GEOPHYSICAL REPORT

ON

MAGNETIC, VLF-EM, INDUCED POLARIZATION AND RESISTIVITY SURVEYS

OVER A PORTION OF THE

VIKING MINE PROPERTY
(Greedy Claim Group)

PITT LAKE AREA

NEW WESTMINSTER M.D.

BRITISH COLUMBIA

PROPERTY : At south end of Pitt Lake on east side

: 49° 22' North Latitude
122° 34' West Longitude

: N.T.S. 92G/7E

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DATED : June 17, 1988

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SUMMARY

Magnetic, VLF-EM, induced polarization, and resistivity surveys were carried out during March and May, 1988 over a portion of the Viking Mine property located at the south end of Pitt Lake 15.6 km due north of the town of Haney, British Columbia. The purpose of the work was to locate copper sulphide mineralization containing silver values as is found within the Viking Mine workings.

The property is accessible by boat or by an hour's walk from the Pitt Lake dyke. The terrain consists of rugged slopes interspersed with precipitous rock cliffs covered with densely-populated hemlock and red cedar trees with thick underbrush.

The Viking Mine property occurs within a roof pendant within Coast Intrusive hornblende diorites. The mineralization occurs within well-defined quartz veins within a shear zone and consists of copper sulphides with silver values and minor gold values. The vein averages 1.2 m (4 feet) in width but on one level widens out to 30 m (100 feet). Extensive underground work has been carried out since 1897 with some mining taking place. 16,000 tons of copper-silver ore is reported to exist within the Viking workings.

The magnetic survey was carried out using a proton precession magnetometer taking readings every 15 m on 50 m separated survey lines. The data were diurnally corrected, plotted, and contoured. The VLF-EM survey was carried out with a receiver using the Seattle transmitter and taking readings every 15 m on the same survey lines. The field data were filtered, plotted, and contoured.

The IP and resistivity surveys were carried out using a Huntec receiver operating in the time-domain mode with the dipole-dipole array at 1 to 8 separations. The dipole length and reading interval were 15 m. Five lines were done. The results were plotted in pseudosection form and contoured.

CONCLUSIONS

1. The magnetic survey responded by magnetic lows to fault, shear, and contact zones trending mainly in northerly directions. The magnetic highs were seen to be mainly reflecting unaltered hornblende diorite. The magnetic lows besides reflecting structure were reflecting sedimentary rock-types. There was no definitive narrow vein-type magnetic response to the Viking mineralization. However, a northerly-trending magnetic high correlates with the Viking mineral zone and is very likely caused by magnetic quartz diorite.

2. The VLF-EM survey mapped shear, fault, and possibly contact zones trending in mainly northerly directions as well. As with the magnetic survey, there was no definitive response to the known mineralization, but this can be attributed to the low optimum direction of the transmitter to the strike direction of the mineralization.

3. The IP responded very well to the Viking mineralization (IP anomaly A) indicating it is the best tool to date to locate mineralization on the property. In addition, IP and resistivity anomaly B indicated a previously unknown vein

that occurs 100 m to the north of the Viking vein. There was only minor response of the IP over some of the magnetic and VLF-EM anomalies tested indicating a minor amount of sulphides.

4. The resistivity results responded to fault, shear and contact zones with lineal-shaped resistivity lows. There was especially good correlation with the VLF-EM conductors. With a resistivity low, anomaly A, the survey also responded to the Viking mineralization.

RECOMMENDATIONS

1. The property should be geologically mapped and prospected. This will greatly enhance the interpretation of the geophysics. Attention should be paid to possible vein extensions of the Viking mineralizations to the west and to the northeast as well as possible parallel systems.

2. The Viking workings should be rehabilitated and geologically mapped. This is considered very important because of statements in the B.C. government Minister of Mines annual reports mentioning: (a) probable reserves of 16,000 tons of ore with the likelihood of greatly increasing it, (b) the vein widening to 100 feet (30 m), and (c) a sub-parallel vein system.

3. While all the surveys revealed useful information on the property, the most useful as far as the Viking mineralization is concerned is the IP/resistivity surveys. As a result IP/resistivity survey lines should be run to test for west and northeast vein extensions. However, the rough

terrain may limit the location of the lines. If road access is planned in the near future, then it is advisable to carry out IP/resistivity surveying after the road has been put in.

4. Diamond drilling should then be carried out to test targets from the above. Targets so far include IP anomaly B and VLF-EM conductor "a"/resistivity anomaly E.

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INTRODUCTION AND GENERAL REMARKS

This report discusses the instrumentation, theory, field procedure and results of magnetic, VLF-EM, induced polarization (IP) and resistivity surveys carried out over a portion of the Viking property located at the south end of Pitt Lake within southern British Columbia.

The magnetic and VLF-EM surveys were carried out February 29th to March 11th, 1988 under the supervision of the writer and under the field supervision of Tracy Campbell, geophysicist, who also formed part of the field crew. A geophysical technician completed the crew of two.

While the two surveys were in progress, interesting anomalies were obtained and thus Peter Dasler, geologist, was sent to the property to examine the geology in the area of the anomalies. As a result of his letter report, it was decided to carry out induced polarization/resistivity testing. This was carried out during the period of May 12th to the 27th, 1988 under the supervision of the writer, and under the field supervision of Marc Beaupre, geophysical technician, with the aid of two helpers.

The purpose of the magnetic survey was to (1) map and extend the vein system since it contained pyrrhotite which is usually magnetic, (2) map the lithology of the property, especially the contact between the Twin Island Group roof pendant and the quartz diorite intrusive, and (3) map fault and shear zones on the property especially through magnetic lows. The purpose of the VLF-EM survey was (1) to map and extend the vein systems, and (2) to map fault and shear zones.

The purpose of the induced polarization survey was to determine whether any sulphides were associated with any of the VLF-EM or magnetic anomalies. That of the resistivity survey was to map lithology and geological structure. A further purpose of both these surveys was to map the response of the various anomalies to depth by expanding the array and mapping in section.

The work was done at the request of John Cotowick, president of Anglo-Quest Resources Ltd.

PROPERTY AND OWNERSHIP

The property consists of 1 Crown grant, 4 reverted Crown grants, and one 16-unit mineral claim as shown on Map 2 and as described below:

Name	Area	Lot Number	Record No.	Expiring Date
Crown Grant				
Viking	13.80 ha	3177	n/a	1989
Reverted Crown Grants				
Expremier	20.72 ha	5578	2409	Mar. 30, 1989
Pioneer	20.04 ha	5579	2410	Mar. 30, 1989
Lakeview	20.02 ha	5580	2408	Mar. 30, 1989
Hillside	16.49 ha	5581	2421	Mar. 30, 1989
Metric Claim				
Greedy M.C. 1-16	16 units (400 ha)	n/a	3218	Aug. 26, 1988

The Crown grant is owned by John Cotowick, the four reverted Crown grants are owned by Anglo-Quest Resources Ltd., and the Greedy Claim is owned by Superior Silica Ltd. Both Anglo-Quest Resources and Superior Silica are companies controlled by John Cotowick.

The Greedy claim is a complete staking over of the Crown grants. In addition, the boundaries of this claim occur in Pitt Lake, Golden Ears Park, and the UBC forestry reserve. As a result, the effective ground area covered by the five Crown grants and the one claim is equivalent to about 4.5 units which is about 113 hectares (280 acres).

LOCATION AND ACCESS

The property is located at the south end of Pitt Lake on the east shore within southern British Columbia. The town of Haney is located 15.6 km (9.7 miles) due south.

The geographical coordinates for the center of the property are 49° 22' north latitude and 122° 34' west longitude.

Access is best gained by taking a boat to the property. One can also walk from the east end of the dyke where the legal corner post for the Greedy M.C. 1-16 claim is located. Considering the rough terrain, it takes about one hour to reach the main workings.

PHYSIOGRAPHY

The property is found at the southern end of the physiographic division known as the Pacific Ranges, which is the southwestern part of the Coast Mountain System. The Pacific Ranges are comprised essentially of granitic-type rocks forming rugged high mountains approaching 3,000 meters and cut by broad U-shaped valleys.

The elevations vary from near sea level on Pitt Lake to 600 meters (2,000 feet) a.s.l. along the eastern edge of the property abutting the UBC forest reserve. The terrain on the property is extremely rugged and is comprised of a series of benches separated by precipitous cliffs up to 30 m high that parallel the lake shore.

The main water source is Pitt Lake. Also, several small streams cross the property and drain into the lake.

The vegetation consists mainly of densely-populated hemlock and red cedar with heavy underbrush.

HISTORY

The following is quoted from Lorimer's 1962 report on the property since little work has been done since.

"The following information is compiled from British Columbia Minister of Mines Reports over the period 1897-1930 inclusive:

"The property was first located in 1897. In the next three years the underground development consisted of 600 feet of tunnelling and 185 feet of shafting. Bins were erected and some ore was shipped in 1900. Bin samples ran from 3 to 21 percent copper with from $3.00 to $5.00 in gold and silver.

"After a period of inaction work was resumed in 1914 when a camp was built and an aerial tramway, half a mile long, installed from the mine portal to the lakeshore. A 100-ton bunker was built at the mine and a 400-ton bunker at the lake. Four shipments were made in 1914 as follows:

Tons	Gold (oz/ton)	Silver (oz/ton)	Copper %
2	Tr	5.46	11.39
10	Tr	4.76	10.27
9	Tr	4.38	9.62
162	0.02	2.5	4.1

"After another inactive period limited work was started in 1923 but the owners were beset by financial troubles and little was done.

