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A GEOPHYSICAL REPORT ON A
 TIME DOMAIN INDUCED POLARIZATION SURVEY
 ON THE TOUGHNUT PROPERTY
 NELSON MINING DIVISION
 NELSON, BRITISH COLUMBIA

LATITUDE 49°26' NORTH
 LONGITUDE 117°20' WEST
 N.T.S. 82F/6W

FILMED

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 M.R.# _____ \$ _____
 VANCOUVER, B.C.

FOR

LECTUS DEVELOPMENTS LTD.

GEOLOGICAL BRANCH
 ASSESSMENT REPORT

1^Y 18,889

John Lloyd, M.Sc., P. Eng.
 LLOYD GEOPHYSICS LIMITED
 VANCOUVER, BRITISH COLUMBIA

OCTOBER, 1988

SUMMARY

During the period September 9 to September 18, 1988, Lloyd Geophysics Limited carried out a time domain Induced Polarization (IP) survey on part of the Toughnut property for Lectus Developments Ltd.

The survey identified two strong IP anomalies, both of which remain open along strike to the northwest and southeast.

Both anomalies are strongly recommended for trenching and drilling. A total of 450 metres of trenching in 6 trenches and 1425 metres of drilling in 12 holes have been laid out to test these targets. For the IP technique to delineate the shear zone vein systems more accurately, it is recommended that some of these targets be tested using a dipole length of 12.5 and 25 metres.

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Personnel Employed on Survey	(i)
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Chargeability And Resistivity Pseudo-Sections, N = 1 to 4	Bound into Report
Chargeability Contour Plan Map, N = 1 And Interpretation	In Map Pocket
Resistivity Contour Plan Map, N = 1	In Map Pocket

1. INTRODUCTION

During the period September 9 to September 18, 1988, Lloyd Geophysics Limited carried out a time domain Induced Polarization (IP) survey on part of the TOUGHNUT property near Nelson, British Columbia for Lectus Developments Ltd.

2. PROPERTY LOCATION AND ACCESS

The TOUGHNUT property is located in the Nelson Mining Division, 6 kilometres southwest of Nelson, British Columbia (Figure 1). It is approximately 1.5 kilometres north of the old Silver King Mine.

Access is by good forestry road off the Nelson-Salmo Highway from the Giveout Creek turnoff which is some 5 kilometres south of Nelson. From here the property can be reached by a 20 kilometre forestry road along the west side of Giveout Creek. Topography is moderately steep with elevations ranging from 1500 to 2100 metres. Giveout Creek is the main drainage, and is readily traversed by foot or small bridges which allow 4 wheel drive access.

Mature second growth larch, fir, hemlock, red cedar and white cedar covers much of the area, with some recent clean-fell areas within the claim holdings.

3. CLAIM HOLDINGS

The claims held at December 2, 1987 consisted of 64 units,



SCALE
 0 40 80 120
 Kilometres

LECTUS DEVELOPMENTS LTD.		
TOUGHNUT PROPERTY NELSON MINING DIVISION, B. C.		
LOCATION MAP		
LLOYD GEOPHYSICS LIMITED		
DATE: Oct./88	SCALE: 1:8,000,000	FIGURE No. 1

with a combination of crown grants, modified grid and two post staking. This claim group was recently extended by 16 units through the option of the AG, WHISKER, BLACK WITCH, NORTH STAR, and TOUGHNUT claims and crown grants.

The property listing as at December 2, 1987 has been provided by Lectus and is as follows:

<u>Claim</u>	<u>Units</u>	<u>Record No.</u>	<u>Record Date</u>	<u>Expiry</u>
<u>Asarco Option:</u>				
Birdseye	CG	L3278	-	-
Princeton Fr	CG	L3938	-	-
Gold Eagle	4	1302	Oct. 16/79	1990
Gold Eagle #1FR	1	1531	Mar. 5/80	1992
Gold Eagle #2	2	1532	Mar. 5/80	1990
Gold Eagle #3	9	1533	Mar. 5/80	1990
Gold Eagle #4	6	1841	Aug. 5/80	1989
Gold Eagle #5FR	1	1856	Aug. 13/80	1990
Gold Eagle #6FR	1	1857	Aug. 13/80	1990
Lady Aberdeen	RCG	919	Jan. 22/79	1992
Minto FR	RCG	920	Jan. 22/79	1992
Inverness	RCG	918	Jan. 22/79	1992
Haddo FR	RCG	921	Jan. 22/79	1992
Horseshoe	RCG	1307	Oct. 22/79	1992
Red Fr	RCG	1308	Oct. 22/79	1990
Tregarden FR	RCG	1309	Oct. 22/79	1990
<u>Bourdon Option:</u>				
Hillside	6	3512	Sept. 13/83	1997
Hilltop FR	1	3511	Sept. 13/84	1997
Great Western	RCG	1551	Feb. 19/80	1998
Irene	RCG	1552	Feb. 19/80	1998
Great Eastern	RCG	1553	Feb. 19/80	1998

<u>Claim</u>	<u>Units</u>	<u>Record No.</u>	<u>Record Date</u>	<u>Expiry</u>
<u>Weir Option:</u>				
Thistle	CG	L2238	-	-
White Witch	CG	L3595	-	-
Great West FR	CG	L4773	-	-
<u>Labelle Option:</u>				
North Star	CG	L4149	-	-
<u>Addie, Addie, Palmer Option:</u>				
Black Witch	CG	L4146	-	-
Toughnut	CG	L199	-	-
AG	1	4248	-	Oct. 9/90
AG1	1	3827	-	July 27/89
AG2	1	3830	-	July 27/89
AG3	1	3831	-	July 27/89
AG4	1	3832	-	July 27/89
AG5	1	3833	-	July 27/89
AG6	1	3834	-	July 27/89
Crow	1	4355	-	June 16/88
Whiskers 1	1	3926	-	Oct. 9/89
Whiskers 2	1	3927	-	Oct. 9/90
Whiskers 3	1	3928	-	Oct. 9/89
Whiskers 4	1	3929	-	Oct. 9/89
Whiskers 5FR	1	3930	-	Oct. 9/89
<u>Palmer Option:</u>				
Starlight	CG	684	-	-
Golden Bell	CG	4155	-	-

CG = Crown Granted Claim

RCG = Reverted Crown Grant Claim

AG and WHISKER are 2 post claims.

The location of the geophysical grid with respect to these claim holdings is shown in Figure 2.

