

PHOENIX GEOPHYSICS LIMITED

REPORT ON THE

MULTI-FREQUENCY PHASE

INDUCED POLARIZATION AND RESISTIVITY SURVEY

ON THE

AFTON PROPERTY

KAMLOOPS MINING DIVISION

PROVINCE OF BRITISH COLUMBIA

FOR

GOLDEN GATE EXPLORATIONS LIMITED

N.T.S. 921/10E

Latitude: 50⁰40'N

Longitude: 120030'W

ΒY

PAUL A. CARTWRIGHT, B.Sc., Geophysicist

June 3, 1982

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GOLDEN GATE EXPLORATIONS LTD

PROPERTY LOCATION MAP KAMLOOPS, B.C. Area

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] Km	5 Km	
Scale:-	1: 250,0	000
N.T.S.	92 I/10E	

INTRODUCTION

1.)

A short Multi-Frequency Phase Induced Polarization and Resistivity Survey has been completed on the Afton property of Golden Gate Explorations Limited.

The property is situated approximately 15 kilometers west of the City of Kamloops, B.C., and is located immediately north of the Afton Mines property. The Trans-Canada Highway crosses the southern part of the area of interest and provides excellent access from Kamloops.

Geology in the grid area consists of Kamloops tertiary volcanic and sedimentary rocks unconformably overlying Nicola volachics, which have been intruded by the Iron Mask Batholith. The northwestern limit of the batholith is close to the southern part of the property. Economic mineralization in the form of native copper, chalcocite, bornite, chalcopyrite, cuprite and small amounts of gold are known to occur at the contact of the batholith. (Afton Mines.)

Some diamond drill holes have been completed on the southern part of the Golden Gate property, which, together with geological evidence in the Afton pit, indicate the presence of a major fault down throwing the block underlying the southern part of the Golden Gate ground to a depth at least 1,000 feet.

The objective of the present survey was to further investigate a possibly anomalous indication recorded by a limited Phase Induced Polarization survey carried out during 1981. The source of this anomaly was indicated to be located approximately 2,000 feet to 2,500 feet north of the Golden Gate Explorations Ltd. - Afton Mines Ltd. property boundary. Depth to the top of the possible target was interpreted to be greater than 500 feet subsurface, although the complicated anomaly pattern made a precise interpretation difficult.

It was anticipated that the survey would encounter difficult conditions, due to the presence of at least two pipelines, a major power line, and the highway, all of which cross the southern limit of the property.

To overcome the difficulties inherent with attempting IP measurements in an area of high noise and low resistivities, the 1981 survey employed the Phoenix Model IPV-2 Phase IP receiver, as this instrument has a very high degree of noise rejection due to signal stacking and active filters controlled by synchronous crystal oscillators. However, it was found that electro-magnetic coupling was distorting the apparent IP effects measured even when a frequency as low as 0.33 Hz was used.

A Phoenix Model IPV-3 Multi-Frequency Spectral IP unit became available in early 1982 for use in British Columbia, and was used to carry out the 1982 survey, the results of which are the subject of this report. The broad frequency range of this instrument allows one to use even lower frequencies than the 0.11 Hz used the previous year, in order to eliminate all electromagnetic coupling between the grounded dipoles. At the same time frequencies as high as 4096 Hz were employed in an effort to inductively energize narrow, near-surface conductors. Dipole-dipole array was used with a basic interelectrode distance of 300 feet, and reading to six separations. Phase and amplitude measurements were made at 17 frequencies, separated by factors of 2, between 4096 Hz and 0.0625 Hz.

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An IPT-1 transmitter and an MG-2 motor generator were used as the current source.

Field work was carried out during early May 1982 under the supervision of Paul A. Cartwright, crew leader and geophysicist.

2.) <u>DESCRIPTION</u> OF CLAIMS

The afton property consists of the following claims:

CLAIM NAME	RECORDNUMBER	ANNIVERSARY DATE
Golden 15 FR-Golden 21 FR (Incl.)	120189-120195 (Incl.)	May 19
Jam 1 - Jam 10 (Incl.)	96795- 96804 (Incl.)	May 13
Jam 15- Jam 20 (Incl.)	96805- 96810 (Incl.)	May 13
Gate 2	120272	July
Gate 4	120274	July

The Gate 2 and Gate 4 claims are optioned from Mr. J. McPhee, while the others are owned by Golden Gate Explorations Ltd.

