

GEOPHYSICAL REPORT
on
MAGNETIC AND VLF-EM SURVEYS
over the
NICKEL CLAIMS
ROCK CREEK AREA, GREENWOOD M.D., B.C.

Nickel Claims : 49° 119° SE
: N.T.S. 82E/3E
: at confluence of Baker
Creek and Rock Creek
Bridenville, B.C.
Written for : Ayerok Petroleum Ltd.,
1004-789 West Pender Street,
Vancouver, B.C.,
V6C 1J2
By : David G. Mark, Geophysicist
GEOTRONICS SURVEYS LTD.,
403-750 West Pender Street,
Vancouver, B.C.,
V6C 2T7
Dated : September 9, 1980

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8390



GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

8390

TABLE OF CONTENTS

SUMMARY	i
CONCLUSIONS	ii
RECOMMENDATIONS	iii
INTRODUCTION AND GENERAL REMARKS	1
PROPERTY AND OWNERSHIP	2
LOCATION AND ACCESS	2
PHYSIOGRAPHY	3
HISTORY OF PREVIOUS WORK	3
GEOLOGY	4
GOVERNMENT AND AEROMAGNETIC SURVEY	5
VLF-EM SURVEY.....	6
1. Instrumentation and Theory	6
2. Survey Procedure	7
3. Compilation of Data	7
MAGNETIC SURVEY	8
1. Instrumentation and Theory	8
2. Survey Procedure	8
3. Compilation of Data	9
DISCUSSION OF RESULTS	10
1. VLF-EM	10
2. Magnetic	13
SELECTED BIBLIOGRAPHY	16
GEOPHYSICIST'S CERTIFICATE	17
COST BREAKDOWN	18

MAPS AND GRAPHS

Back of Report

Figure

LOCATION MAP	1:8,500,000	1
CLAIM MAP	1:50,000	2
CUMULATIVE FREQUENCY GRAPH MAGNETIC DATA		3

In Pocket

Sheet

VLF-EM SURVEY, FRASER FILTERED DATA AND CONTOURS	1:3,000	1
MAGNETOMETER SURVEY DATA AND CONTOURS	1:3,000	2

SUMMARY

Magnetometer and VLF-EM surveys were carried out over a portion of the Nickel claims owned by Ayerok Petroleum Ltd. of Vancouver, B.C. from November, 1979 to February, 1980. The claims are located in the Bridesville area of Rock Creek in terrain varying from gentle to steep with vegetation being scrub grass and fir trees. Access is easily gained by Highway 3. The purpose of the surveys was to aid in the mapping of geology as well as locate probable areas for the exploration of nickel mineralization. Previous work on the claims consisted of a combined airborne magnetic, VLF-EM and radiometric survey.

The claims are almost entirely underlain by metasediments of the Anarchist Group which is intruded by ultra-basics, and, subsequently, acidics of the Nelson Plutonics. Structure on the property is complex with faults and folds trending in several different directions. The nickel mineralization, which seems to be related to the ultra-basic dykes occurring on the property, occurs in the form of pentlandite and is closely associated with pyrrhotite and pyrite.

The VLF-EM and magnetic readings were taken every 30 meters on 120-meter separated north-south lines. The VLF-EM readings were then Fraser-filtered, plotted and contoured and the magnetic readings, diurnally corrected, statistically analyzed, plotted and contoured.

CONCLUSIONS

1. The main zone correlates with a magnetic low of high magnitude that is encircled by a VLF-EM anomaly. Two other areas have a similar geophysical signature which suggests the possibility of the occurrence of similar mineralization.
2. There are several relatively strong VLF-EM anomalies that could well be caused by sulphide mineralization.
3. The most prominent trend of the VLF-EM anomalies is northeast suggesting structural trends in this direction.
4. The magnetic surveys revealed several highs throughout the survey area that are probably reflective of intrusives of the Nelson Plutonics. Two of these, including the large anomaly to the south of the main zone of mineralization, are probably reflective of ultra-basics. One other zone is probably reflective of less basic rocks. Intrusives are considered important to the deposition of mineralization within the Anarchist rocks.
5. The magnetic survey suggests that most of the survey area is underlain by sedimentary rocks of the Anarchist Group. A large, low amplitude magnetic high south of the baseline suggests a slightly magnetic member to this group, possibly volcanic.

RECOMMENDATIONS

There are many strong anomalous features within both the magnetic survey and the VLF-EM survey that suggest the possibility of economic mineralization, not necessarily only nickel. The writer would recommend therefore, that the exploration program be continued within the survey area. This should be in the form of geological mapping and soil sampling. (The writer understands this has been done within the present exploration season, but largely to the north of the survey area). Special attention should be paid to magnetic anomalies B, D, and E as well as the stronger VLF-EM anomalies.

GEOPHYSICAL REPORT
on
MAGNETIC AND VLF-EM SURVEYS
over the
NICKEL CLAIMS
ROCK CREEK AREA, GREENWOOD M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of ground magnetic and VLF-EM surveys carried out over a portion of the Nickel claims from November 1, 1979 to February 7, 1980. The work was carried out under the supervision of the writer. A total of 81.6 km. were done.

The Nickel claims were staked for nickel mineralization. A fairly large tonnage of low grade nickel is found on the Nickel claims.

The object of both surveys was to aid in the geological mapping of lithology and structure for the purposes of nickel exploration. An additional object of the magnetic survey was to directly locate probable areas of nickel mineralization since it occurs with pyrrhotite. That of the VLF-EM survey was to locate conductive zones of

sulphide hopefully containing nickel mineralization.

PROPERTY AND OWNERSHIP

The claims have been grouped into four different groups as shown on Figure No. 2 and as described below:

<u>Claim Group</u>	<u>Claim Name</u>	<u>No. Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
Nick 1	Nickel	16 (4x4)	1453	April 11, 1982
	Nickel 2	<u>12</u> (4x3)	1558	June 1, 1982
		28		
Nick 2	Nickel 4	20 (4x5)	1645	July 6, 1984
	Nickel 5	20 (4x5)	1646	July 6, 1984
Nick 3	Nickel 6	12 (2x6)	1647	July 6, 1984
	Nickel 7	12 (3x4)	1648	July 6, 1984
	Nickel 8	<u>6</u> (2x3)	1649	July 6, 1984
		30		
————	Nickel 3	<u>16</u> (4x4)	1559	June 1, 1981
		114 (Grand Total)		

The expiry dates in the NICK 1, 2, and 3 Claim Groups depend upon the work as written up in this report being accepted for assessment work. The claims are wholly owned by Ayerok Petroleum Ltd. of Vancouver, B.C.

