COMINCO LTD.

EXPLORATION WESTERN DISTRICT

NTS: 92 I/6

GEOPHYSICAL REPORT

ON

INDUCED POLARIZATION AND RESISTIVITY SURVEYS

ISLAND PROPERTY

HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

Latitude : 50°27'N
Longitude: 121°08'W

FIELD WORK PERFORMED : JULY 12, 19-31, and AUGUST 4, 1982

CLAIMS : ISLAND 5, 10, 11, 12, 17

OWNER AND OPERATOR : COMINCO LTD.

SEPTEMBER 1982

J. KLEIN

TABLE OF CONTENTS

REFERENCES :

GEOPHYSICAL REPORT ON I.P. AND MAG SURVEYS, ISLAND PROPERTY, DATED JUNE 2, 1980 by A.R. SCOTT

GEOPHYSICAL REPORT ON AN I.P. SURVEY, ISLAND PROPERTY, DATED DECEMBER 22, 1981 by J. KLEIN

GEOPHYSICAL REPORT ON I.P. AND RESISTIVITY SURVEYS, ISLAND PROPERTY, DATED AUGUST 1982 by J. KLEIN

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

NTS: 92 I/6

GEOPHYSICAL REPORT ON INDUCED POLARIZATION AND RESISTIVITY SURVEYS ISLAND PROPERTY HIGHLAND VALLEY AREA, KAMLOOPS M.D., B.C.

INTRODUCTION

During the period July 12, 19-31 and August 4, 1982, approximately 32 km of reconnaissance scale multiseparation, induced polarization and resistivity survey work was completed over portions of the ISLAND property. This I.P./ Res. work was conducted by a COMINCO LTD. crew under the direction of Mr. I. Jackisch, geophysicist.

The ISLAND property is located in the Highland Valley area of B.C., some 6 km west of the Lornex Mine. Plate 1 shows the general location of the property and Plate 2 shows the location of the present survey lines (in red) with respect to the claims and previous I.P. coverage (black lines) on the claim block.

The objective of this survey, which is a continuation of surveys conducted in 1980 and 1981, was to map the existence of any sulphides and other polarizable sources in the grid area.

This report describes procedures used for this survey, presents the data and discusses the results.

INDUCED POLARIZATION AND RESISTIVITY SURVEYS

Two Huntec MK IV I.P. receivers in combination with a Huntec 7.5 kw motor generator/transmitter were used on the ISLAND survey. Readings were taken in the time domain using a 2 second current ON/2 second current OFF alternating square wave signal. A delay time of 120 milliseconds and total integration time of from 120 msecs. to 1020 msecs. were used to measure the I.P. effect. Chargeability values are given in units of milliseconds.

The survey was of a regional reconnaissance nature with survey lines 400 meters apart. A pole-dipole electrode array was used with an "a" spacing of 100 meters and "n" separations of 1, 2, 3 and 4. The direction of the current electrode with respect to the potential electrodes is indicated on the pseudosections.

The apparent resistivity values are given in units of ohm meters and were calculated from the relation:

$$\text{apparent resistivity} = (V/I) \cdot K,$$

where V is the voltage across the measuring dipole during the current on period (I), and K is a geometrical factor dependent on the "a" spacing and "n" separation.

DISCUSSION OF RESULTS

The induced polarization survey results are plotted in pseudosection format on accompanying Plates 229-82-4 to 9. The chargeability response has been categorized on the sections in the following manner (which are the same as for the previous surveys on this property : see References):-


strong I.P. high (greater than 10 msecs. at near separations)


moderate I.P. high (greater than 8 msecs. at near separations)


weak I.P. high (greater than 5 msecs. at near separations)

> 5 msecs. at further separations

The n=1 chargeability results are also presented in contour plan form on Plates 229-82-11 and 12. Plate 11 shows the data for Lines 3600S to 4800S, while Plate 12 shows it for Lines 8800S to 11600S. Anomaly symbols from the pseudosections are given on the plans.

The chargeability values of the lines surveyed show mainly background levels (< 5 msecs.); a few values rise slightly above this level but no significance can be attributed to them.

CONCLUSIONS

A 30 line km induced polarization/resistivity survey was executed over a portion of the ISLAND property. The values measured were of background level only and uninteresting from an economic point of view. No further work can be recommended on that portion of the property covered with the present survey.

Report by: _____
J. Klein
Chief Geophysicist

Approved for Release: _____
G. Harden
Manager, Exploration
Western District

JK/jel

DISTRIBUTION:

Mining Recorder	(2)
Western District	(1)
Vernon Exploration Office	(1)
Geophysics File	(1)
Administration	(1)

APPENDIX I

IN THE MATTER OF THE B.C. MINERAL ACT

AND IN THE MATTER OF A GEOPHYSICAL PROGRAM

CARRIED OUT ON PORTIONS OF ISLAND MINERAL CLAIMS 5, 10, 11, 12 AND 17

ON THE ISLAND PROPERTY

LOCATED IN THE HIGHLAND VALLEY AREA, KAMLOOPS MINING DIVISION, B.C.

OF THE PROVINCE OF BRITISH COLUMBIA, MORE PARTICULARLY

N.T.S.: 92I/11

S T A T E M E N T

I. JAN KLEIN, OF THE CORPORATION OF RICHMOND, IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:-

1) THAT I am employed as a geophysicist by Cominco Ltd. and, as such have a personal knowledge of the facts to which I hereinafter depose;

2) THAT the annexed hereto and marked as "Appendix II" to this statement is a true copy of expenditures incurred on geophysical survey on the ISLAND Property;

3) THAT the said expenditures were incurred for the purpose of mineral exploration of the above-noted claims between the 12th day of July and the 4th day of August, 1982.

