4606

94C/5E,12E

GEOPHYSICAL REPORT

on the

GROUND ELECTROMAGNETIC SURVEY

on the

RAIN CLAIMS

SWANNELL RIVER AREA, B. C.

OMINECA MINING DIVISION

Lat. 56°30'N
Long. 125°35'W

on behalf of

SEREM LIMITED

Claim Names	Record Number	Anniversary
Rain 1 - 10	114341 - 114350	August 9

by

P. P. Nielsen, B.Sc., Geophysicist
and
George B. Phelps, M.Sc., P.Eng., Geologist
Atled Exploration Management Ltd.
Vancouver, B. C.

August, 1973

NTS 94C 5 & 12

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INTRODUCTION

During the periods from June 27 to July 1 and on July 5, 1973, a Horizontal Shootback Electromagnetic survey was executed on the Rain claim group in the Aiken Lake Area, B. C., Omineca Mining Division.

The survey was performed by Atled Exploration Management Ltd. on behalf of Serem Ltd.

The purpose of the survey was to explore for bedded lead-zinc sulphide mineralization and to delineate favourable rock types and important structures over an area mainly covered by overburden. 9.03 line miles of reconnaissance coverage was executed on a cut grid using a coil separation of 200 feet, an operating frequency of 1830 Hz, a station interval of 100 feet and a line spacing of 400 feet.

An additional 1.6 line miles of detail coverage over intermediate spaced lines was carried out on Line 30S, Line 26S, Line 22S, Line 18S, Line 14S, and Line 10S. A total of 10.63 line miles was surveyed in six days..

17.15

LOCATION AND ACCESS

The Rain claims are situated in the Omineca Mining Division, 59 air miles northwest of Germansen Landing, 203 miles northwest of Fort St. James and 134 miles northeast of Smithers, B. C.

Co-ordinates are 125°35'W longitude and 56°30'N latitude. Access is by float plane to Aiken Lake and thence by helicopter a distance of 12 miles northeast to the centre of the property.