"In 1927 a programme to put the mine into production was started. In this and the next few years a road was built from the lake to a concentrator site, more drifting was done underground, mill buildings were erected, machinery foundations were prepared and a hydroelectric plant was installed. The old Iron Mask mill was purchased and moved to the site. Operations were suspended in 1930 due to financial troubles.

"The average of 900 samples taken throughout the mine was as follows: gold 0.06 oz/ton, silver 3.89 oz/ton and copper 3.9 percent. (No widths or methods of sampling are given.)

"The 1923 report states that there is an estimated total of 16,000 tons of ore blocked out.

"This concludes the information compiled from Minister of Mines Reports."

Lorimer also reported on work done in 1962 which consisted of reconditioning the underground workings, sampling, and a minor amount of drilling with a pack sack drill.

GEOLOGY

The following is also quoted from Lorimer.

"The property is on a small pendant of hornfels and amphibolite with small quartzite bands. The mine itself is in a shear zone that strikes roughly east and west, and dips between 60 and 90 degrees to the south.

"The zone consists of at least two veins of quartz, feldspar, kaolin and brecciated wall rock. These form a gangue for pyrrhotite, pyrite and chalcopyrite. Covellite and sphalerite are reported to be present in small amounts. Silver occurs in undetermined minerals and assays show low gold values.

"The vein walls are often poorly defined with many branching and parallel veinlets. In the adit the main vein varies between two and four feet in thickness; in the raise it is at least six feet in places. Within the mine a fault striking northeasterly and dipping about 80 degrees to the southeast cuts the vein resulting in a displacement of at least ten feet."

The 1923 B.C. government Report of the Minister of Mines states:

> "**Ore Tonnage.** It can be estimated that there is already blocked out on the Viking group approximately 16,000 tons of ore but this estimate is only a rough one and subject to revision when actual mining operations are carried out. The quantity would be greatly increased if the ore is found to be continuous beyond the present face of the main adit, where the height above the adit increases practically a foot for every foot advanced underground, owing to the precipitous contour of the mountain in which the drift is being driven. In the estimated tonnage given no allowance has been made for the maintenance of the continuity of the ore below the level of the main adit.
>
> **Conclusions.** After as careful an examination as time permitted of the Viking group, I formed the opinion that, judging from the ore exposed in the underground workings in conjunction with the promising possibilities, the property possesses very many attractive features and is well worth further development."

Of strong interest is a statement from the 1927 report -

> "The vein on the 90-foot level opens out to 100 feet in width, but in the main adit-levels it averages about 4 feet."

At present, cave-ins within the present workings prevent the above statements from being checked out. As a result, a strong priority of the present exploration program would be to clean the workings out and geologically map and sample them.

MAGNETIC SURVEY

a) Instrumentation and Theory

The magnetic survey was carried out with a model MP-2 proton precession magnetometer, manufactured by Scintrex Limited of Concord, Ontario. This instrument reads out directly in gammas to an accuracy of ± 0.1 gamma, over a range of 20,000 - 100,000 gammas. The operating temperature range is -35° to +50° C, and its gradient tolerance is up to 5,000 gammas per meter.

Only two commonly occuring minerals are strongly magnetic, magnetite and pyrrhotite; magnetic surveys are therefore used to detect the presence of these minerals in varying concentrations. Magnetic surveys are also useful as a reconnaissance tool for mapping geologic lithology and structure since different rock types have different background amounts of magnetite and/or pyrrhotite.

b) Field Procedure

The baseline was compassed in with axe blazing and flagging at a direction of 125°E (S35°E). The survey lines were compassed in and measured with hip chain at a perpendicular direction to the base line, namely, 35°E and 215°E (N35°E and S35°W). The line spacing was 50 m and the station spacing, 15 m with the stations marked by blaze-orange flagging.

Readings of the earth's total magnetic field were taken every 15 m along the survey lines and consisted of 11.54 km of survey.

The diurnal variation was monitored in the field by the closed loop method to enable the variation to be removed from the raw data prior to plotting.

c) Compilation of Data

A base value of 56,000 gammas was subtracted from all magnetic readings and the resultant values were then plotted on a survey plan, namely map #3, at a scale of 1:2,500. The data was then contoured at an interval of 500 gammas.

VLF-EM SURVEY

a) Instrumentation and Theory

A VLF-EM receiver, Model 27, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. was used for the VLF-EM survey. This instrument is designed to measure the electromagnetic component of the very low frequency field (VLF-EM), which for this survey is transmitted at 24.8 KHz from Seattle (Jim Creek), Washington.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (primary) by a strong alternating current usually through a coil of wire. If a conductive mass such as a sulphide body is within this magnetic field, a secondary alternating current is induced within it which in turn induces a secondary magnetic field that distorts the primary magnetic field. It is this distortion that the EM receiver measures. The VLF-EM uses a frequency range from 16 to 24 KHz, whereas most EM instruments use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can pick up bodies of a much lower conductivity and therefore is more susceptible to clay beds, electrolyte-filling fault or shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies of too low a conductivity for other EM methods to pick up. Consequently the VLF-EM has additional uses in mapping structure and in picking up sulphide bodies of too low a conductivity for conventional EM methods and too small for induced polarization. (In places it can be used instead of I.P.). However, its susceptibility to lower conductive bodies results in a number of anomalies, many of them difficult to explain and, thus, VLF-EM preferably should not be interpreted without a good geological knowledge of the property and/or other geophysical and geochemical surveys.

b) Field Procedure

The VLF-EM readings were taken on the same grid as that for the magnetic survey, that is, every 15 m on 50-m separated lines facing towards the Seattle transmitter. A total of 10.64 line km were surveyed.

c) Compilation of Data

The VLF-EM field results were reduced by applying the Fraser-filter and the filtered results subsequently plotted on a base map, map #4, at a scale of 1:2,500. The filtered data were plotted between actual reading stations. The positive dip-angle readings were then contoured at an interval of 3°.

The Fraser-filter is essentially a 4-point difference operator, which transforms zero crossings into peaks, and a low pass smoothing operator which induces the inherent high frequency noise in the data. Therefore, the noisy, non-contourable data are transformed into less noisy, contourable data. Another advantage of this filter is that a conductor that does not show up as a crossover on the unfiltered data quite often shows up on the filtered data.

INDUCED POLARIZATION-RESISTIVITY SURVEY

a) Instrumentation

The transmitter used for the induced polarization-resistivity survey was a Model IPT-1, manufactured by Phoenix Geophysics Ltd. of Markham, Ontario. It was powered by a 2.0 kw motor-generator, Model MG-2, also manufactured by Phoenix.

The receiver used was a model Mark IV manufactured by Huntec ('70) Limited of Scarborough, Ontario. This is state-of-the-art equipment, with software-controlled functions, programmable through the front panel.

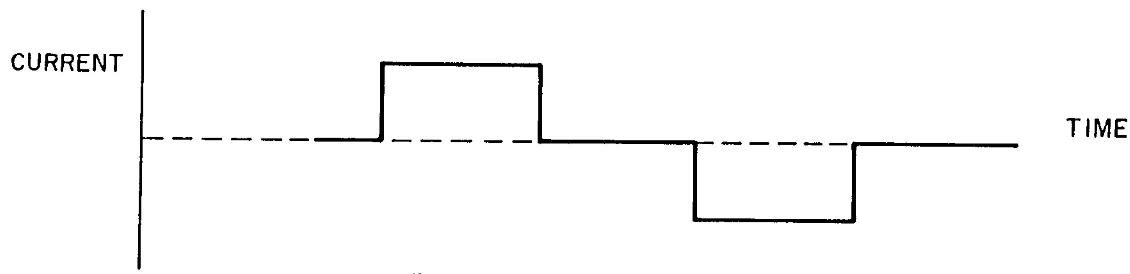
The Mark IV system is capable of time domain, frequency domain, and complex resistivity measurements.

b) Theory

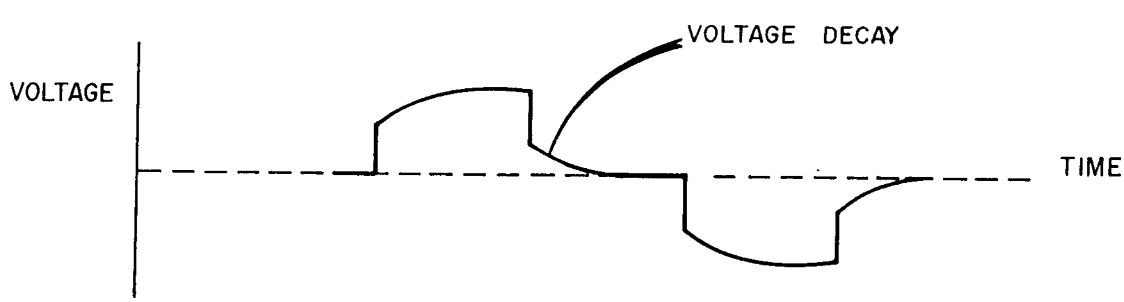
When a voltage is applied to the ground, electrical current flows, mainly in the electrolyte-filled capillaries within the rock. If the capillaries also contain certain mineral particles that transport current by electrons (most sulphides, some oxides and graphite), then the ionic charges build up at 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 the current is switched off, the created voltage slowly decreases as the accumulated ions diffuse back into the electrolyte. This type of induced polarization phenomena is known as electrode polarization.

