87-190-16008

GEOLOGICAL-GEOPHYSICAL REPORT

Operator: **ALGO RESOURCES LIMITED**

AU CLAIMS, Aspen Grove Area

Nicola M.D.

LATITUDE: 49°57'N LONGITUDE: 120°~~28~~ 31'W

NTS 92H/15E

AUTHORS: J.C.Freeze,F.G.A.C.
Geologist
Glen E. White,B.Sc.,P.Eng.,
Geophysicist

DATE OF WORK: Nov.12, Dec.1,1986

DATE OF REPORT: December 12,1986

Owner(s): D. Heyman
Imperial Metals Corp.

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GEOLOGICAL BRANCH ASSESSMENT REPORT

16,008

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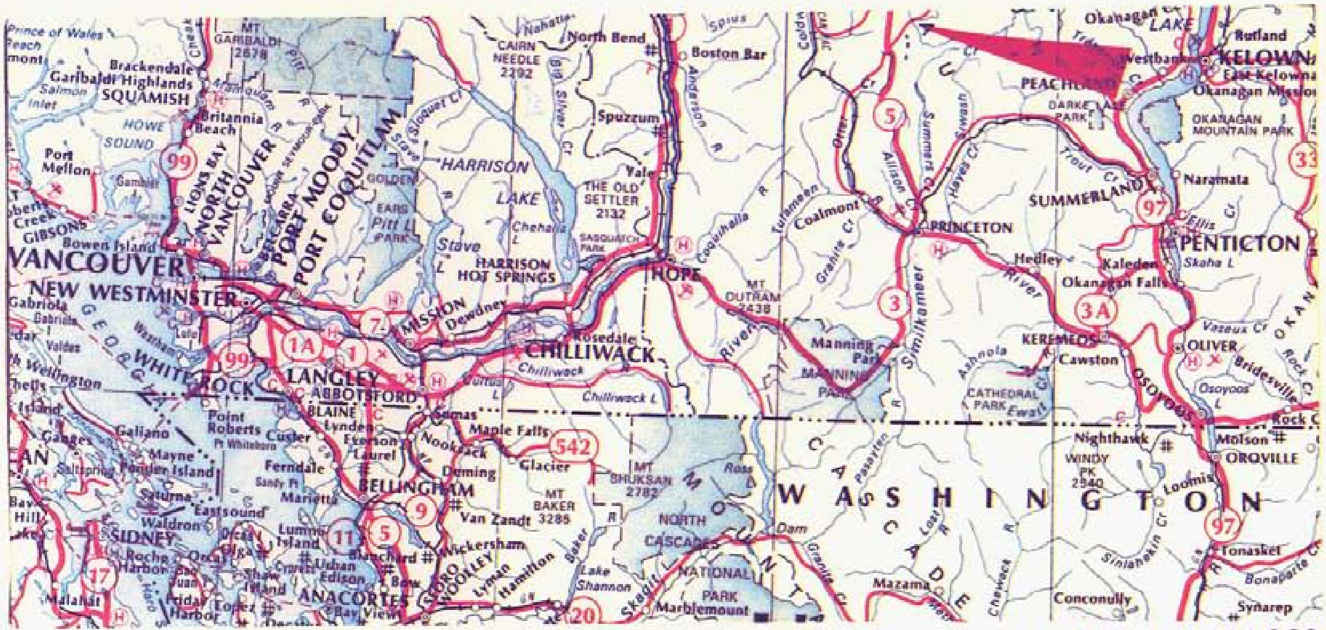
FIGURES



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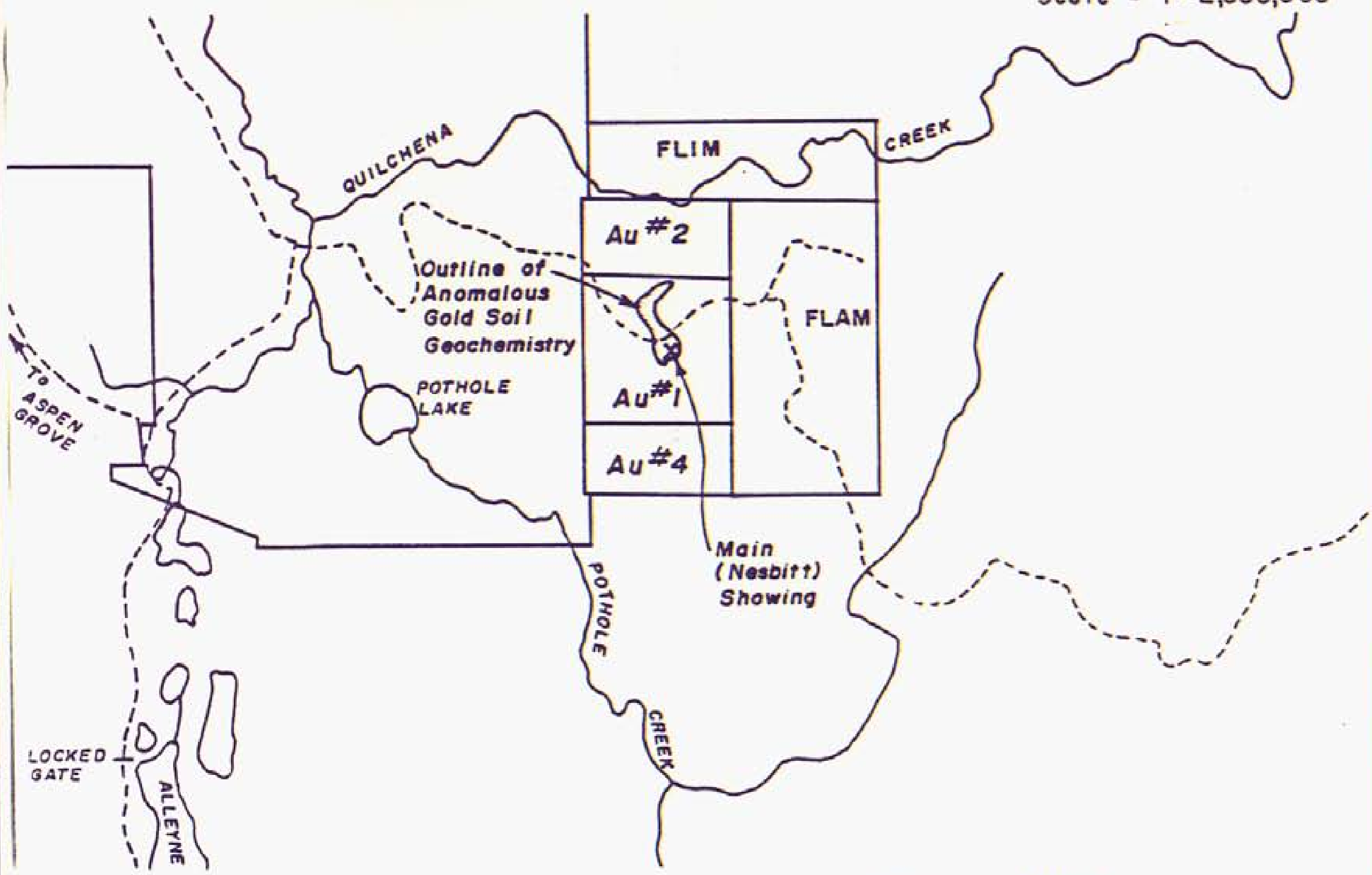

