GEOPHYSICAL REPORT

on an

827063

INDUCED POLARIZATION SURVEY
BIG BAR CLAIM GROUP

BIG BAR CREEK AREA, CLINTON M.D., B.C.

BIG BAR CLAIM GROUP:	1.5 km South of Big Bar Creek and 40 km N75W of Clinton, B.C.
:	51° 122° SE
N.T.S. :	920/1E
written for:	Kerr Addison Mines Ltd., 703-1112 West Pender Street, Vancouver, B.C.
by:	David G. Mark GEOTRONICS SURVEYS LTD., 420-890 West Pender Street, Vancouver, B.C.
Dated:	January 22, 1980

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

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SUMMARY

An induced polarization survey was carried out over the western half of the Big Bar Claim Group during November, 1979. The Big Bar Claims are located 1.5 km south of the Big Bar Creek ferry crossing on the Fraser River in the Clinton Mining Division. Access is via 70 km of gravel road from the town of Clinton, B.C. The terrain is quite rough with slopes varying from moderate to steep.

The claims were only recently staked and therefore the only work done to date is geological mapping, soil geochemistry and test I.P. work. The object of the present I.P. survey was to determine the strike and depth potential of pyritization containing gold values.

The property is underlain by folded and faulted andesites, rhyolites and dacites of probable Eocene Age. The mineralization occurs in a stockwork of quartz stringers that appears to be striking east-west.

The I.P. equipment used was frequency domain type with a dipole-dipole array of 100 meter dipole length. The readings were taken at three separations every 100m on lines 100m apart. Frequency effect and resistivity data were plotted on pseudo-sections, and plan-type maps and subsequently contoured.

CONCLUSIONS

1. The I.P. survey has reflected the known mineralization and shown it to have an east-west strike with a length of at least 300 m. The I.P. response of this zone is strongest on L-13E and the anomaly is open to the east of L-13E. The depth potential is quite strong.

2. The I.P. response continues quite weakly in a westerly direction to the western edge of the survey area giving a total possible strike length of 900 m.

3. The I.P. survey may have revealed a parallel zone to the south of the main zone. This zone is open to the east as well. However, it is weak at depth.

4. The resistivity results in correlation with the I.P. results were rather inconclusive. The alternate high and low resistivity zones may be a reflection of the folding noted on the property.

RECOMMENDATIONS

1. The writer feels the results to date should be diamond drilled. The dip of any holes should be determined from the observed geology rather than the I.P. results.

2. Trenching can be useful as a fast and much less expensive way of quickly checking the causitive source. However much of the anomalous zone was weak at surface.

3. The I.P. survey should be continued in an easterly direction, especially considering the strong results on the eastern edge of the survey area. This is especially important to determining the strike and length of the secondary parallel zone.

4. A ground magnetic survey may be useful for aiding the geological mapping of the property.

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INDUCED POLARIZATION SURVEY

BIG BAR CLAIM GROUP

BIG BAR CREEK AREA, CLINTON M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data, and the interpretation of an induced polarization (I.P.) survey carried out over the Big Bar and Big Bar Too Claims for Kerr Addison Mines Ltd, during December, 1979.

The field work was carried out by R. W. Yorke-Hardy and four assistants. A total of 10.3 km at three separations was completed in rugged terrain under adverse winter weather conditions.

The purpose of the survey was to trace a zone of pyrite and arsenopyrite containing gold values. Phoenix Geophysics Ltd had tested three lines across the known zone in September, 1979, and found the I.P. method was reflecting the mineralized zone only moderately. Nonetheless, it was felt worthwhile to continue the survey over the remaining property, or, at least, as much as could be over the rugged terrain under the adverse winter conditions.

PROPERTY AND OWNERSHIP

The property is comprised of two contiguous claims containing 21 units as shown on the claim map as described below:

Claim	No. Units	Record No.	Tag No.	Recording Date
Big Bar	15	350	37722	June 21, 1979
Big Bar Too	6	357	51483	July 7, 1979

The property is wholly owned by Kerr Addison Mines Ltd.

LOCATION AND ACCESS

The property is located about 1.5 km south of Big Bar Creek and 40 km N75W of the town of Clinton, British Columbia. It is found on the south bank of the Fraser River along a small section that is flowing easterly. The geographical co-ordinates are 51° 10'N latitude and 122° 07'W longitude.

