

GEOPHYSICAL REPORT

of

Ajax; Neptune; Monte Carlo;  
Jacko No. 4; Jacko No. 9 M. C.'s  
and  
Jacko No. 6 and Jacko No. 10 Fractional  
M. C.'s located  $3\frac{1}{2}$  miles SW of Kamloops  
50°120° NE.

92I/9W

Report by:

J. Richardson  
J. Richardson

Endorsed by:

R. C. McEachern  
R. C. McEachern

Eng., B. C.

50°120° NE

Survey conducted from  
10th December 1954 to 17 December, 1954.

108

GEOPHYSICAL REPORT

Ajax-Monte Carlo - Jacko Group,  
Kamloops M. D., B. C.

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#/ Attachment - Geophysical Plan, 1" = 300'

by J. Richardson  
Sub District Geologist

January 21, 1955.

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
Geological Division

GEOPHYSICAL REPORT

Ajax; Neptune; Monte Carlo; Jacko No. 4; and  
Jacko No. 9 M. C.'s  
Jacko No. 6 Fr; and Jacko No. 10 Fr. M. C.'s

KAMLOOPS MINING DIVISION B. C.

PROPERTY

The claims covered by the geophysical survey consist of the following: Ajax, Neptune, Monte Carlo, Jacko No. 4, and Jacko No. 9 Mineral Claims and Jacko No. 6 Fraction and Jacko No. 10 Fraction Mineral Claims.

This report and map (in duplicate) is hereby submitted for recording as assessment work requirements for the periods listed below:

<u>Claim</u>	<u>Record No.</u>	<u>From</u>	<u>To</u>
Ajax	3259 A	Jan. 27, 1954	Jan. 27, 1955
Neptune	3511 R	Dec. 10, 1954	Dec. 10, 1955
Monte Carlo	2850 K	Aug. 23, 1954	Aug. 23, 1955
Jacko No. 4	13932	Sept. 2, 1954	Sept. 2, 1955
Jacko No. 9	13937	Sept. 2, 1954	Sept. 2, 1955
Jacko No. 6 Fr.	13934	Sept. 2, 1954	Sept. 2, 1955
Jacko No. 10 Fr.	13938	Sept. 2, 1954	Sept. 2, 1955

LOCATION AND ACCESS

The claims are located  $3\frac{1}{2}$  miles SW of the city of Kamloops and lie immediately east of Jacko Lake. They can be reached by following No. 5 Highway south from Kamloops to Knutsford, thence westerly along Edith Lake and Lac La Jeune roads to Peterson Creek road which leads to Jacko Lake.

INTRODUCTION

A geophysical survey was carried out on the above-mentioned claims during the period 10 December 1954 to 17 December 1954, by the following personnel:

E. H. Caldwell (B.Sc.) - Examining Engineer, C. M. & S. Co. Trail, B. C.  
G. F. Warning (B.A.) - Exploration Geologist, C. M. & S. Co., Kimberley  
A. B. Mawer - Prospector, C. M. & S. Co., Trail, B. C.

The results were interpreted and this report is written by J. Richardson (B. A.), Sub-District Geologist, Consolidated Mining and Smelting Company of Canada Limited, Trail, B. C.

A total of  $8\frac{1}{4}$  miles of lines were laid out and 350 readings taken from 6 positions of the transmitting coil.

PRINCIPLE OF THE METHOD

The survey was done with a McPhar electromagnetic prospecting unit of the large coil, 1000 c.p.s. type. This apparatus detects sub-surface conductors, such as sulphide bodies, by inducing currents in them. Induced currents flowing in the conductor create an alternating magnetic field (the secondary field) which has components that are in and out of phase with the primary magnetic field from the coil. The resultant of the primary field and the in-phase component of the secondary field gives an elliptically polarized field which can be measured in terms of "dip angles" with a search coil. On the traverse lines, the search coil is

tilted until it is not cut by any of the lines of force of the elliptically polarized field. In these positions, no voltage is induced in the search coil and, in this apparatus, no signal is heard in earphones connected across the search coil. When the search coil is tilted in either direction away from the position of minimum voltage, a signal (considerably amplified) is heard in the earphones.

The angle between the resultant elliptically polarized field and the horizontal at any point is the dip angle. Its determination is the fundamental measurement in the search for conductors. The dip angles are zero, or nearly so, over barren ground. The approach to a conductor is marked by increasing dip angles which rapidly decrease to zero directly above the conductor and then increase in the opposite sense beyond the conductor until far away from the conductor they approach zero again.

#### FIELD PROCEDURE

In operation the transmitting coil is erected in a vertical plane in a convenient location and traverses are made normal to the strike of possible ore bodies on either side of the transmitter position. The traverses were made along lines 400 feet apart in most cases but in some instances an interval of 200 feet was used. Readings were taken at 100 foot intervals along the traverse lines.

