

1979 Geophysical Assessment Report

TITLE Erie Creek Property - Induced Polarization/Resistivity Survey

CLAIMS June #1-7 inclusive and Reverted Crown Grants: Rosa, Belle, Florence, Bully Boy, Rockford, Ontario, Maud S, Ben Hassen, Arnold, St. Louis, Westminster Fr., Eddie, Louise, Monte Carlo, Homestake, Dora, Copper King, Good Enough, Drum Lemmon, Gordon and Nelson

COMMODITY Mo

LOCATION 11 km northwest of Salmo, B.C.  
Latitude 49°25'N, Longitude 117°20'W  
Nelson Mining Division NTS 82 F/6

BY J.L. LeBel and C.J. Hodgson, P.Eng. (B.C.)

FOR AMAX OF CANADA LIMITED

WORK PERIOD June 4-8, 1979; June 12-18, 1979;  
August 7-11, 1979

AMAX OF CANADA LIMITED  
**7573**  
 NO.

AMAX VANCOUVER OFFICE

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SUMMARY

An 8 km induced polarization/resistivity survey was conducted on Erie Creek property to locate the source intrusive of a complex dyke swarm. Line direction, topographically constrained parallel to regional structure, resulted in low and erratic resistivities and many unreliable frequency effects. A coherent southeasterly trending high resistivity zone was detected on the east side of Erie Creek. Frequency effects were unaffected by changes in resistivity and were consistent with 2% to 5% sulphides observed in the area.

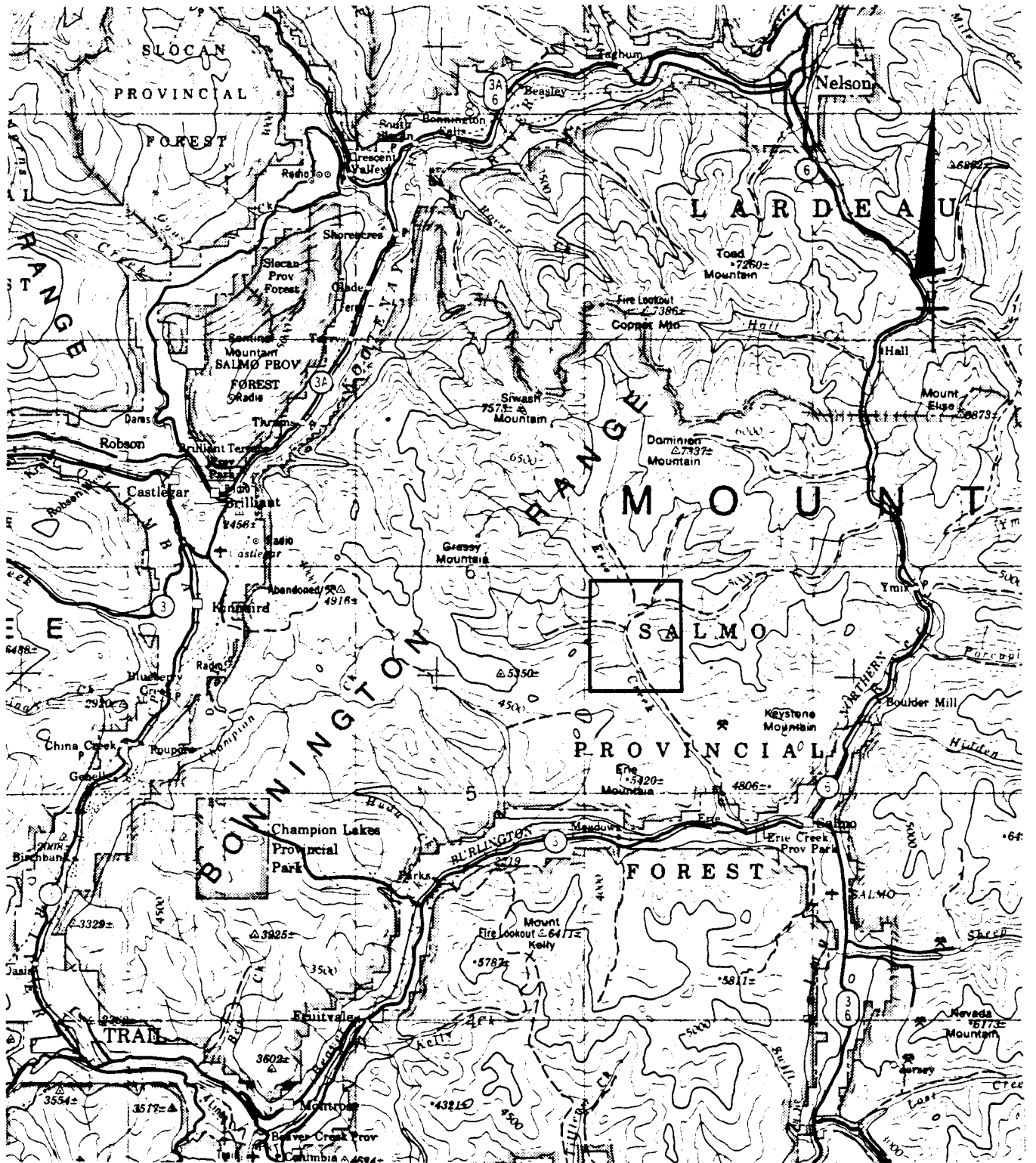
## INTRODUCTION

This report documents an induced polarization/resistivity survey carried out on the Erie Creek property.

The Erie Creek property is located 11 km northwest of Salmo, B.C. at 49°25'N latitude, 117°20'W longitude in the Nelson Mining Division (NTS 82 F/6) as shown in Figure 1. The property is reached by a well-maintained logging road which intersects Highway 3A 3 km west of Salmo, B.C.

The property consists of the June 1-7 claims staked on behalf of AMAX Potash Limited and 21 reverted crown granted claims (Figure 2). Claims data are summarized below.