Access is gained by travelling north from Clinton along Highway 97 until one reaches a gravelled road that leaves the highway in a northwesterly direction. One travels along this road for about 70 km to the Fraser River, crossing it on the Big Bar ferry. The claim group is about 1.5 to 2 km south of the ferry crossing. Access can also be gained by a series of logging roads from Lillooet along the west side of the Fraser River.

PHYSIOGRAPHY

The Big Bar Claim Group is found along the eastern edge of the Camelsfoot Range which is at the southern end of the physiographic unit of the Fraser Plateau, part of the Interior Plateau System. The Camelsfoot Range reaches elevations in excess of 2300 m.

The elevations on the property vary from 300 m in the north-east corner on the Fraser River to 1150 m in the southwest corner. It has a rugged terrain caused by deep gullies eroded by intermittent creeks draining into the Fraser River. Slopes on the property vary from moderate to very steep.

No creeks or swamps are found on the property. The closest water source is the Fraser River.

HISTORY OF PREVIOUS WORK

The property has only been recently staked and hence the only previous work known to the writer is some soil geochemistry surveying and geological mapping carried out by Kerr Addison. In addition, as was mentioned previously, Phoenix Geophysics carried out three test lines of I.P.

GEOLOGY

Due to a lack of outcrops on the property the geology as described below, is rather sketchy.

The property is underlain by a sequence of andesites, rhyolites, and dacites of probable Eocene Age. These have been folded, probably several times. The folding axis on the east side of the property strikes NE-SW, and on the west side, NW-SE.

At least one recognizable fault zone occurs through the claim group.

As for alteration, some kaolinization of feldspars has been noted.

Mineralization occurs within a stockwork zone of quartz stringers striking east-west as pyrite and arsenopyrite with there being some evidence of gold.

INSTRUMENTATION AND THEORY

The induced polarization equipment used was frequency-domain type manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. A 12-volt lead-acid battery was used for a power source to give a power potential of 500 watts.

The transmitter output voltage is 125, 250, 375, or 500 volts with selection by switch. The transmitter current varies up to 1,000 milliamperes. The self-potential buckout is operated manually by a 10-turn precision pot with a range of $\pm$ 1 volt.

There are basically two methods of I.P. surveying, frequency domain and time domain. Both methods are dependent on a current flowing across an electrolyte-electrode interface or an electrolyte-clay particle interface, the former being called electrode polarization and the latter being called membrane polarization.

In time-domain electrode polarization, a current is caused to flow along electrolyte-filling capillaries within the rock. If the capillaries are blocked by certain mineral particles that transport current by electrons (most sulphides, some oxides, graphite), ionic charges build up at the particle-electrolyte interface, positive ones where the current enters the particle, and negative ones where it leaves. This accumulation of charge creates a voltage that tends to oppose the current flow across the interface. When this current is stopped, the created voltage slowly decreases as the accumulated ions diffuse back into the electrolyte. Thus is produced the induced polarization effect.

In membrane polarization a similar effect occurs. A charged clay particle attracts opposite charged ions from the electrolyte in the capillary around the particle. If a current is forced through the capillary, the charged ions are displaced. When the current is stopped, the ions slowly diffuse back to the same equilibrium state as before the current flow. This explains I.P. anomalies where no metallic-type minerals exist.

Frequency domain I.P. is based on the fact that the resistance produced at the electrolyte-charged particle interface decreases with increasing frequency. The parameters commonly used for measuring frequency-domain induced polarization frequency effect. The one used for time-domain measure is chargeability.

In the process of carrying out an I.P. survey, two other geophysical methods are used and measured. These are self-potential (S.P.) and resistivity. The S.P. must be nulled by the I.P. receiver in order to obtain accurate I.P. measurements and is a measure of the 'battery action' of the ground.The resistivity value is calculated from the voltage and current readings obtained while measuring the I.P. effect and therefore can be utilized to determine how resistive (or conductive) the ground is.

SURVEY PROCEDURE

The dipole-dipole array was used with an electrode spread (or dipole length) of 100m at three separations (n = 1, 2, 3). The two frequencies used were 0.3 Hz and 10 Hz.

