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REPORT ON
TURAM ELECTROMAGNETIC AND
MAGNETOMETER SURVEYS
WELLS AREA, BRITISH COLUMBIA
ON BEHALF OF
SILVER-X INTERNATIONAL MINES LTD. (N.P.L.)

by

Jon G. Baird, B.Sc., P.Eng.

March 25, 1968

CLAIMS:

Name	Tag [redacted] Number
FIN 1 & 2	680728 & 9
COP 12 & 14	830354 & 6
COP 3 to 10	807152 & 3
	802957, 8 & 9
	633754, 5 & 8
COP 41 to 43	697928 to 30
COP 49 & 50	697936 & 7

LOCATION:

About 10 miles northwest of Wells, B.C.

121° 53° SW

Cariboo Mining Division

DATES:

February 12 to March 6, 1968

TABLE OF CONTENTS

SUMMARY

A turam electromagnetic survey on this property has revealed several poor and medium conductors which give responses typical of overburden, conductive bedrock or shear zones.

Magnetic relief of the order of 300 gammas is noted in the northern portion of the survey area. There are no magnetic observations in the vicinity of the electromagnetic disturbances.

It is recommended that the area surrounding the electromagnetic anomalies be subjected to detailed geologic, geochemical and magnetometer surveys. If these investigations indicate that these conductors may have some economic value, diamond drill holes can be recommended on the basis of present geophysical information.

SEIGEL ASSOCIATES LIMITED
GEOPHYSICAL CONTRACTORS AND CONSULTANTS

STE. 115, 744 WEST HASTINGS STREET • VANCOUVER 1, BRITISH COLUMBIA • CANADA
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REPORT ON TURAM ELECTROMAGNETIC AND MAGNETOMETER SURVEYS WELLS AREA, BRITISH COLUMBIA ON BEHALF OF SILVER-X INTERNATIONAL MINES LTD. (N.P.L.)

INTRODUCTION

During the period from February 12 to March 6, 1968, a geophysical field party, under the direction of Mr. Rejean Lebrun, executed a Turam electromagnetic survey on some COP claims near Wells, British Columbia, on behalf of Silver-X International Mines Ltd. (N.P.L.).

Although total relief is not great, the topography of the property is rugged and several steep grades inhibited the survey considerably. The area is thickly forrested and drift covered and Cooper and Sugar Creeks join near the centre of the property. The survey area was reached by truck from Wells using a bush road which was cleared of snow for the project.

The "Turam" fixed source compensation method was chosen for the electromagnetic survey since, in comparison with other electromagnetic techniques, it is relatively unaffected by orientation errors caused by rough topography. As well, the Turam method provides deep penetration and allows accurate interpretation of anomaly characteristics. The attached copy of a paper by R. A. Bosschart and H. O. Seigel entitled "Some Aspects of the Turam Electromagnetic Method" describes the equipment, the field procedures, the nature of results and the interpretative procedures involved in this type of survey.

Electromagnetic methods detect massive sulphide bodies by means of measurement of the secondary electromagnetic field produced by eddy currents. These secondary fields are measurable by a receiving unit. The Turam method employs a large closed loop of wire as transmitter, while the field strength ratio and phase difference at two nearby observation points are measured by means of two receiver coils.

The presence of a subsurface conductor will be indicated by abnormal field strength ratios and phase differences. A typical anomaly will show a correspondence between high values of the field strength ratio and negative phase differences. The depth of burial of the current axis is reflected in the shape of the anomaly, and the ratio of the maximum amplitudes of field strength and phase is a measure of the conductivity of the body.

Approximately 17 miles of profile were covered by turam with readings taken each 100' along lines oriented N 65° W at about 200' centres. A Sharpe SE-700 instrument was employed with a receiving coil separation of 100'. For this survey transmitting loops about 4000' x 2000' were laid out west of the lines to be traversed. The operating frequency was 400

Simultaneously with the electromagnetic survey, Mr. Armand Beaudoin of Silver-X International Mines Ltd. executed a magnetometer survey covering about nine line miles located mostly in the northern part of the electromagnetic survey area. A Sharpe MF-1 fluxgate type magnetometer with a reading accuracy of about 5 gammas was used to measure the vertical component of the earth's magnetic field at stations spaced each 100' along grid lines 200' apart. These magnetic data have been submitted to Seigel Associates Limited for interpretation and are incorporated in this report.

GEOLOGY

The best published description of the geology of the property is given by S. S. Holland in the Report of the B. C. Minister of Mines, 1947. As well, a summary report on the property was prepared in November, 1967 by A. S. Imrie, P.Eng.

The metasedimentary rocks of the Cariboo Group underlie most of the present property. The dominant rock type is quartzite which is locally argillaceous. Black slate is also present. Numerous quartz veins are known, some of which carry silver and gold values as well as pyrite, galena, pyrrhotite, sphalerite and chalcopyrite. Two north-easterly trending faults are said to traverse the property and these structures may be controlling features in ore deposition.

PRESENTATION OF RESULTS

Plate 1 is a map of the survey area on a scale of 1" = 200' showing pertinent topographic features, the survey grid lines and the claims as well as the locationsof interpreted conductor axes.

Plates 2 and 3 show the results of the electromagnetic survey. The parameters plotted in profile form are the field strength ratios on a scale of 1" = 40% and the phase differences on a scale of 1" = 20°. The plan scale is 1" = 200'; however the interlinespacing is not to scale in order to accommodate the geophysical profiles.

Plate 4 is a contour map of the results of the magnetometer survey. Readings are shown in gammas and the isomagnetic contour interval is 40 gammas.

DISCUSSION OF RESULTS

Plate 2 reveals that the electromagnetic response over the north part of the grid is free of good conductors. Most of the deviations from normal are believed to be due to overburden. The indication 6+50E on line 6N is characteristic of a conductor response, however it consists of a single anomalous readings and could possibly be spurious.

Magnetic relief of about 300 gammas is observed over the part of the grid which was covered by the magnetic survey. Highs and lows of 50 to 150 gammas are common and are likely due to local increases in the magnetite content of the bedrock, although isolated high values may be due to magnetic boulders. The overall contour pattern is not well defined but the magnetic trend appears to be essentially east-west. There is no magnetic expression for the electromagnetic anomaly at 6+50E on line 6N and generally the magnetics do not bear any relation to the electromagnetics.

Plate 3 shows a good deal of electromagnetic distortion. The interpreted locations of normal and reversed conductor axes are shown on Plate 1. Most of the responses occur near the junction of Cooper and Sugar Creeks and are typical of overburden conductors or other poor to medium conductivity bodies, such as argillaceous rock types or shear zones. The possibility cannot be ruled out entirely that weak mineralization could be the cause of some of these anomalies.

