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REPORT ON AN INDUCED POLARIZATION SURVEY UCLUELET AREA, BRITISH COLUMBIA ON BEHALF OF CROYDON MINES LTD.

92F/3W

by

Peter J. Fominoff, B.A.Sc.

and

Richard O. Crosby, B.Sc., P.Eng.

May 25, 1971

CLAIMS:

Name	
VENT	14, 16, 28 - 33

LOCATION:

About 24 miles West of Port Alberni, B. C.
Alberni Mining Division
125° 49° SE

DATES:

April 19 to April 26, 1971

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SUMMARY

An induced polarization survey on the present property has revealed extensive areas exhibiting increased chargeability responses. The amplitudes of these responses could arise from bedrock containing 2 percent to 6 percent by volume of metallically conducting mineralization such as sulphides, graphite or other minerals known to give induced polarization responses.

Since the high chargeability material approaches near to the ground surface, geological mapping and trenching could be carried out to determine if any of the chargeability responses may arise from base metal type sulphide mineralization. If an area is so delineated, drilling might be proposed based on the present data to intersect zones of highest metal content.

REPORT ON
AN INDUCED POLARIZATION SURVEY
UCLUELET AREA, BRITISH COLUMBIA
ON BEHALF OF
CROYDON MINES LTD.

INTRODUCTION

During the period from April 19 to April 26, 1971, a geophysical field party executed an induced polarization survey over some VENT claims in the Ucluelet area, British Columbia on behalf of Croydon Mines Ltd. The field work was under the direction of Mr. Tony Guernier, an experienced geophysical operator on the staff of Seigel Associates Limited.

As shown on Plate 1, the survey area lies about 24 miles west of Port Alberni and is accessible by road. The topography of the survey area is steep and rugged, typical of the west coast of British Columbia. The property was covered by deep wet snow which hindered the progress of the survey.

The claims covered by the present survey are listed on the cover page of this report and are shown on Plate 2 on the scale of 1 inch = 400 feet.

Scintrex Mk VII time domain (pulse-type) induced polarization equipment was employed on this property. The transmitting unit had a rating of 2.5 kilowatts and equal on and off times of 2.0 seconds. The receiving unit was a remote, ground-pulse type triggered by the rising and falling primary voltages set up in the ground by the transmitter. The integration of the transient polarization voltages takes place for 0.65 seconds after a 0.45 second delay time following the termination of the current-on pulse.

The purpose of an induced polarization survey is to map the subsurface distribution of metallically conducting mineralization beneath

the grids covered. In the present area such mineralization could include chalcopyrite, molybdenite, pyrite and other metallic sulphide minerals. As well, other minerals such as chlorite, graphite and magnetite can give responses not always distinguishable from sulphide mineralization.

For the present survey a grid system was laid out with a baseline oriented N 40° W and grid lines perpendicular thereto at 400 foot intervals. A total of about 4.8 line miles were covered by the present survey.

The three electrode array, with electrode spacings of 200 feet and 400 feet was employed for reconnaissance purposes. Station intervals were 200 feet. For additional detail L 8 N was also covered with the three electrode array and electrode spacings of 50 feet and 100 feet and 100 foot station intervals.

GEOLOGY

The geology of the area was obtained from a map supplied by the client. The northern and eastern portions of the property are underlain by undifferentiated andesitic volcanic rocks of the Karmutsen group. The southern and eastern portions of the grid are underlain by the Island intrusions consisting of diorites and monzonites. At the western end of L 20 N, quartz monzonite is interbedded with the volcanics.

Geology is lacking over most of the central portion of the grid. However a geochemical survey over the area has revealed anomalous concentrations of copper in a stream running westerly across the northern side of the grid. A soil sampling grid in the central portion of the survey area reveals several scattered locations which also contain anomalous concentrations of copper.

The main target of the present induced polarization survey was a

low grade, large tonnage type of copper deposit similar to the one being mined near Port Hardy by Utah Construction and Mining Company Limited

DISCUSSION OF RESULTS

Plate 2, on the scale of 1 inch = 400 feet shows the grid layout, claims and interpretation. Chargeability contacts at 20.0 and 40.0 milliseconds are interpreted, and an area of decreased resistivity responses outlined. Broken lines indicate inferred boundaries, while solid lines indicate boundaries based on geophysical data.

