Highland Valley Copper

INDUCED POLARIZATION and RESISTIVITY REPORT on the NB 1-10 AND NB 16-17 MINERAL CLAIMS

NORTHWEST GRID

KAMLOOPS MINING DIVISION
NTS 92I/11E

Latitude 50°34' Longitude 121°10'

for
HIGHLAND VALLEY COPPER
P.O. BOX 1500
LOGAN LAKE, B.C.
V0K 1W0

REPORT BY:
LORNE A. BOND

Logan Lake, B.C.
October 18, 1996

ENG/LB96073

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1.0 INTRODUCTION

During the period April 30 to July 2, 1996, a program of induced polarization and resistivity surveys was conducted over a portion of the property holdings of the Highland Valley Copper partnership. The grid was located immediately north of the main Highland Valley tailings impoundment area and straddled the Logan Lake to Ashcroft highway. *Figure 1* shows the general location of the survey grid and *Figure 2* illustrates the position of the grid relative to the mineral claim holdings of Highland Valley Copper.

The objective of the survey was to test for large tonnage porphyry type sulfide mineralization within the grid area. This report describes the procedures used for this survey, presents the data, and discusses the results.

Expenditures on this program have been applied to property mineral claims on Statement of Work 3090753 (Group HVC 96-5) and 3090770 (Group HVC 96-6) filed on July 24, 1996.

2.0 SURVEY PARAMETERS AND EQUIPMENT

Daryl Calder of Cranbrook was contracted to carry out the geophysical grid preparation program. Line cutting and chaining of this grid commenced on April 30 and was completed on May 27, 1996. Maps of the completed grids with as-cut gridline locations were prepared by the contractor. A total of 65.3 kilometers of gridlines, baselines, and tielines were cut and chained on the Northwest grid.

The contract for the Induced Polarization/Resistivity survey was awarded to Scott Geophysics Ltd. of Vancouver. Surveying of the grid was executed between June 12 and July 2, 1996. A total of 57.5 line kilometers were surveyed on twelve (12) east-west gridlines. The exploration target was a large tonnage, low grade, porphyry copper system.

For this reconnaissance type program, the gridlines were positioned 300 metres apart. A pole-dipole array was used for the IP/Resistivity surveys, with an electrode spacing of a=100 metres and separations of n=1-6. The online current electrode was to the east of the receiving electrodes on all survey lines (array heading west).

A Scintrex IPR-12 receiver and Scintrex TSQ4 (10.0 kw) transmitter were used on the survey. Readings were taken in the time domain using a two (2) second current pulse (0.125 Hz). Chargeabilities measured were for the interval 120 to 1,020 milliseconds after current interruption.

3.0 DATA PRESENTATION

The chargeability and resistivity results are presented in standard pseudosection format and as contour plans for the triangular filtered values. The results for each survey line are displayed in standard pseudosection form for chargeability expressed in mV/V (Ma for 120 - 1,020 msecs) and apparent resistivities in ohm-m. Horizontal scale is 1:10,000 and contours are at 2.5 mV/V and 250 ohm-m increments for chargeability and apparent resistivity respectively. The results are also presented in contour plan for the averaged values of chargeability and resistivity. The average values were obtained using a moving triangular filter comprising one n=1 to six n=6 values. The weighting factor for each data point is one (1). The average value is therefore emphasizing the effects of deeper n-separations, thereby minimizing the effects of overburden and/or near surface weathering effects.

4.0 DESCRIPTIONS OF RESULTS AND CONCLUSIONS

On the Northwest grid, background levels are in the 3 - 5 mV/V range for chargeability (Ma) and 50 - 200 ohm-m for resistivity. These values would appear to reflect generally thick overburden. Other areas where low chargeability values combined with high resistivity values occur most likely reflect barren phases of the Guichon Batholith with the highest resistivity values (>1000 ohm-m) indicating areas of very thin overburden.