CONCLUSIONS AND RECOMMENDATIONS

It is most likely that the present electromagnetic anomalies may be due to overburden, conductive bedrock or shear zones. Since mineral deposits in this locality may be associated with shear zones, and since there is a residual possibility that the observed conductors may be due to sulphide mineralization, further investigation of these anomalies is warranted. It is recommended that the magnetometer survey be extended to cover the anomalous areas and that detail geological and geochemical studies be undertaken. A few traverses employing the Turam with an operating frequency of 200 Hz and the primary loop in a different location would aid in determining whether the conductors may indeed be due to overburden. As well, induced polarization or gravity methods may give further useful information. If these investigations reveal that the present conductors may be indicative of concentrations of commercial mineralization, diamond drilling could then be recommended based on the present electromagnetic results.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

Jon G. Baird

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Geophysicist

Richard O. Crosby P. Eng.

Vancouver, B.C.
March 25, 1968

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Some Aspects of the Turam Electromagnetic Method

Robbert A. Bosschart
and
Harold O. Seigel

Harold O. Seigel & Associates,
Geophysical Contractors and
Consultants,
Downsview, Ontario

Transactions, Volume LXIX, 1966, pp. 156-161

ABSTRACT

Most electromagnetic methods presently used in mining exploration are of the moving source type; i.e., the primary field source is moved simultaneously and in a fixed configuration with the receiver.

Of the fixed-source methods, which employ a stationary primary field and a moving receiver, the Turam method is the most effective and has marked advantages over alternative electromagnetic methods.

The results are little affected by topographic relief, and a high degree of resolution can be obtained because of the constant relation between source field and investigation area.

Another inherent advantage of the Turam configuration is that it provides more favourable dimensional relations. Thus, the primary field attenuates at a much lower rate than in moving-source configurations and, secondly, the method is size sensitive; i.e., conductor size affects the strength of the response, which is not the case with moving-source methods.

These factors result in a considerably better potential depth penetration.

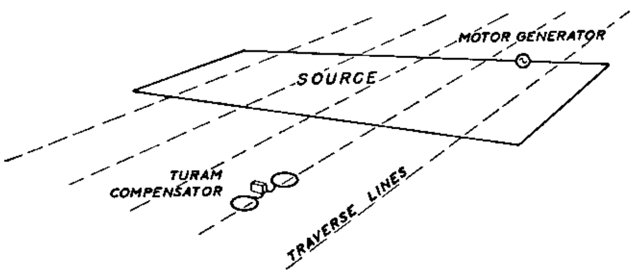

Figure 1.—General layout of the Turam method.

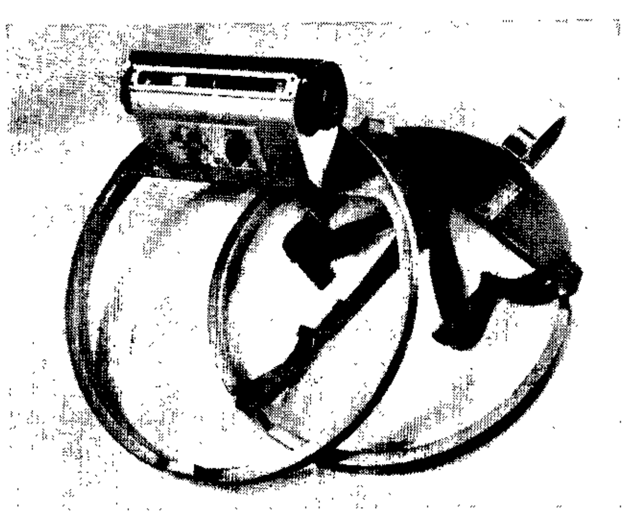

Figure 2.—Three-frequency Turam receiving system (Sharpe SE-700).

Introduction

IN the period following the first world war, Scandinavia became the cradle of geo-electrical prospecting. The Swedish "Tvaram" (Sundberg, 1931) and "Compensator" (Sundberg & Hedstrom, 1933) were the forerunners of the large majority of present-day electromagnetic methods. From the Compensator method were derived, in quick succession, the "Turam" (Hedstrom, 1937) and the "Slingram" (Hedstrom, 1945) methods. Both techniques are still being used in virtually unmodified form, although the "Slingram" has been adapted to a variety of airborne applications and has, in the course of time, assumed a confusing array of pseudonyms, such as "Loop Frame," "Horizontal Loop," "E.M. Gun," "Minigun," "Ronka," "Magniphase," etc., as well as a number of names for the airborne adaptations. The Slingram-derived methods are characterized by a constant transmitter-receiver configuration, which is moved over the target area. They are called "Moving Source Compensation Methods."

The Turam method has been in active use since its development in 1932. In principle, it comprises a fixed transmitting layout of large dimensions and a moving receiver system which measures the gradients of phase and amplitude of the induced electromagnetic field. The coupling between the field source and a conductor, which is variable in the moving-source systems, is constant in the Turam or related configurations, resulting in a response of a somewhat different character. Therefore, a distinction is made between "Fixed Source" and "Moving Source" Compensation methods.

A typical Turam layout (*Figure 1*) consists of a rectangular transmitting loop of insulated wire with sides several thousand feet long, to which alternating current of one or more frequencies between 10^2 and 10^3 c.p.s. is fed by a gasoline-engine-driven alternator. The receiver system embodies two induction coils, carried at a constant separation (e.g., 100 ft.) and connected to a compensator which measures the intensity ratio and the phase difference between the fields received by the two coils.

As a rule, profiles are measured outside the transmitting loop, perpendicular to the long axis of the loop and not exceeding the length of the short axis.

The intensity of the induced primary field depends on the size and shape of the transmitting loop and the location of the observation point. The free air field strength ratios between stations successively occupied by the receiving coils are determined by calculation, and the observed ratios are normalized through division by these values. The presence of secondary fields is characterized by abnormal field strength ratios and phase differences.

Although in practice Turam measurements are, because of the light, mobile receiving system (*Figure 2*), made rapidly (at the rate of 3 to 6 miles per day), a change of primary layout at least each alternate day is required under average conditions. In order to maintain this rate of coverage, a crew of four men is employed—two to measure and two to lay out and recover loops. In terms of line miles per man-day, the Turam method is therefore rather less efficient than the moving-source methods. On the other hand, it has specific advantages in results over the latter, as will be shown below.

Quantitative Interpretation

When a block of ground is energized by means of an alternating electromagnetic (E.M.) field, the resulting field at the surface is, when conductors are present, elliptically polarized. This is because the secondary fields are phase-shifted relative to the primary field. With methods measuring a geometrical component (e.g., Vertical Loop E.M. methods), field ellipticity has the effect of blurring the observations; i.e., instead of a precise angle of zero induction a "null width" of minimum induction is obtained, and this null width widens with increasing phase shift. As a result, such methods may become less definitive in the presence of medium to poor conductors, such as conductive overburden or relatively disseminated mineralization.