3.) PRESENTATION OF DATA

The Induced Polarization and Resistivity results are shown on the following data plots:

LINE_	ELECTRODE INTERVAL	DWG. NO.
6000W	300 feet	IP-5821-1
6000W	300 feet	-2
6000W	300 feet	-3
6000W	300 feet	-4
1600N	300 feet	-5
1600N	300 feet	-6
1600N	300 feet	-7
1600N	300 feet	-8

Also enclosed with this report is Dwg. I.P.P.-B-2001A, a plan map of the Afton property grid at a scale of 1 inch = 400 feet. The Induced Polarization anaomlies are indicated by bars, in the manner shown on the legend, on this plan map. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

In addition, a number of conductors may be indicated by narrow zones of negative high frequency phase values, which decrease quickly in [•] magnitude as the frequency is decreased. Triangle symbols are used to show the interpreted position of the conductor center, inthe manner shown on the legend of Plan Map I.P.P.-B-2000A.

The claim, and topographic information shown on Dwg. I.P.P.-B-2001A has been taken from maps made available by the staff of Golden Gate Explorations Limited.

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DISCUSSION OF RESULTS

4.)

Two lines have been surveyed using the Multi-Frequency Phase Induced Polarization and Resistivity method of the Afton property of Golden Gate Explorations Ltd. The locations of both lines is shown on the plan map Dwg. No.-I.P.P.-B-2001A.

Detail measurements were made using 300 foot dipole lengths and the IPV-3 receiver during the present survey, in an attempt to confirm the weakly anomalous response recorded by the 1981 IPV-2 Survey under the vicinity of Station 750N to Station 1750N.

Although the IPV-3 and IPV-2 receiver are similar in operation, and should have equal signal enhancement qualities, the data acquired by the present survey is generally more affected by the electrical noise present in the survey area. It is not known if the ambient noise level is higher this year than last, or if some other aspect of the Multi-Frequency survey is the cause. The use of multi-conductor receiver wires to record six readings simultaneously may have introduced higher power line 60 Hz signal levels to the receiver than the more conventional single receiving wires used by the IPV-2 survey.

However, a possibly anomalous IP response can be interpreted in the Line 6000W multi-frequency data, centered at approximately Station 1750N.

Crossline 1600W was then surveyed using 300 foot dipoles in order to further check the authenticity of this anomaly. The data is again quite noisy, but no reliable anomaly can be seen which would confirm the results displayed by the data from Line 6000.

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The most obvious feature outlined in the data is a probable EM conductor crossing Line 1600W between Station 6000W and Station 5700W. This feature appears to extend from close to the surface to depth, and may represent a fault structure, possibly striking almost parallel to Line 6000W.

Another possibly anomalous EM conductor is interpreted to lie at some depth beneath approximately Station 6450W, while a similar feature may be present at depth under approximately Station 1150N, Line 6000W.

5.) SUMMARY AND RECOMMENDATIONS

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A Multi-Frequency Phase Induced Polarization and Resistivity survey has been completed over two lines on the Afton Property on behalf of Golden Gate Explorations Ltd.

One possibly anomalous IP response is evident in the vicinity of Line 6000W, Station 1750N, and correlates somewhat with a weakly anomalous indication detected during the 1981 survey. Unfortunately, data recorded on a crossline near this location does not confirm the presence of anomalous IP effects, although data fromboth lines is affected by the high ambient noise level.

The higher frequency phase results suggest a conductive structure, such as a fault, is present striking roughly parallel and just to the east of Line 6000W.

At least two other, deeper conductive regions have been interpreted to be located west of the possible fault structure discussed above.

Further work could be in the form of additional Phase IP work on lines situated to close the intervals between existing lines. If a

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ASSESSMENT DETAILS

PROPERTY: Afton Property PROVINCE: British Columbia SPONSOR: Golden Gate Explorations Limited LOCATION: Afton Mines Area, Kamloops M.D. TYPE OF SURVEY: Multi-Frequency Phase Induced Polarization and Resistivity OPERATING MAN DAY: 12.0 DATE STARTÉD: 5 May 1982 EQUIVALENT 8 HR . MAN DAYS: 18.0 DATE FINISHED: 9 May 1982 CONSULTING MAN DAYS: 2.0 NUMBER OF STATIONS: 24 DRAFTING MAN DAYS: 2.0 MILES OF LINE SURVEYED: 1.25 TOTAL MAN DAYS: 22.0 NUMBER OF READINGS: 1760 CONSULTANT: Paul A. Cartwright, 4238 West 11th Avenue, Vancouver, B.C. FIELD TECHNICIANS:

Paul A. Cartwright, 4238 W. 11th Avenue, Vancouver, B.C.F. DiSpirito, 2748 Oxford Street, Vancouver, B.C.G. Elliott, 90 Aurora Crescent, Willowdale, Ontario

CARTOGRAPHER:

P. Cartwright, 4238 W. 11th Avenue, Vancouver, B.C.

PHOENIX GEOPHYSICS LIMITED

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Paul A. Cartwright, B.Sc., Geophysicist.

Dated: 3 June 1982

STATEMENT OF COSTS

Golden Gate Explorations Limited IP Survey - Afton Property, B.C.

