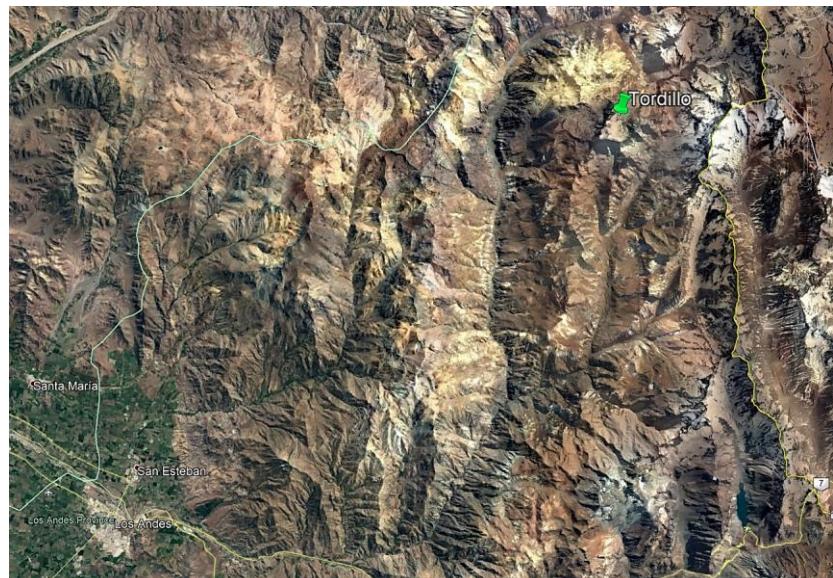


**LOGISTICS REPORT FOR A
DC RESISTIVITY AND IP SURVEY
OVER THE
TORDILLO PROJECT
(LOS ANDES, CHILE)
ON BEHALF OF
CERRO GRANDE MINING CORP.**



April 23, 2019
CH00760C

Quantec Geoscience Chile Ltda
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QUANTEC
Geoscience

EXECUTIVE SUMMARY

This report presents the logistics and results of the DC Resistivity and IP survey completed from April 2 to April 14, 2019 over the Tordillo Project by Quantec Geoscience Chile Ltda on behalf of Cerro Grande Mining Corp..

The report describes the instrumentation, data acquisition and processing procedures, the final data formats and contents of the digital archives of the results. A total of 3 lines covering 6.8 km were surveyed.

Data were inspected for quality assurance daily by the geophysicist in charge of the project.

The final processed survey results delivered with the report include:

- DCIP Data:
 - Raw instrument data files.
 - Raw data (including all repeat readings) and averaged data as Geosoft .GDB and as .csv databases.
 - Section maps of each line at 1:10000 scale in Geosoft .MAP, .PNG, GeoTIFF, and Mapinfo image formats, showing:
 - Pseudosections of DC apparent resistivity and average total chargeability
 - 2D inversion models of:
 - DC resistivity
 - DC-referenced chargeability
 - HS-referenced chargeability
 - 3D Imaging in Geosoft .GEOSOFT_3DV format, showing:
 - 2D inversion models, as sections of:
 - DC resistivity
 - DC-referenced chargeability
- Positioning data as Geosoft .GDB and as .csv databases.

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1. INTRODUCTION

This report presents the logistics and results of the DC Resistivity and IP survey completed from April 2 to April 14, 2019 over the Tordillo Project by Quantec Geoscience Chile Ltda. on behalf of Cerro Grande Mining Corp..

1.1. CLIENT INFORMATION

Name: Cerro Grande Mining Corp.

Address:

Representative: Matthew Thomson
Phone:
Email: mst@cegmining.com

1.2. GENERAL PROJECT INFORMATION

Project Name: Tordillo Project

Quantec Project Number: CH00760C

Survey Type: DC Resistivity and IP

General Location: Valparaiso region, Los Andes province, approximately 50 km east-northeast of the city of San Felipe, Chile.
(see Figure 1-1).

Lat /Long: 32°35'18"S, 70°13'45"W

UTM: 384650 E, 6393700 N

Datum: WGS84, UTM Zone 19S

Survey Period: April 2 to April 14, 2019

Report Prepared by: Jeff Warne

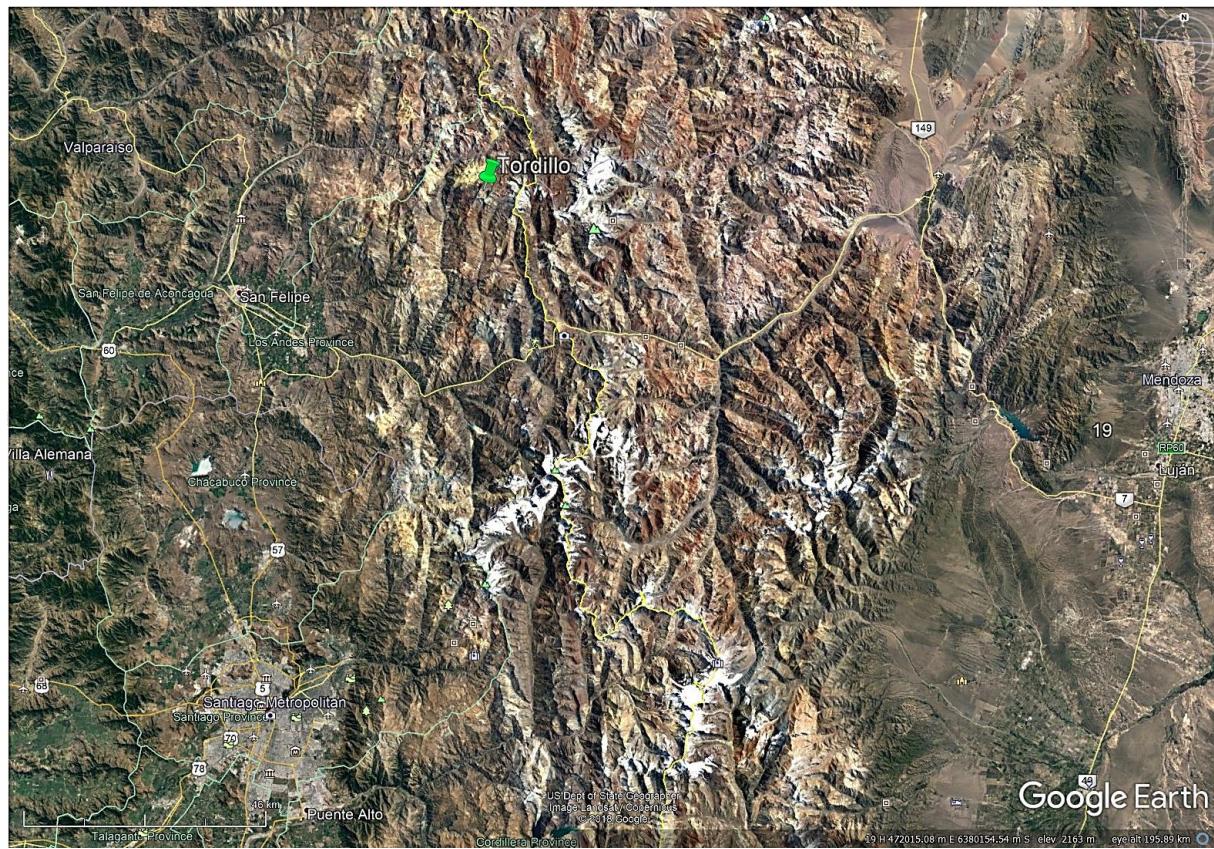


Figure 1-1: General location map.