A major advantage of Compensation methods is that phase shifts are compensated and field components can be measured accurately, independent of the degree of field ellipticity. Moreover, two related components are usually measured (either phase and amplitude, or in-phase and out-of-phase components), which greatly diminishes the possibility of obtaining spurious anomalies, and, more importantly, because the relation between these components depends on the conductor characteristics, renders possible a quantitative interpretation of the obtained data.

In recent years, much work has been done to investigate the response of mathematical or reduced-scale models of geological conductors in moving-source or fixed-source configurations and so provide a basis for the quantitative interpretation of field data (Wait, 1952, '53, '60; West, 1960; Hedstrom & Parasnis, 1958; Paterson, 1961; Bosschart, 1961, '64). As a result, some conductor characteristics can often be closely enough determined to discriminate between anomalies arising from potential ore conductors and those arising from electrolytic conductors (overburden, weathered shear zones, etc.) and the conducting bodies, even at considerable depth, can be accurately located for diamond drilling. The possibility of assigning significance to anomalies on the basis of amplitude ratios rather than on amplitude strength, and giving precedence to weak anomalies among larger and stronger ones, in itself signifies a considerable extension of the capabilities of these methods.

The response of conductors, calculated theoretically or observed in model experiments in a particular measuring configuration, are usually presented in the form of response diagrams showing a set of two curves which represent the variation of peak amplitudes of the in-phase and out-of-phase components with the variation of a response parameter. The latter includes, in some form, the exciting frequency and the relevant conductor characteristics. For instance, for an infinite sheet the response parameter may be written as $\lambda = 10^3 \frac{r}{fd}$, in which r = resistivity in ohm-cm, f = frequency, and d = thickness in m.

Such a diagram, representing the response of a medium-size tabular conductor (1000 ft. strike length) in a Turam configuration, is shown in *Figure 3A*. The straight line marked Q is the in-phase to out-of-phase ratio. This ratio varies with the response parameter and the strike length and thus gives, for a determinate frequency, a value for the resistivity/thickness ratio of the conductor. The validity of this particular diagram is limited to the specified strike length, but it illustrates the general relations. As they show the relation between the relative amplitudes of the response and the frequency, an important function of such diagrams is to indicate how anomalies caused by bodies of different conductivity can be emphasized or de-emphasized by changing the exciting frequency. An example of this application is described below.

In some areas, the overburden is both conductive and of irregular configuration and thickness. At standard prospecting frequencies, the strong field distortion arising from this condition could mask the response of underlying conductors, even when these would have appreciably better conductivity. In *Figure 3B-1*, an example of extreme overburden distortion at a frequency of 800 c.p.s. is shown, with anomalies as strong as 40 per cent field strength ratio (R) and a 24-degree phase difference (P). The same traverse at a frequency of 200 c.p.s. is shown in the bottom profile. The field strength anomaly has almost disappeared; from 40 per cent it has decreased to 4.5 per cent. The phase difference is down to 7.5 from 24 degrees. When these results are compared with the response diagram (*Figure 3-1*) they appear to be entirely predictable. The overburden anomalies have a r/d value of approximately 50 ohm-cm./m. and thus λ equals 62 ohm-cm.sec./m. at 800 c.p.s. and 250 ohm-cm.sec./m. at 200 c.p.s. As the curves show, the in-phase component drops 80 per cent and the out-of-phase component 60 per cent with the change of λ from 62 to 250 ohm-cm.sec./m. This example shows that the overburden response can be drastically reduced by lowering the frequency. The process would, however, be futile if the response from underlying better conductors would be proportionally decreased. With the use of properly selected exciting frequencies, however, this is not the case; for a good conductor with, say, an r/d value of 1.5, the change in frequency would represent a change from $\lambda = 2$ to $\lambda = 8$, with a corresponding drop of the in-phase amplitude of only 25 per cent and an actual gain in out-of-phase amplitude of 75 per cent (*Figure 3A-2*).

Under 200 ft. of cover, this conductor might (subject to size and over-all geometry), at a frequency of 800 c.p.s., give rise to a 22 per cent in-phase and a 4 per cent out-of-phase anomaly (approximately 20 per cent field strength ratio, 2.5 degree phase diference) *(Figure 3B-2)*, and would be difficult to distinguish from the 800-c.p.s. overburden noise shown in *Figure 3B-1*. At the lower frequency, the anomaly would be 17 per cent in-phase and 7 per percent out-of-phase (15 per cent field strength ratio, 5-degree phase difference), and it would stand out clearly from the reduced overburden response.

Potential Depth Penetration

In assessing the capabilities of electromagnetic methods, the effective depth penetration is among the most important factors to consider. It can be defined as the maximum depth at which the response of conductors of potential economic interest can be clearly distinguished from electromagnetic fields arising from other sources.

An examination of the descriptions of some fifty producing orebodies on the Canadian and Baltic Precambrian shields shows that the large majority are steeply dipping, lenticular or tabular bodies of concentrated sulphides, with strike lengths varying from 300 to 3,000 ft. *(see Figure 4A)* and depth extensions, where known, of a comparable order of of magnitude. An example of the response of good conductors within this size range in typical moving-source and fixed-source configurations is shown in the same diagram *(Figure 4B)*. The conductor is a tabular body of good conductivity (λ = 10.3 ohm-cm.sec./m.) at a depth of 60 ft. The strike length and height have been increased simultaneously from 10^2 to 10^4 feet. It can be seen that, up to a strike length of 400 ft.,