<u>CREW</u>: P. Cartwright, F. DiSpirito, G. Elliott

<u>PERIOD</u>: May 5, 1982 to May 9, 1982

4 operating days	@ \$925.00/day	\$ 3,700.00
½ organization days	@ N.C.	-
Mobilization-Demobilization		1,300.00
		\$ 5,000.00

PHOENIX GEOPHYSICS LIMITED

A. Centuris A. Paul

Paul A.Cartwright, B.Sc., Geophysicist.

Dated: 3 June 1981

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CERTIFICATE

I, Paul A. Cartwright, of the City of Vancouver, Province of British Columbia, do hereby certify that:

1.	I am a geophysicist residing at 4238 W. 11th Avenue,
	Vancouver, B.C.

- I am a graduate of the University of British Columbia,
 B.C. with a B.Sc. Degree.
- 3. I am a member of the Society of Exploration Geophysicists.
- 4. I have been practising my profession about 12 years.
- 5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly, in the property or securities of Golden Gate Explorations Limited or any affiliate.
- 6. The statements made in this report are based on a study of published geophysical literature and unpublished private reports.
- 7. Permission is granted to use in whole or in part for assessment and qualification requirements but not for advertising purposes.

Paul A. Cartwright, B.Sc.

Dated at Vancouver this 3rd day of June 1982.

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PHOENIX SPECTERL I P RESISTIVITY (ohm-m) AT 1 Ha БОГОЕН САТЕ AFTON KAMLOOPS B C LINE 6000W 90m 7/5/82 L377 DIPOLE NUMBER 5 10 8 1 2 4 6 2<u>5 N</u> COORDINATE 1 N 2 N 13N 19N 71N INTERPRETATION -N=1 N=1 29 23 28 23 31 \$\$202 190 11 73 87 77 N=2 20 27 23 43 60 43 116 68 26 N = 2N=3 24 26 59 75 39 69 47 Н=З 37 196 H = 424 66 41 40 33 55 N = 41 59 -N=5 73 47 38 35 30 N=5 \mathbb{N} 34 N=6 N=6 27 38 32 PHOENIX SPECTRAL I P FFE (25-4 Hz) OLDEN GATE AFTON KAMLOOPS B.C. LINE 6090W L377 90 m 7/5/82 DIPOLE NUMBER 2 3 5 8 10 4 6 COORDINATE 1 N 19N 25N 31N INTERPRETATION - H = 1 1.5 N=1 .8 16 7.2 2.9 -1.9 2.8 3.8 1.8 .1 N=2 N=2 19 ~15 2.6 -7.3 3.8 22 13 3.1 2 13 13 4.3 N = Z·N=3 -6.7 8 -4.1 76 Ľ 11=4 -6.1 -51 -26 11 14 4.3 7.3 N = 4152 N=5 •N = 5 -19 -29 -68 4.610 N=6 N=6 -31 -.5 -77 PHOENIX SPECTRAL I.P METAL FACTOR (1Hz) AFTON KAMLOOPS B.C. GOLDEN GRTE LINE 6000W 90m 7/5/82 L377 DIFOLE NUMBER 10 5 _1_ з 4 -6 8 CÚORDINATE 1 N 25N 31 N 7 N 13N 19N INTERPRETATION ? . 1 . . . - H = 1 N = 1 1.2 29 ee 683 🖉 11 257 124 ~61 36 7.2 9.5 14 44 N = 2961 \gg N=2 12 219 ≫ -2.9 839 ·560 171 88 **(**(1620 N=3 N = 3-278 311> 220 172 -110 -109 -6.1 N = 4-251 -774 -248 280 346 N=4 132 -133 N=5 - א = 5 -249~500 -823 -2229-99 N=6 N=6 124 -1119 -13 -2429 PHOENIX SPECTRAL I P PHASE (mrad) AT 4096 Hz 60000 98 m GOLDEN GATE AFTON KAMLOOPS B C LINE 7/5/82 L377 DIPOLE NUMBER 10 4 6 8 COORDINATE 31N 1 N 7 N ЗN 25N INTERPRETATION ·N=1 -523 -238 -452 -140 -533 ~908 .7 -351 -666 -843 N=1 N=2 199 299 N=2 354 11 207 -161 -350 -361 233 109 -N=3 (507) 605 347 396 N = 374 496 -129821 (1805 -N=4 384 < 1150 669 -194 Ы≓4 N=5 (1575 №=5 648 161 \$ B N=6 N=6 1493 -951 -660 -1139PHOENIX SPECTPAL I P PHASE (mrad) AT 2048 Hz GOLDEN GATE AFTON KAMLOOPS B.C 90m LINE <u>6</u>000W 7/5/82 1377 DIPOLE NUMBER 5 1.0 4 ε 8 2 COORDINATE <u>1 N</u> · 19N 3 1 N 25N 3 N INTERPRETATION N=1 -690 -744 -331 N=1 -551 -650 -484 -761 703 -297 -61 N=2 -493 -1242N=2 -318 -565 -831 -750 -1241 -863 -639 •N=3 -221 -489 -289 -639 -863 -1020 -778 N=3 -779 N = 4-296 -394 -336 -465 -347 -676 -629 N=4 221 N=5 -145 N=5 -460 -373 -156 -273 1 N = 663 100 407 343 N=6

