and Accommodation	911.87	
Telephone & Telegraph	90.81	
Supplies	<u>125.91</u>	2,186.10

Extra Labour 1218.75 + 20% 1,462.50

\$8,924.85

McPHAR GEOPHYSICS LIMITED

Philip G. Hallof

Philip G. Hallof,
Geophysicist.

Dated: January 18, 1967

CERTIFICATE

I, Philip George Hallof, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geophysicist residing at 5 Minorca Place, Don Mills, (Toronto), Ontario.

2. I am a graduate of the Massachusetts Institute of Technology with a B. S. Degree (1952) in Geology and Geophysics, and a Ph. D. Degree (1957) in Geophysics.

3. I am a member of the Society of Exploration Geophysicists and the European Association of the Exploration Geophysicists.

4. I have been practising my profession for twelve years.

5. I have no direct or indirect interest, nor do I expect to receive any interest, direct or indirect, in the property or securities of Fidelity Mining Investments Ltd.

6. The statements made in this report are based on a study of published literature and unpublished private reports and geophysical data.

Dated at Toronto

This 18th day of January 1967


Philip G. Hallof, Ph. D.

CERTIFICATE

I, Robert Alan Bell, of the City of Toronto, Province of Ontario, do hereby certify that:

1. I am a geologist residing at 50 Hemford Crescent, Don Mills, (Toronto) Ontario.

2. I am a graduate of the University of Toronto in Physics and Geology with the degree of Bachelor of Arts (1949); and a graduate of the University of Wisconsin in Economic Geology with the degree of Ph. D. (1953).

3. I am a member of the Society of Economic Geologists and a fellow of the Geological Association of Canada.

4. I have been practising my profession for over sixteen years.

5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Fidelity Mining Investments Ltd.

6. The statements made in this report are based on a study of published geological literature and unpublished private reports.

Dated at Toronto

This 18th day of January 1967


Robert A. Bell, Ph. D.