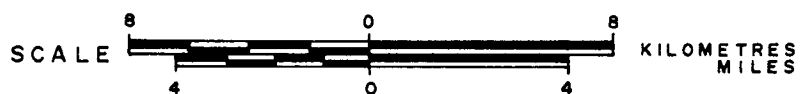
Claim	Record or Lot No.	No. of Units	Expiry Date
June 1	223	4	June 21/80
June 2	224	8	June 21/81
Rosa	859	1	Nov. 23/79
Belle	860	1	"
Florence	861	1	"
Bully Boy	862	1	"
Rockford	863	1	"
Ontario	864	1	"
Maud S	865	1	"
Ben Hassen	866	1	"
Arnold	867	1	"
St. Louis	868	1	"
Westminster FR.	869	1	"
Eddie	870	1	"
Louise	871	1	"
Monte Carlo	907	1	Dec. 15/79
Homestake	908	1	"
Dora	909	1	"
Copper King	910	1	"
Good Enough	911	1	"
Drum Lemmon	912	1	"
Gordon	913	1	"
Nelson	914	1	"
June 3	1017	16	Apr. 18/80
June 4	1018	16	"
June 5	1019	12	"
June 6	1020	6	"
June 7	1021	18	"



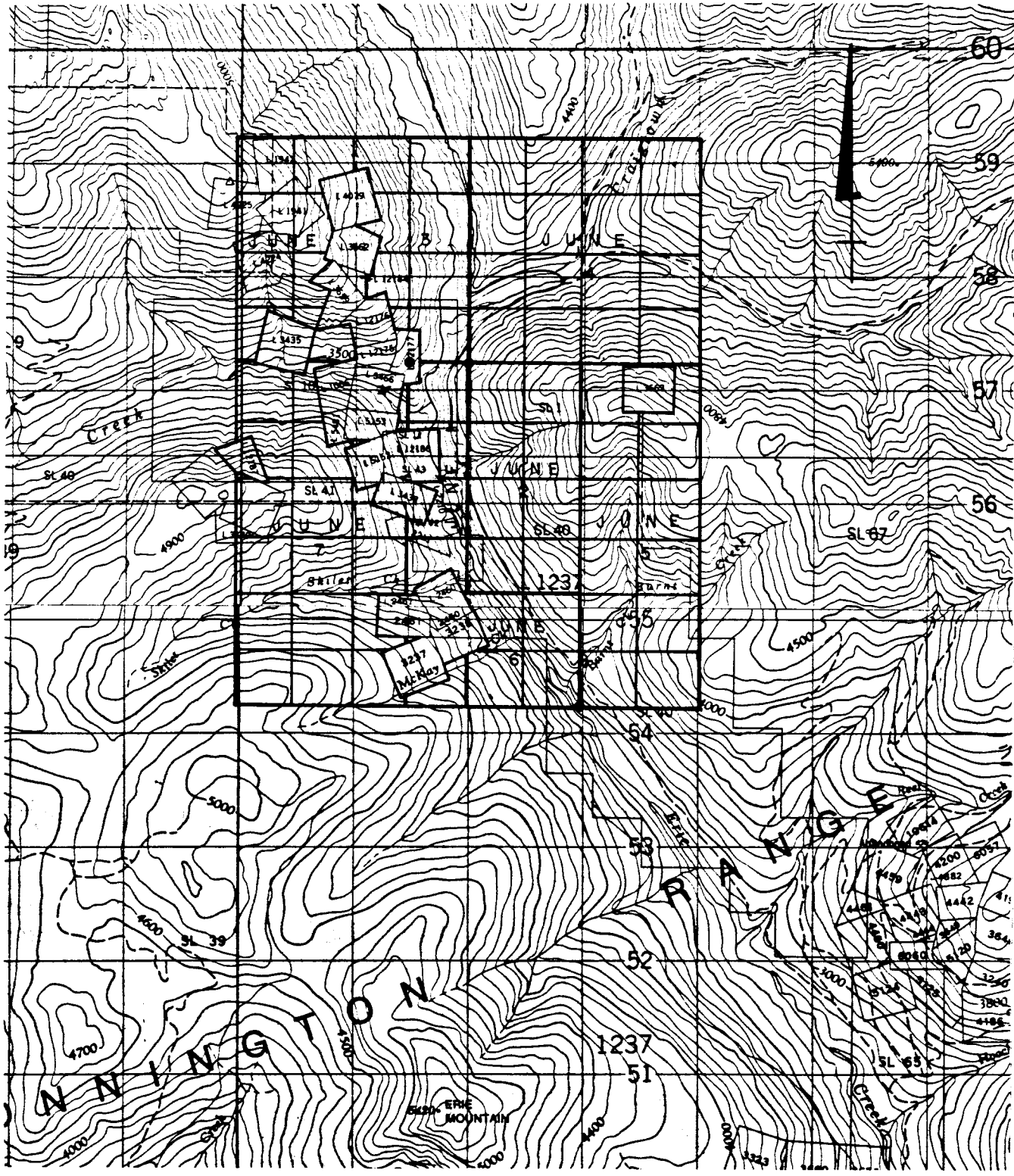
AMAX POTASH LIMITED

ERIE CREEK PROPERTY  
NELSON M. D. - B. C.

LOCATION MAP



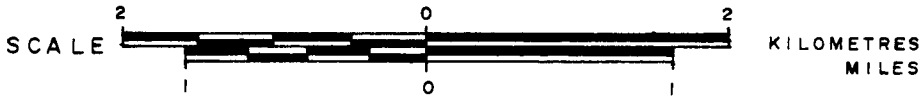
1:250,000



AMAX POTASH LIMITED

ERIE CREEK PROPERTY  
NELSON M. D. - B. C.

CLAIM MAP



1 : 50,000

FIG. 2  
N. T. S. Ref. 82F386

The survey was conducted by Mertens and MacNeil, Geophysical Ground Surveys, 23 Meadow Crescent, Guelph, Ontario.

