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48+00E	52+00E	56 +00E	60+00E	64+00 E		72+00E	i

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Department of Mines and Petroleum Resources ASSESSMENT REPORT No 4256 MAP#15

PLAN SHOWING GRID LINE LAYOUT FOR

IMPERIAL OIL LTD.

MAP SHEET 104 - K EAGLEHEAD PROPERTY, B.C.

SCALE : 1" = 1000'

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WHITE, HOSFORD & IMPEY LIMITED PQ Box 4418 WHITEHORSE, Y.T.







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B DIABASE COMPRETE PORPHYRY B QUARTZ MONZONITE SHALE 4. LIMESTONE SREYWACKE VOLCANIE CONSLOMERATE TIT GREYWACKE OR TUFF-WACKE 28 VOLCANIC CONGLOWERATE LIMESTONE ANDESITE In LAugite Porphyry)
ZolFeldspar Porphyry)

SEOLOGICAL BOUNDARY (Defined , Approximpte, Interpreted) BEDDING (Herizontel, Mailand, Vertical) SHEARING [Inclined, Vertical] 380-4 JOINTING [Inclined, Vertical] JOINTING WITH SLICKENSIDESI INCIDES, WITHERIT THRUST FAULTEDefined, Approximite, Interpreted1 HAND SPECIMEN : 22 -----MINERALIZATION CV ZA, VIC ASSESSMENT REPORT OFFICE ASSESSMENT REPORT CLAIN POST 100 HOLE NO 4256 MAP#16 TOPOGRAPHIC CONTOUR -2500-150 Feat Int.1 LAKE OR POND NOWIZOWTEL CONTROL A H-S EAGLE PROPERTY NTS1041 E/H LAT 58*30' LONG 129*10' GEOLOGICAL MAP

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TO ACCOMPANY A REPORT BY R.000Y IMPERIAL OIL LIMITED MINERAL DEPT





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A REPORT

ON

AN INDUCED POLARIZATION SURVEY

Dease Lake Area, British Columbia

	Department of					
	Mines and Petroleum Resources					
FOR	ASSESSMENT REPORT					
	NO 4256 МАР					

IMPERIAL OIL ENTERPRISES LIMITED

Calgary, Alberta

Eagle claims, Liard M.D., B.C Claims surveyed: Eagle 1-6, 18, 36, 38, 51, 53, 55 57, 59, 61, 63, 65, 97-104.

DATE July 26th. - 31st. 1972

PETER E. WALCOTT & ASSOCIATES LIMITED

BY

Vancouver, British Columbia

AUGUST 1972

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PROFILES OF I.P. RESULTS	

MAP POCKET

CONTOURS	OF	APPARENT	RESISTIVIT	Y - Scale l'' = 4	400 ft.	
井1 88		£1		a = 300 n =	= 1	W-155-1
#ე "	11	11	18	** n =	= 2	W-155-2
Ħ3 Ħ	**		"	¹⁷ R ¹	= 3	W-155-3
片井 "	#1	**	**	11 n.:	- 4	W-155-4
CONTOURS	OF	APPARENT	FREQUENCY	EFFECT - Scale	1" = 400	ft.
CONTOURS ≠5.	OF "	APPARENT "	FREQUENCY	EFFECT - Scale $a = 300$ n		ft. W-155-5
				a = 300 n :		
≠5 " #6 "	11	11	11	a = 300 n = " n =	= 1	W-155-5

MAP POCKET cont'd

CONTOURS C	F APPARENT	METAL	FACTOR	- Scale l"	= 4	400 ft.	
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#1] "	17 11	63	н	11	ñ =	- 4	W-155-12
#13 Loc	ation n	nap					
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INTRODUCTION

Between July 26th and 31st, 1972, Peter E. Walcott & Associates Limited carried out an induced polarization (I.P.) survey over part of a property, located in the Dease Lake area of British Columbia, optioned by Imperial Oil Enterprises Limited.

The survey was carried out over N 45° E lines, which were turned off at right angles from a N 45° W baseline, and chained and picketed at 100 foot intervals.

Measurements (first to fourth separation) of apparent resistivity and frequency effect (the I.P. response parameter) were made using the "dipole - dipole" method of surveying with a 300 foot dipole and frequencies of 0.3 and 5 c.p.s.

Considerable difficulty was encountered in carrying out the survey due to the rough terrain on the northern half of the area surveyed and the poor electrical contacts made by the empiaced foil electrodes with the ground, thus making the progress of the survey rather slow.