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PHASE (mrad) AT 1024 Hz PHOENIX SPECTRAL I P LINE 6000W 90m L377 BLDEN GATE AFTON KAMLOOPS B C. 7/5/82 19 4 5 6 DIPOLE NUMBER 1 1 19N 25N <u>71N</u> 1 N COORDINATE INTERPRETATION N = 1 114 -5.6/ -90 42 N = 1-580 -594 -605 -538 -530 263 🖋 *.* • N = 2 ╰ ~593 -505 -412 1493 H=2 -901 -778 -648 -879 -659 -777 🕊 1546 -846 -613 -820 N = 3-900 -666 -623 N = 3 N = 4-759-615 -1224-816 -694 -891 -637 N=4 N = 5 -624 -824 -576 -798 -529 -651 N=5 N=6 -448 -225-464 -436 N = 6PHASE (mrad) AT 512 Hz PHOENIX SPECTRAL I P <u>60</u>08W <u>7/5/82</u> GOLDEN GATE AFTON KAMLOOPS B<u>.C.</u> LINE 90m L377 10 DIPOLE NUMBER COORDINATE 1N 2 5 6 8 3 4 1 31N 13N 19N 25N_ 7 N INTERPRETATION N = 1157 // -166 -162 86 🌈 32 🥢 4.4 🛰 85 H=1 -153-279-146 Λ. -1031 N=2 -313 -101 -230 -188 ~521 N=2 -706 -694 -554 -775 N=3 -636 -856 -613 -572-44 -591 -526 N=3 N=4 -691 -818 -806 -585 -932 -706 N = 4-611 ุ่ א = 5 -883 -558 -644 -855 -630 -675 ·N≈5 N=6 -505 -789 N=6 -499 -639 PHOENIX SPECTRAL I P PHASE (mrad) RT 256 Hz ١ 90m GOLDEN GRTE RFTON KAMLOOPS <u>b c</u> LINE 6000W 7/5/82 L377 DIPOLE NUMBER 10 5 2 8 1 3 4 -6 1 19N 31N_ 7 N COORDINATE 1 N 7 N 25N INTERPRETATION N = 1105 27 64 -N=1 41 73 -73 27 22 56 34 i der N=2 N=2 -89 -251 -194 -231 70 2.4 149 -44 -61 Y, -559 -412 -308 675 357 -305 -456 N = 3 N = 3-441 N = 4 -695 ~579 -591 -584 -545 -470 -461 N = 4N=5 •N=5 -543 -662 -900 -684 -711 -797 1 N=6 ~538 - พ = 6 -842 -653 -807 PHASE (mrad) AT 128 Hz PHOENIX SPECTRAL I P. <u>60</u>00W 90m AFTON KAMLOOPS B C LINE 7/5/82 L377 БОГДЕН САТЕ 18 DIPOLE NUMBER 2 . 8 4 6 COORDINATE 31 N 1 9 N 25N 1 N INTERPRETATION £ 2.2 N = 1 - N = 1 86 61 65 69 36 27 26 44 72 Ľ N=2 61 < 189 1B49 58 99 11 N=2 179 -62 н = З -142 -66 -100 -67 487 -95 -77 -192 N = 3 **40**4 -318 N=4 -394 ~127 -315 -227 -105 -N=4 N=5 -352 -467 -295 -447 -463 -528 N=5 -566 N=6 -392 -935 -568 N=6 PHOENIX SPECTRAL I P PHASE (mrad) AT 64 Hz LIN<u>E 5000W</u> 90m AFTON KAMLOOPS B.C. 7/5/82 1377 GOLDEN GRTE 10 DIPOLE NUMBER 6 4 5 - 8 3 1 2 25N 31 N 38 19H 7 N COORDINATE <u>1 N</u> INTERPRETATION N = 1 58 43 23 20 19 30 46 N = 161 12 59 ly -{{ N = 2128 121 4.2 68 82 28 57 177 9.7 N=2 ļ i na N = 3 -20 26 Ű 106 25 21 300 20 24 N = 3-75 N = 4-100 -43 361 140 -61 N = 4N = 5-40 -327 -91 -201 270 -37 N = 5 N=6 -1.P-582I-2 -325 -499 -273 N=6 -116 . . . -