2. SURVEY LOGISTICS

2.1. ACCESS

Base of Operations:	Project Camp
Mode of Access:	4 x 4 truck, and on foot

2.2. GRID AREA

Established by:	Client prior to survey execution
Grid Coordinate Reference System:	Grid referenced to UTM coordinates
Datum and Projection:	WGS84, UTM Zone 19S
Grid Azimuth:	Grid N is 030° True
Line/Station Location:	Electrode locations verified with handheld GPS

2.3. PRODUCTION SUMMARY

Details of Survey Production:	See APPENDIX A
Survey Period (Total):	April 2 to April 14, 2019 13 days
Survey Days (Read Time):	11 days
Weather Standby:	0 days
Equipment Standby:	0 days
Mobilization/Demobilization:	2 days

2.4. SURVEY COVERAGE SUMMARY

Details of Survey Coverage:	See APPENDIX B
Lines Acquired:	3 lines covering a total of 6.8 km (see Figure 2-1)

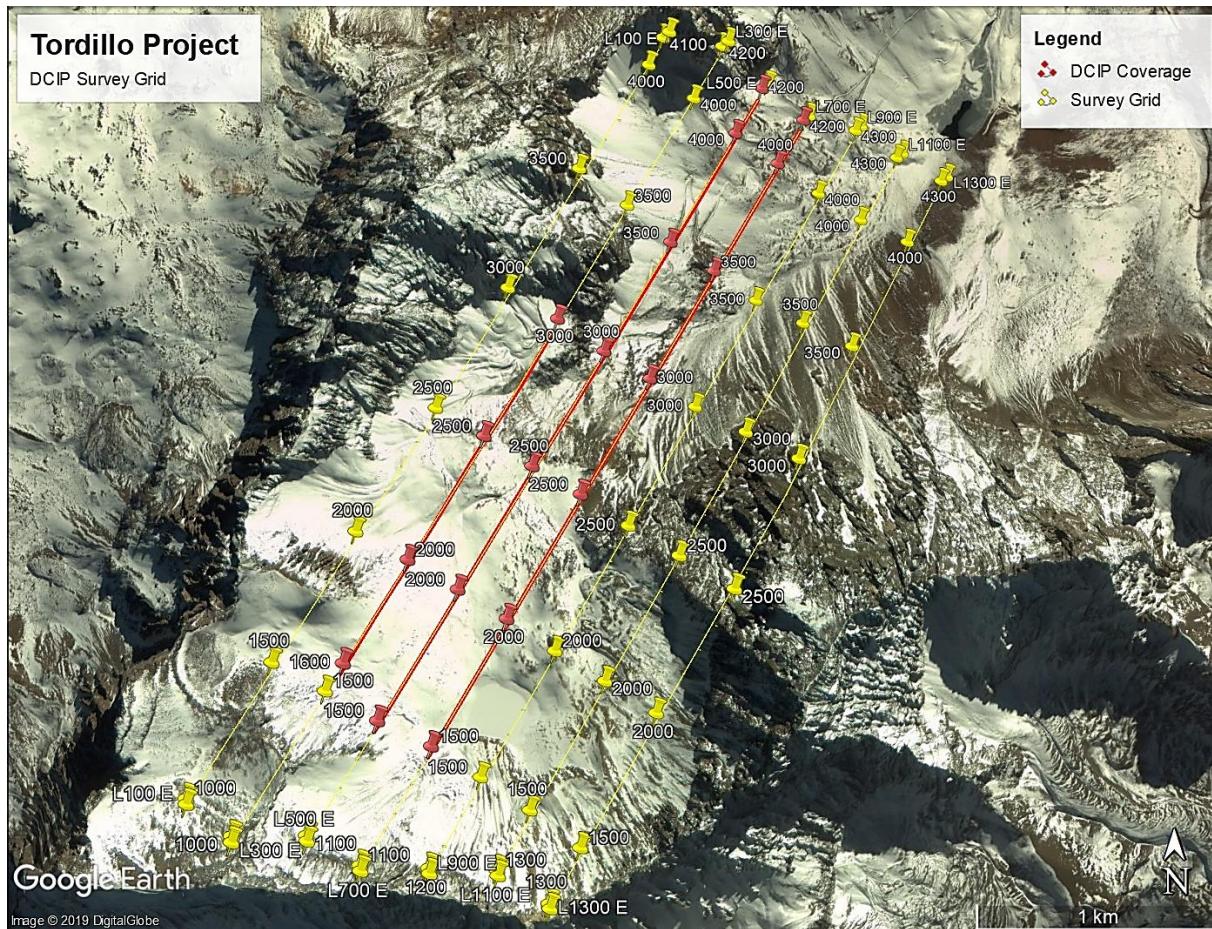


Figure 2-1: Survey grid and coverage.

2.5. QUANTEC PERSONNEL

Project Manager:	Nigel Unger
Field Operations Manager:	Alejandro Espinoza
Project Geophysicists:	Jeff Warne
Operators:	Alejandro Espinoza,
Tx Operator:	Ricardo Cataldo
Technicians:	Hernan Navarro, Keith Tapia, Reinaldo Condori, Victor Ayala, Mario Soto, Cristian Aguilera

2.6. HEALTH, SAFETY AND ENVIRONMENT (HSE)

Quantec Geoscience is committed to conducting its activities in a manner that will safeguard and protect the health and safety of all Quantec personnel, clients, the public and the environment.

2.6.1.Hazard Assessment and Control

Prior to mobilization, Quantec HSE compiled a hazard inventory for the project and risk assessments were completed for the tasks involved in conducting the work. On the basis of the risk assessments, corresponding Job Safety Analyses (JSA) were prepared defining safe work procedures.

2.6.2.Systems and Procedures

All personnel were equipped with any personal protective equipment (PPE) required for the work.

One Quantec crew member was assigned as an HSE coordinator to assist the Field Manager with implementation of HSE procedures and reporting.

Daily safety meetings of Quantec personnel were conducted each morning prior to commencement of work to review safe work procedures and discuss any prior incidents, daily plans and potential hazards.

Vehicle circle checks were completed by drivers before departure.