LOCATION AND ACCESS

The Nickel claims are located north and south of Highway 3 at Bridesville, B.C. The geographical coordinates are 49° 01' to 04' N latitude and 119° 04' to 11' W longitude. Access is easily gained by Highway 3 and a series of logging roads. The Nickel claims are about 34 highway km. east of Osoyoos.

PHYSIOGRAPHY

The property is found within the physiographic division known as the Okanagan Highlands close to its eastern boundary with the Monashee Mountains. It includes rounded mountains and ridges and gentle open slopes on upland surfaces. The major drainages such as Rock Creek are deeply eroded and incised. The elevation on the claims varies from 735 meters in Rock Creek on the eastern edge of the Nickel 2 claim to 1280 meters within the center of the Nickel 7 claim. That of the Nickel 3 claim varies from 1000 meters in the north-east corner to 1250 meters in the south-west corner.

Water is found on the Nickel claims in the easterly-draining Rock Creek as well as several northerly draining tributaries. The closest source of water to the Nickel 3 claim is the easterly-draining McKinney Creek found about 400 meters to the north.

Vegetation consists mainly of scrub grass and extensive stands of fir trees.

HISTORY OF PREVIOUS WORK

Since the claims have been staked, the only previous work has been a combined airborne magnetic VLF-EM, and radiometric survey and is the subject of a report by the writer in June, 1979. Prior to the staking of the claims during the period from 1966 to 1970 when the NICKEL property was known as the OLD NICK claims and subsequently held by Utica Mines, Copper Ridge Mines, and the Newmont Mining Corp. of Canada Ltd. considerable development work was done. This was in the form of geological mapping, stream sediment geochemistry surveys, soil geochemistry surveys, ground magnetic and EM surveys, an airborne magnetic survey, cat trenching, diamond drilling, percussion

drilling, and metallurgical testing. The Nickel 3 claim was covered by airborne magnetics, ground magnetics soil geochemistry and stream sediment geochemistry.

The writer understands that geological mapping and a soil geochemistry survey has been completed during the present exploration season, but none of the results were available to the writer.

GEOLOGY

Only a cursory description of the geology and mineralization of the property will be given here but a much more detailed description is given in the Newmont report by Coope, et al.

The geology of the general area was mapped by Little of the G.S.C. during 1958 and 1959. Much of the property is underlain by Permian and/or Triassic Anarchist Group which consists of greenstone, quartzite, greywacke, limestone; locally paragneiss.

To the immediate north of the property, it is intruded by the Cretaceous (?) Nelson Plutonic rocks which consist of granodiorite, quartz diorite, diorite; granite, quartz monzonite, syenite, monzonite. Throughout the area and on the property, ultra-basic dykes of an early magnetic phase of the Nelson Intrusives, intrude the Anarchist Group in a number of locations.

Also to the immediate north are found Cenozoic sedimentary rocks and volcanics.

Coope, et al. has described the structure of the area as being complex with the bedding being tightly folded and cut by several fault trends. The dominant fault trend on the Nickel property south of Rock Creek is NW with a

secondary trend being north. That on the Nickel 3 property is north with the secondary trend being north-east.

Mineralization on the Nickel property was described by Coope, et al. as follows:

"Nickel sulphides occur in two rock types:

1. In peridotitic dunite rocks as pentlandite occluded in pyrrhotite. Pentlandite and pyrrhotite both occur in amphiboles, serpentine, and talc in the altered dunite. Nickel occurs in the form of silicate nickel in relic olivine in very minor amounts.
2. In a pyrometasomatic quartzite comprising Unit 2 of the Anarchist Group, pentlandite occurs as minute inter-growths with pyrrhotite and pyrite, in fine sericitic-chloritic veinlets."

The pentlandite mineralization occurs in the pyrometasomatic quartzite, as a band, "2,600 feet long and approximately 400 feet wide, and in adjacent peridotitic-dunite dykes. Petrological work on the mineralized quartzite has revealed the presence of minute injections of basic rock into the sediments. The pentlandite is closely associated with these injections."

"Nickeliferous zones, grading 0.15 to 0.25% nickel, were found to be remarkably uniform and continuous within the quartzite horizon."

GOVERNMENT AEROMAGNETIC SURVEY

The aeromagnetic survey was flown for the government by Geoterrex Limited from October, 1969 to April 1972, at a

terrain clearance of 300 meters. (See Selected Bibliography).

A prominent magnetic high-low dipole occurs on the Nickel property which probably reflects the west-trending peridotite-dunite dyke system. North of this property, the Cenozoic volcanics are reflected by thumbprint-sized anomalous highs and lows. The Nelson intrusive is reflected by a larger, but lower amplitude high.

The writer has interpreted aeromagnetic lineations on and around the Nickel claims as shown on the claim map, Figure 2. These lineations very likely reflect major faults. The most prominent direction trends about N60W with a second trend being about N20W and a third trend being N30E.

VLF-EM SURVEY

1. Instrumentation and Theory

A VLF-EM Receiver, Model 27, manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. was used for the survey. This instrument is designed to measure the magnetic component of a very low frequency (VLF) electromagnetic field. The U.S. Navy submarine transmitter located at Seattle, Washington and transmitting at 18.6 KHz was used.

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 low 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 IP). 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.

2. Survey Procedure

The VLF-EM survey was run on a grid in which the lines run north-south at 120 meter intervals from a baseline running due east. Dip angle readings were taken every 30 meters with the instrument facing towards the transmitter at Seattle. Fluorescent pink flagging was placed at each 30 meter station with the grid coordinates marked thereon.

3. Compilation of Data

The readings were reduced by applying the Fraser Filter and plotted at a scale of 1:3,000. Filtered data, as shown on Sheet 1, are plotted between the reading stations. The positive filtered values were contoured at intervals of 4° starting at 4° .

