

84-1298-13302

GEOPHYSICAL REPORT
ON A
INDUCED POLARIZATION SURVEY
DES CLAIMS

NTS 92I/7E

Kamloops and Nicola Mining Divisions

Lat. $50^{\circ} 25' N$

Long. $122^{\circ} 38' W$

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

for

13,302

Mr. Charles Boitard

by

D.R. MacQuarrie
and
Charles Boitard

October 15, 1984

Vancouver, B.C.

11/85



Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
Geophysical Report on an Induced Polarization Survey	\$3,990.00

AUTHOR(S) . D.R. MacQuarrie SIGNATURE(S) *[Signature]*
 C. Boitard

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED November 14 YEAR OF WORK 84

PROPERTY NAME(S) ... Des. Claim

COMMODITIES PRESENT ... copper and gold

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN

MINING DIVISION Kamloops. and. Nicola NTS . 92I/7E

LATITUDE . 50° 25' N LONGITUDE . 120° 39' W

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Des (8 units)

OWNER(S)

(1) Charles Boitard (2)

MAILING ADDRESS

... 2245 West 13th Avenue
 ... Vancouver, B.C. V6K 2S4

OPERATOR(S) (that is, Company paying for the work)

(1) Charles Boitard (2)

MAILING ADDRESS

... 2245 West 13th Avenue
 ... Vancouver, B.C. V6K 2S4

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

The Desmond Lake area lies in a broad belt of Upper Triassic Nicola group volcanic rocks between the Guichon Batholith to the west and the Nicola Batholith to the east. The Nicola group is made up of intermediate to basic volcanic flows and breccias with minor sedimentary subfacies. Numerous other stocks and intrusive plugs intrude the Nicola rocks.

REFERENCES TO PREVIOUS WORK ... Lammle, C.A.R. (1972) Mark, D.G. (1980) Sookchoff, L. (1976) White, G. (1977) MacQuarrie, D.R. (1981)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST APPORTIONED
GEOLOGICAL (scale, area) Ground Photo			
GEOPHYSICAL (line-kilometres) Ground Magnetic Electromagnetic Induced Polarization Radiometric Seismic Other Airborne	1.4 km.	Des	
GEOCHEMICAL (number of samples analysed for) Soil Silt Rock Other			
DRILLING (total metres; number of holes, size) Core Non-core			
RELATED TECHNICAL Sampling/assaying Petrographic Mineralogic Metallurgic			
PROSPECTING (scale, area) PREPARATORY/PHYSICAL Legal surveys (scale, area) Topographic (scale, area) Photogrammetric (scale, area) Line/grid (kilometres) Road, local access (kilometres) Trench (metres) Underground (metres)	1.4 km.	Des	
TOTAL COST			\$3,990.00
FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT
Value work done (from report)			
Value of work approved			
Value claimed (from statement)			
Value credited to PAC account			
Value debited to PAC account			
Accepted	Date	Rept. No.	Information Class



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Figure 3	I.P. Compilation Map, scale 1:2,500	in pocket
Figure 4	Apparent Resistivity Map, " " " "	" " " "

APPENDIX

Appendix 1 Copy of claim record form

SUMMARY AND RECOMMENDATIONS

During the period September 14 to 16, 1984, a total of 1.4 km. of I.P. Surveying was completed on the DES CLAIM.

The claims are located approximately 14.4 km. east-southeast of Logan Lake, B.C. The property consists of 8 units, situated on the boundary between the Nicola and Kamloops Mining Divisions.

Nicola group volcanic rocks, intrusive plugs and stocks occur in the vicinity of the claims and some are reported to carry low grade copper mineralization. Two mineral prospects occur within 8 km. to the northwest. The major Highland Valley Mines are located some 28 km. to the north - northwest.