Non-polarizing, unglazed porcelain pots with a copper electrode and copper sulphate electrolyte were used for the potential electrodes. Stainless steel stakes were used for the current electrodes.

Readings were taken every 100 m on 100 or 200 m separated north-south trending lines.

COMPILATION OF DATA

1. Percent frequency effect (P.F.E.) - this is the actual measure of the induced polarization effect in a frequency domain survey. The term is derived from the percentage change in the electrode-electrolyte transfer impedance at the two different frequencies. A disseminated sulphide body would cause a large change. This property is measured directly in the field.

The P.F.E. was plotted in pseudo-section form on Sheet 2 as well as in plan form on Sheets 3, 4 and 5 for the three different separations (n = 1, 2, 3). All four maps were drawn at a scale of 1:5000. The contour interval was 1% beginning a 3%. The 3% contour was dashed since the writer felt that it was only possibly anomalous. Contours 4% and above were drawn in solid meaning these contours were definitely anomalous.

2. Resistivity - this is a measure of how resistive, or inversely, how conductive the overburden and/or bedrock is. Most often a disseminated sulphide body is expressed by a resistivity low. The resistivity values in ohm-meters were arrived at by dividing the receiving voltage by the transmitter current and multiplying by a geometric factor peculiar to the dipole-dipole array with a dipole length of 100 m and a dipole separation of n = 1 (or 2, o 3 as the case may be). 2π was not used in the calculation meaning that resistivity actually reads resistivity/2π.

The values are only plotted on Sheet 2 in pseudo-section form with the frequency effect pseudo-sections. The values were contoured at a 10 ohm-meter interval with those contours 50 ohm-meters and less, dashed, and contours 60 ohm-meters and above, solid.

DISCUSSION OF RESULTS

The I.P. survey has picked up one zone that is definitely anomalous, occurs on several lines, and is strongest on the eastern edge of the survey area. This anomaly correlates with known mineralization in the area as well as positive soil geochemistry results.

The strike of the zone is rather difficult to determine from only the first separation results, but becomes much more apparent with the second and third.

On the first separation plan (Sheet 3), the strike of the zone appears to be northwesterly since anomalous results were only obtained on lines 11E, 12E, and 13E. On the second separation plan, the strike appears to be more westerly but still has a northwest influence. However, on the third separation plan, the zone has a strike that is definitely westerly.

The most probable explanation is that the zone is actually a reflection of two sources. One centers at approximately 9N on all lines and strikes westerly. The results are anomalous as far as line 10E, from whence the results are possibly anomalous, that is varying between three and four percent. On Line 4E, one anomalous value was obtained. The strike length of the anomaly is therefore 300 m with it being open to the east. If the possibly anomalous results are included, the strike length becomes 900 m with it being open on both the east and west.

The anomaly is fairly strong on the second and third separation indicating the causitive source has depth. The depth penetration of the third separation in this survey is 100 to 120 m.

The dip would appear to be to the south. However, it is usually open to question on how reliable the dip determination from an I.P. survey is.

The 2nd source is centered at 6N on L-13E and has the strongest response on the second separation plan. In addition, there is a strong response on the first separation, but only weak on the third separation. This suggests that the causitive source of this anomaly does not have depth.

The strike is quite open to question but from the second separation plan, appears to be northwesterly. The dip is difficult to determine as well.

There was also an anomalous response obtained on line 9E centered at 13N. From the pseudo-sections, this anomaly appears to be a continuation of the main anomaly discussed above. However, the survey plans show it to be apparently caused by a separate source.

The resistivity data does not appear to correlate very well with the P.F.E. results. One generally expects a resistivity low to correlate with an I.P. high. However, on this survey there is a closer correlation of the I.P. highs with resistivity highs and some correlation with resistivity lows. The host rock appears to therefore have greater resistivity than the country rock.

The most prominent feature of the resistivity results is that there are two bands of resistivity highs striking westerly and open on both ends of the survey area. The one band occurs on the northern part of the survey area, and the other hand on the central part. These bands of highs with the resulting

in-between lows may be a reflection of the folding mentioned above under Geology. Alternately, it may be a reflection of differing rock-types and/or volcanic flows.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark, Geophysicist

January 22, 1980

GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify.