3. SURVEY SPECIFICATIONS

3.1. INSTRUMENTATION

DCIP Receiver:	IRIS Elrec-Pro
DCIP Transmitter:	IRIS VIP 10000
IP Power supply:	Honda EH15.000Ts
Electrodes:	Ground contacts using stainless steel rods

3.2. DCIP SURVEY PARAMETERS

3.2.1. Geometry

Configuration:	Pole-Dipole Array
Receiver dipole spacing (a):	100 m
Receiver dipole array (n):	n = 1 to 10
Infinite pole location:	385374 E, 6399461 N (WGS84, UTM Zone 19S)

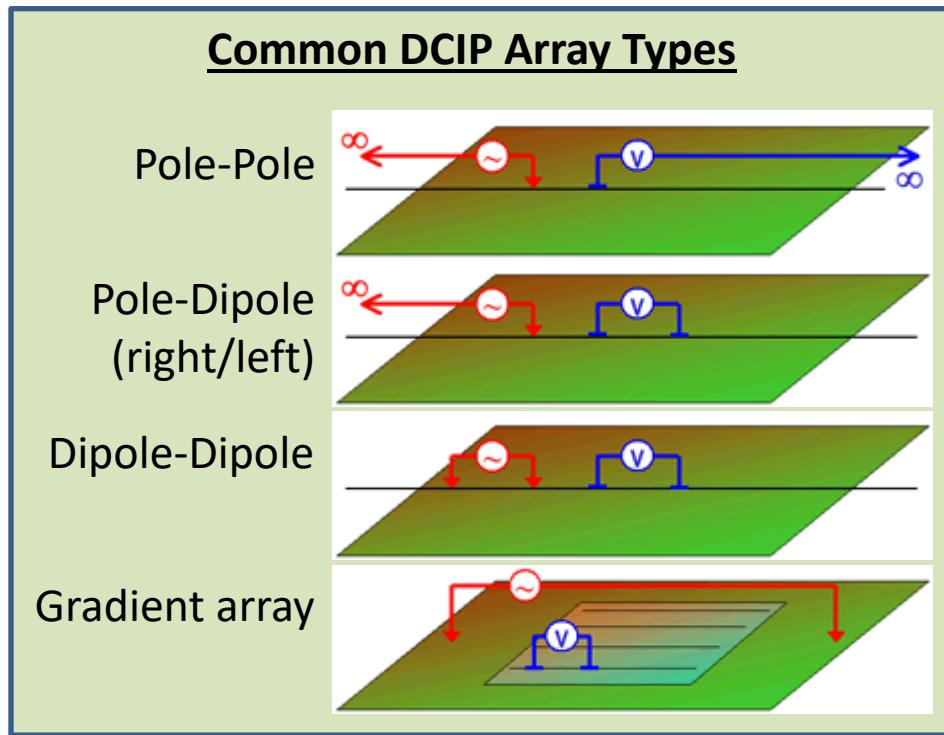


Figure 3-1: Common DCIP array layouts¹.

3.2.2.Acquisition Parameters

Input Waveform:	0.125 Hz square wave at 50% duty cycle (2 s On/Off)
Receiver Decay Sampling:	20 arithmetic spaced windows (see Table 3-1).
Measured Parameters:	Chargeability in mV/V (time slices + total area under decay curve) Primary voltage in millivolts and input current in Amperes for resistivity calculation according to the electrode array geometry factor.

¹ Images from UBC-GIF –Inversion for Applied Geophysics; <http://www.eos.ubc.ca/research/ubcgif/iag/index.htm>

Table 3-1: Arithmetic IP Decay Curve Sampling (2 Sec. Cycle).

Slice	Duration (msec)	Start (msec)	End (msec)	Mid-Point (msec)
T0	240	0	240	N/A
T1	80	240	320	280
T2	80	320	400	360
T3	80	400	480	440
T4	80	480	560	520
T5	80	560	640	600
T6	80	640	720	680
T7	80	720	800	760
T8	80	800	880	840
T9	80	880	960	920
T10	80	960	1040	1000
T11	80	1040	1120	1080
T12	80	1120	1200	1160
T13	80	1200	1280	1240
T14	80	1280	1360	1320
T15	80	1360	1440	1400
T16	80	1440	1520	1480
T17	80	1520	1600	1560
T18	80	1600	1680	1640
T19	80	1680	1760	1720
T20	80	1760	1840	1800
Total		1840		

3.3. DATA PROCESSING AND QUALITY CONTROL

Repeat readings, a minimum of three, were taken during acquisition to verify measurement repeatability. Variations are due to instrument noise, electrode contact drift, and natural background noise. Signal to noise was moderate during the survey. Despite moderate output current achieved by electrode preparations, typically 3 to 4 amps, the primary signal level at large array separations (i.e. n = 7 to 10) was often < 5 mV, for which the standard deviation of chargeability measurements was often approaching $\pm 5 \text{ mV/V}$. In several instances primary signal was as low as 1 - 2 mV resulting in standard deviation of chargeability measurements up to or greater than $\pm 10 \text{ mV/V}$. Additional repeat

measurements were acquired to provide further stacking and average to improve accuracy and repeatability.

The measured data were transferred from the Elrec-Pro instrument using IRIS' Prosys II software.

Any required corrections to electrode positions or injection current values due to operator input error were made using Prosys II, before importing the data to Geosoft Oasis Montaj™.

Using the Geosoft IP processing system, the apparent resistivity values were recalculated based on the final electrode locations. Pseudosections of the apparent resistivity and chargeability data were plotted, all data points are examined with the Geosoft IP quality control tool, and bad readings. Examples of "bad" readings are those that exhibit negative primary voltage, or an unnatural IP decay curve. Repeat readings were then averaged prior to the inversion process. In consideration of the signal to noise, measurements having standard deviation as high as ± 10 mV/V have been accepted for stacking and averaging.

Errors were assigned to the data for the inversion process. For resistivity data, errors were defined as 5% of the normalized V_p, plus a normalized minimum error of 0.05/I, in mV. Chargeability errors were defined as the instrument IP quality channel "Q", with a minimum of 0.2. The V_p and average chargeability data were then exported to UBC format inversion files.

3.4. UBC INVERSIONS

The averaged V_p and IP data were inverted using the UBC-GIF DCINV2D and IPINV2D to produce DC resistivity and chargeability models. Two chargeability models were produced: the HS-referenced model uses a constant half-space as a sensitivity reference, and the DC-referenced model uses the DC resistivity model as a sensitivity reference.

The inversion models were imported into Geosoft and plotted as sections together with the data pseudosections.

4. DELIVERABLES

4.1. DIGITAL DATA

The complete DCIP data set is archived as Geosoft® Oasis Montaj™ .GDB format database files and as .csv conversions, one including all repeat readings and a second as averaged readings at each point. Raw instrument data files, in Iris Instruments “.bin” binary file format are also provided. These files may be examined with IRIS Instruments Prosys II software, available from Iris Instruments <http://www.iris-instruments.com/>. The survey positioning data is provided as Geosoft .GDB database file and as .csv conversion.

4.2. MAP PRODUCTS

The final processed survey results delivered with the report include:

- DCIP Maps:
 - Section maps of each line at 1:10000 scale in Geosoft .MAP, .PNG, GeoTIFF, and Mapinfo image formats, showing:
 - Pseudosections of DC apparent resistivity and average total chargeability
 - 2D inversion models of:
 - DC resistivity
 - DC-referenced chargeability
 - HS-referenced chargeability
 - 3D Imaging in Geosoft .GEOSOFT_3DV format, showing:
 - 2D inversion models, as sections of:
 - DC resistivity
 - DC-referenced chargeability

5. CONCLUSIONS

From April 2 to April 14, 2019, Quantec Geoscience Chile Ltda acquired 6.8 km of DCIP data on 3 lines over the Tordillo Project area.

The DCIP data have been processed and inverted in 2D using the UBC-GIF suite of inversion code.

