COMINCO LTD.

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EXPLORATION

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WESTERN DISTRICT

NTS 93N-2W 124°55'W 55°07'N

INDUCED POLARIZATION, RESISTIVITY

AND MAGNETIC SURVEYS

JEAN PROPERTY

OMINECA M.D., B.C.

Work performed during June 27-July 14, 1975

on Claims

JW 117-128 134-136 202-204 212-222

AUGUST 7, 1975	Department of JAN	LEIN,	P.ENG.
	Mines and Petroleum Resources ASSESSMENT REPORT		
	NO. 5590 MAP		

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SUMMARY

A geophysical survey consisting of induced polarization, resistivity, and magnetic measurements were executed over the SW part of the Jean Property Omineca Mountains.

Eleven lines, 800 feet apart were surveyed for a total of approximately 11 miles.

The resistivity results show values ranging from less than 100 up to 250 $chmfeet/2\pi$. These values are considered normal for the Takla andesites underlying the grid area.

The IP results reveal unmineralized areas with less than 1.5 PFE, and areas with higher than 2.5 PFE. The latter might contain sulphides, graphite, magnetite, etc., in small quantities.

The magnetic results show a low relief with some areas of high magnetite content; one of these areas might be a dike-like source.

General recommendations have been made.

INTRODUCTION

The Jean Property, a porphyry-copper molybdenum prospect, is located about 8 miles south of the eastern part of Tchentlo Lake, about 55 miles northwest of Fort St. James, B.C. Access to the property is by aircraft, either by fixed wing to Tchentlo Lake and rotary wing from there, or by rotary wing from Fort St. James (See Plate 88-75-L1). The western part of the property lies within 20 miles of the B.C. Rail main line to Takla Lake. The property is owned by the N.B.C. Syndicate which consists of Messrs. Bacon and Crowhurst, representing a group of prospectors - Conwest Exploration, The Granby Mining Co. Ltd., Duval International Corporation, Standard Oil of California, and Cominco Ltd.

The Jean Property occupies a broad east-west trending valley located about 2 miles south of Mount Alexander (Elv. 5,466 feet). The gently sloping hillsides have good stands of mature spruce and pine. Some areas are however swampy. The elevation of the grid area is approximately 3,500 feet.

A geophysical survey consisting of frequency domain Induced Polarization (IP), resistivity and magnetic measurements was executed over a block of claims in the SW part of the property. Previously similar surveys, geological mapping, geochemical sampling and drilling were executed over other parts of the property. The present survey is a continuation of the previous geophysical coverage.

The survey covered the following claims in whole or in part: JW 117-128 incl., JW 134 and 136, JW 202-204 incl., JW 212-222 incl., and Claim JW 500 consisting of eight units. This claim was located on July 7, 1975 and carried Tag No. 07856.

The purpose of the surveys was to search for disseminated copper and molybdenum sulphides in volcanics located directly to the south of an intrusive.

GEOLOGY

The Jean Property lies in the Omineca Mountains and is underlain by intrusive and volcanicrocks. The intrusive rocks lie within a regional tectonic feature called the Quesnel Trough. This trough is believed to be a graben underlain by Mesozoic volcanic and clastic sedimentary rocks. Granite, alkaline or intermediate stocks and batholiths intruded these rocks.

The volcanic rocks in the survey area consist of Upper Triassic Takla andesites, basalts, porphyritic andesites, etc.

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GEOPHYSICAL SURVEYS

Methods

The Induced Polarization and Resistivity survey was performed under the direction of Mr. P.T. Makulowich of Phoenix Geophysics Ltd. of North Vancouver (see statement of qualifications attached) between June 27 and July 14, 1975. The IP and resistivity survey was performed with a McPhar Model P660 frequency domain IP unit employing frequencies of 0.3 and 5.0 cps. The transmitter consist of a standard McPhar 2.5 KW unit. The input impedance of the receiver is 2 megohms. The IP effect is directly read in percent frequency effects. The resistivities can be calculated from the values of the current applied to the ground, the primary voltage measured at the receiver and a factor depending on the electrode configuration. For further details, see Appendix I attached entitled "Notes on the Induced Polarization Method".

In all, 11 miles of line were surveyed, on 11 parallel lines spaced 800 feet apart. The dipole-dipole array using 200 feet dipoles and four separations was employed.

