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REPORT ON

MAGNETOMETER & INDUCED POLARIZATION SURVEYS
WARREN II OPTION
TCHAIKAZAN RIVER AREA, BRITISH COLUMBIA

by

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and

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Surveys executed by
Rio Tinto Canadian Exploration Limited

Interpretation and report by
Seigel Associates Limited

December 1, 1971

CLAIMS:

Names	Record Number
EGGS	6190
SUGAR	6968
PORK	6969
BEANS	6970
ONIONS 1 - 3	13212 - 13214
A 1 - 20	16923 - 16942

LOCATION:

Tchaikazan River Valley East of Taseko Lakes, B. C.
Clinton Mining Division
123° 51° SW

DATES:

August 9 to September 5, 1971

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INTRODUCTION

During the period from August 9 to September 5, 1971, a geophysical field party under the direction of Mr. D. N. Sexsmith executed an induced polarization survey, the Warren II option, in the Tchaikazan River area, British Columbia. All personnel were on the staff of Rio Tinto Canadian Exploration Limited. Data plotting was carried out in the Rio Tinto Vancouver offices and the resulting maps were submitted to Seigel Associates Limited for interpretation and reporting.

The property lies about 140 air miles northwest of Vancouver and 90 air miles west of Clinton, British Columbia. The property is accessible by float plane from Vancouver or by four wheel drive vehicle over 142 miles of gravel and dirt road from Williams Lake. The claims covered in whole or part by the present survey are listed on the title page of the report and are shown on the drawings. These claims are held by Rio Tinto Canadian Exploration Limited.

Scintrex Mk VI time-domain (pulse-type) induced polarization equipment has been employed on this property. The transmitting unit had a rating of 2.5 kilowatts and equal on and off times of 2.0 seconds. The receiving unit was a remote, ground-pulse type triggered by the rising and falling primary voltages set up in the ground by the transmitter. The integration of the transient polarization voltages takes place for 0.65 seconds after a 0.45 second delay time following the termination of the current-on pulse.