Signed: Jan Klein

J. Klein
Chief Geophysicist

September 1982

APPENDIX II

STATEMENT OF EXPENDITURES

ISLAND PROPERTY

(INDUCED POLARIZATION AND RESISTIVITY SURVEY
JULY 12 AND 19 - 31 AND AUGUST 4, 1982)

32 KM	@	$1,000/KM	$ 32,000

SEPTEMBER 1982

APPENDIX III

C E R T I F I C A T I O N

I, JAN KLEIN, of 4371 Coventry Drive, in the Corporation of Richmond, in the Province of British Columbia, do hereby certify:-

1) THAT I graduated from the Technological University of Delft Netherlands in 1965 with a M.Sc. in Geophysics;

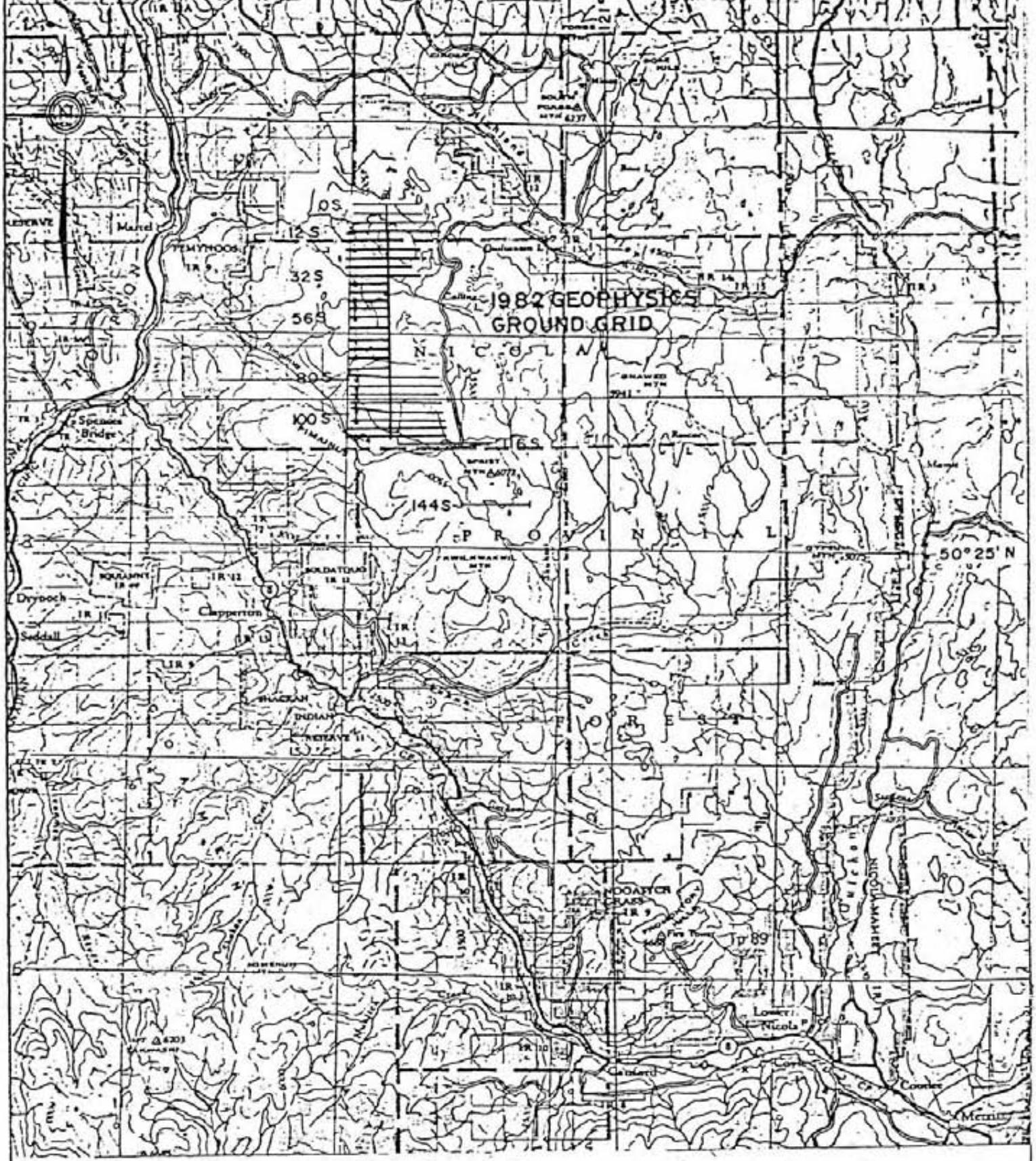
2) THAT I am a member of the Association of Professional Engineers of the Province of British Columbia, the Society of Exploration Geophysicists of America, and the British Columbia Geophysical Society;

3) THAT I have been practising my profession for the past seventeen years.

