ASSESSMENT REPORT FOR THE GEOPHYSICAL SURVEYS (ELECTROMAGNETIC, MAGNETICS) ON THE M.R. PROPERTY M.R. 4, 5, 6, 7 MINERAL CLAIMS

Omineca Mining Division
British Columbia
NTS 93M/02

Latitude: 55° 11' N
Longitude: 126° 41' W

Owned By: Shawn ~~Tufford~~ TURFORD

Work By:
Hudson Bay Exploration and Development
Company Limited
405 - 470 Granville Street
Vancouver, B.C.
V6C IV5

Report By: Gerald Bidwell

May 25, 1998

TABLE OF CONTENTS

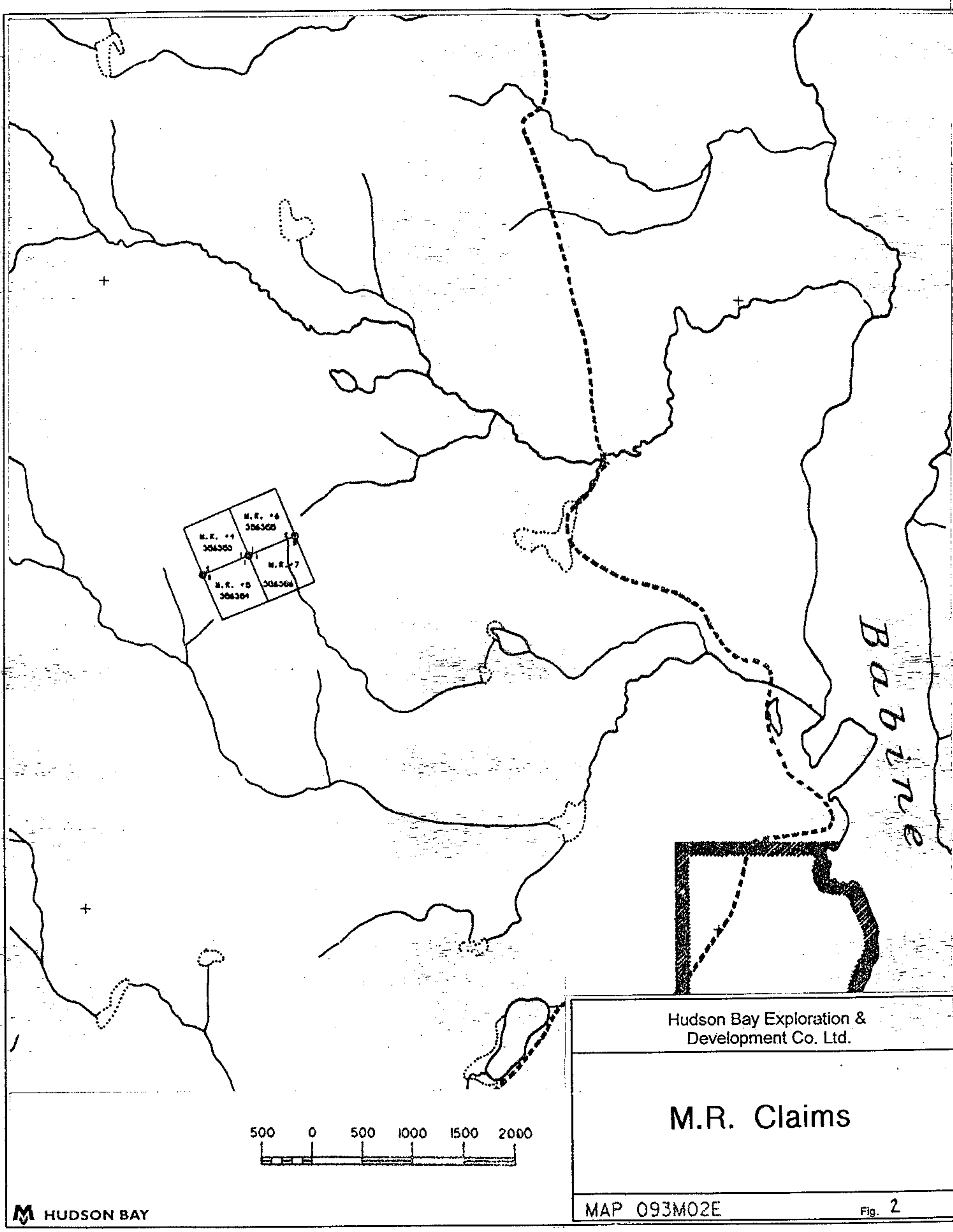
LIST OF FIGURES

1. Summary

The MR property is located in the Babine Lake area 57 kilometres northeast of Smithers at 55° 11' north latitude and 126° 41' west longitude. The property is comprised of four contiguous 2 post claims in the Omineca Mining Division. The property is 100% owned by Shawn Tufford. The work was undertaken by Hudson Bay Exploration and Development Company Limited, of Vancouver, B.C.