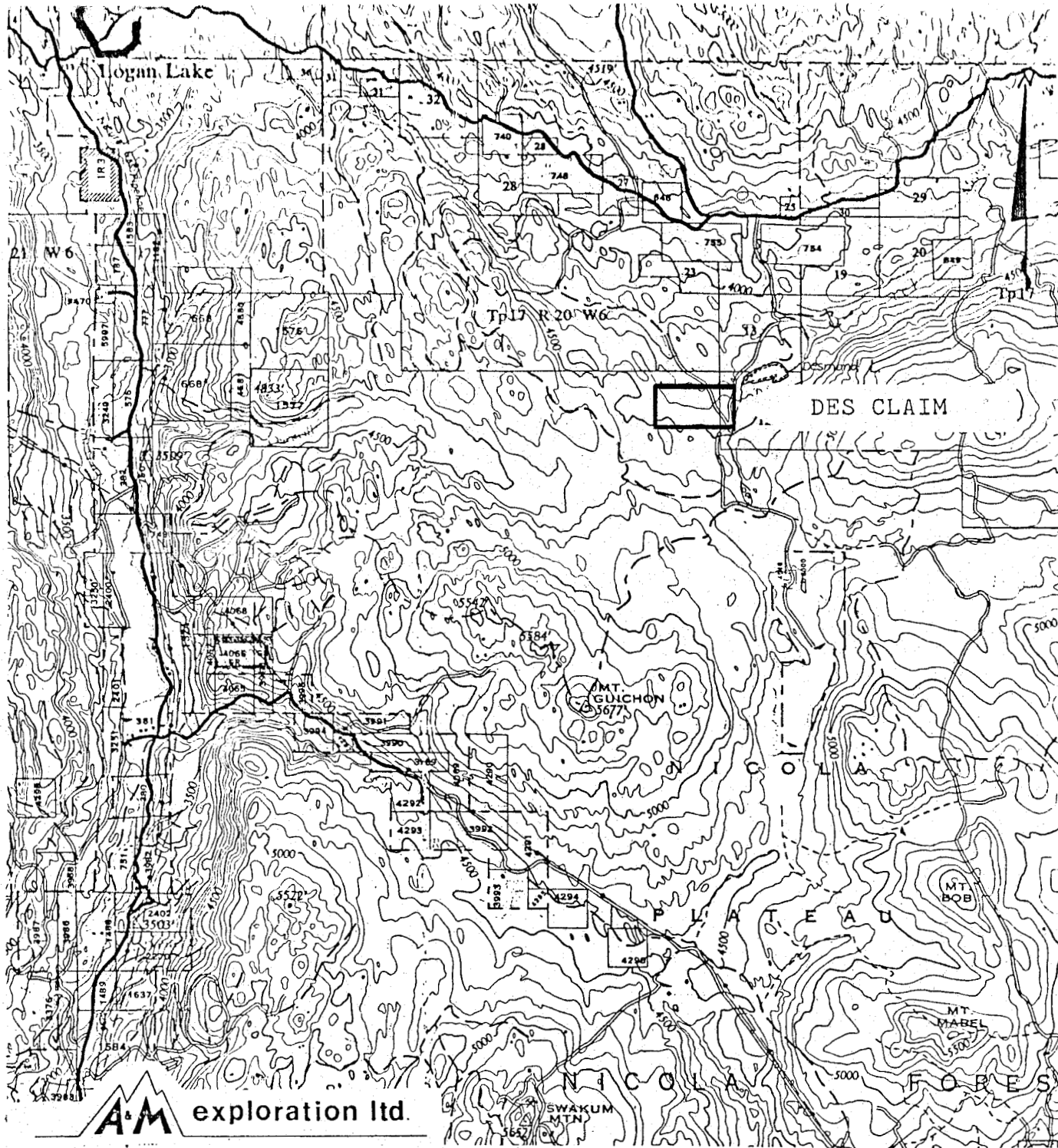
Geological reports by Lammle (1972) and Sookochoff (1976) conclude that major northerly and northwesterly faults are indicated to occur in the vicinity of the present claims. These faults are reflected by geochemical anomalies, interpreted aeromagnetic and topographic linears and I.P. anomalies. Interesting mineralization was noted along these structures.