The purpose of an induced polarization survey is to map the

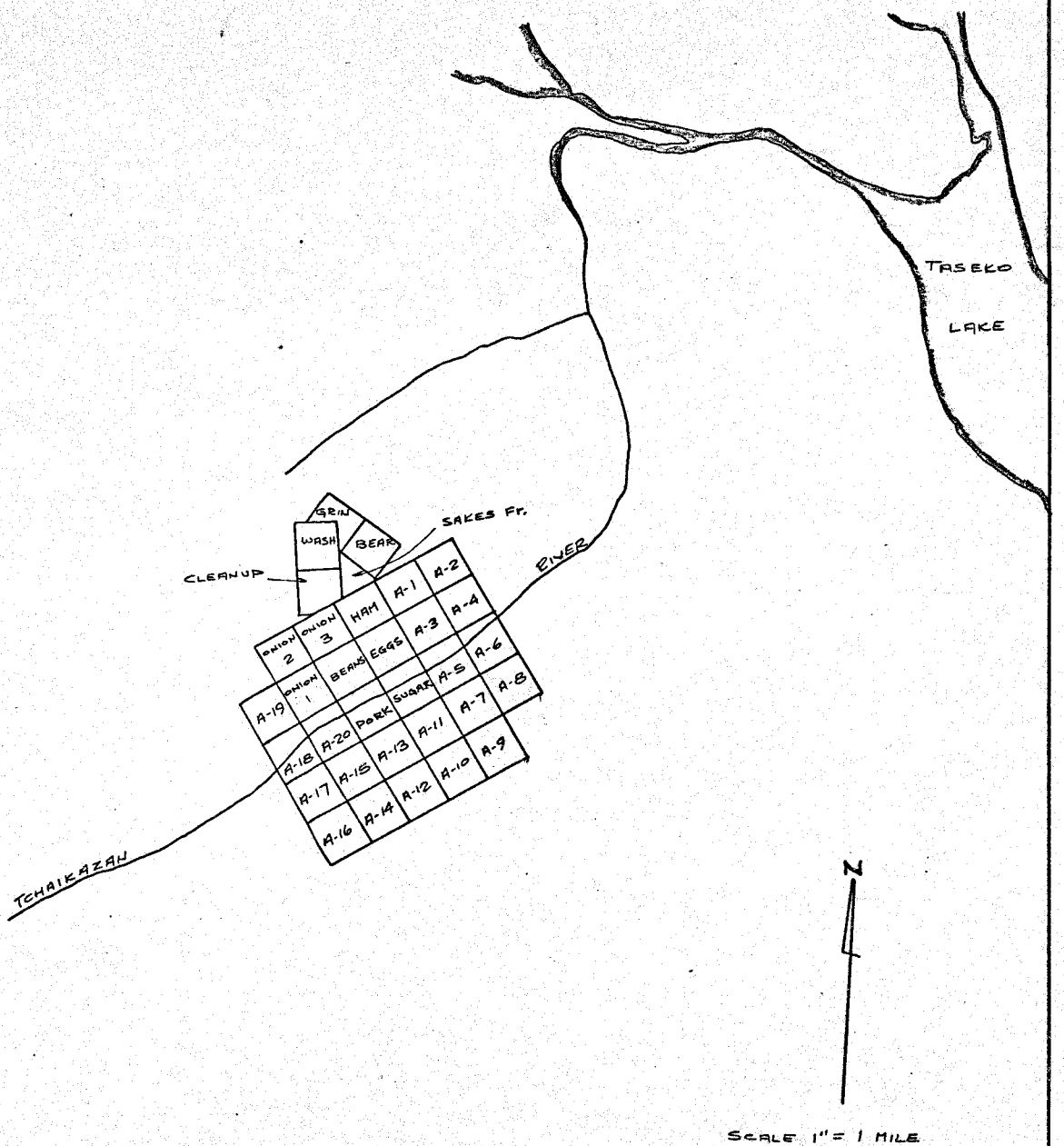

PLATE 1

WARREN II OPTION

TCHAIKAZAN RIVER AREA B. C.

distribution of metallically conducting mineralization near the lines covered. In the present area such mineralization could include chalcopyrite, bornite, pyrite and other sulphide minerals. As well, metallic conductors such as magnetite and graphite can give chargeability responses not always distinguishable from sulphide mineralization.

For the present survey five grid lines were laid out oriented roughly northeast-southwest with interline spacings of about 800 feet. A total of approximately 6 line miles of grid was surveyed in the Tchaikazan River area.

The three electrode array with 400 foot spacings was employed on all lines. Three lines were also surveyed with 800 foot spacings and three lines were surveyed with 200 foot spacings.

GEOLOGY

The geology of the grid area is described in a geochemical report by Rio Tinto Canadian Exploration personnel and is also shown on the GSC Map 29-1963, Taseko Lake, British Columbia on the scale of 1 inch = 4 miles. The map shows the Warren II Option property to be located within a five mile wide, east-west trending band of Cretaceous pyroclastics and sediments, bounded on the south by Late Cretaceous granitic rocks of the Coast Range complex and on the north by a number of slightly later and generally more acidic rocks.

Geologic mapping by the Rio Tinto Canadian Exploration personnel has revealed that north of the Tchaikazan River on the property is underlain by black hornfels thought to be heavily altered andesite. This unit is repeatedly cut by dykes of porphyritic and biotitic diorite,

porphyritic granodiorite and feldspar porphyry. All the dykes are heavily fractured and copper-molybdenum mineralization has been found along these fractures. South of the Tchaikazan River, the underlying bedrock is obscured by overburden which in places is thought to be in excess of 50 feet in thickness.

A geochemical survey carried out by Rio Tinto Canadian Exploration personnel has revealed a 5200 foot by 1400 foot zone of anomalous copper concentration trending northeast-southwest across the centre of the property. Anomalous molybdenite concentrations are obtained over a 1500 foot by 1400 foot zone coinciding with the southwest end of the anomalous copper zone.

The target of the present induced polarization survey was a copper-molybdenum deposit which might have been the source of the geochemical anomalies.

PRESENTATION OF RESULTS

The results of the survey are shown on six drawings, all on the scale of 1 inch = 400 feet.

DWG IP-8165 shows the chargeability results in profile form.

DWG IP-8166 shows the resistivity results in profile form. The vertical scales for these profiles are 1 inch = 20.0 milliseconds for chargeabilities and 1 inch = 2000 ohm-meters for resistivity.

DWG IP-8167 shows the chargeability results in contour form for the 400 foot electrode array. The observed chargeabilities are contoured with a 5.0 millisecond interval.