Plate 3, on the scale of 1 inch = 400 feet, shows the geophysical results in profile form. Two parameters are plotted, chargeability (the induced polarization characteristic of the rock) and resistivity. The vertical scales are 1 inch = 20.0 milliseconds for chargeability and 2 inches = 1 logarithmic cycle with the line traces taken as 1000 ohm-meters for resistivity. Symbols explained in the legend have been used to differentiate between observations taken with several values of "a". In order to best accommodate the geophysical profiles, the interline spacing is not to scale.

A uniform subsurface distribution of 1 percent by volume of metallically conducting minerals such as sulphides or graphite is expected to contribute about 10.0 milliseconds to observed chargeabilities. As the metallically conducting content is increased, the induced polarization response will increase although possibly not linearly. Much greater percentages by volume of minerals such as magnetite, chlorite or sericite could give rise to responses similar to those due to sulphides.

The profiles reveal that the observed range in chargeability is from a few observations of 2.0 milliseconds to a maximum of 79.0 milliseconds.

Over the central part of all survey lines, the chargeabilities average in excess of 40.0 milliseconds. These chargeabilities are classed as moderate to high by normal standards.

Chargeability contacts at 20.0 and 40.0 milliseconds have been interpreted and the areas of increased chargeabilities have been shaded as indicated on Plate 2. Contact locations have been obtained from the 200 foot electrode spacing profiles. It is evident that the major part of the grid area has a greater than 20.0 millisecond response and the more than half of the area has a response in excess of 40.0 milliseconds.

Similar responses are seen for both the 200 foot and 400 foot electrode spacings on all lines and for the 100 foot spacing on L 8 N. This indicates that the underlying rock from near surface up to depths of over 200 feet contains the equivalent of from 2 percent to 6 percent by volume of metallically conducting material. Over most of L 8 N the source of the increased chargeabilities approaches to within about 30 feet of the surface.

In areas where chargeabilities are less than 20.0 milliseconds such as in the northeastern part of the grid, the values from the narrower spaced electrodes are lower indicating either increasing overburden thickness, or increasing bedrock chargeability with depth.

Plate 2 also shows the area of decreased resistivity responses. The resistivity contact has been chosen to be the inflection point between the lower and higher resistivity values on the 200 foot electrode spacing profiles.

The range in resistivities is from about 400 to about 10,000 ohm-meters. All areas of increased chargeabilities correlated well with areas of decreased resistivities. Low resistivities may be expected for rocks containing the high content of metallically conducting minerals required to give rise to the high observed chargeabilities. Such geophysical responses, particularly when of large area extent often arise from rock types which have a high content of graphitic material.

Changes in resistivity may be caused by changes in the type or thickness of overburden as well as changes in the character of bedrock. Since similar responses are seen for short and wide electrode spacings it is not likely that the overburden greatly influences the resistivities on the present property.

CONCLUSIONS AND RECOMMENDATIONS

The present induced polarization survey has revealed that the grid is underlain by rocks containing appreciable quantities of metallically conducting material exhibiting moderate to high chargeabilities. The metallically conducting mineral content of most of the grid area ranges from 2 percent to more than 6 percent by volume. Since high chargeability responses may also arise from minerals other than sulphides it is difficult, from the induced polarization results alone, to choose areas within the grid which might be most promising for further exploration.

Since the high chargeability material approaches near the ground surface, trenching and geological mapping could be carried out

to determine if any of the chargeability responses may arise from base metal type of mineralization. If an area is so delineated, drilling might be proposed based on the present data to intersect zones of highest metal content.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

Peter J. Fominoff, B.A.Sc.
Geophysicist

Richard O. Crosby, B.Sc., P.Eng.
Consulting Geophysicist

Vancouver, B. C.
May 25, 1971

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of a geophysical survey on behalf of Croyden Mines Ltd. (N.P.L.)

I, L. A. Morrifield for Seigel Associates Limited

of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an induced polarization survey has been executed on some VENT claims Ucluelet area, British Columbia between April 19 to April 27, 1971. The following expenses were incurred:

(1)	Wages:			
	T. Guernier	8 days @ $35.00/day	$280.00	
	F. Bourqui	8 days @ $27.50/day	220.00	
	K. Stoll	8 days @ $27.50/day	220.00	
	W. Budgell	6 days @ $27.50/day	165.00	
			$885.00	$885.00
(2)	Transportation & shipping to the job			55.50
(3)	Transportation on the job			193.50
(4)	Food & living expenses			398.04
(5)	Use of geophysical equipment	8 days @ $30.00/day		240.00
(6)	Paid to Seigel Associates Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports.			1,475.35
				$3,247.39
(7)	Expenditures by Croyden Mines Ltd. in assisting Seigel Associates in this survey.			
	Wages: J. White - 4 days			300.00
	W. Ovington - 4 days			
	Food & living expenses			150.52
	Transportation on the job			75.13
				$525.65

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 the City of Vancouver, in the Province of British Columbia, this 27th day of May, 1971, A.D.