The Fraser Filter is essentially a 4-point difference operator which transforms zero crossings into peaks, and a low pass smoothing operator which reduces 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 cross-over on the unfiltered data quite often will show up on the filtered data.

MAGNETIC SURVEY

1. Instrumentation and Theory

The magnetic survey was carried out using a portable vertical component, Model G-110 fluxgate magnetometer manufactured by Sabre Electronic Instruments Ltd. of Burnaby, B.C. This is a visual-null type instrument using a digital dial readout with a range of 100,000 gammas and a reading accuracy of 10 gammas. The G-110 has a temperature co-efficient of 2 gammas per degree centigrade.

Only two commonly occurring minerals are strongly magnetic; magnetite and pyrrhotite. Hence, magnetic surveys are used to detect the presence of these minerals in varying concentrations. Magnetic data 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.

2. Survey Procedure

The readings were taken on the same grid as that for the VLF-EM survey, that is, every 30 meters on north-south lines 120 meters apart.

The magnetic diurnal change was monitored in the field by the closed loop method and double checked by a series of base stations.

3. Compilation of Data

The magnetic data were plotted on Sheet 2 at a scale of 1:3,000 (1 cm = 30 meters) . For ease of plotting and discussion, 50,000 gammas was subtracted from all values and contours.

The magnetic values were grouped into arithmetic intervals of 200 gammas. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the arithmetic cumulative frequency graph as shown on Figure 3.

The statistical parameters taken from the graph are as follows:

Anomalous low threshold	(97½% level)	3330 gammas
Sub-anomalous low threshold	(84% level)	3550 gammas
Mean background	(50% level)	3800 gammas
Sub-anomalous high threshold	(16% level)	4030 gammas
Anomalous high threshold	(2½% level)	4260 gammas

The sub-anomalous and anomalous levels are 1 and 2 standard deviations away from the mean background level, respectively.

From this, the contour interval above the mean background level was then chosen to be 400 gammas which is almost twice that of one standard deviation. The contour interval below the mean background level was chosen to be 100 gammas and these contours, 3000 and below, were dashed in. The contours above, 4000 gammas and higher, were drawn in solid.

The graph is comprised of 5 different segments. It is quite likely that each segment reflects a different rock type. Therefore, theoretically, each rock type should have its own survey parameters and contour intervals.

This would be rather difficult however, and so the survey parameters have been chosen for the rock type that covers the largest area.

DISCUSSION OF RESULTS

There is very little information, especially geological mapping, for the writer to correlate the VLF-EM and magnetic data with. This limits therefore, the amount of interpretation that can be done. There is no doubt that the surveys have produced very interesting results. However, the usefulness of these results will become apparent only after further work has been done.

1. VLF-EM

The major cause of VLF-EM anomalies, as a rule, are geologic structures such as fault, shear and breccia zones. Therefore it is logical to interpret VLF-EM anomalies as likely to be caused by these structural zones. Of course, sulphides may also be a causitive source. But in much of the Cordillera when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are usually reflecting the structure associated with the mineralization rather than the mineralization itself.

Many of the anomalies on the Nickel claims are very long and lineal in shape which is also suggestive of structure being the causitive source.

The major trend of the VLF-EM anomalies, as seen on Sheet 1, is primarily northeast. Considering the VLF-EM anomalies are likely reflecting structure, the major strike of structure on this property would appear to be in this direction. Previous work on this property however, has shown northwest to be the primary strike direction of the structure. The northeast bias is at least partly caused by the transmitter direction.

There is considerable variation in intensity from one VLF-EM anomaly to the next. This may not only be due to the conductivity of a causative source, but also the direction it strikes relative to the direction to the transmitter. In other words, those conductors lying closer to the same direction as the direction to the transmitter (S65W in this case), can be picked up more easily than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it's at too great an angle. For example, the VLF-EM survey has shown few conductors striking northwesterly, a low optimum direction for the VLF-EM using the Seattle transmitter. Yet Coope, et al. as well as the government magnetic results show structure striking in this direction.

For ease of identification, the VLF-EM anomalies have been lettered by the small letters, a to t.

Anomaly a is essentially a circular anomaly striking mainly in an easterly direction. It correlates with the main explorative workings of the property as well as a very prominent magnetic low. This anomaly may be reflecting the outer edges of a large conductor, such as the zone of nickel mineralization with its surrounding zone of alteration.

There are many other VLF-EM anomalies on the property that could be delineating broad conductive zones hopefully caused by sulphide mineralization. Three of the more prominent ones are described in the following paragraphs.

Anomaly b correlates with several lineal magnetic lows in the order of magnitude of that correlating with anomaly a. This appears therefore, to be a promising area for the occurrence of nickel mineralization.

Circular anomaly c correlates with a magnetic low as well, though its order of magnitude is quite low. It would appear, as a result, that if there is sulphide mineralization within anomaly c it is not nickel.

Circular anomaly d, as opposed to the above three anomalies, correlates with a relatively quiet magnetic high. This anomaly may simply be reflecting the contact zone of a magnetic rock-type as well as northwesterly-striking structure.

Anomalies e to k all reflect long, lineal conductors, most of which are several km long. It is quite likely that these conductors are faults and/or shear zones. These could be important to mineral deposition in the area, though only further work will determine this. Many parts of these anomalies have a relatively high intensity indicating higher conductivity. These are prime areas for sulphide search.

Anomalies l to t are smaller, more intense anomalies. The primary strike direction is easterly. The intensity of these anomalies is typically well above 30° . These are of interest because of their smaller size and greater intensity. They are less likely to be reflecting structure and more likely reflecting sulphides (that is, relatively speaking), especially considering pyrrhotite occurs in the area. Anomalies l, m, and partially o correlate with magnetic highs. Anomalies n and p to t correlate with magnetic lows.

There are many other VLF-EM anomalies that have not been labelled but could become of interest as further work is carried out.

It was mentioned above that prime areas of economic interest are VLF-EM anomalies, or parts of VLF-EM anomalies with higher intensity. Other areas of economic

interest are VLF-EM anomalies that appear to indicate cross-structure, either by an anomaly's change in direction, or where 2 anomalies join each other.