A similar effect occurs if clay particles are present in the conducting medium. Charged clay particles attract oppositely-charged ions from the surrounding electrolyte; when the current stops, the ions slowly diffuse back to their equilibrium state. This process is known as membrane polarization and gives rise to induced polarization effects even in the absence of metallic-type conductors.

Most IP surveys are carried out by taking measurements in the "time-domain" or the "frequency-domain".



Transmitted Waveform



Recorded Voltage

Time-domain measurements involve sampling the waveform at intervals after the current is switched off, to derive a dimensionless paramater, the chargeability, "M" which is a measure of the strength of the induced polarization effect. Measurements in the frequency-domain are based on the fact that the resistance produced at the electrolyte-charged particle interface decreases with increasing frequency. The difference between apparent resistivity readings at a high and low frequency is expressed as the percentage frequency effect, "PFE".

The quantity, apparent resistivity, ρ_a, computed from electrical survey results is only the true earth resistivity in a homogenous sub-surface. When vertical (and lateral) variations in electrical properties occur, as they always will in the real world, the apparent resistivity will be influenced by the various layers, depending on their depth relative to the electrode spacing. A single reading cannot therefore be attributed to a particular depth.

The ability of the ground to transmit electricity is, in the absence of metallic-type conductors, almost completely depending onthe volume, nature and content of the pore space. Empirical relationships can be derived linking the formation resistivity to the pore water resistivity, as a function of porosity. Such a formula is Archie's Law, which states (assuming complete saturation) in clean formations:

$$\frac{Ro}{Rw} = 0^{-2}$$

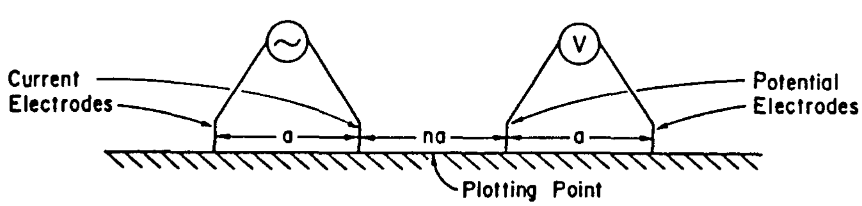
Where: Ro is formation resistivity
Rw is pore water resistivity
0 is porosity

c) Survey Procedure

The IP and resistivity measurements were taken in the time-domain mode using an 8-second square wave charge cycle (2-seconds positive charge, 2-seconds off, 2-seconds negative charge, 2-seconds off). The delay time used after the charge shuts off was 200 milliseconds and the integration time used was 1,500 milli-seconds divided into 10 windows.

The configuration used in the field was the dipole-dipole array shown as follows:

DIPOLE-DIPOLE ARRAY



The electrode spacing (or dipole length) is denoted 'a' and was chosen as 15 m. The 'n' was read from 1 to 5, 7, or 8 dipole separations ('na') which was therefore 15 to 75, 105, or 120 m. This gives a theoretical depth penetration of 8 to 70 m which depends not only on the 'na' spacing but also on the ground resistivity.

The dipole-dipole array was chosen because of its symmetry. Narrow vein-type targets such as occur on the Viking Mine property can be missed using non-symmetrical arrays such as the pole-dipole.

Stainless steel stakes were used for current electrodes. For the potential electrodes, metallic copper in copper sulphate solution in non-polarizing, unglazed, porcelain pots was used.

In total, five lines were surveyed varying in lengths from 200 to 300 m for the following purposes.

1) Line 1 (3+00E) to test a VLF-EM conductor and adjacent magnetic low. Dasler noted the conductor was caused by a shear or fault zone with associated brecciation and quartz veining.

2) Line 2 to test a VLF-EM conductor and correlating magnetic low.

3) Line 3 (5+00E) to test the main mineralization within the Viking mine.

4) Line 4 to test a strong magnetic low containing a wide quartz vein.

5) Line 5 (1+50E) to test mineralization verbally noted by Cotowick to be downslope of the main workings.

The survey's progress was hampered by (1) the rugged terrain and dense vegetation making traversing the survey lines difficult, (2) much rock exposure making it difficult to plant the electrodes, especially the current electrodes, and (3) rainfall, since IP/resistivity surveying should not be done in heavy rain.

d) Compilation of Data

The chargeability (IP) values are read directly from the instrument and no data processing is therefore required prior to plotting. The resistivity values are derived from current and voltage readings taken in the field. These values are combined with the geometrical factor appropriate for the dipole-dipole array, to compute the apparent resistivities.

The chargeability and resistivity data were each plotted in pseudosection form on maps 5 and 6, respectively, at a scale of 1:1,000. The chargeability data were then contoured at an interval of 5 msec, and the resistivity data at a logarithmic interval. The survey plan of the IP/resistivity lines is shown on the magnetic and VLF-EM maps (maps 3 and 4, respectively).

DISCUSSION OF RESULTS

A) Magnetic Survey

What is readily apparent on the magnetic survey plan is an east-west division of the magnetic field that is approximately divided by the 500-gamma contour. The magnetic field to the west for the most part varies from 0 to 400 gammas. It is relatively quiet with highs reaching 700 to 900 gammas and lows, -50 to -200 gammas. On the other hand, the magnetic field to the east has a greater intensity varying for the most part from 500 to 1000 gammas. It is also a noisier field with highs reaching 1500 to 3000 gammas, and lows, 200 to -400 gammas.

Correlating this with the GSC map for the area (GSC map 1151A), it can be seen that the 500-gamma magnetic contact is closely related to the geological contact with hornblende quartz diorite to the west and Twin Island Group metamorphic and sedimentary rocks to the east. This is certainly not what is expected since sedimentary rocks, and usually metamorphic rocks, have a quiet, low magnetic field and intrusives have a higher magnetic field. On the other hand, Peter Dasler has related magnetic highs to magnetite within diorites, and a magnetic low to "hornfelsed sediments." It would therefore appear that the geology is more complex than the GSC map indicates. Therefore, a geological mapping of the grid area would greatly enhance the interpretation of the magnetics.

To the immediate east of the 500-meter contour is a northerly trend of strong magnetic highs. The northernmost one centered at (L - 3+00E, 4+50N) was mentioned by Dasler to be caused by magnetite within quartz diorite. What is of greater interest, however, is the fact that the high centered at (5+25E, 2+20N) occurs on and around the Viking Mine workings. This indicates that the host rock is a quartz diorite which closely agrees with the writers of the 1920's annual reports (where it is labelled a granodiorite). Also, the other magnetic highs on this trend could contain sub-parallel zones of mineralization.

The magnetic high definitely is not reflecting pyrrhotite within the mineralization since the strike of the magnetic high is different than that of the mineralization, and since the shape of the anomaly does not indicate a narrow vein-type source.

Lineations of magnetic lows, suggestive of geologic structure, appear across the entire grid and strike in several different directions. Some of these correlate directly with VLF-EM conductors or are sub-parallel to them which therefore supports geologic structure as being the causative source. Of course, some of the magnetic lows may simply be caused by hornfelsed sediments.

One of these is approximately 300 metres long striking across the grid at about 6+50N. This low zone correlates with a change in the rock-type, as noted by Dasler, from diorite with hornfels to non-magnetic quartz-diorite and could reflect the contact/ shear zone between the two, or an associated shear zone.

A long, nearly northeasterly-trending magnetic low zone stretching from near 3+50E, 4+50N to near 4+50E, 4+50S, is very wide at its southern part and is characterized by several northerly-trending branches. This zone roughly parallels a topographic depression and could reflect a shear zone, crossed by a system of north-northeasterly trending shear zones. It is interesting to note that many of the magnetic lineations end or change direction at this northeasterly-trending one.

b) VLF-EM Survey

The VLF-EM survey produced interesting results, outlining a system of clear north-northwesterly-trending conductors, six of which are labelled 'a' to 'f'. As well, there are some east-southeasterly-trending conductors in the southern portion of the grid, which are labelled 'g', 'h' and 'i'.

The strongest conductor is conductor 'a', with a minimum length of 500 metres and open to both the south and to the north. This conductor reaches a strength of 29° on line 3+00E at 1+25N. A smaller conductor paralleling conductor 'a' to the north appears to merge with it. Both conductors correlate with local near-linear mag lows, suggesting a shear system is the causative source. A wide surface depression and a low swampy area occur along the conductor, further supporting this view. It is this conductor/surface depression that Dasler noted brecciation and quartz fill within veins and crackle zones within the cliffs on either side.

Conductor 'b' strikes approximately 300 metres north-northwesterly correlating with a minor mag low. This character most likely reflects the contact fault between the non-magnetic quartz diorite to the east, and the diorite with hornfels to the west. There is no IP correlation.

Conductors 'c', 'd', and 'e' strike sub-parallel to conductor 'b', between conductors 'a' and 'b'. Conductor 'c' is weaker than 'b', but is approximately 500 metres long. Conductor 'd' and 'e' are weak, disconnected conductors of approximate lengths 500 and 350 metres respectively. These conductors most likely reflect shear zones within a shear system striking in a northerly direction. They tend to terminate approximately at a magnetic high around (3+00E, 4+50N). The strength of the magnetic high indicates magnetite occurs within the area of coarse hornblende diorite seen by Dasler. This evidence and a magnetic low zone on the south edge of the mag highs, suggest that a possible eastwest fault or contact zone cuts across the conductors.

