Province of British Columbia | Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S): Geophysical

TOTAL COST: 2716.50

AUTHOR(S): Damir Cukor

SIGNATURE(S): [signature]

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED: Aug. 8 1989

YEAR OF WORK: 89

PROPERTY NAME(S): St Anthony

COMMODITIES PRESENT: Gold

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN:

MINING DIVISION: Victoria

NTS: 92C 15/E

LATITUDE: 48° 58.5'

LONGITUDE: 124° 35'

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

St Anthony 2004
Silver Plate 2001
Monte Casino 2002

OWNER(S)

(1) Gracie Resources Inc. (2)

MAILING ADDRESS

804 - 750 Pender St.
Vancouver BC

OPERATOR(S) (that is, Company paying for the work)

(1) See above (2)

MAILING ADDRESS

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

Jurassic to Paleozoic strata, mostly volcanics, Intruded by Island Volcanics. Northwest trending faults and shears. Sicker Group important economically in area and occurs on the claims. Mineralization: massive sulfides with values in gold silver and zinc.

REFERENCES TO PREVIOUS WORK: Geophysical, Geological report for Gracie Resources by D. Cukor and V. Cukor, 1988

(over)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST APPORTIONED
GEOLOGICAL (scale, area)			
Ground			
Photo			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic	4.0	St Anthony	2716.50
Induced Polarization			
Radiometric			
Seismic			
Other Resistivity	4.0	St Anthony	
Airborne			
GEOCHEMICAL (number of samples analysed for ....)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralogic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Legal surveys (scale, area)			
Topographic (scale, area)			
Photogrammetric (scale, area)			
Line/grid (kilometres)			
Road, local access (kilometres)			
Trench (metres)			
Underground (metres)			
		TOTAL COST	2716.50

FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT	REMARKS:
Value work done (from report)				
Value of work approved				
Value claimed (from statement)				
Value credited to PAC account				
Value debited to PAC account				
Accepted .... Date	Rept. No.			Information Class

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GRACEY RESOURCES INC.

ST. ANTHONY, SILVER PLATE and MONTE CASINO CLAIMS

VANCOUVER ISLAND, B.C.

1. INTRODUCTION

During the month of August, NVC Engineering Ltd. performed a geophysical survey program for Gracey Resources Inc. on the Silver Plate Claim Group. This program of resistivity and VLF-EM was designed to test the viability of the former method on this property; for VLF-EM, the station used was Cutler, Maine, a new station for this property. Thus these methods were run on only a small portion of the 1988 grid. D. Cukor conducted the survey.

2. SUMMARY, CONCLUSIONS AND R$ECOMMENDATIONS

During the month of August, a short program of geophysics was carried out on Gracey Resources' Silver Plate Group, on Vancouver Island. This program, consisting of approximately 4 kilometres of resistivity and VLF-EM (Cutler), was designed primarily to test the applicability of the former method on this property. Positive results were obtained; low resistivity anomalies coincided with or extended from VLF-EM conductors. The Cutler station conductors coincide in part with the previous year's survey, but there are some new conductors found as well. Thus, it is recommended that the resistivity survey be run over the whole grid area on the property (both grid 1 and grid 2). Line spacing should ideally be reduced to 50 metres and, as well, the grid areas extended where possible.

3. PROPERTY

3.1 LOCATION

Gracey Resources' property is located in the southern part of Vancouver Island, about 25 kilometres southeast of Port Alberni and 50 kilometres west of Duncan, B.C. The claims are on the NTS 92C 15/E. The property is centred at about north latitude 48° 58.5' and west latitude 124° 35'.

The eastern part of the property lies along the Nitinat River, it is within the MacMillan Bloedel Tree Licence and the company is required to obtain necessary permits for exploration activities.

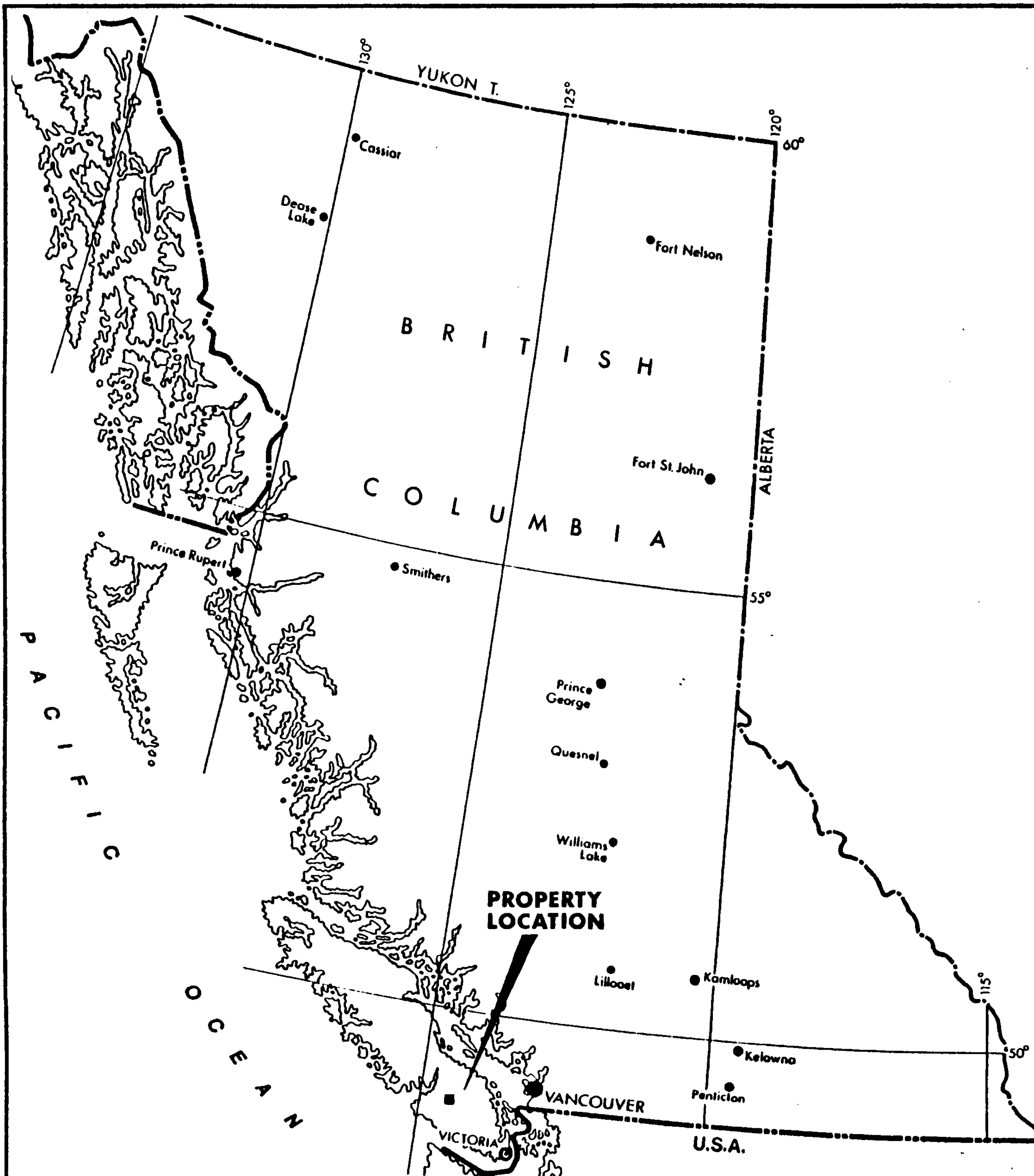
3.2 ACCESS

The eastern portion of the property - the St. Anthony and Monte Casino claims are accessible from the Cowichan Lake - Port Alberni logging mainline, via the Nadira Road, turning off the mainline 30 kilometres south of Port Alberni, B.C. A network of logging roads provides good access to most portions of these two claims.