2. Magnetic

The magnetic field within this survey area has a wide range in intensity varying from a low of 2000 gammas in the northeast corner to a high of 8070 gammas in the central eastern area. This gives a range of 6070 gammas, which is strongly indicative of there being ultra-basics, which, as mentioned above occur in the general area.

The ground survey correlates excellently with the previously flown airborne survey. The difference, of course, is the much greater detail in the ground survey.

For ease of identification, the various magnetic features have been labelled by the upper case letters A to F.

In general, the magnetics indicate that almost all of the survey area is underlain by Anarchist sediments. These have been intruded by Nelson intrusives, as indicated by magnetic highs and lows.

The center of economic interest on the Nickel claims is the magnetic feature labelled A. It is the most prominent magnetic low on the property and, as mentioned above, is surrounded by VLF-EM anomaly a. The showings, as closely as can be determined by the writer, occur generally within the center of the magnetic low. The mineralization contains pyrrhotite, a magnetic mineral, and occurs within Anarchist meta-sediments. The meta-sediments as well as alteration associated with the mineralization probably cause the magnetic low and offset the magnetic character of the pyrrhotite.

Anomalous area B contains many of the features of anomaly A

and is therefore, of prime economic interest. The magnetic lows are of similar magnitude. These correlate with circular VLF-EM anomaly b. One difference however, is that whereas anomaly A is one large low, anomalous area B is composed of several lows striking in various directions. Another interesting feature is the magnetic high of over 6000 gammas that occurs within the center of this zone. There are also 2 other magnetic highs, but of lower magnitude.

A possible interpretation of this area is that the lows reflect the same hostrock as occurs within anomaly B. The highs in all likelihood reflect Nelson intrusives, quite probably ultra-basic. Coope, et al. mentioned in their report that intrusives within the Anarchist Group are very important to the mineral depositions.

The most prominent magnetic feature within the survey area is the large magnetic high in the southeast corner and also shown by the letter C. This high was previously discussed by the writer in his report on the airborne magnetic survey. The high probably reflects an ultra-basic intrusive of the Nelson plutonic rocks. It is probably important to the deposition of minerals to the north. Two northeast-trending troughs occur within the high which may be reflecting fault or shear zones.

Anomaly D is also a magnetic high which occurs in the southwest corner of the survey area. This high is much less noisy than anomaly C suggesting a different rock-type of the Nelson intrusives.

Anomaly E is a magnetic high occurring on the northeast corner of the survey area. Though only part of this anomaly has been mapped, it appears to be somewhat noisy and therefore, is probably reflecting an ultra-basic

intrusive.

Magnetic feature F is a large east-trending magnetic high of very low magnitude (contains only background values). The length is about 2.2 km. The magnetic signature of this whole general area south of the baseline and west of anomaly A is a magnetic low of low magnitude, that is only a few hundred gammas below background. The rock-types are therefore probably sedimentary of the Anarchist group. Magnetic high F is probably reflecting a volcanic member of this same group.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

A handwritten signature in black ink, appearing to read 'D. G. Mark', written in a cursive style.

David G. Mark,
Geophysicist

September 9, 1980

SELECTED BIBLIOGRAPHY

Aeromagnetic Map, Osoyoos, B.C., Map 8508G, Geol. Surv.
Canada, Sheet 82E/3, 1973.

Coope, J.A. Dolan, W.M., Costin, C.P. Geological,
Geochemical and Geophysical Reports on Exploration
of the Nickel Ridge Property (Old Nick Option)
Bridenville, B.C., Newmont Mining Corp. of
Canada Ltd., May 7, 1968.

Little, H.W. Geology Kettle River (W. Half), Brit. Columbia,
Map 15-1961 Geol. Surv. of Can., Sheet 82E (W. Half),
1961.

Mark, David G., Geophysical Report on Airborne Magnetic,
VLF-EM, and Radiometric Surveys over the Nickel
Claims, Rock Creek Area, Greenwood M.D., B.C.,
Geotronics Surveys Ltd., June 11, 1979.

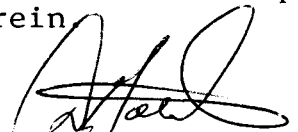
GEOPHYSICIST'S CERTIFICATE

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 403-750 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 a combined magnetic and VLF-EM survey carried out under the supervision of myself during the period of November 1, 1979 to February 7, 1980.
5. I have no direct or indirect interest in the Nickel Claims nor in Ayerok Petroleum Ltd., Vancouver, B.C. nor do I expect to receive any interest therein.


David G. Mark

September 9, 1980

COST BREAKDOWN

This is to certify that the magnetometer and VLF-EM surveys on the Nickel Claims were carried out to the value of the following:

FIELD

Geophysical Technician and helper, 345 hours @ \$35/hour	\$ 12,075.00
Board and room	3,429.00
Truck rental and gas	4,478.00
Instrument rentals, Magnetometer, and VLF-EM	1,910.00
	<u>\$ 21,892.00</u>

OFFICE

Geophysicist, 15 hours @ \$35/hour	525.00
Geophysical Technician, 59 hours @ \$20/hour	1,180.00
Drafting and printing	1,600.00
Report xeroxing, and compilation	200.00
	<u>\$ 3,525.00</u>

TOTAL	<u><u>\$ 25,397.00</u></u>
--------------	----------------------------

The work was done from November 1, 1979 to February 7, 1980.