Signed: _____

J. Klein
Chief Geophysicist

SEPTEMBER 1982

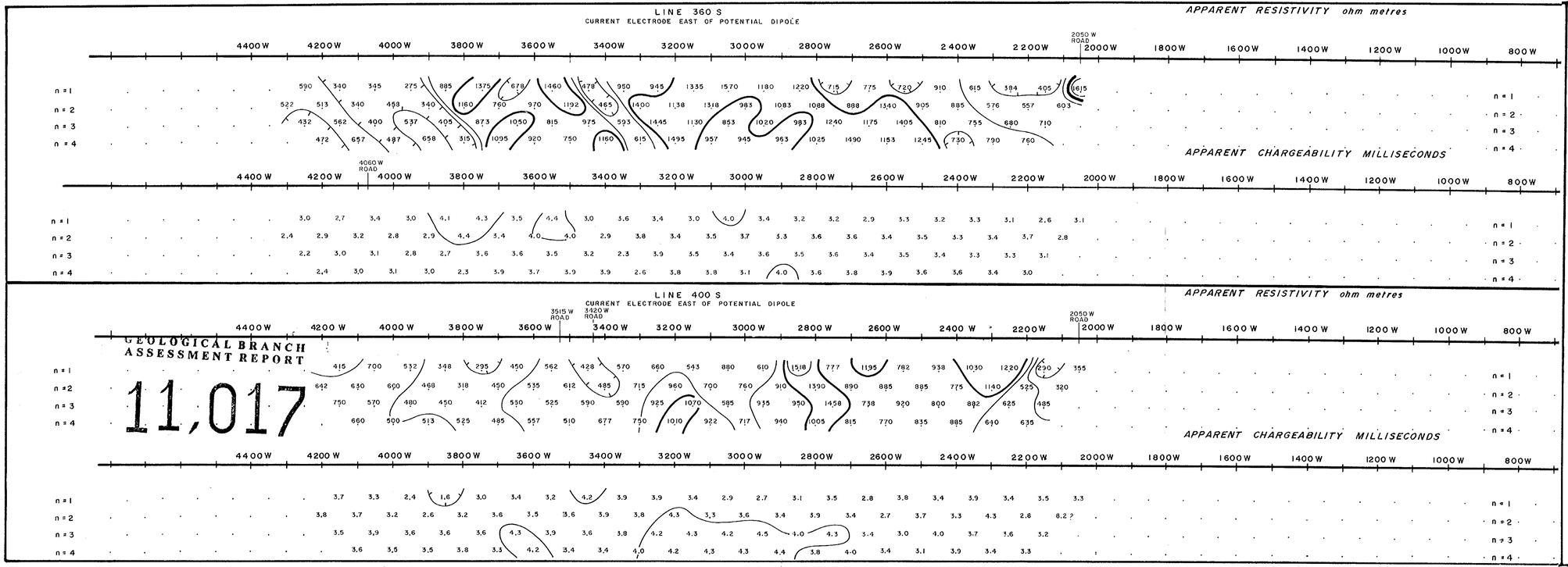


Drawn by:		Traced by:	
Revised by	Date	Revised by	Date
G.E.L.	APRIL 1982		
J.P.S.	AUG 1982		

LOCATION MAP

NICOLA M.D., B.C.

Scale: 1:250,000 | Date: JAN 1981 | Plate: 229-82-1



N.T.S. 92-I-6

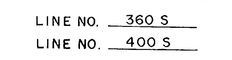
DWG. NO. 229-82-4

COMINCO LTD.
ISLAND PROPERTY
KAMLOOPS M.D., B.C.

LINE NO. 360 S

LINE NO. 400 S

POLE-DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE DIRECTION AS NOTED ON THE PSUDO-SECTION

CHARGEABILITY (IP) INTERPRETATION
- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPARATIONS

SCALE 1:6,000

DATE SURVEYED LINE 360 S JULY 19, 1982 LINE 400 S JULY 20, 1982

CONTOUR INTERVALS:

APP RES — 1, 1.5, 2, 3, 5, 7.5, 10 Ohm metres
APP CHARG — 0.2 MILLISECONDS

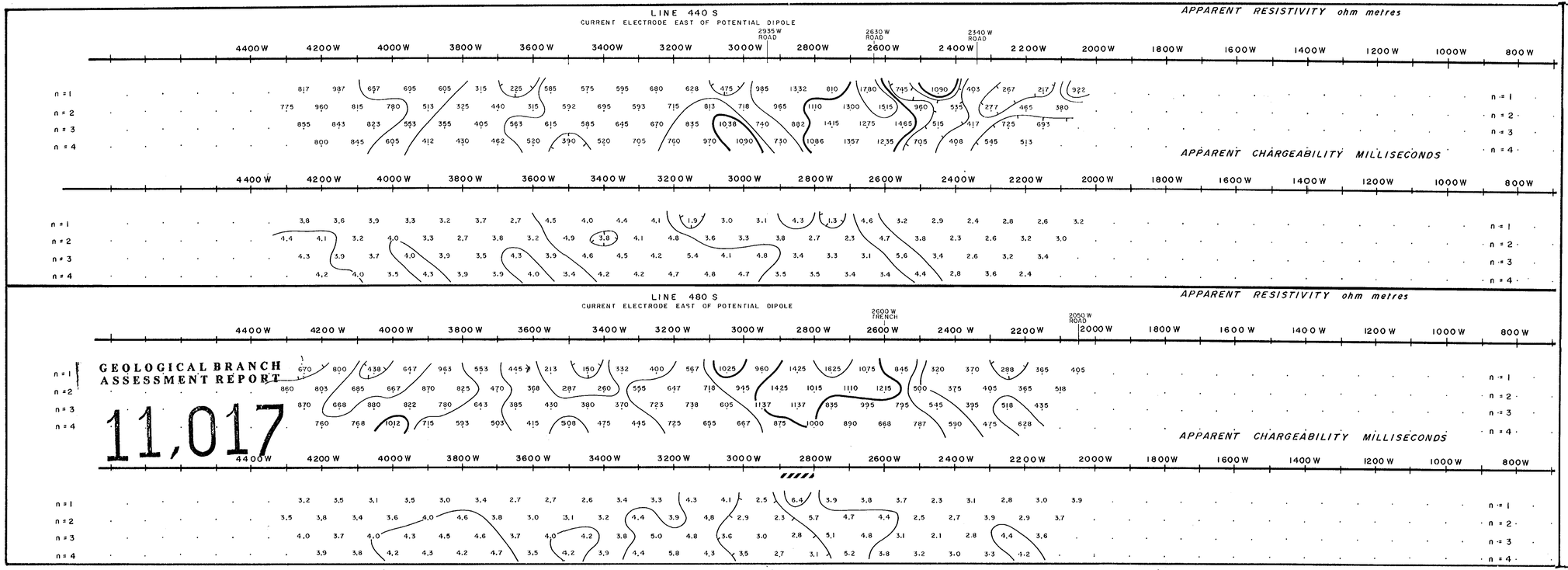
APPROVED _____

DATE _____

TRANSMITTER — HUNTEC 7.5 Kw UNIT
RECEIVER — HUNTEC MK IV

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

LINE 360 S
LINE 400 S



N.T.S. 92-I-6

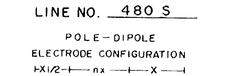
DWG. NO. 229-82-5

COMINCO LTD.
ISLAND PROPERTY
KAMLOOPS M.D., B.C.