Signal to noise was moderate for the survey which has impacted the accuracy and repeatability of chargeability measurements locally. Despite this, in general the data are of good quality and accurately represent the DC resistivity and chargeability response of the subsurface in the survey area.

Respectfully submitted by:

Jeff Warne
Quantec Geoscience Limited
April 23, 2019

APPENDIX A. PRODUCTION SUMMARY

QUANTEC GEOSCIENCE CHILE LTDA.										CH00760C	
Estudio:	IP			Cliente: CERRO GRANDE MINING CO						 QUANTEC Geoscience	
Mediciones:	Polo-Dipolo			Proyecto: Tordillo							
	$a = 100 \text{ m}$			Proyecto #: CH00760C							
UTM Dato:	WGS 84										
UTM Zona:	19J										
Equipos:	Unidad	Equipo o Modelo	Nº de Serie	Ubicación	UTM Este	UTM Norte	Altura (m)				
	Receptor IP	Eifrec Pro 10	2315	Infinito	385,374	6,399,461	3,005				
	Transmisor IP	Vip 10000									
	Motor	15 Kw	2561								
	Garmin GPS	1									
	Garmin GPS	1									
	Radios	8									
Día	Operador	Fecha	Descripción	Área	Línea	Puntos Medidos	Cobertura	Notas			
						desde	hasta				
kilómetros											
1	A.E	2019-04-02	Movilización	****	****	****	****	Se Moviliza desde los andes a proyecto			
2	A.E	2019-04-03	Trabajos en terreno	Tordillo	****	****	****	Se comienza los trabajos, se busca el infinito y se tira el cable infinito a la línea 500 desde hay se prepara hacia el lado menor de la línea es muy complicado hacer el trayecto lo que no permite medir si se deja casi todo listo para mañana medir y comenzar con las lecturas e ip.			
3	A.E	2019-04-04	Mediciones	Tordillo	500	1500	2400	Se comienza las mediciones con muchos problemas de señal al inicio después se recompone y se mide sin problemas			
4	A.E	2019-04-05	Mediciones	Tordillo	500	****	****	Se repiten las estaciones 1500 y 1600 lo que se logra medir con problemas de corriente pero se toman datos mucho mejor, se comienza el express 2 pero animales (guanacos) cortan el infinito y toma mucho tiempo ya que al repararlo nuevamente lo vuelven a cortar.			
5	A.E	2019-04-06	Mediciones	Tordillo	500	2400	3400	hoy se cambia parte del infinito lo que se logra que animales no malogen el cable y se mide sin problemas, hay muchos puntos que se demora demasiado tiempo en tomar datos ya que el relleno de piedras complica las mediciones y toma mucho tiempo			
6	A.E	2019-04-07	Mediciones	Tordillo	500	3700	4000	Se mide en la mañana sin problemas pero despues de medio dia no se logran tomar datos buenos			
7	A.E	2019-04-08	Mediciones	Tordillo	500	3400	3700	Se miden sin problemas en la mañana			
8	A.E	2019-04-09	Mediciones	Tordillo	300	1600	2900	Se comienza a medir linea 300 sin promeblas alguno.			
9	A.E	2019-04-10	Mediciones	Tordillo	700	1400	2600	Se mide sin problemas			
10	A.E	2019-04-11	Mediciones	Tordillo	700	****	****	Se comienza a medir pero los ultimos canales cuestan mucho medir ya que señal es muy devil y el las inyecciones de corriente no son buenas ya que hay mucho relleno pero se logra terminar las repeciones de corriente			
11	A.E	2019-04-12	Mediciones	Tordillo	700	2800	4100	Se ecomienza las mediciones sin mayor problemas			
12	A.E	2019-04-13	Trabajos en terreno	Tordillo	****	****	****	Se comienzan con la recogido de cable lectura y corriente lo que nos toma prácticamente todo el dia pero se hace un trabajo bueno y seguro terminando todo nuestras labores de IP , igual mente se hace limpieza			
13	A.E	2019-04-14	Trabajos en terreno	Movilizacion	****	****	****	Se moviliza desde proyecto tordillo a santiago			
								Total	6400		
List of the Crew											
1	Crew Chief	Alejandro Espinoza									
2	Tx Operator	Ricardo Cataldo									
3	Field Assistance	Hernan Navarro									
4	Field Assistance	Keith Tapia									
5	Field Assistance	Reinaldo Condori									
6	Field Assistance	Victor Ayala									
7	Field Assistance	Mario soto									
8	Field Assistance	Cristian Aguilera									

APPENDIX B. SURVEY COVERAGE

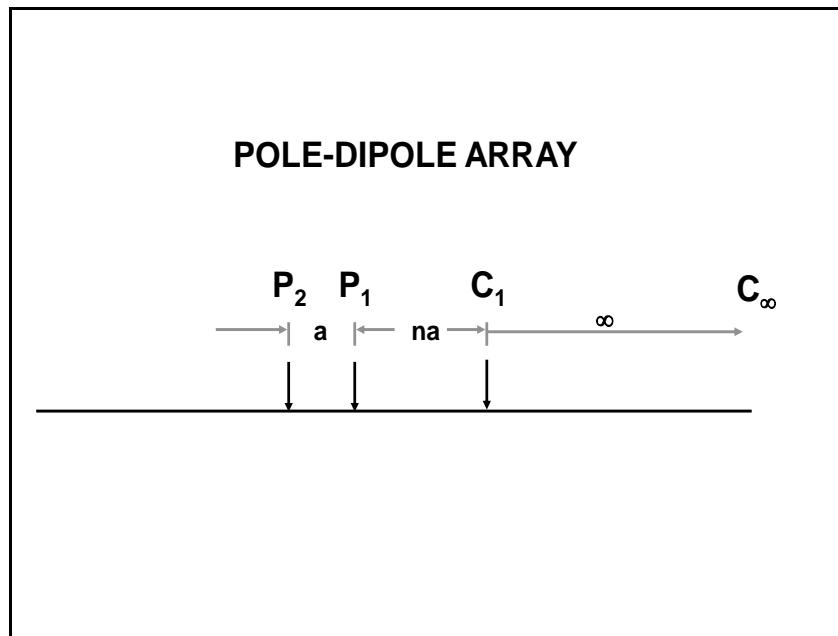
Line	Grid Coordinates		UTM Coordinates (WGS84, Zone 19S)			
	Start	End	Start		End	
			Easting	Northing	Easting	Northing
300	1600	3000	384199	6393091	384899	6394303
500	1500	4200	384319	6392899	385669	6395237
700	1500	4200	384494	6392802	385844	6395140

APPENDIX C. DCIP SURVEY PROCEDURES

Resistivity is among the most variable of all geophysical parameters, with a range exceeding 10^6 . Because most minerals are fundamentally insulators, with the exception of massive accumulations of metallic and sub metallic ores (electronic conductors) which are rare occurrences, the resistivity of rocks depends primarily on their porosity, permeability and particularly the salinity of fluids contained (ionic conduction), according to Archie's Law. In contrast, the chargeability responds to the presence of polarisable minerals (metals, sub metallic sulphides and oxides, and graphite), in amounts as minute as parts per hundred. Both the quantity of individual chargeable grains present and their distribution within subsurface current flow paths are significant in controlling the level of response. The relationship of chargeability to metallic content is straightforward, and the influence of mineral distribution can be understood in geologic terms by considering two similar, hypothetical volumes of rock in which fractures constitute the primary current flow paths. In one, sulphides occur predominantly along fracture surfaces. In the second, the same volume percent of sulphides are disseminated throughout the rock. The second example will, in general, have significantly lower intrinsic chargeability.