DWG IP-8168 is a resistivity contour plan for the 400 foot electrode spacings. The apparent resistivities are shown in ohm-meters

and have been contoured with a 500 ohm-meter contour interval.

DWG IP-8169 is a ground magnetometer profile plan on a base scale of 1 inch = 400 feet and a vertical scale of 1 inch = 1000 gammas.

DWG IP-8170 is a ground magnetometer contour plan with a 500 gamma contour interval.

DISCUSSION OF RESULTS

The chargeability results indicate that the background values average about 8.0 milliseconds. With this background a uniform subsurface distribution of 1 percent by volume of metallically conducting mineralization would be expected to add approximately 10.0 milliseconds to the background level. Since deposits of low concentrations of base metal sulphides of sufficient dimensions may have economic significance, areas exhibiting chargeabilities in excess of 10.0 milliseconds may be worthy of further investigation.

Most of the grid area is seen to exhibit chargeabilities in excess of 10.0 milliseconds. A roughly circular chargeability depression of less than 10.0 milliseconds is located in the centre of the grid area including the central portions of Lines 00, 8 S and 16 S. The highest chargeability responses are located along Line 16 N reaching a peak of 67.2 milliseconds at 4 W. More than half of the grid area exhibits chargeabilities greater than 20.0 milliseconds indicating a wide spread distribution of metallically conducting material in excess of 2 percent by volume.

A broad area of chargeability increases is found on the eastern portion of the grid between about 00 and 30 E on all lines. The area of chargeability increases is open both to the north and south. The source of the chargeability increases contains more than 4 percent by volume of metallically conducting material. A second broad zone of chargeability increases occurs west of about 20 W on all lines. This area of chargeability increases is also open to the north and south. Its source contains about 2 percent by volume of metallically conducting material. The latter source of the chargeability increases trends north-south and dips to the west. In both of the latter areas there is an increasing chargeability gradient northward.

The induced polarization profiles indicate that chargeability increases occur on all three spacings that were employed. The source of chargeability increases is interpreted to approach to within 100 feet of ground surface and to extend down to more than 600 feet below ground surface. Although chargeability increases occur with all three electrode spacings employed, the chargeabilities taken with the 200 foot electrode spacings are generally lower due, most likely, to a cover of non-polarizable overburden.

The resistivity responses range from a minimum of 500 ohm-meters to a maximum of about 7000 ohm-meters and average about 1600 ohm-meters. The contour map shows a resistivity low trending along the river probably due to increased overburden depth. The resistivity values obtained with the 200 foot electrode spacings as shown on the profiles are generally lower than the values obtained with the wider spacings. Along the river the 200 foot resistivity values are up to 50 percent lower than the 400 foot values supporting the interpretation of deeper overburden beside

the river bed. Resistivity increases in the southeastern corner of the property indicate either shallower overburden or a different, more resistive, rock type possibly an intrusive. There is no definite correlation between the chargeability results and the resistivity responses.

The ground magnetometer profiles show a total magnetic relief of about 2200 gammas. The sharp magnetic susceptibility variations from station to station may be attributed to shallow near surface magnetic sources. However three separate levels of magnetic susceptibility can be interpreted from the magnetic profiles and are also seen on the magnetic contour map. An area of low magnetic susceptibility occurs east of the zero contour line and correlates with lower chargeability values in the same area. The area east of the zero contour is underlain by relatively acidic rock type. An area of intermediate magnetic susceptibility is present over the central portion of the grid bounded by the zero contour line to the east and two "lows" trending north-south and occurring around 10 W on Line 16 S on the western side. This area correlates with an area of maximum chargeability responses as seen from the chargeability profile map. West of the area of intermediate susceptibility is an area of relatively higher magnetic susceptibility indicating a more basic rock type. This area may be correlated with an area of chargeability increases on the western part of the grid. The chargeability increases on the western part of the grid may be the result, in part, of increased magnetite content in the western portion of the grid area.

The copper and molybdenum increases located by a geochemical survey east of station 00 on lines north of the river correlate with chargeability increases over the same area. Neither the chargeability nor the geochemical increases are delimited to the northeast.

SUMMARY

The induced polarization survey has revealed an extensive area of increased chargeability responses over the present property. The eastern area correlates with a geochemical copper and molybdenum anomaly and lies in an area of intermediate magnetic susceptibility. The western area has no geochemical correlation and lies in an area of higher magnetic susceptibility relative to the rest of the grid.