Initial coverage was completed between June 12-18, 1979 on five north/south flagged and brushed lines prepared by AMAX personnel. Line direction, parallel to regional stratigraphy and to predominant dyke trend was conditioned by south-flowing Erie Creek which was in flood at the time of the survey. An east/west line which crossed Erie Creek at the bridge near the centre of the property was prepared and surveyed between August 7 - 11, 1979. The location of the lines is shown in Figure 3.

A total of 8.1 km of induced polarization/resistivity survey was done.

The property geology consists of a complex dyke swarm which intrudes hornfelsed rusty brown phyllites. Up to 5% disseminated and fracture controlled pyrrhotite and subordinate pyrite are present in the hornfels. Volcanic rocks are exposed along ridges on the west and east side of the property. No stock, as such, is present on the property.

The aim of the induced polarization/resistivity survey was to locate the stock responsible for the swarm of dykes on the property.

#### EQUIPMENT AND PROCEDURE

The survey was conducted with a McPhar P660 frequency domain induced polarization system consisting of a 2.5 kw motor-generator and transmitter and dual frequency receiver.





The induced polarization frequency effect parameter was recorded between frequencies 0.5 and 3.0 hertz. Resistivity at the low frequency was determined from receiver voltage, transmitted current and an electrode array geometric factor.

The dipole-dipole electrode array with 100 m electrode spacing expanded through five separations (n) was used.

### PRESENTATION OF DATA

The frequency effect in per cent and resistivity in ohm-m are presented in standard pseudo-section format (Figures 4a-f). The data are contoured at multiples of intervals 1, 1.5, 2, 3, 5, 7.5, and 10.

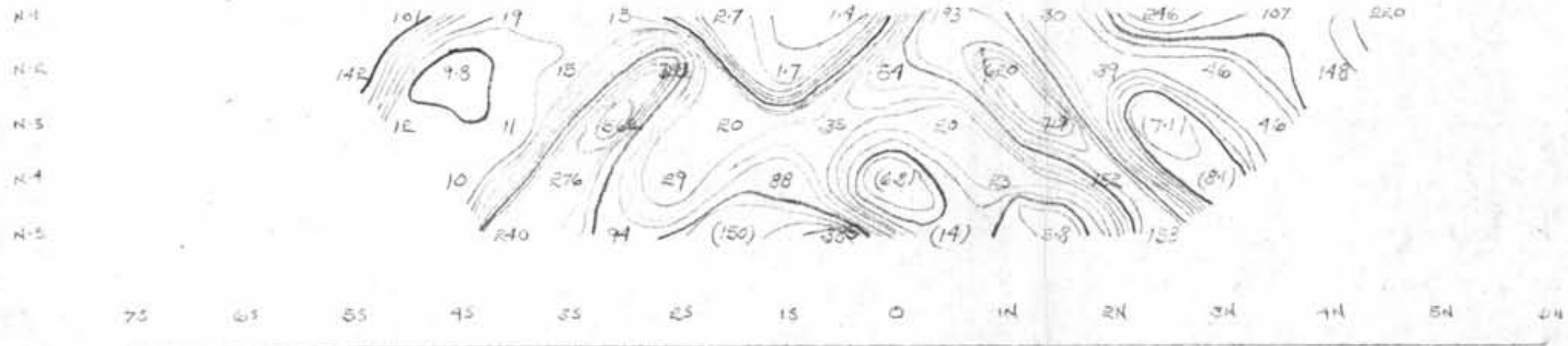
Symbols ( ), [ ], and TN refer to noisy, very noisy, and unrecordable readings, respectively and NEG indicates an unrecordable negative reading.

A schematic representation of topography with significant physiographic details along each line is also shown.

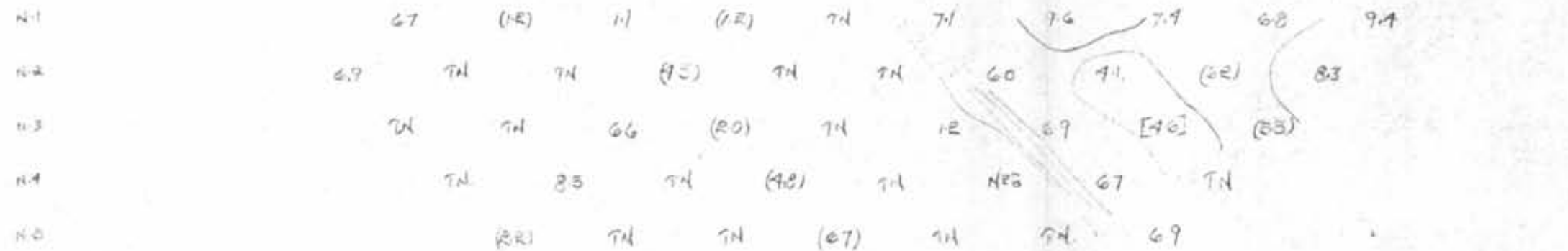
### RESULTS

Very low and erratic resistivities were recorded on Line 6W (Figure 4a). No reliable frequency effects were recorded because of low resistivities.

Resistivities on Line 4W (Figure 4b) were slightly higher but similarly erratic. Two zones with resistivity greater than 1000 ohm-m located at 1S to 1N and north of 2N are the only significant features present.