LINE NO. 440 S

LINE NO. 480 S

POLE-DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE
DIRECTION AS NOTED ON
THE PSUDO-SECTION

CHARGEABILITY (IP) INTERPRETATION

- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPARATIONS

SCALE 1:6,000

DATE SURVEYED LINE 440S JULY 21,1982
LINE 480S JULY 22,1982

CONTOUR INTERVALS :

APP RES. — 1, 1.5, 2, 3, 5, 7.5, 10 Ohm metres
APP CHARG. — 0.2 MILLISECONDS

APPROVED _____

DATE _____

TRANSMITTER — HUNTEC 7.5 Kw UNIT

RECEIVER — HUNTEC MK IV

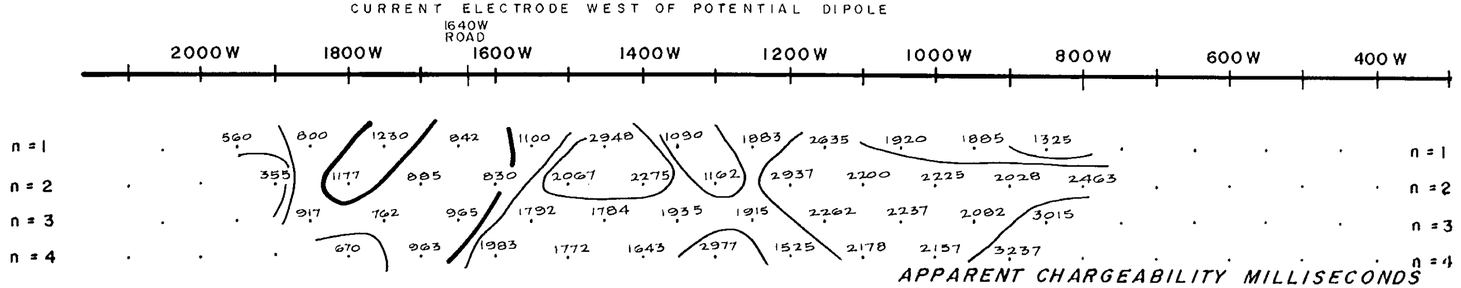
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