4. GEOLOGY

4.1. Regional Geology

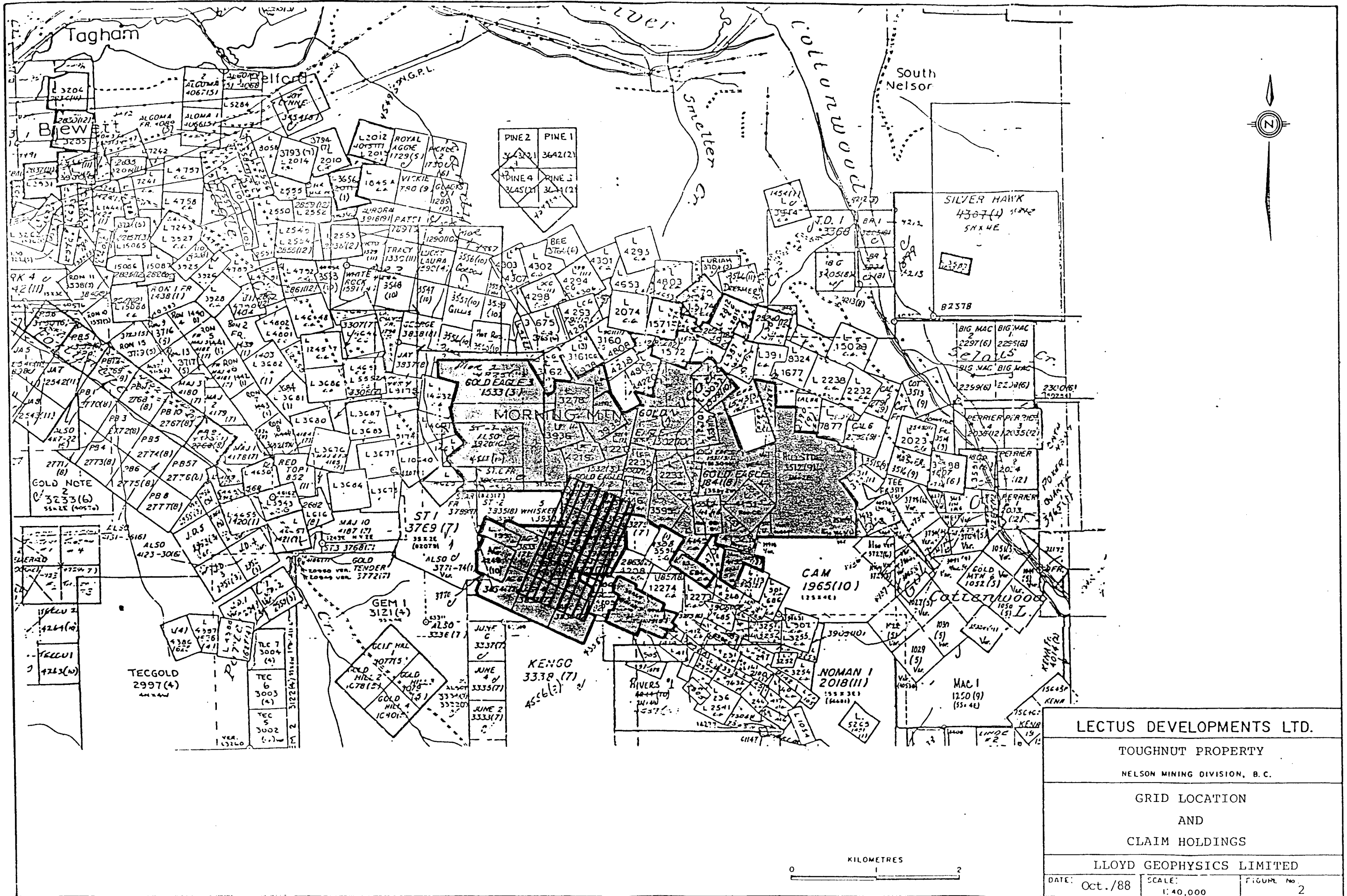
The area near Morning Mountain consists of rocks of the Lower Jurassic Rosslund Group. This is a series of andesite flows, agglomerates and tuffs with minor shales. These are intruded by the Silver King Stock, a porphyritic syenite of Jurassic-Cretaceous age. To the north and northwest the geology is dominated by rocks of the Nelson Batholith.

The Elise and Beaver Mountain Formations have been identified as subdivisions within the Rosslund Volcanic Group. These Formations are dominantly volcanic with aphanitic to porphyritic andesite flows and pyroclastic rocks predominating in the Elise Formation. The Beaver Mountain Formation, which overlies the Elise Formation, consists mainly of dark green augite porphyry flows and intrusions.

4.2. Property Geology

Outcrop within the area is practically limited to exposures in Giveout Creek, roadcuts and the summit of Morning Mountain.

Along Giveout Creek, and adjacent to the Silver King Stock, strongly schistose andesite tuffs with abundant



LECTUS DEVELOPMENTS LTD.		
TOUGHNUT PROPERTY		
NELSON MINING DIVISION, B.C.		
GRID LOCATION AND CLAIM HOLDINGS		
LLOYD GEOPHYSICS LIMITED		
DATE: Oct./88	SCALE: 1:40,000	FIGURE No. 2

pyrite outcrop. These rocks grade easterly into massive augite porphyry near the summit of Morning Mountain. Bedding is not apparent in the metamorphosed tuffs, but foliation strikes northwest dipping 60° to 70° southwest.

The Silver King Syenite appears to be a hybrid intrusive along the front of the Nelson Batholith. It intrudes the Rosslund Group on the eastern half of the property, and forms finger embayments along its margins.

Scattered quartz-carbonate veins and veinlets occur in the schistose tuffaceous rocks. These veins appear to be mesothermal fracture fillings within the host rocks. They were the targets of the early mining operations, and in some areas eg. Granite-Poorman were developed over strike lengths in excess of 1100 feet.

5. PURPOSE OF THE IP SURVEY

The purpose of the IP survey was to determine the distribution of disseminated pyrite, which is expected to exist in the favourable geology. The exploration target is a low grade bulk tonnage gold target, where the gold is expected to be associated with disseminated pyrite. Additionally high grade shear zone veins are known to exist on the property from previous and recent drilling. These are also expected to be detected by the survey, with a different IP signature.

6. INSTRUMENT SPECIFICATIONS

The IP system used to carry out this survey was a time

domain measuring system manufactured by Hunttec Limited of Toronto, Ontario.

The system consists of a Wagner Leland alternator, driven by a 25 horsepower Onan engine which supplies in excess of 7.5 kilowatts of 3 phase power to the ground at 400 hertz, a Mark II transmitter and TWO Mark IV microprocessor controlled receivers.

The Mark II transmitter was operated with a cycle time of 8 seconds and the duty cycle ratio: $\{(\text{time on})/(\text{time on} + \text{time off})\}$ was 0.5. This means the cycling sequence of the transmitter was 2 seconds current "on" and 2 seconds current "off" with consecutive pulses reversed in polarity.

The Mark IV receiver is microprocessor controlled, featuring automatic calibration, gain setting, SP cancellation, fault diagnosis and filter tuning. Operation of the instrument is controlled by 3 front panel switches and a keypad for requesting data on the digital display.

The delay time, the integration time and a number of other parameters may also be adjusted, by means of sub-panel switches to accommodate a wide range of geological conditions. Measurements are calculated automatically every 4 to 8 seconds from the averaged waveform which is accumulated in memory at 2,048 sample points.

The instrument has 10 equal chargeability channels, M0, M1, M2, M3, M4, M5, M6, M7, M8, M9 (see Figure 3). These may be recorded individually, selectively or summed up automatically to obtain the total chargeability.