INTRODUCTION

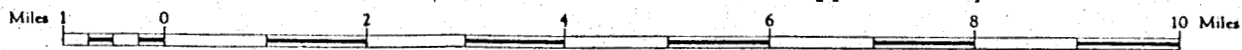
During the period September 14 to 16, 1984, a total of 1.4 line/Km. of induced polarization survey was completed over the Des Claims, Logan Lake area, British Columbia. The claim is owned and operated by Mr. Charles Boitard of Vancouver, B.C.

The claim area is located on the boundary between the Kamloops and Nicola Mining Division at $50^{\circ} 25''$ N latitude and $120^{\circ} 39''$ W longitude in the Highland Valley area of south-central B.C., fig. 1 and 2. Property access is provided by travelling 14 Km. east of the town of Logan Lake via the Lac Le Jeune - Meadow Creek road and thence 4.5 Km. in a southerly direction along the Surrey Lake road. This latter road has several difficult muddy sections and therefore a 4 wheel drive vehicle is suggested. Numerous other fishing lodge and logging roads provide good access to the claim area. Recent logging activity in the vicinity of L 80 S station 120 W is believed related to right of way clearing for the B.C. Hydro transmission line proposed to run between Nicola and Kelly Lakes.

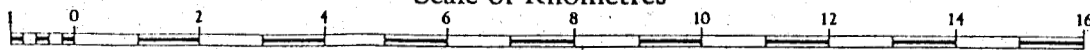
The property lies at an elevation of approximately 1350 meters in the Highland Valley area of the Thompson Plateau. The Highland Valley orebodies are located approximately 28 Km. to the west-northwest. The vegetation is characterized by pockets of fir in mature stands of lodge-pole pine. Ground cover is generally light with numerous



Scale 1:125,000 or 1 Inch to 2 Miles approximately



Scale of Kilometres



Magnetic Declination approximately 23°00' East at centre of sheet, 1972
Decreasing approximately 2' 48" annually.

Mr. Charles Boitard - DES CLAIM

NTS 92I/7E

LOCATION MAP

FIG. 1

areas of very heavy deadfall. The area is drained by several small northerly flowing creeks which should provide sufficient water for exploration work. The climate is semi-arid with an average rainfall of 25 cm. annually.