PHASE (mrad) AT 32 Hz PHOENIX SPECTRAL I P 98m 7/5/82 L377 LINE 6090W GOLDEN GATE AFTON KAMLOOPS B C ġ, 10 DIPOLE NUMBER 4 5 6 8 25<u>N</u> 31N 19N COORDINATE 1 N INTERPRETATION N=1 12 N = 19.1 29 42 26 15 14 19 43 35 *`\]//* 72 N=2 11 75 4.9 48 53 24 40 113 N=2 11 N≠3 43 N=3 49 95 41 29 165 34 N=4 238 8.5 171 143 5.8H = 4269 N=5 12 79 52 -87 N=5 №=6 20 3.6 -81 84 N = 6 PHASE (mrad) AT 16 Hz PHOENIX SPECTRRL I P. 90m 7/5/82 AFTON KAMLOOPS B.C. LINE 6000W L377 LOLDEN GATE DIPOLE NUMBER 10 _2 4 5 6 8 1 - 3 <u>19N</u> 3N 25 N 31N 1 N COORDINATE 7 N INTERPRETATION N = 1 8.3 13 N = 1 30 19 6.7 18 30 17 10 11 11 N=2 17 25 < 41 70 48 .7 34 33 N=2 5.9 35 N=3 16 22 91 34 29 42 47 32 N=3 Ŋ *|||* N=4 105 13 140 102 25 27 N=4 N = 5124 76 77 0 38 N=5 and the second Ŋ ۵/ ₁₄₇ N=6 43 -142 3.8 •N=6 PHASE (mrad) AT 8 Hz PHOENIX SPECTRAL I P. LINE 6000W 90m 7/5/82 L<u>377</u> GOL<u>den gate</u> AFTON KAMLOOPS B.C. 1 10 6 2 5 8 DIPOLE NUMBER 4 1 31N_ 19N 25N COORDINATE 1 N 7 N 3 N INTERPRETATION N=1 5.2 8.4 8.9 9.9 5.9 11 22 12 7.7 N = 1 20 / $\langle \rangle$ N=2 13 16 22 34 5.9 35 22 20 N=2 .2 2 Ħ) N=3 13 61 26 20 25 26 63 12 N=3 49 20 26 N=4 90 125 N = 4 76 18 N=5 39 22 -57 3.2 -N=5 S.A. N=6 195 18 -230 -281 N=6 PHASE (mrad) AT 4 Hz PHOENIX SPECTRAL I P. 90m 7/5/82 AFTON KAMLOOPS B.C. 6000W 377 LINE GOLDEN <u>Grte</u> 110 2 8 DIPOLE NUMBER 4 6 31N_ 25N 19N COORDINATE 1 N INTERPRETATION N = 1 5.1 9 9 7 8.6 5.8 • N = 1 14 11 4.7 14 \// N=2 19 20 13 9.7 9. -N=2 23 N = 3 20 17 9 20 11 ·N=3 39 18 N = 447 N=4 40 59 23 N=5 69 18 3.421 N = 5 $\langle l l \rangle$ \ # №=6 79 39 4.8 12 • N = 6 PHASE (mrad) AT 2 Hz PHOENIX SPECTRAL I P 6009W 90 m 7/5/82 L377 AFTON KAMLOOPS B.C. LINE <u>GOLDEN GATE</u> DIPOLE NUMBER 10 8 2 6 1 З 4 31N 19N 25N COORDINATE 1 N 7 N 13N INTERPRETATION 7.1 N = 15.6 4.3 5 6.3 7.6, N=1 6 14 7.1 11 N=2 8.3 •N=2 16 11 З 13 8.5 8.6 N=3 19 12 9.8 8.1 3.8 12 11 ·N=3 12 11 N≈4 28 26 8.3 N=4 (8.9 32 N=5 30 26 8.8 N=5 N=6 I.P.-5821-3 *۹*۱ / ſ. 71 24 19 29 N=6 - -·- --- - - - -.