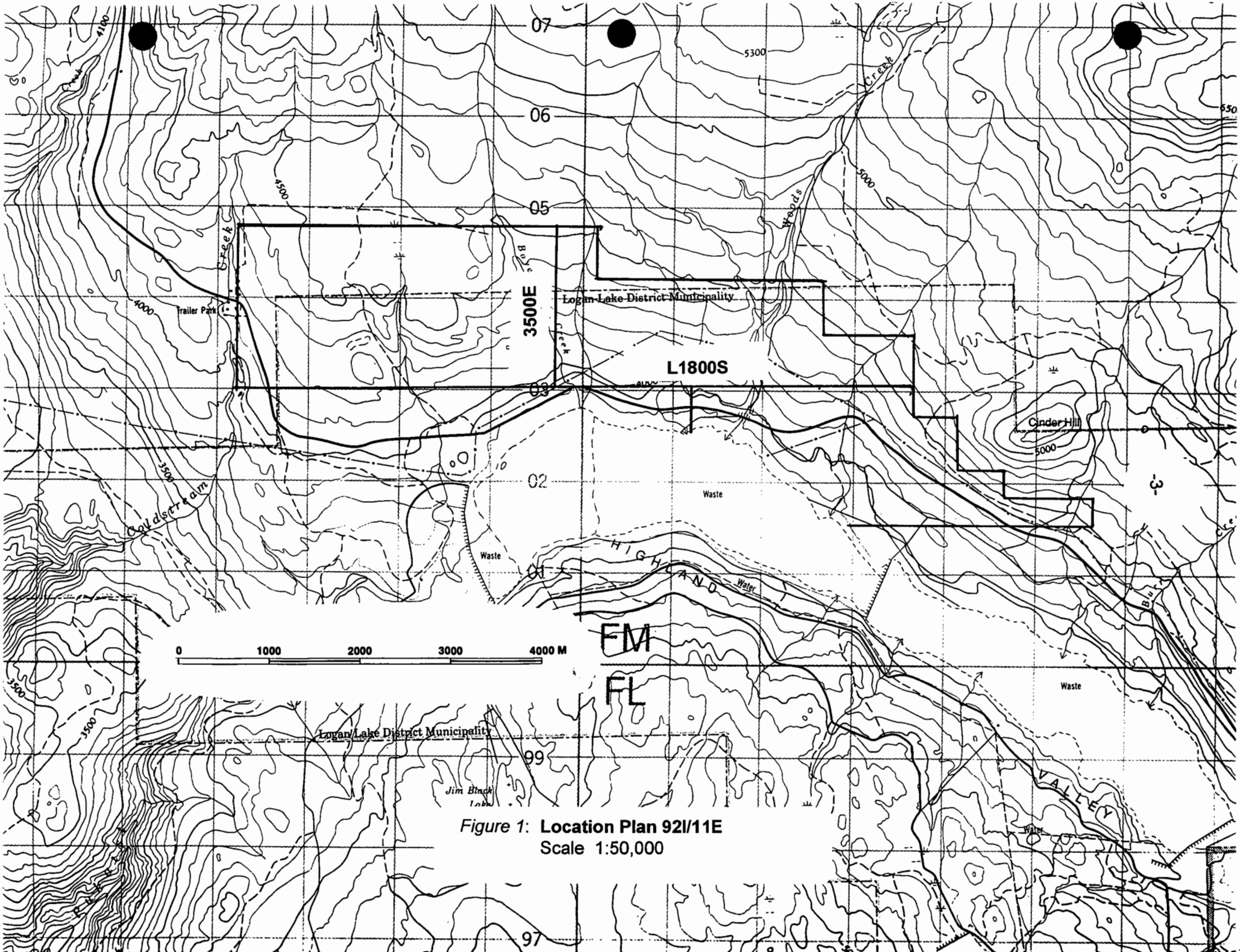


Figure 1: **Location Plan 92I/11E**
Scale 1:50,000

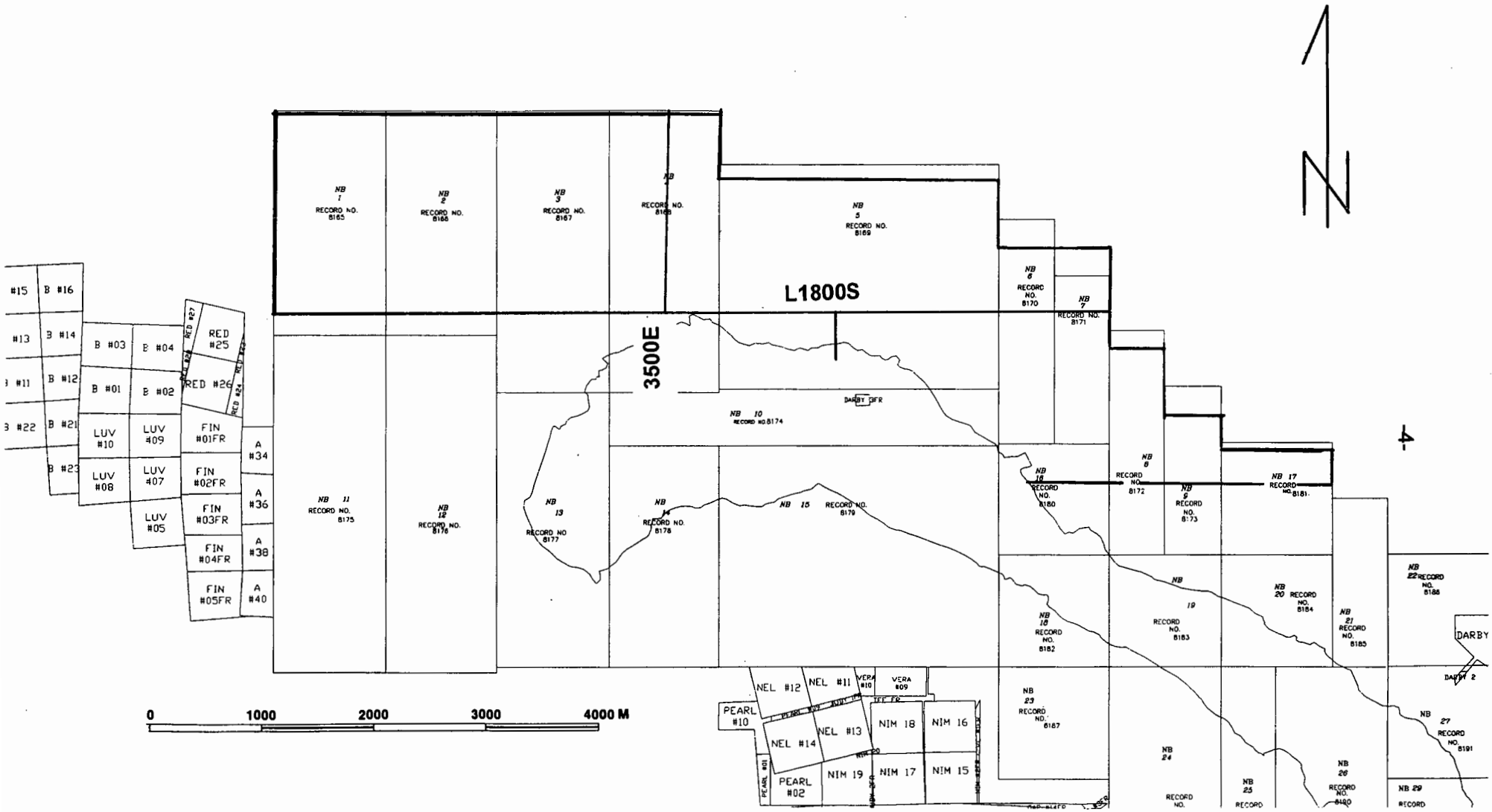


Figure 2: **Claim and Grid Map 92I/11E**
Scale 1:50,000

A zone of elevated chargeability can be traced from Line 300S to 1800S and from 4500E to 5600E. The chargeability values are up to 7 mV/V including 9.9 mV/V at 5550E on L900S. This zone of elevated chargeability, while not considered anomalous, appears to occur along the contact of two intrusive phases of the batholith. Sharp contrasts including negative chargeability legs were noted at 3800E on L900S, 2200E on L1200S, and 2400E on L1800S. These are considered to be cultural effects due to surface infrastructure.