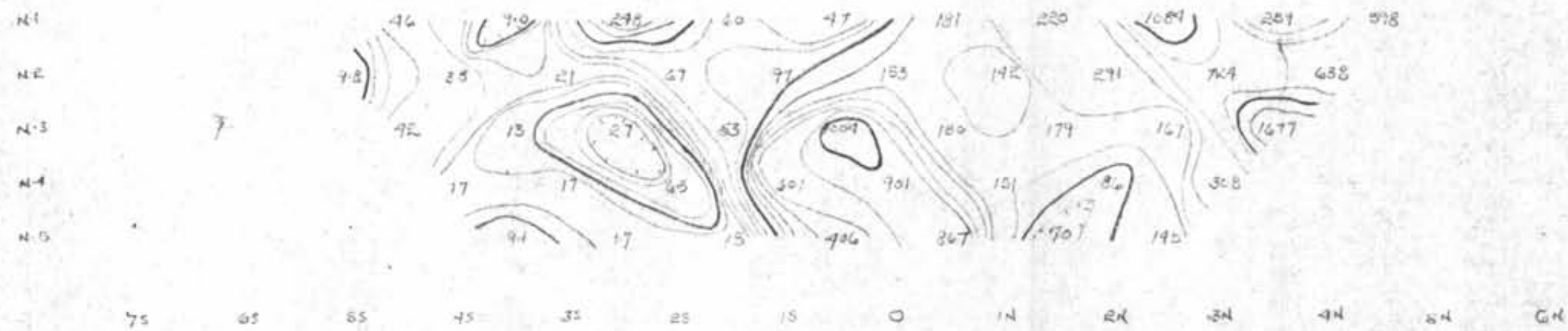
AMAX MINERALS EXPLORATION  
 ERIE GREEK SALMO B.C.  
 H.P.I.P. SURVEY DIPOLE DIPOLE  
 SCALE: 1:5,000 SPREAD: 100M  
 FREQ: 0.346 HZ.  
 LINE: 6W  
 DATE: JUNE 19, 1979  
 OPERATOR: J. Mac NEIL



MINERAL RESOURCES BRANCH  
 ASSURANCE DEPOSIT  
**7573**  
 NO.

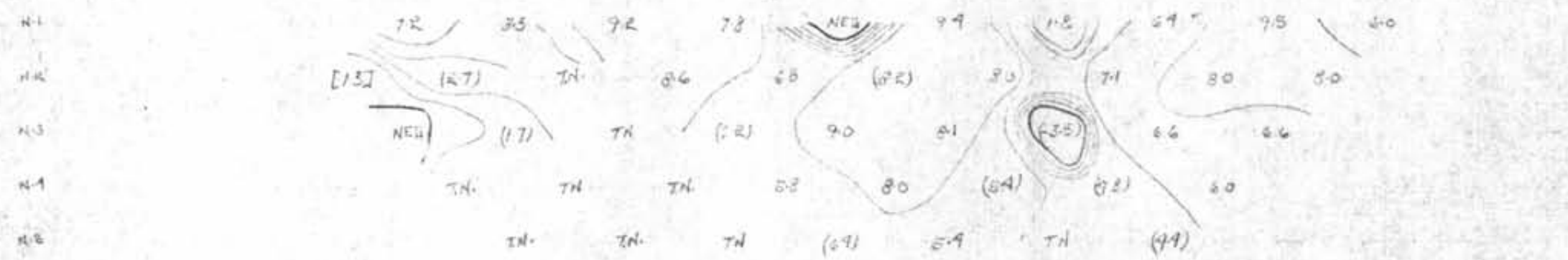
J. L. LeBel Nov. 21/79

Fig 4a



F

AMAX MINERALS EXPLORATION  
 ERIE CREEK SALMO B.C.  
 H.P.I.P. SURVEY DIPOLE DIPOLE  
 SCALE: 2CM=100M SPREAD: 100M  
 (1:5,000)  
 FREQ: 0.346 HZ  
 LINE: 4W  
 DATE: JUNE 15, 1979  
 OPERATOR: J. MAC NEIL

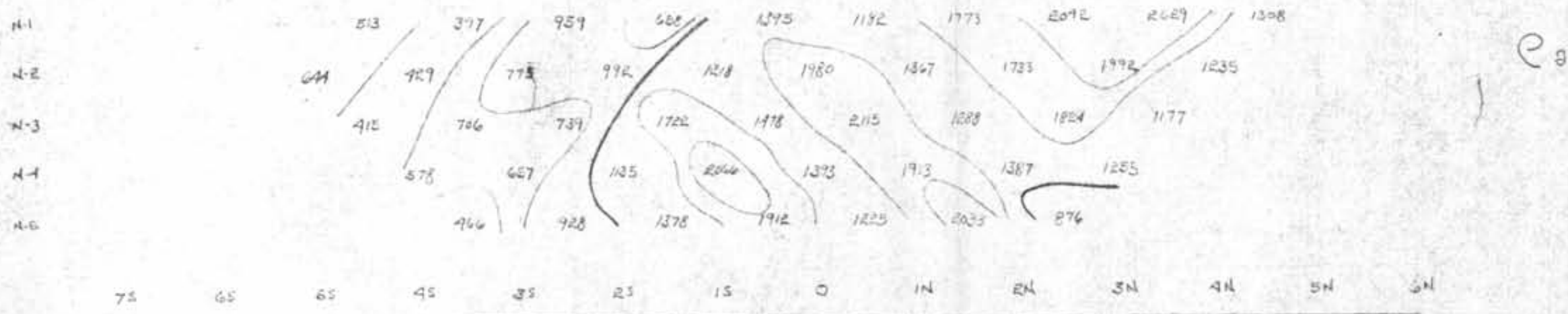


F.E.