When readings are being taken the transmitting coil is rotated horizontally to contain the field position of the search coil and the latter coil is tilted laterally in a plane normal to a line joining the two coils. The search coil is tilted until minimum signal is heard in the earphones, i.e. there is minimum induction by the resulting elliptically polarized field in the search coil. The "null" point is measured as an angle on a clinometer in the search coil and this angle is taken as the reading for the point occupied. The angles are corrected for sign and are plotted as plus and minus values on the traverse lines. The results are not absolute; they are dependent on the relative positions of the equipment elements. The results are interpreted from profiles of the readings along the traverse lines. The significant points in interpretation are the so-called "cross-over" positions. They occur where the sign of the profile curve changes and are generally very close to the vertical projection of the subsurface conductor.

On this group of claims a base line was laid out south of and about parallel to the contact between Iron Mask diorite and Nicola Volcanics. Traverse lines were run by chain and compass at right angles to the base line generally at 400 foot intervals but in some cases 200 foot intervals were used. Readings were taken at 100 foot spacings along the traverse lines. The readings were plotted on a plan at a scale of 1 inch to 300 feet.

The survey crew consisted of a transmitter operator, a search coil operator and a compass man. The transmitter operator ran the generating motor and oriented the transmitting coil. The search coil operator took the clinometer readings and acted as rear chainman. The compass operator laid out the traverse lines by chain and compass while the readings were being taken. Whenever the two coil operators were not in visual contact the survey was run on a rigid time schedule so that the transmitting coil would be correctly oriented onto the search coil whenever a reading was being taken.

#### SURVEY RESULTS

A number of "cross-overs" are located on the accompanying plan. They lie very close to the vertical projection of the sub surface conductor causing them.

In all cases the "cross-overs" are indefinite and it is believed that they are not caused by sulphide bodies. Even though the

base line is at a large angle to the Trans-Mountain Oil Pipe Line, the position of this pipe was very accurately located with our instrument. The vicinity of the pipe line on Jacko No. 6 Fractional Mineral Claim was therefore avoided in the survey.

Anomaly No. 1, located in the east corner of Ajax M. C., may be caused by an accumulation of magnetite at or near the contact between a large albitite alteration zone and Iron Mask diorite.

Anomaly No. 2, on the east side of Neptune M. C., is a very uncertain one and is probably not significant.

Anomaly No. 3 coincides approximately with the position of Peterson Creek in the north portion of Jacko No. 9 M. C. It is apparently due to the saline content of the ground water. Previous electromagnetic surveys over saline deposits in the vicinity of Iron Mask Lake gave very definite cross-overs.

Anomaly No. 4 is in the north corner of Monte Carlo Mining Claim and within the diorite rocks. The "dip angles" on either side of the "cross-overs" are about on the border line of a significant minimum. It is very doubtful if this anomaly is due to a sulphide body.

#### EXPENDITURES

The costs of the field survey, interpretation of results and writing of the report (with map) are outlined below.

E.H. Caldwell - Exploration Engineer		
7 days @ \$15 per day -		\$105.00
G.F. Warning - Exploration Geologist		
7 days @ \$15 per day -		105.00
A.B. Mawer - Prospector		
7 days @ \$12.50 per day -		87.50
J. Richardson - Sub District Geologist		
(Interpretation, Report and Map)		
4 days @ \$32.50 per day -		<u>130.00</u>
Total (Wages)		\$427.50

Expenses (Room and board and Transportation) for the first three above-mentioned personnel - \$226.00

Equipment Rental and Fuel  
7 days @ \$11 per day - 77.00

#### Summary of Expenditures:

Wages -	\$427.50
Expenses -	226.00
Equipment and Rental -	<u>77.00</u>
Total	\$730.50

#### PERSONNEL

The field work was done under the supervision of G. F. Warning, Exploration Geologist with the Consolidated Mining and Smelting Company. Mr. Warning has carried out numerous geophysical surveys during the past seven years in his capacity as Exploration Geologist. The interpretation of the results was done, and the report written, by J. Richardson, Sub-District Geologist, Consolidated Mining and Smelting Company of Canada, who is responsible for much of the geophysical work by this company.

The field work and report were finally checked by R. G. McEachern,  
Professional Engineer, Province of British Columbia.

Appendices: Geophysical Plan, 1" = 300'  
Statement of Expenditures

Report by: J. Richardson  
J. Richardson,  
Sub District Geologist  
C. M. & S. Co. Ltd.

Endorsed by: R. G. McEachern  
R. G. McEachern,  
Assist. to Chief Geologist  
C. M. & S. Co. Ltd.  
TRAIL, B. C.

Distribution:

Mining Recorder, Kamloops M. D. (2)  
Geological Division (1)  
Mines Division (2)  
Southwestern Exploration File (2)

JR:JH  
Southwestern Exploration Office  
January 21, 1955.