Conductor 'f' southwest of conductor 'a' is a weak conductor which correlates with a sub-linear magnetic low and most likely reflects a shear zone.

Conductors 'g' and 'h', though weak conductors, are the only conductors to exhibit similar orientation to the mine's shear zone. This suggests there is a close association with that shear zone, and so these conductors warrant further exploration interest.

c) IP/Resistivity Surveys

The IP and resistivity surveys have shown favourable results, with many resistivity anomalous lows having good continuity from line to line as well as correlating with VLF-EM conductors.

Resistivity values have shown a great range, from a low of only 18 ohm-m on line #2 to a high of 25,107 ohm-m on the same line. The high values are indicative of an unaltered diorite and/or quartz-diorite country rock; the low-values, structure and possible mineralization. Except for the results along IP line 5+00E and localized highs, the IP results are relatively flat, indicating a low level of sulphide content along most of the target areas tested.

There are six main IP/resistivity or resistivity anomalous zones, labelled 'A' to 'F', respectively.

Anomalous zones A and B are by far the most interesting because of the correlation of IP results which indicates sulphides, and resistivity results. IP anomaly A on line 5+00E correlates with the Viking Mine mineralization. It sub-outcrops at about 2+85N and dips to the south as the known mineralization does. The correlating resistivity low, however, definitely dips to the north. It therefore is probably reflecting a related shear zone, or perhaps, sedimentary bedrock.

IP and resistivity anomaly B is of strong exploration interest since it seems to indicate a previously unknown vein that is parallel to A. It also dips to the south but sub-outcrops at 3+75N on line 5+00E. The vein would therefore occur about 100 m to the north of the main Viking vein.

Anomalies 'A' and 'B', because of the strong correlation with VLF conductors 'd' and 'e', respectively, appear to extend to IP line #4 as well which results in a strike length of 150 m. This indicates a northwest strike which disagrees with the direction of the shear zone the mine shaft follows. Since the VLF survey was conducted using the Seattle transmitter to the south, it was expected beforehand that weaker easterly-trending zones would not respond very well to the survey. However, the correlation between topography, resistivity, VLF-EM, and, partly, magnetics, can only suggest that the interpreted trends of these anomalies are correct.

In support of this, IP anomaly B on line #4 occurs in the area of a rusty quartz vein on which an adit has been driven.

Resistivity anomaly 'C' is a good anomaly which appears clearly on the pseudosection of IP line #2 at its southernmost-edge, and not quite so clearly at the northernmost-edge of IP line #4. Because only one limb of the anomaly has been recorded on each pseudosection, it is difficult to ascertain the dip of the anomaly. This anomaly does, however, show very good correlation with VLF conductor 'c', and hence must reflect geologic structure such as a shear zone. IP results on this line are too low to reflect sulphides.

Resistivity anomaly 'D' is visible on IP line 2, and is the most prominent resistivity low on the property, with a low of 18 ohm-m. this anomaly dips southwesterly approximately from grid 5+00E, 6+50N. This correlates very well with VLF conductor 'b', and the coincident mag low, supporting the conclusion that a geologic structure such as a fault or shear zone is the causative source. There is no IP correlation.

Anomalous zone E appears on lines 1+50E and 3+00E. On line 3+00E, two lineations within zone 'E' extend to the surface almost precisely where VLF-EM conductor 'a' and its associate occur. On line 1+50E, anomalous zone 'E' outcrops over the extension of VLF conductor 'a'. Such a strong correlation suggest the existence of two geological structures striking parallel and approximately northward. An interesting variation of the character of anomaly 'E' between the two different pseudosections is the depth below surface where the zone occurs. Anomalous zone 'E' on line 3+00E is deeper than on line 1+50E - a difference possibly caused by the intersection of the two structures plunging northward. The only IP correlation is a relatively shallow value of 22.5 msec. on line 3+00E.

Of equal interest is a definite resistivity contact at the southwest ends of lines 3+00E and 1+50E. The resistivity values are much higher to the southwest than they are to the northeast which therefore indicates a lithological contact. This may also be the cause of VLF-EM conductor 'a'.

To the northeast of this contact on line 3+00E, is a surficial resistivity high that correlates with higher IP values. This indicates a flat-lying lithological contact, suggesting, perhaps, quartz diorite underlain by sediments.

Resistivity anomaly 'F' occurs on IP line #4, about 30 metres northeast of anomaly B, and approximately parallels 'B' on the pseudosection. This character indicates that anomalies 'A', 'C' and 'F' could reflect a series of parallel shear zones striking north-northwesterly.

At the north end of line 1+50 E is an IP anomalous high. The line could not be extended further because of a cliff. Quite possibly the cliff is caused by a fault with which sulphide mineralization, as indicated by IP, is associated.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

Patrick Cruickshank,
Geophysicist

David G. Mark
Geophysicist

June 17, 1988

45/G425

GEOPHYSICIST'S CERTIFICATE

I, M.A. PATRICK CRUICKSHANK, 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 located at #530-800 West Pender Street, Vancouver, British Columbia.

I further certify:

1. That I am a graduate of the University of British Columbia (1986) and hold a B.A.Sc. degree in Geophysics Engineering.
2. I have been practising my profession for one and a half years.
3. I am registered with the British Columbia Association of Professional Engineers as an Engineer-in-training, in geophysics.
4. This report is compiled from data obtained from magnetic, VLF-EM, induced polarization and resistivity surveys carried out by crews of Geotronics Surveys Ltd., under the field supervision of Tracy Campbell, geophysicist, from February 27 to March 11, 1988, and Marc Beaupre, geophysical technician from May 12 to 27, 1988.
5. I have no direct or indirect interest in the property mentioned within this report, nor in Anglo-Quest Resources Ltd., nor do I expect to receive any interest as a result of writing this report.

Patrick Cruickshank
Geophysicist

June 17, 1988

45/G425

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 located at #530-800 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 20 years and have been active in the mining industry for the past 23 years.

4. This report is compiled from data obtained from magnetic, VLF-EM, induced polarization and resistivity surveys carried out by crews of Geotronics Surveys Ltd., under my supervision and under the field supervision of Tracy Campbell, geophysicist, from February 27 to March 11, 1988, and Marc Beaupre, geophysical technician from May 12 to 27, 1988.

5. I do not hold any interest in Anglo-Quest Resources Ltd, nor in any associated company, nor in the Viking Mine property discussed in this report, nor will I receive any interest as a result of writing this report.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark
Geophysicist

June 17, 1988
45/G425

REFERENCES

B.C. Government Minister of Mines, Annual Reports, - 1923, 1927, 1928.

Dasler, Peter Letter Report on One-day Geological Mapping of Greedy Claim Group, Pitt Lake, B.C. to Anglo-Quest Resources Ltd., March 14, 1988.

Lorimer, M.K., P.Eng., Engineering Report on the Viking Mine, New Westminster M.D., B.C. for Anglo-Quest Resources Ltd., Feb. 20, 1986.

Roddick, J.A. Vancouver North, Coquitlam, and Pitt Lake Map - Areas, British Columbia, Memoir 335, Geological Survey of Canada, 1965.

AFFIDAVIT OF EXPENSES

This is to certify that magnetic and VLF-EM surveys, (February 27 to March 11, 1988), and IP and resistivity surveys, (May 12 to May 27, 1988), were carried out over the Viking Mine Claim Group located on Stephenson Creek at the south end of Pitt Lake, New Westminster M.D., B.C., to the value of the following:

Field:

2-man crew, magnetic and VLF-EM surveys 11 days @ $700/day	$7,700.00
3-man crew, IP and resistivity surveys 5 days @ $1300/day	6,500.00
	14,200.00

Office:

Senior geophysicist, 20 hours @ $45/hour	900.00
Junior geophysicist, 45 hours @ $35/hour	1,575.00
Geophysical technician, 25 hours @ $25/hour	625.00
Drafting	1,500.00
Printing	250.00
Word processing, photocopying, compilation	250.00
	5,100.00
GRAND TOTAL	$19,300.00

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark, Geophysicist
Manager

GEOTRONICS SURVEYS LTD.

ANGLO-QUEST RESOURCES LTD.