PHASE (mrad) AT 1 Hz PHOENIX SPECTRAL I P 6000W 90<u>m</u> AFTON KAMLOOPS B C LINE 7/5/82 L377 OLDEN GATE 10 2 5 8 DIPOLE NUMBER 4 6 31N 19N COORDINATE 1 N 5 N INTERPRETATION N = 1 6.3 N=1 5 3.6 3.5 9.6 5.1 5.7 7 3 8 3.3 N=2 N = 2 5.5 5.9 3.8 -3.7 5.2 7.3 7.8 N=3 4 9.1 5.7 3 3.8 3.2 •N=3 1.9 13 <15) 54 7.8 N=4 14 8 N=4 8.6 N=5 22 10 10 N=5 / 53 8.1 28 N=6 14 •N≖6 PHASE (mrad) AT 5 Hz PHOENIX SPECTRAL I.P GOLDEN GRTE AFTON KAMLOOP<u>s B.C.</u> LINE 6000W 90m 7/5/82 L377 DIPOLE NUMBER COORDINATE 5 19 2 4 6 8 1 3 <u>7 H</u> 13N 19N 25N 71N 1 N INTERPRETATION ×6.1 N=1 - 11 = 1 3.5 3.1 8.9 5.6 7 2.8 3.7 6.6 3.3 \ //2.7 Ś.2 (2.6 2.4 N=2 4.3 5.8 8.8 -N=2 3.8 N=3 3.9 3.7 7 N=3 5 1.6 4.9 (5.6 N=4 3.4 11 3.3 7.2 . •N=4 1.6 N=5 5 2.3 .2 4.5 7.7 7.2 ·N≓5 **a** 4.4 $\langle H$ N=6 45 13 •N=6 2 PHASE (mrad) AT PHOENIX SPECTRAL I.P. 25 Hz 6000W 90m GOLDEN GATE AFTON KAMLOOPS B.C. LINE 7/5/82 L377 10 DIPOLE NUMBER COORDINATE 8 2 3 4 6 3 I N 19N 25N 1 N 7 N INTERPRETATION N = 1 5.3 2.6 / 5.5 2.8 ·N=1 3.9 3.7 2.8 1.9 6.7 7.5/ \\/ N=2 (3,1 8.3 6 3.1 4.3 ·N=2 7, -.5 Ű) N=3 3.4 5.9 3 -2.9 .5 N=3 4.8 18 N=4 3.2 2.8 -1.9 5 5.9 9.1 -N=4 18 N=5 5.3 .4 14 •N=5 -7 ۵. N=6 - 4.5 4.5 26 •N=6 16 PHASE (mrad) AT .125 Hz PHOENIX SPECTRAL I.P AFTON KAMLOOPS B.C. LINE 6000W 90m 7/5/82 1377 GOLDEN GRTE 10 DIPOLE NUMBER COORDINATE 5 6 8 2 -4 19N 25N 31N 13N 1.N INTERPRETATION N=1 4.6 7 · N = 1 3.8 4.2 3.2 / 2.3 6.1 3.1 5.2 1.4 \\# พ = 2 6 2.9 ۵.2 🖈 3.6 ·N=2 -2.2 6.9 18 2.5 H = 3 2.2 -7.9 3.9 -N=3 4 3.4 1.7 N = 4-5.3 -4.4 .8 (7.5) -.5 -N=4 🔦 /₋₁₂) N=5 10 1.9 -1.2 11 ·N=5 -4.8 H=ε 72 N=6 .8 -.7 PHASE (mrad) AT 0625 Hz PHOENIX SPECTRAL I.P GOLDEN GATE AFTON KAMLOOPS B C Dipole number 1 2 LINE 6000W 90m 7/5/92 L377 19 5 6 8 31N 19N 25N COORDINATE ŽΝ 13N 1 N **INTERPRETATION** N = 1 2.2 5.2 4.1 -N = 12.9 <u>7.7</u>///N 1.1 2.8 2.3 1.1 4.6 N=2 -1.9 -5.5 -,6 -1.2 5.5 3.8 N=2 Ś, -14 **>>>** 4.5 2.9 N = 3 3.6 2.6 14 4.4 H = 3Ľ. 7.8 3.7 N = 4-8.1 -7 6.7 N = 4.4 s. / N=5 -17 21 3.2 Í 19 3 N=5 N=6 66 1.7 N=6 -7.6 .7 JI.P-5821-4