The collected data sets are reduced to apparent resistivity and total chargeability as explained in the following figures and equations.

C.1. POLE-DIPOLE IP/ RESISTIVITY SURVEY



Pole-dipole Electrode Array

Referring to the diagram for the electrode configuration and nomenclature², the apparent resistivity for

² From Terraplus\BRGM, IP-6 Operating Manual, Toronto, 1987.

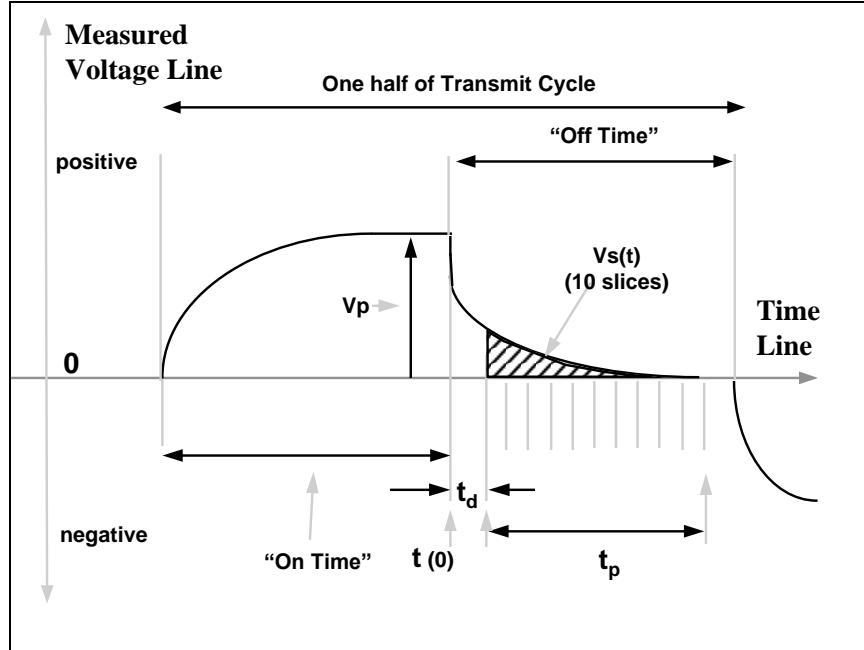
the pole-dipole array is given by:

$$\rho a = 2\pi n(n+1) a \times \frac{V_p}{I} \text{ ohm - metres}$$

where:

- “a” is the dipole spacing (metres)
- “n” is the number of dipole spacings separating C₁ and P₁
- “V_p” is the primary voltage measured between P₁P₂ (volts)
- “I” is the output current between C₁C₂ (amperes)

C.2. CHARGEABILITY



Time Domain IP/Resistivity Measured Parameters

Using the diagram for the Total Chargeability, the total apparent chargeability is given by³:

$$M_T = \frac{1}{t_p V_p} \sum_{i=1 \text{ to } 10} \int_{t_i}^{t_{i+1}} V_s(t) dt \quad \text{millivolts per volt}$$

where t_i, t_{i+1} are the beginning and ending times for each of the chargeability slices.

³ From Telford, et al., Applied Geophysics, Cambridge U Press, New York, 1983.

C.3. REFERENCES

More detailed descriptions on the theory and application of the IP/Resistivity method can be found in the following reference papers:

- Cogan, H., 1973, Comparison of IP electrode arrays, *Geophysics*, 38, p 737 - 761.
- Langore, L., Alikaj, P., Gjovreku, D., 1989, Achievements in copper sulphide exploration in Albania with IP and EM methods, *Geophysical Prospecting*, 37, p 925 - 941.
- Telford, W. M., Geldart, L. P., Sheriff, R. E., Keys, D. A., 1986, *Applied Geophysics*, Cambridge University Press.

APPENDIX D. INSTRUMENT SPECIFICATIONS

D.1. IRIS ELREC PRO RECEIVER

IRIS INSTRUMENTS

ELREC Pro



ELREC Pro unit with its graphic LCD screen

10 CHANNELS

IP RECEIVER FOR

MINERAL EXPLORATION

- 10 simultaneous dipoles
- 20 programmable chargeability windows
- High accuracy and sensitivity

ELREC Pro: this new receiver is a new compact and low consumption unit designed for high productivity Resistivity and Induced Polarization measurements. It features some high capabilities allowing to work in any field conditions.

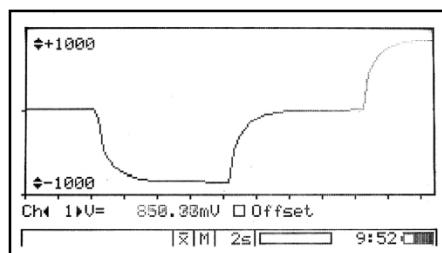
Reception dipoles: the ten dipoles of the ELREC Pro offer an high productivity in the field for dipole-dipole, gradient or extended poly-pole arrays.

Programmable windows: beside classical arithmetic and logarithmic modes, ELREC Pro also offers a Cole-Cole mode and a twenty fully programmable windows for a higher flexibility in the definition of the IP decay curve.

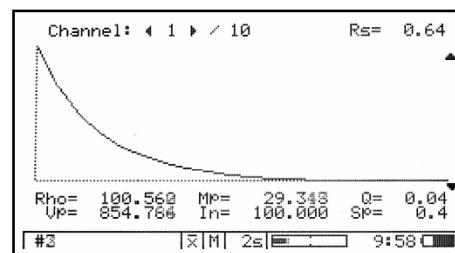
IP display: chargeability values and IP decay curves can be displayed in real time thanks to the large graphic LCD screen. Before data acquisition, the ELREC Pro can be used as a one channel graphic display, for monitoring the noise level and checking the primary voltage waveform, through a continuous display process.

Internal memory: the memory can store up to 21 000 readings, each reading including the full set of parameters characterizing the measurements. The data are stored in flash memories not requiring any lithium battery for safeguard.

Switching capability: thanks to extension *Switch Pro* box(es) connected to the ELREC Pro unit, the 10 reception electrodes can be automatically switched to increase the productivity in-the-field.



Monitoring of the Primary voltage waveform before acquisition



Display of numeric values and IP decay curve during acquisition

ELREC Pro

FIELD LAY-OUT OF AN ELREC PRO UNIT

The ELREC Pro unit has to be used with an external transmitter, such as a VIP transmitter.

The automatic synchronization (and re-synchronization at each new pulse) with the transmission signal, through a waveform recognition process, gives an high reliability of the measurement.

Before starting the measurement, a grounding resistance measuring process is automatically run ; this allows to check that all the electrodes are properly connected to the receiver.