5.0 STATEMENT OF COSTS
Northwest Grid

Linecutting - grid preparation - 65.3 kilometres Daryl Calder and associates	$34,282
Geophysics - IP/Res Survey - 57.5 kilometres conducted by Scott Geophysics Ltd.	$40,792
Project management, planning, supervision, report preparation Lorne Bond, Senior Mine Geologist Highland Valley Copper 10 days @ $300/day	$ 3,000
TOTAL	**$78,074**

6.0 STATEMENT OF QUALIFICATIONS

I, **Lorne Allan Bond**, of the city of Kamloops, British Columbia do hereby certify that:

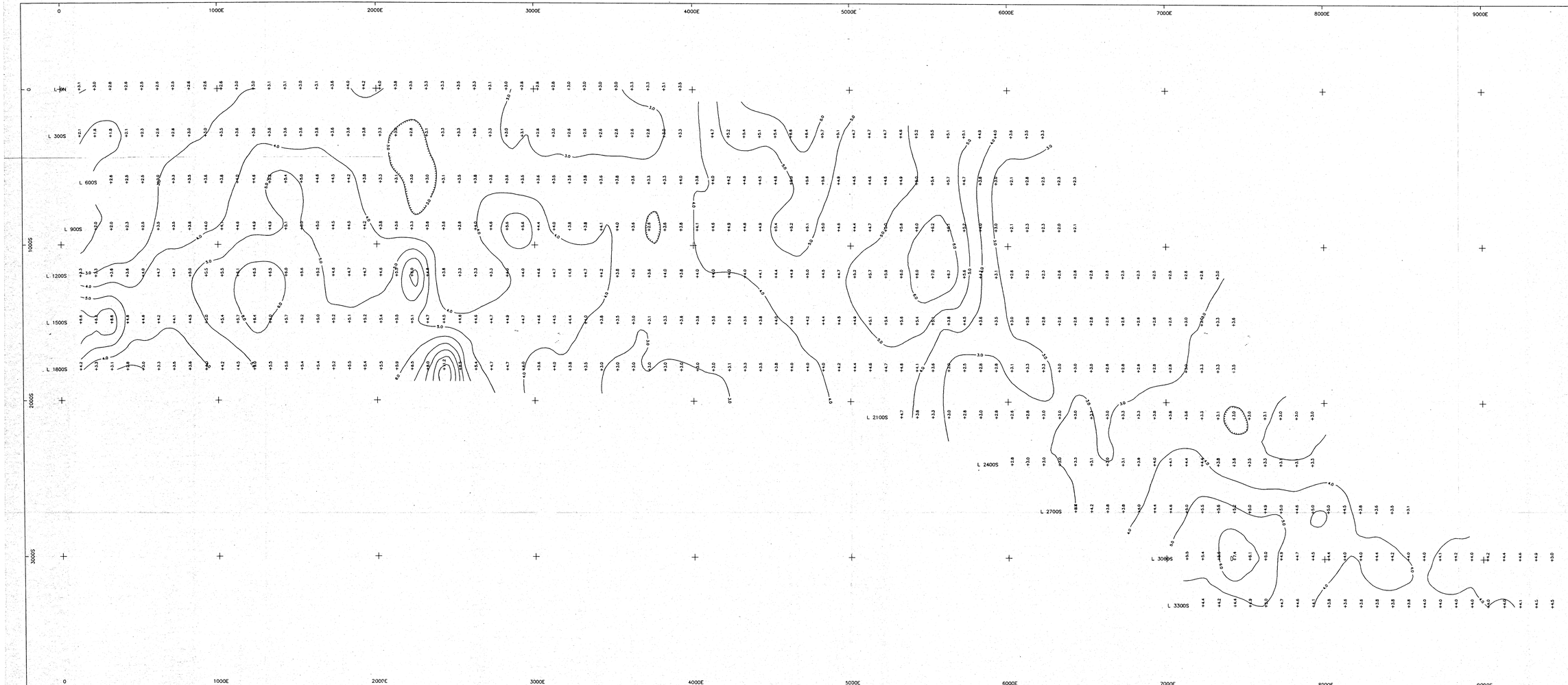
1. I am a qualified, practicing Geologist.