Access to the western portion of the property is by way of the Nitinat River Valley road to some 3 kilometres south of the property. There, bridges on both the Redbed Creek and the Nitinat River have been blocked off to regular vehicle traffic, although an all-terrain vehicle or dirt bike may cross, and these vehicles may access the property.

3.3 CLAIMS

Three contiguous mineral claims comprise the Silver Plate property. The claim names and corresponding record data are as follows:



Gracey Resources Inc.

SILVER PLATE GROUP

LOCATION MAP

VICTORIA and ALBERNI M.D., B.C. NTS 92C/15E

NVC ENGINEERING Ltd.- VANCOUVER, B.C.

DATE: October 1989	SCALE: 0 — 100 km	FIG. 1

Claim Name	No. Units	Record No.	Recording Date
St. Anthony	20	2009	August 5, 1987
Silver Plate	20	2001	August 21, 1987
Monte Casino	20	2002	August 24, 1987

Claims were located on the modified grid system by G. W. Batycki. Gracey Resources obtained, subsequently, 100% interest in all the claims.

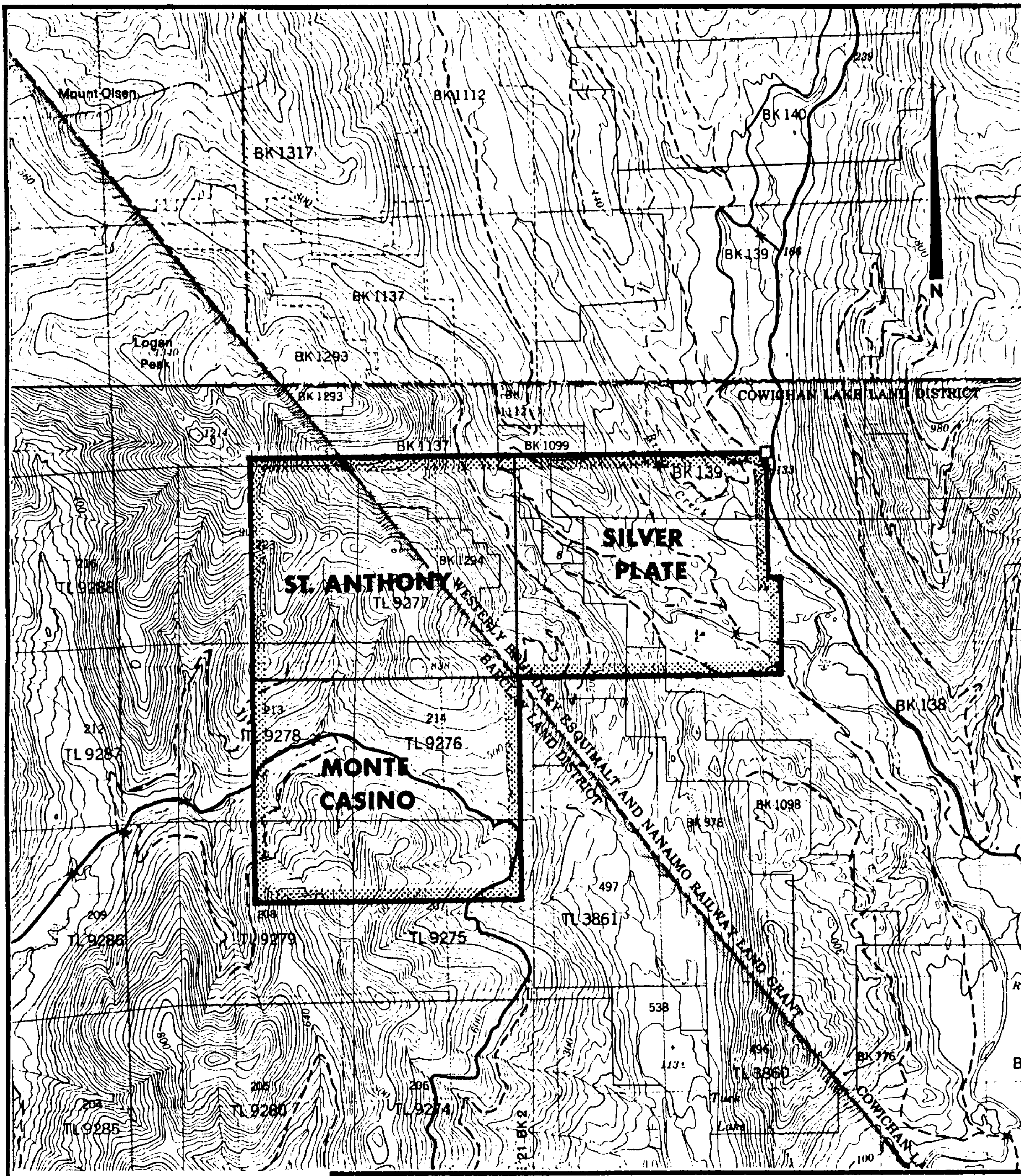
The claims straddle the Victoria-Alberni Mining Division boundary, although all legal corner posts lie within the Victoria Mining Division.

3.4 TOPOGRAPHY AND CLIMATE

The St. Anthony property is located within the Insular Mountain Belt of Vancouver Island. It is between elevations of 100 to 1,140 metres above sea level. Total topographical relief is 1,040 metres. The Nitinat River Valley on the east side of the claims forms the low part from where the terrain rises steeply in the easterly direction. The slopes are mostly steep to rugged, with the top fairly level. Streams form steep sided and deep canyons.

The climate of the area is typical for the west coast region with an abundance of atmospheric precipitation. Lower parts of the claims have mild winters, while the top parts are snow bound from October to late April.

The high humidity of the area enhances the rapid growth of the forest, which is generally intergrown with thick underbrush. This often hampers surface examinatiaons and imposes extensive and costly line cutting.



Gracey Resources Inc.