Trenching has been recommended to further investigate the source of the chargeability increases. Should diamond drilling be necessary, then two drill hole locations and a minimum of 900 feet of diamond drilling has been recommended.

CONCLUSIONS AND RECOMMENDATIONS

The present induced polarization survey has revealed two broad zones which exhibit chargeability responses arising from subsurface concentrations of from 2 percent to greater than 4 percent by volume of metallically conducting material such as sulphides, graphite or other minerals known to give induced polarization responses.

The area of chargeability increases found in the western part of the grid should be given a higher priority in any further investigations. It is located over an area of intermediate magnetic susceptibility and coincides in part with increased geochemical molybdenum and copper responses north of the river.

It is recommended that further trenching be carried out between 00 and 10 E on Line 8 N both to the north and south grid line. If further geological investigations should warrant it the following drill hole is recommended:

COLLAR	DIP	DIRECTION	MINIMUM DEPTH
L 00; 10 E	-45°	East along the line	500 feet

The area of chargeability increases on the western part of the grid coincides with an area of increased magnetic susceptibility. Although increased magnetite content in the western part of the grid might have contributed to the observed chargeability increases it is doubtful that the greater magnetite content can by itself account for chargeability increases observed.

It is recommended that the area along Line 00 from 24 W to 32 W be investigated by trenching if overburden conditions should permit it.

If drilling is necessary to further investigate the area the following drill hole is recommended:

COLLAR	DIP	DIRECTION	MINIMUM DEPTH
L 00; 34 W	-45°	East along the line	400 feet

If the recommended trenching and drilling programme should show favourable results further drill hole locations can be recommended based on the present induced polarization results.

Although the geochemical anomaly appears to be terminated by the northern bank of the river, the chargeability, resistivity and magnetic results show no indication of a fault or discontinuity. Because the geophysical character of the property is uniform across the river the termination of the geochemical anomaly on the north bank of the river might be due to deeper overburden on the southern side of the river. If the recommended drill holes show favourable results on the northern side of the river it is recommended that investigations be extended to the southern side of the river in the two mentioned geophysically anomalous zones.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

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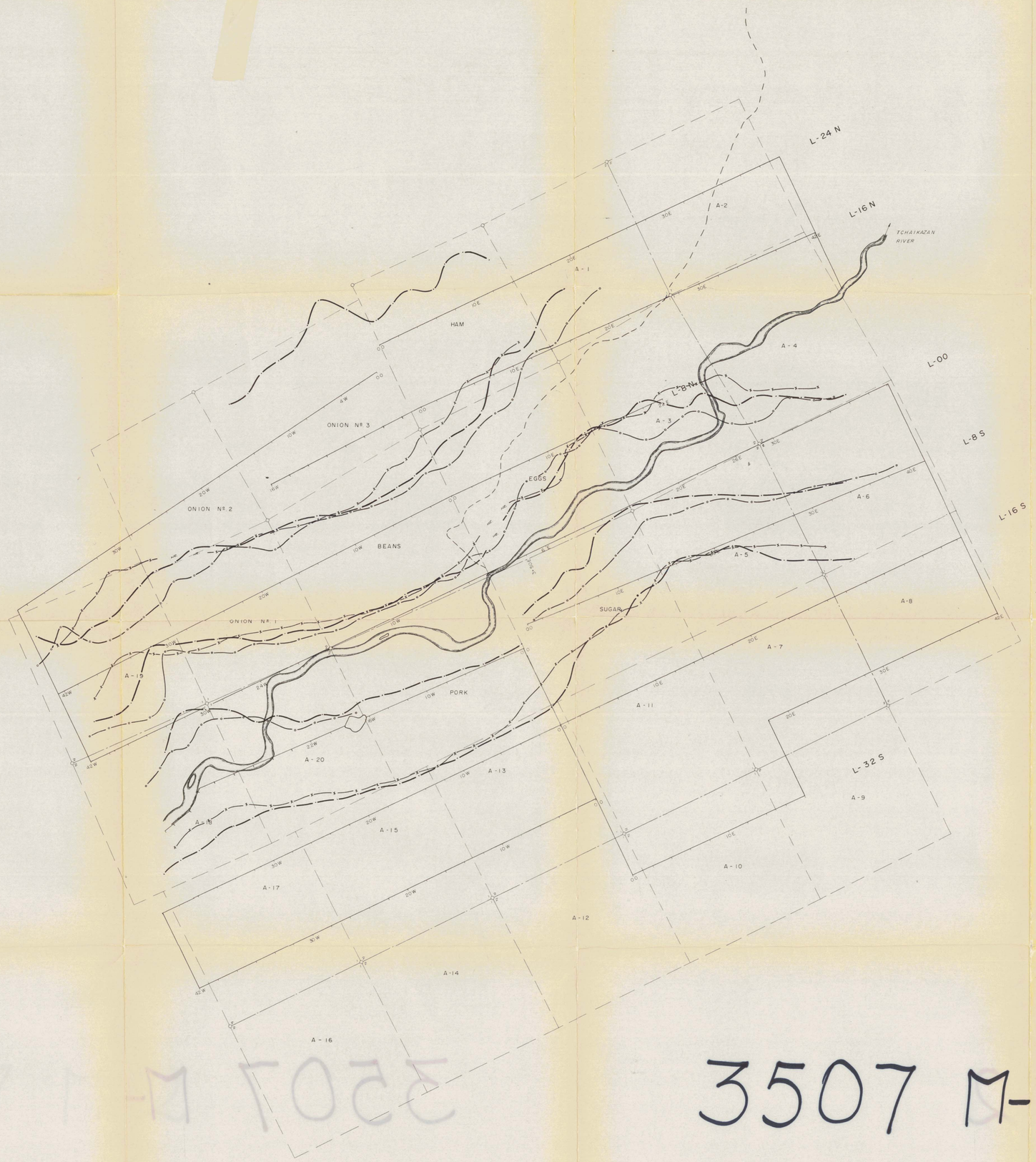