Extension *Switch Pro* box(es), with specific cables, can be connected to the ELREC Pro unit for an automatic switching of the reception electrodes according to preset sequence of measurements ; these sequences have to be created and uploaded to the unit from the ELECTRE II software.



*Extension Switch Pro box
able to drive 24 - 48 - 72
or 96 electrodes*

The use of such boxes allows to save time in case of the user needs to measure more than 10 levels of investigation or in case of large 2D or 3D acquisition.

DATA MANAGING

PROSYS software allows to download data from the unit. From this software, one has the opportunity to visualize graphically the apparent resistivity and the chargeability sections together with the IP decay curve of each data point. Then, one can process the data (filter, insert topography, merge data files...) before exporting them to "txt" file or to interpretation software: RES2DINV or RESIX software for pseudo-section inversion to true resistivity (and IP) 2D section. RES3DINV software, for inversion to true resistivity (and IP) 3D data.

FEATURES

TECHNICAL SPECIFICATIONS

- Input voltage:
Max. input voltage: 15 V
Protection: up to 800V
- Voltage measurement:
Accuracy: 0.2 % typical
Resolution: 1 μ V
Minimum value: 1 μ V
- Chargeability measurement:
Accuracy: 0.6 % typical
- Induced Polarization (chargeability) measured over to 20 automatic or user defined windows
- Input impedance: 100 M Ω
- Signal waveform: Time domain (ON+,OFF,ON-,OFF) with a pulse duration of 500 ms - 1 s - 2 s - 4 s - 8 s
- Automatic synchronization and re-synchronization process on primary voltage signals
- Computation of apparent resistivity, average chargeability and standard deviation
- Noise reduction: automatic stacking number in relation with a given standard deviation value
- SP compensation through automatic linear drift correction
- 50 to 60Hz power line rejection
- Battery test

GENERAL SPECIFICATIONS.

- Data flash memory: more than 21 000 readings
- Serial link RS-232 for data download
- Power supply: internal rechargeable 12V, 7.2 Ah battery ; optional external 12V standard car battery can be also used
- Weather proof
- Shock resistant fiber-glass case
- Operating temperature: -20 °C to +70 °C
- Dimensions: 31 x 21 x 21 cm
- Weight: 6 kg



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D.2. IRIS VIP 10000 TRANSMITTER



VIP 10000

10 kW IP TRANSMITTER

- Up to 3000V, 20A
- Standard motor generator

STANDARD MOTOR GENERATOR SUPPLY

In surveys requiring large power a key practical problem is the local availability of a motor generator. Being powered by a standard motor generator, the VIP 10 000 offers the highest flexibility in its class. Its power input requirements are:

- 180 to 250 V voltage for maximum output power
- 45 to 800 Hz frequency
- Three-phases for maximum output power
- One phase for lower output power
- Motor generator or power line supply

The operation of the VIP 10 000 with such a large range of power sources will drastically reduce the transportation and maintenance problems inherent to the field survey constraints.

HIGH OUTPUT SPECIFICATIONS

In medium and high resistivity areas, the amount of current driven into the ground depends on the maximum output voltage provided by the transmitter; in addition in low resistivity areas, it is also dependent on the maximum output power.

- The VIP 10 000 features the following major benefits:
- High output voltage: 3000 V
 - High output power: 10 kW
 - High output current: 20 A

FULL MICROPROCESSOR CONTROL

The full microprocessor control of the VIP 10 000 allows the following basic benefits:

- Ease of use through interactive menus
- User friendly selection of the current value
- Continuous display of output current, voltage, power, ground resistance values
- Display of intelligent messages and warnings in case of a problem or malfunction: overload, short circuit, input, under or overvoltage



IRIS Instruments

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 Phone: + 33 2 38 63 81 00 - Fax: + 33 2 38 63 81 82 - E-mail: irisins@attglobal.net
 Web site: www.iris-instruments.com

FULLY AUTOMATED:

The VIP 10 000 is designed for ease of operation. It has a much simplified front panel: current setting is the only parameter to be selected by the operator. All the other functions, like voltage range setting, are fully automated.

PROGRAMMABLE:

Programming functions are also available, either through the front panel, with a special key combination, or from an external computer terminal. These functions are used to select the parameters and options that are not normally changed during a survey: operating mode, time or frequency domain, cycle time, frequencies, ...

This approach reduces front panel cluttering and drastically reduces the possibility of operator mistake. Instrument reliability is thus increased.

REMOTE CONTROL:

The VIP 10 000 is provided with a remote control port. By using radio modems, it can be operated from a remote location. The VIP 10 000 can also be linked to an intelligent receiver, or to a computer, for the automatic recording of current settings. Finally, synchronization with a receiver or system is also possible in both directions (i.e. Rx to Tx or Tx to Rx).

INTELLIGENT REGULATION:

The VIP 10 000 internal microprocessor is capable of excellent current regulation in almost any load. Current may be selected by the operator in preprogrammed steps from 50 mA to 20 amperes. Intelligent current adjustment algorithms are always in operation. For example, the contact resistance will occasionally be too high for the VIP 10 000 to provide the requested current setting. In such cases, the VIP 10 000 will display a warning message and will set the current to the maximum value allowable under that combination of current setting and contact resistance. Some reserve current capacity will always be kept to insure that the current stays constant during the measurements, whatever the contact resistance fluctuations.

COMPLETE DISPLAY:

A back-lighted liquid crystal alphanumeric display is provided for the simultaneous indication of all output parameters. Output current, output voltage, contact resistance and output power are continuously displayed.

HEAVY DUTY CONSTRUCTION:

Very high quality connectors, and heavy duty industrial components are used throughout. The VIP 10 000 is shock resistant and weatherproof, for a higher reliability.

Technical specifications

- Output Power: 10 000 W maximum
- Output Voltage: 3000 V maximum
- Automatic voltage range selection
- Output Current: 20 A maximum, current regulated
- Current accuracy: better than 1%
- Current stability: 0.1%
- Output Connectors: connectors accept bare wire or plug of up to 4 mm diameter.

TIME DOMAIN MODE:

- Waveform : ON+, OFF, ON-, OFF, (ON = OFF) preprogrammed cycle.
- Automatic circuit opening in off time.
- Preprogrammed ON times from 0.5 to 8 seconds by factor of two.

FREQUENCY DOMAIN MODE:

- Waveform: Square wave,
- Preprogrammed frequencies from 0.0625 Hz to 4 Hz by factors of 2.
- Alternate or simultaneous transmission of any two frequencies.

- Time and Frequency Stability: 0.01%,

- Display: Four lines alphanumeric liquid crystal display.
- Simultaneous display of output current, output voltage, contact resistance, and input power

- Protections: Short circuit at 10 ohms, Open loop at 60000 ohms, Thermal, Input overvoltage and undervoltage.