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED  
Geological Division

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Expenditures - Ajax-Monte Carlo  
Jacko Group

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Geophysical Survey

1954

WAGES

Exploration Engineer - 7 days @ \$15/day -	\$105.00	
Exploration Geologist - 7 days @ \$15/day -	105.00	
Prospector - 7 days @ \$12.50/day -	87.50	
Sub District Geologist - 4 days @ \$32.50/day	<u>130.00</u>	
		427.50

TRANSPORTATION

Truck, bus and Air -	86.00	
		<u>86.00</u>

SUPPLIES

Board - 21 man days @ \$4.00/day -	84.00	
Lodging - 7 days @ \$8.00/day -	<u>56.00</u>	
		140.00

RENTALS (Includes fuel)

McPhar Clinometer - 7 days @ \$11/day -	77.00	
		<u>77.00</u>
		<u>\$730.50</u>

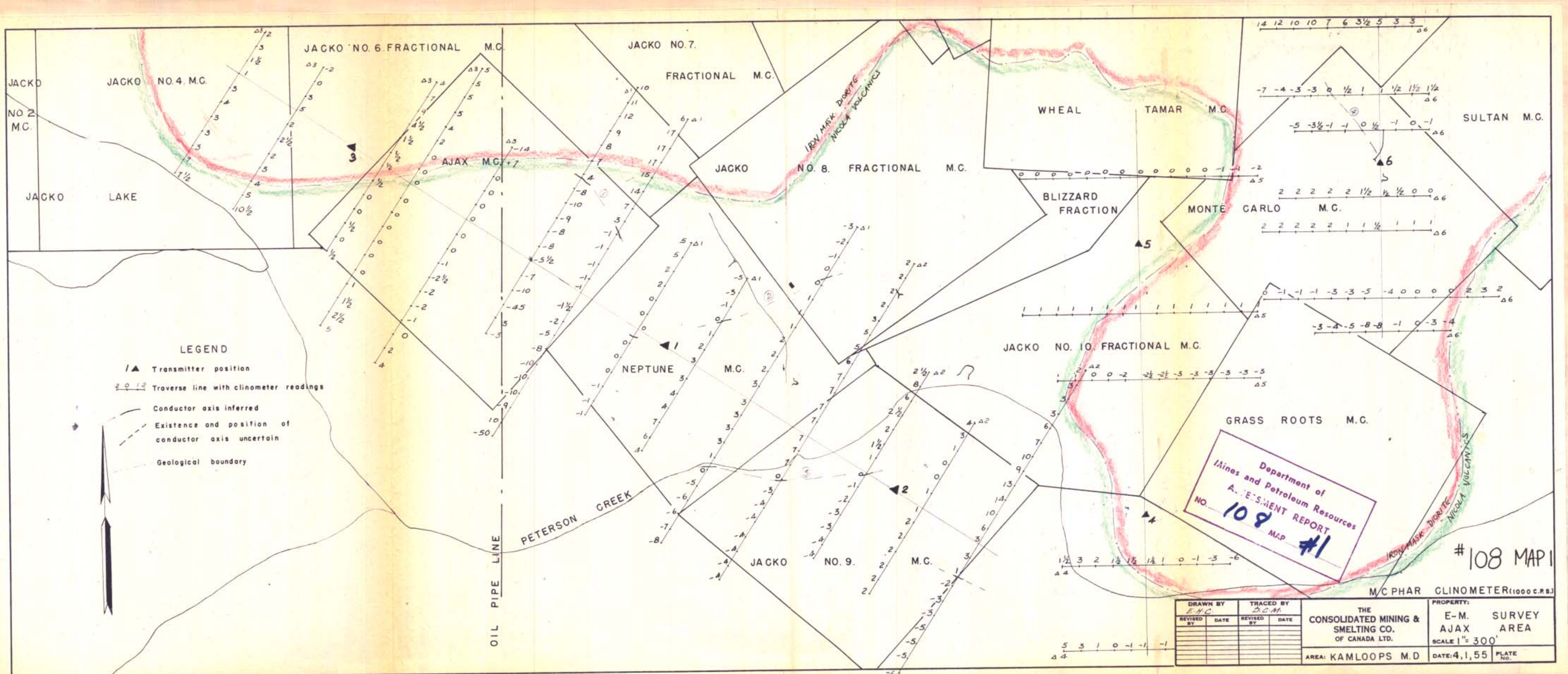
J. Richardson  
J. Richardson,  
Sub District Geologist

Endorsed by:

G. Hamson  
G. Hamson,  
Branch Accountant  
C. M. & S. Co. of Can. Ltd.  
TRAIL, B. C.

JR:jh





Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 108 MAP #1

DRAWN BY E.H.C.		TRACED BY D.C.M.		THE CONSOLIDATED MINING & SMELTING CO. OF CANADA LTD.	PROPERTY: E-M. SURVEY AJAX AREA
REVISED BY	DATE	REVISED BY	DATE		
				AREA: KAMLOOPS M.D.	DATE: 4, 1, 55
					PLATE No.