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A GEOPHYSICAL REPORT ON A GROUND MAGNETOMETER AND INDUCED POLARIZATION SURVEYS ON THE GREAT WESTERN STAR GOLD-COPPER PROPERTY NELSON MINING DIVISION, BRITISH COLUMBIA

> LATITUDE 49°27'NORTH LONGITUDE 117°22'EAST NTS 82F/6W

> > FOR

PACIFIC SENTINEL GOLD CORP.

ΒY

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SUMMARY

During the period July 27 to August 6, 1989 Lloyd Geophysics Limited carried out an IP and ground magnetometer survey on the TOUGHNUT grid and an IP survey on the RON grid for PACIFIC SENTINEL GOLD CORP. on the Great Western STAR Property near Nelson, British Columbia.

The IP survey delineated two new zones on the TOUGHNUT grid and two new zones on the RON grid. At least three of these new zones remain open along strike beyond the boundaries of the survey grids.

On the 1989 TOUGHNUT Grid 450 metres of trenching and 1240 metres of drilling is recommended to test the most promising targets. Similarly 500 metres of trenching and 1220 metres of drilling is recommended on the 1989 RON Grid.

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LIST OF PSEUDO-SECTIONS AND MAPS

Toughnut Grid

Pseudo-Sections	Dwg.	Nos	89291-1	to	89291-6
Chargeability Map	Dwg.	No 8	39291-7		
Resistivity Map	Dwg.	No 8	39291-8		
Magnetic Contour Map	Dwg.	No 8	39291-9		

Ron Grid

Pseudo-Sections	Dwg. Nos 89291-10 to 89291-16
Chargeability Map	Dwg. No 89291-17
Resistivity Map	Dwg. No. 89291-18



1.0 INTRODUCTION

During the period July 27 to August 6, 1989, Lloyd Geophysics Limited carried out a time domain Induced Polarization (IP) survey on part of the TOUGHNUT and RON grids which lie within the boundaries of the Great Western Star property held by PACIFIC SENTINEL GOLD CORP., near Nelson British Columbia.

A ground magnetic survey was also carried out on the TOUGHNUT grid. This grid is comprised of 10 old lines originally surveyed by IP methods during 1988 and 6 new lines also surveyed by IP methods, in 1989.

2.0 PROPERTY LOCATION AND ACCESS

The Great Western Star Project (NTS 82F/6W) is located 8 kilometres southwest of Nelson, in southeastern British Columbia (Figures 1 and 2). The project is centered on the ridges between Giveout, Sandy and Eagle creeks at latitude 40°27'N and longitude 117°22'E. Access to the property is by mainline logging road off the Nelson-Salmo highway approximately 4 kilometres south of Nelson, or by forestry road from the Highway #6, 8 kilometres west of Nelson.

The topography in the project area is moderately steep, with elevations ranging from 600 to 1800 metres. The central and western portions of the project area form a plateau, hidden from Nelson by Morning Mountain. The upper slopes of the property are covered by glacial clays and sands, which may be up to 6 metres thick on ridges, and 12 metres thick in valleys and on side hills.

Mature second growth larch, douglas fir, hemlock and western red and white cedar covers much of the property, with recent clear cut

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logging having removed much of this growth near the Alma N and Star mineralized zones. Atco Ltd. has plans for continued clear-cut logging on the property during 1989.

3.0 PROPERTY STATUS AND CLAIM HOLDINGS

The Great Western Star property is comprised of modified grid and 2 post claims as well as crown grants and reverted crown grants. The property contains 117 British Columbia claim units of 30 square kilometres, and is operated by Pacific Sentinel Gold Corp., under an option and joint venture agreement with Lectus Developments Ltd., and Reymont Gold Mines Ltd. Pacific Sentinel can earn a 70% direct interest in all claims comprising the project area except for the Asarco option claims in which Pacific Sentinel is earning a 35% interest.

Pertinent claim information is outlined below. Nine separate property vendors own underlying interests in the claims which range from a 1% to 5% N.S.R. The location of the project claims is depicted in Figure 3.