J.L. LeBel Nov 21/79

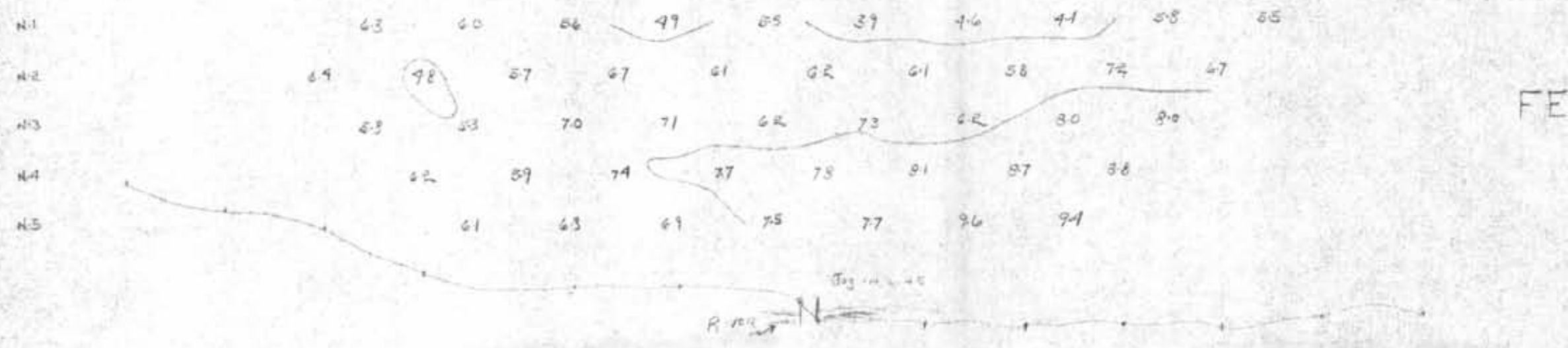
MINERAL RESOURCES BRANCH  
 EXPLORATION REPORT  
 NO. **7573**

Fig. 4b



AMAX MINERALS EXPLORATION  
 ERIE CREEK SALMO B.C.  
 H.P.I.P. SURVEY □ POLE □ POLE  
 SCALE: 2CM = 100M SPREAD: 100M  
 (1:5,000)  
 FREQ: 0.34 HZ  
 LINE: 2W  
 DATE: JUNE 13, 1979  
 OPERATOR: J. MAC NEIL