LINE 440S
LINE 480S

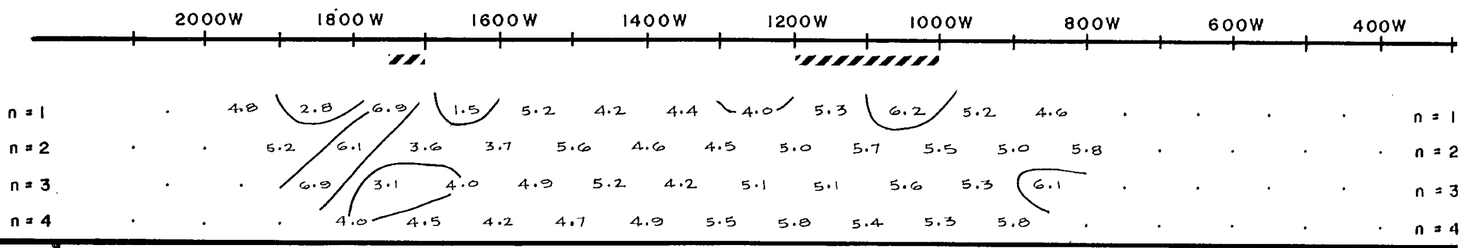
LINE 8800 S

CURRENT ELECTRODE WEST OF POTENTIAL DIPOLE

APPARENT RESISTIVITY ohm metres



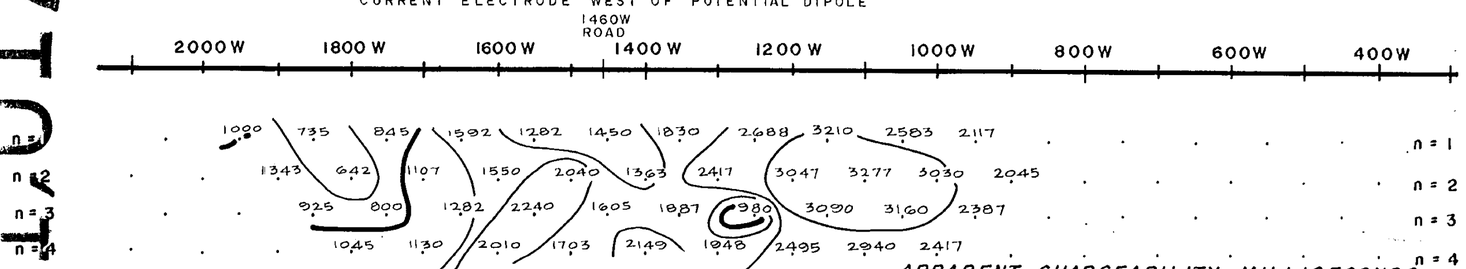
APPARENT CHARGEABILITY MILLISECONDS



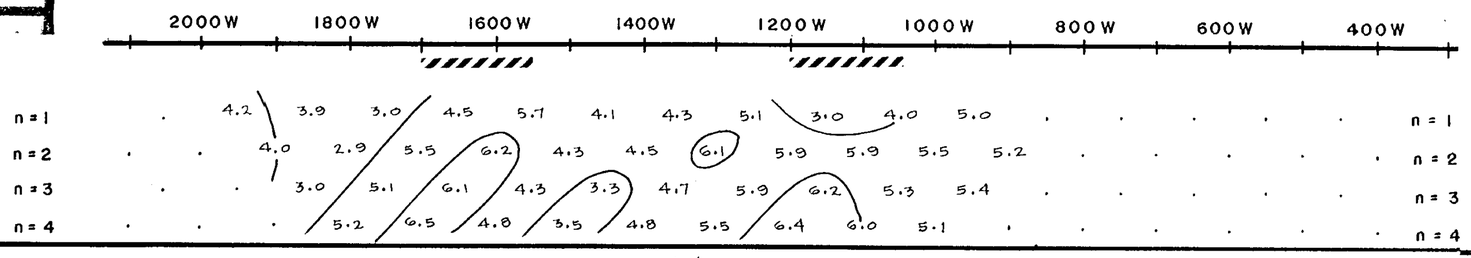
LINE 9200 S

CURRENT ELECTRODE WEST OF POTENTIAL DIPOLE

APPARENT RESISTIVITY ohm metres



APPARENT CHARGEABILITY MILLISECONDS



N.T.S. 92-I-6

DWG. NO. 229-82-6

COMINCO LTD.

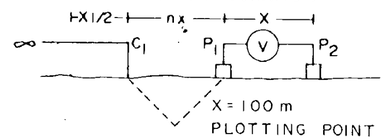
ISLAND PROPERTY

KAMLOOPS M.D., B.C.

LINE NO. 8800 S

LINE NO. 9200 S

POLE-DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE DIRECTION AS NOTED ON THE PSUDO-SECTION

CHARGEABILITY (IP) INTERPRETATION

- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPARATIONS

SCALE 1:6,000

DATE SURVEYED LINE 8800S JULY 24,1982
LINE 9200S JULY 25,1982

CONTOUR INTERVALS:

APP RES. — 1, 1.5, 2, 3, 5, 7.5, 10 Ohm metres
APP CHARG. — 0.2 MILLISECONDS

APPROVED _____

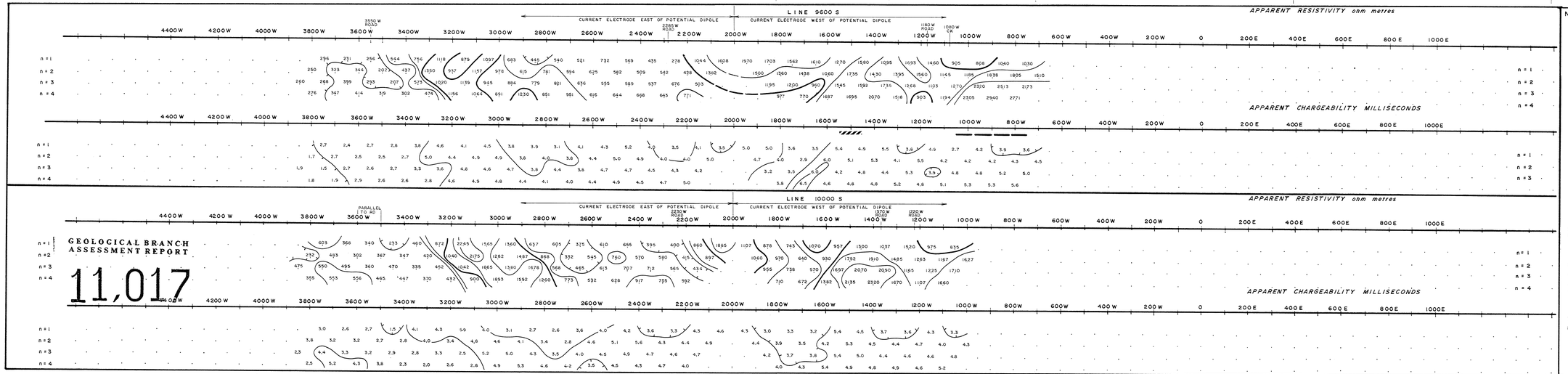
DATE _____

TRANSMITTER — HUNTEC 7.5 Kw UNIT

RECEIVER — HUNTEC MK IV

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

LINE 9200 S — LINE 8800 S



GEOLOGICAL BRANCH
ASSESSMENT REPORT

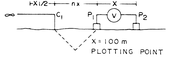
11,017

N.T.S. 92-I-6 DWG. NO. 229-82-7

COMINCO LTD.
ISLAND PROPERTY
KAMLOOPS M.D., B.C.

