4810

GEOPHYSICAL REPORT

ON THE

PUP CLAIM GROUPS

92L/12W
102I/9E

NANAIMO MINING DIVISION

BRITISH COLUMBIA

FOR

CITIES SERVICE MINERALS CORPORATION

405 - 1200 WEST PENDER STREET

VANCOUVER 1, B.C.

WORK PERFORMED: November 20 - Dec. 11, 1973

LOCATED (1) 50° 45' N, 128° 00' W

(2) NTS Sheets 102 I/9 E, 92 L/12 W

(3) Holberg Area

Report By: J. W. Murton, P. Eng.

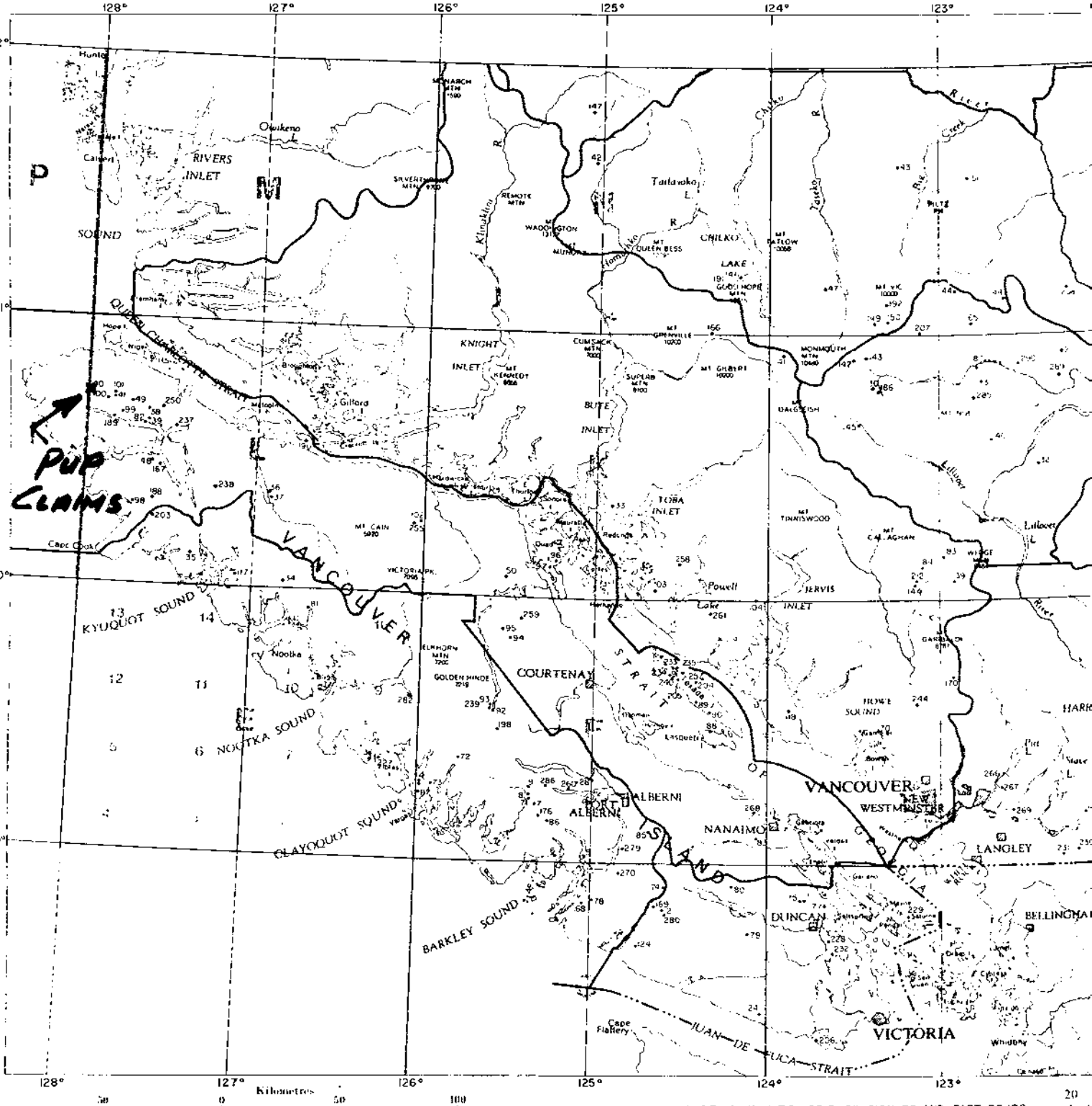


Figure E. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 92 AND PART OF 102

FIGURE N° 1

Scale 1" = 40 miles

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4810 #1

TABLE OF CONTENTS

Illustrations:

INTRODUCTION:

The PUP group of claims were staked to cover possible disseminated copper-molybdenum occurrences of the porphyry type.

This report describes the results of a geophysical survey executed on these claims. The work was performed during the latter portion of 1973 and consisted of a frequency domain induced polarization survey.

LOCATION, ACCESS AND PHYSIOGRAPHY:

The claims are in the Nanaimo M.D. at latitude 50° 45' N, Longitude 128° 00' W. The southern boundary of the claim group is about 6.5 miles north of Holberg, B. C. Access to the area is via gravel roads built for logging purposes from Holberg which is about 30 miles west of Port Hardy, Northern Vancouver Island.

Most of the area is covered by heavy timber, secondary growth and/or heavy under brush. Weather is typical of northwestern Vancouver Island with an average yearly precipitation of about 150 inches. Outcrop is scarce in the area, with only small exposures along creek beds and roads. The exposures consist of volcanic greenstones, limestones and granodiorites.

SURVEY:

The survey was executed along logging roads. The roads, in turn, were surveyed with compass and chaining methods using ground controls and plotted on topographic maps at a scale of 1" = 1000 feet.

A frequency domain induced polarization survey consisting of 46,200 feet (8.75 miles) was conducted on these roads.

PERSONNEL:

G. Salazar - Geologist and Supervisor