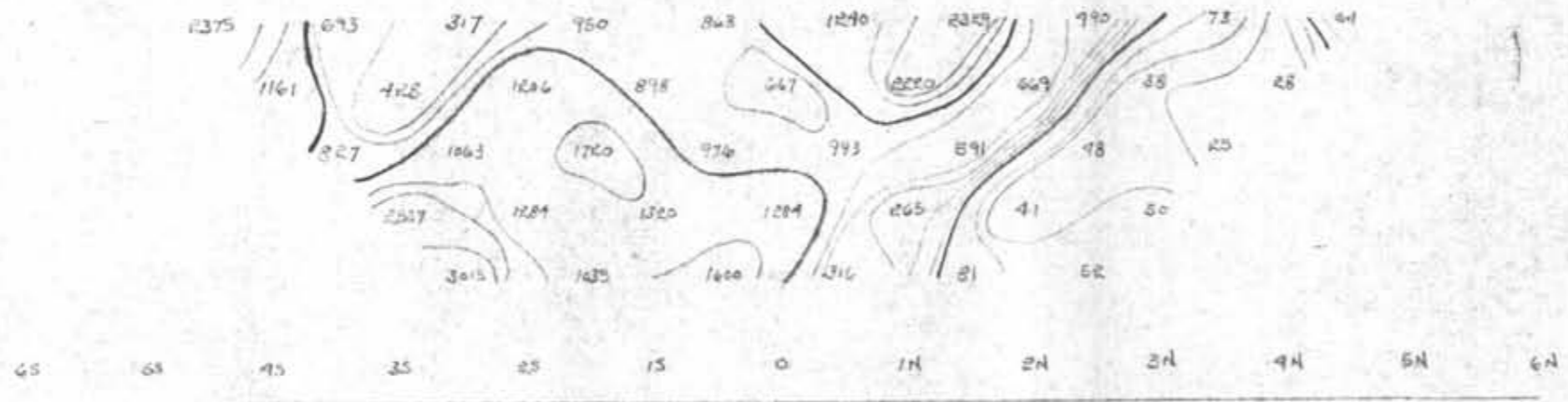
*J.L. Lebel Nov. 21/79*



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*Fig. 4c*

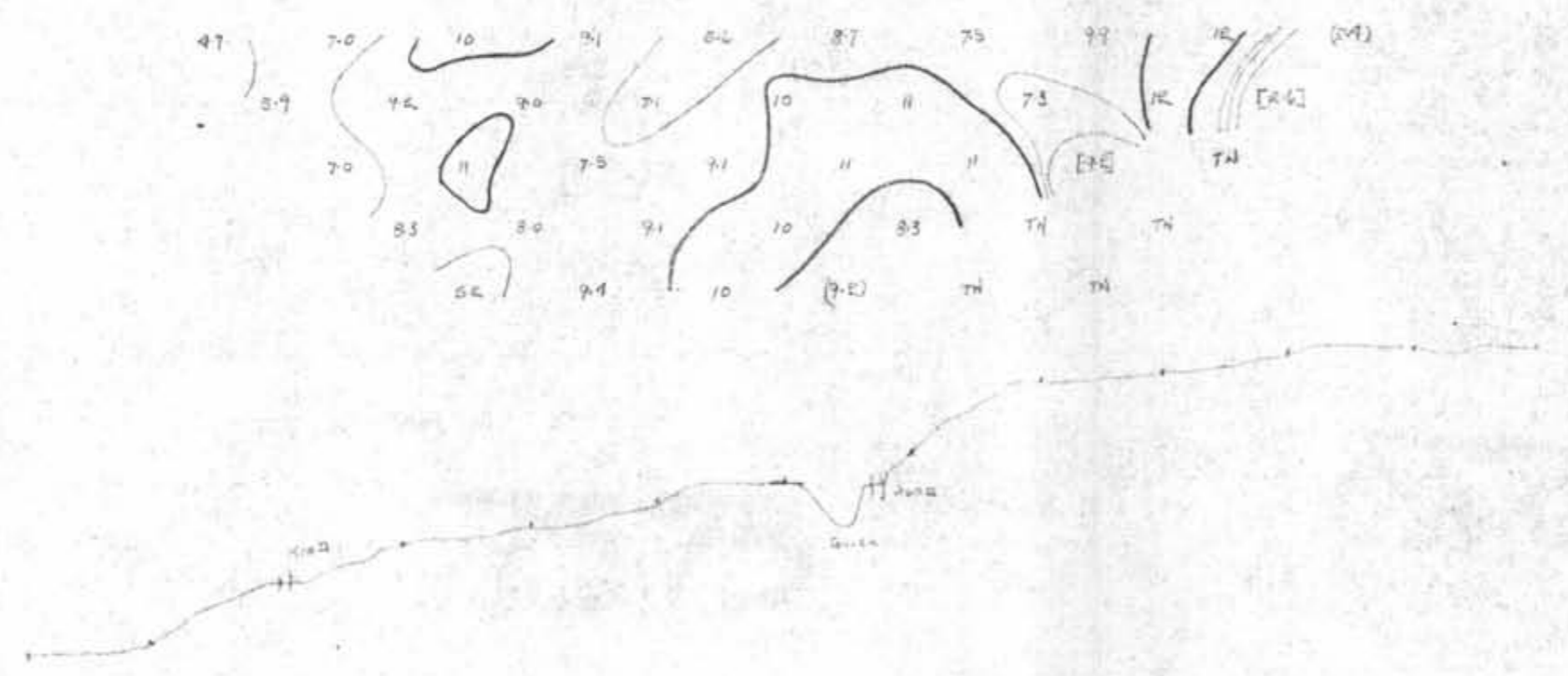
N-1  
N-2  
N-3  
N-4  
N-5



C.B.

AMAX MINERALS EXPLORATION  
 ERIE GREEK, SALMO B.C.  
 H.P. I.P. SURVEY II-POLE II-POLE  
 SCALE: 2CM:100M SPREAD: 100M  
 (1:5,000)  
 FREQ: 0.345HZ  
 LINE: 0+00  
 DATE: JUNE 16, 1979  
 OPERATOR: J. MAC NEIL

N-1  
N-2  
N-3  
N-4  
N-5

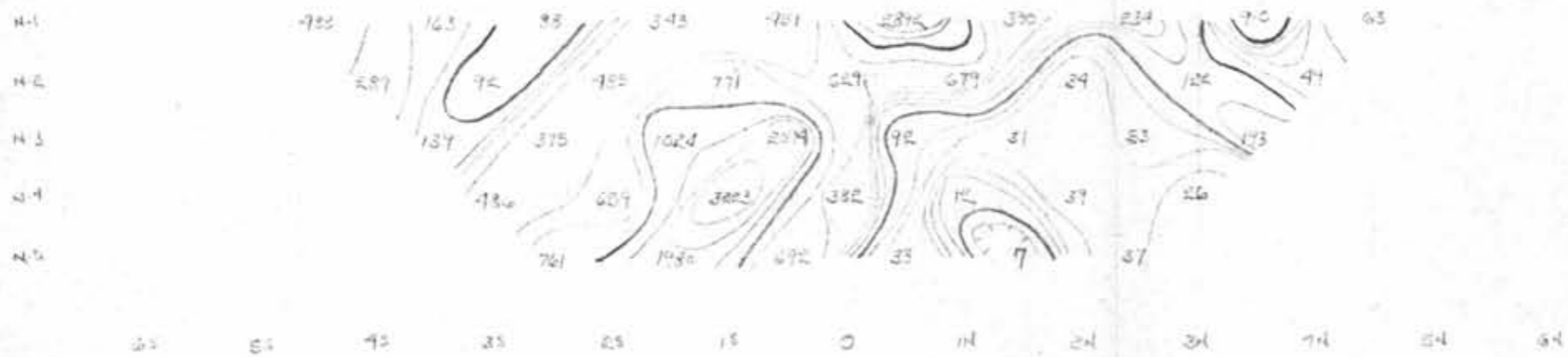


F.E.

MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**7573**  
 NO.

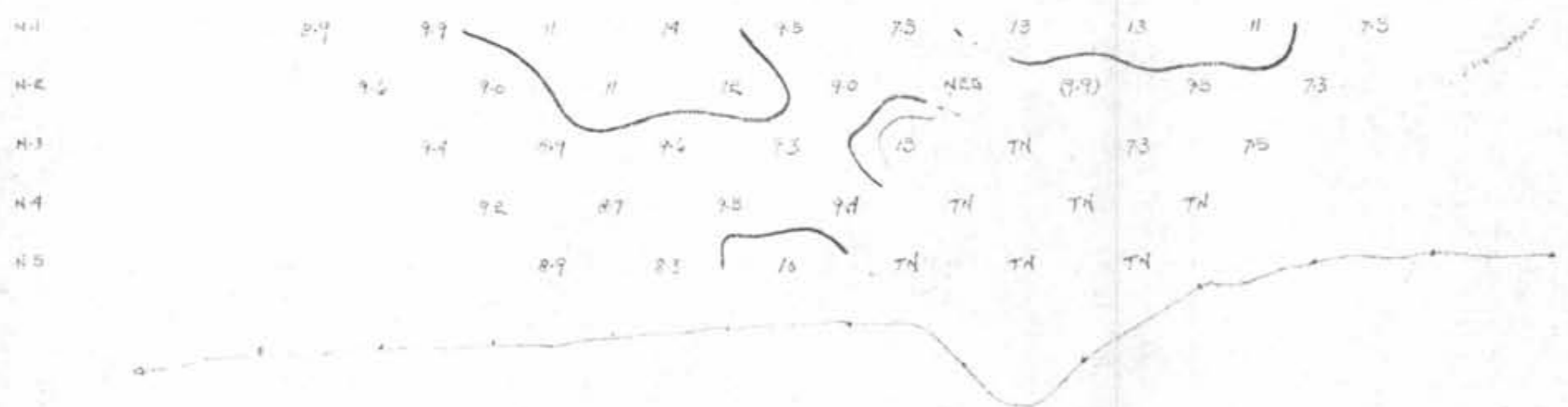
J. L. LeBel Nov 21/79

Fig. 4d



E8

AMAX MINERALS EXPLORATION  
 ERIC CREEK, SALMO, B.C.  
 H.P.I.P. SURVEY DIPOLE DIPOLE  
 SCALE: 2CM = 100M SPREAD: 100M  
 (1:5,000)  
 FREQ: 0.315 HZ  
 LINE: RE  
 DATE: JUNE 17, 1979  
 OPERATOR: J. MAC NEIL