The magnetic survey, over the same grid, employed a McPhar M700 fluxgate vertical field magnetometer. This self-levelling unit has a sensitivity of 20 gammas/division. Readings were made every 100 feet. Base station checks were made at regular intervals to permit contouring of the data.

Data Presentation

The following data is included with this report:

Plate 88-75-1 showing the survey grid, claims and topographic information on a scale of 1"=400'.

The IP and resistivity data are presented in pseudo-section form on a horizontal scale of 1"=200'. The data presented is from top to bottom:

- Resistivity on ohmfeet/ $2\pi(ga)$.
- Metal Factor this is the PFE value divided by the *S* a value times 1,000.
- Induced Polarization in percent frequency effect (PFE).

Dwg.	IP 88-75-1	Line 40W	Stations 32S-12N
	2	48W	32S-12N

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Dwg. IP 88-75-3	Line 56W	Stations	32S-14N
4	64W		30S-16N
5	72W		305-20N
6	80W		30S-20N
7	88W		30S-24N
8	96W		30S-28N
9	104W		305-32N
10	112W		305-32N
11	120W		30S-40N

The magnetic results are presented on Plate 88-75-Ml on a scale of 1"= 400'. The values of the vertical magnetic component, relative to an arbitrary base level are shown in gammas. The magnetic contour are presented using an interval of 100 gammas.

DESCRIPTION OF RESULTS

The resistivities range, in general, from 100 to 250 ohmfeet/ 2π which can be considered normal for the Takla andesites. No appreciable difference can be seen between the N=1 and N=4 results which suggest the absence of appreciable overburden. Some of the values might have been influenced by the local relief of the terrain. Some areas show only resistivities of less than 100 ohmfeet/ 2π , e.g., most of Lines 96W, 104W, 112W, and the Southern part of Line 80W and northern part of Line 72W. One area of high resistivities is noted on Line 40W where values of up to 1,200 ohmfeet/ 2π occur near Station 12S. The slight differences in resistivities might suggest lithological variations in the volcanics, but no difference in rock units or lithologies can be interpreted from the resistivity data.

The IP effects range from approximately 0.5 to 5.0 percent frequency effects (PFE). The data can be grouped in non-polarizable and polarizable areas. The non-polarizable rocks show values less than 1.5 PFE. Sections of the grid area display values well below 1.0 PFE, e.g., Lines 104W and 112W. Polarizable areas are those with values higher than 2.5 PFE, e.g., Lines 40W and 48W, north of Station 8S; Line 56W, north of Station 10S; Lines 64W and 72W, north of Station 22S; and Line 88W, north of Station 10N. Some areas show anomalous results, e.g., Line 64W near Station 12S (4.5 PFE) and Line 72W between Stations 18S and 12S (3.5 PFE). These areas undoubtedly contain polarizable minerals such as sulphides, graphite, magnetite, and/or sericite, chlorite, and some clays. It is not possible from the IP results alone to distinguish between these minerals.

The magnetic results show, in general, a low relief. A steady gradient to the west and south is visible. Two magnetically interesting areas can be distinguished. These are approximately separated by the 100 gammas contour

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line. To the south and west of this line, no features can be distinguished other than the steady gradient to the SW. North and east of this line occurs an area with a higher background of 150 gammas. Two magnetic features can be recognized within this area. The first is a dike-like relatively long and narrow feature located between Line 40W Station 7S and Line 88W Station 11S. Amplitudes are as high as 1,550 gammas. The second feature is broad and well-outlined by the 300 gammas contour in the North Central part of the grid between Lines 64W and 92W, and the B.L. and 20N. This area is open to the NE. This area might reflect a zone of slightly increased magnetite content within the volcanics. The dike-like body might indeed reflect such a geological source.

CONCLUSION

A geophysical survey consisting of IP, resistivity, and magnetic measurements was executed over parts of the Jean Property, Omineca Mountains.

The resistivity values range from less than 100 up to 250 ohmfeet/ 2π . These values are considered normal for the Takla andesites in the area. Some higher values have been measured. The results are however too homogeneous to distinguish between different horizons, lithologies, etc.

The IP results show large areas with less than 1.5 PFE. These values are normal for unmineralized rocks. Other areas with values above 2.5 PFE might contain polarizable minerals such as sulphides, graphite, magnetite, etc. It is not possible to distinguish between these sources.

The magnetic results show a low relief. Two areas with a higher magnetite content can be recognized, one of which might represent a dike-like feature.