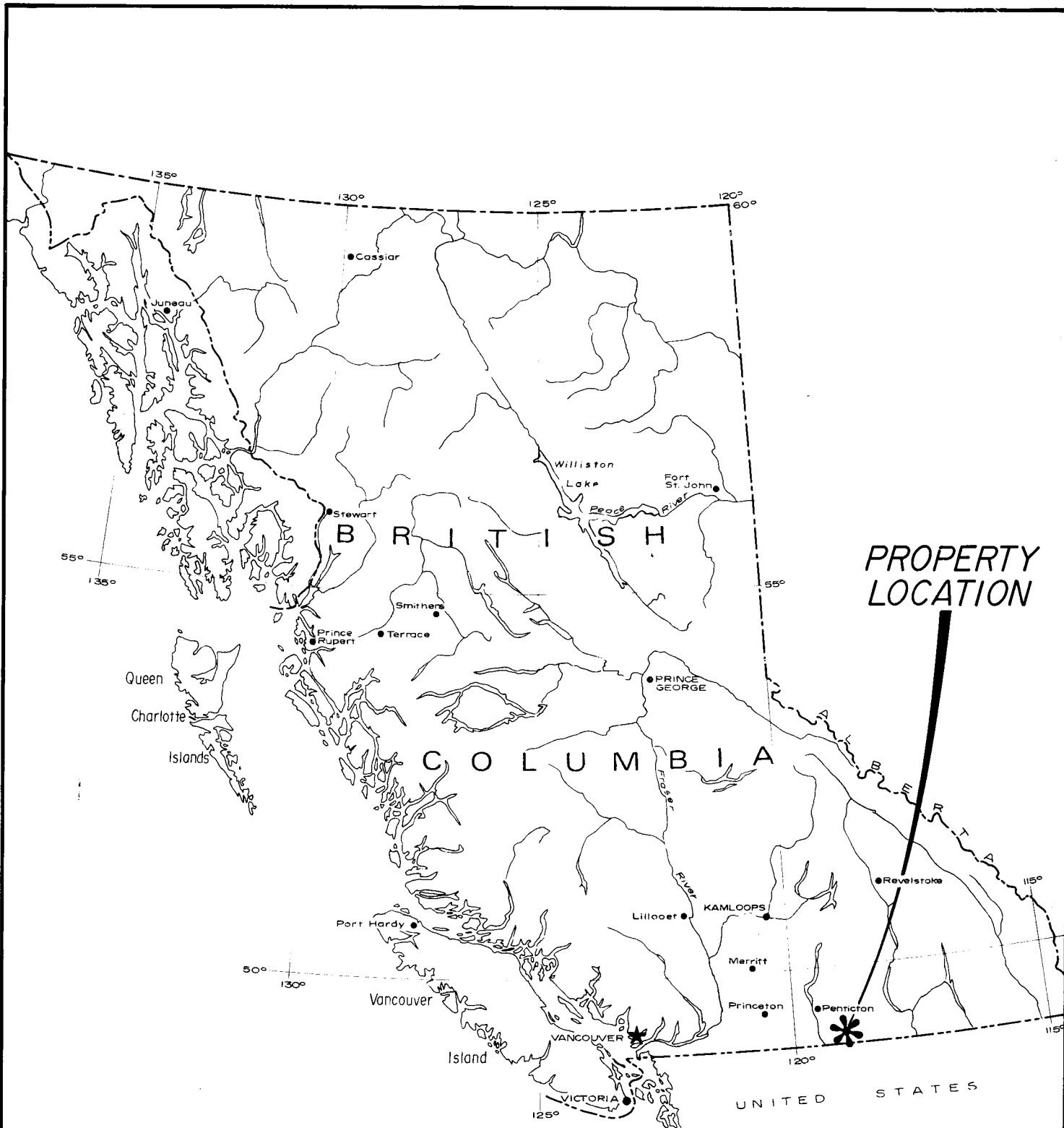
The amount of work done per claim group has been divided according to the survey area in Figure 2, and as follows:

Nick 1	\$ 3,874.00
Nick 2	12,268.00
Nick 3	9,255.00
	<hr/>
	\$ 25,397.00
	<hr/> <hr/>

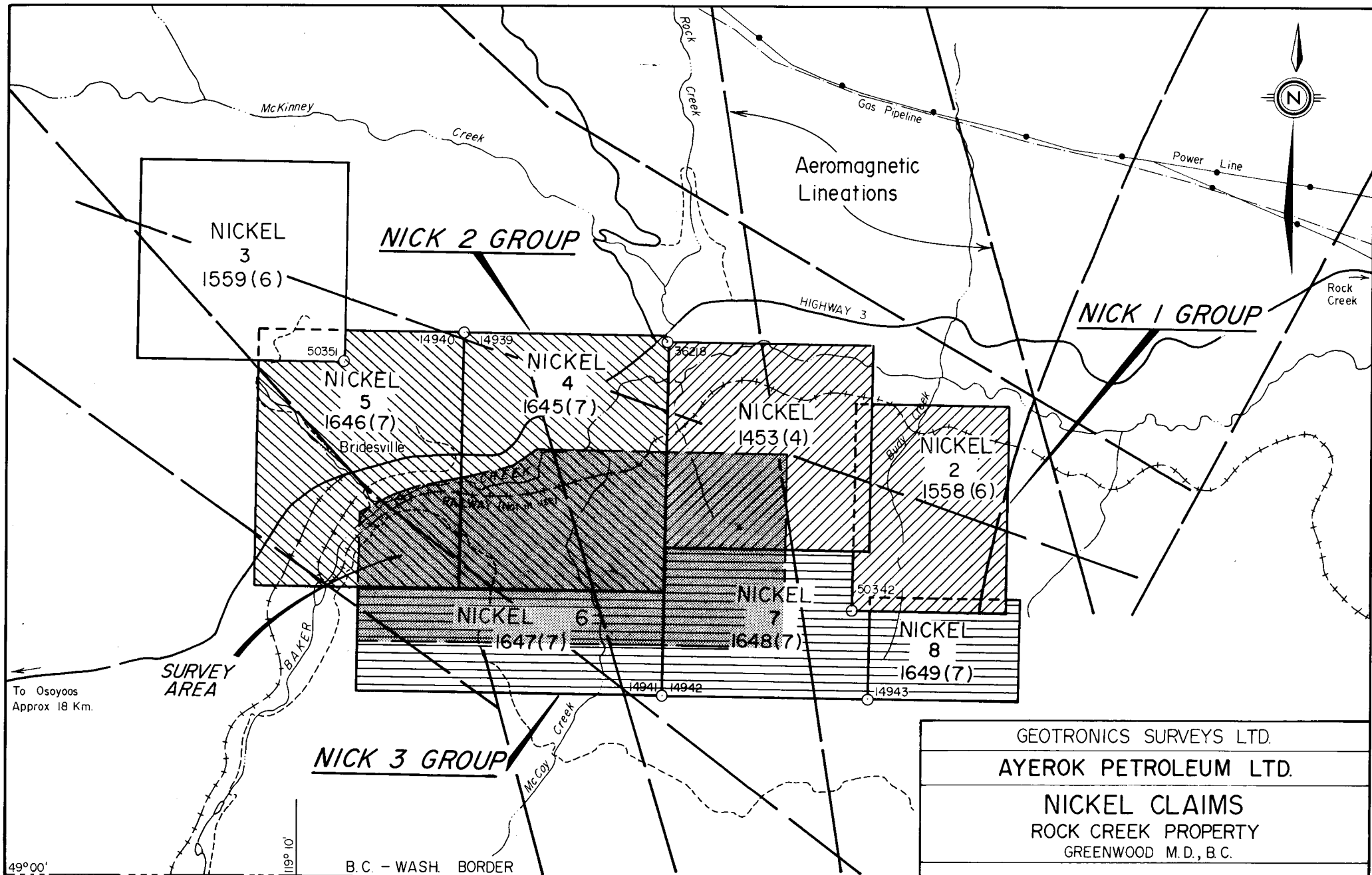
Respectfully submitted,
GEOTRONICS SURVEYS LTD.