On October 25-28, 1997 a flagged grid (2.4 km), ground EM and magnetic surveys was carried out in an area underlain by sandstone/siltstones (Cretaceous Skeena Group) with microgranular chalcocite/argentite mineralization. The area had previously been investigated by geochemistry, trenching and 1252 metres of diamond drilling in I4 holes in I991-92. The electromagnetic survey did not reveal any conductive units and the magnetic signature showed no correlation to the mineralization outlined in 1991-92.

Figure 1 - Property Location Map


M.R. #4
M.R. #6
M.R. #5
M.R. #7
Babine
500 0 500 1000 1500 2000
HUDSON BAY
Hudson Bay Exploration & Development Co. Ltd.
M.R. Claims
MAP 093M02E
Fig. 2

5. Program - Purpose & Performance

The electromagnetic and magnetic survey were undertaken to test the geophysical response to the mineralization defined in l991-92. If a positive response was obtained the survey limits would have been expanded to encompass the entire claim block.

As the area was clear cut a flagged grid was easily installed by Hudson Bay Exploration and Development Company Limited personnel. The two geophysical surveys were then conducted by Peter Walcott & Associates. The survey consisted of one grid composed of 2.4 kilometres of flagged grid and 2.0 kilometres of EM and magnetic surveys.

6. Regional Geology

The regional geology in the Skeena arch portion of the Stikine Terrane is comprised of an incomplete succession of volcanic and sedimentary rocks ranging in age from Lower Jurassic to Miocene.

The region is dominated by a marine and non-marine arc assemblage of the Lower and Middle Jurassic Hazelton Group. Lower Jurassic strata are mainly rhyolitic to andesitic air fall tuffs and breccias with minor intercalated lava flows. (Tipper, l972). Middle Jurassic rocks comprise a mainly marine sequence of tuffs, volcaniclastic sediments, shales, and grewackes.

The stratigraphic interval between Upper Jurassic and Early Upper Cretaceous is occupied regionally by Bowser Lake Group and Skeena Group sediments.

The Kasalka and Ootsa Lake Groups of continental volcanics were deposited mainly on the southeast side of the Skeena arch in late Upper Cretaceous to Eocene time into down-drop basins typical of this portion of Stikinia.

The layered succession has been intruded by Upper Jurassic to Middle Miocene age plugs and stocks.

7. Geophysical Survey

The survey conducted on the MR property consisted of one grid centered in the middle of the claim block. This is basically the same grid as was used previously for the soil geochem, trenching and drilling programs, but it had to be re-established. The grid is comprised of 5 section lines at 100 metre intervals (2W to 2E) with a central baseline trending at 070°. The grid is totally within a clear-cut. The section lines were chained and picketed at 25 metre intervals.

The EM survey was carried out using a Max-Min IIA electromagnetic unit. Coil spacing for the survey was l50 metres and in total three frequencies (222 Hz, 888 Hz, & l777 Hz) were acquired. The MAG survey was carried out using a EDA Omni-Plus procession magnetometer with base station. An estimated station spacing of approximately l2.5 metres was used during the course of the magnetic survey along section lines.

8. Results & Recommendations

The electromagnetic survey results are shown on Figure 3 and the magnetic results on Figure 4. Neither of the surveys gave a positive response to the copper mineralization exposed on and intersected in the drilling. Bornite and chalcocite are exposed in a stripped area near L 0+00/0+10N. The lack of response on the EM survey is not surprising as the mineralization is disseminated (not massive). The magnetic values had a range of 240 nanoteslas over the small gird area but no particular trends are evident.

No further EM or magnetic work is recommended at this point.