L. A. Morrifield

Joan Turner

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

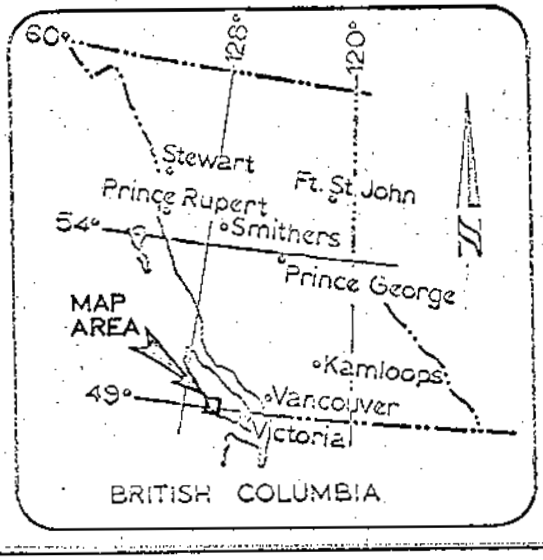
*o

Geological Branch

In the Matter of

Statutory Declaration

(CANADA EVIDENCE ACT)



CROYDON MINES LTD. (N.P.L.)

LOCATION MAP

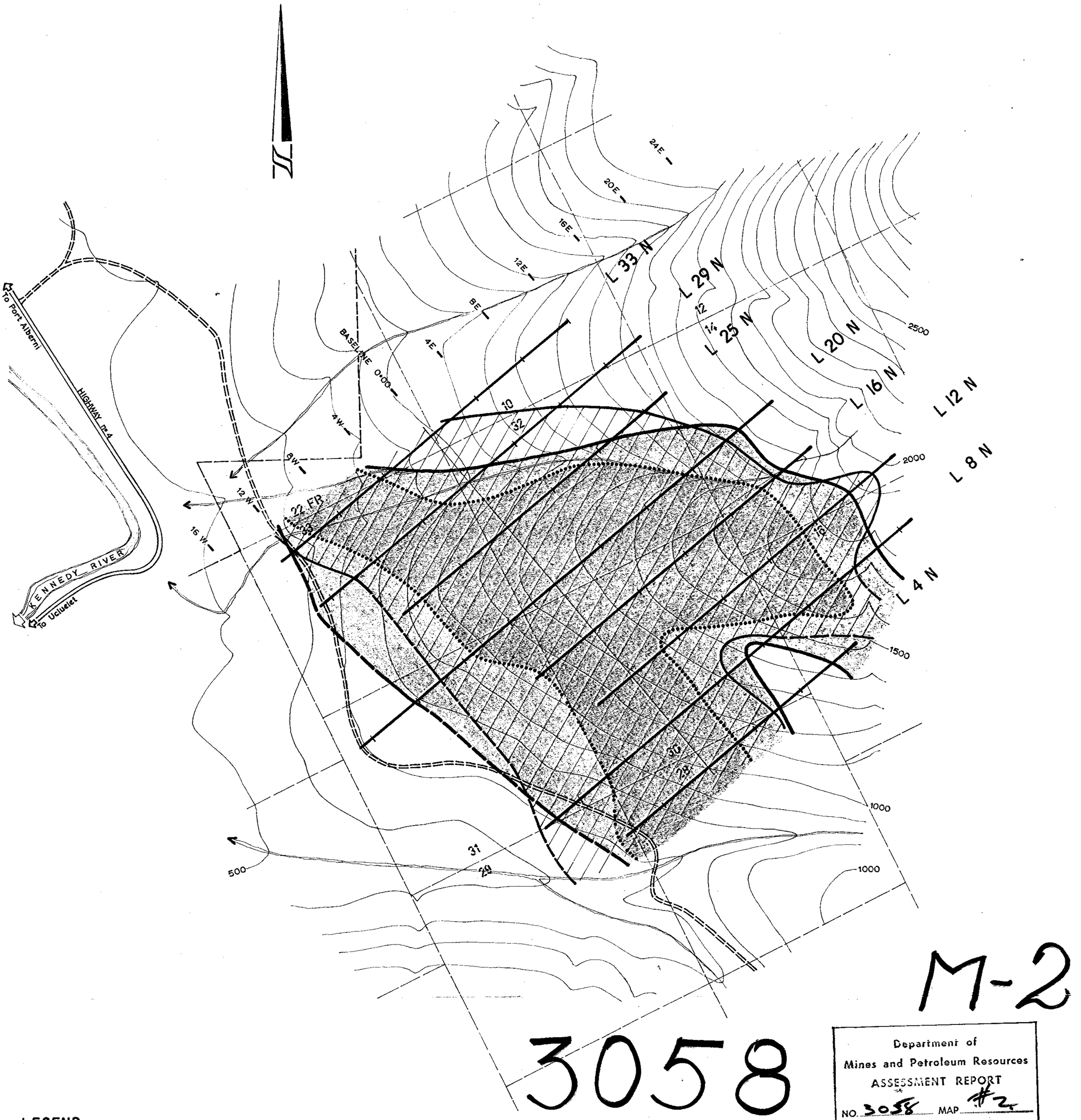
UCLUELET AREA BRITISH COLUMBIA

SCALE 1 : 250,000 4 miles. 0 4 miles

Survey by
SEIGEL ASSOCIATES LIMITED
April 1971

PLATE 1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3058 MAP #1



LEGEND

- AREA OF INCREASED CHARGEABILITY GREATER THAN 40 MILLISECONDS
- AREA OF INCREASED CHARGEABILITY GREATER THAN 20 MILLISECONDS