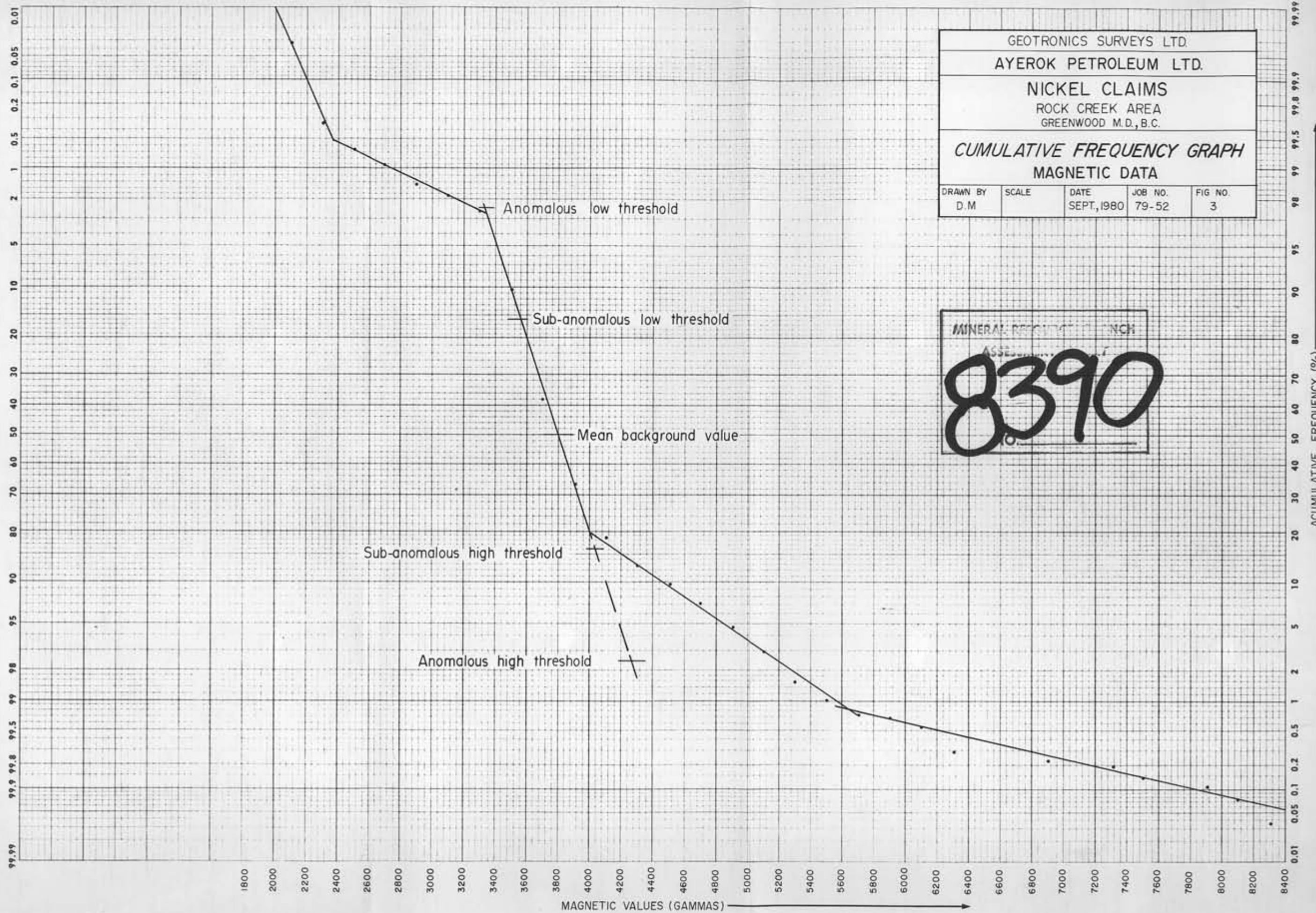
David G. Mark,
Geophysicist



GOTRONICS SURVEYS LTD.				
AYEROK PETROLEUM LTD.				
NICKEL CLAIMS ROCK CREEK AREA GREENWOOD M.D., B.C.				
<i>LOCATION</i>		<i>MAP</i>		
DRAWN BY :	SCALE :	DATE :	JOB No.	FIG. No.
D. M.	1" = 150 Miles	SEPT, 1980	79-52	1



GЕOTRONICS SURVEYS LTD.				
AYEROK PETROLEUM LTD.				
NICKEL CLAIMS				
ROCK CREEK PROPERTY				
GREENWOOD M.D., B.C.				
CLAIM MAP				
DRAWN BY :	SCALE :	DATE :	JOB No.	FIG. No.
D. M.	1: 50,000	JUNE, 1978	79-52	2