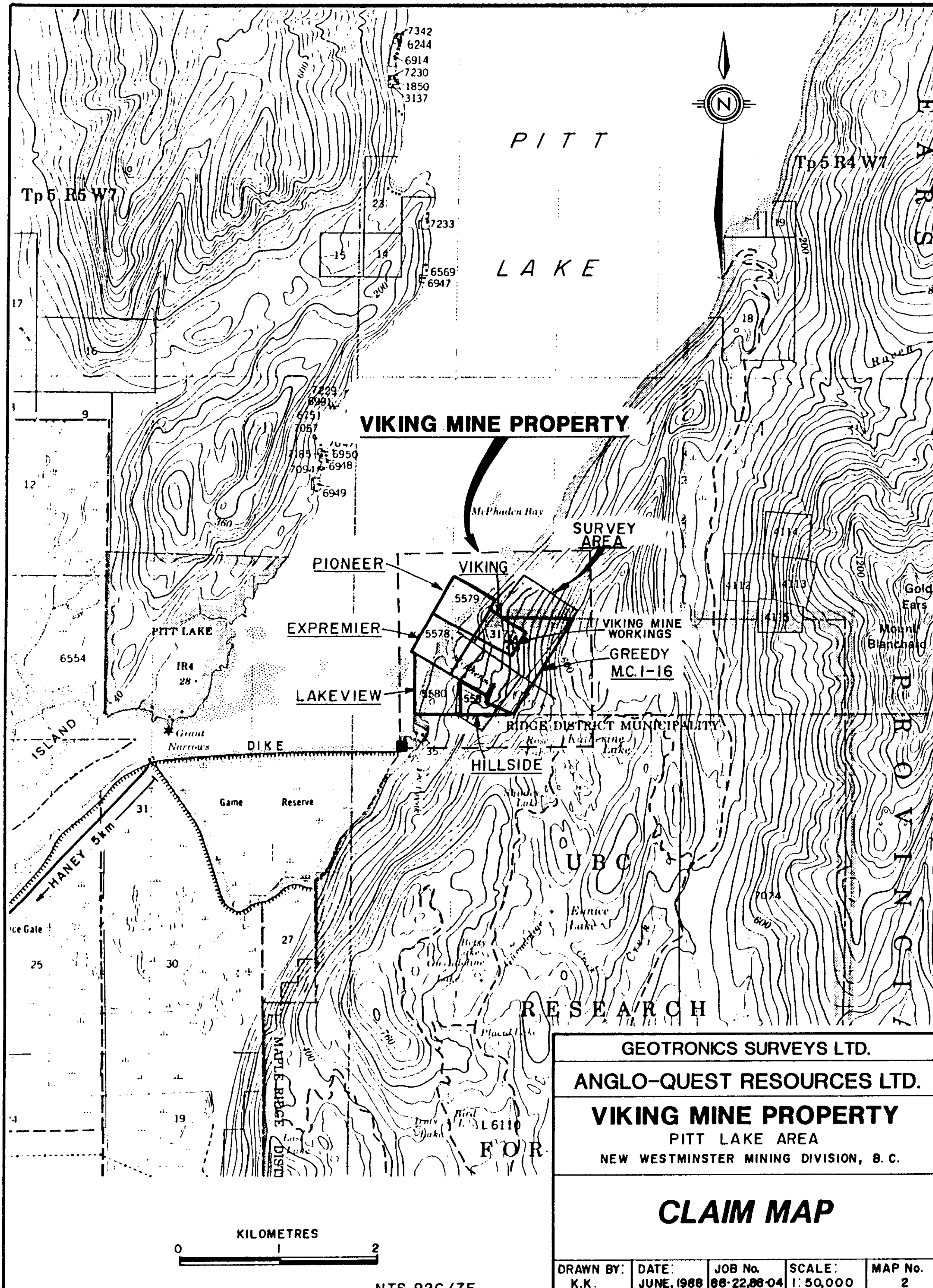
VIKING MINE PROPERTY

PITT LAKE AREA

NEW WESTMINSTER MINING DIVISION, B. C.

LOCATION MAP

DRAWN BY:	DATE:	JOB No.	SCALE:	MAP No.
K. K.	JUNE, 1988	88-22, 88-04	1:8,000,000	1



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ANGLO-QUEST RESOURCES LTD.

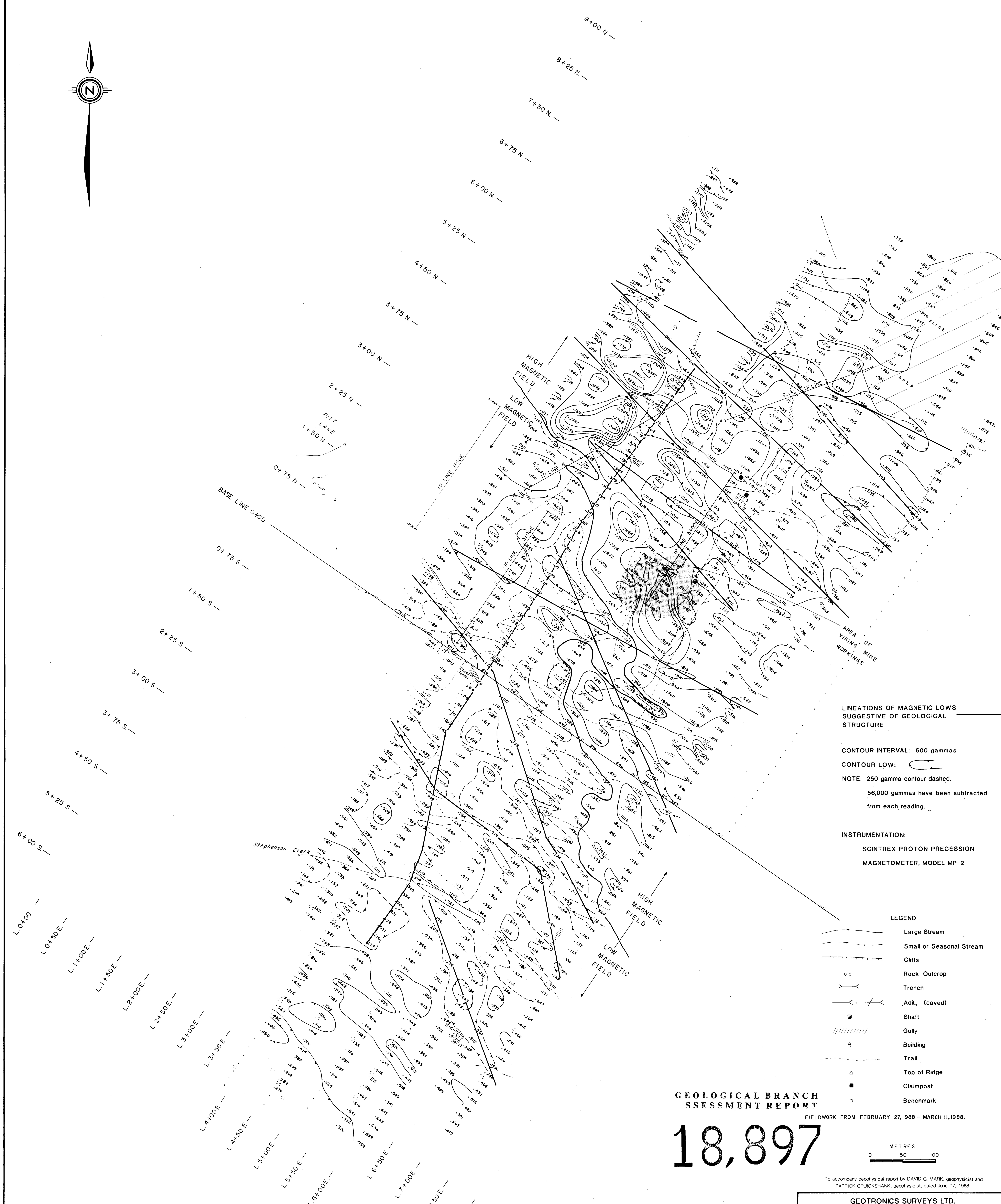
VIKING MINE PROPERTY

PITT LAKE AREA

NEW WESTMINSTER MINING DIVISION, B. C.

CLAIM MAP

DRAWN BY:	DATE:	JOB No.	SCALE:	MAP No.
K.K.	JUNE, 1988	88-22,88-04	1: 50,000	2



LINEATIONS OF MAGNETIC LOWS SUGGESTIVE OF GEOLOGICAL STRUCTURE

CONTOUR INTERVAL: 500 gammas

CONTOUR LOW:

NOTE: 250 gamma contour dashed.
56,000 gammas have been subtracted from each reading.

INSTRUMENTATION:
SCINTREX PROTON PRECESSION MAGNETOMETER, MODEL MP-2

LEGEND

- Large Stream
- Small or Seasonal Stream
- Cliffs
- Rock Outcrop
- Trench
- Adit, (caved)
- Shaft
- Gully
- Building
- Trail
- Top of Ridge
- Claimpost
- Benchmark

GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,897

FIELDWORK FROM FEBRUARY 27, 1988 – MARCH 11, 1988.

METRES
0 50 100

To accompany geophysical report by DAVID G. MARK, geophysicist and PATRICK CRUICKSHANK, geophysicist, dated June 17, 1988.