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ALGO RESOURCES LTD.

— AU CLAIMS —

LOCATION AND CLAIMS MAP

WHITE GEOPHYSICAL INC.

FIGURE 1

1.1 INTRODUCTION

The gold-showings on the **Au** claims date back to the 1930's with all the attention focused largely on a 100m square area where visible gold had been found. This report discusses a detailed multipole induced polarization survey, a magnetometer survey and geological mapping undertaken to search for further diamond drill targets. The program was completed during the period Nov.12 - Dec.1,1986 by White Geophysical Inc. on behalf of **Algo Resources Limited.**

1.2 PROPERTY

The property consists of five MGS claims, aggregating 20 units as follows:

CLAIM NAME	RECORD #	TAG #	EXPIRY DATE
AU #1	456	35219	Apr. 20/87
AU #2	462	37467	Apr. 25/87
AU #4	464	37469	Apr. 25/87
FLIM	1683	85026	May 15/87
FLAM	1684	85034	May 15/87

It is understood that the claims are currently under option to **Algo Resources Limited.**

1.3 LOCATION AND ACCESS

Aspen grove is located on the Merritt-Princeton Highway No.5 some 23 kilometers southeast of the town of Merritt, B.C. The property is located some 12 kilometers east of Aspen grove in the area of Pothole Lake. Dirt roads lead into the area through Douglas Lake Ranch lands. Permission to enter through wire gates is required.

Latitude 49°57'N Longitude 120°23'W N.T.S. 92H/15E.

1.4 PREVIOUS WORK

A detailed list of the previous work is outlined by Jim Dawson, P.Eng., in his report to **Algo Resources Limited** dated July 9,1986.

In essence free gold was discovered in the soil in the 1930's. Free gold was again uncovered in 1974 while trenching a copper showing. New Pyramid Gold Mines did very little surface exploration but drilled two diamond drill holes. Imperial Metals drilled two holes in 1983; all the work was inconclusive and was concentrated in a 100m x 100m area.

2. GEOLOGY

2.1.1 REGIONAL GEOLOGY

The geology of the Nicola Group between Merritt and Princeton has been mapped by several geologists since 1879. The earliest work was by G.M.Dawson. R.A.Daly, C.Camsell, C.E.Cairnes, H.S.Bostock and V.Dolmage, respectively, carried on this work up to 1930. Rice (1947) and Cockfield (1948),respectively, mapped the region and wrote comprehensive geological reports. From 1960 to 1963 a consortium of Vancouver based mining companies (Fahrni, 1962; Ball,1963 and Hillhouse, 1964) initiated lithological and structural studies of the Nicola rocks in the Merritt-Princeton region. In 1965 to 67 M.P.Schau (1968,71) carried out detailed mapping which laid the foundation for detailed mapping and subdivision of volcanic units within the Nicola Group. Since 1967, V.A.Preto has been engaged in mapping the Nicola volcanic and associated rocks. In 1979, Bulletin 69 was published as a summary progress report including work by V.A.Preto, P.A.Christopher, D.V.Lefebure, McMillan and McMechan.

Work by Campbell (1966) and Schau (1688) is noted by Preto (1979) as having shown that the Nicola Belt is comprised of a central zone of predominantly volcanic rocks flanked on the east and west by broader fringing zones rich in sedimentary rocks. The **Au** property lies within the Eastern Belt which is in fault contact with the Central Belt via the Summers Creek-Alleyne fault.

The Eastern Belt itself is divided into a northern and a southern assemblage which are separated by a facies change. The **Au** Property lies within the northern assemblage. Preto (1979) describes this assemblage as "consisting of a well-bedded, westerly dipping succession of volcaniclastic rocks that range from thinly layered volcanic siltstone and sandstone in the lower parts of the section to coarse volcanic agglomerates and massive green laharic breccia in the upper part.

The various types of stratified rocks (underlying the **Au** Property) are briefly described below, but not necessarily in stratigraphic order. See Figure 2.1.1 for the distribution of these units on the property.

Unit 2a: Flows of greenish and greenish-gray analcite-augite trachybasalt porphyry occur around the micromonzonite stock on the east shore of Missezula Lake and probably crudely outline the paleoslopes of an ancient volcano. Purplish and green augite porphyry flows and related breccia are found a short distance to the north on the west side of Shrimpton Creek. Similar massive flows and breccia are found northeast of Pothole Lake (on the **Au** Property) and at the southern terminus of Eastern Belt outcrop. These two latter occurrences of lava are stratigraphically in the lowest part of the Eastern Belt sequence exposed within the area mapped and may be correlative with one another.

Unit 2c: Thinly bedded commonly graded and/or crossbedded, tuffaceous volcanic sandstone and siltstone underlie the bulk of the lahar and volcanic conglomerate. These rocks consist largely of reworked volcanic material and tend to be rich in tiny fragments of feldspar and pyroxene crystals. They are clearly epiclastic deposits of detritus from older volcanic units in the belt.