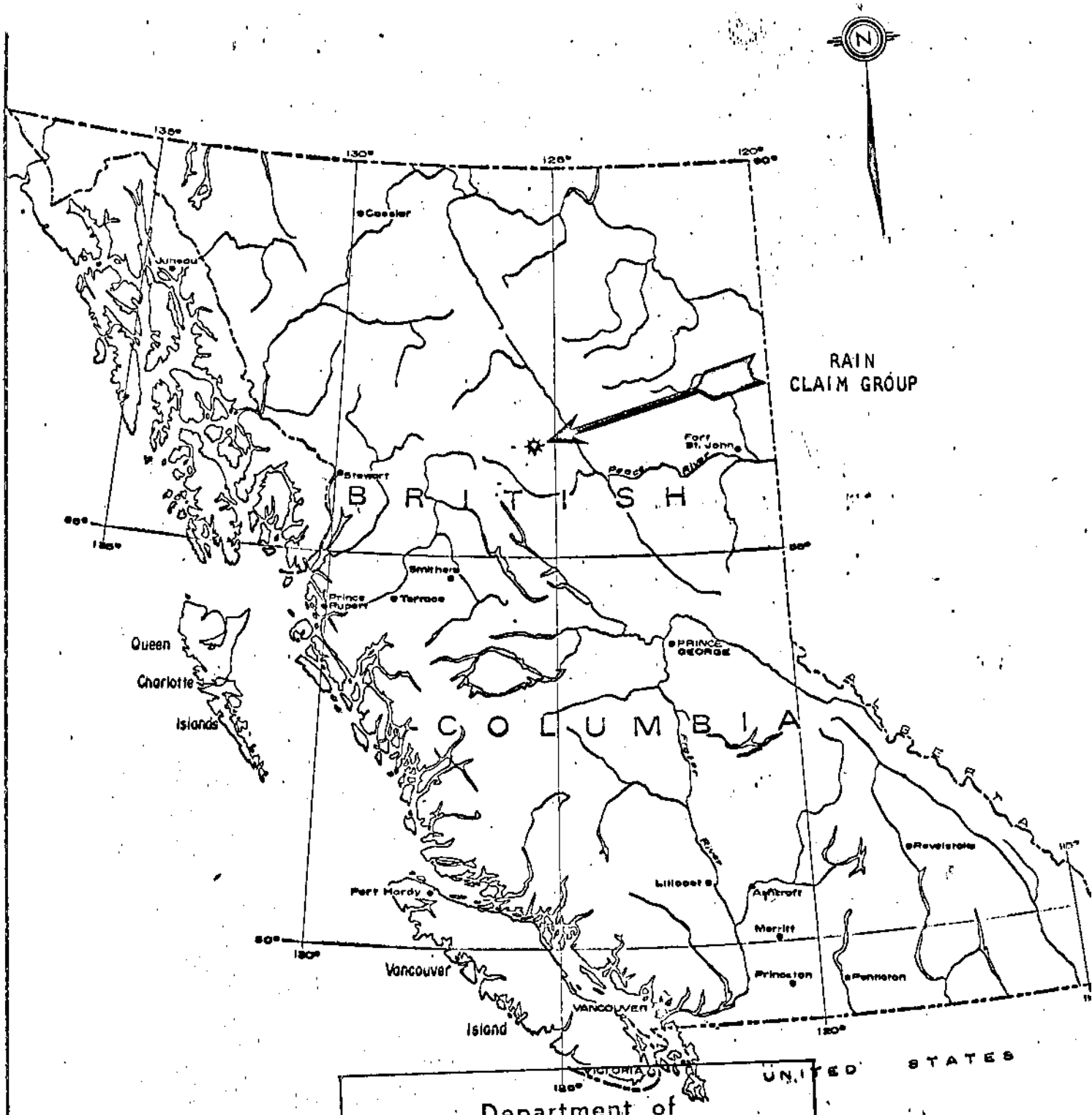
TOPOGRAPHY AND GROUND CONDITIONS

The property lies at about 5,000 feet above sea level north of the summit between the Swannell River one mile to the north and the Mesilinka River, four miles to the south.

Terrain is rolling with local creek drainage to the west.

The claims are primarily covered by thick spruce and overburden thicknesses are thought to be less than 75 feet. Outcrops appear to occupy less than 10% of the total claim area.

The highest peak in the area if Mt. Lay (7,200 feet) about four miles to the northeast.