- AREA OF DECREASED RESISTIVITY
- SURVEY GRID
- CLAIM LIMIT
- HIGHWAY
- LOGGING ROAD
- CREEK
- RIVER

TO ACCOMPANY A GEOPHYSICAL REPORT
BY P.J. FOMINOFF AND R.O. CROSBY DATED MAY 25, 1971

PLATE 2

CROYDON MINES LTD. (N.P.L.)

VENT GROUP
UCLUELET AREA, BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

SURVEY GRID AND CLAIM LOCATION
·INTERPRETATION·

SCALE 1 inch = 400 feet

400 feet 0 400 feet

SURVEY BY SEIGEL ASSOCIATES LIMITED APRIL 1971

Richard O. Crosby

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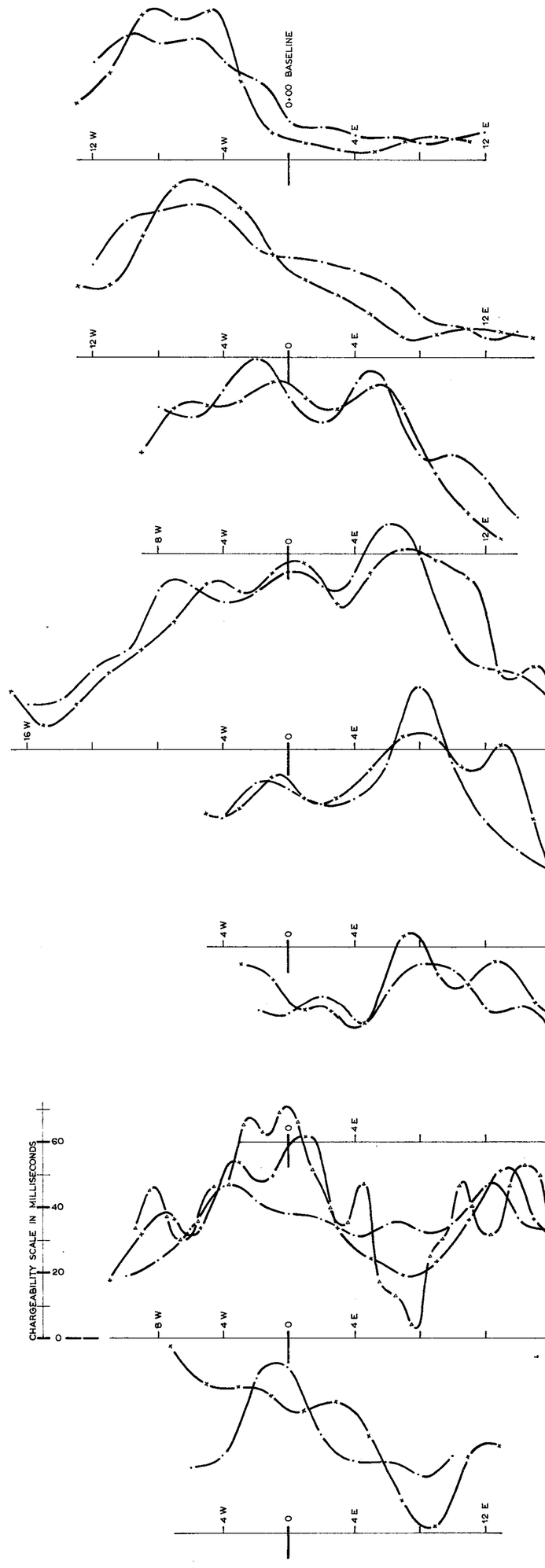
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3058 MAP #2