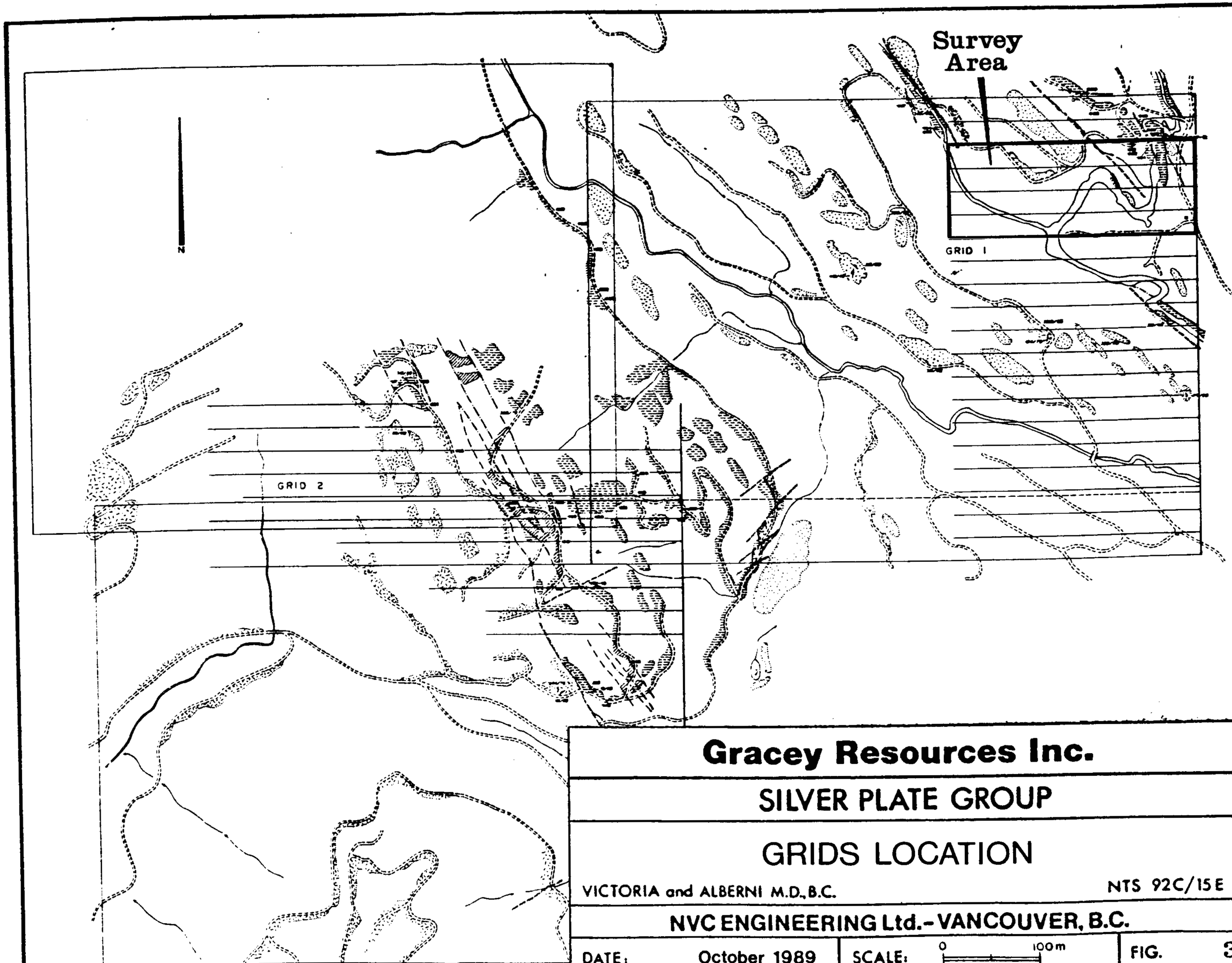
SILVER PLATE GROUP

CLAIMS AND TOPOGRAPHY

VICTORIA and ALBERNI M.D., B.C. | NTS 92C/15E

NVC ENGINEERING Ltd.– VANCOUVER, B.C.

DATE: October 1989	SCALE: 0 500 1000 meters	FIG. 2



Gracey Resources Inc.

SILVER PLATE GROUP

GRIDS LOCATION

VICTORIA and ALBERNI M.D., B.C. — NTS 92C/15E

NVC ENGINEERING Ltd. - VANCOUVER, B.C.

DATE:	October 1989	SCALE: 0 — 100m	FIG. 3

4. GEOLOGY

4.1 REGIONAL GEOLOGY

General geological features of the area are shown on the GSC open file 821 map by J. E. Muller, 1973-1981, scale 1:125,000. The map produced by Fyles (1955) covers only the northeast corner of the claim area.

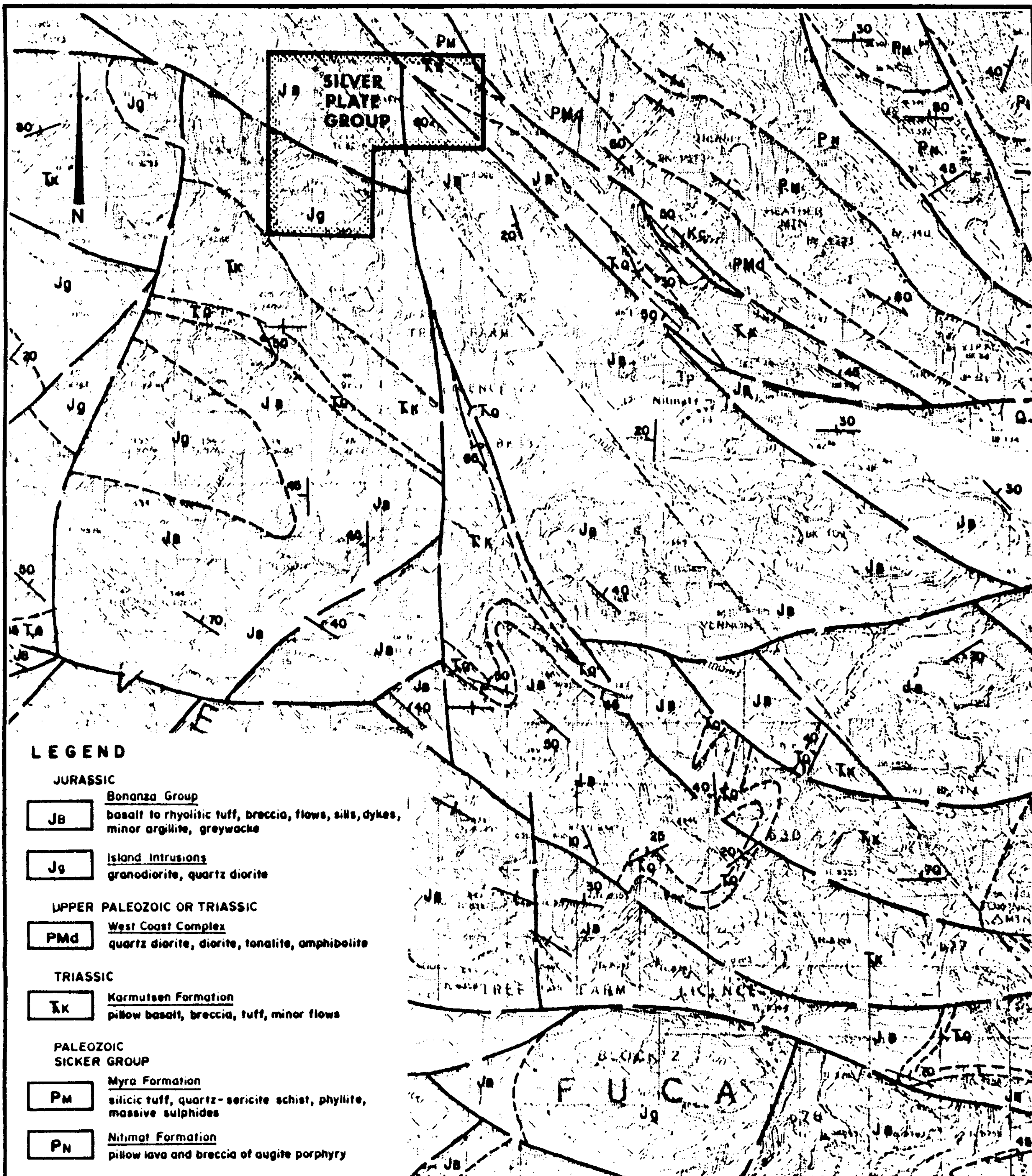
According to the published data available, the general area is underlain by Jurassic to Paleozoic strata, mainly of volcanic origin, which are intruded by Island Intrusions composed of granodiorite and quartz diorite (see fig. 4).