<u>Claim</u>	<u>Units</u>	<u>Record</u> Number	<u>Record Date</u>	Expiry
ADDIE				
Royal Arthur Josie	1 1	3634 4281	01/03/84 10/29/85	1994 1990





<u>Claim</u>	<u>Units</u>	<u>Record</u> Number	<u>Record Date</u>	Expiry
FINLAY COMPANY				
Champion CG	1	4648		07/31/89
Vicking Fr. CG	1	4649		07/31/89
Gold Leaf Fr. CG	1	12458		07/31/89
Gold Leaf #2 CG	1	12457		07/31/89
Toronto CG	1	4646		07/31/89
Alhambra Fr. CG	1	4651		07/31/89
Imperial CG	ĩ	3686		07/31/89
Eureka CG	1	5552		07/31/89
Bellerophon	1	3680		07/31/89
Florence G. CG	1	3676		07/31/89
Star CG	1	3687		07/31/89
Gerald F. Fr. CG	1	3683		07/31/89
Elkhorn CG	1	9175		07/31/89
Bob CG	1	14632		07/31/89
Alma N CG	1	9174		07/31/89
Dot CG	1	14631		07/31/89
Mayflower CG	1	3684		07/31/89
Elk CG	1	3677		07/31/89
Silverstone	1	10640		07/31/89
Bee CG	1	14630		07/31/89
Gem CG	1	14629		07/31/89
Trumpet CG	1	3678		07/31/89
Toronto Fr CG	1	4301		07/31/89
Dundee CG	1	7241		07/31/89
MS CG	1	7243		07/31/89
STAR CLAIMS				
Star #1 Fr	1	3306	07/08/83	1005
Star ± 2 Fr	1 1	3300	07/08/83	1995
Star $#3$ Fr.	1	3768	07/11/84	1995
Star $#4$ Fr.	1	3789	07/20/84	1995
ST 1	6	3769	07/11/84	1995
ST 2	2	3835	08/23/84	1995
 ST #3	2	4861	10/14/87	1998
ST #6 Fr	1	4862	10/14/87	1998



		'		
Claim	<u>Units</u>	<u>Record</u> Number	<u>Record Date</u>	Expiry
DENNY				
Muldoon CG	1	976		
Majestic RCG	1	1398	01/10/80	1991
Invincible RCG	1	1403	01/10/80	1991
Vernamo RCG	1	1404	01/10/80	1991
Republic Fr. RCG	1	1424	01/17/80	1991
Mika Chahko RCG	1	1425	01/17/80	1991
Moken Bird Fr. RCG	1	1426	01/17/80	1991
Ron #1 Fr.	1	1438	01/24/80	1992
Ron #2 Fr.	1	1439	01/24/80	1992
Ron #3 Fr.	1	1535	03/10/80	1991
Ron #4	1	1440	01/24/80	1992
Ron #5	1	1441	01/24/80	1991
Ron #6	1	1442	01/24/80	1991
Ron #7	1	1443	01/24/80	1991
Ron #8	1	3716	01/24/80	1991
Ron #9	1	3/10	03/14/84	1991
Ron #10	1	1537	03/10/80	1991
Ron #11	1	1520	03/10/80	1991
Ron #12	1	2717	05/10/00	1991
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 1	3710	05/14/84	1990
$\begin{array}{c} \text{ROII} \#14 \\ \text{Don} \#15 \end{array}$	1 1	3720	05/14/84	1990
$\begin{array}{c} \text{ROII} \#15 \\ \text{Pop} & \#16 \end{array}$	⊥ 1	3840	08/28/84	1990
$\frac{1}{10}$	1	3721	05/14/84	1990
Majestic Fr.	1	3722	08/28/84	1990
Muldoon Fr.	-			
GOLD EAGLE				
Gold Eagle #3	9	1533	03/05/80	1990
ASARCO				
Birdseve	CG	L3278		07/31/89
Princeton Fr	20 20	13938		07/31/89
Gold Eagle	4	1302	10/16/79	1990
Gold Eagle #1 Fr	1	1531	03/05/80	1992
Gold Eagle #2	2	1532	03/05/80	1990
Gold Eagle #4	6	1841	08/05/80	1989
Gold Eagle #5 Fr	1	1856	08/13/80	1990
· · · · · · · · · · · · · · · · · · ·				