The I.P. data are presented in contour form on individual line profiles contained in this report. In addition the data are presented in contour form on maps W-154-1 to 12 that accompany this report.

PROPERTY, LOCATION & ACCESS

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The property is located in the Liard Mining District of British Columbia and consists of the following mineral claims:

Claim Name			Record Number
EAGLE	1 - 8		48819 - 48826
Ħ	9 - 22		49132 - 49145
F1	23 - 79		50672 - 50728
19	81, 83, 85, 87 & 89		50729 - 50733
13	90 - 104		65118 - 65132

The claims are situated straddling a creek some 5 miles southeast of its mouth in Eaglehead Lake, which in turn is some 30 miles east of the settlement of Dease Lake.

Access can be obtained either by float plane to Eaglehead Lake and thence by helicopter to the property, or directly by helicopter from a base in Dease Lake some 30 miles to the west.

PREVIOUS WORK

Previous work on the property consists of

- 1. geological mapping and prospecting
- 2. geochemical sampling silt and soil
- induced polarization surveying.

This work was carried out by Kennco Explorations Ltd. in 1963 and by Imperial Oil Enterprises Limited in 1972 and are well documented in reports held by the latter.

PURPOSE

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The purpose of the survey was to investigate using the induced polarization technique the favourably mineralized areas that appear to be localized in areas of intense shearing and fracturing within the quartz monzonite body and indicated by the anomalous copper geochemical values.

GEOLOGY

The reader is referred to the forementioned reports by the staff of Kennco Explorations Ltd. and Imperial Oil Enterprises Limited.

SURVEY SPECIFICATIONS

The induced polarization (I.P.) survey was carried out using a system manufactured by McPhar Geophysics Limited of Don Mills, Ontario. Measurements with this sytem are made in the frequency domain.

The system consists basically of three units, a receiver, a transmitter and a motor generator. - The transmitter, which obtains its power from the 2.5 kw 400 cycle generator driven by a gasoline engine, injects current into the ground at two electrodes C_1 and C_2 at two preselected frequencies, while the receiver, a very stable and sensitive potentiometer tuned to the frequency selected, makes measurements of observed voltages across the potential electrodes P_1 and P_2 .

The data recorded in the field consists of careful measurements of the current (I) flowing through electrodes C_1 and C_2 , the voltage (V) appearing between the potential electrodes P_1 and P_2 on the low frequency, and the "percentage apparent frequency effect" appearing between P_1 and P_2 (the receiver is designed to measure directly

the % age F.E. =
$$(P_a \text{ low } - P_a \text{ high}) \times 100)$$

 $P_a \text{ high}$

The apparent resistivity (P_a) in ohm-feet is proportional to the ratio of the measured voltage and current, the proportionality factor depending on the geometry of the array used. In practise P_a is plotted. $2\overline{T}$

A third parameter termed the "metal factor" is also calculated by dividing the apparent frequency effect by P_a and multiplying by 1000. 2π

The survey was carried out using the "dipole - dipole" electrode array. This electrode configuration and the methods of presenting the results are illustrated in the appendix. Depth penetration with this array is increased or decreased by increasing or decreasing "a" and/or n.

In practise the equipment is set up at a particular station of the line to be surveyed; three transmitting dipoles are laid out to the rear, measurements are made for all possible combinations of transmitting and receiving dipoles, the latter consisting of two porous pots filled with an electrolyte copper sulphate solution "a" feet apart, up to the fourth separation, i.e. n = 4; the equipment is moved 3 "a" feet along the line to the next set-up. SURVEY SPECIFICATIONS cont'd

A 300 foot dipole was used on the survey.

DISCUSSION OF RESULTS

The results of the I.P. survey, as performed with a 300 foot dipole, showed the presence of a large anomalous area, as outlined by the 3% F.E. contours on Maps W-155-5 to 8, trending approximately northwesterly across the property.

This anomalous area corresponds with a soil anomalous one on a previous geochemical survey, and is believed by the writer to correspond to a zone of sulphide mineralization.

The anomalous area appears to contain zones of more concentrated mineralization irregularly distributed throughout the main zone as indicated by the results shown on the individual line profiles and by the shift in location of the 7% F.E. contour on Maps W-155-5 to 8.

An overall decrease in % F.E. with depth suggests that the mineralization may not generally extend to depth.

A comparison of the n = 1 F.E. contour map, Map W-155-5, with the a = 200' n = 3 F.E. contour map (not included in report) of the previous McPhar survey showed the same general results but the contours on the former survey were considerably more irregular.