STATEMENT OF EXPENDITURES
MR CLAIMS

Personnel Costs	
Gerald Bidwell, Consultant - 1 day @ $400/day	$ 400
Michael Buchanan, Project Geologist - 2 days @ $180/day	$ 360
Room & Board	
3 man days @ $60/man/day	$ 180
Vehicles	
2 days @ $75/day (incl. fuel)	$ 150
Geophysical Survey	
EM Survey 1 day @ $920/day	$ 920
Magnetic Survey 1 day @ $560/day	$ 560
Report Preparation	
1 ½ days @ $400/day	$ 600
Secretarial	$ 80
Total Expenditures	**$ 3,250**

10. Author's Qualifications

I, Gerald Bidwell, of the City of Delta, British Columbia do hereby certify that:

1. I am a graduate of the University of Saskatchewan, (B.A. Geology, 1967).
2. I am a consulting geologist under contract to Hudson Bay Exploration and Development Company Limited.
3. I am a Fellow of the Geological Association of Canada.
4. I have been engaged in mineral exploration for 31 years, mainly in British Columbia, Ontario and the Yukon Territory.
5. The information contained in this report is based on published and unpublished reports on the property and work carried out in full or in part by myself and others.
6. I have no interest in this property or any other within a 10 km radius.

Signed this 26th day of May, 1998.

Gerald Bidwell

11. Bibliography

Hanson, D.J. (1991): Soil Geochemistry and Teaching on the MR Property, Omineca Mining Division, (NTS 92M/02); B.C. Ministry of Energy, Mines and Petroleum Resources; Assessment Report 21609.

Hanson, D.J. (1992): 1991-1992 Diamond Drilling on the MR Property, Omineca Mining Division, (NTS 92M/02); B.C. Ministry of Energy, Mines and Petroleum Resources; Assessment Report 22462.

APPENDIX I

GEOPHYSICAL THEORY AND EQUIPMENT DESIGN SPECIFICATIONS

PETER E. WALCOTT & ASSOCIATES LTD
GEOPHYSICAL SERVICES

605 Rutland Court
Coquitlam, British Columbia
Canada
V3J 3T8

SURVEY SPECIFICATIONS

Horizontal Loop Electromagnetic Survey

The basic principle of any electromagnetic survey is that when conductors are subjected to primary alternating fields, secondary magnetic fields are induced in them. Measurements of these secondary fields give indications as to the size, shape, attitude and conductivity of conductors. In the abscence of conductors no secondary fields are obtained.

The electromagnetic survey was carried out using a Max-Min IIA elctromagnetic unit manufactured by Apex Parametrics of Metropolitan Toronto, Ontario.

Readings of the inphase and quadrature components of the secondary field were made with the coils in the horizontal plane, ie. maximum coupled, every 25 meters along the picket lines at frequencies of 444, 1777 and 3555 Hz, respectively employing a coil separation of 100 meters.

Additional readings were done on part of two grids with a coil separation of 50 and 150 meters respectively.

Corrections for topography were made by using the % slope between each tight chained 25 meter station provided by the line establishment crew.

Magnetic Survey

The magnetic surveys were carried out using an EDA Omni-Plus proton precession magnetometer, manufactured by EDA Instruments Inc. of Metropolitan, Toronto, Ontario. This instrument measures variations in the earth's magnetic intensity to an accuracy of plus or minus one gamma. Corrections for diurnal variations were made by comparison with readings obtained on a base magnetometer also manufactured by EDA. Magnetic readings were taken every 12.5 meters along the grid lines.

GEOPHYSICAL SURVEYS

Principle of Horizontal Loop EM (HLEM) Surveying

The slingram or Horizontal Loop EM method employs two coils (transmitter and receiver) held horizontally with their axes vertical and separated by a fixed distance. The two operators move down the survey line in unison, stopping at regular intervals to take readings. Their separation must be held reasonably constant (+- 0.5%) and their two coils must be held reasonably in plane with each other. These geometric constraints imply that reading accuracy should be within +-1% in flat terrain whereas an accuracy of +-2% is probably the best attainable in rough terrain.