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at 420-890 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc., degree in Geophysics.

2. I have been practising my profession for the past twelve years and have been active in the mining industry for the past fifteen years.

3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.

4. This report is compiled from data obtained from an induced polarization survey carried out by R.W. Yorke-Hardy as crew chief, and four assistants, during December, 1979 on the Big Bar Claim Group.

5. I have no direct or indirect interest in the properties or securities of Kerr Addison Mines Ltd., nor do I expect to receive any interest therein, as a result of writing this report.

David G. Mark

January 22, 1980

CERTIFICATE OF EXPENSES

I, DAVID G. MARK, Manager of Geotronics Surveys Ltd. certify the Induced Polarization Survey carried out between the dates of November 11th to November 30, 1979 on the Big Bar Claim Group was done to the value of the following:

FIELD	
5 men, (geophysical technician and four helpers) and instrument for 20 days at $750/day	$15,000.00
4-wheel drive rental	700.00
2-wheel drive rental	400.00
Room and Board - 20 days at $150/day	3,000.00
Survey supplies	25.00
	$19,125.00
REPORT	
Geophysicist - 10 hours at $35/hour	350.00
Office helper - 20 hours at $22.50/hour	450.00
Drafting and printing	700.00
Typing, xeroxing, compilation	150.00
	$ 1,250.00
TOTAL	$20,375.00

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,

David G. Mark, Manager

Resistivity (Res. / 2TT)

Units : ohm – meters

Contour interval : 10 ohm – meters

— — — — — 50 ohm-meters & below

————— 60 ohm-meters & above

Instrumentation : Frequency domain

Array : Dipole – dipole

Dipole length : 100 metres

Dipole separation : n = 1, 2, 3

Frequency : 0.3 Hz, 10 Hz

Frequency Effect (% F.E.)

Units : %

Contour interval : 1.0 %

— — — 3.0 % (Possibly anomalous)

————— 4.0 % and above (Anomalous)

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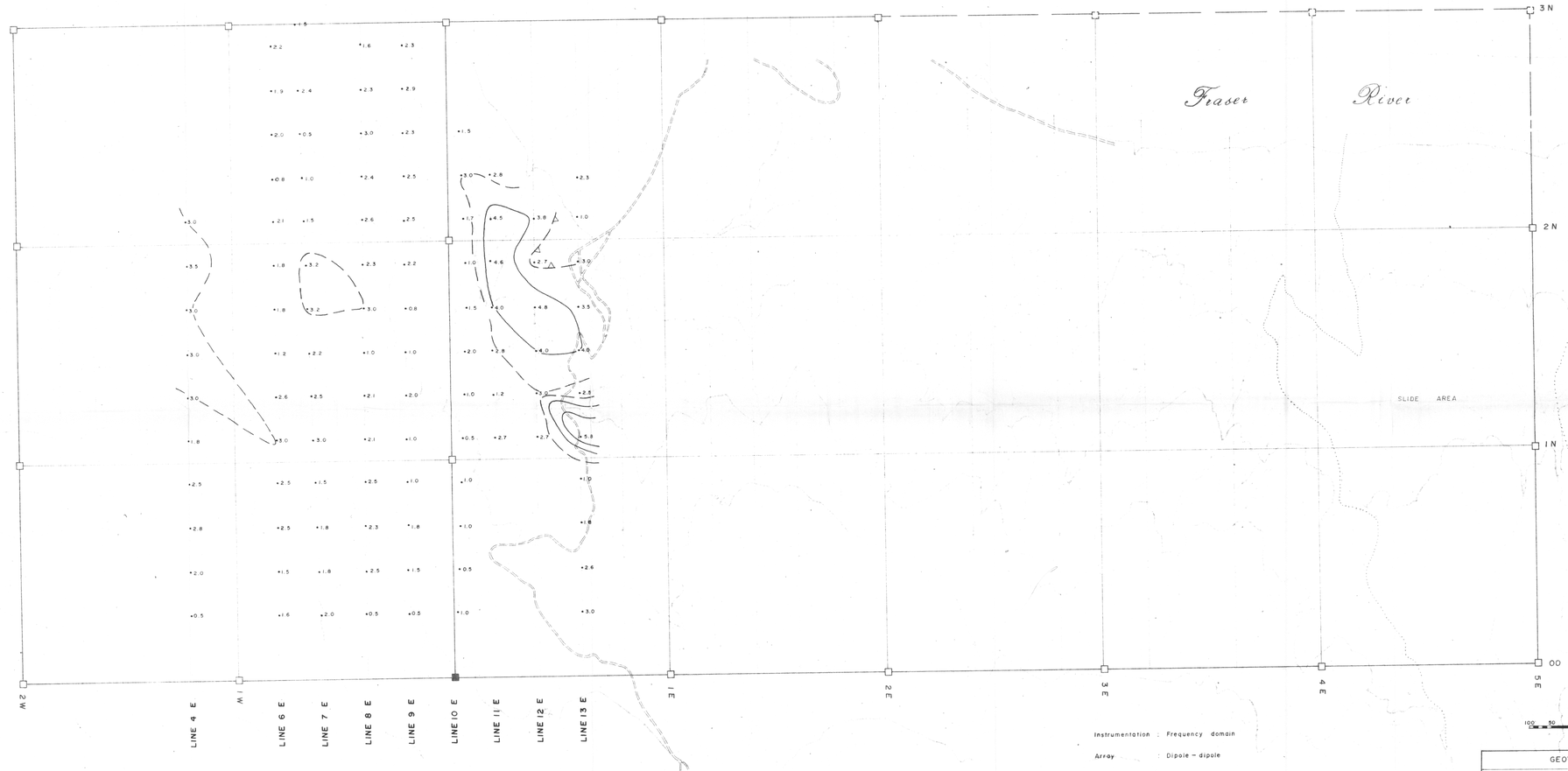
KERR ADDISON MINES LTD