Higher resistivity readings were obtained with generally low frequency effects over the valley sides to the north and south of the anomalous area, which lies mainly in the valley bottom, (Maps W-155-1 to 4) the latter only apparent on the third and fourth separations.

Contours of apparent metal factors (Maps W-155-9 to 12) show similar features to those of apparent frequency effect with the strong northwest trending anomaly readily discernible.

Holes #72-1 to 6 drilled this summer appear to validate the I.P. results with less sulphides obtained in holes #3 to 4 which investigated lower frequency effects and/or higher resistivity readings.

The data are discussed line by line in more detail below. However since it is not possible to locate an anomaly more accurately than half a spread length, the length of the indicated anomaly along the profiles should not be taken to represent the edges of anomalous materials.

Line 40 W.

The apparent resistivities increase appreciably from 15 N northwards outlining the edge of the valley floor.

An I.P. anomaly is located at the south end of the line, open at the southern extremity and extending to 6 N with a possible extension as far as 9 N_{\bullet}

Line 32 W.

The apparent resistivities increase appreciably from 18 N northwards outlining the edge of the valley floor.

An I.P. anomaly, open on the south end, stretches between the southern extremity and 6 N, with a possible extension to 12 N.

Line 24 W.

The apparent resistivities increase appreciably from 18 N northwards with another shallow narrow resistivity high located between 12 N and 18 N.

An I.P. anomaly, open on the south end, stretches between the southern extremity and 15 N, with higher frequency effects in its southern portion.

Line 16 W.

The apparent resistivities increase appreciably from 12 N northwards.

An I.P. anomaly stretches from 3 N to 12 N with possible extensions open to the south and to 18 N, the latter associated with higher resistivity values.

Line 8 W.

The apparent resistivities increase appreciably from 12 N northwards with a small resistivity high around 6 N.

Two anomalous I.P. zones are observed on the line, one extending from 4 S to the end of the line where it is still open, and the other stretching from 0 to 15 N with a possible extension to 18 N. Frequency effects decrease with depth on this extension, associated with higher resistivity values.

Higher frequency effects were obtained with depth on the first anomaly.

Line O

The apparent resistivities increase appreciably from 15 N northwards.

An I.P. anomalous zone is observed, open on the southern extremity, extending northwards to 9 N.

A possible anomalous zone with high frequency effects and high associated resistivity readings extends between 15 N and 21 N. Hole #4 investigated this anomaly.

Line 8 E

The apparent resistivities increase appreciably from 18 N northwards.

Two anomalous zones are observed on this line, one open on the south and extending to 6 S, the other stretching from 3 S to 18 N with a possible extension to 21 N associated with higher resistivity readings.

Sporadic frequency effects in the main zone suggest complex anomalous material distribution.

Line 16 E

The apparent resistivities increase appreciably from 21 N northwards.

An I.P. anomaly is observed stretching from 3 N to 15 N with a possible extension to 21 N. Higher frequency effects are observed in the southern portion of the anomaly.

Line 24 E

The apparent resistivities increase appreciably from 24 N northwards.

An I.P. anomalous zone is observed between O and 15 N with possible extensions to 18 N.

Line 32 E

The apparent resistivities increase appreciably from 24 N northwards.

An I.P. anomalous zone is observed open to the south and extending to 15 N. Another deeper zone is indicated between 16 N and 20 N on the third and fourth separations.

Line 40 E

The apparent resistivities increase appreciably from 21 N.

An I.P. anomalous zone is observed from 6 N to 15 N with possible extensions on the south to 3 N. A deeper possible zone is seen from 18 N to 23 N on the second, third, and fourth separations with slightly higher resistivity values on the latter two separations.

Line 48 E

The apparent resistivities increase appreciably from 33 N northwards while another narrow resistivity high is observed centred around 27 N. This reflects a change in topography as indicated by a creek flowing off the hill and crossing the line at 29 N.

Higher resistivity readings are also observed on the third and fourth separations at the southern extremity of the line depicting the approaching hill to the south.

An I.P. anomalous zone is observed between 9 N and 18 N

with possible extensions to 6 N. A possible zone is observed between 18 N and 33 N. The southern portion of this latter zone could be part of the former zone.

Line 56 E

The apparent resistivities increase appreciably from 27 N northwards with lower resistivity values extending further northwards on the larger separations.

The resistivities also increase appreciably from 6 N southwards.

An I.P. anomalous zone is observed from 0 to 18 N with a possible extension to 21 N, with its polarizable material content decreasing with depth as observed from the stronger smaller separation results.

A possible anomalous zone is observed between 24 N and 27 N.