A sinusoidally varying current in the transmitter coil creates a varying magnetic field in the space around it, which in turn causes a varying voltage in any nearby conductive body such as a sulphide zone or the receiving coil. The voltage in the receiving coil received directly from the transmitter is called the primary voltage. A conductive body in the ground (target) will also receive a voltage from the transmitter which in turn will cause an AC current to flow in that conductor. The phase shift (time shift) between this current and its causative voltage is a function of the transmitter frequency and the self-inductance and resistance of the conductor. This AC current in the conductor will in turn create a varying electromagnetic field called the secondary field. At the receiver the voltage caused by the secondary field is superimposed on the primary voltage. A cable between the transmitter and the receiver carries a reference voltage which is adjusted to balance (nullify) the primary voltage in the receiver. The receiver readings represent the secondary voltage components as a percentage of the primary field. In this way the readings are independent of the power in the transmitter batteries. The in-phase component is the portion of the secondary voltage which is in phase (in time) with the primary voltage. The quadrature component is the portion of the secondary voltage which is exactly 90° out of phase with the primary voltage.

The normal readings obtained in the vicinity of an anomaly (conductor) are positive, for both components when both coils are on the same side of the anomaly and negative when the coils straddle the anomaly i.e. the normal pattern of an anomaly is positive-negative-positive.

Increasing the transmitter frequency increases the sensitivity of the system but also tends to increase conductive overburden responses more rapidly. Decreasing the frequency reduces responses. The ideal frequency is one that is as high as practicable without unduly energizing the overburden. This will vary from area to area.

The ratio of the in-phase peak to the quadrature peak is a measure of the conductivity of the target, but this ratio is also dependent upon the frequency and the coil separation. Using a coil separation of 200 metres and a frequency of 880 Hz, a ratio of 0.5 or better would normally indicate the presence of a bedrock conductor. Lower ratio responses are likely to be caused by conductive overburden.

The depth of exploration is in the order of 0.4 to 0.7 times the coil separation. This number can be greatly affected by the shape and orientation of the target.

Principle of Proton Precession Magnetometers

The proton precession magnetometer is so named because it utilizes the precession of spinning protons (nuclei of hydrogen atoms) in a sample of highly protonated hydrocarbon fluid to measure the total magnetic field (DC) intensity. The spinning protons behave as small spinning magnetic dipoles. These magnets are temporarily aligned or polarized by application of a strong uniform magnetic field generated by a current in a coil of wire. When the current is removed, the spin of the protons causes them to precess about the direction of the earth's magnetic field, just as a spinning top precesses about the gravitational field. The precessing protons then generate a small signal in the same coil used to polarize them - a signal whose frequency is precisely proportional to the total magnetic field intensity and independent of the orientation of the coil (or sensor of the magnetometer). The proportionality constant, which relates frequency to field intensity, is the atomic constant known as the gyrometric ratio of the proton. The precession frequency is measured by digital counters as the absolute value of the total magnetic field intensity of the earth's magnetic field to an accuracy of 1 nT.

In contrast to a standard proton magnetometer sensor, where only a proton rich liquid is required to produce a precession signal, the Overhauser effect sensor must also have a free radical added to the liquid. This free radical ensures the presence of free, unbound electrons that couple with protons producing a two-spin system. A strong RF magnetic field is used to disturb the electro-proton coupling. By saturating free electron resonance lines the polarization of protons in the sensor liquid is greatly increased. The Overhauser effect offers a more powerful method of proton polarization than the standard DC polarization and stronger signals are achieved from smaller sensors and with less power.

Principle of Magnetic Surveying

The earth's total magnetic field intensity is measured by the magnetometer along stations on the cross lines of the grid system. The readings or values gained are time variable because the earth's magnetic field varies throughout the course of the day (diurnal variation). This variation, along with small micropulsations and with troublesome magnetic storms, introduce errors into magnetic surveys. The simplest and most accurate way to correct a magnetometer survey is to have a second magnetometer (called a base station magnetometer) take readings at one point on the grid at frequent intervals throughout the day. The field readings are adjusted relative to the base station values. A more time consuming and less accurate method is to take several readings at selected points on the grid (base stations) throughout the day with the mobile magnetometer, typically every hour or so. The adjustment in time and differences in intensities is taken into account when correcting the field values.

Upward Continuation of Magnetometer Readings

When an area has been surveyed on the ground, it is possible to calculate what a magnetometer would read at some distance above the ground - e.g. 30 metres. This process can be an aid in interpretation because it suppresses the "spiky" effects of magnetite seams and sharp differences in the depth to outcrop. Of course, if continuation were carried too far upward all of the desired responses would also be suppressed. When readings are taken at 25 metre intervals, 30 metres is a reasonable continuation distance.