2. I am a graduate of Loyola College (Concordia University), with a B.Sc. (1967) in Geotechnical Sciences.

3. I have practiced my profession since 1967 while employed with Sherritt-Gordon Mines Ltd., Cominco, Afton Operating Corporation, and Highland Valley Copper.

4. This report describes geophysical exploration performed under my direction during the period April 30 to July 2, 1996.

Lorne A. Bond
Senior Mine Geologist
Highland Valley Copper
October 18, 1996



SURVEY SPECIFICATIONS

receiver	Scintrex IPR12
transmitter	Scintrex TSQ4
pulse time	2 seconds
Mx receive window	120–1020 msecs
array	pole dipole
a spacing	100 metres
n separations	1, 2, 3, 4, 5, 6

the current electrode is located east of the receiving electrodes

Contoured value	Filtered Mx
Filtered values	n = 1 to 6
Contour interval	1.0 mV/V

FILTER DESCRIPTION:
The filtered value gives equal weight to each of the n-separations, and is calculated at each n=1 data point.

The filter has the effect of passing a triangle over the data set, such that one value is selected for n=1, two for n=2, three for n=3, etc.

The average of the averages for each of the n-separations is the filtered value for the given n=1 location.

Where there is only a partial set of data, such as at the ends of lines, the average for each n-separation is the average of the existing values.

The filter map gives only general trends, and the pseudosections must be referred to when assessing a given feature.

NOTE: Power lines, culverts, roads, steel pipelines, and pumping stations exist in the survey area. IP highs that are obviously due to such features are noted in the title block area of the pseudosection for each survey line.