D. Morrison - I.P. Operator and Crew Chief

M. Arsenault - Transmitter Operator

J. Shearer - Helper

B. Lennan - Helper

Office Personnel

J. W. Murton - Geologist, P. Eng.

EQUIPMENT AND METHOD:

The induced polarization equipment used for the survey was a multifrequency P660 unit manufactured by McPhar Geophysics of Don Mills, Ontario.

The I. P. field procedure employed was the dipole - dipole array, with a dipole "a" spacing of 300 feet. Measurements were taken to the second separation.

The road layout did not lend itself to the usual interpretation on customary pseudosections, so the resultant observations are plotted on a topographic map, showing the outline of the surveyed roads, at a sale of 1" = 1000 feet and are included in this report (Drawing Nos. 1 and 2).

DISCUSSIONS OF RESULTS:

All measurements taken for total distances along the several roads are to the extreme data points only and do not include the outermost electrode placement limits, which would add another 900 feet per line to the total footage.

It should be pointed out that the resistivity values as a result of the road induced polarization surveys, are dependent on the winding nature of the roads or segments of roads over which the survey was done. This is due to the fact that the surveyed stations were located and measured along the roads whereas currents do not have to follow the same path.

Descriptions such as low resistivity, high frequency, etc., are relative turns only.

A) Road NE50

A narrow zone of high resistivity values exists between stations 1500 and 2100 and is interpreted to be the reflection of the Quatsino limestone formation. Correlatable weak frequency effects between stations 1500 and 1800 are also seen.

B) Road NE51

The very abrupt change in resistivity at station 900 is interpreted to be partly due to a deep ravine located at about station 450, although the high resistivity rock is probably the Quatsino limestone Formation.

C) Road NE53

No anomalous values observed.

D) Road NE53A

No anomalous values observed.