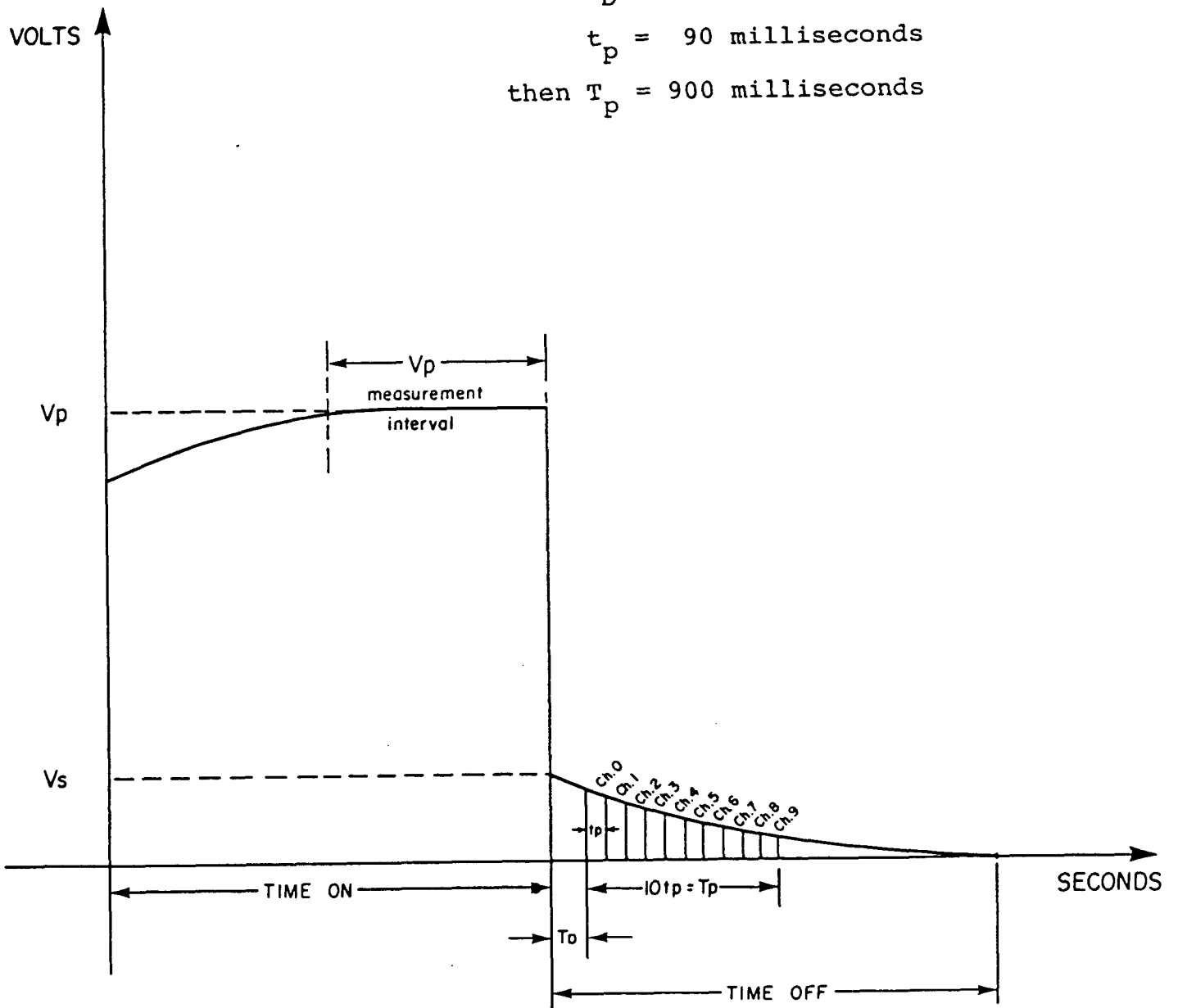
The apparent resistivity (ρ_a) in ohm-metres is calculated on the field computer, using the primary voltage (V_p),

Parameters Used For Survey

$$T_D = 120 \text{ milliseconds}$$

$$t_p = 90 \text{ milliseconds}$$

$$\text{then } T_p = 900 \text{ milliseconds}$$



Mark IV Receiver Measurement Parameters

FIGURE 3

the measured current (I_g) and some factor (K) which is dependent on the geometry of the array used.

The instrument parameters chosen for this survey were as follows:

Cycle Time (T_C) = 8 seconds

Ratio (Time On) = 2:2
(Time Off)

Duty Cycle Ratio

$$\left[\frac{\text{(Time On)}}{\text{(Time On)} + \text{(Time Off)}} \right] = 0.5$$

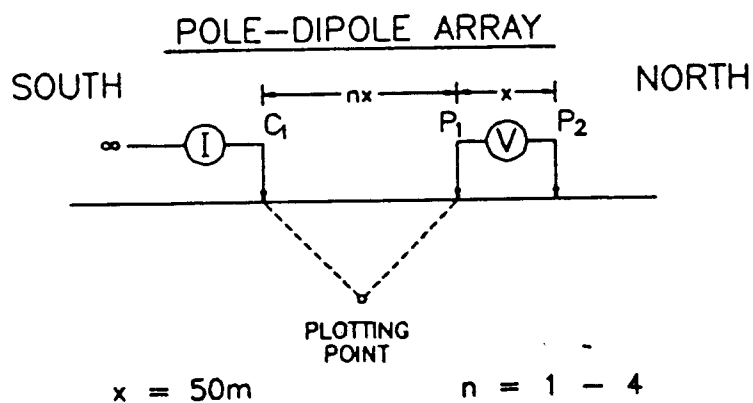
Delay Time (T_D) = 120 milliseconds

Window Width (t_p) = 90 milliseconds

Total Integrating
Time (T_p) = 900 milliseconds

7. SURVEY SPECIFICATIONS

The configuration of the POLE-DIPOLE array used for this survey is shown below:



The dipole length (x) is the distance between P_1 and P_2 and determines mainly the sensitivity of the array. The electrode separation (nx) is the distance between C_1 and P_1 and determines mainly the depth of penetration of the array.

The parameters chosen for this survey were $x = 50$ metres, with measurements being taken for $n = 1, 2, 3,$ and 4 .

8. DATA PROCESSING

The data collected was transferred to diskette for processing in the field, using a Compaq 286 Portable Computer and an Epson Printer.

The software used to contour the data is based on the mathematical solution known as "krigging".

In the office the data was transferred to mylar using a Compaq 386 Computer coupled to either a Hewlett Packard Draftsmaster II Plotter or a DL2400 Fujitsu Printer.

9. DATA PRESENTATION

The data obtained from the survey described in this report are presented on 9 pseudo-sections and 2 contour plan maps as follows:

9.1. Pseudo-Sections

<u>Line No.</u>	<u>Dwg. No.</u>
0+00E	88277-1
1+00E	88277-2
2+00E	88277-3
3+00E	88277-4
4+00E	88277-5
5+00E	88277-6
6+00E	88277-7
7+00E	88277-8
8+00E	88277-9

9.2. Contour Plan Maps

<u>Description</u>	<u>Dwg. No.</u>
Chargeability N = 1 And Interpretation	88277-10
Resistivity N = 1	88277-11

10. DISCUSSION OF RESULTS

An IP response depends largely on the following factors:

1. The number of pore paths that are blocked by sulphide grains.
2. The number of sulphide faces that are available for polarization.