LEGEND:

Chargeability profile scale 1" = 20 milliseconds

Electrode spacing a = 200' o——o——o
a = 400' ·——·——·
a = 800' x——x——x

NOTE: Three electrode array
Current electrode west
NR - no reading

N.T.S. 92-O-4 E ½

SCALE

400' 0 400' 800' 1200' 1600'

One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

WARREN II OPTION B.C.

CHARGEABILITY PROFILE PLAN

JUNE, 71 | GS / rwr | DWG. IP-8165

LEGEND:

Resistivity profile scale 1" = 2000 Ohm-meters

Electrode spacing a = 200' e———e———e
a = 400' ·——·——·——·
a = 800' X——X——X

NOTE: Three electrode array
Current electrode west
NR - no reading

N.T.S.
92-O-4 E ½

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

WARREN II OPTION B.C.

RESISTIVITY PROFILE PLAN

JUNE, 71 | GS / rwr | DWG. IP-8166

LEGEND:

7.9 Value in milliseconds

Contour interval 5 & 10 milliseconds

5 Millisecond contour interval
10 " " "
15 " " "
20 " " "
30 " " "
40 " " "

Chargeability low

NOTE: Three electrode array
Electrode spacing a = 400'
Current electrode west.

N

N.T.S.
92-O-4 E ½

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

WARREN II OPTION B.C.

CHARGEABILITY CONTOUR PLAN

JUNE, 71 | GS / rwr | DWG. IP - 8167

LEGEND:

- Value in Ohm-meters
- Contour interval 500 & 1000 ohm-meters
- 1000 Ohm-meter contour interval
- 1500 " " "
- 2000 " " "
- 3000 " " "
- 4000 " " "
- Resistivity low

NOTE: Three electrode array
Electrode spacing a=400'
Current electrode west.

N

N.T.S
92-O-4 E ½

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 feet

RIO TINTO CANADIAN EXPLORATION LIMITED

WARREN II OPTION B.C.