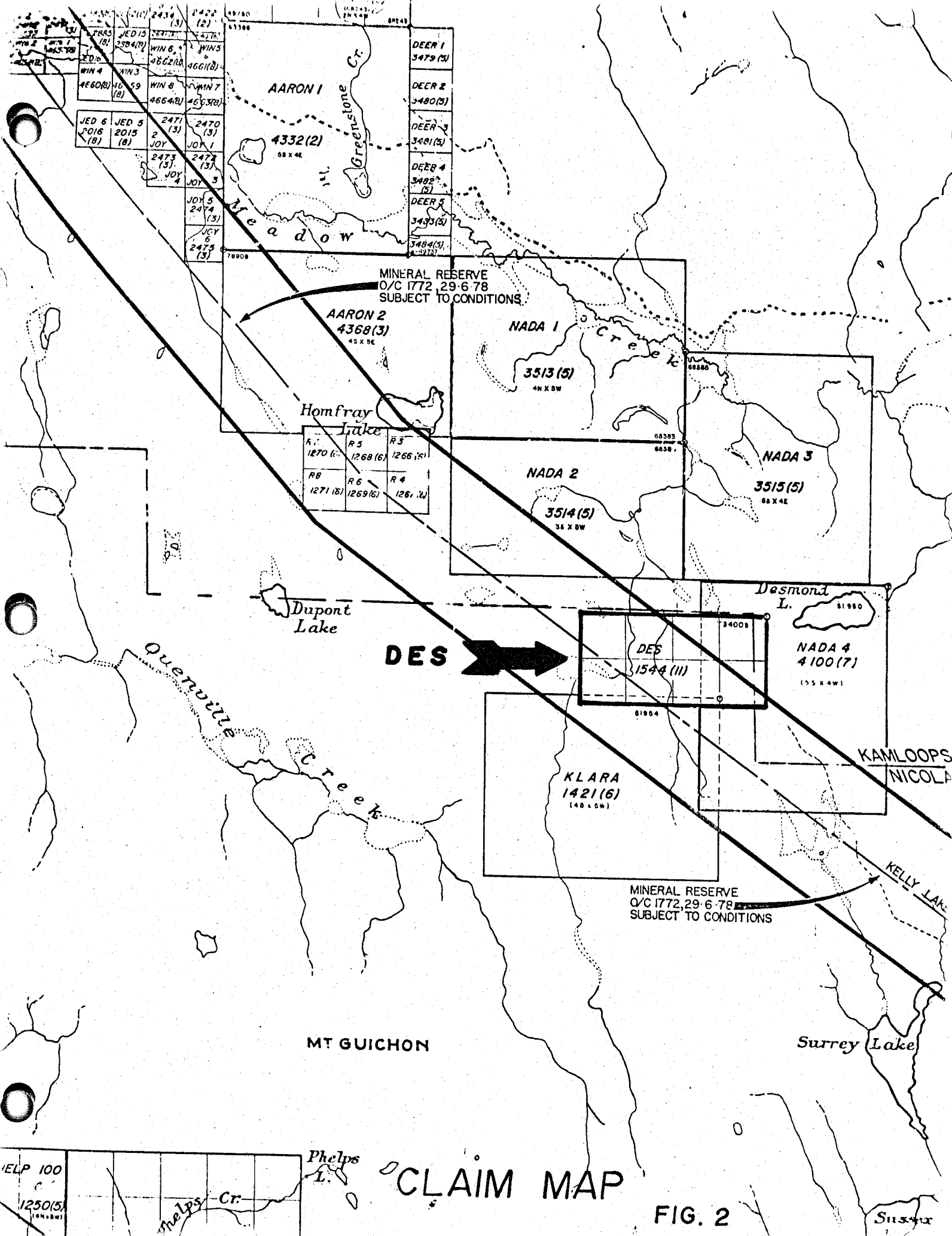
PROPERTY OWNERSHIP

The Des property, record #1544 (11), consists of eight units staked under the modified grid system, fig 2. The legal corner post was not observed by the writer, but the one south post was noted and its location is shown on fig. 3.

The claim record form, Appendix 1, shows Mr. Charles Boitard as the owner. It is expected that acceptance of this report will extend the expiry date by three years to November 15, 1987. Sections of the Des claim are located within Mineral Reserve o/c 1772, 29-6-78, and are subject to conditions as specified in the order in council.

GENERAL GEOLOGY

The Desmond Lake area lies in a broad belt of Upper Triassic Nicola group volcanic rocks between the Guichon Batholith to the west and the Nicola Batholith to the east. The Nicola group is made up of intermediate to basic volcanic flows and breccias with minor sedimentary sub-facies. Numerous other stocks and intrusive plugs intrude the Nicola rocks.



CLAIM MAP

FIG. 2

HELP 100				
125015				
Phelps L.				
Phelps Cr.				

In a report on the local geology Sookochoff (1976) states "the property ... is underlain by a variety of Nicola volcanic rock types from moderately to intensely metamorphosed with occasional recrystallization. Rock types consisted of black amygdaloidal basalt, ... grey green fine grained andesites trending northerly ... and steeply dipping. The volcanics, chloritized to various degrees generally contain either calcite stringers or splashes of calcite on fractures and are locally epidotized."