<u>Claim</u>	<u>Units</u>	<u>Record</u> Number	<u>Record Date</u>	Expiry
<u>ASARCO</u> (Cont'd)				
Gold Eagle #6 Fr Lady Aberdeen Minto Fr. Inverness Haddo Fr. Horsehoe Red Fr. Tregarden Fr.	1 RCG RCG RCG RCG RCG RCG RCG	1857 919 920 918 921 1307 1308 1309	08/13/80 01/22/79 01/22/79 01/22/79 01/22/79 10/22/79 10/22/79 10/22/79	1990 1992 1992 1992 1992 1992 1990 1990
BOURDON				
Hillside	6	3512	09/13/83	1997
Hilltop Fr.	1	3511	09/13/83	1997
(ex.Lot 4148)	RCG	1551	02/19/80	1998
Irene (ex.Lot 4151)	RCG	1552	02/19/80	1998
Great Eastern (ex.Lot 4152)	RCG	1553	02/19/80	1998
PLANET PROPERTY				
Juno	RCG	34	03/19/75	03/19/91
Venus	RCG	791	10/06/78	10/06/90
Orion	RCG	899	24/11/78	24/11/90
Jupiter	RCG	900	29/11/78	29/11/90
King of the Forest Kirkwall	RCG RCG	901 902	29/11/78	29/11/90
WFTR	NCG	502	23/11/70	23/11/3
		- 0000		
Thistle White Witch	CG CG	L2238 13595	owe \$59.50	07/31/89
Graat Wast Fr	CG	т <i>і 177</i> 3	OWO \$55 55	07/31/0



<u>Claim</u>	<u>Units</u>	<u>Record</u> Number	Record Date	Exp
ADDIE, ADDIE, PAL	MER			
Black Witch	CG	L4146	owe \$21.52	07/3
Tough Nut	CG	L199	owe \$59.50	07/3
AG	1	4248	10/09/85	10/0
AG 1	1	3829	07/27/84	07/2
AG 2	1	3830	07/27/84	07/2
AG 3	1	3831	07/27/84	07/2
AG 4	1	3832	07/27/84	07/2
AG 5	1	3833	07/27/84	07/2
AG 6	1	3834	07/27/84	07/2
Crow	1	4355	06/19/86	06/1
Whiskers 1	1	3926	10/09/84	10/0
Whiskers 2	1	3927	10/09/84	10/0
Whiskers 3	1	3928	10/09/84	10/0
Whiskers 4	1	3929	10/09/84	10/0
	-	222	10/00/04	10/0

LABELLE

North Star

CG

L4149

07/31/89

4.0 REGIONAL AND PROPERTY GEOLOGY

The region southwest of Nelson is underlain by Lower Jurassic Rossland Group andesite flows, agglomerates and tuffs. This Jurassic sequence of alkaline, sub-aerial intermediate volcanic rocks is intruded by numerous small stocks that are probably correlative with the mid-Jurassic Nelson Batholith, by Tertiary rhyolite and lamprophyre dykes, by Eocene Coryell alkalic intrusions, and by Jurassic Bonnington complex diorite (Figure 4).