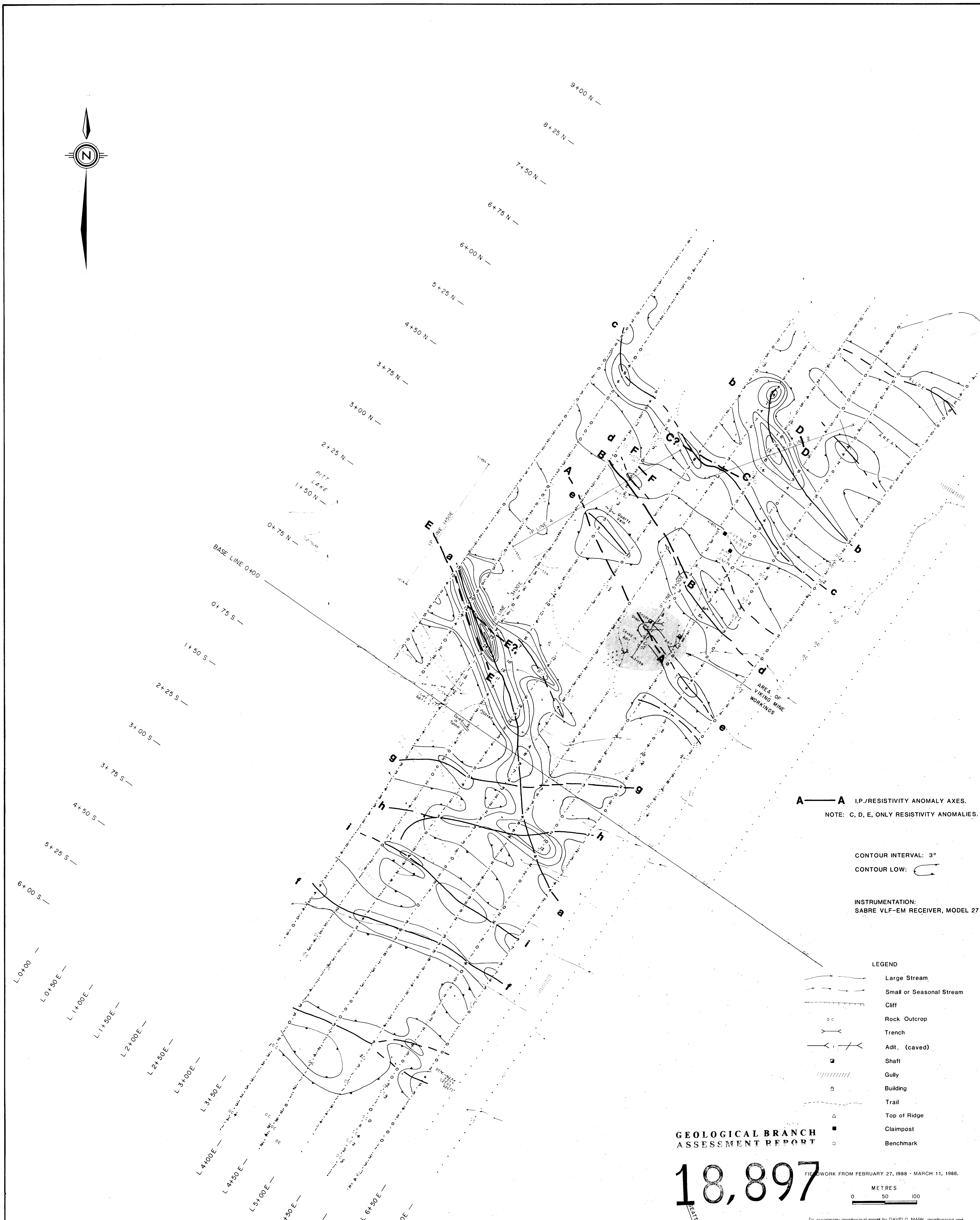
GEOTRONICS SURVEYS LTD.

ANGLO-QUEST RESOURCES LTD.

VIKING MINE PROPERTY
PITT LAKE AREA
NEW WESTMINSTER MINING DIVISION, B. C.

MAGNETOMETER SURVEY

DRAWN BY:	DATE:	N.T.S.	JOB NO.:	SCALE:	MAP NO.
M.B.	JUNE 1988	92G/7E	88-04	1 : 2500	3



GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,897

FIELDWORK FROM FEBRUARY 27, 1988 - MARCH 11, 1988.

To accompany geophysical report by DAVID G. MARK, geophysicist and PATRICK CRUICKSHANK, geophysicist, dated June 17, 1988.

GEOTRONICS SURVEYS LTD.

ANGLO-QUEST RESOURCES LTD.

VIKING MINE PROPERTY

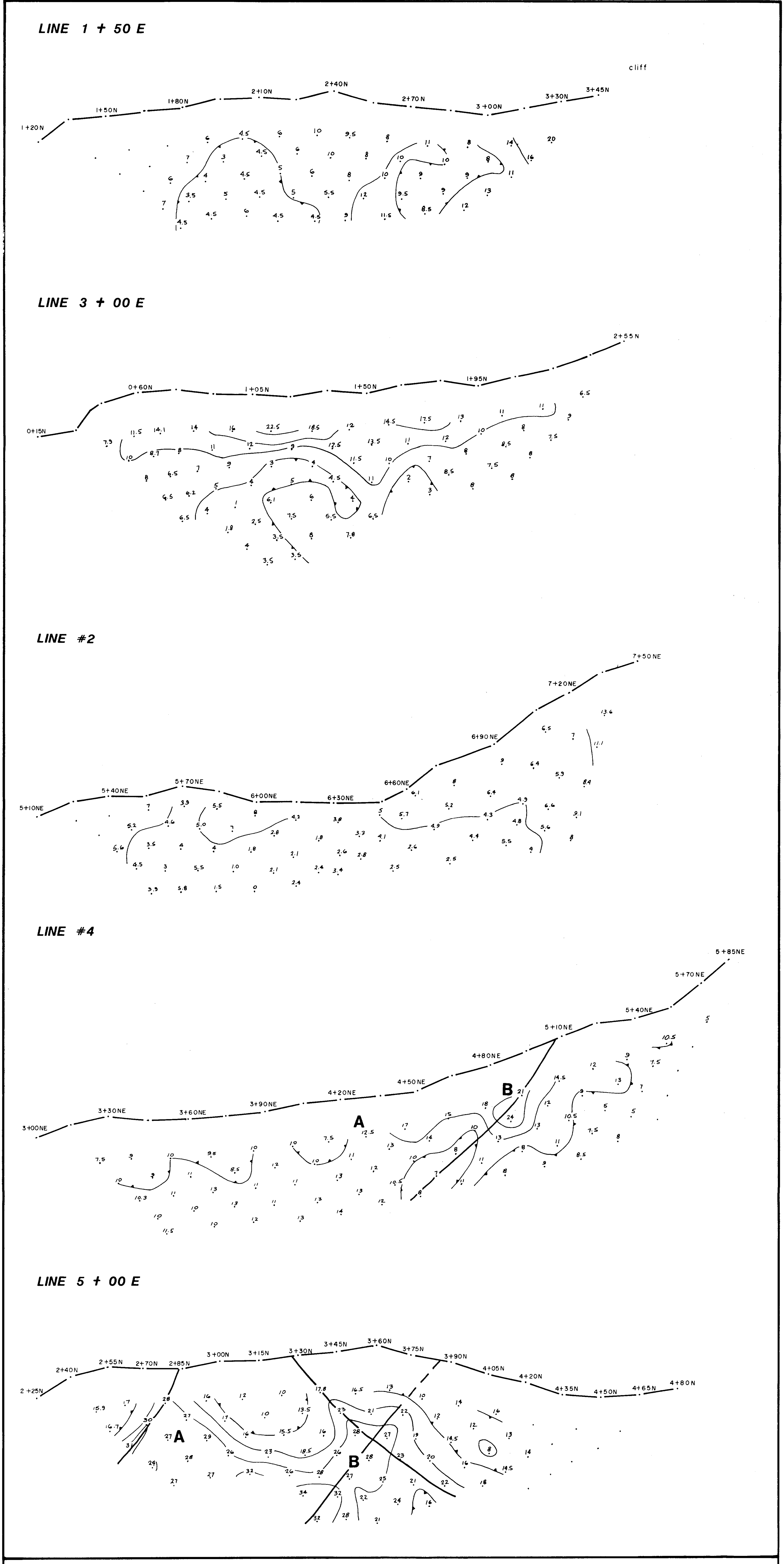
PITT LAKE AREA

NEW WESTMINSTER MINING DIVISION, B. C.

VLF-EM SURVEY

(Fraser Filtered)

DRAWN BY:	DATE:	N.T.S.	JOB NO.:	SCALE:	MAP NO.
M.B.	JUNE 1988	92G/7E	88-04	1 : 2500	4



LEGEND

INSTRUMENTATION

RECEIVER: SCINTREX IPR-8

TRANSMITTER: PHOENIX I PT-1

GENERATOR: PHOENIX MG-2

SURVEY PARAMETERS

SURVEY MODE: TIME DOMAIN

ARRAY: DIPOLE - DIPOLE

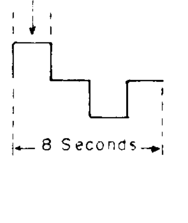
DIPOLE LENGTH: 15 metres

DIPOLE SEPARATION: n = 1 to n = 8

DELAY TIME: 200 milliseconds

INTEGRATION TIME: 1500 milliseconds

CHARGE CYCLE: 8 second square wave



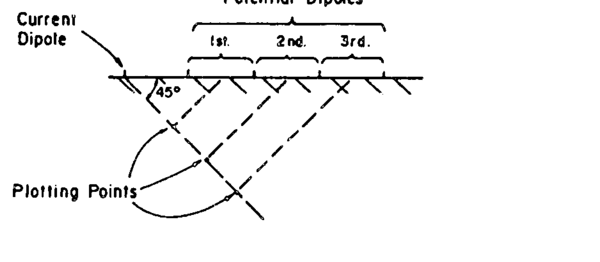
APPARENT CHARGEABILITY

CONTOUR INTERVAL: 5 milliseconds

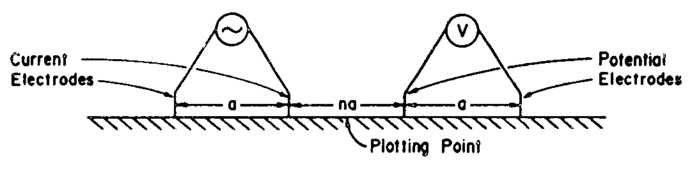
CHARGEABILITY LOW

Lineations depicting axes of chargeability anomalies

PLOTTING METHOD



DIPOLE-DIPOLE ARRAY



FIELDWORK FROM MAY 12 - MAY 27, 1988.