Principle of VLF - EM Surveying

The fundamental principle underlying electromagnetic surveying is that certain geological formations are electrically conductive and can be excited electrically by an "applied primary EM field" which in turn generates a secondary field that may be detected above ground. In VLF - EM surveying, the primary field (very low frequency - 15 to 30 kHz) is generated by a marine navigation station which has a vertical antenna. The antenna current is vertical, creating a concentric horizontal magnetic field around it. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields emanating from these bodies. In the survey, the instrument measures one or all of the vertical, horizontal and total components of these secondary fields. The detection of the VLF signals and measurement of these components is accomplished by three mutually orthogonal coils wound on ferrite cores. These coils, one vertical and two horizontal, enable the instrument's circuitry to measure the vertical and horizontal components of the ellipse of polarization (superposition of the secondary field and primary field).

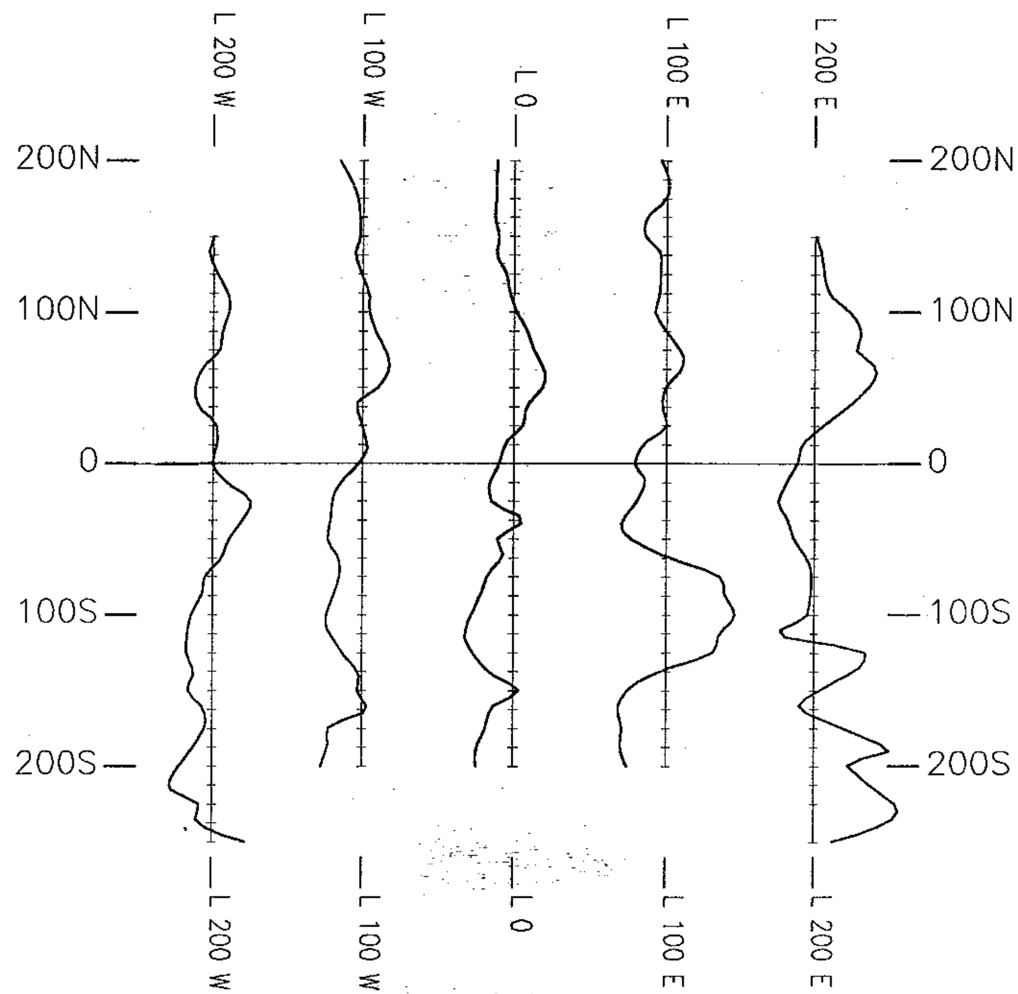
The strength of the secondary field increases as the conductor gets larger or more conductive (higher metallic or electrolytic content). The secondary field is weaker if the conductor is deeper under the surface or if it is covered by a layer of absorbing material or overburden.