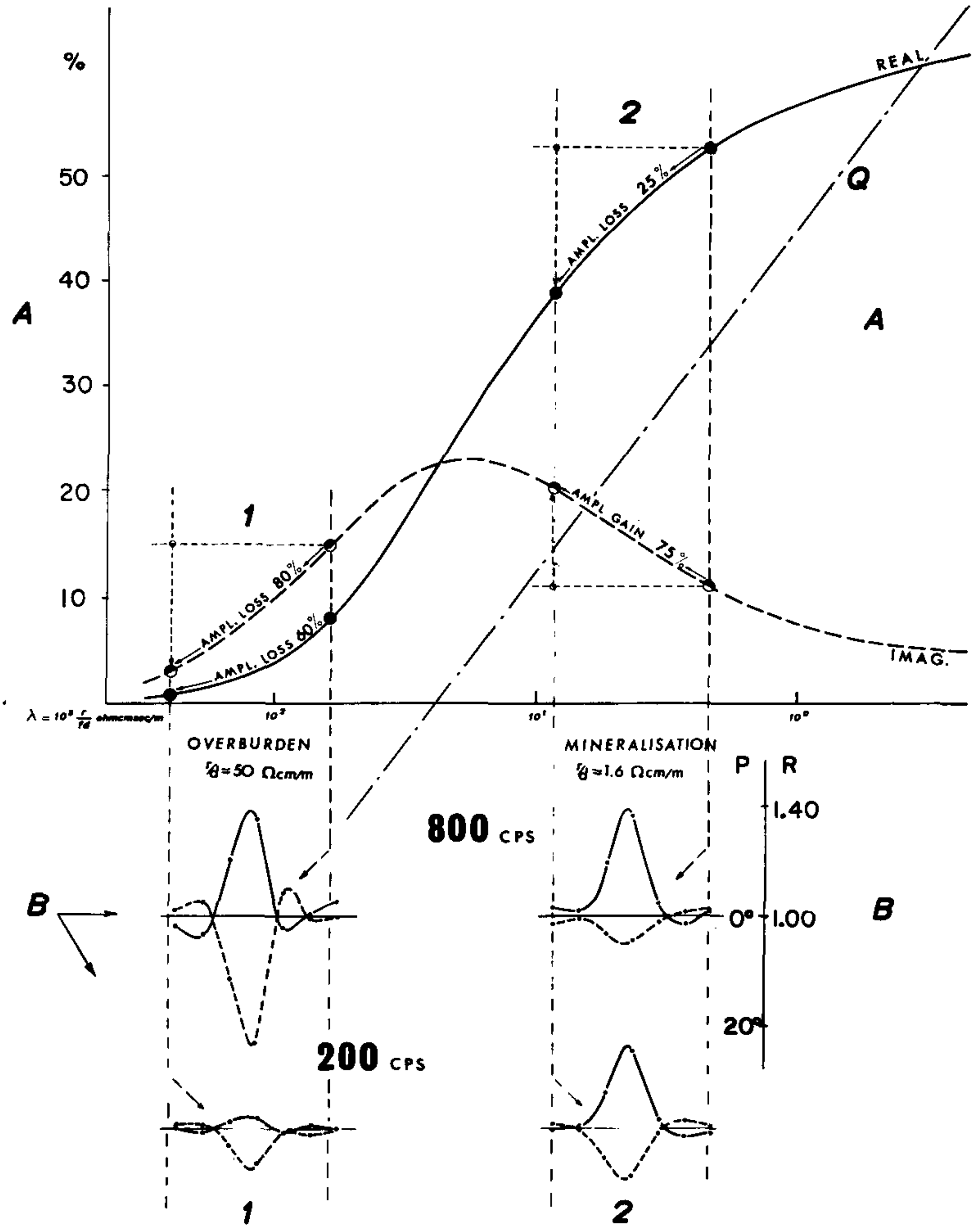

Figure 3.—Response of a thin, medium-size tabular conductor (1000-ft. strike length) in a fixed-source measuring configuration.

the response in both configurations is comparable. In the moving-source configuration (Horizontal Loop), a further increase in size results in very little gain in the response. Saturation is reached at a strike length of 600 to 800 ft.

In the fixed-source (Turam) configuration, the response shows its steepest gain where the moving-source response flattens off; for an increase in strike length from 300 to 3,000 ft., the fixed-source response increases from 6 per cent to 80 per cent, or

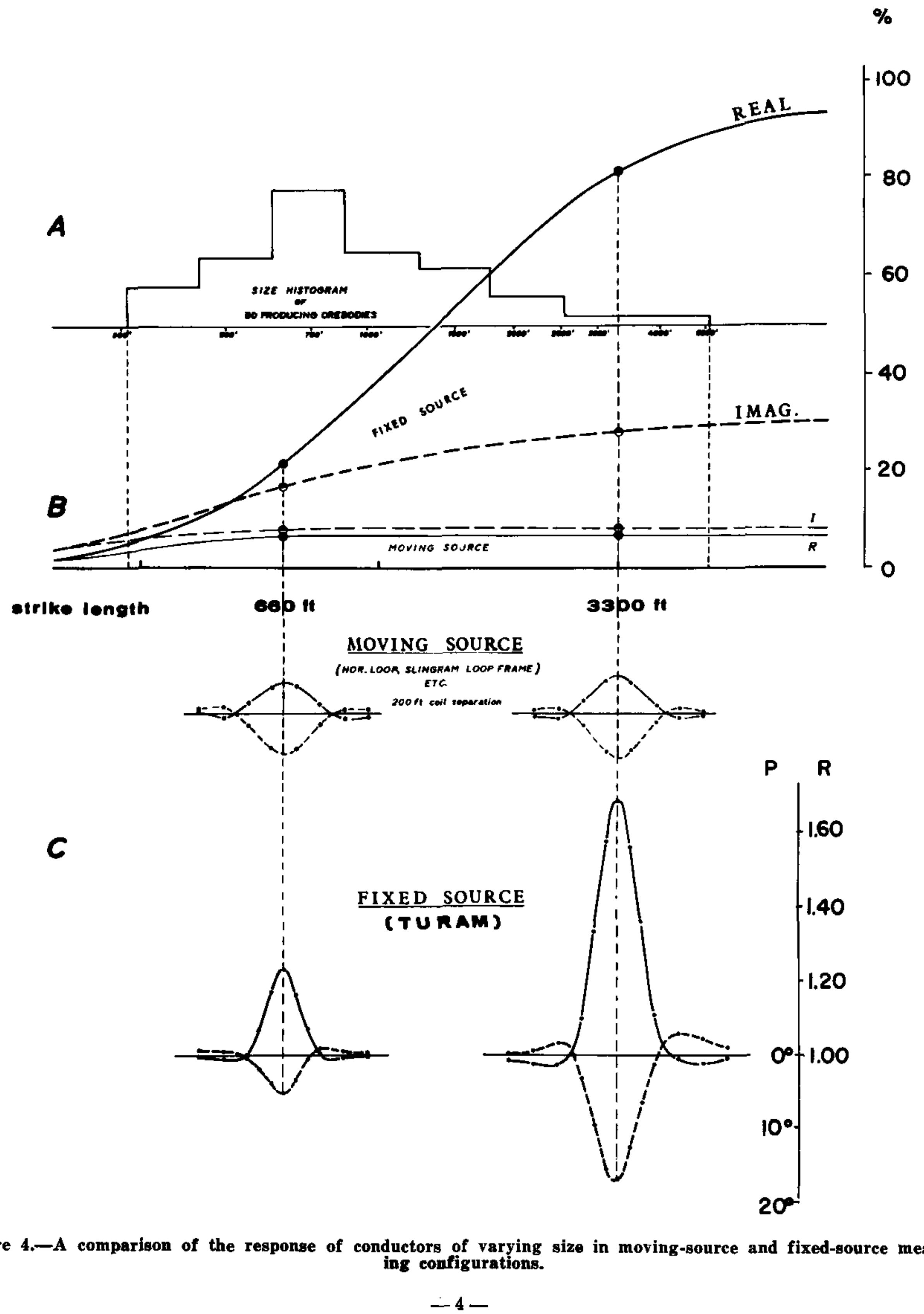

Figure 4.—A comparison of the response of conductors of varying size in moving-source and fixed-source measuring configurations.

more than 13 times, whereas the moving source response increases from 4 per cent to 7.5 per cent, or by a factor of less than 2.