Lammle (1972) noted "granitic rock types found were medium grained, equigranular monzonite to monzonite with prophyry aspects and some fine grained fresh looking latite dykes." Volcanic rocks in proximity to the monzonite are pyritized and weakly hornfelsed. Trace amounts of chalcopyrite were found in both monzonite and hornfels." The location of these outcrops is believed to be in the southeast section of the Des claims, just west of the road.

INDUCED POLARIZATION SURVEY

In order to evaluate the grid area on line 30 S and 40 S to a depth of 50 m. it was decided that a dipole - dipole array with an 'a' spacing of 100 m. and 'n' = 1 would be used. A five man crew was used to accomplish the survey.

INSTRUMENTATION

The induced polarization equipment used was of the frequency domain type, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. The system has a maximum power output of 500 watts from a 12 volt lead-acid battery supply. Frequencies are variable from 0.1 to 10 hz.

The induced polarization method is based on the electrochemical phenomenon of overvoltage that is, on the establishment and detection of double layers of electrical charge at the interface between ionic and electronic conducting material when an electric current passes across the interface.

Naturally occurring sulphides such as pyrite, oxides such as magnetite, graphite as well as certain clay minerals, sericite and chlorite give rise to induced polarization responses. These responses are generally characteristic of certain rock or soil types.

The frequency domain method is based on the fact that I.P. effects are greater at lower frequencies and therefore the change of measured resistivities with frequency is an indication of the polarization effects. The factor measured is called the 'Percent Frequency Effect' or PFE and is defined as:

$$\text{PFE} = \frac{R_1 - R_2}{R_1} \times 100$$

where R_1 and R_2 are the apparent resistivities at the lower and higher frequencies used. This factor is directly read by the I.P. receiver.

The apparent resistivities were calculated for each station, using the following formula for a dipole-dipole array:

$$Pa = \pi \cdot a \cdot n \cdot (n+1) \cdot (n+2) \cdot \frac{Vp}{I}$$

where Pa = apparent resistivity, ohm metres

a = a spacing = dipole length, metres

n = number of dipole lengths between the transmitter electrode and the receiver porous pot.

Vp = primary voltage across receiver porous pots (millivolts).

I = transmitter current, (milliamps).

SURVEY PROCEDURE

The I.P. survey was conducted over an additional grid located north of the 1981 survey (line 30 S and line 40 S) in an east - west direction, the lines are at 100 m. intervals and 50 m. station intervals.

The dipole - dipole array was selected for the survey. An 'a' spacing of 100 m. 'n' = 1 was used throughout the 1984 survey. Frequencies of 0.3 and 10 hz were selected. Stainless steel current electrodes were used for the transmitter dipole and non-polarizing copper sulphate - copper electrode half cells (pots) were used for the receiver dipole. All anomalous PFE readings (greater than 3.0%) were double checked. The measured PFE, Vp and I were recorded for each station. The plan maps of the PFE and Apparent Resistivity Values are shown on (fig. 3 and 4.)

SURVEY RESULTS AND INTERPRETATION

The 1984 program has extended the anomalous I.P. zone an additional 200 m. northerly from its previously defined limits in the 1981 survey. The data is presented in plan form on figures 3 and 4 at the back of this report, compiled together with the results from 1981 and 1977.

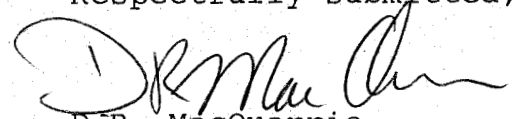
The 1984 data was obtained with similar equipment as in 1981; however, results were obtained for $n=1$, $a=100\text{m}$ in 1984 rather than $n=2$, $a=100\text{m}$ as in 1981. The two sets of results are therefore not directly comparable in magnitude. However,

as a result of relatively thin overburden conditions the two different separations have yielded reasonably similar magnitudes to both the percent frequency effects and the apparent resistivity values and were therefore contoured together on Figures 3 and 4.