The geological formations show a general northwest alignment and the main structural trends follow the same direction. Regional deformation has obviously caused shallow folding along northwesterly axes and is regularly associated with northwest trending faults and shear zones. These latest mostly form interformational contacts.

The most important feature is the presence of the Sicker group strata in the property area, since these units have an economical significance elsewhere in the area.

4.2 ECONOMIC GEOLOGY

The Sicker Volcanic Belt is host to several gold-silver and base metal deposits. The best known are Lara, Lynx-Myra (the announced 1979 reserves were: 15 million tons of 5.3% Zn, 2.2% Cu, 0.3% Pb, 1.1 oz/t Ag and 0.07 oz/t Au), Twin J. Mine (produced 300,000 tons averaging 6.12% Zn, 1.32% Cu, 0.6% Pb, 2.05 oz/t Ag and 0.075 oz/t Au).



LEGEND

JURASSIC

JB	Bonanza Group – basalt to rhyolitic tuff, breccia, flows, sills, dykes, minor argillite, greywacke
Jg	Island Intrusions – granodiorite, quartz diorite

UPPER PALEOZOIC OR TRIASSIC

PMd	West Coast Complex – quartz diorite, diorite, tonalite, amphibolite

TRIASSIC

TrK	Karmutsen Formation – pillow basalt, breccia, tuff, minor flows

PALEOZOIC
SICKER GROUP

PM	Myra Formation – silicic tuff, quartz-sericite schist, phyllite, massive sulphides
PN	Nitinat Formation – pillow lava and breccia of augite porphyry

Geology by J.E. Muller, 1973-1981

Gracey Resources Inc.

SILVER PLATE GROUP

REGIONAL GEOLOGY

VICTORIA and ALBERNI M.D., B.C. NTS 92C/15E

NVC ENGINEERING Ltd. - VANCOUVER, B.C.

DATE: October 1989 | SCALE: 0 1 2 km | FIG. 4

The closest to the Silver Plate group are the gold showings on the Olsen Claims where extensive drilling and trenching reportedly returned gold values and assays up to 3 oz/t gold from the Canon Vein.

On the Kitkat and Platinum group claims (north of the Silver Plate group), grab samples assayed gold-silver-platinum values and samples from the Logan Claims (adjoining the Silver Plate to the north) also returned significant gold values.

The Carol and Heather Claims (east of the Silver Plate) were investigated to determine the economic significance of occurrences of massive sulfides accompanied by anomalous values in gold, silver and zinc. Mineralization of the same type as found on the Logan and Carol-Heather Claims is also found on the Silver Plate Claims.

4.3 LOCAL GEOLOGY

Detailed geological mapping of the outcrop on the Silver Plate group of claims revealed the presence of rocks of three main formations. To the east, on the Silver Plate Claim, rock outcrops mainly consist of alkali basalts and mafic flows of the Nitinat Formation. Part of these can possibly belong to the flows of the Jurassic Bonanza Group.

To the west, on the St. Anthony Claim, rock outcrops mostly consist of greywacke, argillite, felsic tuffs and mafic intrusives of the Myra Formation. Both the Nitinat and Myra formations are parts of the Paleozoic Sicker group.

On the western side, the strata of the Myra Formation are intruded by Island Intrusives consisting of light, greenish grey, medium to coarse alkali granite and fine equigranular diorite.

These rocks cover the west part of the St. Anthony Claim and extend south, where they are exposed in road cuts over most of the Monte Casino Claim.

The contact between the Myra Formation rocks and intrusives is mainly abrupt - a fault zone. This is most likely part of the block faulting and shearing caused by the regional stress produced by the regional deformations.

The main types of alterations are silicification and chloritization, mainly related to shear zones and intrusive contacts.