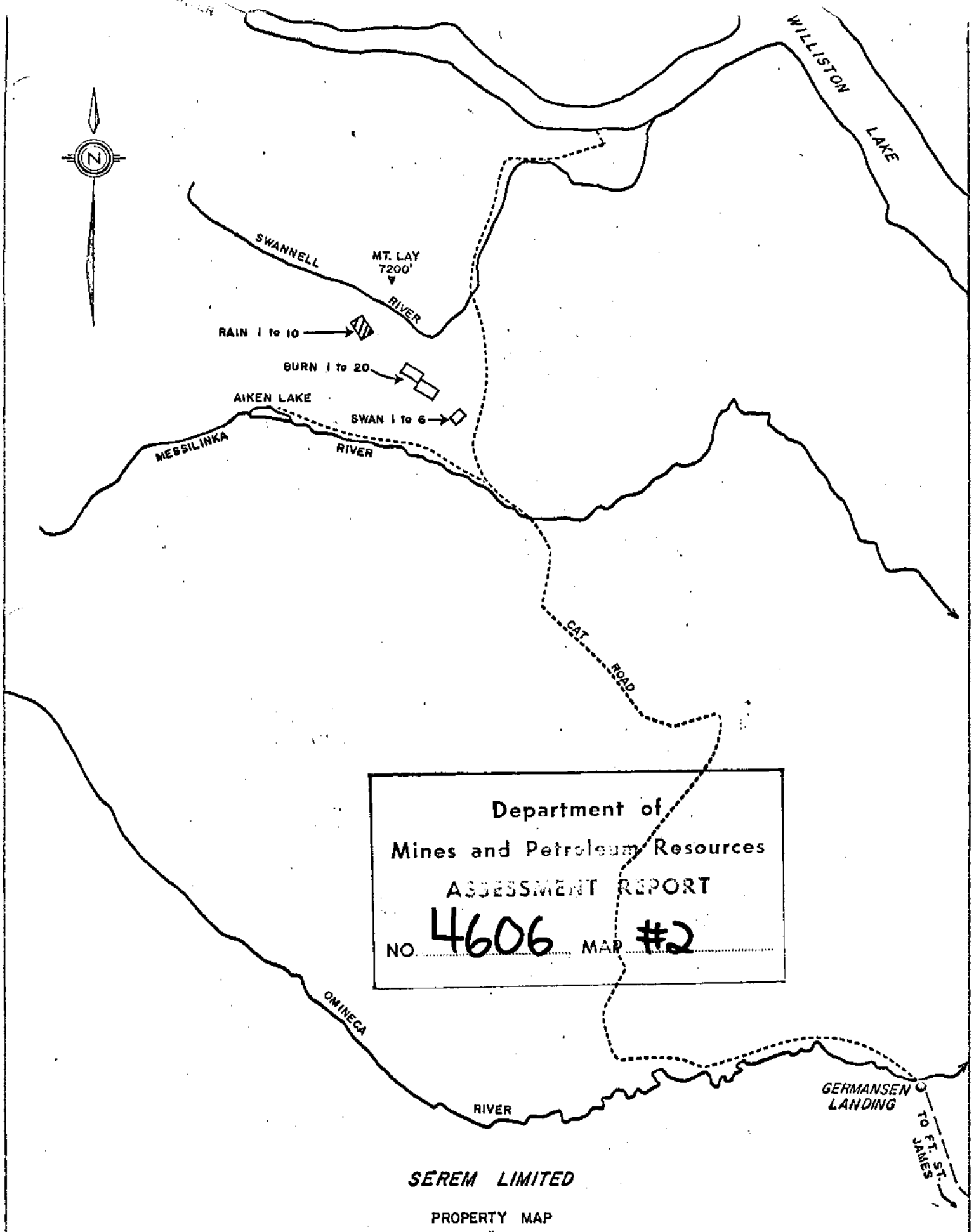


Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4606 MAP #1

SEREM LTD.

LOCATION MAP

1" = 100 miles



SEREM LIMITED

PROPERTY MAP

Scale: 1" = 8 miles

GEOLOGY

(after "A Report of Geological Activities in the Ingenika Area of North Central B. C." by P. Tegart--January 1973)

Regional

The area is underlain by a northwest striking, southwesterly dipping sequence of sedimentary rocks spanning in age from the Proterozoic and Lower Cambrian (Tenakiki and Ingenika groups respectively) to Devonian and Paleozoic rocks.

The older units occur to the northeast with the younger successions overlying them to the southwest.

An unconformity separates the Ingenika from the Devonian rocks and a disconformity appears to separate the Devonian from the Upper Paleozoic rocks.

Basal quartzites and calcareous phyllites were deposited on a migeosynclinal platform. Latter stages of deposition of the Ingenika group appear to be associated with uplift creating a shallow water environment for calcareous deposition.

The whole sequence was tilted westward in Middle Cambrian time. Middle Devonian and possibly Silurian rocks overlie Ingenika slates and quartzites.

More intense tectonic activity in Mississippian and Permian times resulted in major faulting in the form of thrust, strike-slip and block faults within or across competent rock units and folding or dragging associated with the more incompetent members.

Detail

The majority of the claims are underlain by upper Ingenika rocks. These consist of quartzitic rocks and a thick bedded limestone or dolomite overlain to the southwest by thin sequences of black carbonate or slate and graphitic argillite beds.

Mineralization observed in two areas on the claim group occurs at the top of the limestone or dolomite bed primarily as scattered blebs of galena and light brown sphalerite grading approximately three percent combined lead-zinc over appreciable mining widths.

The mineralization appears stratabound in that it is either concordant with the bedding or it occurs as disseminated blebs within one common unit.

Faulting and folding have complicated the geology. No volcanic or intrusive rocks have been observed in the area.

CLAIMS

The following 10 contiguous claims are owned by Serem Ltd. and were acquired by staking in 1972.

Claim Name	Record Number	Expiry Date
Rain 1 - 10	114341 - 114350	August 9, 1973

GRID INSTALLATION

The survey lines were installed using compass, chain, axes and marked flagging.

The baseline was established on a bearing of parallel to the claim lines. Crosslines were installed using a line spacing of 400 feet and a station interval of 100 feet from Station 8W to 22E.

Six intermediate lines at the south end of the grid totalling 8,400 line feet were also installed.

A grand total (including the baseline) of 11.84 line miles of grid was installed.

THE ELECTRO-MAGNETIC SURVEY

Instrumentation

A Crone C.E.M. "Shootback" unit consisting of two identical coils capable of both receiving and transmitting at three frequencies was used.