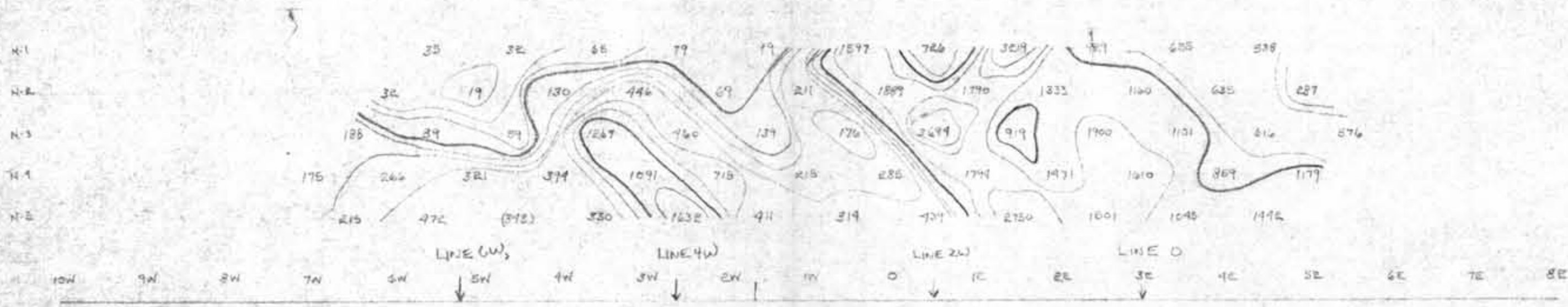


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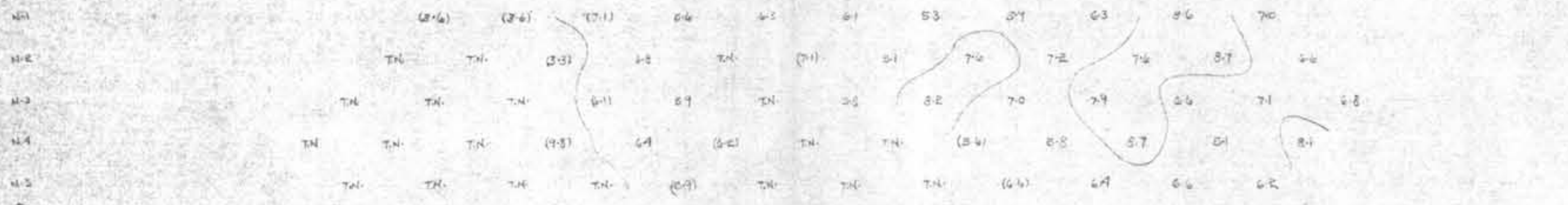
MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
 NO. **7573**

Fig. 4e



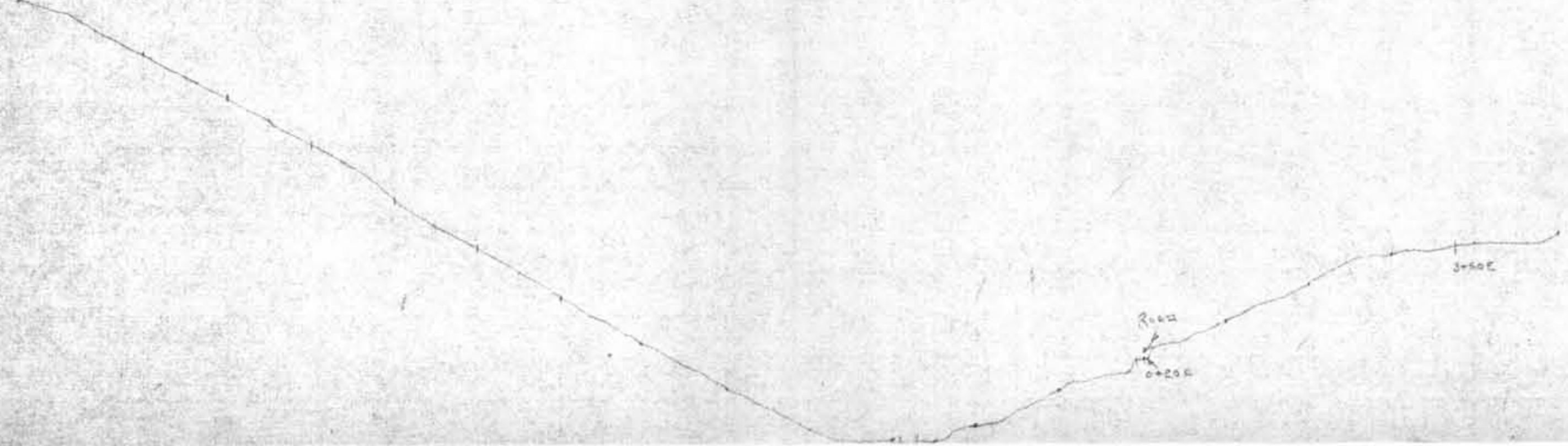
C.B.

AMAX MINERALS EXPLORATION  
 ERIC CREEK B.C.  
 H.P. I.P. SURVEY  $\square$  POLE  $\square$  POLE  
 SCALE: 2 CM = 100 M. SPREAD: 100 M  
 (1:5,000)  
 FREQ: 0.346 KHZ.  
 LINE: I.P. 0  
 DATE: AUG 11, 1979  
 OPERATOR: J. MAC NEIL



F.E.

*J.L. LeBel Nov 21/79*



MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**7573**  
 NO.