5. GEOPHYSICAL SURVEY

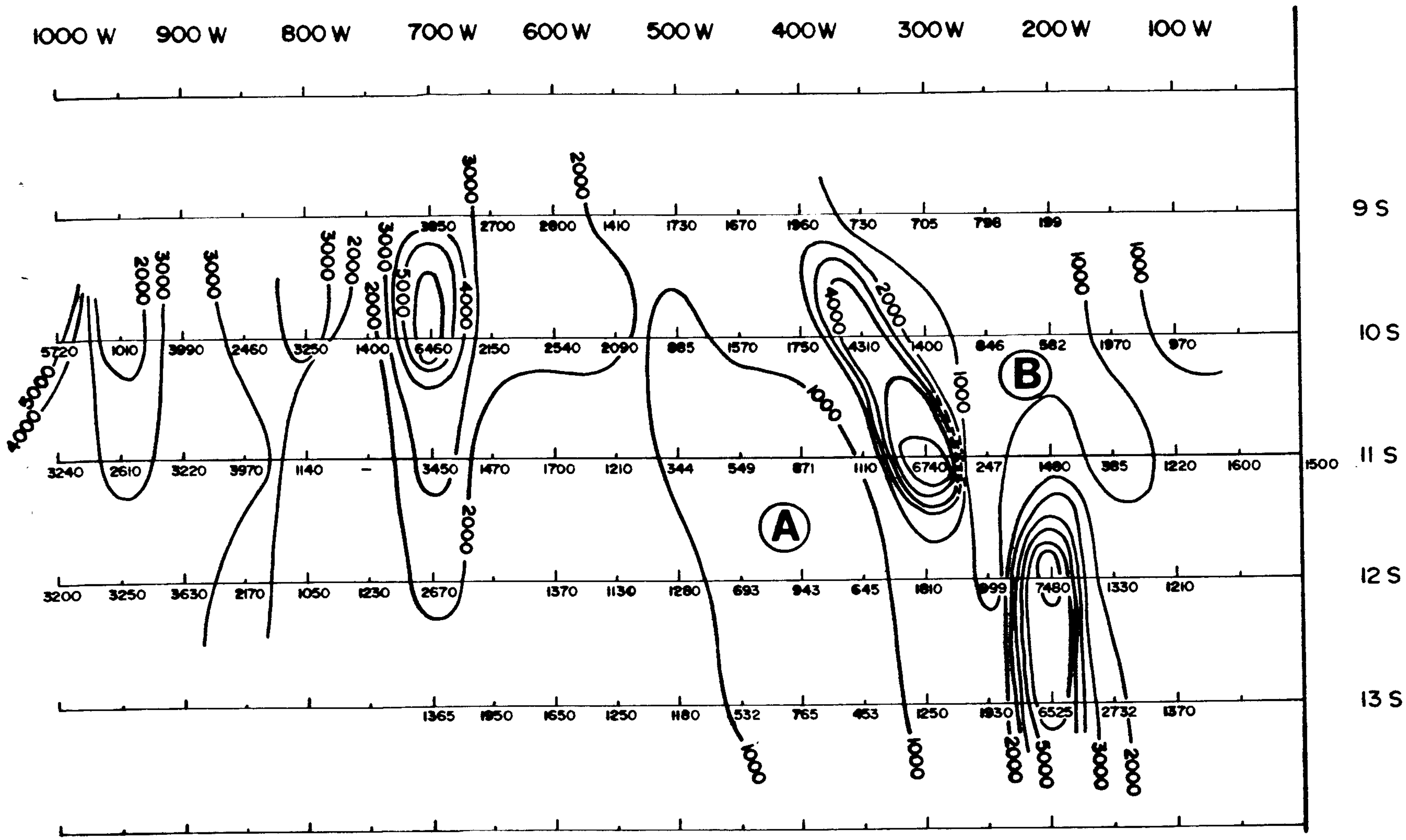
5.1 GENERAL DESCRIPTION

The geophysical surveys consisted of VLF-EM and resistivity surveys over a small portion of the 1988 grid (fig. 3 shows the location and extent of the survey area). During the 1988 Program, a ground magnetic survey and VLF-EM surveys on stations Seattle and Hawaii were conducted. This year's limited survey was designed to explore the applicability of the resistivity method. Simultaneously, VLF-EM readings on station Cutler-Maine were taken in an attempt to better define conductors outlined in 1988.

The instrument used for both surveys is the Scintrex IGS-2, which is designed for conducting Ground Magnetic, VLF-EM and Resistivity surveys.

The VLF unit was set to receive readings from station Cutler, Maine, 24.0 kHz, measuring the horizontal field strength and the in-phase and quadrature (also referred to as the out-of-phase) components of the vertical field. The instrument uses a three coil system, one horizontal and two vertical coils, all at 90° angles to each other. The system is set to automatically adjust for topographical shadowing of signals.

For the resistivity survey, the IGS-2 makes measurements of the VLF electric field, utilizing a dipole with an electrode spacing of five metres. The instrument then automatically calculates apparent resistivity from the in-phase and quadrature components of the horizontal electric field, using the horizontal magnetic field as a reference. See Appendix "B" for the apparent resistivity calculation.



Values in ohm meters

Station: NPM Lualualei, Hawaii 23.4 kHz

Gracey Resources Inc.

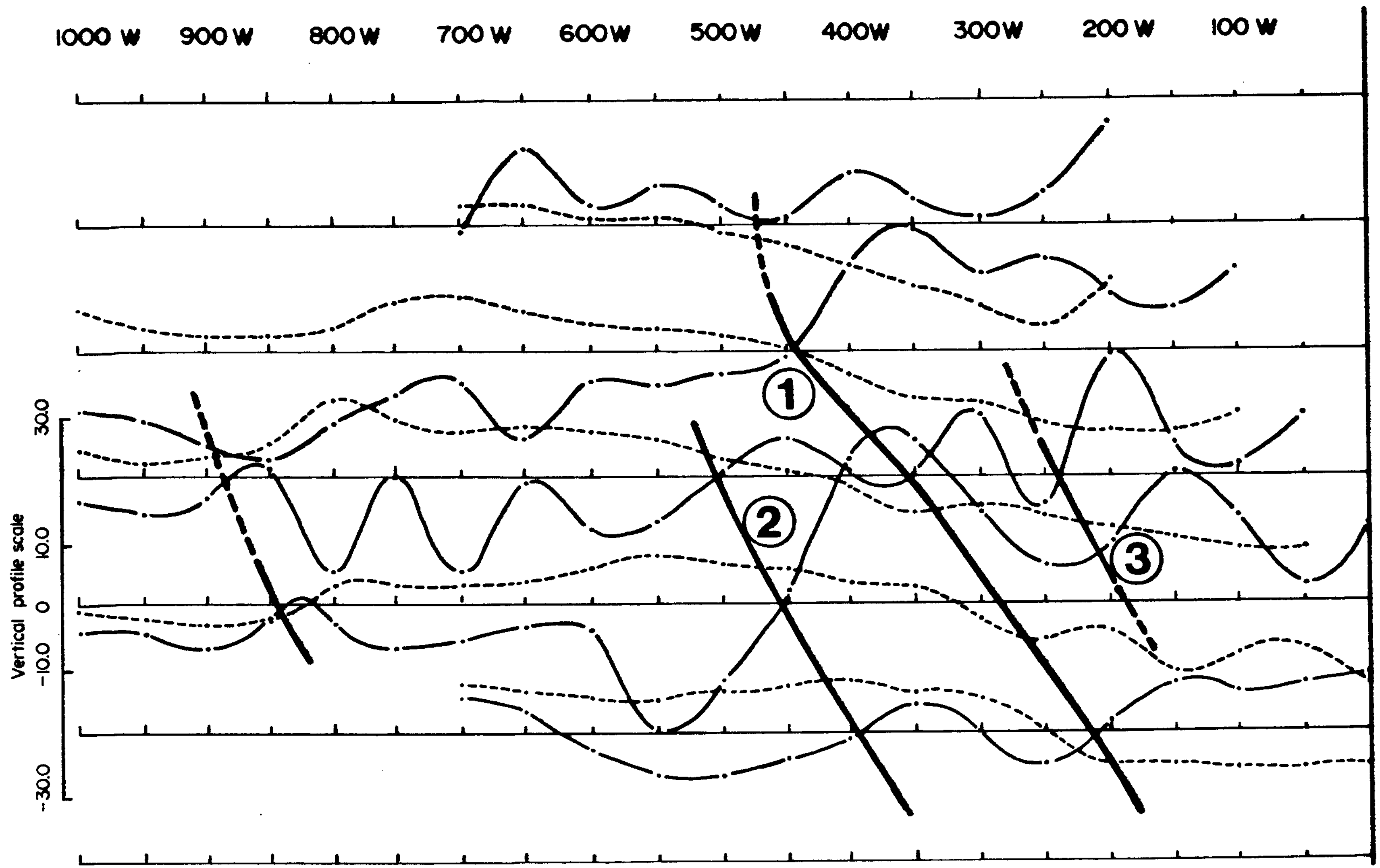
SILVER PLATE GROUP

RESISTIVITY CONTOUR PLAN

VICTORIA and ALBERNI M.D., B.C. NTS 92C/15E

NVC ENGINEERING Ltd.-VANCOUVER, B.C.