All circuiting is housed within the coils and the batteries are mounted in an insulated box on a magnesium-aluminum packboard.

Instrument Specifications

- coil diameter 22", weight per coil 8.3 pounds
- frequencies: 390, 1830 and 5010 Hz
- accuracy: ± 1/2° dip-angle at coil spacings up to 300 feet and ± 1° up to 600 feet
- dip angle determined by visual null on field strength meter or audio null on head-phones
- power supply: three only six-volt lantern batteries in series = 18 volts
- coil spacing = 25 feet to 600 feet
- no interconnecting cable
- no topographic effects
- deep penetration
- can be used as Horizontal Shootback, Horizontal loop, vertical loop and co-axial shootback methods.

Treatment of Data

Profiles for all grid lines are shown in the map pocket.

Vertical scale is 1" = 40° resultant dip-angle. Positive dip-angles are plotted above (to the northwest) and negative dip-angles below (to the southeast) of the survey line.

General Comments and Theory of the Horizontal Shootback Method

In general, positive resultant dip-angles are caused by vertical or steeply dipping conductors' having primarily a vertical conductive component. The depth to the top of these conductors exhibiting a positive response is less than one-half the coil separation used and dependent upon the width of the conductor. In these cases, the positive occurs above the top of the conductor and is flanked by negative dip-angles, their amplitude, width and shape being determined by the dip, width and depth to the top of the conductor.

Negative dip-angles over the top of a conductor are primarily caused either by steeply dipping conductors at depths greater than one-half the coil separation or by condcutors' having a large horizontal conductive component regardless of depth to the top. The latter include conductive overburden, sulphide lenses, pervasive pyrite concentrated in excess of 15% by volume, graphite horizons, and some alteration products.

Within a certain range, the poorer the conductor the higher the operating frequency must be to detect it.

The Horizontal Shootback method employs two men using identical instruments who traverse in unison along the same survey line perpendicular to the supposed strike of the conductor(s).

Both operators transmit and receive in turn, measuring the dip-angle of the field. The two dip-angles are then added and equal "0" if no conductors are present. The station measured is the mid-point between the two operators.

A number of test traverses were run over known sulphide mineralization (showings) in the area using various coil separations, operating frequencies and station intervals.

The results of these tests were discouraging probably due to insufficient concentrations of galena with the low iron-content sphalerite and/or insufficient strike-length of possible conductors.

It was decided, however, that the method would delineate a graphite shale which was deemed an important marker horizon above and down dip of the mineral-bearing dolomite and that important structural information, especially fault locations might be extracted from the data.

The survey then was carried out over the ten Rain claims using the Horizontal "Shootback" mode with a coil separation of 200 feet, an operating frequency of 1830 Hz and a station interval of 100 feet along lines spaced 400 feet and 200 feet apart.

Discussion of Results and Interpretation

The following discussion is based on a correlation of:

1. Dip-angle profiles for location of conductors on line
2. Dip-angle contours for interpolation of conductors between lines, faults and general rock unit formation (not included in report)
3. Topography
4. Geological and geomorphological information from Serem staff.

The extremely high negative dip-angles encountered over the western half of the survey grid indicate a broad, conductive formation striking north-northwesterly and dipping steeply to the west.

Superimposed on this broad conductive zone is a narrow, near-vertical feature of higher conductivity striking parallel to the zone.

Minor offsets of this narrow conductor within the zone are thought due to cross-faulting.

The highly anomalous E.M. responses are believed caused by a broad, north-northwesterly striking conductive shale or argillite containing a narrow zone of graphitic material located along the marked conductor axes.

Weak conductors are indicated to the east of the main conductive zone in the southeastern grid area where trenches containing sphalerite in a dolomitic host rock are located. The weak conductor axis between Lines 28S and 8S is just to the west of these showings and suggests a poor, vertical conductor within 25 feet of the surface at Line 16S and plunging to the south where it could be in excess of

100 feet from the surface. It is possible that this feature could be related to sulphide mineralization. It is not clear if the argillite formation at the south end of the grid is plunging in that direction or has been terminated at Line 24S.

The showings east of the anomalous areas occur within a dolomitic rock believed to be in contact with and up-dip of the argillite. The contact is interpreted along the loci of -10° dip-angles on the eastern flanks of the negative profiles.