In practical terms, this means that size has a negligible effect on the detectability of a conductor in a moving-source configuration, but contributes materially to its detectability in a fixed-source system. The larger the body, the greater the depth at which it can be found with the Turam method. A major reason for the observed difference in potential depth penetration of the two types of configuration is the different rate of fall-off of the response of bodies of the shapes and dimensions discussed above.

For moving-source configurations, this question has been examined by Hedstrom & Parasnis (1958). In a diagram, for instance, they show the variation of the response of a 2,000 by 2,000 ft. sheet conductor of good conductivity ($\lambda = 4$ ohm-cm.sec./m.) with the depth. *(Figure 5)*. Between depth to coil separation ratios of 0.2 and 0.8 the rate of fall-off increases from the 1st to the 5th power of the depth. In ground surveys, where the in-phase noise level is, under average conditions, rarely less than 2 per cent, a discernable anomaly will thus have to have an in-phase amplitude of at least 4 per cent. As the diagram shows, the response falls below this value at a depth to coil separation ratio of 0.57. At 300 ft., which is the largest separation practical, the potential depth penetration is therefore less than 170 ft.; at the standard 200 ft. separation, it is less than 115 ft.

The variation with depth of the response of a smaller conductor (1,000 by 1,000 ft) of comparable conductivity ($\lambda = 3.5$) in a Turam configuration is shown in *Figure 6*. To a depth of 200 ft. the response falls off at a rate of less than the 1st power; to depths of well over 600 ft., it falls off at a rate of less than the 2nd power.

At a 600-ft. depth, the in-phase amplitude is still better than 4 per cent. For a 2,000 by 2,000-ft. body, it would be approximately 6 per cent, and, with a further increase in size, it could reach 8 per cent. The potential depth penetration can thus be conservatively estimated to be 600 ft.

Figure 7 is a field example of a 400-c.p.s. Turam traverse over two steeply dipping mixed graphite and sulphide conductors under 340 ft. of overburden (Timmins area). The field strength ratio anomaly of the strongest conductor is 23 per cent, which is approximately three times stronger than the field strength ratio anomaly of the smaller conductor shown in *Figure 6* at the same depth of burial. This example indicates that the present body could be found at much greater depth and that the estimate of the potential depth penetration, based on the smaller body, is indeed conservative. It may be noted that the in-phase response in a moving-source system (300 ft. coil separation) would be less than 1 per cent and that the body would be undetectable with such a method.

Effect of Topographic Relief

Neglecting external sources, the noise level of moving-source compensation methods is strongly dependent on the coupling between transmitter and receiver; i.e., if the configuration is not rigidly maintained during operation, spurious in-phase anomalies result. For instance, an error of 5 per cent in the

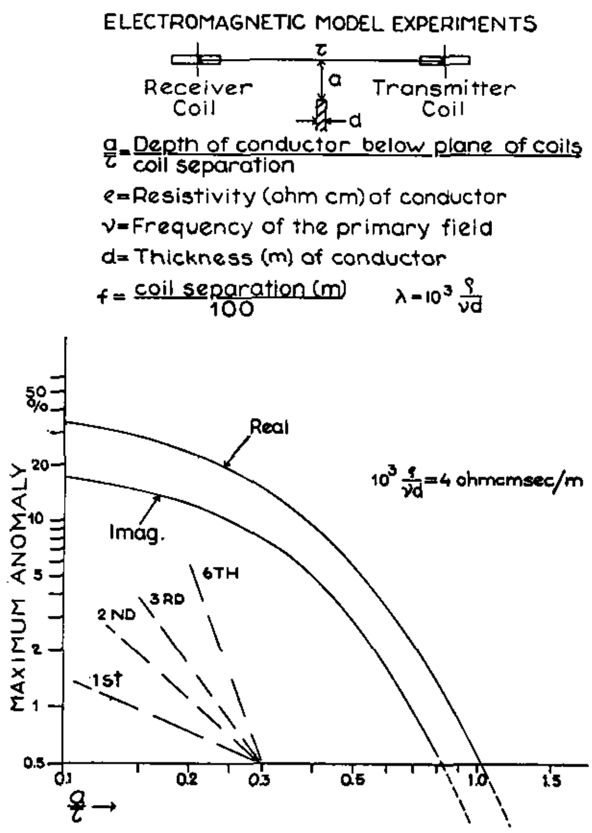

Figure 5.—Variation of the response with depth of a thin tabular conductor of infinite strike length in a moving source configuration. (Hedstrom and Parasnis, 1958).

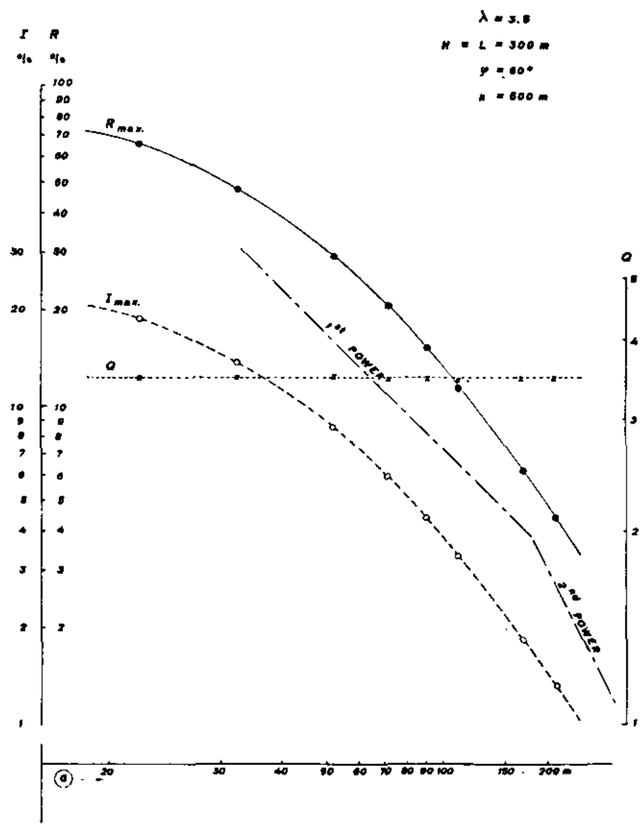

Figure 6.—Variation of the response with depth (a) of a thin tabular conductor of finite strike length (1000 ft.) in a fixed-source measuring configuration.