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On the 30 square kilometre Great Western Star Project outcrop is limited to trenches and near old workings. The central portion of the claim group is underlain by brecciated flows, tuffs and minor epiclastic deposits described by Hoy (1989) as being part of the Jurassic Elise formation of the Rossland Group volcanics (Figure In the claim region the Rossland volcanics are cut by a one 4). kilometre wide northwest-trending zone of intense shearing. This major tectonic and mineralizing structure named the Silver King Shear System, has intensely altered the flows and tuffs in the chlorite, pyrite, iron-carbonate schists. claim region to Disseminated pyrite is ubiquitous within this zone of shearing, with auriferous quartz veins and quartz-carbonate stockworks occurring throughout this major ductile shear. In addition, wide zones of disseminated shear-hosted gold mineralization (Alma N, Gold Eagle Zones) have been discovered within the Silver King Shear System on the property.

In the western portion of the claim group, the Silver King Shear Zone is truncated by Jurassic Bonnington Complex diorite.

In the claim region Bonnington Complex diorite is intensely fractured and has undergone extensive potassic alteration characterized by the present of K-feldspar replacing plagioclase, and the original ferromagnesium minerals being replaced by fine grained biotite (Mulligan, 1952). Porphyry gold-copper mineralization is widespread within the intrusive and within the Rossland volcanics near the intrusive contact (ie. Star and Eureka, and Ron Zones).

On the east side of the Great Western Star Project area, the Rossland volcanics are intruded by the Jurassic Silver King porphyry. The Silver King stock is a plagioclase porphyry

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intrusion, which is associated with the emplacement of gold and base metal mineralization throughout the Nelson Mining Camp. In the Giveout Creek region of the Great Western Star project area, a 1,500 metre long zone of strongly schistose Rossland Group andesitic flows occurs at the contact of the Silver King porphyry. Disseminated and vein-controlled gold mineralization is widespread along this contact zone.

For a comprehensive description of the exploration history and the detailed underlying geology of the individual grid areas on the property namely the STAR, RON and TOUGHNUT grids the reader is referred to a summary report dated June 28, 1989 by Douglas B. Forster.

5.0 INSTRUMENT SPECIFICATIONS

5.1. Ground Magnetometer Survey Equipment

The equipment used on this survey was the OMNI PLUS field magnetometer and the OMNI 4 recording base station magnetometer both manufactured by EDA INSTRUMENTS INC., Toronto, Canada.

The system is completely software/microprocessor controlled. A portable proton precession magnetometer measures and stores in memory the total earth's magnetic field at the touch of a key. It also identifies and stores the location and time of each measurement and computes the statistical error of the reading and stores the decay and strength of the signal being measured. Throughout each survey day a similar base station magnetometer measures and stores in memory the daily fluctuations of the earth's

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magnetic field. The use of two magnetometers eliminates the need for a network of base stations on the grid. At the end of each day the field data is merged with the base station data in the field computer and automatic diurnal corrections are applied to correct the field data, resulting in a very accurate (+/- 5nT) measurement of the earth's total magnetic field.

5.2. Induced Polarization Survey

The equipment used to carry out this survey was a time domain measuring system consisting of a Wagner Leland/Onan motor generator set and a Mark II transmitter manufactured by Huntec Limited, Toronto, Canada and a 6 channel IP-6 receiver manufactured by BRGM Instruments, Orleans, France.

The Wagner Leland/Onan motor generator supplies in excess of 7.5 kilowatts of 3 phase power to the ground at 400 hertz via the Mark II transmitter.

The transmitter was operated with a cycle time of 8 seconds and the duty cycle ratio: [(time)/time on + 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 IP-6 receiver can read up to 6 dipoles simultaneously. It is microprocessor controlled, featuring automatic calibration, gain setting, SP cancellation and fault diagnosis. To accommodate a wide range of geological conditions, the delay time, the window widths and hence the total integration time is programmable via the keypad. Measurements are calculated automatically every 2 to 4

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seconds from the averaged waveform which is accumulated in memory.

The window widths of the IP-6 receiver can be programmed arithmetically or logarithmically. For this particular survey the instrument was programmed arithmetically into 10 equal window widths or channels, Ch₀, Ch₁, Ch₂, Ch₃, Ch₄, Ch₅, Ch₆, Ch₇, Ch₈, and Ch₉, (see Figure 5). These are recorded individually and summed up automatically to obtain the total chargeability. Similarly the resistivity (ρ_{-}) in ohm-metres is also calculated automatically.