CONCLUSIONS AND RECOMMENDATIONS

The electromagnetic survey has failed to detect sulphide mineralization directly in that no appreciable response was obtained over the showings.

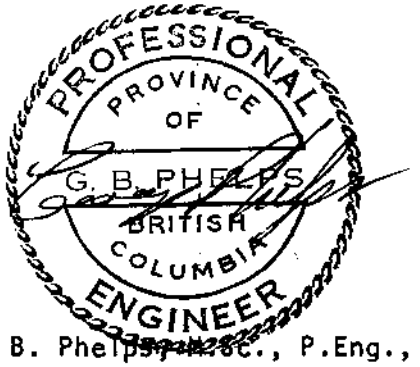
The weak conductor in the southeast grid quadrant is due to either sulphides of relatively high sphalerite contact in dolomite or is the argillite-dolomite contact which is plunging to the south.

The survey has, however, delineated an argillite marker horizon which has narrowed the search to the area immediately to the east of the -10° dip-angle level on the eastern flank of the conductive zone. This is the area believed to be underlain by dolomites which may be the host of economically significant sulphides, principally sphalerite.

No further geophysical work is recommended on the claims.

Respectfully submitted,

P. P. Nielsen, B.Sc., Geophysicist



George B. Phelps, B.Sc., P.Eng., Geologist
Atled Exploration Management Ltd.

APPENDICES

STATEMENT OF AUTHOR'S QUALIFICATIONS

I DO HEREBY STATE:

1. I am the author of this report.

2. I have been actively and responsibly involved in mining exploration using airborne, ground and computer applied geophysics in Western Canada and the United States for the past seven years.

3. I graduated with a B.Sc. degree in Geophysics from the University of British Columbia in 1969.

4. I am presently Manager, Geophysical Division, Atled Exploration Management Ltd., at #420-475 Howe Street, Vancouver 1, B. C.

5. I am a member of the Society of Exploration Geophysicists, the Canadian Institute of Mining and Metallurgy and the B. C. Geophysical Society.

Signed P. P. Nielsen

P. P. Nielsen

Date Sept 9, 1973

ENGINEER'S CERTIFICATE

I, GEORGE B. PHELPS, of #501-2061 Beach Avenue, in the City of Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:-

1. That I am a consulting geological engineer with a business address of 420-475 Howe Street, Vancouver, British Columbia.

2. That I am a graduate of the Montana College of Mineral Science and Technology where I obtained my B.Sc. in geological engineering in 1966 and my M.Sc. in geological engineering in 1969.

3. That I am a Registered Professional Engineer in the Geological Section of the Association of Professional Engineers in the Province of British Columbia.

4. That I have practiced my profession as a geological engineer for the past seven years, and

5. That I have no interest, direct or indirect, in the property with which this report is concerned, nor do I expect to receive any such interest. I have no interest in the securities of Selcon Ltd.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. B. PHELPS

George B. Phelps, M.Sc., P.Eng.

DATED at the City of Vancouver, Province of British Columbia, this 11th day of September 1973.