E) Road NE53D

The low resistivity response found in between stations 300 and 2400 is attributed to both topography and the winding nature of this road.

F) Road NE54

No anomalous values observed.

G) Road NE62D

No anomalous values observed.

H) Road NE62D-1

The narrow zone of low resistivity in between stations 900 and 1200 is probably due to the winding nature of the road in this area.

Narrow zones of high resistivity are seen in between stations 3000 and 3900 and are interpreted to be a reflection of small limestone blocks that could be faulted-off segments of the Quatsino limestone Formation.

Weakly anomalous frequency effects observed at stations 2100 and 4200 occur immediately above the interpreted limestone blocks.

I) Road NE62D-1B

A sharp change to very low resistivity is observed at station 600, but the winding nature of the road in this area could be the reason for it.

Anomalously high frequency effects coincident with the zones of low resistivity referred to above and the abruptness of the change might indicate that a topographic lineal coincident with these readings could be the expression of either a fault or a formational contact.

High resistivity effects in between stations 2400 and 2700, especially noticeable in the second separation, are probably a reflection of the Quatsino Limestone Formation.

Moderately high frequency effects observed in between stations 1500 and 1800 may be the result of weak sulphide mineralization and/or strong chlorite-epidote alteration in Karmutzen volcanics.

J) Road NE62D-1B-2

No anomalies observed.

CONCLUSIONS AND RECOMMENDATIONS:

The resistivity results indicate that two broad classifications can be made, that of high resistivity and medium to low resistivity regions.

The high resistivity regions are attributed to the Quatsino limestone Formation. A coincident and weakly anomalous frequency effect zones are interpreted to be the result of local metasomatic alteration of the limestone.

It is recommended that the areas with low to medium resistivity response with coincident weakly anomalous frequency effects, such as the area in between roads NE62D-1 and NE62D-1B, be investigated in more detail. A grid of parallel lines trending N45°E and at 500 foot spacing is recommended for this purpose. Diamond drilling of any possible targets found should be considered.

J. W. Murton, P. Eng.

STATEMENT OF EXPENDITURES INCURRED FOR ASSESSMENT PURPOSES ON THE PUP MINERAL CLAIMS, NANAIMO M.D. DURING THE PERIOD NOVEMBER 21 - NOVEMBER 30, 1973:

PERSONNEL:

G. Salazar - Supervisor, 7 days @ $52/day	$364.00
W. Murton - Office & report, 2 days @ $70/day	140.00
D. Morrison) Contract I.P. - 8.75 road miles M. Arsenault) @ $365/road mile	3,193.75
J. Shearer - I.P. Helper, 10 days @ $28/day	280.00
B. Lennan - I. P. Helper, 10 days @ $28/day	280.00
Camp Costs - 47 man days @ $10.50/ man day	493.50
Truck Rental - 10/30 days @ $525/30 days	175.00
Miscellaneous	200.00
Total Claimed	$5,126.25

Declared before me in the

City of Vancouver

British Columbia, this 28

day of December 1973 A.D.

Joan Burnes

Sub-mining Recorder

J. W. Murton, P. Eng.

I, J. W. Murton, of North Vancouver, British Columbia, do hereby certify that:

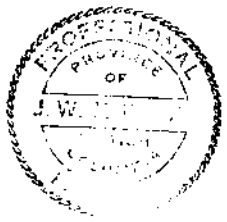
I am a member of the Association of Professional Engineers of the Province of British Columbia, registered in 1972, No. 8324.