RESISTIVITY CONTOUR PLAN

JUNE, 71 | GS / rwr | DWG. IP-8168

LEGEND:

Magnetometer profile scale 1" = 1000 gammas

N

N.T.S.
92-O-4 E ½

SCALE

400' 0' 400' 800' 1200' 1600'

One Inch = 400 Feet

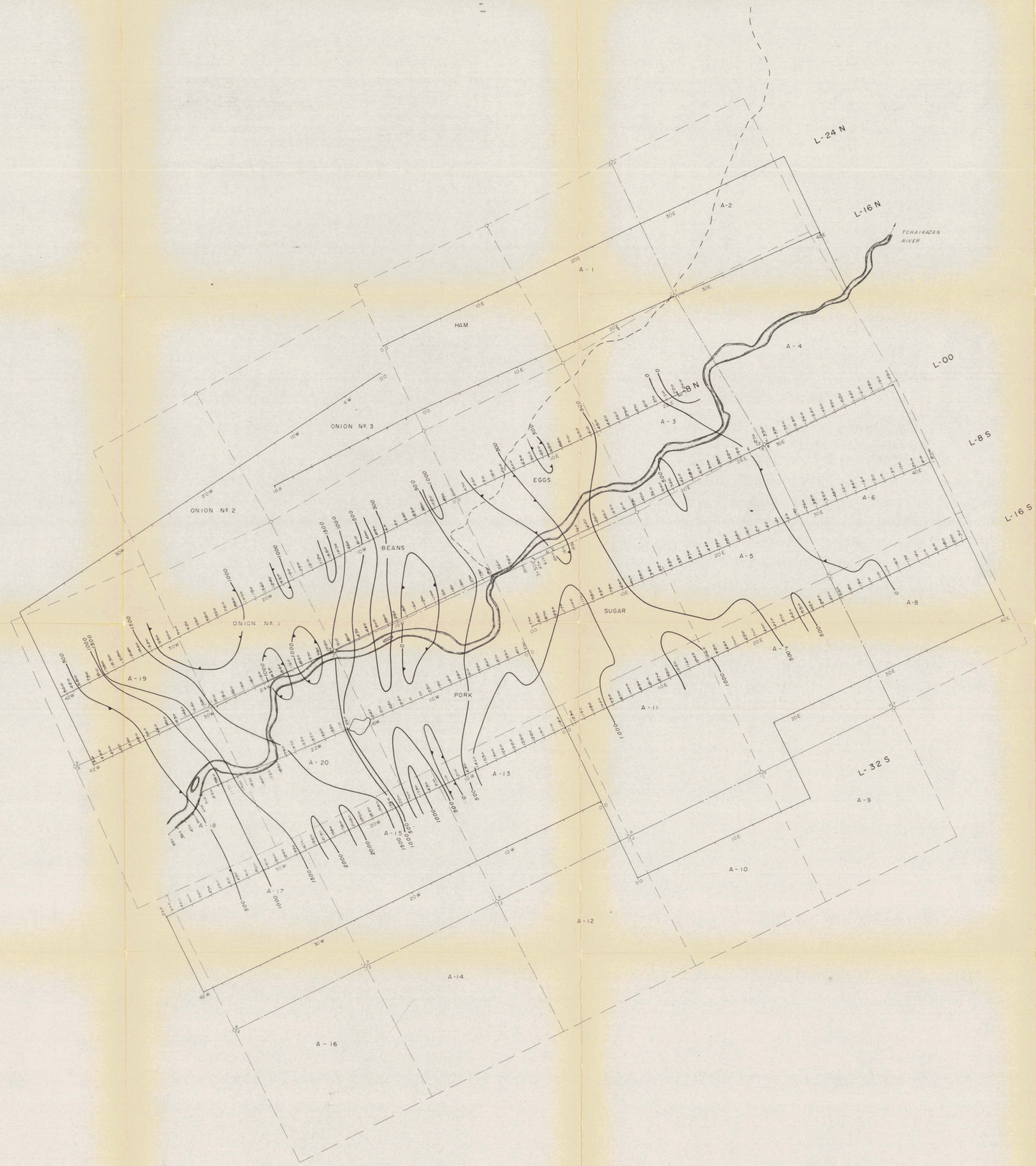
A.S. Peterson

RIO TINTO CANADIAN EXPLORATION LIMITED

WARREN II OPTION B.C.

MAGNETOMETER PROFILE PLAN

JUNE, 71 | GS / rwr | DWG. M-8169



LEGEND:

- Value in gammas
- Contour interval 500 gammas
- 0 Gamma contour interval
- 500 " " "
- 1000 " " "
- 1500 " " "
- 2000 " " "
- Mag low

N.T.S. 92-O-4 E ½

SCALE

400' 0' 400' 800' 1200' 1600'

One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

WARREN II OPTION B.C.

MAGNETOMETER CONTOUR PLAN

JUNE, 71 | GS / rwr | DWG. M-8170