Line 64 E

The apparent resistivities increase appreciably from 30 N northwards with lower resistivity values extending further northwards on the larger separations.

An I.P. anomalous zone is observed between 15 N and 21 N with possible extensions on both sides to 12 N and 24 N respectively. Again higher frequency effects were obtained on the shallower separations indicating an apparent decrease in the polarizable material with depth.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between July 26th and 31st, 1972, Peter E. Walcott & Associates Limited carried out an induced polarization survey over part of a property optioned by Imperial Oil Enterprises Limited.

The property, the Eagle claims, is located some 30 miles east of the settlement of Dease Lake, British Columbia.

The I.P. survey showed the presence of a large anomalous area, roughly coincident with a soil anomalous area, trending northwesterly across the property.

This area, believed by the writer to represent one of sulphide mineralization, appears to contain zones of more concentrated mineralization irregularly distributed throughout the main zone as evidenced from the results of the individual lines.

Six holes drilled this year appear to validate the I.P. results with lesser amounts of sulphides obtained in those holes drilled into lower frequency effects. However the relationship between economic and uneconomic sulphides in the holes is unknown to the writer.

As a result the writer recommends

- that the relationship, if any, between frequency effects, and resistivities on the one hand, and economic sulphides on the other be investigated.
- 2. that further drilling be dependent on the above and the geology.
- 3. that should the above prove encouraging then the I.P. coverage be extended on either side in order to try and locate additional sulphide mineralization.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

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Peter E. Walcott, P.Eng. Geophysicist

Vancouver, B.C.

August 1972

APPENDIX

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COST OF SURVEY

Peter E. Walcott & Associates Limited undertook the survey on a daily basis (two shifts per day) while mobilization and draughting costs were extra so that the total cost of services provided was \$5,911.19.
PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Addre	ê\$8	Dates		
P. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C.		Jul. 26th - 31st, Aug. 1st, 28th & 29th, 1972		
G. MacMillan	Geophysical Operator	11	**	Jul. 26th - 31st, 1972		
V. Pashniak	**	"	14	IF		
G. Gordon	Helper	11		**		
S. Scurvey	11	11	n			
J. Davies	Draughting	18	u	Aug. 20th - 28th, Oct. 30th - 31st, Nov. 2nd - 4th, 72		
J. Walcott	Typing	**	**	Aug. 31st, Oct. 31st, 1972		
M. Metner	Geologist	500 6th Ave.		July 27th, 30th, 1072		
J. Dorr	n	Calgary, Alt "	a	Jul. 28th, 29th, 1972		

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CERTIFICATION

I, Peter E. Walcott of the Municipality of Coquitlam, British Columbia, hereby certify that:

- I am a Graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
- 2. I have been practising my profession for the last ten years.
- 3. I am a member of the Association of Professional Engineers of British Columbia, Ontario and the Yukon Territory.
- 4. I hold no interest, direct or indirect, in the securities or properties of Imperial Oil Enterprises Limited, nor do I expect to receive any.

Poter Shelast

Peter E. Walcott, P.Eng.

Vancouver British Columbia,

August 1972

SUMMARY OF 1972 DRILLING

ON EAGLE CLAIMS

Diamond drilling on the Eagle prospect was started on August 9, 1972 and completed on September 17, 1972. Six holes of BQ wireline drilling, totalling 3,852 feet, were completed by Arctic Diamond Drilling. The location of the drill holes is shown on an accompanying geological map at 400 feet to 1 inch.

A table summarizing the drill holes follows:

HOLE NO.	GRID LOCATION	CLAIM NO.	DRN.	ANGLE	ELEV.	LENGTH
72-1	L52+12E, 12+00N	98	045°	~50°	5040'	700'
72-2	L52+00E, 6+44N	36	045°	-50°	5020'	709'
72-3	L 0+00 , 9+25N	2	045 °	-50°	4890'	542
72-4	L 0+00 , 14+85N	102	045°	-50°	5020'	400'
72-5	L 8+00E, 5+29N	2	045°	~50°	4930'	801'
72-6	L 8+00E, 0+41S	2	045°	~50°	4890'	700'
			TOTAL	FOOTAGE	=	3,852'



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		Po/2m	
			IMPERIAL OIL ENTERPRISES LTD.
L		l	EAGLE CLAIMS
		•	
1.4			
6			L-40-W
		F. E.	a = 300'
-	I	J	FREQUENCY = 0.3 cps.
			SCALE "= 300'
1.1			
7		M. F .	
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4256

a = 300' ·

FREQUENCY = 0.3 cps.





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POSSIBLE ANOMALOUS ZONE