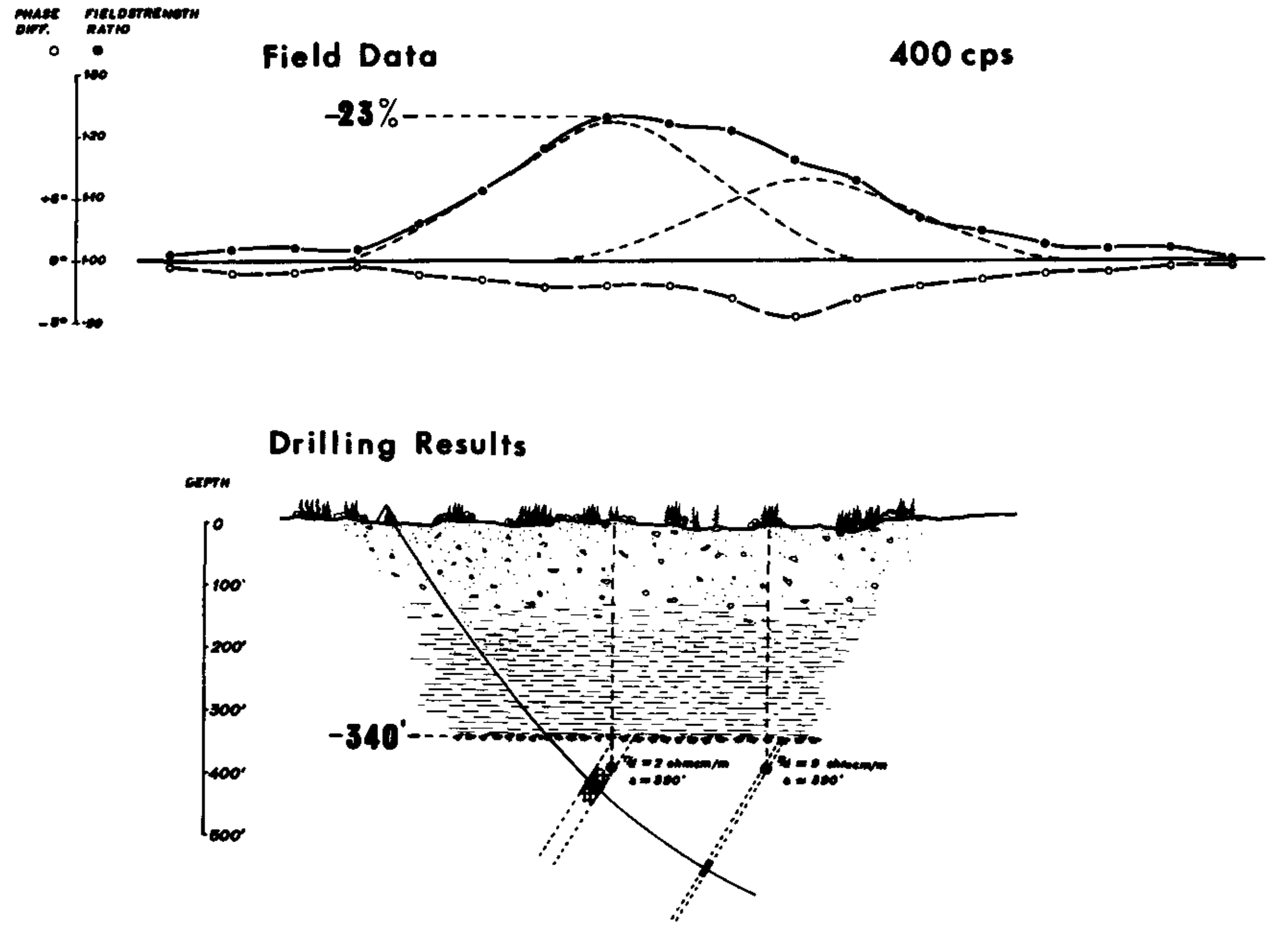

Figure 7.—Turam traverse over deeply buried conductors in the Timmins area.

coil separation causes a change of 15 per cent in the in-phase component. In the presence of secondary fields, both components are affected. Elevation differences between the coils produce a comparable effect. As a result, these methods become impractical in areas of appreciable topographic relief.

With the Turam system, a 5 per cent error in coil separation causes a change of 2 per cent at a distance of 300 ft. from the source, 0.5 per cent at 500 ft. and 0.2 per cent at 1000 ft. The effect of elevation differences between coils is, because the field at the surface is predominantly vertical, even smaller.

The effect of terrain relief on the measurements is therefore negligible, except in areas of very rugged topography. Moreover, where corrections are required, they can be made, because of the fixed relation between source and terrain, in a simple and straightforward manner.

Conclusions

In the foregoing, those aspects of the Turam method that have marked advantages over alternative methods have been stressed. It is, at present, the most powerful electromagnetic prospecting tool at our disposal.

It is also a rather elaborate method and therefore does not necessarily represent the most efficient approach under all circumstances.

In areas of thin cover and level topography, systematic surveys may, for instance, be done more economically with moving-source compensation methods. Also, for fast ground follow-up of airborne electromagnetic surveys, where the problem is usually confined to determining the accurate location of preselected anomalies, methods measuring geometrical components will yield the desired information more rapidly and at less expense.

The proper field of application of the Turam method lies where conditions are more difficult and the requirements severe; in particular in cases where a high degree of discrimination between conductors is desired, where the depth of overburden limits the use of other methods or where appreciable topographic relief occurs.

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Printed in Canada

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of a geophysical survey on behalf of Silver-X International Mines Ltd. (N.P.L.

SUB - MINING RECORDER
RECEIVED
OCT 16 1968
M.R. #23891E $20.40
VANCOUVER, B. C.

I, Jon G. Baird

of 115 - 744 West Hastings Street, Vancouver

in the Province of British Columbia, do solemnly declare that a Turam electromagnetic survey and a Magnetometer survey was executed on some COP claims near Wells, British Columbia between February 12 to March 6, 1968. The following expenses were incurred:

(1)	Wages			
	R. Lebrun	24 days @ $35/day	$840.00	
	A. Schaeckenpointner	24 days @ $27.50/day	660.00	
	A. Albrecht	9 days @ $27.50/day	247.50	
	F. Bourqui	9 days @ $27.50/day	247.50	$1,995.00
(2)	Transportation & Shipping			236.80
(3)	Food & Living Expenses			46.18
(4)	Consulting Fees			
	20 days @ $30.00/day		$600.00	
	4 days @ $ 6.32/day		25.25	
	2 days @ $100.00/day		200.00	825.25
				$3,103.23

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City of Vancouver, in the Province of British Columbia, this 4th day of April, 1968, A.D.