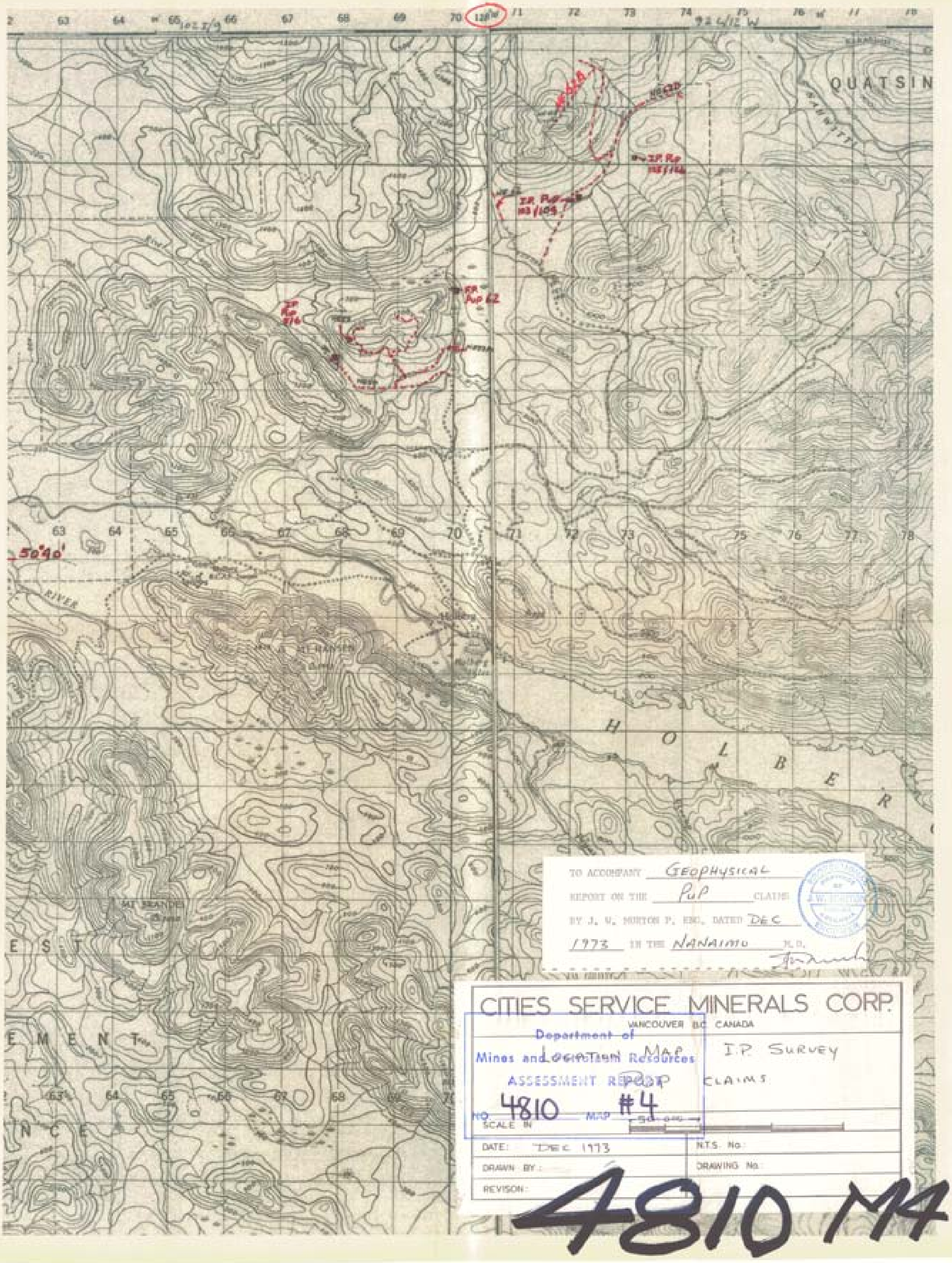
I am a graduate of the University of Manitoba with a B. Sc. in Geology.