Fig 4f

Resistivities on Line 2W (Figure 4c) vary from 400 ohm-m to 2000 ohm-m. The low resistivities form a broad area of less than 500 ohm-m south of 2S in contrast to a broad area to the north characterized by resistivities greater than 1000 ohm-m. Frequency effects vary from 4% - 7% over most of Line 2W. There is a modest but probably not significant increase in frequency effects to 8% - 9% at depth within the high resistivity zone.

The resistivity high present at the north end of Line 2W is not present in the same form on Line 0 (Figure 4d). Resistivities greater than 1000 ohm-m occur at 1N (n = 1 and 2) and south of Station 0. Very low resistivities (less than 50 ohm-m) were recorded north of 3N. Frequency effects from 7% to 12% decrease to values of 5% at the south end of the line. The decrease in frequency effects to 3% at the north end of the line may not be valid because of unreliable data recorded over the low resistivity zone.

The character of the resistivity section on Line 2E (Figure 4e) is similar to the pattern recorded on Line 0. A high resistivity zone (resistivities greater than 1000 ohm-m) between 0 and 3S and between 0-1N (n=1) and a resistivity low at the north end of the line correlate with similar features on Line 0. Frequency effects varying from 9% to 12% ignore the resistivity changes. Data from the north end of the line is incomplete or unreliable over the zone of low resistivity.

On east/west Line 0 (Figure 4f) resistivities west of Station 1W are relatively low (20 ohm-m to 300 ohm-m) and variable. A narrow zone of high resistivity at 3W correlates with the resistivity high recorded on Line 4W at 0-1S. The resistivities exceed 1000 ohm-m between Station 0 and 3E then gradually decrease to 300 ohm-m at the east end of the line. Frequency effects ranging from 6% to 9% are unaffected by the wide range of resistivities recorded on the line.



## DISCUSSION OF RESULTS

The changing character of resistivity data is caused by disposition of the survey lines parallel to regional schistosity and structure. Low resistivities recorded on Lines 6W and 4W may reflect numerous base metal sulphide shear veins which occur along the ridge west of Erie Creek.

Zones of high resistivity occur predominantly east of Erie Creek. Highs detected on Line 2W north of 2S, Line 0 between 1N and 3S, Line 2E between 1N and 3S, and east/west Line 0 between 1W and 4E form a coherent southeasterly trending zone which may reflect an area of increased dyke density or an intrusive centre.

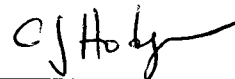
No discernible patterns, either internal or related to changes in resistivity, were noted in the frequency effect data. Values ranging from 5% to 10% define a broad zone of 2% to 5% sulphide mineralization.

## CONCLUSIONS

The variable and erratic resistivity data resulted because topography constrained the line direction parallel to regional schistosity and numerous sulphide veins and shears which occur along ridges on both sides of Erie Creek.

Frequency effects vary from 5% to 10% consistent with the observed 2% to 5% sulphides in the area. Since the frequency effects ignore changes in resistivity it is concluded that sulphides pervade both intrusive and country rocks with the same propensity.

A southeasterly trending zone of high resistivity detected on the east side of Erie Creek may reflect an intrusive centre, the source of the dyke swarm on the property.



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C.J. Hodgson, P.Eng.(B.C.)



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J.L. LeBel

APPENDIX I - STATEMENT OF COSTS

Summary and Period of Work

Line Cutting	- 8.1 km	June 4 - 8, 1979	
Induced Polarization/ Resistivity Survey	- 8.1 km	June 12-18 & August 7-11, 1979	

Personnel

L.R. Flint, Line Cutter, 267 Gibraltar Court, Kamloops, B.C.			
June 4 - 8	5 days @ \$100.48		502.40
J.L. LeBel, Geophysicist, 601-535 Thurlow Street, Vancouver			
June 12-13	2 days @ \$122.98		245.96
C.J. Hodgson, Geologist, P.Eng., 601-535 Thurlow Street, Vancouver			
June 4	1 day @ \$177.60		177.60
<u>Room and Board</u>	8 days @ \$30.00/man day		240.00
<u>Transporation - Vehicle</u>	8 days @ \$30.00/day		240.00

Induced Polarization/Resistivity Survey

Mertens and MacNeil Geophysical Ground Surveys, Guelph, Ontario			
Inv. #2 June 12-18, 1979			3,271.84
Inv. #1 Aug. 7-11, 1979			2,315.71

<u>Report Preparation</u>			200.00
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TOTAL \$7,193.51

*C.J. Hodgson*

APPENDIX II

STATEMENT OF QUALIFICATIONS

NAME: J. LAURENCE LEBEL

EDUCATION: B.Sc. (1971) Queen's University - Geological Engineering -  
Geophysics Option

M.Sc (1973) University of Manitoba - Geophysics

EXPERIENCE:

- 5/70-9/70 - Amax Exploration, Inc. Vancouver, B.C.
  - conducting and compiling magnetometer surveys
- 5/71-9/71 - Amax Exploration, Inc. Toronto, Ont.
  - conducting and reporting on IP/resistivity surveys
- 5/72-12/72- Gulf Minerals, Toronto, Ont.
  - senior geophysical operator
  - conducting and reporting on magnetometer  
electromagnetic and scintillometer surveys
- 3/73-12/73- Scintrex Surveys, Concord, Ont.
  - Junior Geophysicist
  - conducting, supervising of and reporting on  
airborne magnetometer and electromagnetic surveys,  
ground electromagnetic and IP/resistivity surveys
- 4/74 - - AMAX Potash Limited, Toronto & Vancouver
  - Staff Geophysicist

STATEMENT OF QUALIFICATIONS

NAME	L.R. Flint
EXPERIENCE	Climax Molybdenum Company of British Columbia Limited - Engineering Assistant May 2, 1966 - May 15, 1979  Yorke-Hardy Project - Hudson's Bay Mtn. Smithers, B.C.  Kitsault Project - Kitsault, B.C.  AMAX Potash Limited - May 16, 1979 to present Geological Technician: claim staking, line cutting, soil sampling, drill core splitting, drill supervision, camp building and road building.