LINE NO. 9600 S
LINE NO. 10000 S

POLE-DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE DIRECTION AS NOTED ON THE PSUDO-SECTION

CHARGEABILITY (IP) INTERPRETATION
STRONG CHARGEABILITY HIGH
MODERATE CHARGEABILITY HIGH
WEAK CHARGEABILITY HIGH
? HIGH AT FURTHER SEPARATIONS

LINE 9600S JULY 25,1982
LINE 10000 S

SCALE 1:6,000

DATE SURVEYED JULY 26,27,1982

CONTOUR INTERVALS:

APP RES — 1,1.5,2,3,5,7.5,10 Ohm metres

APP CHARG — 0.2 MILLISECONDS

APPROVED _____

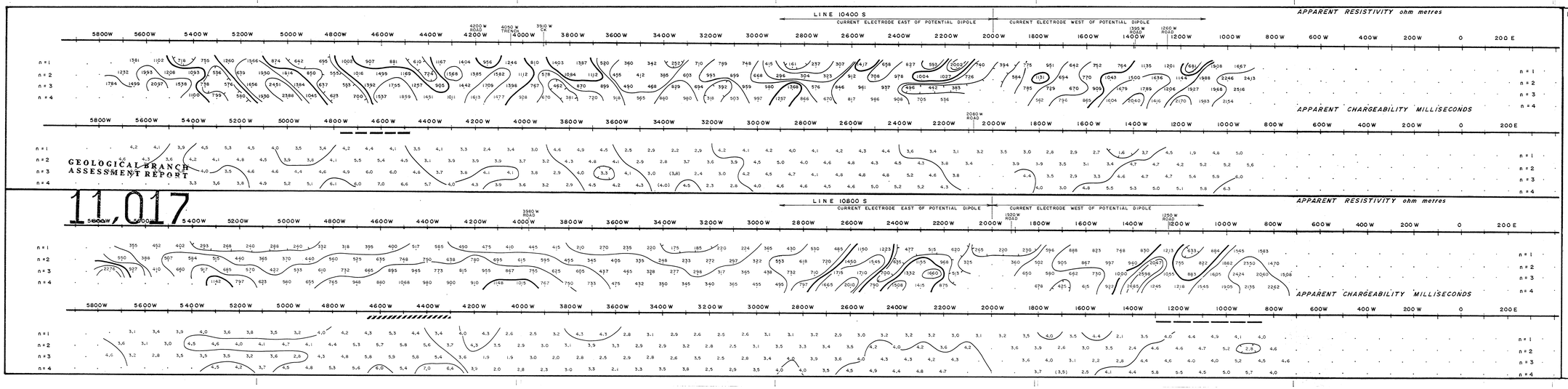
DATE _____

TRANSMITTER — HUNTEC 7.5 Kw UNIT

RECEIVER — HUNTEC MK IV

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

LINE 9600 S — LINE 10000 S



GEOLOGICAL BRANCH
ASSESSMENT REPORT

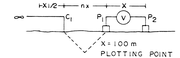
11,017

N.T.S. 92-1-6 DWG. NO. 229-82-8

COMINCO LTD.
ISLAND PROPERTY
KAMLOOPS M.D., B.C.

LINE NO. 10400 S
LINE NO. 10800 S

POLE-DIPOLE
ELECTRODE CONFIGURATION
AX/2 = na



CURRENT ELECTRODE DIRECTION AS NOTED ON THE PSUDO-SECTION

CHARGEABILITY (IP) INTERPRETATION
STRONG CHARGEABILITY HIGH
MODERATE CHARGEABILITY HIGH
WEAK CHARGEABILITY HIGH
P. HIGH AT FURTHER SEPARATIONS

LINE 10400 S JULY 28, 1982
LINE 10800 S

SCALE 1:6,000
DATE SURVEYED JULY 29 & 30, 1982

CONTOUR INTERVALS:
APP RES — 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres
APP CHARG — 0.2 MILLISECONDS

APPROVED _____

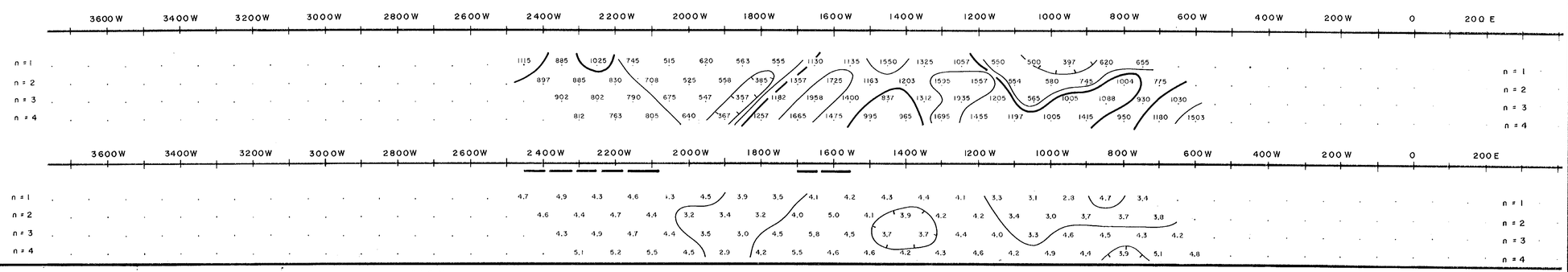
DATE _____

TRANSMITTER — HUNTEC 7.5 Kw UNIT
RECEIVER — HUNTEC MK IV

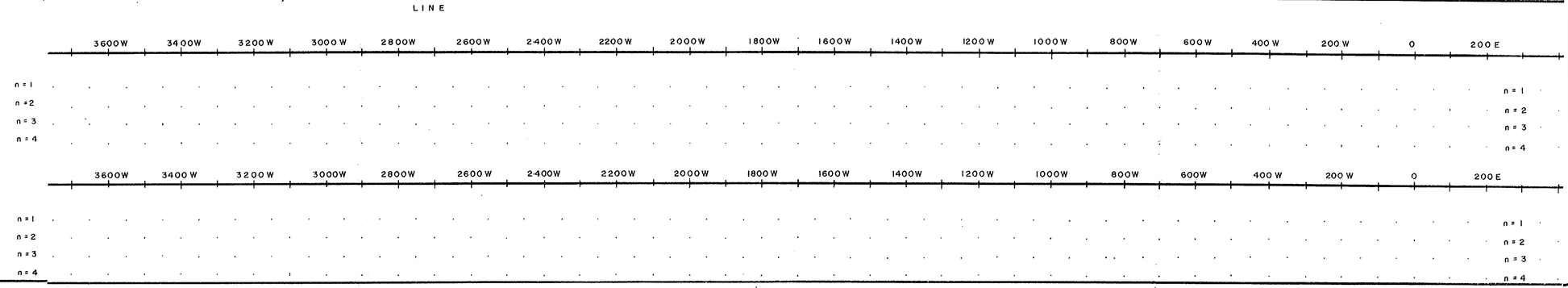
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

LINE 11600 S

CURRENT ELECTRODE WEST OF POTENTIAL DIPOLE



LINE



N.T.S. 92-I-6

DWG. NO. 229-82-9

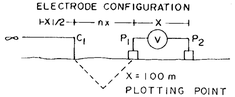
COMINCO LTD.