PHOENIX SPECTRAL I P PESISTIVITY (ohm-m) AT 1 Hz GOLDEN GATE AFTON KAMLOOPS B C LINE 16N 90m 9/5/82 L378 DIPOLE NUMBER COORDINATE 72W 2 4 1 1 3 e 1 60W 661 54W 48W INTEPPRETATION ·H=1 N=1 178 558 146 70 31 53 48 43 éz N=2 455 174 38 69 27 50 41 N=2 $\cdot N = 3$ 105 47 33 64 69 25 N = 3•N=4 28 36 28 60 39 N = 4-N=5 24 30 26 101 N=5 א=€ 21 27 41 N=6 PHOENIX SPECTRAL I.P. PFE (25-4 Hz) AFTON KAMLOOPS B.C. <u>GOLDEN GATE</u> LINE 16N 90m 9/5/82 3 4 5 6 <u>L378</u> DIPOLE NUMBER 6 8 72W 60W COORDINATE 661 54W 48W INTERPRETATION N = 1·H=1 1.3 -3.1 .8 2 -1.8-6.1 3.2 سيجير 1.7-1 _ н=2 N=2 2.3 -5. -19 -18 12 2.8 N=3 6.3 -31 -47 -39 N=3 • N = 4 -20 -47 ~57 ~55 22 N = 4વ્યું -N=5 -60 -68 -63 -36 ฝ=5 N=6 -N=6 -78 -72 -54 PHOENIX SPECTRAL I.P. METAL FACTOR (1Hz) GOLDEN GATE AFTON KAMLOOPS B С LINE 16N 90m 9/5/82 L378 DIPOLE NUMBER 2 8 1 ~4 6 <u>72</u>W COORDINATE 54W 48W 66W 60W INTERPRETATION H = 1N = 13.6 9 -26 -102 -116 -36 73 4.4 // -N=2 N=2 6.2 13 -669 290 -137 -272 -221 N=3 69 506 N=3 -289 -940 -730 -1187 \$565 N = 4-2003 -912 พ=4 -706 ~1285 -2449 -2288 -2454 N=5 -358·N ≃ 5 [\] −3736 N = 6 N=6 -2609 -1295 PHOENIX SPECTRAL I P PHASE (mrad) AT 4096 Hz LINE 16N 90 m GOLDEN GATE AFTON KAMLOOPS B.C. 9/5/82 L378 DIPOLE NUMBER 4 8 - 6 COORDINATE 72W 48W 66W 604 544 INTERPRETATION 1170 N=1 1167 1417 616 -76 342 -1496 ฟ=1 // 120 N = 2-618 N=2 656 254 444 71 129 3.3 1141) N = 3-392 1229 1493 -225 165 N=3 . 798 -199 N=4 -N = 4658 -137 ุ่ № = 5 •N=5 -364 (1024) > 998 < 1130 1 🌤 540 🛷 -444 N=6 N = 6 -329PHOENIX SPECTRAL I P. PHASE (mrad) AT 2048 Hz OLDEN GATE AF Dipole Number LINE AFTON KAMLOOPS L378 в C 16N 90m 9/5/82 4 6 8 5 COORDINATE 600 54W 48W 66₩ INTERPRETATION N=1 N = 1 168 540 285 516 311 956 665 14 -87 N=2 N=2 1484 355 **Q**184 -197 -123 -108 ≪849 696 -119 N = 3N = 3-769 37 -307 -N = 4-571 29 48 -420 -1070N=4 •N=5 -707 195 <202 <302 N = 5 N=6 I.P.- 5821-5 6=א ヽ 40 -765 -626 --.

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PHOENIX SPECTRRL I P PHASE (mrad) AT 1024 Hz GOLDEN GATE AFTON KAMLOOPS B C LINE 16N 90m 975782 L378 DIPOLE NUMBER 4 Т в 2 5 1 72W 486 COORDINATE 66W 601 54W <u>INTERPRETATION</u> N=1N=1 -<u>-</u>257 رر 531 249 306 144 9.4 238 295 1 Sec. \$// 710 < N=2 193 -6 -153 -62 193 220 N=2 **X**-101 -1147 301 483 N = 3 -N=3 -295N=4 -883 -183 -202 -592 N = 4522 •N=5 -392 ~138 -219 -60 N = 5-H=8 -795 N=б -281 -614 PHASE (mrad) AT 512 Hz PHOENIX SPECTRAL I P. 90m L378 GOLDEN GATE AFTON KAMLOOPS B.C. LINE 16N 9/5/82 DIPOLE NUMBER 8 2 6 ____ - 4 5 - 1 4<u>8₩</u> COORDINATE 72W 66W 60W 54W INTERPRETATION N = 1N = 1120 65 243 319 149 79 162 201 14 N 17327 พ=2 N=2 40 -16 100) 439 438 107 694 (279 N = 3N=3 1379 189 -154-1091 -147 N = 4-N=4 -201 -576 1228 -1256 -207 -321 -121 N=5 ∙่่ N = 5 -781 N=6 N=6 -443 -263 PHASE (mrad) AT 256 Hz PHOENIX SPECTRAL I F 90m GOLDEN GATE AFTON KAMLOOPS B.C LINE 16N 9/5/82 L379 8 DIPOLE NUMBER 1 2 4 5 6 72W COORDINATE 66W 601 54W 4 S 🖬 INTERPRETATION N = 1 N=1 45 138 61 79 112 66 167 194 Ň// N = 2366 N=2 163 65 74 80 146 381 390 39 199 625 N=3 N=3 650 -937 -89 840 N = 4 N=439 ·N≃5 197 N=5 1392 -196 128 N=6 N=6 -950 -335 228 PHOENIX SPECTRAL I.P. PHASE (mrad) AT 128 Hz GOLDEN GATE AFTON KAMLOOPS B.C. 90<u>m</u> L378 LINE 16N 9/5/82 DIPOLE NUMBER 8 ____2 T - 4 6 - 1 4<u>8</u>W COORDINATE 72W ៤៤៧ 604 54W INTERPRETATION N=1 N = 132 44 27 74 51 84 107 114 & // N=2 -N=2 86 75 99 122 254 254 41 297 130 456 N = 3-N=3 70 179 296 NT 853 N=4 26 368 (532 N = 4152 -N≓5 759 59 473 362 N=5 415 N = CN=6 -1394 46 PHOENIX SPECTRAL 1 P PHASE (mrad) AT 64 Hz GOLDEN GATE RF RFTON KAMLOOPS 90m 9/5/82 L3<u>78</u> В.С LINE 16N 8 1 2 з 4 6 72W 69N 48W COORDINATE <u>66</u>W 54W INTERPRETATION N = 1N=1 17 26 16 47 34 49 63 65 h N = 2N=2 49 59 78 86 160 151 Ħ 71 131 304) 189 N=3 151 121 N=3 152 N=4 429 76 349 292 N = 46 449 120 431 266 N=5 •N = 5 **N** 1/950 × 288 297 ฟ=6 N=6 - - ----- -- -