Unit 2d: Massive to crudely layered lahar deposits and lesser amounts of interbedded volcanic conglomerate and greywacke are by far the most abundant rock type in the Eastern Belt. East of Alleyne Lake this map unit consists mostly of coarsely sheeted deposits which, though poorly sorted and massive in detail, display a definite layering and even a crude sorting when viewed from a distance. In this area there is a complete gradation of varieties from clearly reworked and well-layered conglomerate to poorly layered distal and massive lahar.

Unit 8 - Pennask Batholith-Lower Jurassic or Later: Granitic rocks of the Pennask batholith crop out north and northeast of Pothole Lake. The rock is biotite-hornblende granodiorite occasionally cut by felsic dykes which also cut the country rocks near the batholithic contact.

Rice (1947) assigned a "Jurassic or late" age to the Pennask batholith, and Schau (1968) concluded that the intrusion is probably Early Jurassic image. Preto (1979) accepts this age as likely since the conglomerate of map unit 14 contains many clasts of unit 8.

2.1.2 REGIONAL MINERALIZATION

The map area covered by Preto (1979) covers the region known as the Princeton-Merritt Copper Belt. Most of these occurrences occur with the Central Belt especially in the vicinity of Aspen Grove. Within the Central Belt the distribution of copper occurrences is controlled by fault systems which extend from Copper Mountain at Princeton to the Iron Mask batholith near Kamloops (Preto 1979).

Preto (1979) states that 'most of these occurrences are of the porphyry-type and are spatially and genetically related to Upper Triassic Nicola, Takla Stuhini-type volcanic assemblages and comagmatic alkaline plutons'. 'Sutherland Brown (1976) has included the porphyry deposits of the alkaline suite in the volcanic subclass because invariably they are associated with porphyry intrusions which have risen to very high levels in the crust and have intruded a coeval, and in all cases at least in part consanguineous, volcanic pile'. 'These intrusions also occur farther north in the Quesnel Trough along narrowly defined northerly trends which closely follow major high-angle faults.' (Barr et. al,1976).

2.2.1 PROPERTY GEOLOGY

Geological mapping was carried out by J.C.Freeze over much of the property at a scale of 1:5000. Due to the varying snow cover on the property some outcrops were partially obscured by the snow cover and several outcrops may have been entirely obscured by the snow cover. See Map 2.2.1.

Map units 2a,2c and 8 as described by Preto in section 2.1.1 were found to underlie the property. Map unit 2d was not observed on the property as shown on Figure 1 which accompanies Bulletin 69 by Preto.

2.2.2 PROPERTY MINERALIZATION

The Nesbitt gold showing was mostly under snow cover during the time of this program. A few outcrops were visible nearby. The showing has been mapped by several geologists and is well documented in a 1986 report by J.M.Dawson for **Algo Resources Ltd.** In this report Dawson states that mapping by Ostler in 1984 indicates the showing is underlain by 'a series of andesitic and dacitic tuffs (which) are interlayered with carbonaceous slates and intruded by subvolcanic dioritic bodies'. Dawson also states that 'the exposures near this main showing are intensely fractured and faulted, and the exact relationship between differing rock types is unclear'.

Ostler (1984) describes the gold mineralization as being associated with zones of narrow, quartz-filled fractures in dacitic tuff and cherty argillites. He states that gold appears in the free state and is also associated with sulphides (pyrite, chalcopyrite, pyrrhotite and arsenopyrite). Dawson (1986) states that 'the exact extent of the gold mineralization at the main showing has never been precisely delineated, however, high grade to significant assays have been obtained from several sampling programmes'.

From 1975 to 1983 the showing was sampled on surface and diamond drilled. Assays range from 0.198 oz/ton gold over 5.1 metres and 0.315 oz/ton gold over 4.9 metres in chip samples to 0.42 to 2.66 oz/ton gold in grab and selected samples. The best intersection in a drill hole assayed 0.145 oz/ton gold over 5 feet from 193 to 198 feet in DDH 75-7. The mineralization occurs in a (?) dioritic intrusive with chalcopyrite-filled fractures. (Dawson,1986). See Figures 2.2.2 and 2.2.3 by Dawson.

During the November 1986 mapping programme nine rock samples were collected and analyzed for gold by fire assay preconcentration and atomic absorption finish and for 30 elements by Inductively Coupled Argon Plasma.

These samples are of: 1) volcanic sediments (unit 2c) with disseminated pyrite less than or equal to 1%, 2) a calcite veinlet, 3) porphyritic Andesite flows (unit 2a) with calcite and epidote flooding, 4) Unit 2a with epidote flooding and spotty malachite 5) Unit 2a with pervasive haematite 6) Felsic subvolcanic (micromonzonite?) with less than 1% disseminated pyrite.

See Table 2.2.2 for descriptions and results.

TABLE 2.2.2

Locations, Descriptions and Gold Results for Rock Samples

SAMPLE #	LOCATION	DESCRIPTION	RESULTS
71537	L15S 3&75W	Tuff-Py ≤1%	20 ppb
71538	L14S 4&87W	Volc. Siltstone Py ≤1%	35 ppb
71539	L14S 4&87W	Calcite Vnlt 1cm wide 160° strike	<5 ppb
71540	L163 9&35W	Porphyritic Andesite - Calcite & Epidote	10 ppb
71541	L163 9&85W	Porphyritic Andesite - Epidote & Malachite	225 ppb
71542	L16S 9&85W	Porphyritic Andesite - Haematite Pervasive	15 ppb
71543	L183 9&25W	Micromonzonite ? Py ≤1%	<5 ppb
71544	22&35S 6&20W	Porphyritic Andesite - Calcite & Epidote	<5 ppb
71545	L800S 4&25W	Volc Siltstone - Py ≤1%	10 ppb

3.1 PROTON PRECESSION MAGNETOMETER SURVEY

The magnetometer survey was carried out utilizing two GSM-8 proton precession magnetometers. One of these was operated in conjunction with a CMG MR-10 base magnetometer recorder to allow diurnal and micropulsation variation removal. Operator precautions of demagnetization and consistency were observed and field clock to base magnetometer timing skew was maintained within one second per day. Corrected, unfiltered data are plotted on each of the base maps.