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,633

N

0 200 400 600 800
METERS

Figure 3: **Chargeability Contour Plan**
Scale 1:10,000

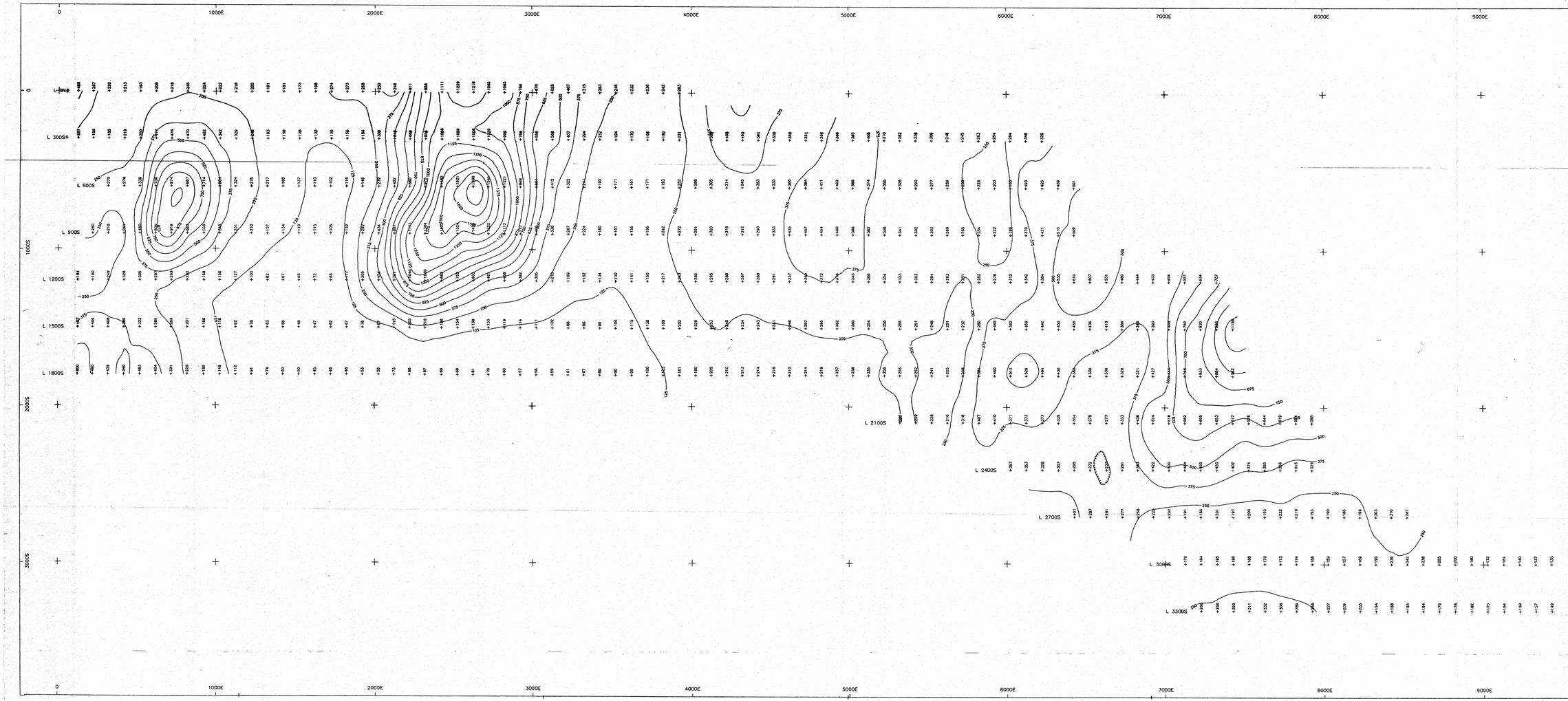
HIGHLAND VALLEY COPPER

NORTHWEST GRID

Chargeability Contour Plan
Triangular Filtered Values
Electrode Spacing = 100 metres
First to Sixth Separations

DRAWN BY: ars | DATE: June/96

SCOTT GEOPHYSICS LTD.



SURVEY SPECIFICATIONS

receiver	Scintrex IPR12
transmitter	Scintrex TS04
pulse time	2 seconds
Mx receive window	120-1020 msecs
array	pole dipole
a spacing	100 metres
n separations	1, 2, 3, 4, 5, 6

the current electrode is located east of the receiving electrodes

Contoured value	Filtered Res.
Filtered values	n = 1 to 6
Contour Interval	125 ohm-metres

FILTER DESCRIPTION:
The filtered value gives equal weight to each of the n-separations, and is calculated at each n=1 data point.

The filter has the effect of passing a triangle over the data set, such that one value is selected for n=1, two for n=2, three for n=3, etc.

The average of the averages for each of the n-separations is the filtered value for the given n=1 location.

Where there is only a partial set of data, such as at the ends of lines, the average for each n-separation is the average of the existing values.

The filter map gives only general trends, and the pseudosections must be referred to when assessing a given feature.

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,633

N

0 200 400 600 800
METERS

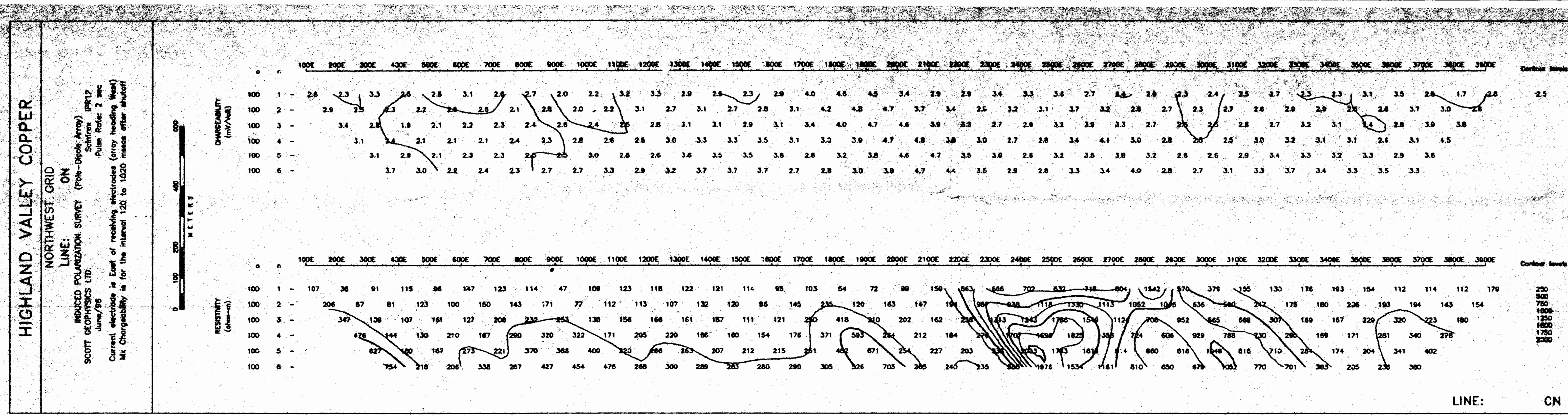
Figure 4: **Resistivity Contour Plan**
Scale 1:10,000