Jon G Baird

A Commissioner for taking Affidavits for British Columbia or ~~A Notary Public in and for the Province of British Columbia.~~

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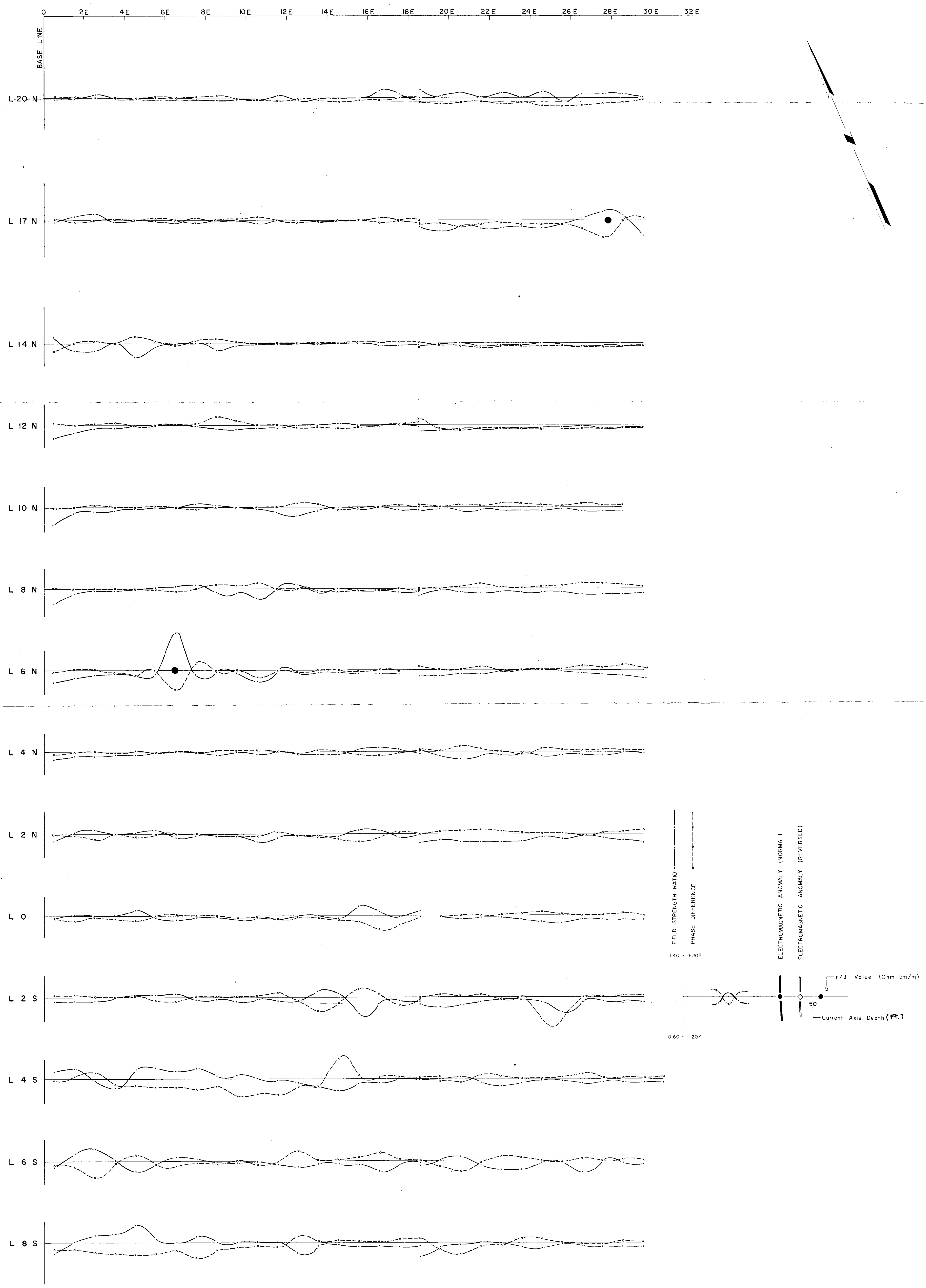

NOTE:
INTERLINE SPACING NOT TO SCALE

TO ACCOMPANY A GEOPHYSICAL REPORT
BY J.G. BAIRD DATED MARCH 25, 1968

PLATE 2 1769

SILVER-X INTERNATIONAL MINES LTD. (N.P.L.)
WELLS AREA, BRITISH COLUMBIA
SUGAR CREEK PROPERTY
TURAM ELECTROMAGNETIC SURVEY

SCALE: 1" = 200'
SURVEY BY SEIGEL ASSOCIATES LIMITED
FEBRUARY - MARCH, 1968

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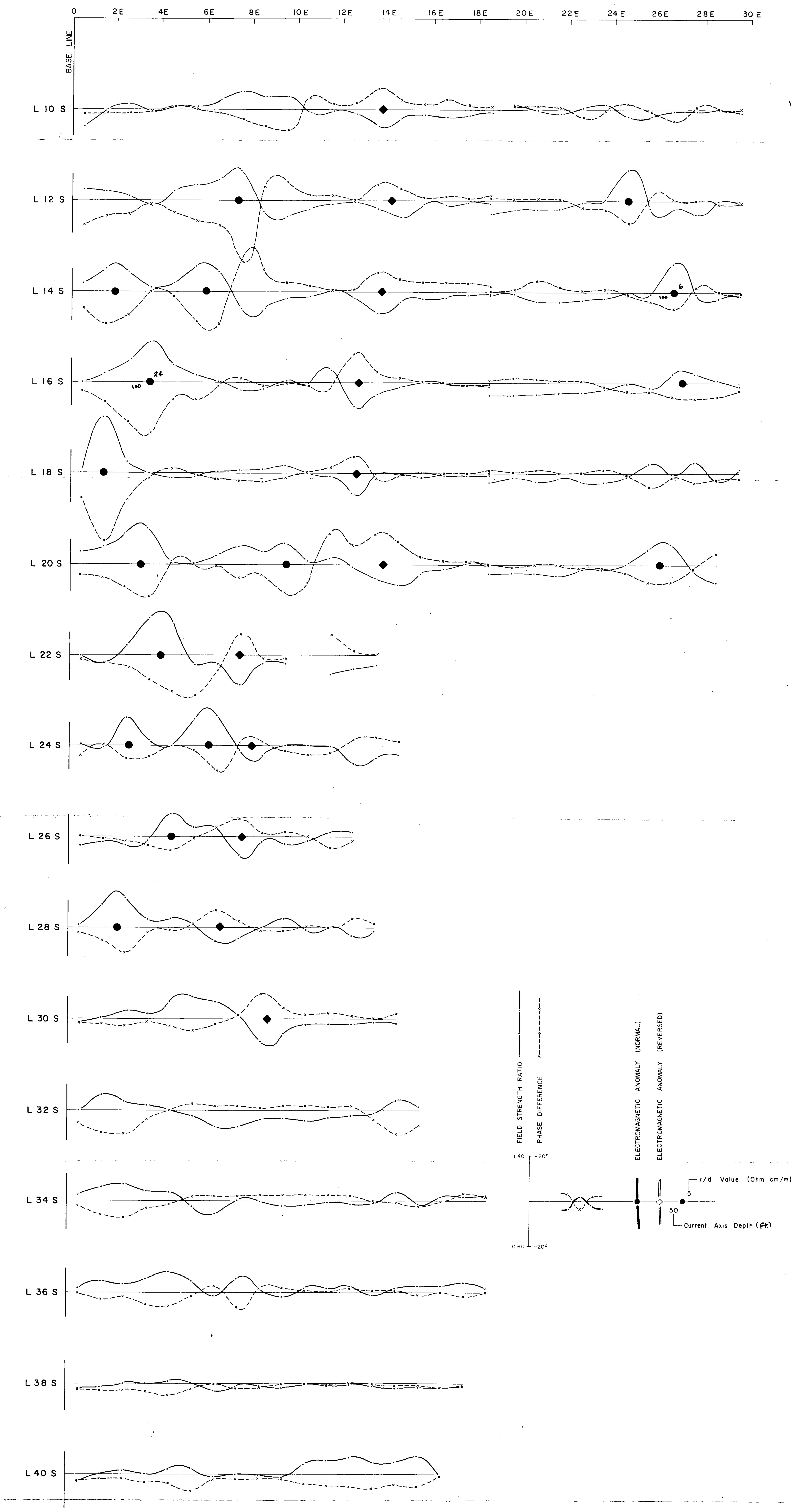