MULTIPOLE INDUCED POLARIZATION SURVEY

The multipole induced polarization method is a technique which exploits the rapid signal acquisition and processing capabilities available with current micro computer technology. With this technique the potential field information is obtained through a multiconductor cable having 36 takeouts at 25 métre intervals. The cable is presently configured as up to six end and position interchangeable cables of 150 metre length. The takeouts are addressed by the 40 channel multiplexer assembly in a specially configured HP-3497A data acquisition system as 25 metre to 275 metre dipoles. The data acquisition system is driven by a HP-85 computer, allowing the data to be stacked in the computer for a number of cycles at full precision until a criteria is reached. Ten windows on the secondary voltage are compiled, as well as the primary voltage information. Time zero is sensed by direct reference to the transmitter timing circuitry. The cable is scanned simultaneously in groups of five dipoles and the decay curves presented graphically for acceptance and logging or rejection and rescan by the operator. The data is logged on digital tape cartridges and is readily accessed in the field in order to produce pseudo-sections. These tapes are read by a HP-9845 computer for further processing and production of final report ready sections.

The primary field power is provided by a Huntec MK IV 2.5 kw transmitter operated in time domain mode which is driven by a 400 H_z, 120 volt three phase motor generator. The transmitted signal is an alternate cycle reversing current pulse of two second on and two second off time. The current is introduced into the ground through two current electrodes for each scan of the potential cable. By scanning the cable for each of several current stake positions both along the cable and off the ends of the cable a strong measure of redundancy of coverage of a given depth point is assured. The stacking of this multiple scan information in the computer results in an improved determination of the geoelectric section.

The apparent resistivity is obtained from the ratio of the primary voltage measured on the potential dipole during the current on part of the cycle to the current flowing through the current electrodes. A geometric factor is computed from the electrode locations to arrive at the apparent resistivity, measured in ohm-metres.

The apparent chargeability is calculated from the ten secondary voltage windows as the area under the secondary decay curve and is measured in milliseconds.

DISCUSSION OF RESULTS

A summary of the geophysical data is shown as Figure 2.2.1 as a Geology and Interpretation Map. The area containing the gold is known as the Nesbitt showing. Geochemical work by Imperial Metals over this area located a good gold geochemical anomaly which extended northward across the road. the author (White) did a preliminary geophysical-geochemical test survey in 1976 for New Pyramid Gold Mines which also showed a good gold anomaly extending northward. the recommendations for a larger survey were never implemented.

The various holes by New Pyramid 75-2 and 75-7 and by Imperial Metals **Au-1 and Au-2** are shown on the map. The log of **Au-2** shows it did intersect a zone of 0.02 gold. The induced polarization survey suggests that it was drilled between areas of interest.

The apparent resistivity data Figure 3.2.2 shows that the gold zone is on a pronounced resistivity high which could be an indication of quartz flooding.

The apparent chargeability data outlines several strong induced polarization zones. One of these lies just west of the gold zone. Hole 75-7 which was drilled the furthest to the west towards this zone interested a diorite intrusive with chalcopyrite filled fractures that gave an assay of five feet of 0.145 oz/ton gold. Thus this induced polarization anomaly may be very significant. The anomaly extends northward to an area of rhyolite and dacites which contain anomalous gold values.

The magnetic intensity map Figure 3.1.1 shows this area as a broad medium high plateau. the data to the north of line 1000S outlines a large magnetic low. This would suggest a change in rock type such as an increase in intrusive activity to the south as indicated by the occurrence of diorites and gabbros. The strong magnetic highs appear to be caused by a series of andesites and basalts which trend northwesterly across the southwestern corner of the survey area.

The chargeability data show strong responses along the eastern edge of the magnetic anomalies. The anomaly on line 1400 west is coincident with a resistivity low (see Figure 12). Similarly the chargeability high on line 1300W at 180E has a definite resistivity low. These targets may be alteration zones associated with sulphide mineralization or lenses of graphitic argillites. the argillites in the Nesbitt showing on line 1600S give a shallow apparent chargeability response. a stronger response to the east at 230W suggests the presence of alter argillites which could be tested by drilling.

CONCLUSIONS

The geophysical-geological work has outlined several definite diamond drill targets based on the assumption that the gold values are related to the presence of sulphide mineralization and therefore high chargeabilities. The gold occurs in an area of high resistivities which the pseudo-sections show as a well defined zone which extends to depth. The chargeability values are along the edge of this zone (Figures 12 and 13). This zone may represent quartz flooding which would also make it a diamond drill target.

RECOMMENDATIONS

It is recommended that at least six diamond drill holes be completed to test the various targets:

1) 1300S at 210W -60° drilled east for 50m.
2) 1400S at 450W -60° drilled west for 80m.
3) 1400S at 400W -65° drilled west for 100m.
4) 1400S at 725W -60° drilled east for 80m.
5) 1800S at 450W -60° drilled west for 80m.
6) 1800S at 650W -60° drilled west for 80m.

Respectfully submitted,

GEOLOGICAL ASSOCIATION OF CANADA
J.C. FREEZE
FELLOW

J.C.Freeze, F.G.A.C.
Geologist

Glen E. White, P.Eng.,
Geophysicist

GSM-8 PROTON PRECESSION MAGNETOMETER

SPECIFICATIONS

Resolution:	1 gamma
Accuracy:	± 1 gamma over operating range
Range:	20,000-100,000 gamma in 23 overlapping steps.
Gradient Tolerance:	up to 5000 gamma/metre
Operating Modes:	manual pushbutton - new reading every 1.85 sec., display active between readings.
	cycling - pushbutton initiated, 1.85 sec. period.
	selftest - pushbutton controlled, 7 sec. period.
Output:	visual - 5 digit 1 cm (0.4") high liquid crystal display, visible in any ambient light.
	digital - multiplied precession frequency and gating pulse.
	analog - optional 0-99 or 0-999 gamma.
External Trigger:	permits externally triggered operation with periods longer than 1.85 sec. (optional minimum period 0.9 sec.)
Power Requirements:	12V 0.7A peak, 5mA standby.
Power Source:	internal - 12V 0.75Ah NiCd rechargeable battery 3,000 readings per full charge.
	external - 12-32V
Battery Charger:	input: 110/220V 50/.60Hz
	output: 14V 75mA DC.
Operating Temp.:	-35 to +55C

Dimensions:	console:	15x8x15cm. (6 x 3 1/4 x 6")
	sensor:	14x7cm dia (5 1/2 x 3" dia)
	staff:	175cm (70") extended, 53cm (21") collapsed.
Weight:	2.7kg (6 lb) per standard complete with batteries.	