ISLAND PROPERTY

KAMLOOPS M.D., B.C.

LINE NO. 11600 S

POLE-DIPOLE ELECTRODE CONFIGURATION



CURRENT ELECTRODE DIRECTION AS NOTED ON THE PSUDO-SECTION

CHARGEABILITY (IP) INTERPRETATION

- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- P HIGH AT FURTHER SEPARATIONS

SCALE 1:6,000

LINE 11600 S
DATE SURVEYED JULY 30,31, 1982

CONTOUR INTERVALS:

APP RES — 1, 1.5, 2, 3, 5, 7.5, 10 Ohm metres
APP CHARG. — 0.2 MILLISECONDS

APPROVED _____

GEOLOGICAL BRANCH
ASSESSMENT REPORT

TRANSMITTER — HUNTEC 7.5 Kw UNIT
RECEIVER — HUNTEC MK IV

11,017

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

LINE 11600 S

MAGNETIC NORTH
21°19.30E

LORNEX Tailings Dam

LORNEX
Tailings
Dam

Jim
Black
Lake

Survey Control Line 30W

Survey Control Line 0+0

Geophysics Ground Grid

2000 W

Line 2000 N
Line 1600 N
Line 1200 N
Line 800 N
Line 400 N
Line 00
Line 400 S
Line 800 S

52N
48N
44N
40N
36N
32N
28N
24N
20N
4S
8S

Reservoir

Twentyfour
Mile
Lake

LINES 0.0S, 400S, 800S, SURVEYED IN 1981

1982 GEOPHYSICS GROUND GRID
1981 GEOPHYSICS GROUND GRID
CUT LINES
LAKE
CREEK
SWAMP
ROAD
TRAIL

CHARGEABILITY (IP) INTERPRETATION

STRONG CHARGEABILITY HIGH
MODERATE CHARGEABILITY HIGH
WEAK CHARGEABILITY HIGH
IP HIGH AT FURTHER SEPARATIONS

INSTRUMENT
LINE 800N
TRANSMITTER HUNTEC 7.5 Kw UNIT
RECEIVER HUNTEC MK IV
CONTOUR INTERVAL 2.0 MILLISECONDS
LINE 400N
TRANSMITTER HUNTEC 7.5 Kw UNIT
RECEIVER HUNTEC MK IV
SCINTREX IPR-11