NOTE:
INTERLINE SPACING NOT TO SCALE

PLATE 3 1769

SILVER-X INTERNATIONAL MINES LTD. (N.P.L.)

WELLS AREA, BRITISH COLUMBIA

SUGAR CREEK PROPERTY

TURAM ELECTROMAGNETIC SURVEY

SCALE : 1" = 200'

SURVEY BY SEIGEL ASSOCIATES LIMITED

FEBRUARY- MARCH, 1968

TO ACCOMPANY A GEOPHYSICAL REPORT
BY J.G. BAIRD DATED MARCH 25, 1968

BAIRD

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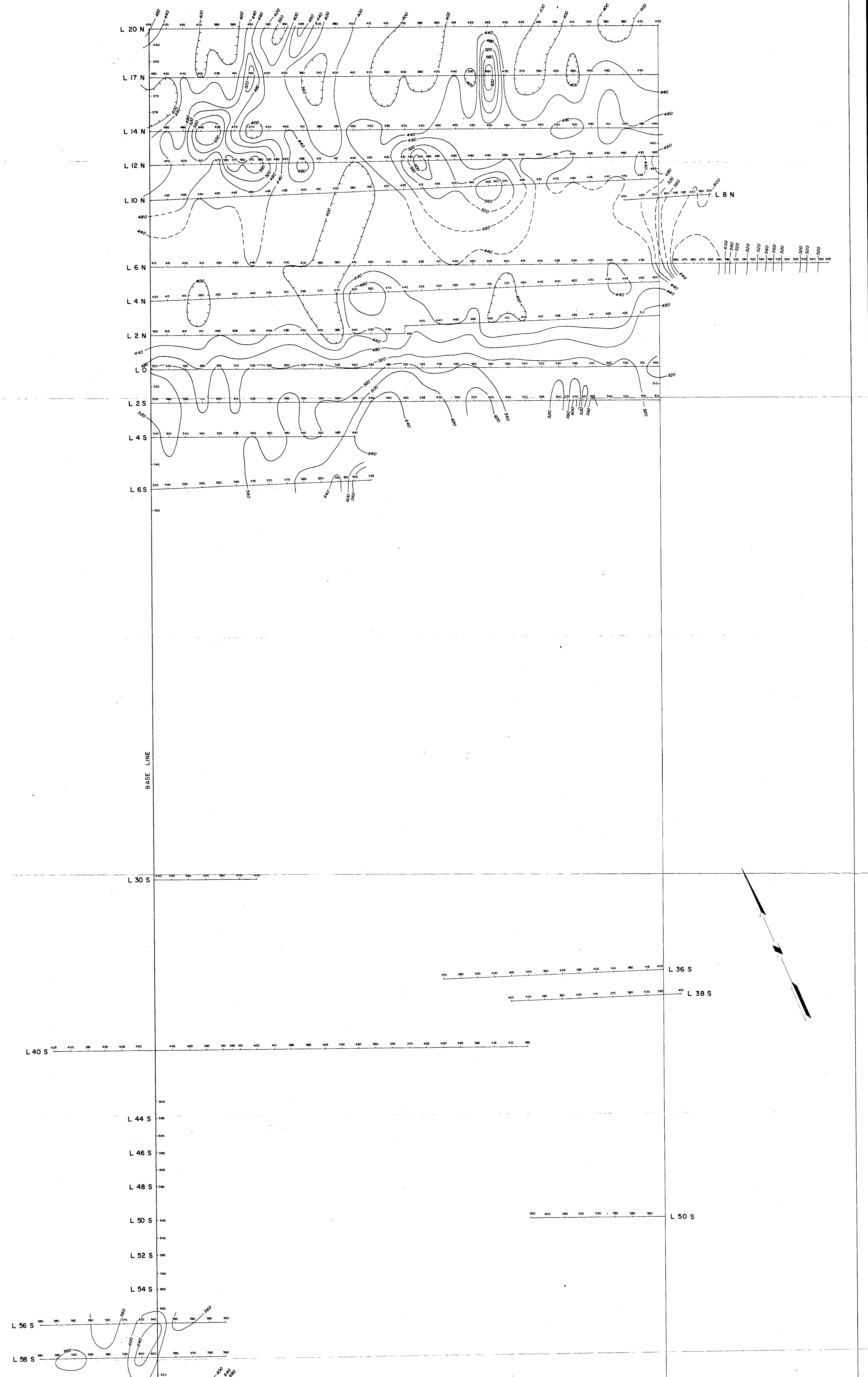

TO ACCOMPANY A GEOPHYSICAL REPORT
BY J.G. BAIRD DATED MARCH 25, 1968

PLATE 4

SILVER-X INTERNATIONAL MINES LTD. (N.P.L.)

WELLS AREA, BRITISH COLUMBIA

SUGAR CREEK PROPERTY

MAGNETOMETER SURVEY

CONTOUR INTERVAL 40 GAMMAS

REGISTERED PROFESSIONAL ENGINEER
J. G. BAIRD
PROVINCE OF ONTARIO

SCALE : 1" = 200'

INTERPRETATION BY SEIGEL ASSOCIATES LIMITED
MARCH, 1968

1769

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