The instrument parameters chosen for this survey were as follows:

Cycle	Time (Ξ	8	seconds
Ratio	(<u>Time</u> (Time	On) Off)	=	2:	2

Duty Cycle Ratio $\frac{\text{Time On}}{(\text{Time On}) + (\text{Time Off})} = 0.5$ Delay Time (T_p) = 120 milliseconds Window Width (t_p) = 90 milliseconds Total Integrating

Time (T_{p})



= 900 milliseconds



BRGM IP-6 RECEIVER PARAMETERS

Figure 5

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6.0 SURVEY SPECIFICATIONS

6.1. Ground Magnetometer Survey

The survey was carried out on lines 100 metres apart with readings taken every 12.5 metres.

6.2. Induced Polarization Survey

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



On the TOUGHNUT Grid the current electrode C_1 was SOUTH of the potential measuring dipole P_1P_2 . Here the lines were 100 metres apart and measurements were taken for x = 50 metres and n = 1, 2, 3 and 4.

On the RON Grid (western part of the STAR Grid) the current electrode C_1 was WEST of the potential measuring dipole P_1P_2 . Here the lines were 200 metres apart and measurements were taken for x = 50 metres and n = 1, 2, 3 and 4.



The dipole length (x) is the distance between P₁ and P₂ and determines mainly the sensitivity of the array. The electrode separation (nx) is the distance between C₁ and P₁ and determines mainly the depth of penetration of the array.

7.0 DATA PROCESSING

The data collected was processed in the field at the end of each survey day using a portable Compaq 286 computer and an Epson printer.

Using appropriate software, the magnetic field data was corrected for diurnal variations by merging it with the base station magnetic data. For integrity checks and for a quick review of anomalies, the final corrected magnetic data was plotted out in profile form on the printer.

The IP pseudo-sections were plotted out in the field and contoured using in-house software based on the mathematical solution known as kriging.

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 for the preparation of the final pseudo-sections and contour plan maps.



8.0 DATA PRESENTATION

The data obtained from the survey described in this report are presented on 13 pseudo-sections and 5 contour plan maps as follows:

TOUGHNUT GRID

Pseudo-Sections

Line No.	Dwg. No.
600W	89291-1
500W	89291-2
400w	89291-3
300w	89291-4
200W	89291-5
100W	89291-6

Contour Plan Maps

Chargeability N = 1 89291-7 with Interpretation 89291-8 Resistivity N = 1 89291-8 Total Field Magnetic Contours 89291-9



RON GRID

Pseudo-Sections

Line No.	Dwg. No.
800N	00201 10
1000N	89291-10
1200N	89291-12
1400N	89291-13
1600N	89291-14
1800N	89291-15
2000N	89291-16

<u>Contour Plan Maps</u>

Chargeability N = 1	89291-17
with Interpretation	

Resistivity N = 1 89291-18

9.0 DISCUSSION OF RESULTS

An IP response depends largely on the following factors:

- 1. The volume content of sulphide minerals
- 2. The number of pore paths that are blocked by sulphide grains



- 3. The number of sulphide faces that are available for polarization
- 4. 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
- 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 produce IP responses of varying amplitudes.

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 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 TOUGHNUT GRID

The results obtained and the trenching and drilling recommendations on the 1988 data are described in a report to Lectus Developments Limited by the present writer (Lloyd October 1988 pages 14 to 17).

In 1989 the IP survey was extended for another 600 metres in a northwesterly direction and a ground magnetometer survey was completed over both the 1988 and the 1989 grids.

The 1989 IP survey extended both the SOUTHERN and NORTHERN zones for another 600 metres to the northwest. The overall characteristics or signatures of both zones remain similar (Lloyd, October 1988 pages 13 and 14).

The 1989 IP survey detected 2 additional zones.