3. The absolute size and shape of the sulphide grains and the relationship of their size and shape to the size and shape of the available pore paths.
4. The volume content of sulphide minerals.
5. The electrode array employed.
6. The width, depth, thickness and strike length of the mineralized body and its location relative to the array.
7. The resistivity contrast between the mineralized body and the unmineralized host rock.

The sulphide content of the underlying rocks is one of the critical factors that we would like to determine from field measurements. Experience has shown that this is both difficult and unreliable because of the large number of variables, described above, which contribute to an IP response. The problem is further complicated by the fact that rocks containing magnetite, graphite, clay minerals and variably altered rocks also produce IP responses.

A detailed study has been made of the pseudo-sections which accompany this report. These pseudo-sections are not sections of the electrical properties of the sub-surface strata and cannot be treated as such when determining the depth, width and thickness of a zone which produces an anomalous pattern.

From this study the anomalies selected are shown on the individual pseudo-sections and are classified into 4 groups. These are definite, probable and possible

anomalies and anomalies which may have a deeper source.

This classification is based partly on the relative amplitudes of the chargeability and to a lesser degree on the resistivity response. Of equal importance in this classification is the overall anomaly pattern and the degree to which this pattern may be correlated from line to line, provided of course that the correlation is not so extensive along strike, to most probably represent only the subcrop of a geological formation.

The survey detected TWO strong well defined anomalous zones. These two zones extend directly from west to east across the central portion of the grid and appear to merge into one zone on the eastern edge of the grid. For identification purposes these two zones have been named the SOUTHERN ZONE and the NORTHERN ZONE.

SOUTHERN ZONE

This zone is characterized by chargeabilities ranging from 10 to over 30 milliseconds. The general background of the area to the south is around 5 milliseconds.

The anomaly is associated with a well-defined resistivity low at 125N on line 0+00. This resistivity low which varies from 600 to 800 ohm-metres is set in a resistivity background of over 2000 ohm-metres. Such a signature is likely to represent either more massive sulphides or a fault and/or a geological contact. The resistivity low weakens rapidly to the east and dies out on line 500E. The surface projection of this anomalous zone is in the order of 150 metres wide, however, the sulphide zone is probably

only 50 to 70 metres wide.

This zone is the primary exploration target on the grid for additional work in the form of trenching and diamond drilling.

NORTHERN ZONE

This zone is characterized by slightly lower anomalous chargeabilities ranging from 10 to 20 milliseconds. The general background of the area to the north is around 5 to 7 milliseconds.

There is no obvious correlation between the chargeability anomaly and the measured resistivities. This coupled to the fact that the overall amplitude of the anomaly is lower than the SOUTHERN zone would lead one to suspect that this zone contains less sulphides, possibly of a more disseminated nature.

This zone is the secondary exploration target on the grid, for additional work in the form of trenching and diamond drilling.

11. CONCLUSIONS AND RECOMMENDATIONS

From a study of the IP data obtained from the survey described in this report it has been concluded that the TWO strong chargeability anomalies detected during the course of the survey are worthy of further exploration by diamond drilling or by trenching and diamond drilling. It is the writer's understanding that geological mapping and a

geochemical soil survey have recently been completed on this portion of the property. This information has not been made available to the writer at this time. Therefore the trenching and drilling recommendations are based mainly on the IP data.

SOUTHERN ZONE

The IP anomaly best fits a mineralized zone about 20 to 30 metres wide dipping about 65° to 70° to the southwest. This zone is most probably thinner than the Northern Zone.

Trenching and drilling have been designed to test this interpretation as follows:

<u>Line No.</u>	<u>Trench</u>	
	<u>From</u>	<u>To</u>
0+00	80N	160N
1+00E	100N	180N
2+00E	150N	225N

If the trenching is successful the following drilling is recommended to test below the trenches:

<u>Hole No.</u>	<u>Line No.</u>	<u>Collar Location</u>	<u>Angle</u>	<u>Direction</u>	<u>Length of Hole</u>
1	0+00	100N	-45°	Drill from S to N	70m
2	0+00	50N	-45°	Drill from S to N	120m
3	0+00	B.L.	-45°	Drill from S to N	180m
4	1+00E	125N	-45°	Drill from S to N	60m
5	1+00E	75N	-45°	Drill from S to N	110m
6	1+00E	25N	-45°	Drill from S to N	165m

NORTHERN ZONE

A well developed cliff appears to co-incide roughly with the axis of this zone on the western half of the grid. The trenching and drilling recommendations set out below may have to be modified as the programme progresses.

The IP anomaly best fits a mineralized zone about 25 to 50 metres wide, dipping about 70° to the southwest.

The trenching and drilling have been designed to test this interpretation as follows:

<u>Line No.</u>	<u>Trench</u>	
	<u>From</u>	<u>To</u>
1+00E	415N	485N
2+00E	385N	460N
3+00E	365N	435N

If the trenching is successful the following drilling is recommended to test below the trenches:

<u>Hole No.</u>	<u>Line No.</u>	<u>Collar Location</u>	<u>Angle</u>	<u>Direction</u>	<u>Length of Hole</u>
7	2+00E	400N	-45°	Drill from S to N	65m
8	2+00E	350N	-45°	Drill from S to N	115m
9	2+00E	300N	-45°	Drill from S to N	170m
10	3+00E	375N	-45°	Drill from S to N	70m
11	3+00E	325N	-45°	Drill from S to N	120m
12	3+00E	275N	-45°	Drill from S to N	180m

The width of the zones as interpreted from the IP data are considerably wider than the target sought, however, these wider zones may represent an envelop of disseminated pyrite around shear zone vein systems and may contain low grade gold.

To pin point these shear zone vein systems more accurately it is recommended that some of these targets be tested with a dipole length of $x = 25$ metres and $x = 12.5$ metres. The outcome of this test should be used to guide future IP surveys.

Finally, both zones remain open along strike to the northwest and the southeast. These zones should be closed off in both directions, if claim holdings permit.