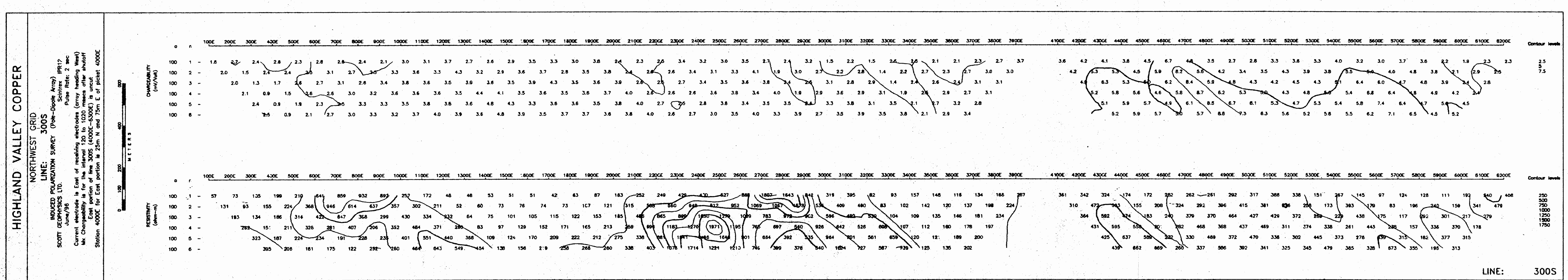
HIGHLAND VALLEY COPPER

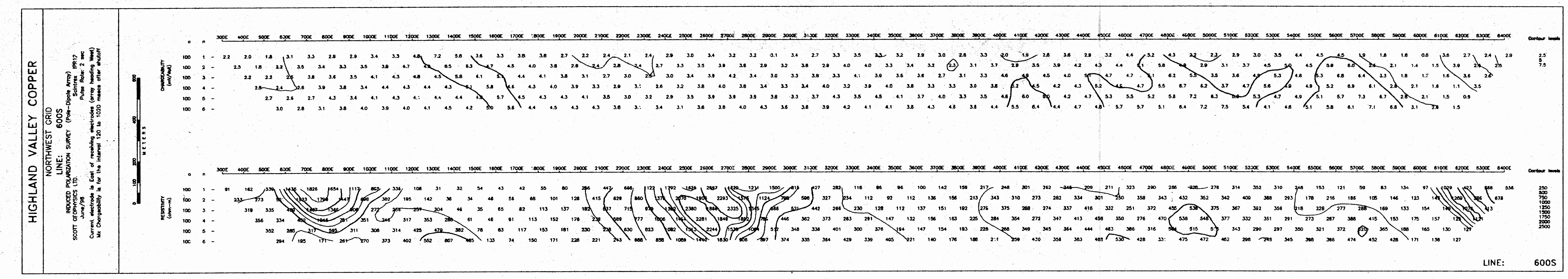
NORTHWEST GRID
Resistivity Contour Plan
Triangular Filtered Values
Electrode Spacing = 100 metres
First to Sixth Separations

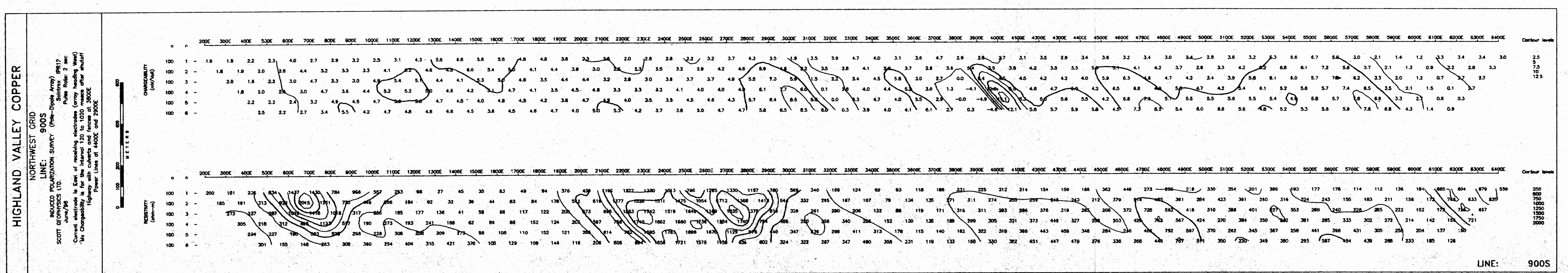
DRAWN BY: ars | DATE: June/96

SCOTT GEOPHYSICS LTD.