The first new zone (ZONE A) lies immediately north of the NORTHERN ZONE with its axis extending from about 750N on line 600W to about 725N on line 300W. It correlates well with a sharp magnetic response of about 500nT above background.

The second new zone (ZONE B) lies immediately south of the SOUTHERN ZONE with its axis extending from about the baseline on line 600W to about 075S on line 400W.

All four IP zones remain open to the northwest with the NORTHERN and SOUTHERN ZONES merging on the southeastern edge of the grid and remaining open in that direction.

There is little or no positive correlation between either the NORTHERN or SOUTHERN IP zones and the magnetic data, however, a vague linear strike direction in the magnetic data is roughly subparallel to and lies near the flanks of certain portions of both the NORTHERN and SOUTHERN IP zones. Of the two new IP zones, Zone A correlates well with a sharp magnetic response of about 500 nT above background whereas Zone B has a somewhat broader less well defined magnetic response along its south flank.

THE RON GRID

The IP survey detected three zones of increased chargeability, designated C, D and E on Dwg. No. 89291-17.

ZONE C has a strike length of at least 600 metres from about 1650W on line 800N to about 1750W on line 1400N. The zone has a maximum chargeability of 38.7 milliseconds over a background of about 15 milliseconds and correlates well with a resistivity low. It

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remains open along strike south of line 800N. This zone is strongly recommended for trenching and for drilling.

ZONE D has a strike length of at least 200 metres from about 2500W on line 1600N to about 2500W on line 1800N. It may be truncated by a fault and appear again on line 2000N at about 2350W. There is, however, conflicting evidence for this interpretation since the zone is associated with well defined resistivity lows on lines 1600N and 1800N but not on line 2000N. The zone has a maximum chargeability of 29.0 milliseconds over a background of about 10 to 15 milliseconds. This zone is strongly recommended for trenching and/or drilling.

ZONE E has a strike length of at least 1000 metres from about 2200W on line 800N to about 2200W on line 1800N. It may be truncated by a fault and appear again on line 2000N at about 1950W. It has a less well defined signature than Zone C and therefore a lower priority for trenching and drilling.

No ground magnetometer survey was carried out over this grid.

10.0 CONCLUSIONS AND RECOMMENDATIONS

From a study of the IP and magnetic data described in this report it has been concluded that anomalies detected on both the TOUGHNUT and RON Grids are worthy of further exploration by trenching and diamond drilling.



10.1. The Toughnut Grid

The following recommendations were made in a report to Lectus Developments Limited by the writer in 1988 (Lloyd October 1988).

SOUTHERN ZONE

	Trench			
Line No.	From	<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:

SOUTHERN ZONE

Hole	Line	<u>Collar</u>	Angle	Direction	Length
<u>No.</u>	No.	<u>Location</u>			Of Hole
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

ZONE A

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

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

Hole	Line	<u>Collar</u>	Angle	Direction	Length
<u>No.</u>	No.	Location			<u>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	2 7 5N	-45°	Drill from S to N	18 0m

The following recommendations are based on the new 1989 data:

	<u>T</u>	rench
Line No.	From	<u>To</u>
500W	700N	800N
600W	700N	800N



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

Length				tion	Direc	<u>Angle</u>	<u>Collar</u>	<u>Line</u>	<u>Hole</u>
Of Hole							Location	No.	<u>No.</u>
140m	N	to	S	from	Drill	-45°	650N	500W	13
100m	N	to	S	from	Drill	-45°	700N	500W	14
80m	N	to	S	from	Drill	-45°	750N	500W	15
140m	N	to	S	from	Drill	-45°	650N	600W	16
100m	N	to	S	from	Drill	-45°	700N	600W	17
80m	N	to	S	from	Drill	-45°	750N	600w	18

ZONE B

		Trench
Line No.	From	To
500w	50N	50S
600w	50N	100s

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

<u>Hole</u>	<u>Line</u>	<u>Collar</u>	Angle	Direction	Length
<u>No.</u>	No.	<u>Location</u>			Of Hole
19	500W	0755	-45°	Drill from S to N	120m
20	500W	0255	-45°	Drill from S to N	100m
21	500W	025N	-45°	Drill from S to N	80m
22	600W	125S	-45°	Drill from S to N	120m