HP-85A Specifications

OPERATING SYSTEM

ROM .... 32K bytes

USER READ/WRITE MEMORY

Standard .... 16K bytes
Expansion memory module .... 16K bytes

DYNAMIC RANGE

Real precision: -9.99999999999E499 to -1E-499, 0 and 1E-499 to 9.99999999999E499
Short precision: -9.9999E99 to -1E-99, 0, 1E-99 to 9.9999E99
Integer precision: -99999 to 99999

BUILT-IN FUNCTIONS

Mathematical and trigonometric functions are included in the following table with average execution times in msec.

Absolute (ABS)	0.83
Fractional part (FP)	1.01
Integer part (IP)	2.56
Maximum (MAX)	6.42
Minimum (MIN)	6.19
Modules (MOD)	2.21
ln (LOG)	32.11
log (LGT)	26.63
e^x (EXP)	24.54
Raise to power (Y↑X)	43.92
Random number (RND)	3.54
Sign (SGN)	0.90
Square root (SQR)	8.74
Sine (SIN)	45.62
Cosine (COS)	45.69
Tangent (TAN)	27.27
Arcsine (ASN)	43.23
Arccosine (ACS)	43.98
Arctangent (ATN)	22.76
Cosecant (CSC)	51.68
Secant (SEC)	51.72
Cotangent (COT)	27.29
+	1.08
−	1.12
÷	5.92
*	2.85
Ceiling (CEIL)	2.91
Floor (FLOOR)	3.33

Built-in Operators
Logic: AND, OR, NOT, EXOR
Relational: =, >, <, <=, >=, <> (or #)

CRT DISPLAY

Size .... 127 mm (5 in.) diagonal
Capacity:
Alphanumeric ...... 16 lines × 32 characters
Graphics .... 192 × 256 dots
Scrolling capacity ..... 64 lines
Character set .... 256 characters; set of 128 + same set underscored
Character font .... 5- × 7-dot matrix
Intensity .... adjustable to 32 ft-lamberts
Cursor .... underline

CLOCK AND TIMERS

Time is maintained as seconds since midnight, along with year and day in year. Three timers can be programmed to generate individual interrupts periodically, at intervals from 0.5 msec to 99,999,999 msec (1.16 days).

BEEPER

The beeper is programmable with parameters for duration and tone. The frequency range is approximately 0 to 4,575 Hz.

OPERATING REQUIREMENTS

Source .... 115 Vac nominal (90-127 Vac)
230 Vac nominal (200-254 Vac)
Line frequency .... 50-60 Hz
Consumption ..... 40 watts nominal
HP-85A operating temperature .... 5° to 40°C (40° to 105°F)
HP-85A storage temperature .... -40° to 65°C (-40° to 150°F)
HP-83A operating temperature .... 0° to 55°C (32° to 131°F)
HP-83A storage temperature .... -40° to 75°C (-40° to 167°F)
Ambient humidity .... 5% to 80% at 40°C

SIZE AND WEIGHT

Height .... 15.9 cm (6.3 in.)
Width .... 41.9 cm (16.5 in.)
Depth .... 45.2 cm (17.8 in.)
HP-85A Weight:
net .... 9.1 kg (20 lbs)
shipping .... 16.8 kg (37 lbs)
HP-83A Weight:
net .... 7.3 kg (16 lbs)
shipping .... 15.0 kg (33 lbs)

BASIC FUNCTIONS AND STATEMENTS

System Functions

ABS—Absolute value of the numeric expression.
ACS—Principal value (1st or 2nd quadrant) of the arccosine of the numeric expression in the current angular units.
ASN—Principal value (1st or 4th quadrant) of the arcsine of the numeric expression in the current angular units.
ATN—Principal value (1st or 4th quadrant) of the arctangent of the numeric expression in the current angular units.
ATN2—Arctangent of Y/X in proper quadrant.
CEIL—Smallest integer greater than or equal to the numeric expression.
COS—Cosine.
COT—Cotangent.
CSC—Cosecant.
DATE—Julian date in the format YYDDD, assuming system timer was set.
DTR—Converts the value of the numeric expression from degrees to radians.
EPS—A constant equal to the smallest positive real precision number, 1E-499.
ERRL—Line number of latest error.
ERRN—Error number of latest error.
EXP—Value of Napierian e raised to the power of the computed expression.
FLOOR—Largest integer less than or equal to the evaluated expression.
FP—Fractional part of the evaluated expression.
INF—A constant equal to the largest real number possible, 9.99999999999E499.
INT—Largest integer less than or equal to the evaluated expression (equivalent to FLOOR).
IP—Integer part of the numeric expression.
LGT—Common logarithm (base 10) of a positive numeric expression.
LOG—Natural logarithm (base e) of a positive numeric expression.
MAX—Larger of two values.
MIN—Smaller of two values.
PI—Numerical value of pi.
RMD—Remainder resulting from a division operation according to X-(Y*IP(X/Y)).
RND—Generates a number that is greater than or equal to zero and less than one, using a predetermined, pseudo-random sequence.
RTD—Converts the value of the numeric expression from radians to degrees.
SEC—Secant.
SGN—Returns a 1 if the expression is positive, -1 if negative, and 0 if exactly 0.
SIN—Sine.
SQR—Square root of a positive numeric expression.
TAN—Tangent.
TIME—Returns the time in seconds since midnight if the timer is set, or since machine turn-on otherwise, resetting automatically after 24 hours.

String Functions

CHR$—Converts a numeric value between 0 and 255 into a character corresponding to that value.
LEN—Returns the number of characters in a string.
NUM—Returns the decimal value corresponding to the first character of the string expression.
POS—Returns the position of the first character of a substring within another string or 0 if the substring is not found.
UPC$—Converts all lowercase letters in a string to uppercase letters.
VAL—Returns as a numeric value, including exponent, a string of digits so that the value may be used in calculations.
VAL$—Returns the value of a numeric expression as a string of digits.