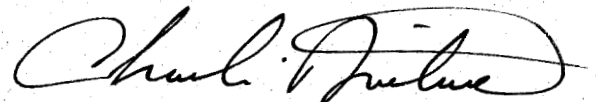
Induced polarization values reach a peak of 10.0 pfe on L40S at station 12+50W. The 8.0 pfe contour extends from 12+20 to 13+60W on L40S and from 13+00 to 13+60W on L30S. Apparent resistivity values within the area of the 8.0 pfe contour vary from 102 to 333 ohm meters, comparable to the previous, more southerly results.

The anomalous responses detected by the 1984 program are probably related to source rocks as was interpreted in the 1981 report, that being pyrite+/-chalcopyrite mineralization in Nicola Volcanic rocks. As was recommended in the 1981 report, further induced polarization surveying to the north and south of the surveyed area, and geological mapping of the detected anomalous areas, will be required to evaluate the economic potential of the induced polarization anomalies.

Respectfully submitted,



D.R. MacQuarrie
Geophysicist



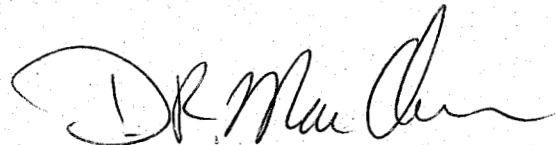
C. Boitard

REFERENCES

- Lammle, C.A.R. (1972). Geochemical Report on Des 1-98 Mineral Claims. B.C. Dept. Mines Assessment Report, 4057.
- Mark, D.G. (1980). Geophysical Report on VLF EM and Magnetometer Surveys, Des Claim. April 29, 1980,
- Sookochoff, L. (1976). Geological Report on the Desmond Lake Property. October 12, 1976, Private Report.
- White, G. (1977). I.P. and Resistivity Test Profiles Plates 1 to 4. Private Report. 5/6/77
- MacQuarrie, D.R. (1981). I.P. and Resistivity Survey Report. Des Claim. December 15, 1981.

CERTIFICATE OF QUALIFICATIONS

- I, Douglas R. MacQuarrie, of the City of Surrey in the Province of British Columbia, do hereby certify that:
1. I am a Consulting Geophysicist of A & M Exploration Ltd., with offices at #214 - 850 West Hastings Street in Vancouver, British Columbia.
 2. I am a graduate of the University of British Columbia with a degree in Geology and Geophysics (B.Sc., 1975).
 3. I have been practising my profession since 1975 and have been active in the mining industry since 1971.
 4. I am an active member of the Canadian Institute of Mining and Metallurgy and a member of the British Columbia Geophysical Society.
 5. This report is based on data acquired by Mr. Charles Boitard, and on a review of the available literature.
 6. I hold no interest in the DES CLAIM, nor do I intend to receive any as a result of writing this report.



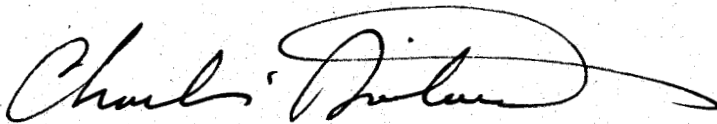
Douglas R. MacQuarrie
B.Sc.

STATEMENT OF COSTS

This will certify that geophysical surveying was carried out in September 1984 on the Des Claim, Kamloops and Nicola Mining Divisions, British Columbia to the value of the following.

Induced Polarization Survey 5 man days all inclusive	\$1,500.00
Mobilization-Demobilization Vancouver to Des Claims	1,500.00
Board and Room 10 man days @ \$30 per day	300.00
Draughting, 8 hrs @ \$15 per hr.	120.00
Typing and photocopying	220.00
Report, 1 day @ \$350 per day	<u>350.00</u>
Total	\$3,990.00