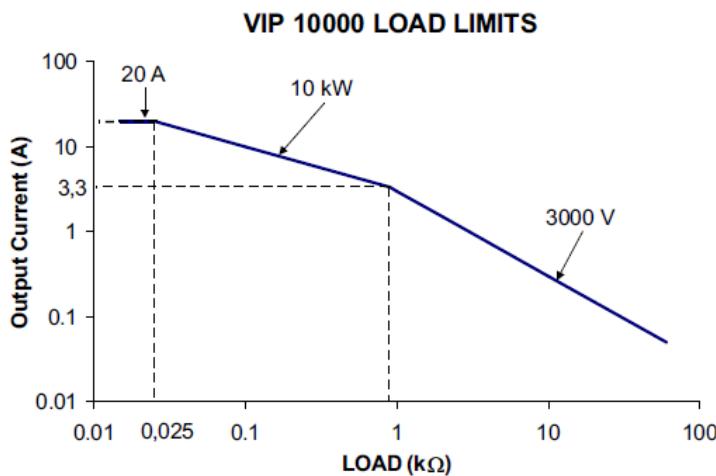
- Direct wire sync of on-time and polarity

POWER SOURCE:

175 to 270 VAC, 45-800 Hz, three-phases for maximum power (works at reduced power with a single phase)

GENERAL FEATURES:

- Dimensions (h w d): 55 x 51 x 37 cm.
- Weight: 35 kg
- Operating temperature: -40 to +50 °C.



D.3. HONDA EH15.000Ts GENERATOR

GENERADOR EH15.000Ts
Generador Portátil EH15.000Ts

 POWERED BY
HONDA™

Tipo	: Trifásico
Frecuencia	: 50Hz
Voltaje	: 220 Volt AC
Potencia	: 15 KVA.
Potencia Máxima	: 12,000 Watts.
Amper	: 54 Totales/ 18 x Fase
Factor de potencia	: 0,8

Motor

Modelo	: GX690 OHV
Desplazamiento	: 388 Cm3
Refrigeración	: Aire Forzado
Encendido	: Transistorizado
Potencia Máxima	: 25 Hp. a 3600 rpm.
Potencia Neta	: 22,2 Hp. a 3600 rpm.
Arranque	: Eléctrico

Equipamiento

Chasis/Bastidor	: Tipo Jaula
Regulador de	
Voltaje	: Condensador
Alarma de Aceite	: Si
Interruptor	
Automático CA	: Si
Batería	: Opcional
Kit de Ruedas	: Opcional

Dimensiones

Largo	: 89 Cms
Ancho	: 56 Cms
Alto	: 66 Cms
Peso Seco	: 120 Kg.
Depósito	
Combustible	: 17 Lts.
Autonomía	: 4,3 Hrs. Plena Carga
Nivel de Ruido a 7 Mts.	: 74 dB-A



Baper

 Chacabuco 778 - Santiago Centro
 Estación Quinta Normal - Línea 5

 info@baper.net

www.baper.net
 **682 5087**

Generador Trifásico, portátil de muy buena potencia, Arranque Eléctrico, bajo nivel de ruido y buena autonomía de combustible