General Statements and Programmable Commands

BEEP—Outputs a tone of specified frequency for a specified duration.
CLEAR—Clears the CRT.
COM—Dimensions and reserves memory so chained programs can access the same data.
CRT IS—Allows the definition of either a printer or the actual CRT as the current CRT.
DATA—Provides constants and text characters for use with READ statements.
DEFAULT ON—Makes numeric overflows, underflows, and the use of uninitialized variables non-fatal by substituting an appropriate approximate value.
DEFAULT OFF—Makes numeric overflows, underflows, and the use of uninitialized variables fatal.
DEF FN—Defines a single- or multiple-line function.
DEG—Sets degree mode for evaluation and output of the arguments and results of trigonometric functions.
DIM—Declares the size and dimensions of array and string variables.
DISP—Outputs the values or text on the current CRT.
DISP USING—Displays values and text according to format specified by IMAGE statement or literal IMAGE.
END—Terminates program execution (same as STOP).
FLIP—Changes the keyboard from BASIC mode to typewriter mode or vice versa.
FN END—Terminates a multiple-line function.
FOR/NEXT—Defines a program loop and the number of iterations.
GOSUB—Transfers program control to a subroutine and allows subsequent return of control.
GOTO—Transfers program execution to the specified line.
GRAD—Sets grad mode for evaluation and output of the arguments and results of trigonometric functions.
IF...THEN...ELSE—Allows statements to be either executed or bypassed depending on the outcome of a logical expression.
IMAGE—Specifies the format used with PRINT USING or DISP USING statements.
INPUT—Allows entry of values or text from the keyboard during program execution.
INTEGER—Declares variables as integers as well as the size and dimensions of integer arrays.
KEY LABEL—Displays in the lower portion of the CRT, an eight-character prompt for each Special Function Key defined by an ON KEY statement. Also returns cursor to upper left corner of the CRT.
LET—Assigns a value to a variable or array element.
LIST—Lists the program on the CRT IS device. Also outputs bytes remaining at the end of a program.
NORMAL—Cancels the effect of the PRINT ALL, AUTO, or TRACE statements.
ON ERROR—Sets up a branch to the specified line or subroutine anytime an error occurs.
OFF ERROR—Cancels any ON ERROR statement previously executed.
ON KEY #—Sets up a branch to the specified line or subroutine each time the Special Function Key is pressed.

SPECIFICATIONS TABLES

SYSTEM ACCURACY SPECIFICATIONS

These system specifications combine individual accuracy specifications to result in a total measurement accuracy specification. For example, the resistance specifications combine the DVM, current source and acquisition assembly error terms.

Voltage Measured Through Acquisition Assembly

3497A Configuration:
DVM: 5½ digit, auto zero on
Relays Switches: Tree Switched

Accuracy: ±(% of reading + number of counts)

90 Days 23°C ± 5°C

Voltmeter Range	Digits Displayed 5½ digits	4½ digits	3½ digits
0.1V	0.007 + 5	0.01 + 2	0.1 + 1
1.0V	0.006 + 1	0.01 + 1	0.1 + 1
10.0V	0.006 + 1	0.01 + 1	0.1 + 1
100.0V	0.006 + 1	0.01 + 1	0.1 + 1

Resistance Measured Through an Acquisition Assembly

3497A Configuration:
DVM: 5½ digit, auto zero on
Current Source: As indicated
Relay Switches: Configured for a 4-terminal resistance measurement

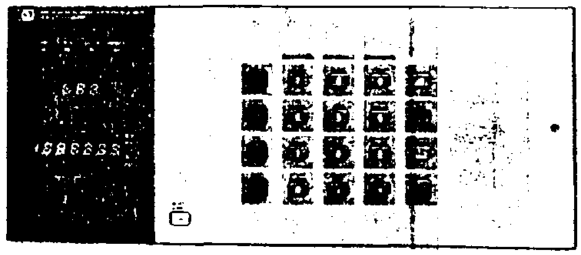
Characteristics

Effective Resistance Range	Effective Resistance Resolution	Current Source Range	Range
100 Ω	1 mΩ	1 mA	.100000
1 kΩ	10 mΩ	100 μA	1.00000
10 kΩ	100 mΩ	100 μA	10.0000
100 kΩ	1 Ω	10 μA	10.0000

Accuracy: ±(% of reading + number of counts)

90 Days 23°C ± 5°C

Range Relays (Opt. 010)	Digits Displayed 5½ digits	4½ digits	3½ digits
100 Ω	.032 + 5	.035 + 2	0.125 + 1
1 kΩ	.032 + 5	.035 + 2	0.125 + 1
10 kΩ	.032 + 5	.035 + 2	0.125 + 1
100 kΩ	.031 + 2	.035 + 2	0.125 + 1



System Noise Rejection

Normal Mode Rejection (NMR): (50 or 60 Hz + .09%)

DVM Digits Displayed	Rejection
5½	60 dB
4½	0 dB
3½	0 dB

NMR is a function of the 3497A DVM configuration only and is not affected by the number of channels in the system.

Effective Common Mode Rejection (ECMR): The ECMR of a 3497A based system is a combination of the ECMR of the 3497A DVM and the effects of adding multiplexer assemblies and 3498A extenders.

ECMR: 1(kΩ imbalance in low lead, using tree switching, ac at 50 or 60 Hz, 25°C, <85% R.H.)

Voltmeter Configuration

Number of Acquisition Channels (Options 10,20)		5½ digits	4½ digits	3½ digits
0	AC	150 dB	90 dB	90 dB
	DC	120 dB	120 dB	120 dB
<100	AC	150 dB	90 dB	90 dB
	DC	104 dB	104 dB	104 dB
<400	AC	140 dB	80 dB	80 dB
	DC	92 dB	92 dB	92 dB
<1000	AC	130 dB	70 dB	70 dB
	DC	85 dB	85 dB	85 dB

Measurement Speeds

For the 3497A DVM and the relay multiplexer. Speeds are given for measurements on random channels (using software channel selection) and sequential channels (using external hardware increment). Speeds include I/O times to the indicated computers.