Respectfully submitted,
LLOYD GEOPHYSICS LIMITED



John Lloyd, M.Sc., P.Eng.
Geophysicist

Vancouver, B.C.
October, 1988

Personnel Employed On Survey

<u>Name</u>	<u>Occupation</u>	<u>Address</u>	<u>Dates</u>
J. Lloyd	Geophysicist	Lloyd Geophysics Limited 1110-625 Howe Street Vancouver, B.C. V6C 2T6	Oct. 25-28/88
J. Cornock	Geophysicist	"	Sept. 9-18/88
F. Dzuiba	Geophysicist	"	Sept. 9-18/88
M. Pelletier	Geophysicist	"	Sept. 9-18/88
B. Waddington	Helper	"	Sept. 9-18/88
T. Bokenfohr	Helper	"	Sept. 9-18/88
J. Zondag	Typist	"	Oct. 28/88

Cost of Survey And Reporting

Lloyd Geophysics Limited contracted the data acquisition on a per diem charge basis. Room and board, truck charges, data processing, computer plotting, map reproduction, interpretation and report writing were extra. The breakdown of these costs are shown below:

Data Acquisition	\$ 19,975.00
Room & Board	3,500.00
Truck Charges	935.00
Computer Plotting	1,575.00
Reproduction Costs	371.00
Interpretation & Report Writing	1,200.00
TOTAL COST	\$ <u>27,556.00</u>

(iii)

Certification

I, John Lloyd, of 1110-625 Howe Street, in the City of Vancouver, in the Province of British Columbia, do hereby certify that:

1. I graduated from the University of Liverpool, England in 1960 with a B.Sc. in Physics and Geology, Geophysics Option.
2. I obtained the diploma of the Imperial College of Science and Technology (D.I.C.), in Applied Geophysics from the Royal School of Mines, London University in 1961.
3. I obtained the degree of M.Sc. in Geophysics from the Royal School of Mines, London University in 1962.
4. I am a member in good standing of the Association of Professional Engineers in the Province of British Columbia, the Society of Exploration Geophysicists of America, the European Association of Exploration Geophysicists and the Canadian Institute of Mining and Metallurgy.
5. I have been practising my profession for over twenty-five years.
6. I have no interest in said property or shares of Lectus Developments Ltd., nor do I expect to receive any.

Vancouver, B.C.
October, 1988

9 plans
at back of text.

882771

TO

882779

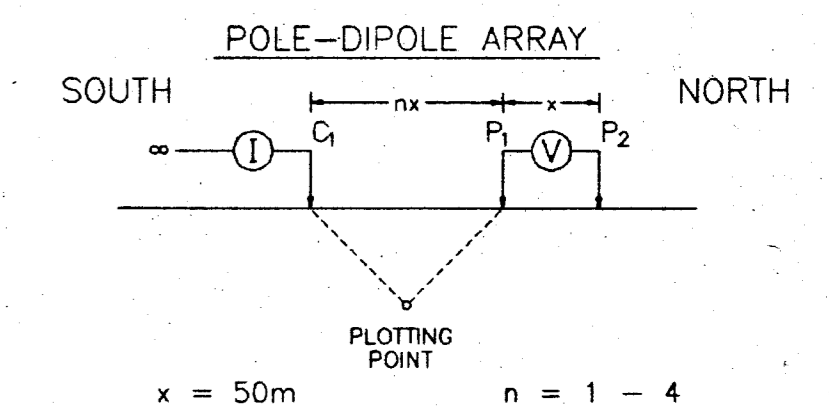
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L0+00



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE
- PROBABLE
- POSSIBLE
- AT DEPTH

SCALE 1 : 2000

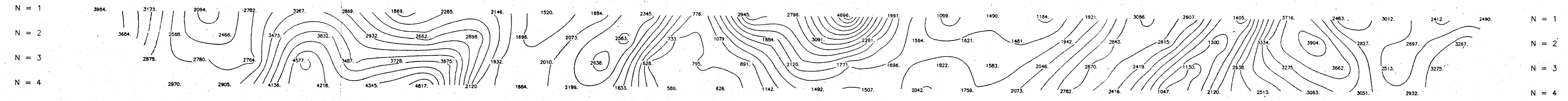
CONTOUR INTERVALS
 APP.CHARGEABILITY : 5.0 (msec)
 APP.RESISTIVITY : 250 (ohm-m)
 DATE SURVEYED: September 9, 1988
 Tx: Huntec MK2 Model 7500
 Rx: Huntec Mk4

LLOYD GEOPHYSICS LIMITED

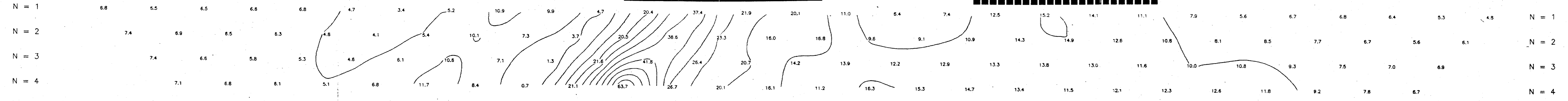
INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-1

RESISTIVITY (OHM-M)



CHARGEABILITY (MSEC)



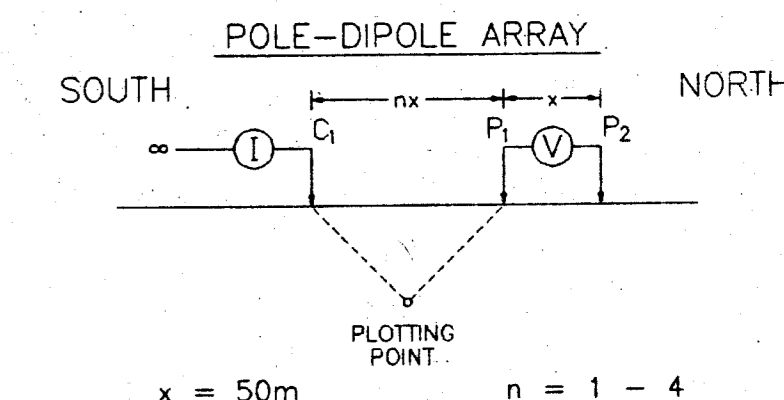
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LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L1+00E



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE
- PROBABLE
- POSSIBLE
- AT DEPTH

SCALE 1 : 2000

CONTOUR INTERVALS
APP.CHARGEABILITY : 2.0 (msec)
APP.RESISTIVITY : 250 (ohm-m)

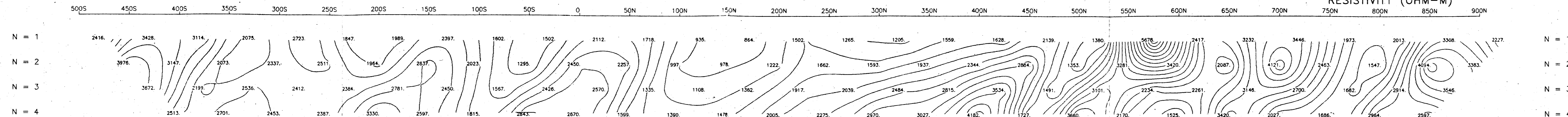
DATE SURVEYED: Sept. 12, 1988
Tx: Huntec Mk2 Model 7500
Rx: Huntec Mk4

LLOYD GEOPHYSICS LIMITED

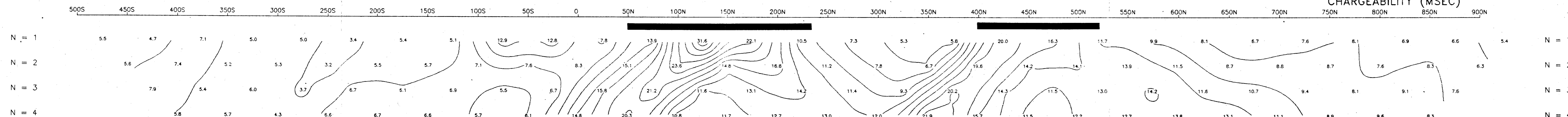
INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-2

RESISTIVITY (OHM-M)