DATE: October 1989	SCALE: 0 50 100 m	FIG.	5



Station: NAA, Cutler, Maine, 24.0 kHz

Gracey Resources Inc.

SILVER PLATE GROUP

VLF-EM STACKED PROFILES, CUTLER, Maine

VICTORIA and ALBERNI M.D., B.C. NTS 92C/15E

NVC ENGINEERING Ltd.- VANCOUVER, B.C.

DATE: October 1989	SCALE: 0 50 100 m	FIG. 6

5.2 RESISTIVITY SURVEY

The resistivity survey was conducted over a part of the 1988 grid, lines at 100 metre spacing and stations every 50 metres. Figure 5, displays the resistivity survey results. Contour interval is 1,000 ohm metres. The map displays a trend at about 160°. The highest value is 7,480 (12S, 200W) and the lowest is 199 ohm metres (9S, 200W), giving a total relief of 7,281 ohm metres. Two areas of low resistivity are conspicuous. The area marked "A" on the map, which coincides with VLF conductor "1" and the low "B", separated by an area of very high resistivity. Low "B" in part coincides with conductor "B", and extends north of it.

5.3 VLF-EM SURVEY

For the VLF-EM survey, the results are displayed on fig. 6, the Stacked profile plan for the Cutler data. There are several good conductors on the map. Conductor 1 is the longest, but conductor 2 appears as the strongest. Conductor 3 also shows strong response. However, due to the limited extent of the survey, none of the conductors has been traced to its full extent.

5.4 DISCUSSION OF RESULTS

The survey has fulfilled its purpose of testing the resistivity method on the property, and the results are positive. Resistivity shows the same trend as the VLF-EM Cutler survey of this year - the same trend was displayed by the previously completed magnetic and VLF-EM surveys. As well, resistivity shows high relief and good contrast. The Cutler survey has delineated some new conductors (2 and 3) as well as one previously found (1).

It is recommended to extend the resistivity survey over the whole grid area on the property.

Respectfully Submitted

November 1989

Damir Cukor, B.Sc.

<u>CERTIFICATE</u>

I, DAMIR CUKOR, of 6108 McKee Street, Burnaby, British Columbia, DO HEREBY CERTIFY that:

1. I graduated from the University of British Columbia in 1984 as a Bachelor of Science in Geology;

2. Since 1983, I have been employed as a geologist with NVC ENGINEERING LTD;

3. I have worked in the field of exploration geology and geophysics for 13 seasons and have held positions of responsibility since 1982;

4. I performed work as documented in this Report;

5. I have no interest, direct or indirect, in the properties of Gracey Resources Inc.

November 1989

D. Cukor
NVC ENGINEERING LTD.

APPENDIX "A"

COSTS OF THE PROGRAM

Geophysical Survey

D. Cukor, geologist, 3 days (1 day mob., demob) @ $300.00	$ 900.00
Assistant, 3 days @ $100.00	300.00
Truck rental, 3 days @ $50.00	150.00
Ferry	53.00
Room, board, gasoline, misc. expenses	362.00
Instrument rental	350.00

Report

D. Cukor, 1.5 days @ $300.00	450.00
Drafting, printing, binding	151.50
TOTAL	$2,716.50

APPENDIX B

THE IGS-2 SYSTEM

1.0 INTRODUCTION

1.1 General Information

The IGS-2 Integrated Geophysical System is a portable microprocessor-based instrument which allows more than one type of survey measurement to be performed by a single operator during a survey.

The IGS-2 is a modular system which can easily be configured to suit different and changing survey requirements. Reconfiguring the system is easy and offers both operational flexibility and minimal redundancy with a minimum number of spare consoles and/or modules.

When configured with any of the available sensor options, the IGS-2 System Control Console becomes a method-specific instrument according to the sensor option(s) utilized. In addition, the IGS-2 Console is an electronic notebook into which geophysical, geological or other data may be manually entered and digitally stored.

Data is stored in the IGS-2 in an expandable, solid state memory and can be output in the field by connecting the instrument to a printer, tape recorder, modem or microcomputer.

The 32 character digital display uses full words in most cases, ensuring clear communication. Both present and previous data are displayed simultaneously, allowing comparisons to be made at a glance during a survey.

The IGS-2 records header information, data values, station number, line number, grid number and the time of each observation in its internal memory. Data are first sorted by grid number, then in order of increasing line number and, within each line, by increasing station number. In this way, the data are organized logically regardless of the sequence in which they were taken. Ancillary data can also be manually entered and recorded at a given station, along with the survey parameters.

The IGS-2 may appear complex because of the new microprocessor-based technology employed in its design. However, it does not perform any operation that is, in principle, unfamiliar to an experienced operator. Only the procedures have changed. For instance, data can now be recorded in the memory of the IGS-2 by a

Figure IGS:1
The IGS-2 as Worn by an Operator

series of simple keystrokes, rather than recording measurements by hand in a notebook. Likewise, an error spotted in the records, which would be corrected or erased by hand, is now corrected by means of the Edit function which allows the error to be removed from memory, corrected, and then refiled, or erased altogether.

1.2 Product Updates

At Scintrex we are continually working in improve our line of products. You may be notified as important changes occur to either the software or hardware of our products. We would appreciate hearing from you if you are interested in our latest developments. We would also value hearing from you about any successes, or problems you may have encountered so that we may advise you.

1.2 Theory of Operation

The Very Low Frequency (VLF) Electromagnetic Method measures variations in the components of the electromagnetic fields, set up by communication stations operating in the 15 to 30 kHz frequency range. These stations, located around the world, generate signals for the purposes of navigation and communication with submarines.

In far field, above uniform earth, the groundwave of the vertically polarized VLF radiowave has three field components:

1) a radial, horizontal electrical field,
2) a vertical electrical field, and
3) a tangential, horizontal magnetic field.