<u>Hole</u> No.	<u>Line</u> No.	<u>Collar</u> Location	<u>Angle</u>	Direction	<u>Length</u> Of Hole
23	600W	0755	-45°	Drill from S to N	100m
24	600W	025N	-45°	Drill from S to N	80m

Finally, all four zones remain open along strike to the northwest and the NORTHERN and SOUTHERN zones merge and remain open along strike to the southeast.

10.2. The Ron Grid

The 1989 RON Grid lies approximately 4.5 kilometres northwest of the TOUGHNUT Grid. The area lying immediately between these two grids was partially covered by a ground magnetometer survey and an IP Survey in 1984. The IP coverage was extended to complete the intervening grid in 1988. This work has been described in 2 reports to U.S.Borax And Chemical Corporation by the present writer (Lloyd October 1984; Lloyd November 1988). Trenching and drilling is recommended on the 1989 IP survey as follows:

ZONE C

Line No.	Trench					
	From	To				
800N	1600W	1700W				
1200N	1725W	1850W				



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

Length			on	Direct	<u>Angle</u>	<u>Collar</u>	Line	<u>Hole</u>
<u>Of Hole</u>						Location	No.	<u>No.</u>
140m	Е	to	rom W	Drill	-45°	1750W	800N	25
100m	E	to	rom W	Drill	-45°	1700W	800N	26
80m	E	to	rom W	Drill	-45°	1650W	800N	27
140m	E	to	rom W	Drill	-45°	1900W	1200N	28
100m	Ε	to	rom W	Drill	-45°	1850W	1200N	29
80m	E	to	rom W	Drill	-45°	1800W	1200N	30

ZONE D

	Trench					
Line No.	From	To				
1600N	2450W	25 7 5w				
1800N	2425W	25 7 5w				

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

<u>Hole</u>	Line	<u>Collar</u>	Angle	Direction	Length
<u>No.</u>	No.	Location			Of Hole
31	1600N	2600W	-45°	Drill from W to E	130m
32	1600N	2550W	-45°	Drill from W to E	90m
33	1600N	2500W	-45°	Drill from W to E	70m
34	1800N	25 7 5W	-45°	Drill from W to E	130m



<u>Hole</u> No.	Line No.	<u>Collar</u> Location	Angle	Direction	<u>Length</u> Of Hole
35	1800N	2525W	-45°	Drill from W to E	90m
36	1800N	2475W	-45°	Drill from W to E	70m

Two strong anomalous zones were also detected on line 2000N, the most northerly line on the grid. These zones should be closed off if claim holdings permit.

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 envelope of disseminated pyrite around shear zone vein systems and may contain low grade gold.

> Respectfully Submitted, LLOYD GEOPHYSICS LIMITED

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

Vancouver, B.C. October, 1989



APPENDICES

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Lloyd Geophysics

(A)