CHARGEABILITY (MSEC)



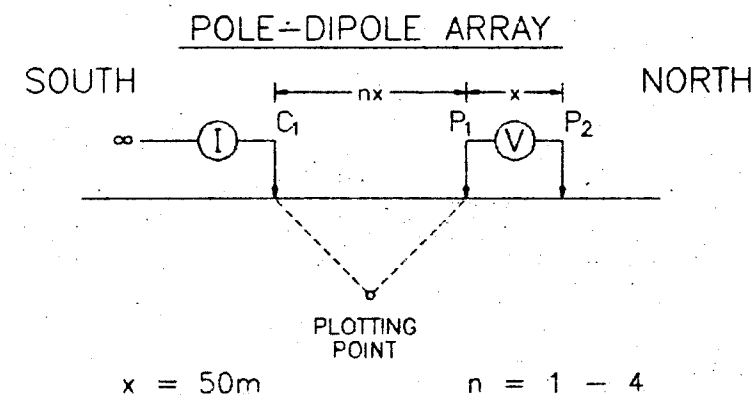
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L2+00E



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE
- PROBABLE
- POSSIBLE
- AT DEPTH

SCALE 1 : 2000

CONTOUR INTERVALS
APP. CHARGEABILITY : 1.0 (msec)
APP. RESISTIVITY : 200 (ohm-m)

DATE SURVEYED: Sept. 13, 1988
Tx: Hunttec Mk2 Model 7500
Rx: Hunttec Mk4

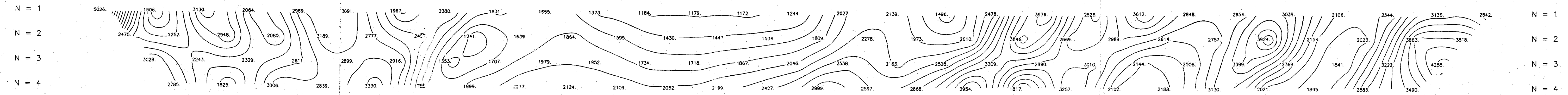
LLOYD GEOPHYSICS LIMITED

INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-3

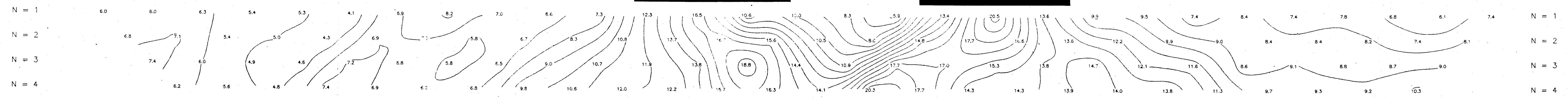
RESISTIVITY (OHM-M)

500S 450S 400S 350S 300S 250S 200S 150S 100S 50S 0 50N 100N 150N 200N 250N 300N 350N 400N 450N 500N 550N 600N 650N 700N 750N 800N 850N 900N



CHARGEABILITY (MSEC)

500S 450S 400S 350S 300S 250S 200S 150S 100S 50S 0 50N 100N 150N 200N 250N 300N 350N 400N 450N 500N 550N 600N 650N 700N 750N 800N 850N 900N



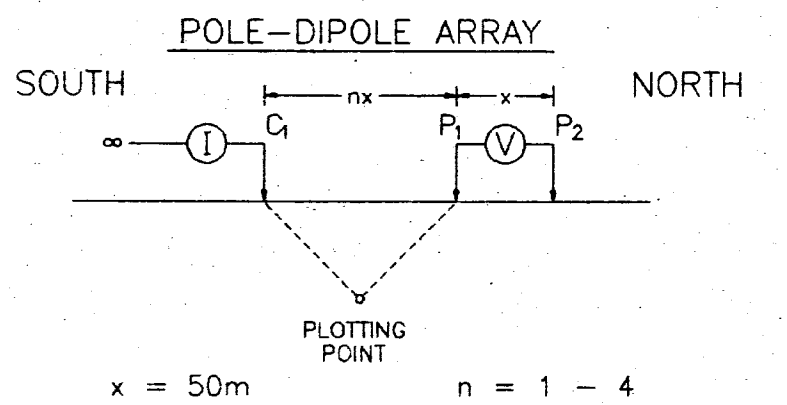
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LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

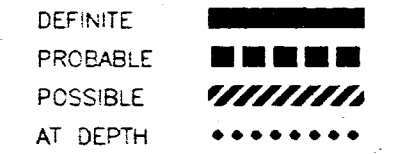
Toughnut Grid

LINE: L3+00E



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES



SCALE 1 : 2000

CONTOUR INTERVALS
 APP. CHARGEABILITY : 1.0 (msec)
 APP. RESISTIVITY : 250 (ohm-m)
 DATE SURVEYED: Sept. 14, 1988
 Tx: Huntect Mk2 Model 7500
 Rx: Huntect Mk4

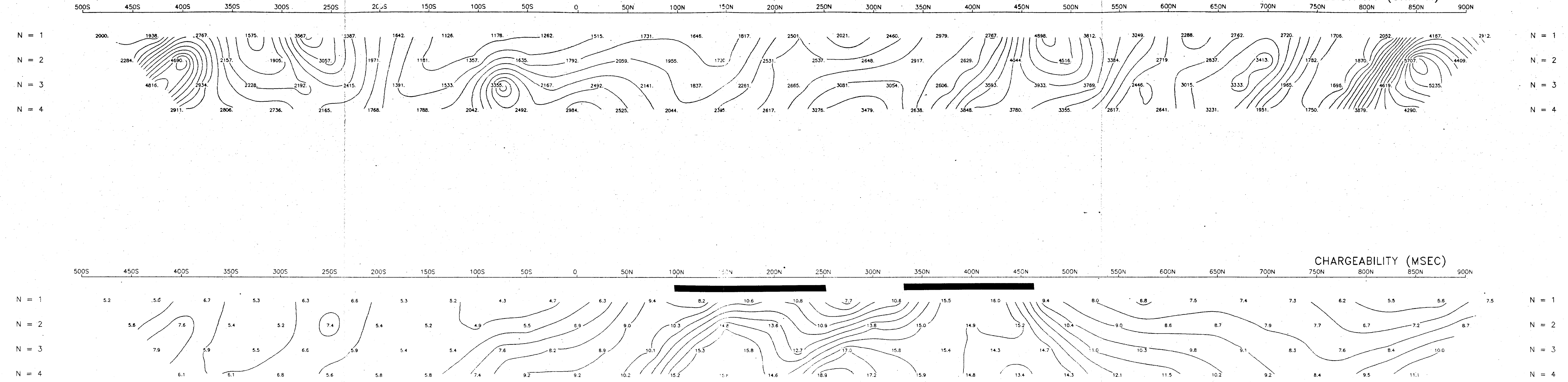
LLOYD GEOPHYSICS LIMITED

INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-4

RESISTIVITY (OHM-M)

CHARGEABILITY (MSEC)