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,017

METRES
0 200 400 600 800 1000

ISLAND PROPERTY

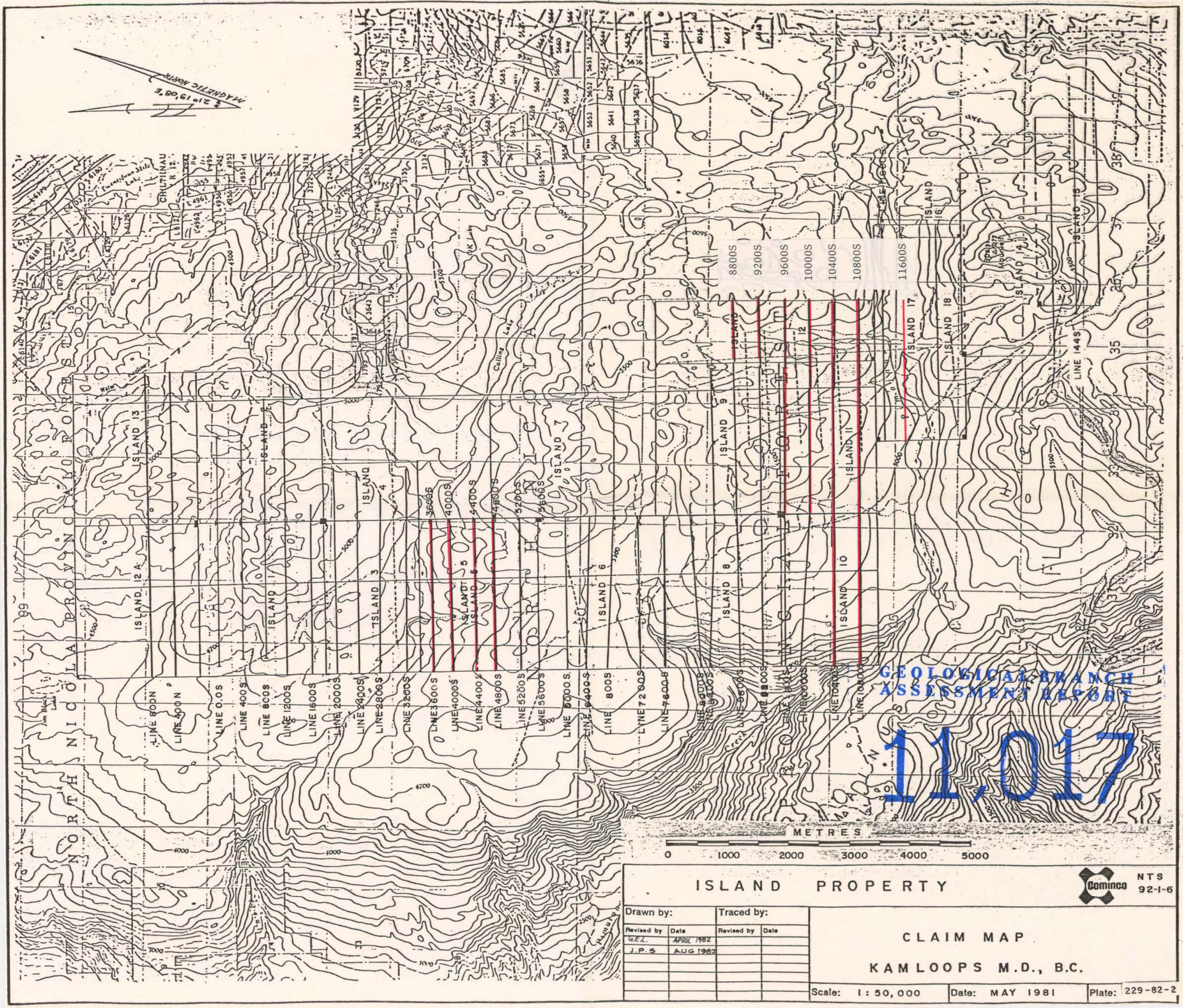
N.T.S. 92-I-6

Drawn by: GJN	Traced by:	
Revised by / Date	Revised by / Date	
F.M. AUG. 1982		

NORTH GRID
CHARGEABILITY n=1
KAMLOOPS M.D., B.C.

Scale: 1:10,000 | Date: OCT. 1981 | Plate: 229-82-10

FORM 310-2080



ISLAND PROPERTY

Cominco

NTS 92-1-6

Drawn by:		Traced by:	
Revised by	Date	Revised by	Date
G.E.L.	APRIL 1982		
J.P.S	AUG 1982		

CLAIM MAP

KAMLOOPS M.D., B.C.

Scale: 1 : 50,000 | Date: MAY 1981 | Plate: 229-82-2

MAGNETIC NORTH
21.0° E

Line 800 S
Line 1200 S
Line 1600 S
Line 2000 S
Line 2400 S
Line 2800 S
Line 3200 S
Line 3600 S
Line 4000 S
Line 4400 S
Line 4800 S
Line 5200 S
Line 5600 S
Line 6000 S
Line 6400 S
Line 6800 S
Line 7200 S
Line 7600 S
Line 8000 S

24N 8S
20N 12S
16N 16S
12N 20S
8N 24S
4N 28S
00 32S
4S 36S
8S 40S
12S 44S
16S 48S
20S 52S
24S 56S
28S 60S
32S 64S
36S 68S
40S 72S
44S 76S
48S 80S

Line 30W
Control Survey
Line 0+0
Base
Grid
Ground Geophysics
2000 W

24N
20N
16N
12 N
8 N
4N
00
4S
8S
12S
16S
20S
24S
28S
30S
36S
40S
44S
48S

Comra Survey Line 0+0

Island
Lake
OK Lake
Calling Lake

LINES 0.0 S, 400 S, 800 S, SURVEYED IN 1981

- 1982 GEOPHYSICS GROUND GRID
- 1981 GEOPHYSICS GROUND GRID
- CUT LINES
- LAKE
- CREEK
- SWAMP
- ROAD
- TRAIL

INSTRUMENT
TRANSMITTER HUNTEC 7.5 Kw UNIT
RECEIVER HUNTEC MK IV
CONTOUR INTERVAL 2.0 MILLISECONDS

CHARGEABILITY (IP) INTERPRETATION

- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPARATIONS

METRES
0 200 400 600 800 1000

ISLAND PROPERTY

N.T.S. 92-I-6

MIDDLE GRID
CHARGEABILITY n=1
KAMLOOPS M.D., B.C.

Drawn by: GJN	Traced by:	
Revised by / Date: T.G. AUG. 1982	Revised by / Date:	

Scale: 1:10,000 Date: OCT. 1981 Plate: 229-82-11

FORM 310-0680

MAGNETIC NORTH
21°19'E

Line 7600 S
Line 8000 S
Line 8400 S
Line 8800 S
Line 9200 S
Line 9600 S
Line 1000 S
Line 10400 S
Line 10800 S
Line 11200 S
Line 11600 S
Line 11200 S
Line 12400 S
Line 12800 S
Line 13200 S
Line 13600 S
Line 14000 S
Line 14400 S
Line 14800 S

Line 30 W Survey Control
Base Line 0+0
2000 W Geophysics Ground Grid
Line 0+0 Survey Control
Base Line

44S 48S 52S 56S 60S 64S 68S 72S 76S
76S 80S 84S 88S 92S 96S 100S 104S 108S

Pimainus Lakes

Spast MTN.

LINES 0.0S, 400S, 800S, SURVEYED IN 1981

- 1982 GEOPHYSICS GROUND GRID
- 1981 GEOPHYSICS GROUND GRID
- CUT LINES
- LAKE
- CREEK
- SWAMP
- ROAD
- TRAIL

CHARGEABILITY (IP) INTERPRETATION

- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPARATIONS

INSTRUMENT
TRANSMITTER HUNTEC 7.5 Kw UNIT
RECEIVER HUNTEC MK IV
CONTOUR INTERVAL 2.0 MILLISECONDS

METRES
0 200 400 600 800 1000

ISLAND PROPERTY

N.T.S. 92-L-6

Drawn by: GJN	Traced by:
Revised by / Date: T.M. AUG. 1982	Revised by / Date:

SOUTH GRID
CHARGEABILITY n=1
KAMLOOPS M.D., B.C.

Scale: 1:10,000 | Date: SEPT. 1981 | Plate: 229-82-12

FORM 210-0060