BIG BAR PROPERTY

CLINTON M.D., B.C.

INDUCED POLARIZATION SURVEY
FREQUENCY EFFECT & RESISTIVITY
PSEUDO SECTIONS
DATA & CONTOURS

DRAWN BY	DATE	SCALE	JOB No.	SHEET No.
DGM, PH	DEC., 1979	1 : 5000	79-59	1



Instrumentation : Frequency domain

Array : Dipole – dipole

Dipole length : 100 metres

Dipole separation : n = 1

Frequency : 0.3 Hz., 10 Hz.

Units : %

Contour intervals : 1.0 %

3.0 % (Possibly anomalous)

4.0 % and above (Anomalous)

Drafting by : P. HAILLOT

inches 0 1 2 / 0 1 2 3 4 5 centimetres

This reference scale bar has been added to the original image. It will change if the image is resized as the image, therefore it can be used as a reference for the original size.

100 50 0 100 200 300 metres

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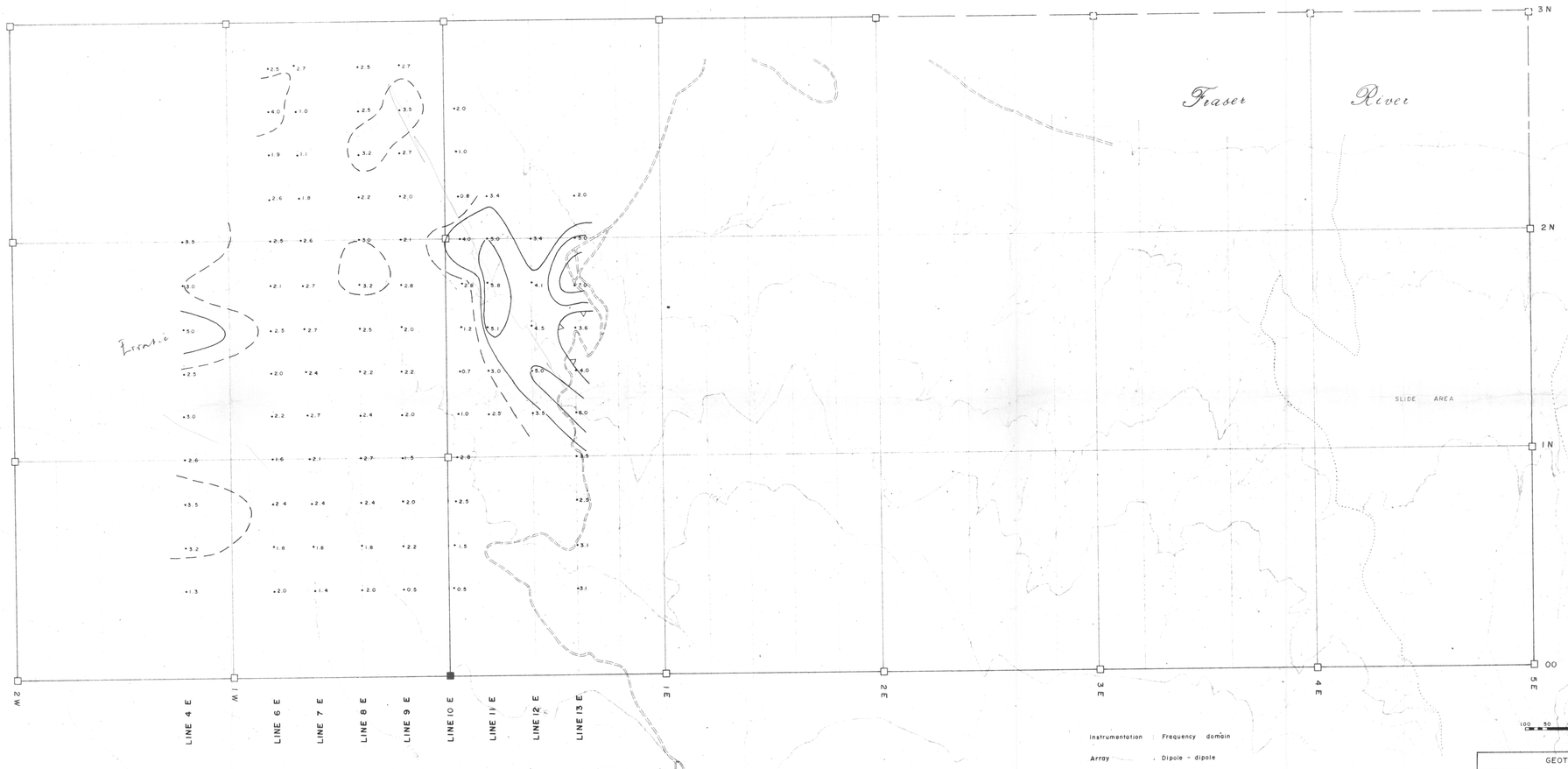
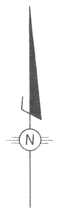
BIG BAR PROPERTY

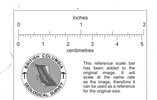
CLINTON M.D., B.C.

INDUCED POLARIZATION SURVEY
FREQUENCY EFFECT
DATA & CONTOURS
PLAN N = 1

DRAWN BY	DATE	SCALE	JOB No.	SHEET No.
D.G.M.	DEC., 1979	1:5000	79-59	2







100 50 0 100 200 300 metres

Instrumentation : Frequency domain

Array : Dipole - dipole

Dipole length : 100 metres

Dipole separation : n = 2

Frequencies : 0.3 Hz , 10 Hz.

Units : %

Contour intervals : 1.0 %

_ _ _ _ _ 3.0 % (Possibly anomalous)

_____ 4.0 % and above (Anomalous)

Drafting by : P.HAILLOT

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BIG BAR PROPERTY

CLINTON M.D., B.C.