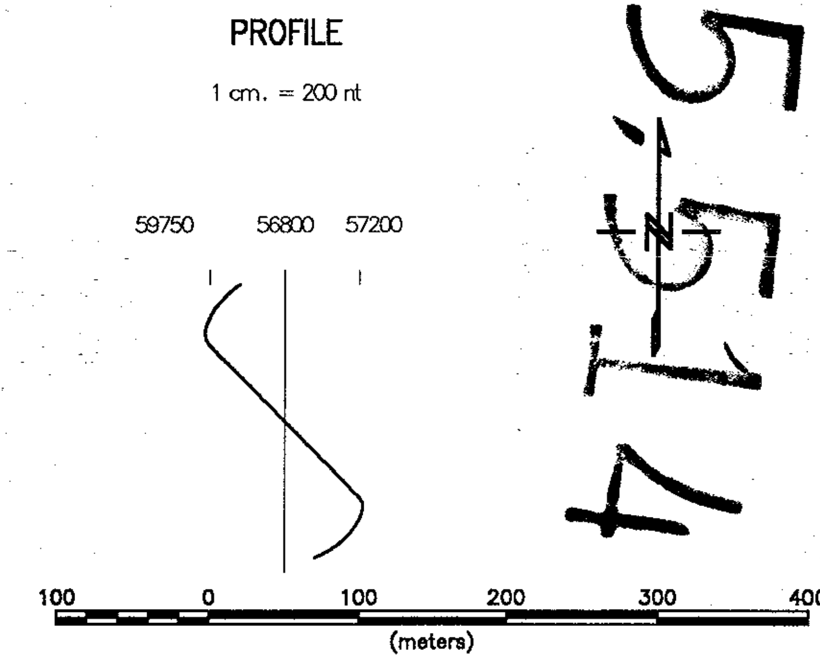
Measurement of the strength, character and distribution of the secondary field facilitates the location of conductive formations and tells something about their size and nature.

One problem with the VLF method is that although its name means "very low frequency" (a radio term), the frequencies in fact are very high (15 000 - 25 000 Hz) for electromagnetic prospecting. This means that the system is very sensitive and can be used to search for shear zone but it also responds very readily to conductive overburden and if the overburden has much thickness the VLF signal will not penetrate it at all.

Fraser Filter of VLF Readings

When VLF readings are plotted as a profile, anomalous effects produce positive readings to the left (by convention) of an anomaly and negative readings to the right. When several anomalies are present, including those caused by conductive overburden, the results become very confusing and the profile can often be well removed from the plotted line to which it applies. As well, many anomalies may not cross zero and an anomaly must be identified as a steeper portion of the profile. To overcome this problem a mathematical filter to be applied to the readings was designed by D.C. Fraser. This 4 point filter (1, 1, -1, -1) is actually a combination of a Hanning filter (.25, .50, .25) and a first difference filter (1, -1) with an amplification of 4.0. The Hanning filter portion smooths the profile. The first difference portion converts "cross-overs" to peaks. The resultant filtered profile always stays close to the survey line and anomalies are shown as peaks.





HUDSON BAY EXPLORATION & DEVELOPMENT Co. Ltd.