	Number of Digits Selected	85	Computer 9826*	1000L	1000E,F
Sequential Channels using external increment	5½ digits	39(33)**	39	39(25)	30(25)
	4½ digits	97(88)	103	108(79)	88(79)
	3½ digits	112(107)	123	127(99)	107(99)
Random Channels using software	5½ digits	13(15)	27	21(16)	22(16)
	4½ digits	14(21)	51	31(28)	35(30)
	3½ digits	14(23)	55	33(29)	35(32)

*9826 speeds for BASIC operating system
**50 Hz speeds in ( )

TIMER/REAL TIME CLOCK

Clock Format

Month:Day:Hours:Minutes:Seconds (Option 230)
Day:Month:Hours:Minutes:Seconds (Option 231)

	Maximum Time	Resolution	Accuracy	Output
Real Time Mode	1 year	1 second	±(.005% of time + .1s)	Display and HP-IB
Elapsed Time Mode	10^6 seconds	1 second	±(.005% of time + .1s)	Display and HP-IB
Time Alarm Mode	24 hours	1 second	±(.005% of time + .1s)	HP-IB SRQ
Time Interval Mode	24 hours	1 second	±(.005% of time + .1s)	50 µS TTL Pulse + HP-IB SRQ
Time Output Mode	1 second	100 µS	±(.02% of time)	16 µS TTL Pulse

Power Failure Protection: Battery back-up for >24 hours for time and elapsed time only

3497A MAINFRAME AUXILIARY INPUTS/OUTPUTS

Ext Trig. Input: TTL Compatible
Minimum pulse width: 50 n seconds

Ext Incr. Input: TTL Compatible
Minimum pulse width: 50 µ seconds

BBM Sync: TTL Compatible
This terminal serves as a break before make synchronizing signal to the 3497A and other equipment. The terminal is both an-input and output with a low level indicating a channel is closed. The 3497A will not close any additional channels until the line is sensed high and the line will float high when all channels are open.

VM Complete Output: TTL Compatible
Pulse width = 500 n seconds

Channel Closed Output: TTL Compatible
Pulse width = 500 n seconds

Timer Interval Output: TTL Compatible
Output port for the time interval and time output functions.

Physical Parameters

Size (3497A or 3498A): 190.5 mm (7½ in.) high
428.6 mm (16 7/8 in.) wide
520.7 mm (20½ in.) deep
An additional two inches in depth should be allowed for wiring.

Net Weight:

	3497A	3498A
Maximum (with assemblies in all slots)	20.4 kg (45 lbs.)	20.4 kg (45 lbs.)

STATEMENT OF QUALIFICATIONS

NAME:	Freeze, J.C., (nee Ridley), F.G.A.C.
PROFESSION:	Consulting Geologist
EDUCATION:	1981 B.Sc. Geology - University of British Columbia 1978 B.A. Geography - University of Western Ontario
PROFESSIONAL ASSOCIATIONS:	Fellow of the Geological Association of Canada
EXPERIENCE:	1985 - Present: Chief Geologist with White Geophysical Inc. Coordinating mineral exploration projects involving geology, geochemistry, geophysics and diamond drilling in B.C. and Yukon. 1981 - 1985: Project Geologist with Mark Management Ltd. Hughes-Lang Group. Responsible for precious metals exploration programmes involving geology, geochemistry, geophysics and diamond drilling in Western Canada. 1979 - 1981: Summer and part-time Geologist involved with coal exploration in N.E. B.C. with Utah Mines Ltd.

STATEMENT OF QUALIFICATIONS

NAME:	WHITE, Glen E., P.Eng.
PROFESSION:	Geophysicist
EDUCATION:	B.Sc. Geophysics - Geology University of British Columbia
PROFESSIONAL ASSOCIATIONS:	Registered Professional Engineer, Province of British Columbia. Associate Member of Society of Exploration Geophysicists. Past President of B.C. Society of Mining Geophysicists.
EXPERIENCE:	-Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass. -Two years Mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd. -One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W.P. McGill and Associates. -Two years Mining Geophysicist and supervisor airborne and ground geophysical divisions with Geo-X Surveys Ltd. -Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd. -Fourteen years Consulting Geophysicist. -Active experience in all Geologic provinces of Canada.