When these three fields meet conductive bodies in the ground, eddy currents are induced causing secondary fields to radiate outwards from these conductors. In the Magnetic Field mode, the IGS-2/VLF-4 measures the horizontal field and two components of the

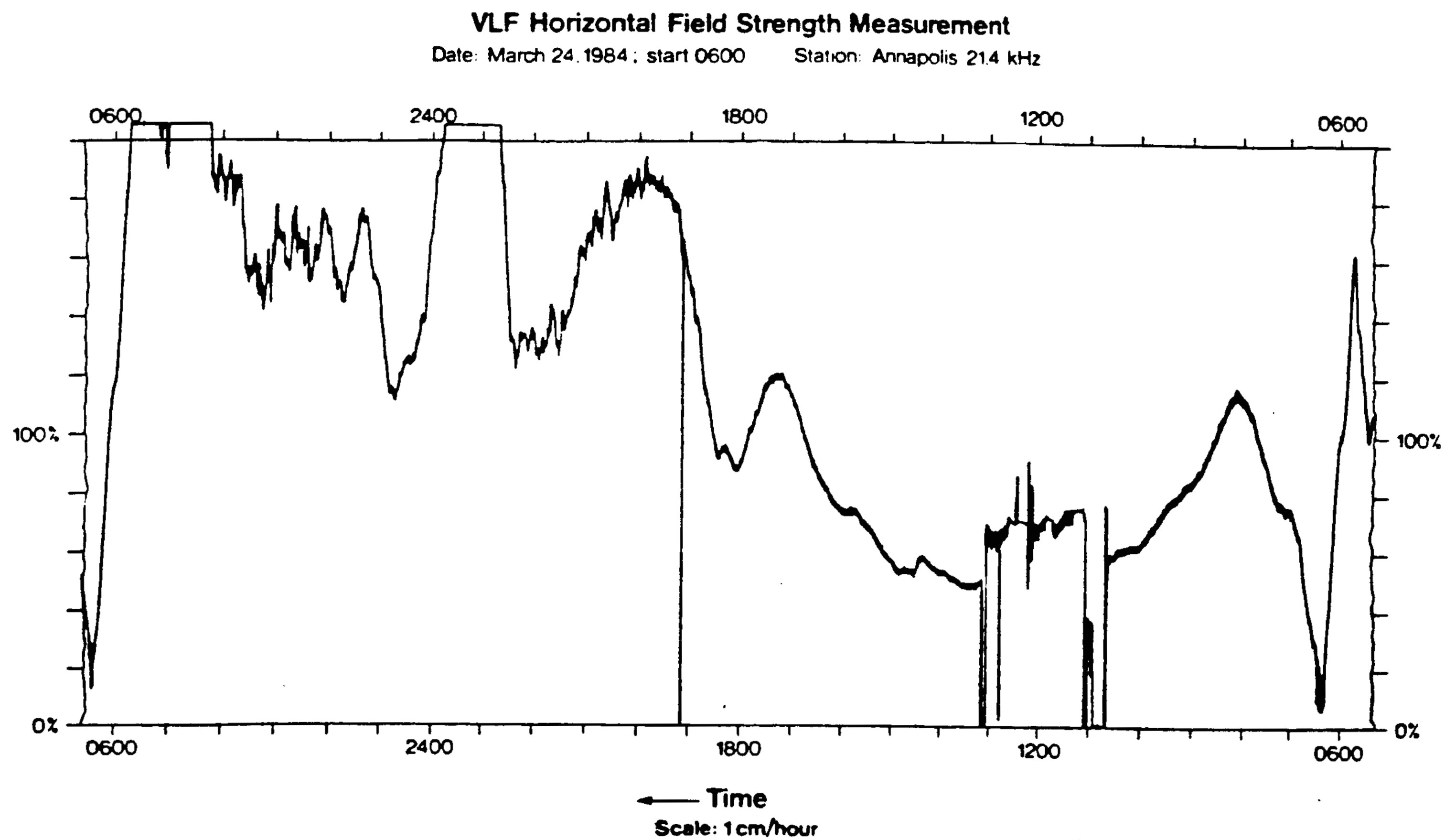


Figure VLF:1
Chart Recording of Primary Field Changing with Time

vertical field, normalized by the horizontal field measurement. In the Electrical Field mode, it measures the horizontal magnetic and electrical fields.

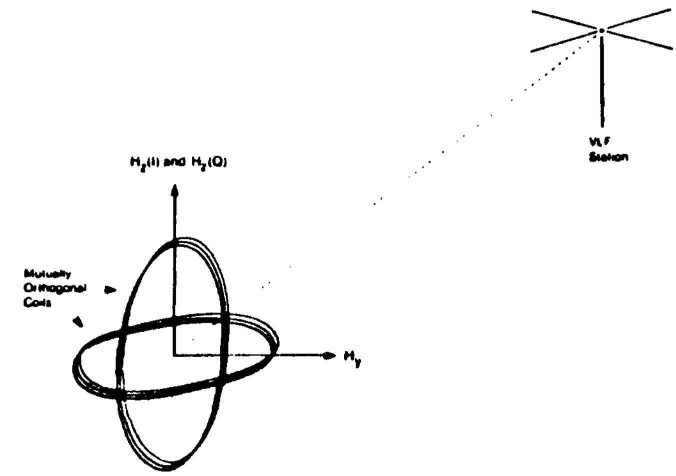
1.3 What the IGS-2/VLF-4 Measures

As its primary measurement, the IGS-2/VLF-4 employs two mutually orthogonal receive coils to determine three parameters of the VLF-magnetic field. These are: 1) the horizontal amplitude vector in a direction perpendicular to a line joining the operator to the station; 2) the amplitude of the component of the vertical field vector which is in phase with the horizontal vector; and 3) the amplitude of the component of the vertical field vector which is 90° out of phase with the horizontal vector. These three parameters, for the given VLF transmitter, are recorded simultaneously. Since the vertical components are expressed as a percentage of the horizontal vector, they are automatically normalized for any changes in the amplitude of the transmitted primary field.

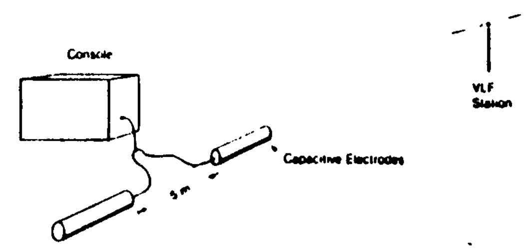
The primary field from a VLF station can in fact, vary considerably. Figure VLF:1 is a recording of the horizontal field strength from the Annapolis VLF station made in Toronto, Canada. For the most part, the field fluctuates moderately during the course of the day due to changes in atmospheric conditions. There are, however, more dramatic changes indicated on the recording. Towards evening there is a large upwards swing in the field strength, and at several points during the day, both partial and total drops in the field amplitude can be observed. In the light of these irregularities, the horizontal field data should always be considered with reservation as it is difficult to know whether changes are caused by conductors or by variations in the station's signal.

If the primary field strength is constant, changes in the amplitude of the horizontal magnetic field mainly reflect variations in the conductivity of the earth. Normally there will be no vertical magnetic field. However, near a conductor, a vertical field will be observed. The relative amplitudes of the in-phase and quadrature components may be used to interpret the conductivity-size characteristics of the conductor.