APPENDIX E. SECTION MAPS

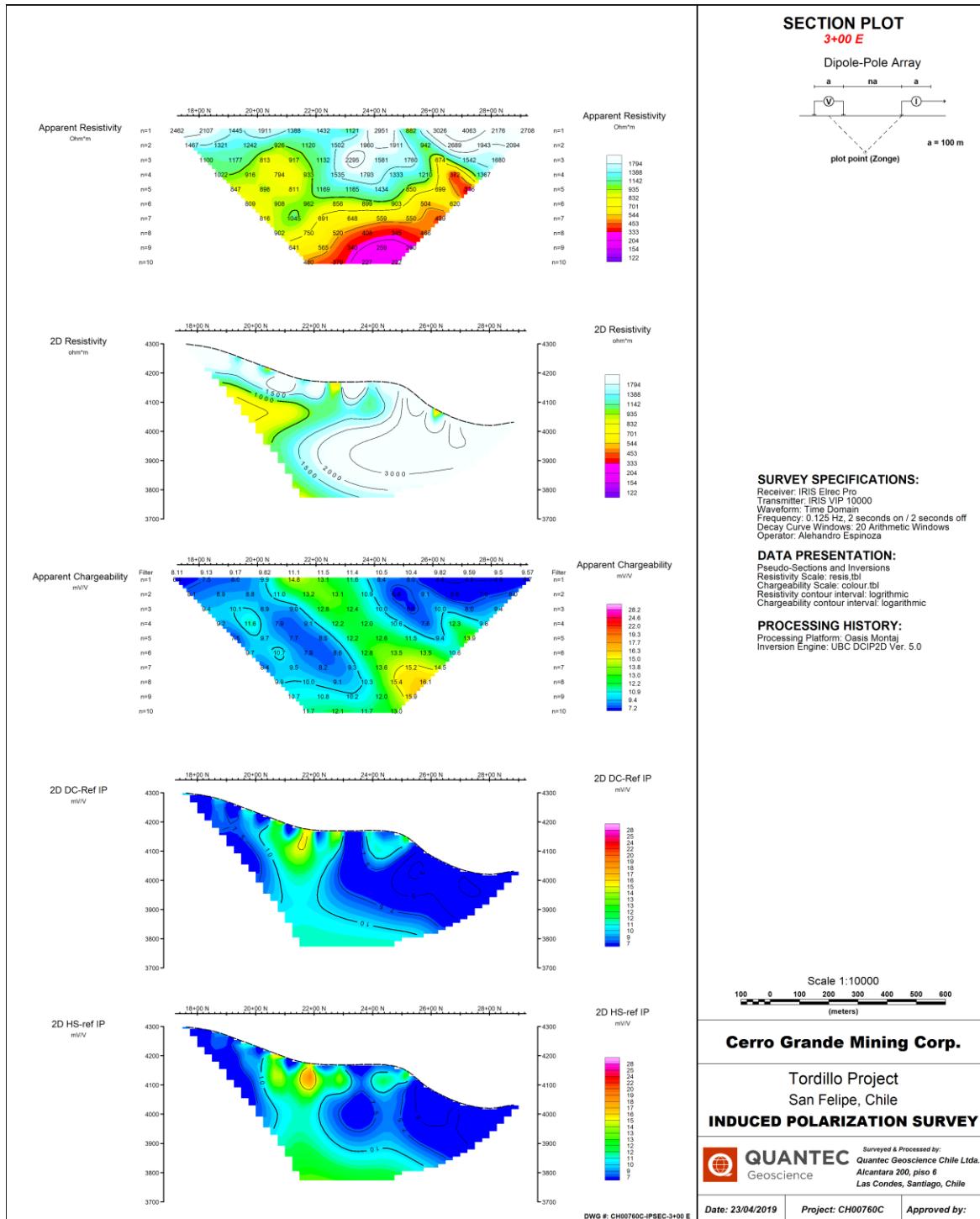


Figure E.1 – Line 300 section map

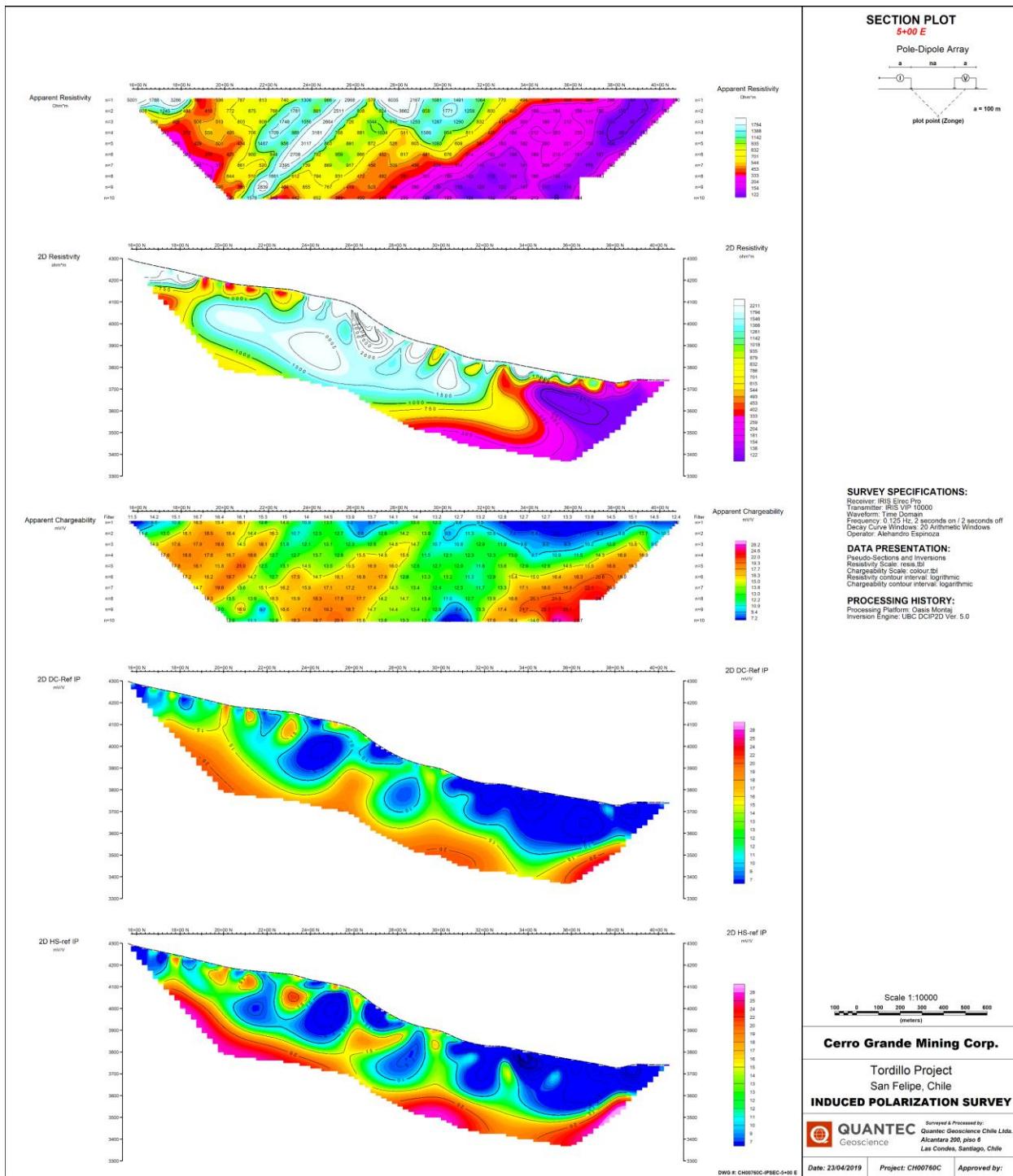


Figure E.2 – Line 500 section map

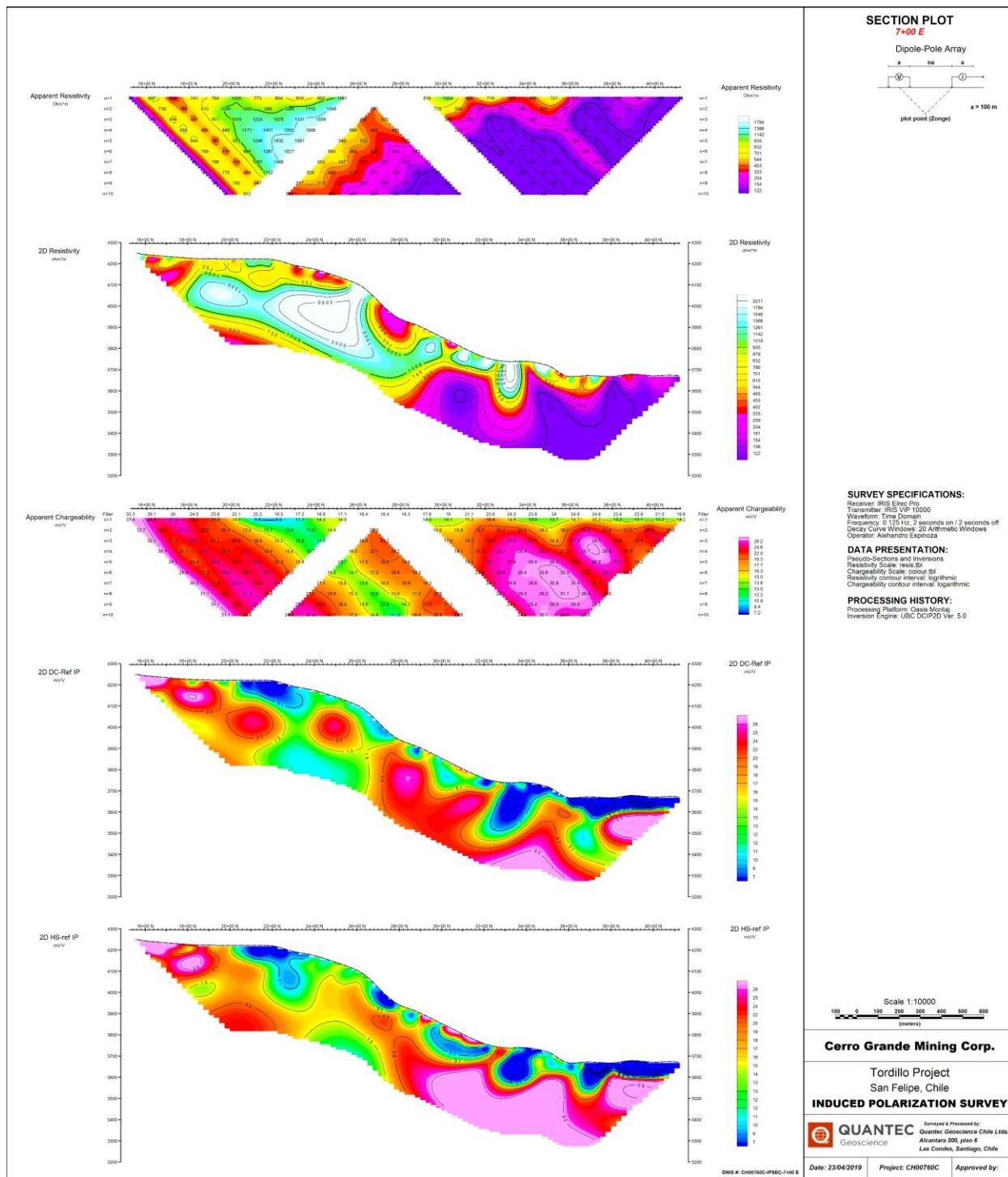


Figure E.3 – Line 700 section map