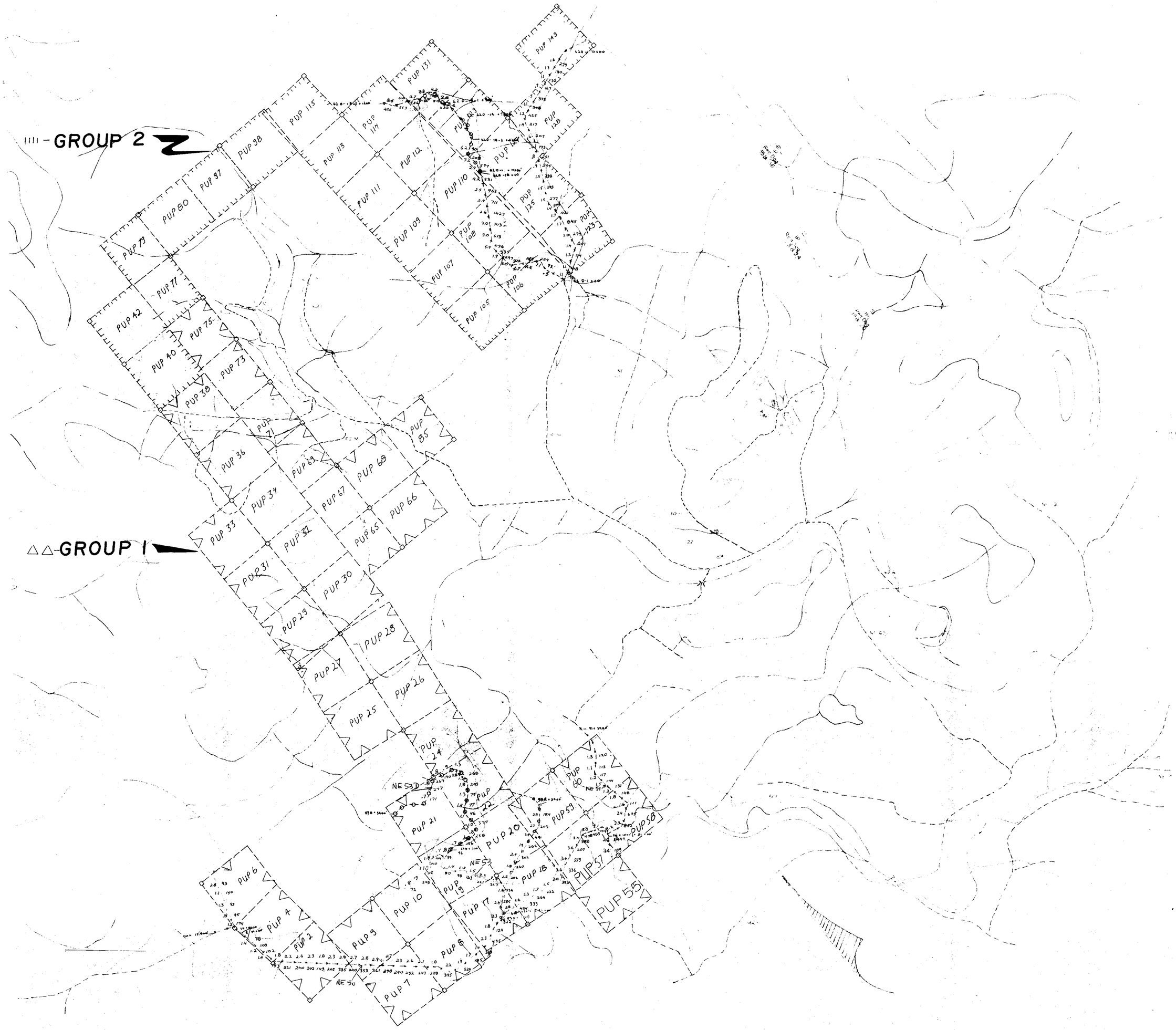
I have been a practising Engineer and Geologist since 1960 in Manitoba, Saskatchewan, British Columbia, South Western U.S.A. and Alaska.