INDUCED POLARIZATION SURVEY
FREQUENCY EFFECT
DATA & CONTOURS
PLAN N=2

DRAWN BY	DATE	SCALE	JOB No.	SHEET No.
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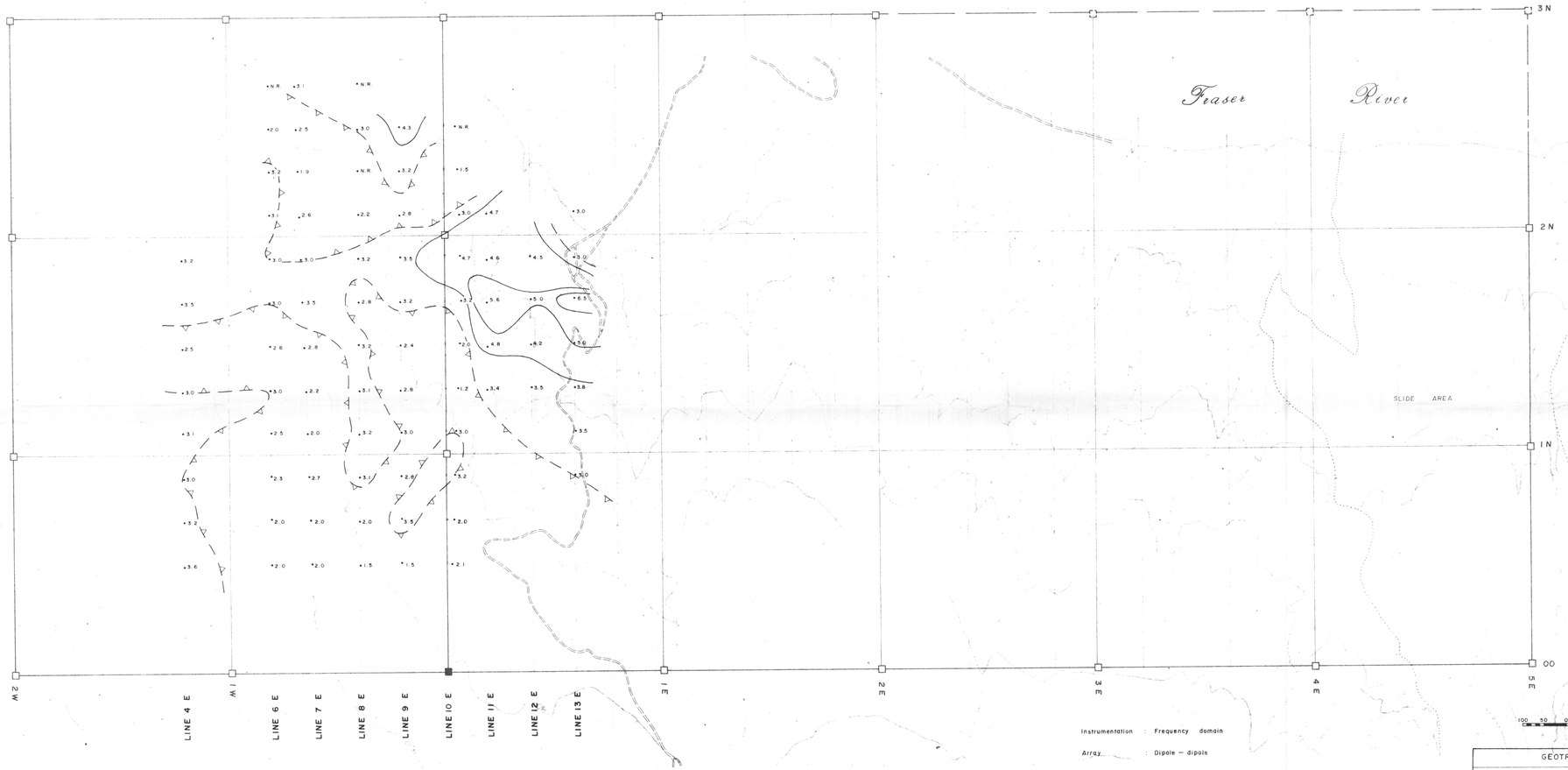

N

Instrumentation : Frequency domain

Array : Dipole – dipole

Dipole length : 100 metres

Dipole separation : n = 3

Frequencies : 0.3 Hz., 10 Hz.

Units : %

Contour intervals : 1.0 %

– – – – – 3.0 % (Possibly anomalous)

——— 4.0 % and above (Anomalous)

Drafting by : P.HAILLOT

inches 0 1 2

0 1 2 3 4 5 centimetres

This reference scale bar has been added to the original plan. If the plan is not at the same size as the image, therefore it can be used as a reference for the original size.

100 50 0 100 200 300 metres

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KERR ADDISON MINES LTD

BIG BAR PROPERTY

CLINTON M.D., B.C.

INDUCED POLARIZATION SURVEY
FREQUENCY EFFECT
DATA & CONTOURS
PLAN N=3

DRAWN BY	DATE	SCALE	JOB No.	SHEET No.
D.G.M	DEC., 1979	1 5000	79-59	4