STATEMENT OF COSTS

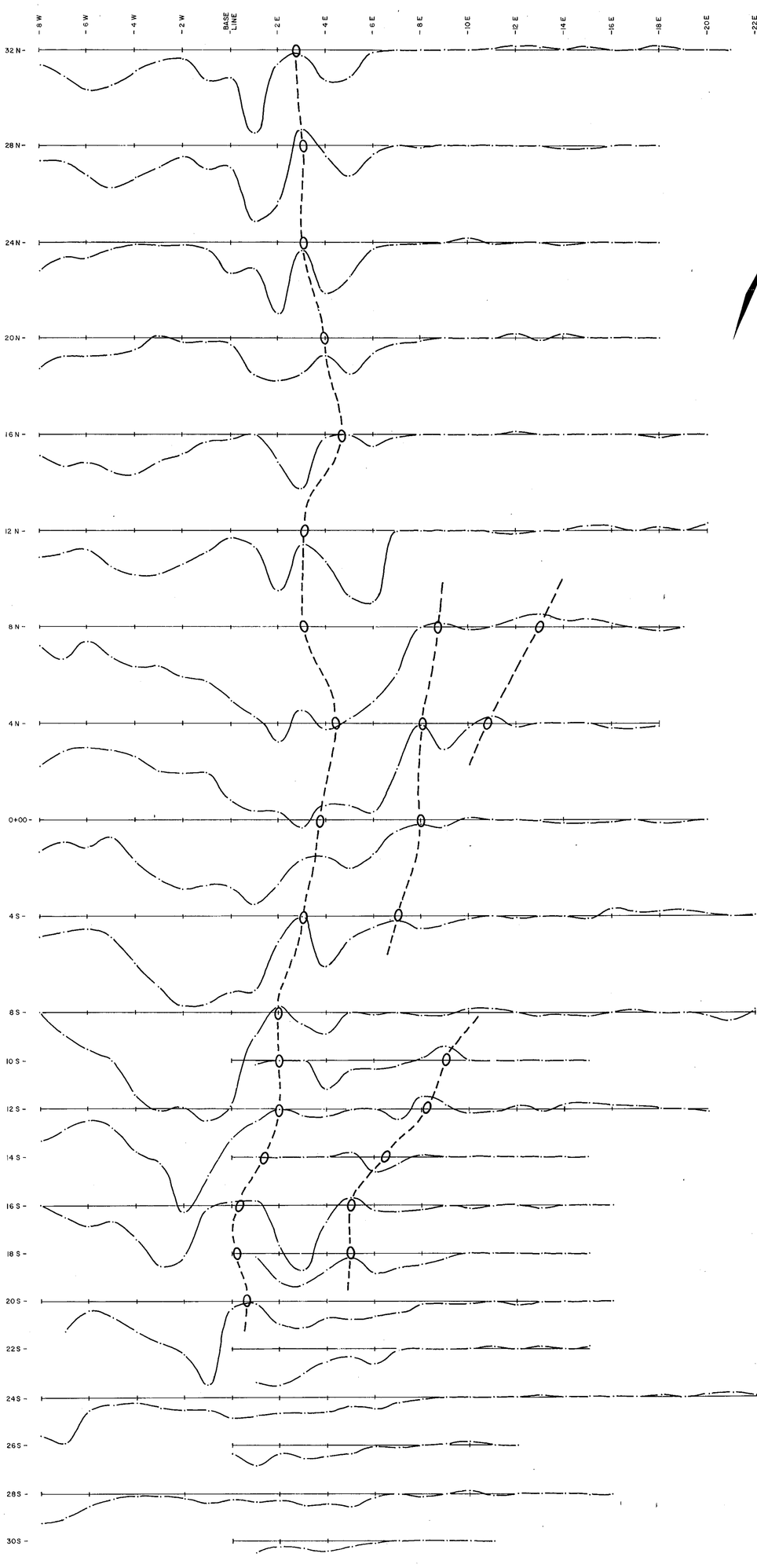
The following statement relates to Atled's charges in conducting an electromagnetic survey on the Rain claims. Support costs including transportation, linecutting, supervision, food and accommodation borne by Serem are not included.

Electromagnetic Survey

10.63 line miles @ $178.48	$ 1,897.24

PERSONNEL

P. P. Nielsen, B.Sc., Geophysicist	Supervision and consulting
A. T. LaRose	Chief E. M. operator
D. Wright	Assistant E. M. operator

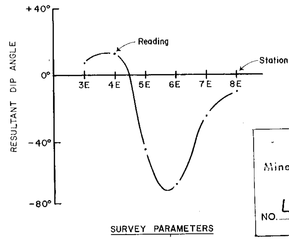


INTERPRETATION

—O—·—O— CONDUCTOR AXIS

LEGEND

PROFILE SCALE



SURVEY PARAMETERS

INSTRUMENT USED: CRONE C.E.M. UNIT
METHOD: HORIZONTAL SHOOTBACK
COIL SEPARATION (a) = 200 feet
OPERATING FREQUENCY = 1830 Hz
STATION INTERVAL = 100 feet

NOTE: INTERLINE SPACING IS TO SCALE

TO ACCOMPANY REPORT BY:

P.P. Nielsen, B.Sc., Geophysicist

G.B. Phelps, M.Sc., Geologist

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

SEREM LIMITED

OPERATION INGENIKA
SWANNELL RIVER AREA, B.C.
RAIN CLAIMS
ELECTROMAGNETIC SURVEY
PROFILES

OMINECA MINING DIVISION — N.T.S. 94C-12

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

AUGUST, 1973 — DRAWN: J.R.L.

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SCALE IN FEET

REPORT No. GE 73-10

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