RECOMMENDATIONS

It is recommended to map the area in detail, special emphasis should be placed on areas with anomalous IP results. Geochemical sampling should be executed.

Submitted by:

JAN KLEIN. P.ENG. Geophysicist

Endorsed for release by: 107.1

ruine W.T.IRVINE, P/ENG. Manager

Western District

August 7, 1975 <u>Distribution</u> Mine Recorder (2) Western District (1) Geophysics File (1) - 5 -

CERTIFICATE

I, PHILEMON T. MAKULOWICH, of the Municipality of Kamloops, British Columbia, DO HEREBY CERTIFY THAT:

1. I am a geophysical crew leader residing at 669 Valdez Dr., Kamloops, British Columbia.

I am a graduate of the Industrial Electronics Course
 (1961 - 62), Devry Technical Institute, Toronto, Ontario.

3. I worked with McPhar Geophysics Co. from 1962 - 1975 as a geophysical crew leader and since 1971 as western field supervisor.

4. I presently work with Phoenix Geophysics Ltd. of 1521 Pemberton Avenue, North Vancouver, British Columbia.

5. I am a member of the Canadian Institute of Mining and Mstallurgy.

Dated at Kamloops, B.C.

Philemon T. Makulowich

This 23rd Day of July, 1975



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CANADA PROVINCE OF BRITISH COLUMBIA

In the Matter of

STATUTORY DECLARATION RELATING TO EXPENDITURES ON LINE CUT-TING AND GEOPHYSICAL SURVEYS OF THE JEAN PROPERTY, OMINECA MINING DIVISION

TO WIT:

JAN KLEIN, PROFESSIONAL ENGINEER

of City of Burnaby

in the Province of British Columbia

do solemnly declare that

- Copies of a report regarding geophysical surveys on certain mineral claims situated in the Omineca Mining Division are being filed with the Mining Recorder in Vancouver.
- 2. Attached hereto, and marked with the letter "A" upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the line cutting on the said claims showing in addition the dates during which those doing the said line cutting performed their work.
- 3. Attached hereto, and marked with the letter "B" upon which I have signed my name at the time of declaring hereof, is a statement of expenditures incurred in connection with the Induced Polarization and Magnetic survey of the said claims showing in addition the dates during which those making the said survey performed their work.

Department of Mines and Petroleum Resources AUDESSKIENT REPORT 5590 MAP NO.

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

DECLARED before me at Voncom
in the
Province of British Columbia, this
day of Angent (Kingent
A. D., 1977
A fiorary Public In and for the Province of British Columbia.
A Commissioner for taking affidavits within British ColumSta

EXHIBIT "A"

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

LINE CUTTING COSTS

JEAN PROPERTY, OMINECA MINING DIVISION, TCHENTLO LAKE AREA

N.T.S. - 93-N-2W, 124° 55'W - 55° 07'N

Line cutting under contract during June, 1975

11.3 mile @\$135.00 per mile

\$1,525.50

Signed Jan Klein, Eng. Ρ.

This is Exhibit "A" To The Statutory Declaration of Jan Klein Declared Before Me This /> Day of August, 1975.

ommissioner for Taking Affidavits

EXHIBIT "B"

EXPLORATION

WESTERN DISTRICT

\$11,587.00

INDUCED POLARIZATION AND MAGNETIC SURVEY COSTS

JEAN PROPERTY, OMINECA MINING DIVISION, TCHENTLO LAKE AREA

N.T.S. - 93-N-2W, 124° 55'W - 55° 07'N

I.P. and Magnetics done under contract by Phoenix Geophysics Ltd. during the period June 27 to July 14, 1975.

1. Survey Costs

	<pre>11.1 line miles of I.P.@\$635.00 per mile 11.3 line miles of magnetics @\$75.00 per mile Mobilization and Demobilization, Vancouver - Fort St. James</pre>	\$7,048.50 847.50 1,200.00	\$ 9,096.00
2.	Report Writing Costs		
	J.Klein, Geophysicist, 5 days at \$125.00 J.P.Snyder, Draftsperson, 8 days at \$75.00	\$ 625.00 600.00	1,225.00
з.	Fixed Wing and Helicopter Costs		
	Fixed wing transport Helicopter costs	\$ 378.00 888.00	1,266.00

Signed Jan Klein, Ρ. Eng

This Is Exhibit "B" To The Statutory Declaration of Jan Klein Declared Before Me This 15 Day of August, 1975.

A Commissioner For Taking Affidavits





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