CHARGEABILITY



L 33 N

L 29 N

L 25 N

L 20 N

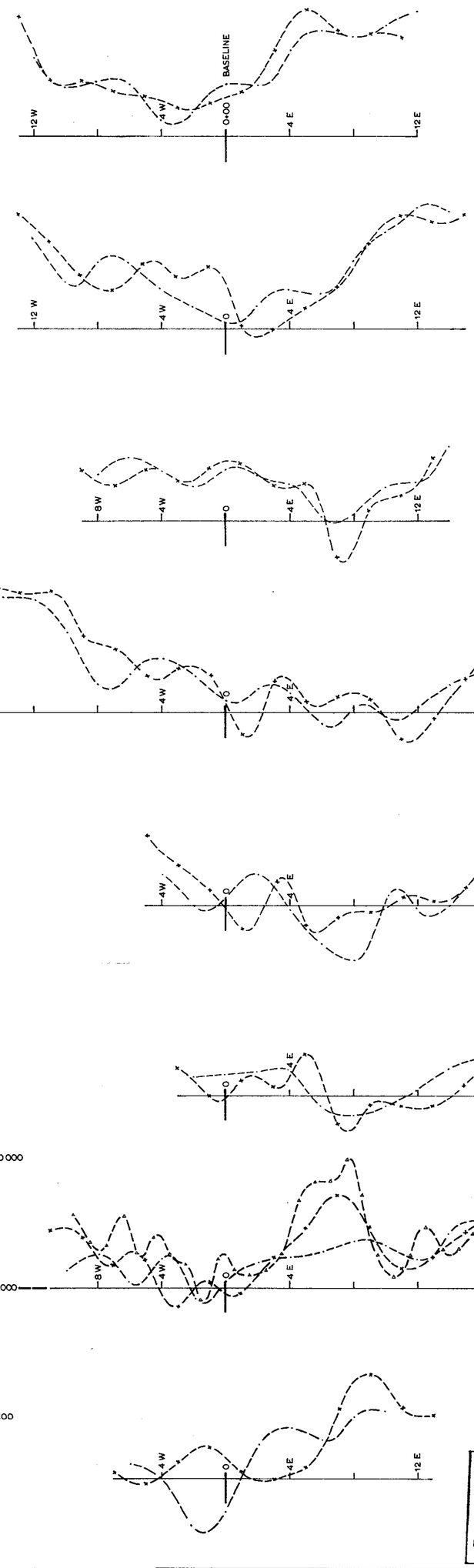
L 16 N

L 12 N

L 8 N

L 4 N

RESISTIVITY



LEGEND

CHARGEABILITY SCALE : 1 inch = 20 MILLISECONDS

ELECTRODE SPACING a = 400'
a = 200'
a = 100'

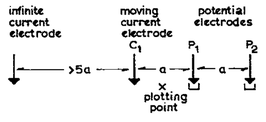
RESISTIVITY SCALE : 2 inches = 1 LOGARITHMIC CYCLE WITH LINE TRACE TAKEN AS 1000 OHM-METRES

ELECTRODE SPACING a = 400'
a = 200'
a = 100'

NOTES

SCINTREX MK VII INDUCED POLARIZATION INSTRUMENTATION

THREE ELECTRODE ARRAY



INTERLINE SPACING NOT TO SCALE

TO ACCOMPANY A GEOPHYSICAL REPORT
BY P.J. FOMINOFF AND R.O. CROSBY DATED MAY 25, 1971

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PLATE 3

CROYDON MINES LTD. (N.P.L.)

VENT GROUP
UCLUELET AREA, BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

CHARGEABILITY AND RESISTIVITY PROFILES

SCALE 1 inch = 400 feet
400 feet 0 400 feet

SURVEY BY SEIGEL ASSOCIATES LIMITED APRIL 1971

Richard O Crosby