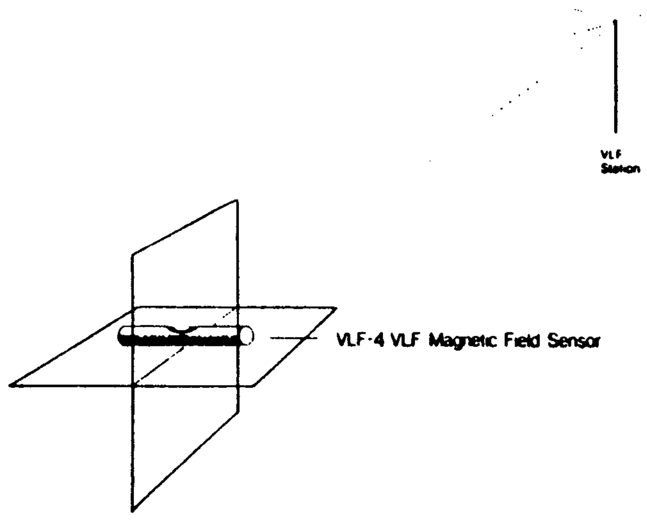
To permit measurement of the VLF-electric field, a dipole consisting of two cylindrical electrodes and 5 meters of wire is used. When this dipole is correctly laid out, the IGS-2/VLF-4 measures the in-phase and quadrature components of the horizontal electric field in the direction of the line joining the operator and the transmitter station. The phase reference is the horizontal magnetic field.



The VLF-magnetic field measurement comprises: 1) horizontal amplitude H_y, 2) the amplitude of $H_z(I)$ (the vertical field component which is in-phase with H_y) and 3) the amplitude of $H_z(Q)$ (the vertical field component which is 90° out-of-phase with H_y.



The VLF-4 is used to measure the in-phase $E_x(I)$, and quadrature $E_x(Q)$, components of the horizontal electric field, E_x, in the line joining the operator and the transmitter station. The phase is referenced to that of the horizontal magnetic field H_y. These components are not recorded but are used in the calculations of resistivity and phase made by the VLF-4.



An electronic level sensor on the axis of the horizontal vector receiver coil provides automatic side-to-side tilt compensation. The error in the vertical in-phase component is less than 1% for tilts up to 15° provided that the operator is facing the VLF station directly. Tilts in any other direction of up to 10° produce no significant error (1%) in the other components and, therefore, require no compensation.

Figure VLF:2
What the VLF-4 Measures

The IGS-2/VLF-4 uses the magnetic and electric field measurements to automatically calculate the apparent resistivity of the earth as well as the phase angle between the magnetic and electric field components. If the earth is uniform (not layered) within the depth of the VLF measurement, the phase angle between the horizontal magnetic and electric VLF fields will be 45 degrees. A non-uniform earth will give rise to other phase angles.

The following formulae are used for resistivity and phase calculations:

Apparent Resistivity Calculation:

$$\rho = \frac{1}{2\pi f \mu_o} \left| \frac{E_x}{H_y} \right|^2$$

where:

ρ = apparent resistivity in ohm-meters
E_x = horizontal electric amplitude, calculated
$E_x = (E_x(I)^2 + E_x(Q)^2)^{\frac{1}{2}}$
H_y = horizontal magnetic amplitude, measured
f = VLF station frequency in Hertz
μ_o = permeability of the ground in Henries/meter, a constant

The resistivity calculation has a range of 1 to 100,000 ohm-meters with a resolution of 1 ohm-meter.

Phase Angle Calculation

The phase angle ϕ is expressed as:

$$\phi = \arctan \frac{E_x(Q)}{E_x(I)}$$

where:

$E_x(Q)$ = horizontal quadrature VLF electric field.
$E_x(I)$ = horizontal in-phase VLF electric field, phase rferenced to the horizontal magnetic field, Hy.

The phase angle calculation has a range of −180° to +180° with a resolution of 1°. By definition the angle is positive when the electrical field leads the magnetic field.

9.0 SPECIFICATIONS

9.1 Standard Console Specifications

Digital Display	32 character, 2 line LCD display
Keyboard Input	14 keys for entering all commands, coordinates, header and ancillary information.
Languages	English plus French is standard.
Standard Memory	16K RAM. More than sufficient for a day's data in most applications.
Clock	Real time clock with day, month, year, hour, minute and second. One second resolution, ±1 second stability over 12 hours. Needs keyboard initialization only after battery replacement.
Digital Data Output	RS-232C serial interface for digital printer, modem, microcomputer or cassette tape recorder. Data outputs in 7 bit ASCII, no parity format. Baud rate is keyboard selectable at 110, 300, 600 and 1200 baud. Carriage return delay is keyboard selectable in increments of one from 0 through 999. Handshaking is done through X-ON/X-OFF protocol. Allows IGS-2 to act as a master for other instrumentation.
Analog Output	For a strip chart recorder. 0 to 999 mV full scale with keyboard selectable sensitivities of 10, 100 or 1000 units full scale.

Console Dimensions	240 x 90 x 240 mm includes mounted battery pack.
Weights	Console: 2.2 kg Console with Non-rechargeable Battery Pack; 3.2 kg. Console with Rechargeable Battery Pack: 3.6 kg.
Operating Temperature Range	-40°C to +50°C provided optional Display Heater is used below -20°C.
Power Requirements	Can be powered by external 12 V DC or one of the Battery Pack Options listed below.

9.2 Battery Pack Options

Battery Pack lifetime depends on which Battery Pack is selected, sensor(s) used, reading time and ambient temperature. Life expectancy would be 1 to 10, eight hour survey days.

Non-Rechargeable Battery Pack	Includes battery holder and 10 disposable 'C' cell batteries for installation on console. Used in low sensitivity total field magnetometry or VLF in temperatures above 0°C. Weight is 0.9 kg.
Rechargeable Battery Pack and Charger	Includes battery holder, 6 rechargeable, non-magnetic, sealed lead-acid batteries and charger for installation on console. Best for high sensitivity total field measurements, all gradient measurements and operation below 0°C. Pack weighs 1.3 kg. Charger specifications are: 140 x 95 x 65 mm, 115/230 V AC, 50/60 Hz, 20 VA, overload protected.

9.0 SPECIFICATIONS

Frequency Tuning	Automatic digital tuning. Can be tuned to any frequency in the range 15.0 to 29.0 kHz with a bandwidth of 150 Hz. Up to three frequencies can be chosen by keyboard entry for sequential measurements.
Field Strength Range	Fields as low as 100 mA/m can be received. In practice, background noise may require fields up to 5-10 times this level. Maximum received field is 2 mA/metre. These values are specified for 20 kHz. For any other frequency, calculate the above limits by multiplying by the station frequency in kHz and dividing by 20.
Signal Filtering	Narrow bandpass, low pass and sharp cut-off high pass filters.
Measuring Time	0.5 seconds sample interval. As many as 2^{16} samples can be stacked to improve measurement accuracy.
VLF-Magnetic Field Components Measured	1) Horizontal amplitude, 2) vertical in-phase component, and 3) vertical quadrature components. Vertical components are displayed as a percentage of horizontal component and are related in phase to the horizontal component. Their range is ±120%; reading resolution 1%.
VLF-Magnetic Field Sensor	Two air-cored coils in a backpack mounted housing with an electronic level for automatic tilt compensation. The error in the vertical in-phase component is less than 1% for tilts up to ±15°.