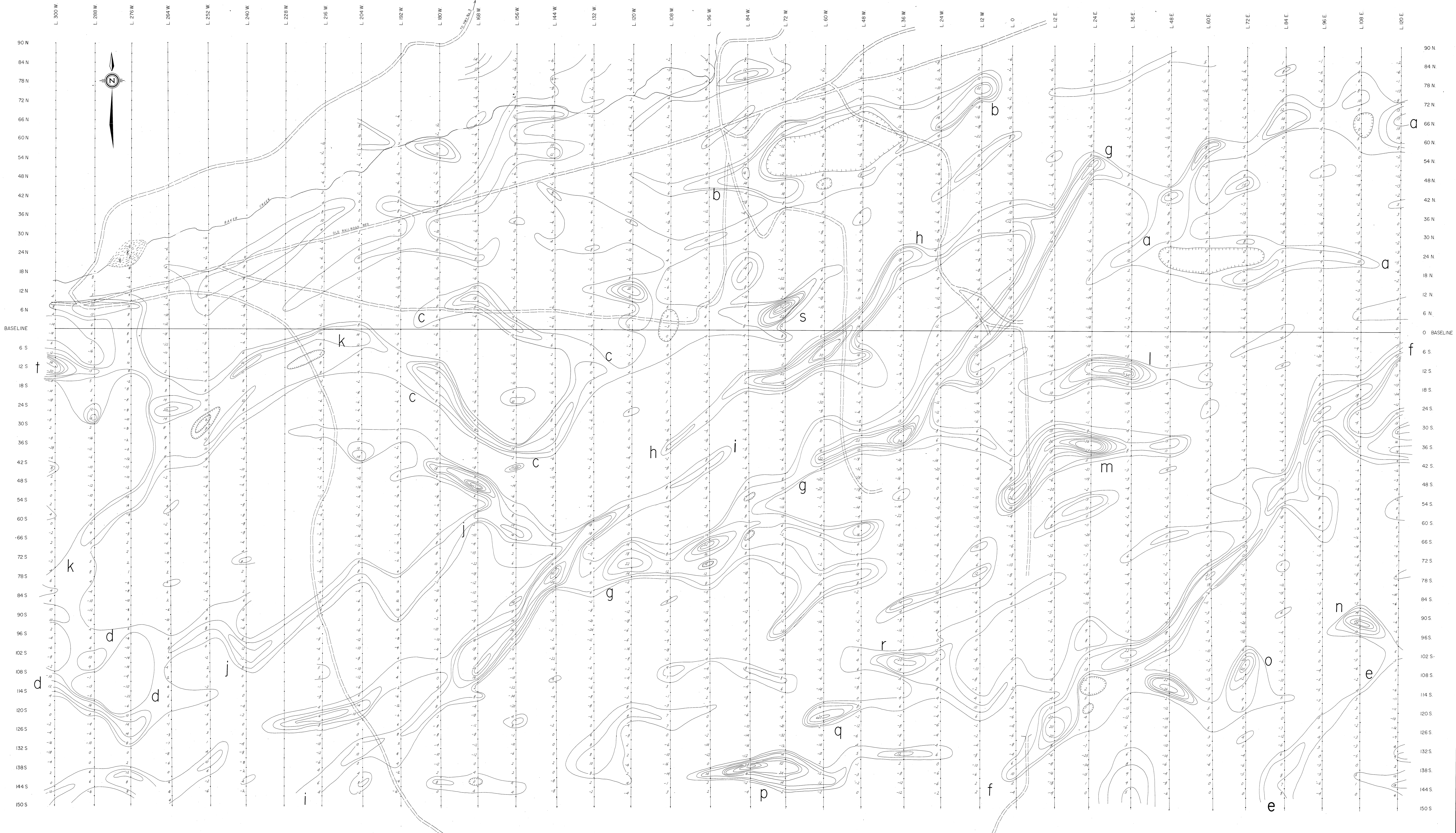
GEOTRONICS SURVEYS LTD.
 AYEROK PETROLEUM LTD.
 NICKEL CLAIMS
 ROCK CREEK AREA
 GREENWOOD M.D., B.C.

CUMULATIVE FREQUENCY GRAPH
MAGNETIC DATA

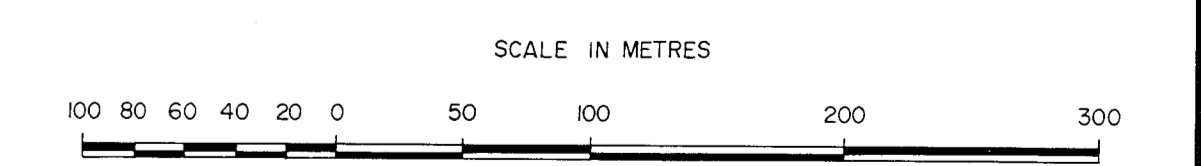
DRAWN BY D.M	SCALE	DATE SEPT, 1980	JOB NO. 79-52	FIG NO. 3
-----------------	-------	--------------------	------------------	--------------