TOTAL FIELD MAGNETICS SURVEY

MAGNETIC PROFILES

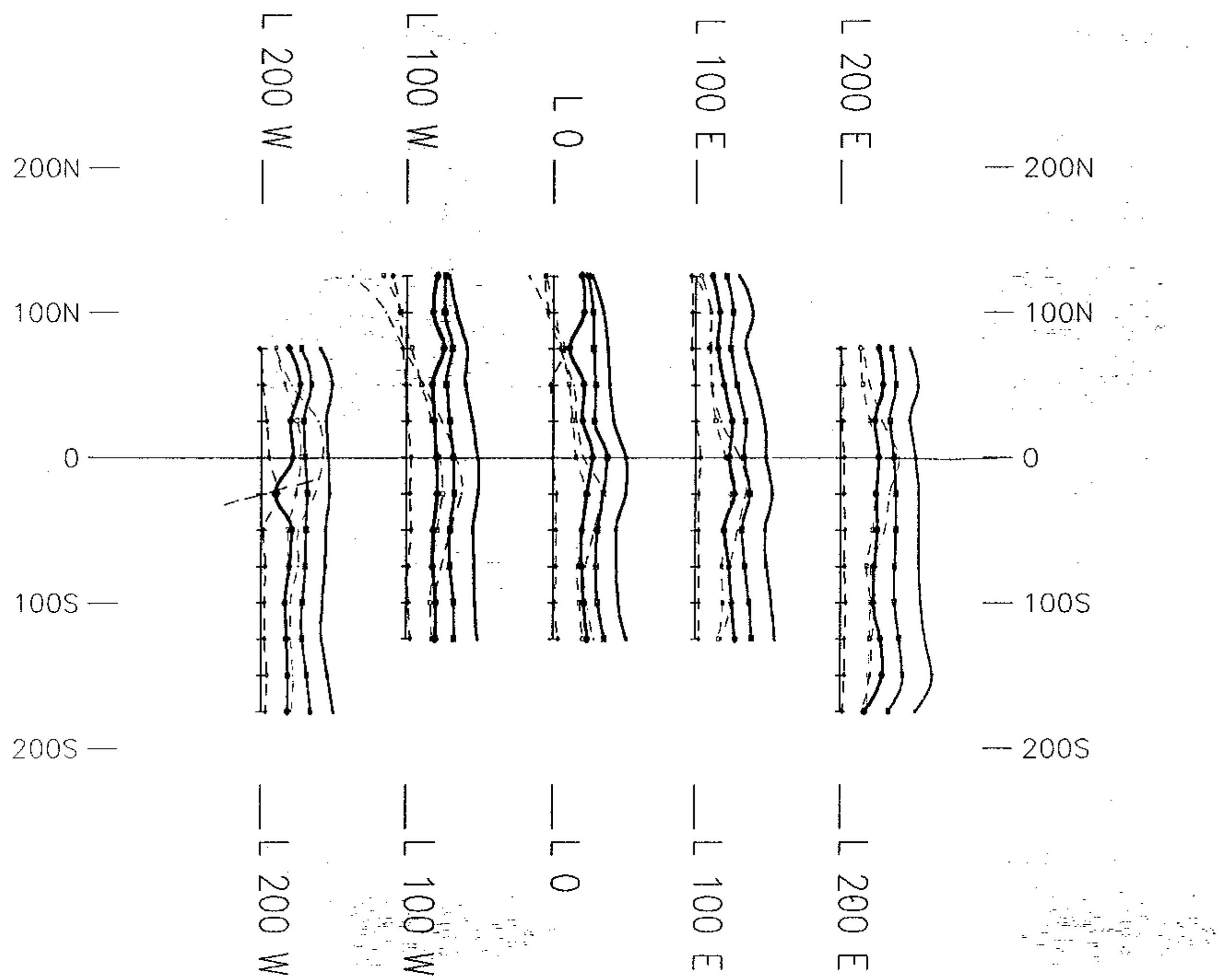
MR1 RECON GRID

SMITHERS PROJECT, BABINE LK. AREA
OMENICA M.D., B.C.
OCTOBER 1997

Fig. 4

Map No. W559-1 Processed: October 1997

Processed by: PETER E. WALCOTT & ASSOC. LTD.

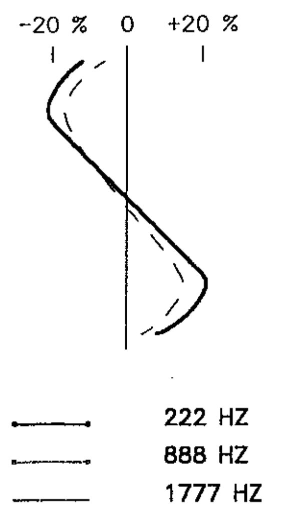


PROFILES

1 cm. = 20 %

IN PHASE ————

QUADRATURE – – –



Scale 1:5000

50 0 50 100 150 200 250 300

(metres)

HUDSON BAY EXPLORATION & DEVELOPMENT CO. LTD.

MAX-MIN

ELECTROMAGNETIC SURVEY
PROFILES OF INPHASE & QUADRATURE

in percent , coil separation = 150 ms.

MR 1 Grid
Babine Lake Area , British Columbia
October 1997

Fig. 3

Map No. W559- Processed: October 1997

PETER E. WALCOTT & ASSOC. LTD.