BIBLIOGRAPHY

- Cockfield, W.E. 1936: Lode Gold Deposits of the Ymir-Nelson Area, British Columbia. GSC Memoir 191
- Dasler, P.G. 1987: Summary Report on the Great Western Property for Lectus Developments Ltd., Internal Company Report
- Forster D.B. June 28, 1989: Summary Report on the Great Western Star Gold-Copper Project for Pacific Sentinel Gold Corp.
- Hoy, T and Andrew K. 1989: The Rossland Group, Nelson Map Area, SE B.C., BCMEMPR Fieldwork, Paper 1981-1
- Kaufman M. 1987: USB Star Project Summary Report 1984-1987. Internal Memorandum
- Lloyd J. October 1984: A Geophysical Report on a Ground Magnetometer and Time Domain IP Survey on the Star Prospect, Nelson, B.C., for U.S.Borax and Chemical Corporation
- Lloyd J. October 1988: A Geophysical Report on an IP Survey; Toughnut Property, Nelson, B.C., for Lectus Developments Ltd.
- Lloyd J. November 1988: A Geophysical Report on an IP Survey, Star Prospect, Nelson, B.C., for U.S. Borax And Chemical Corporation
- Mulligan R. 1952: Bonnington Map Area British Columbia. GSC Paper 52-13
- Salazar S.G. Sept 27, 1985: Assessment Report on the Great Western Group of Claims for Lindex Explorations Ltd.
- Salazar S.G. February 28, 1987: Report on the Great Western Project (Gold) for Lectus Developments Ltd.
- Salazar S.G. July 14, 1987: Report on the Great Western Project (Gold) for Lectus Developments Ltd.
- Salazar S.G. October 28, 1987: Letter Report to Roy W. Robinson, Lectus Developments Ltd. Discussion of 1987 Field Season Results.
- Salazar S.G. and Beauchamp D. 1988: Report on Great Western Project (Gold) for Lectus Developments Ltd.



PERSONNEL EMPLOYED ON SURVEY

Name	<u>Occupation</u>	Address	Dates
J Lloyd	Geophysicist	LLOYD GEOPHYSICS LIMITED #1110-625 Howe Street Vancouver, B.C. V6C 2T6	Oct. 23 - 26, 1989
D Hall	Geophysicist	11	July 27- Aug 6/89
D Klit	Geophysicist	11	July 27- Aug 6/89
T Ballantyne	Geophysicist	11	July 27- Aug 6/89
B Waddington	Geophysical Technician	"	July 30- Aug 3/89
C Pearson	Helper	'n	July 27- Aug 6/89
A Lloyd	Helper	υ.	July 27- Aug 6/89
J Zondag	Typist	"	Oct 25- 26, 1989



(B)

COST OF SURVEY AND REPORTING

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

\$ 18,954.50
2,482.03
1,332.97
1,800.00
390.00
1,350.00

Total Cost

\$ 26,309.50



(C)

Certification

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

- I graduated from the University of Liverpool, England in 1960 with a B.Sc. in Physics and Geology, Geophysics Option.
- 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.

Vancouver, B.C. October, 1989

John Lloyd, P. Eng.



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	- 18.4			25.0 MSEC
12.3 CHARGEABLITY ZONES AS DERIVED FROM PSEUDOSECTIONS N = 1 TO 4		100 N		SURFACE DROJECTION OF ANOMALOUS
II.7	- 17.3	50 N		CHARGEABILITY ZONES AS DERIVED FROM PSEUDOSECTIONS N = 1 TO 4
	- +11.7	00 m		DEFINITE
13.3 		BL 0		
	- 13.3			MININI POSSIBLE
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	9.9			JOHN LLOYD M.Sc., P. Eng.
	7 4	150 S		September 1989
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5.9 	+5.3	300 s		PACIFIC SENTINEL GOLD CORP.
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				LLUID GEUFFISIUS LIMITED

RON GRID 18+00N ____ 10-00NL ----133-00**N** 12+00N ----11+00N2---t0+-00* -----8+00N ----بمرجعة المحراة · 7+00% 6400 4+00N -----2+00N ----0+00 B.L. . .









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LEGEND	
INDUCED POLARIZATION SURVEY	
POLE-DIPOLE ARRAY DIPOLE SEPARATION : 50 METERS	
JRRENT ELECTRODE WEST OF POTENTIAL DIPOLE	
CONTOUR INTERVALS	
250 OHM-M	
1000 OHM-M	
GEOLOGICAL B'R'A"NCH ASSESSMENT REPORT	
To Accompany a Report by JOHN LLOYD M.Sc., P. Eng.	
September 1989	
SCALE 1 : 2500	
50 0 50 (metres) 100 150 200	
PACIFIC SENTINEL GOLD CORP.	_
RON GRID 1989	
Nelson Mining Division	
Nelson, British Columbia	
RESISTIVITY N = 1	
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N = 3

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