MINERAL RESEARCH ASSOCIATION
 ASSESSMENT

8390



8390



TO ACCOMPANY GEOPHYSICAL REPORT BY DAVID G. MARK, GEOPHYSICIST, DATED Sept 9, 1980

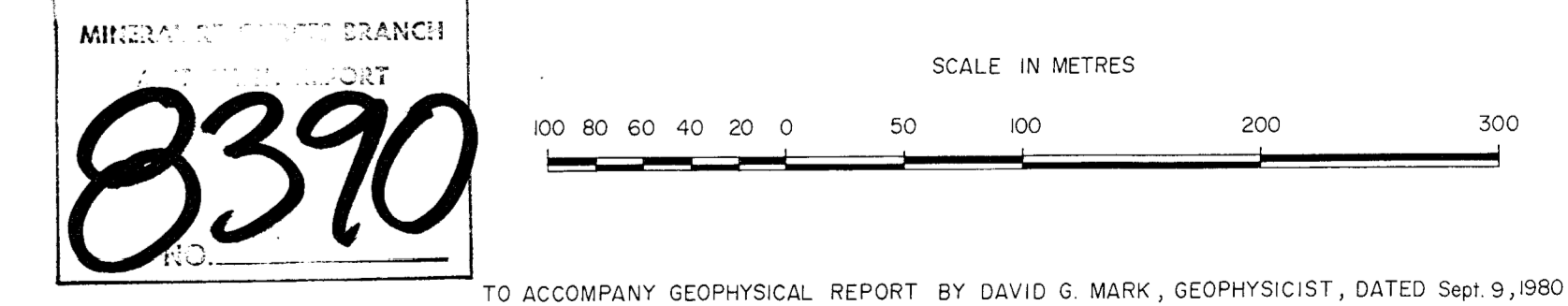
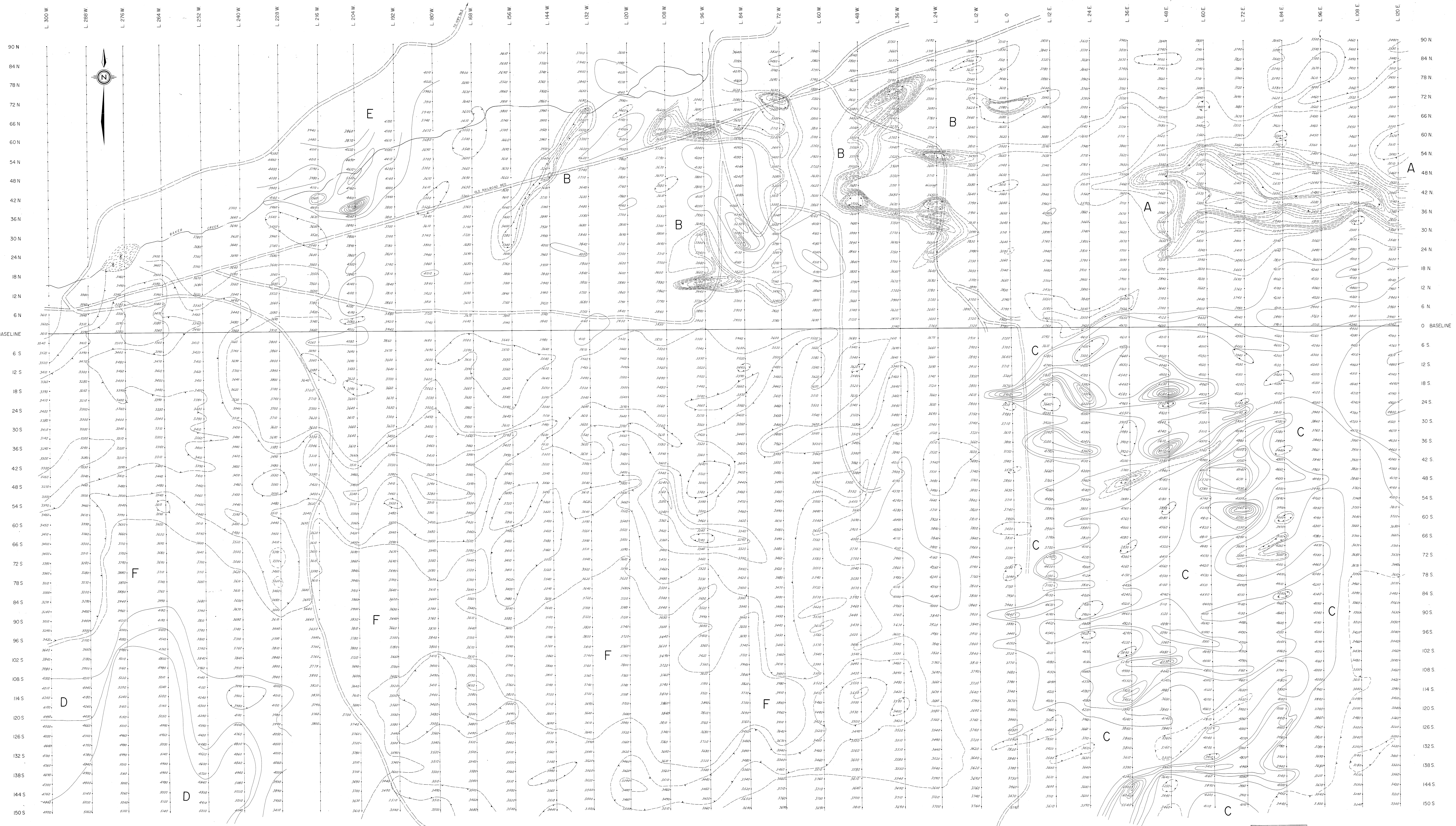
GOTRONICS SURVEYS LTD.
 AYEROK PETROLEUM LTD.
 NICKEL CLAIMS
 ROCK CREEK AREA, GREENWOOD M.D., B.C.

VLF-EM SURVEY
FRASER FILTER
DATA & CONTOURS

DRAWN BY	DATE	JOB No.	SCALE	SHEET No.
G.R.	APRIL, 1980	79-52	1:3000	1

LEGEND
 CONTOUR INTERVAL - 4" BEGINNING AT +4"
 INSTRUMENT - SABRE RECEIVER MODEL 27

SEATTLE TRANSMITTER
 1/4" x 1/4"



STATISTICAL PARAMETERS

Anomalous low threshold	3330 gammas
Sub-anomalous low threshold	3550 gammas
Mean background	3800 gammas
Sub-anomalous high threshold	4030 gammas
Anomalous high threshold	4260 gammas

CONTOURS

4000 Gammas and higher	Contour interval 200 and 400 gammas
3600 Gammas and lower	Contour interval 100 gammas

NOTE: 50,000 gammas have been subtracted from each reading.

INSTRUMENT: Vertical compass fluxgate.
Scale: model G-10

TO ACCOMPANY GEOPHYSICAL REPORT BY DAVID G. MARK, GEOPHYSICIST, DATED SEP 9, 1980

GEOTRONICS SURVEYS LTD.

AYEROK PETROLEUM LTD.
NICKEL CLAIMS
ROCK CREEK AREA, GREENWOOD M.D., B.C.

MAGNETOMETER SURVEY
DATA & CONTOURS

DRAWN BY:	DATE:	JOB NO.:	SCALE:	SHEET NO.:
G.R.	APRIL, 1980	73-52	1:3000	2