METRES
0 10 20 30 40

To accompany geophysical report by DAVID G. MARK, geophysicist and PATRICK CRUICKSHANK, geophysicist, dated June 17, 1988.

GEOTRONICS SURVEYS LTD.

ANGLO-QUEST RESOURCES LTD.

VIKING MINE PROPERTY

PITT LAKE AREA

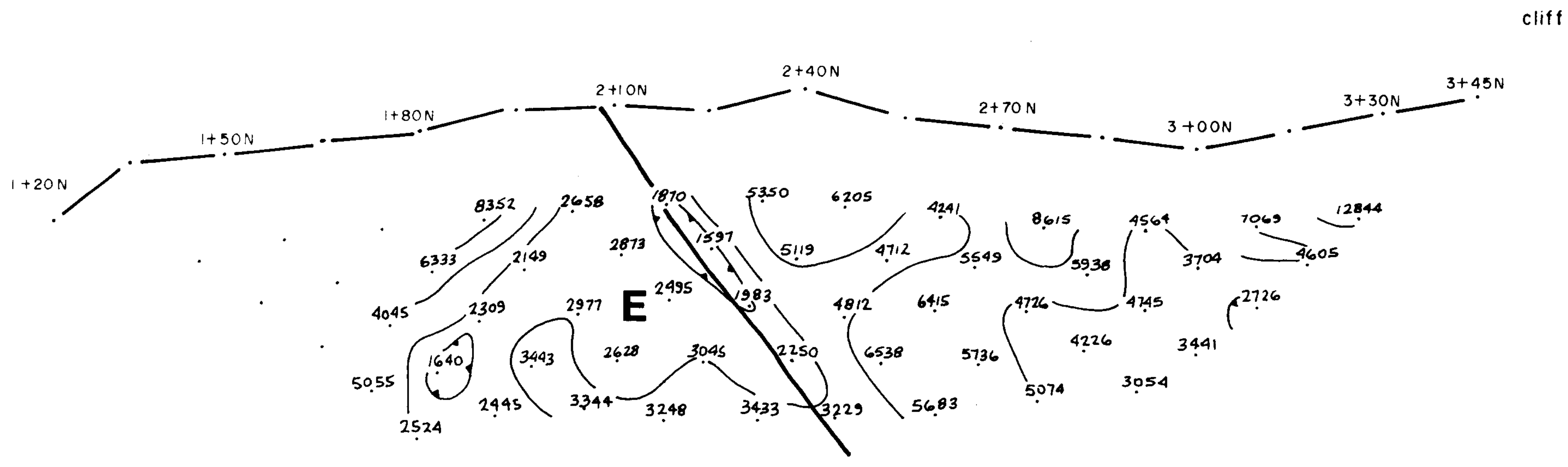
NEW WESTMINSTER MINING DIVISION, B. C.