Vancouver, B. C.
December 18, 1973

J. W. Murton, P. Eng.




QUATSIN
50°40'
HOLBER
ESTMENT
TO ACCOMPANY GEOPHYSICAL
REPORT ON THE PUP CLAIMS
BY J. M. MORTON P. ENG. DATED DEC
1973 IN THE NANAIMO M.D.
CITIES SERVICE MINERALS CORP.
VANCOUVER B.C. CANADA
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4810 MAP #4
SCALE IN
I.P. SURVEY
CLAIMS
DATE: DEC 1973
N.T.S. No:
DRAWN BY:
DRAWING No:
REVISON:
4810 MAP



PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J.W. MURTON

TO ACCOMPANY GEOPHYSICAL REPORT ON
THE PUP CLAIMS, NANAIMO M.D.
DATED DECEMBER 1973 BY G. SALAZAR, M.A.
AND J.W. MURTON P. ENG.

DRAWING NO. 1

DIPOLE SEPARATION
n = 1
a = 300

LEGEND

I.P LINE WITH STATIONS INDICATED BY VARIOUS SYMBOLS O □ X O
FIGURE ABOVE I.P. LINE IS FREQUANCY EFFECT
IF I.P. LINE VERTICAL THEN FREQUANCY EFFECT FIGURES ARE TOO THE LEFT
FIGURES BELOW I.P. LINE (STATION) ARE RESISTIVITY - TO THE RIGHT OF STATION
IF I.P. LINE IS VERTICAL.
- ROADS
- CREEKS
- LIGHT LINES (SECTS) ARE CONTOURS
CLAIM LINE WITH POSTS
CLAIM BOUNDARY

4810 M2

CITIES SERVICE MINERALS CORP.
VANCOUVER B.C. CANADA

PUP CLAIMS NANAIMO M.D.
I.P. SURVEY PLAN VIEW

SCALE IN 1" = 1000' (0 500 1000 2000' 3000)	
DATE: DECEMBER 18 1973	N.T.S. No.: 102 I/3E 92 L/12W
DRAWN BY: G.S. & B.L.	DRAWING No.: 1
REVISON:	

GROUP 2

GROUP 1

PUP 143 PUP 131 PUP 115 PUP 98 PUP 97 PUP 80 PUP 79 PUP 114 PUP 113 PUP 112 PUP 111 PUP 109 PUP 110 PUP 107 PUP 105 PUP 129 PUP 127 PUP 128 PUP 125 PUP 123 PUP 108 PUP 106 62D-18 62D-18-1 PUP 77 PUP 42 PUP 75 PUP 40 PUP 73 PUP 38 PUP 71 PUP 36 PUP 69 PUP 68 PUP 85 PUP 34 PUP 67 PUP 66 PUP 33 PUP 32 PUP 65 PUP 31 PUP 30 PUP 29 PUP 28 PUP 27 PUP 26 PUP 25 PUP 24 PUP 22 PUP 21 PUP 20 PUP 60 PUP 59 PUP 58 PUP 18 PUP 57 PUP 19 PUP 17 PUP 55 PUP 6 PUP 4 PUP 2 PUP 9 PUP 10 PUP 8 PUP 7 NE 62D NE 51 NE 53 NE 50

4810 M3

DRAWING NO. 2

TO ACCOMPANY GEOPHYSICAL REPORT ON THE PUP CLAIMS, NANAIMO M.D. DATED DECEMBER 1973 BY G. SALAZAR, M.A. AND J.W. MURTON, P. ENG.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J.W. MURTON

DIPOLE SEPARATION
n = 2
a = 300'

LEGEND
- Various symbols showing I.P. station locations
- Frequency effect to right of road. Resistivity in ohm feet to left of road.
- Roads
- Creeks
- Contour line
- Claim line with post
- Claim boundary

CITIES SERVICE MINERALS CORP.
VANCOUVER B.C. CANADA

PUP CLAIMS NANAIMO M.D.
I.P. SURVEY PLAN VIEW

SCALE IN 1" = 1000' 0 500 1000 2000 3000	
DATE: DECEMBER 18, 1973	N.T.S. No.: 102 I/9E & 92L/12W
DRAWN BY: G.S & B.L.	DRAWING No.: 2
REVISON:	