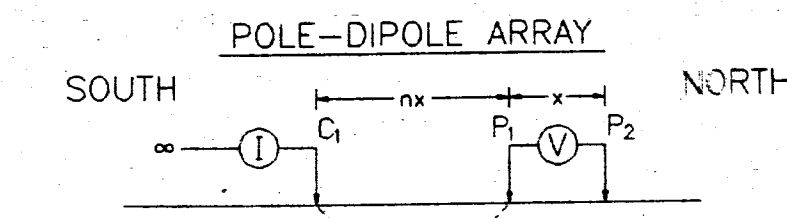
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L4+00E



POLE-DIPOLE ARRAY
SOUTH NORTH
PLOTING POINT
 $x = 50m$ $n = 1 - 4$

CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES

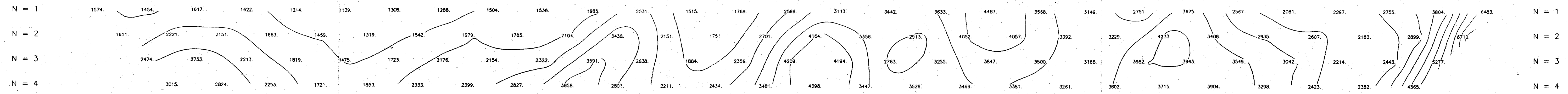
- DEFINITE [Solid black bar]
- PROBABLE [Dashed black bar]
- POSSIBLE [Dotted black bar]
- AT DEPTH [Dotted black bar]

SCALE 1 : 2000

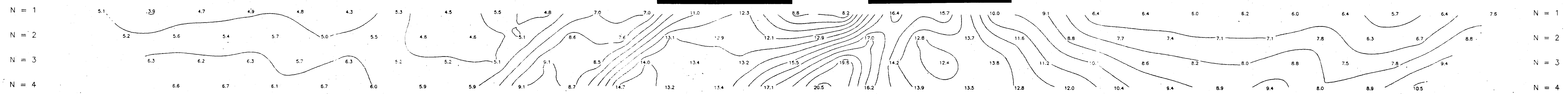
CONTOUR INTERVALS
APP.CHARGEABILITY : 1.0 (msec)
APP.RESISTIVITY : 500 (ohm-m)

DATE SURVEYED: Sept. 14, 15 1988
Tx: Huntec Mk2 Model 7500
Rx: Huntec Mk4

RESISTIVITY (OHM-M)



CHARGEABILITY (MSEC)



LLOYD GEOPHYSICS LIMITED

INDUCED POLARIZATION SURVEY
DRAWING NUMBER : 88277-5

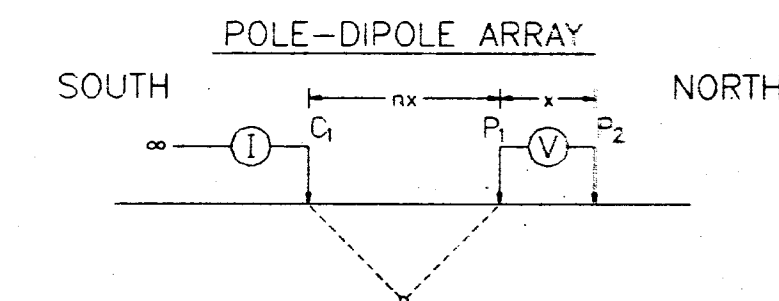
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L5+00E



x = 50m n = 1 - 4

CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE [Solid black bar]
- PROBABLE [Dotted black bar]
- POSSIBLE [Hatched black bar]
- AT DEPTH [Dotted black bar]

SCALE 1 : 2000

CONTOUR INTERVALS

APP.CHARGEABILITY : 1.0 (msec)

APP.RESISTIVITY : 25Ω (ohm-m)

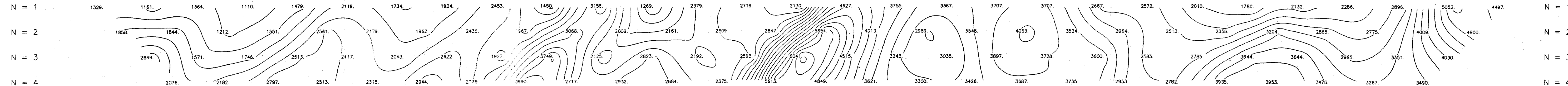
DATE SURVEYED: Sept. 15, 1988

Tx: Huntec Mk2 Model 7500

Rx: Huntec Mk4

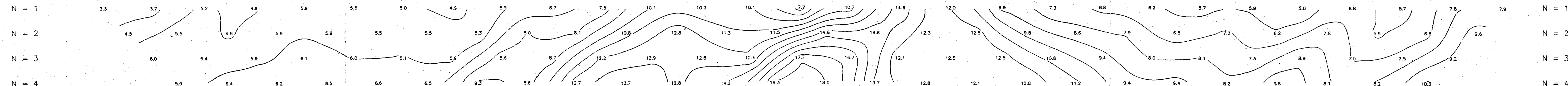
RESISTIVITY (OHM-M)

500S 450S 400S 350S 300S 250S 200S 150S 100S 50S 0 50N 100N 150N 200N 250N 300N 350N 400N 450N 500N 550N 600N 650N 700N 750N 800N 850N 900N



CHARGEABILITY (MSEC)

500S 450S 400S 350S 300S 250S 200S 150S 100S 50S 0 50N 100N 150N 200N 250N 300N 350N 400N 450N 500N 550N 600N 650N 700N 750N 800N 850N 900N



LLOYD GEOPHYSICS LIMITED

INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-6

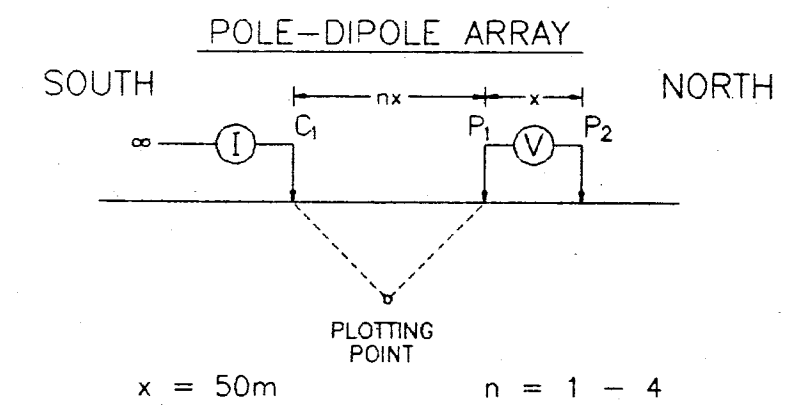
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L6+00E



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

SURFACE PROJECTION OF ANOMALOUS ZONES

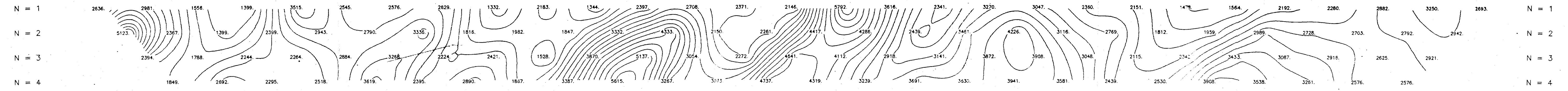
- DEFINITE
- PROBABLE
- POSSIBLE
- AT DEPTH