INDUCED POLARIZATION SURVEY APPARENT CHARGEABILITY (msec) PSEUDOSECTIONS

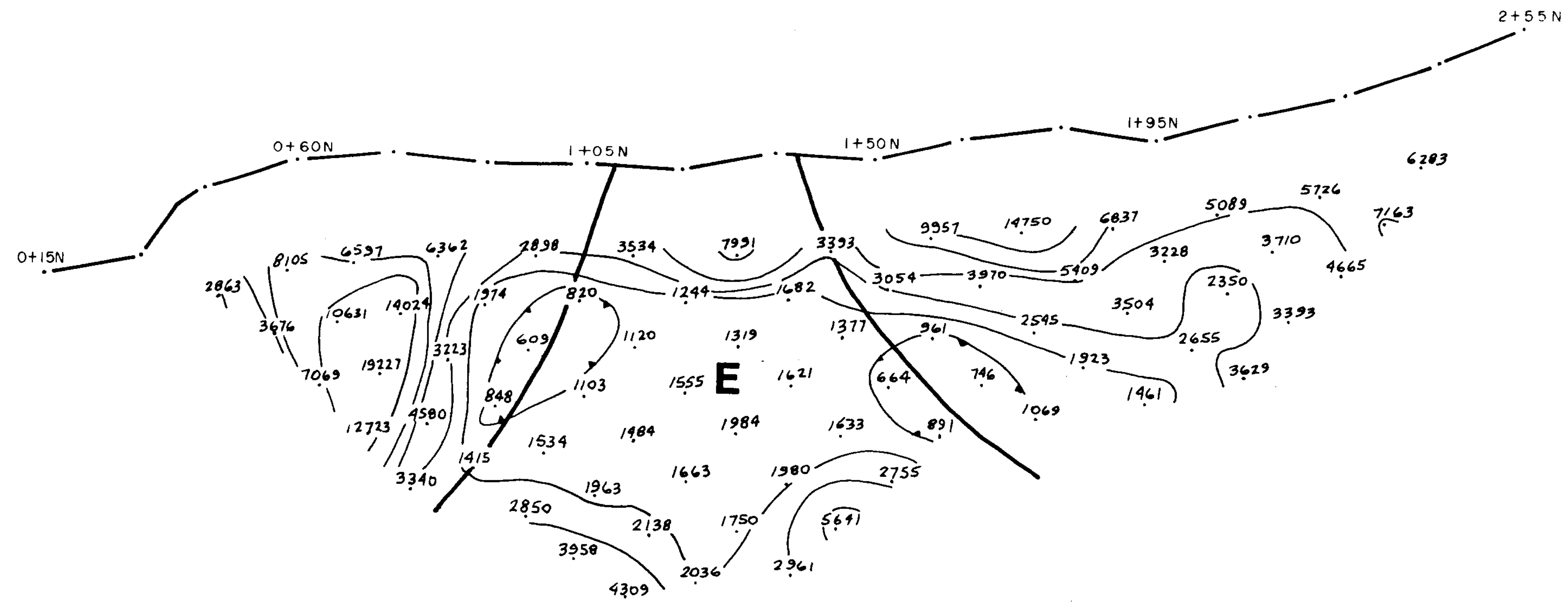
DATA AND CONTOURS

DRAWN BY:	DATE:	N.T.S.	JOB NO.	SCALE:	MAP NO.
M.B. & P.C.	JUNE, 1988	92G/7E	88-22	1:1000	5

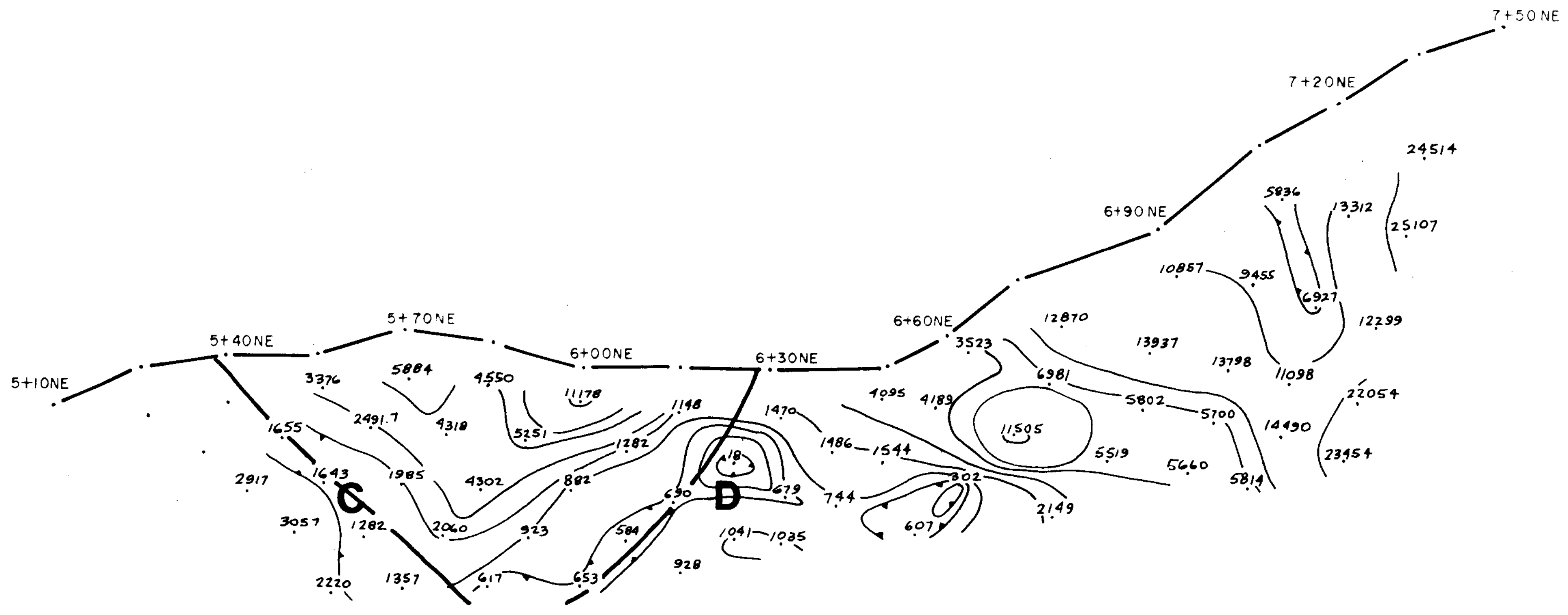
LINE 1 + 50 E



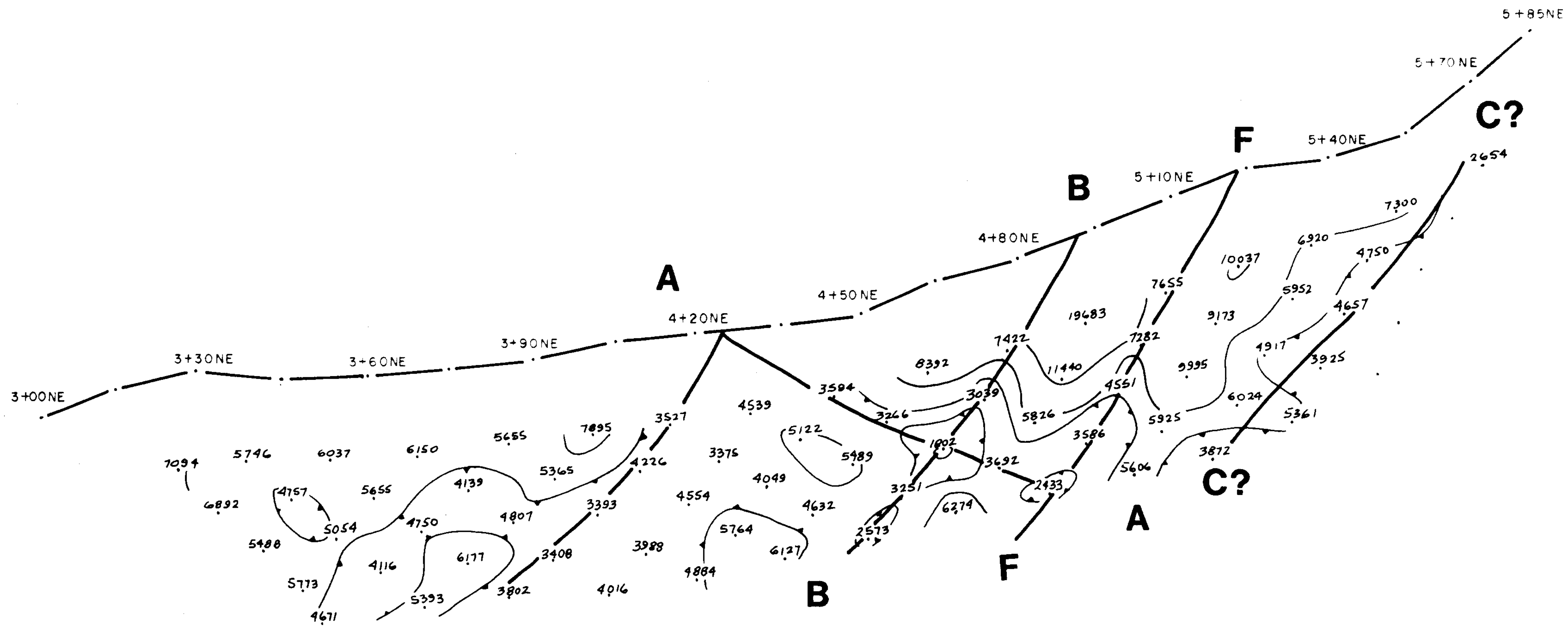
LINE 3 + 00 E



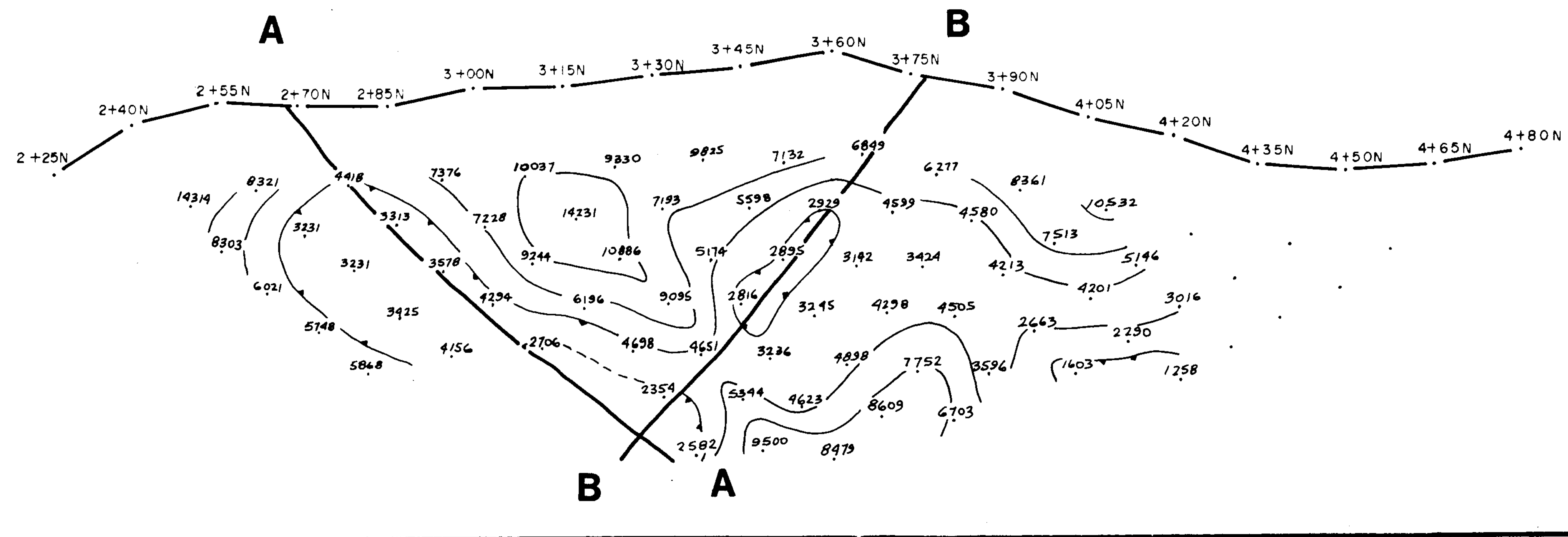
LINE #2



LINE #4



LINE 5 + 00 E



LEGEND

INSTRUMENTATION

RECEIVER: SCINTREX IPR-8

TRANSMITTER: PHOENIX I PT-1

GENERATOR: PHOENIX MG-2

SURVEY PARAMETERS

SURVEY MODE: TIME DOMAIN

ARRAY: DIPOLE - DIPOLE

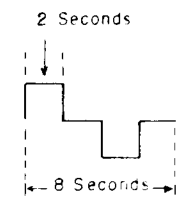
DIPOLE LENGTH: 15 metres

DIPOLE SEPARATION: n = 1 to n = 8

DELAY TIME: 200 milliseconds

INTEGRATION TIME: 1500 milliseconds

CHARGE CYCLE: 8 second square wave



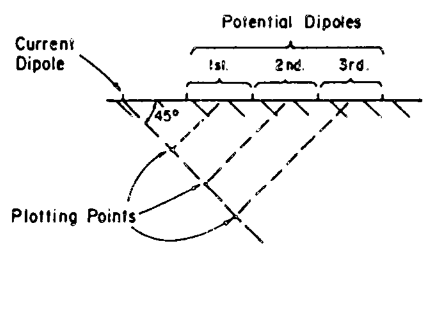
APPARENT RESISTIVITY

CONTOURS: 20, 30, 50, 70, 100, 200, 300, etc. (logarithmic)

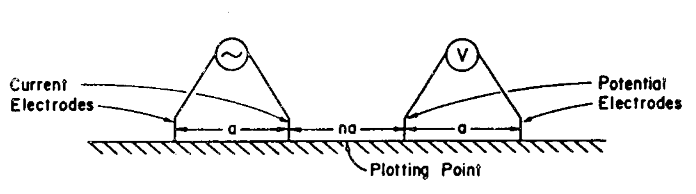
RESISTIVITY LOW

Lineations depicting axes of resistivity anomalies

PLOTTING METHOD



DIPOLE-DIPOLE ARRAY



FIELDWORK FROM MAY 12 - MAY 27, 1988.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

18,897

METRES 0 10 20 30

To accompany geophysical report by DAVID G. MARK, geophysicist and PATRICK CRUICKSHANK, geophysicist, dated June 17, 1988.

GEOTRONICS SURVEYS LTD.

ANGLO-QUEST RESOURCES LTD.

VIKING MINE PROPERTY

PITT LAKE AREA

NEW WESTMINSTER MINING DIVISION, B. C.

RESISTIVITY SURVEY
APPARENT RESISTIVITY (ohm-metres)
PSEUDOSECTIONS

DATA AND CONTOURS

DRAWN BY:	DATE:	NTS	JOB NO.	SCALE	MAP NO.
M.B. & P.C.	JUNE, 1988	92G/7E	88-22	1 : 1000	6