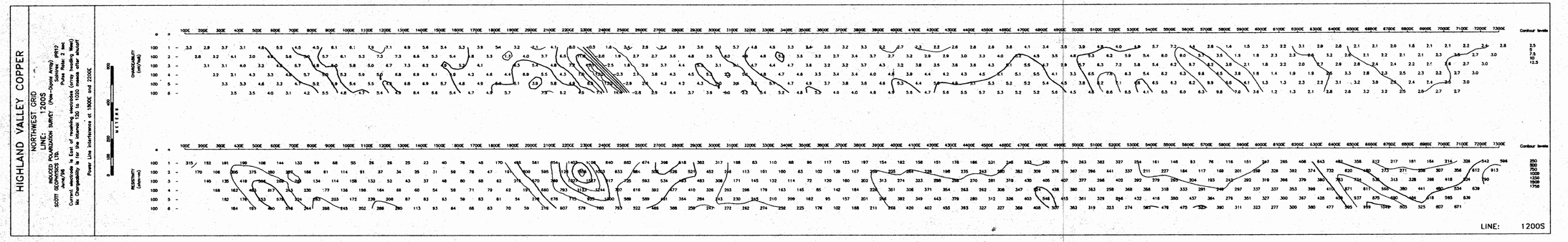


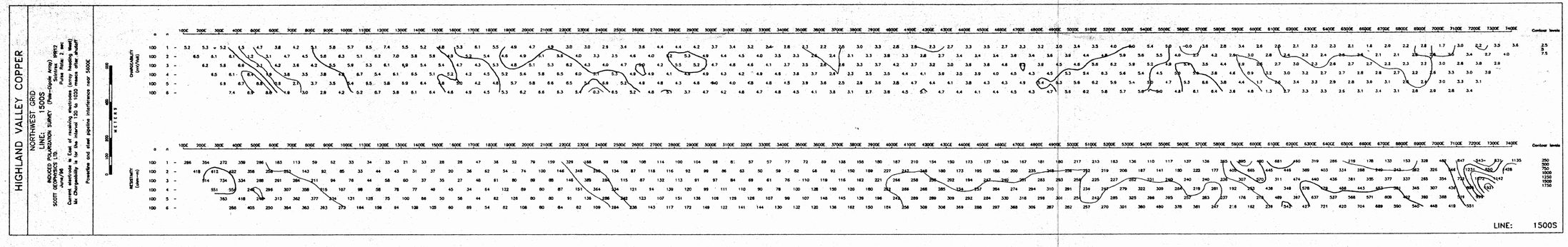


GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

24,633

Figure 5: **Chargeability/Resistivity Pseudosections**
Lines 0S-900S





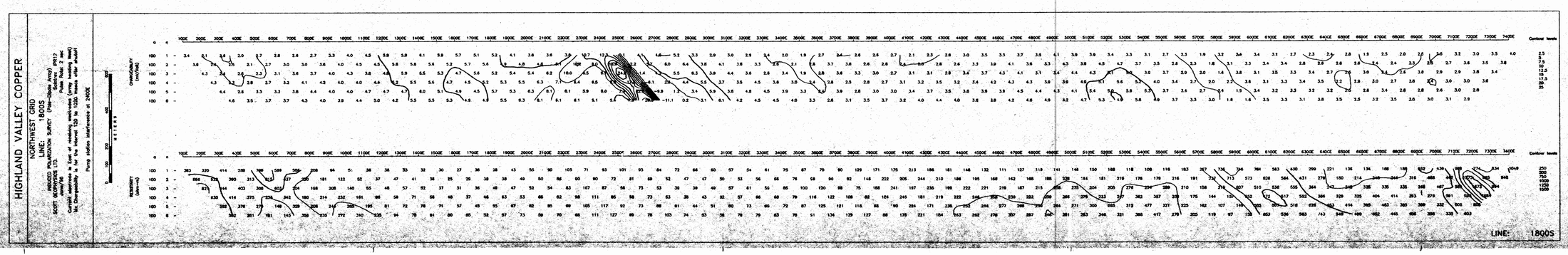


Figure 6: **Chargeability/Resistivity Pseudosections**
1200S-1800S

HIGHLAND VALLEY COPPER

NORTHWEST GRID

LINE: 2100S

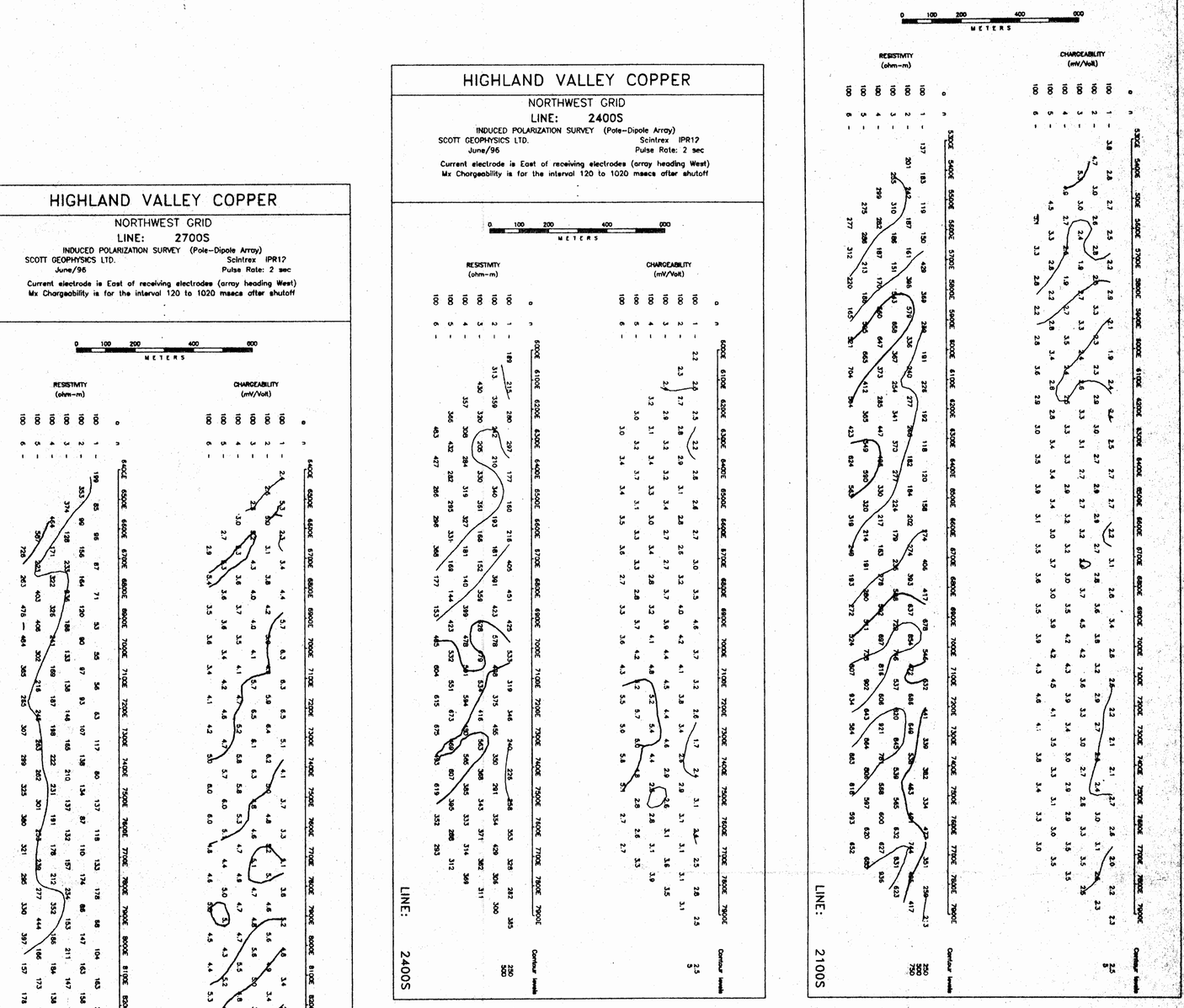
INDUCED POLARIZATION SURVEY (Pole-Dipole Array)

SCOTT GEOPHYSICS LTD. Scintrex IPR12

June/96 Pulse Rate: 2 sec

Current electrode is East of receiving electrodes (array heading West)

Mx Chargeability is for the interval 120 to 1020 msecs after shutoff



HIGHLAND VALLEY COPPER

NORTHWEST GRID

LINE: 2400S

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)

SCOTT GEOPHYSICS LTD. Scintrex IPR12

June/96 Pulse Rate: 2 sec

Current electrode is East of receiving electrodes (array heading West)

Mx Chargeability is for the interval 120 to 1020 msecs after shutoff

HIGHLAND VALLEY COPPER

NORTHWEST GRID

LINE: 2700S

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)

SCOTT GEOPHYSICS LTD. Scintrex IPR12

June/96 Pulse Rate: 2 sec

Current electrode is East of receiving electrodes (array heading West)

Mx Chargeability is for the interval 120 to 1020 msecs after shutoff

HIGHLAND VALLEY COPPER

NORTHWEST GRID

LINE: 3000S

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)

SCOTT GEOPHYSICS LTD. Scintrex IPR12

June/96 Pulse Rate: 2 sec

Current electrode is East of receiving electrodes (array heading West)

Mx Chargeability is for the interval 120 to 1020 msecs after shutoff

HIGHLAND VALLEY COPPER

NORTHWEST GRID

LINE: 3300S

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)

SCOTT GEOPHYSICS LTD. Scintrex IPR12

June/96 Pulse Rate: 2 sec

Current electrode is East of receiving electrodes (array heading West)

Mx Chargeability is for the interval 120 to 1020 msecs after shutoff

Figure 7: **Chargeability/Resistivity Pseudosections**
Lines 2100S-3300S