SCALE 1 : 2000

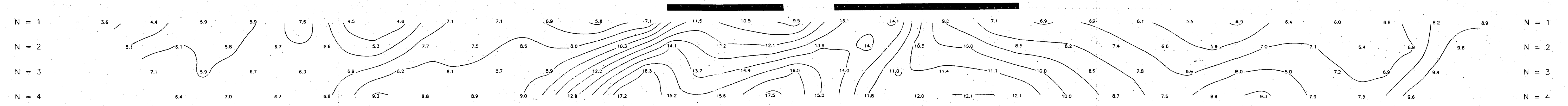
CONTOUR INTERVALS
 APP.CHARGEABILITY : 1.0 (msec)
 APP.RESISTIVITY : 250 (ohm-m)

DATE SURVEYED: Sept.16, 1988
 Tx: Huntec Mk2 Model 7500
 Rx: Huntec Mk4

RESISTIVITY (OHM-M)



CHARGEABILITY (MSEC)



LLOYD GEOPHYSICS LIMITED

INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-7

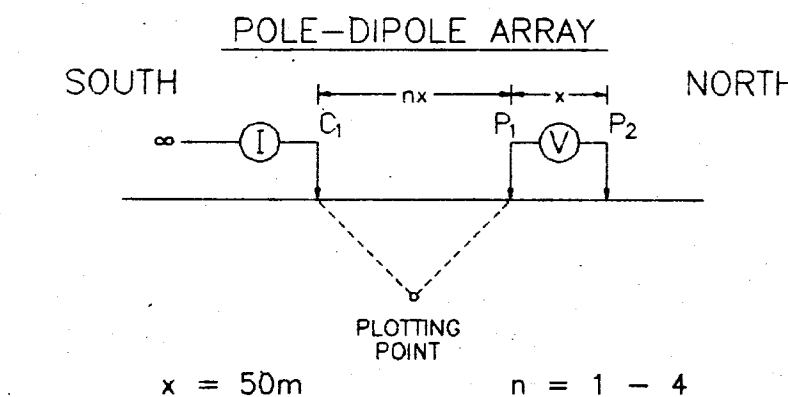
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L7+00E



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

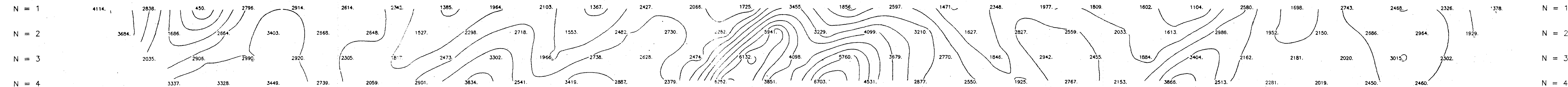
SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE
- PROBABLE
- POSSIBLE
- AT DEPTH

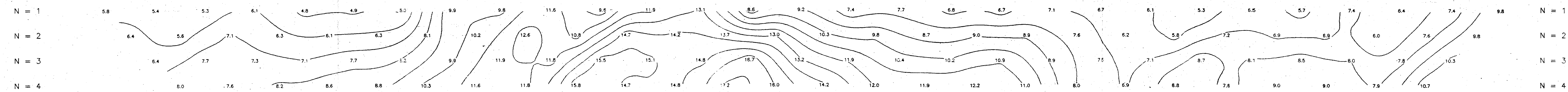
SCALE 1 : 2000

CONTOUR INTERVALS
 APP.CHARGEABILITY : 1.0 (msec)
 APP.RESISTIVITY : 500 (ohm-m)
 DATE SURVEYED: Sept.18, 1988
 Tx: Huntec Mk2 Model 7500
 Rx: Huntec Mk4

RESISTIVITY (OHM-M)



CHARGEABILITY (MSEC)



LLOYD GEOPHYSICS LIMITED

INDUCED POLARIZATION SURVEY

DRAWING NUMBER : 88277-8

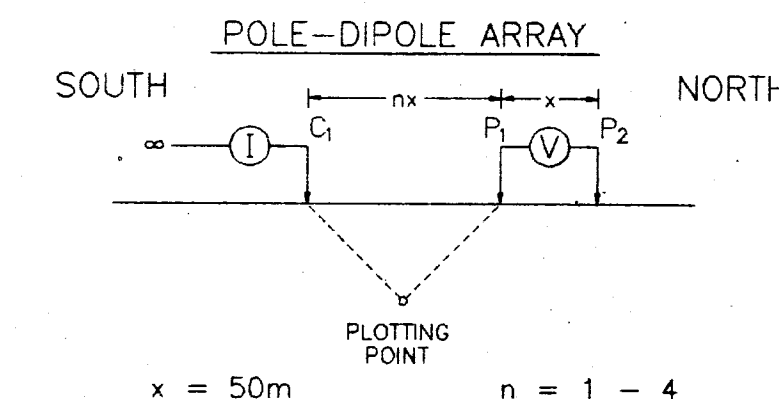
18889

LECTUS DEVELOPMENTS LTD.

Nelson Mining Division

Toughnut Grid

LINE: L8+00E



CURRENT ELECTRODE C₁ SOUTH OF POTENTIAL DIPOLE P₁P₂

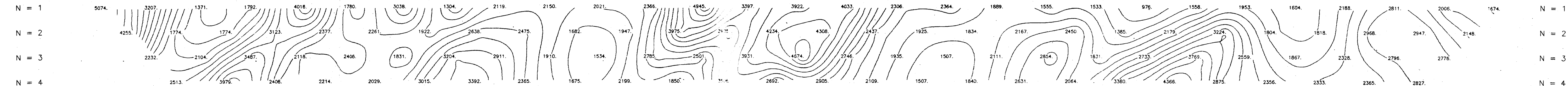
SURFACE PROJECTION OF ANOMALOUS ZONES

- DEFINITE
- PROBABLE
- POSSIBLE
- AT DEPTH

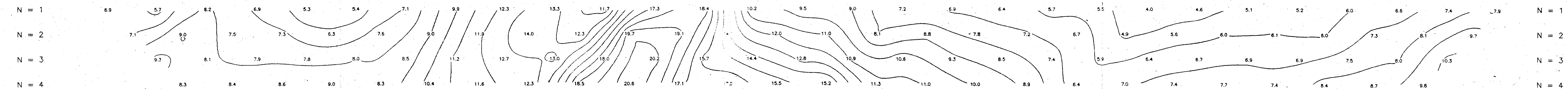
SCALE 1 : 2000

CONTOUR INTERVALS
 APP.CHARGEABILITY : 1.0 (msec)
 APP.RESISTIVITY : 250 (ohm-m)
 DATE SURVEYED: Sept. 10,11 1988
 Tx: Huntec Mk2 Model 7500
 Rx: Huntec Mk4

RESISTIVITY (OHM-M)



CHARGEABILITY (MSEC)



LLOYD GEOPHYSICS LIMITED
 INDUCED POLARIZATION SURVEY
 DRAWING NUMBER : 88277-9