Respectfully submitted,



Charles Boitard

APPENDIX 1

Claim Record Form

MINERAL ACT - PROVINCE OF BRITISH COLUMBIA

Record of Mineral Claim
FORM 6

921/73

RECORD NO 1544

128042E

Kamloops

THIS 15 DAY OF November 1978

DO NOT WRITE IN SHADED AREAS

Gold Commissioner

Kamloops

Affidavit for Mineral Claim

Vic DOUCET

AGENT FOR

Charles BOITARD

2259 Crescent Dr. Kam.

2245 W 13th Ave Uaw.

VALID SUBSISTING F.M.C. NO 170833

VALID SUBSISTING F.M.C. NO 159-725

MAKE OATH AND SAY: I COMMENCED LOCATING THE

DES

MINERAL CLAIM

ON THE 25 DAY OF Oct. 1978 AT 10:05 AM AND COMPLETED THE LOCATION

ON THE 25 DAY OF Oct. 1978 AT 4:50 PM CONSISTING OF

UNIT LENGTHS W AND 2 UNIT LENGTHS South AND I HAVE IMPRESSED ALL THE REQUIRED INFORMATION

METAL TAGS NO 34005 WHICH HAS BEEN SECURELY FASTENED TO THE POSTS AS REQUIRED UNDER THE REGULATIONS

IDENTIFICATION POST(S) NOT PLACED WERE

CHECK APPLICABLE SQUARE THE LEGAL CORNER POST THE WITNESS POST FOR THE LEGAL CORNER POST } IS SITUATED: 450 METERS WEST OF DESMOND LAKE

BEARING AND DISTANCE TO TRUE POSITION OF LEGAL CORNER POST FROM THE WITNESS POST

BEARING AND DISTANCE FROM IDENTIFICATION POST TO WITNESS POST

I HAVE COMPLIED WITH ALL THE TERMS OF THE MINERAL ACT AND REGULATIONS PERTAINING TO THE STAKING OF MINERAL CLAIMS AND HAVE ATTACHED A PLAN, ACCEPTABLE TO THE MINING RECORDER, OF THE LOCATION

SWORN AND SUBSCRIBED TO AT Kamloops THIS 15 DAY OF November 1978 BEFORE ME

[Signature]
SIGNATURE

GOLD COMMISSION
128042E
NOV 15 1978
41.00
KAMLOOPS
BRITISH COLUMBIA

THIS AFFIDAVIT MAY BE TAKEN BY A PERSON EMPOWERED TO TAKE AFFIDAVITS BY THE EVIDENCE ACT OF BRITISH COLUMBIA.

NO OF UNITS

WORK UNITS	C/L IN S	MINING RECEIPT AND DATA RECORDED	TYPE OF WORK	YEAR OF EXPIRY	CREDIT		TRANSFERS (S.S. ASSIGNMENTS, CONVEYANCES)
					WORK UNITS	RENTAL IN \$	
SURVEY PENDING				4/437/80			
7-532		2 yrs. Nov 13/79	G	1981			
SURVEY PENDING				4/5590/81			



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,302

Grid (1984) L.30 S. & L.40 S.

INSTRUMENT - SABRE 450 watt, frequency domain

ARRAY - Dipole - Dipole, $a = 100\text{m}$, $n = 1$

- For comparison purposes 1% F.E. = 2 msec.

- " " " ohm metre = ohm feet $\cdot 0.3048$

LEGEND

New Grid (1981)

INSTRUMENT - SABRE 450 watt, frequency domain
(% frequency effect).

ARRAY - Dipole - Dipole, $a = 100\text{m}$, $n = 2$

FREQUENCY - 0.3 and 10 c.p.s.

- For comparison purposes 1% F.E. = 2 msec.

- " " " ohm metre = ohm feet $\cdot 0.3048$

Old Grid

HUNTEC MARK 3, time domain (msec).
Glen White, 1977.

Pole - Dipole, $a = 400'$, $n = 1$

MENIKA MINING LTD.

INDUCED POLARIZATION
COMPILATION MAP
DES CLAIM

scale 1 : 2,500	NTS 921/7E	FIG. 3
date October, 1984		