I.P.- 5821-6 - --- --- -- -- --



I.P.-5821-7

PHOENIX SPECTRAL I P PHRSE (mrad) AT 1 Hz LINE 16N L378 GOLDEN GA<u>te</u> AFTON KAMLOOPS B 90 m 9/5/82 С DIPOLE NUMBER 8 4 _1_ _2 ى 721 COORDINATE 661 60W 54W 48W INTERPRETATION 2.5 N=1 N = 1 3 3.4 2.5 4.2 3.7 2.1 3.1 N=2 N = 24.2 (18) 3.9 3.7 5.3 3.6 4.1 9.3 6 5.3 4.7 N=3 N=3 3.5 3.1 10 N=4 N=4 9.7 7 9.5 N=5 8 8.5 13 13 N=5 N=6 20 -N=6 9.6 14 5 Hz PHOENIX SPECTRAL I.P. PHASE (mrad) AT AFTON KAMLOOPS LINE 16N 90 m 9/5/82 L378 GOLDEN <u>Gate</u> в DIPOLE NUMBER 8 4 - 6 COORDINATE 4<u>8</u>W 72W 60W 54W 66₩ INTERPRETATION N=1 - ห = 1 3.1 3.2 2.7 3.5 2.71.8/ з 1.8 1.7 1.5 4 N=2 N=2 3.4 3.8 3.4 3.7 N=3 2.3 3.9 7.1 **{1.8** 4.9 3.4 •N=3 3.7 N=4 5.5 6.2 4.2 3.1 ·N=4 9 N=5 7.9 3.4 N=5 N=6 •N=6 14 9.7 .5 PHASE (mrad) AT 25 HzPHOENIX SPECTRAL I/P GOLDEN GATE AF Dipole number в ΝE 16N 90m 9/5/82 L378 RETON KAMLOOPS С 8 2 3 1 4 6 72W 48W 54W COORDINATE 66W ิสดพ INTERPRETATION N=1 2.5 N=1 2.1 3.2 2.5 з З 1.9 N=2 N=2 3.3 3.6 2.5 3.2 3 5.7 (1.8 N=3 4.1 -N=3 2 ่ N=4 4.2 3.6 -13 • N **=** 4 -.8 N=5 N=5 3.9 N=6 5.2 • N = 6 2.4 1 PHOENIX SPECTRAL I P. PHRSE (mrad) AT 125 Hz LINE 16N 90m GOLDEN GATE AFTON KAMLOOPS B.C. 9/5/82 L378 DIPOLE NUMBER COORDINATE 72W 8 _2 1 4 5 1 1 54W 661 600 48W INTERPRETATION 1.2 // N=1 N=1 2.7 2.2 2.6 1.9 2.7 1.9 1 N=2 N=2 1.5 2.6 2.7 1.8 12 3.5 1.5 N=3 N=3 .6 3.5 6.5 N=4 9 9 ·N = 4 -.3 6.2 N=5 ·N ≃ 5 4.2 N=6 •N=6 12 5.5 4.1 PHOENIX SPECTRAL I.P PHASE (mrad) RT 0625 Hz GOLDEN GATE AFTON KAMLOOPS B C. LINE 16N 90m 9/5/82 L378 DIPOLE NUMBER 8 4 5 1 6 72W 48W COORDINATE 66₩ 60W 54W INTERPRETATION N = 1N=1 2.2 2.3 1.9 1.8 .9 11 2.5 2.1 3.1) N=2 N=2 .7 1.7 1.8 .7 2 N=3 · N = 3 2.1 1.3 -1 1 //// .4 4.8 N = 4•N=4 -.1 -.6 1.8 7.4 - א = 5 -2.4 й N=5 M -3.8 N=6 -5.2 N=6 ≏ 11 LP-5821-8 ---------- -- -. --- ---

PHOENIX GEOPHYSICS LIMITED INDUCED POLARIZATION AND RESISTIVITY PLAN MAR