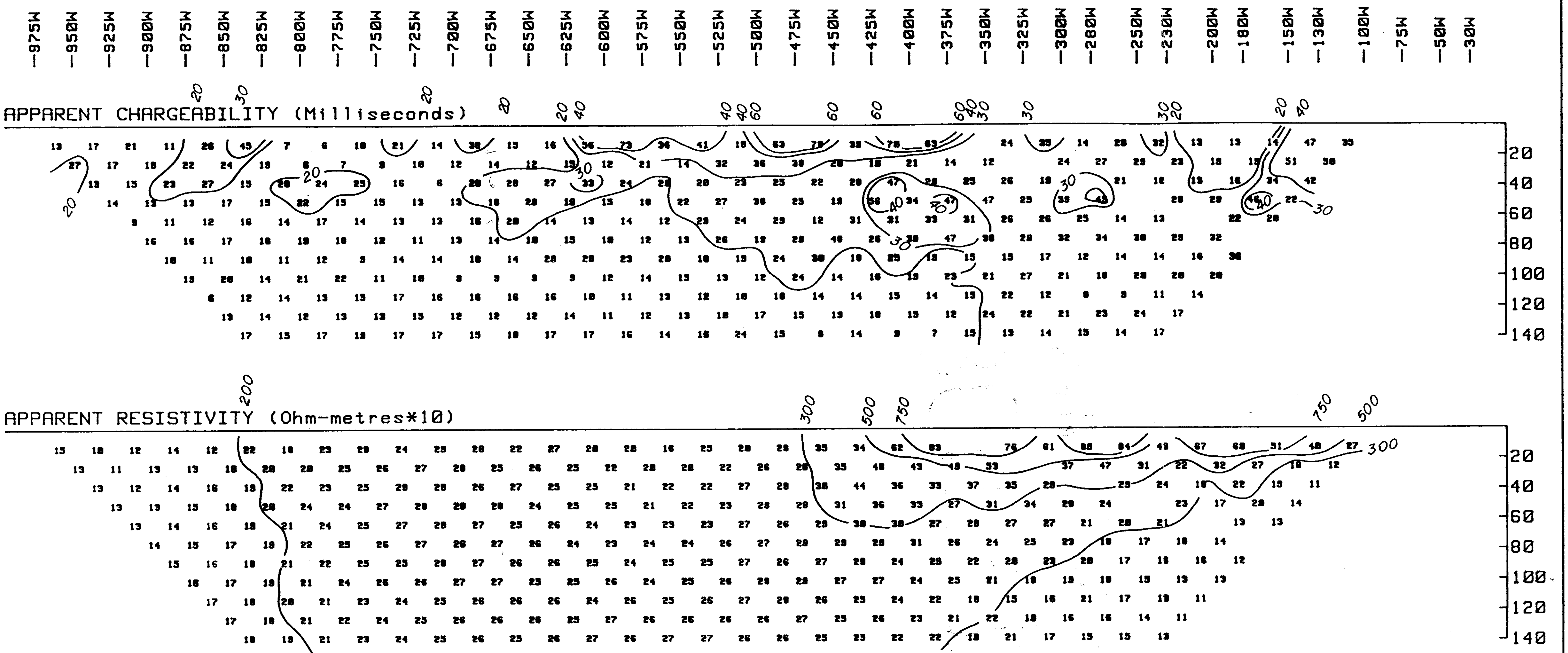
COST BREAKDOWN

PERSONNEL	DATE	WAGES	TOTAL
B.Acheson	Nov.12-Dec.1/86	$275/day	$5,500.00
T.Purcell	Nov.12-Dec.1/86	$245/day	4,900.00
T.Langmede	Nov.12-21/86	$215/day	4,300.00
M.Niedzwieck	Nov.12-Dec.1/86	$185/day	1,850.00
G.Hemingsley	Nov.22-Dec.1/86	$185/day	1,850.00
J.C.Freeze,B.Sc.	Nov.22-27/86	$375/day	2,250.00

Meals and Accommodation 86 man days @ $65	5,332.00
Vehicles, 2 - 4x4 and trailer and fuel	3,500.00
Instrument lease, Multipole IP & magnetometer	7,500.00
Materials, Geophysics & linecutting	346.00
Geochemical analysis & materials	175.00
Computer processing	1,250.00
Drafting and printing	1,075.00
Interpretation and reports	2,500.00
TOTAL	$42,328.00

PRORATED SURVEY COSTS

Grid Preparation	4,800.00
Magnetometer	3,500.00
Multipole IP (eleven separations)	30,028.00
Geology	3,500.00



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

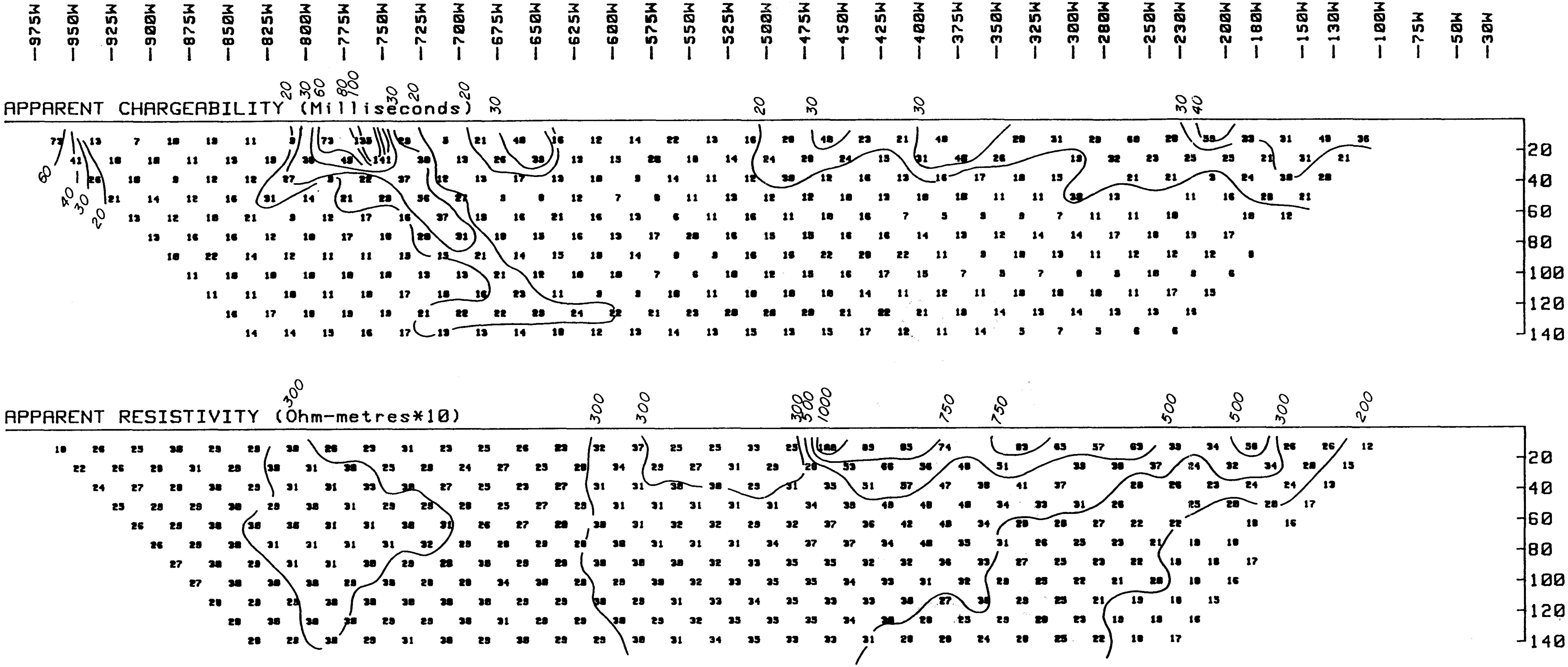
METRES
0 25 50 75 100

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.
AU CLAIMS
MULTIPOLE INDUCED POLARIZATION SURVEY
LINE 00N

DATE: NOV/86

FIG.: 3



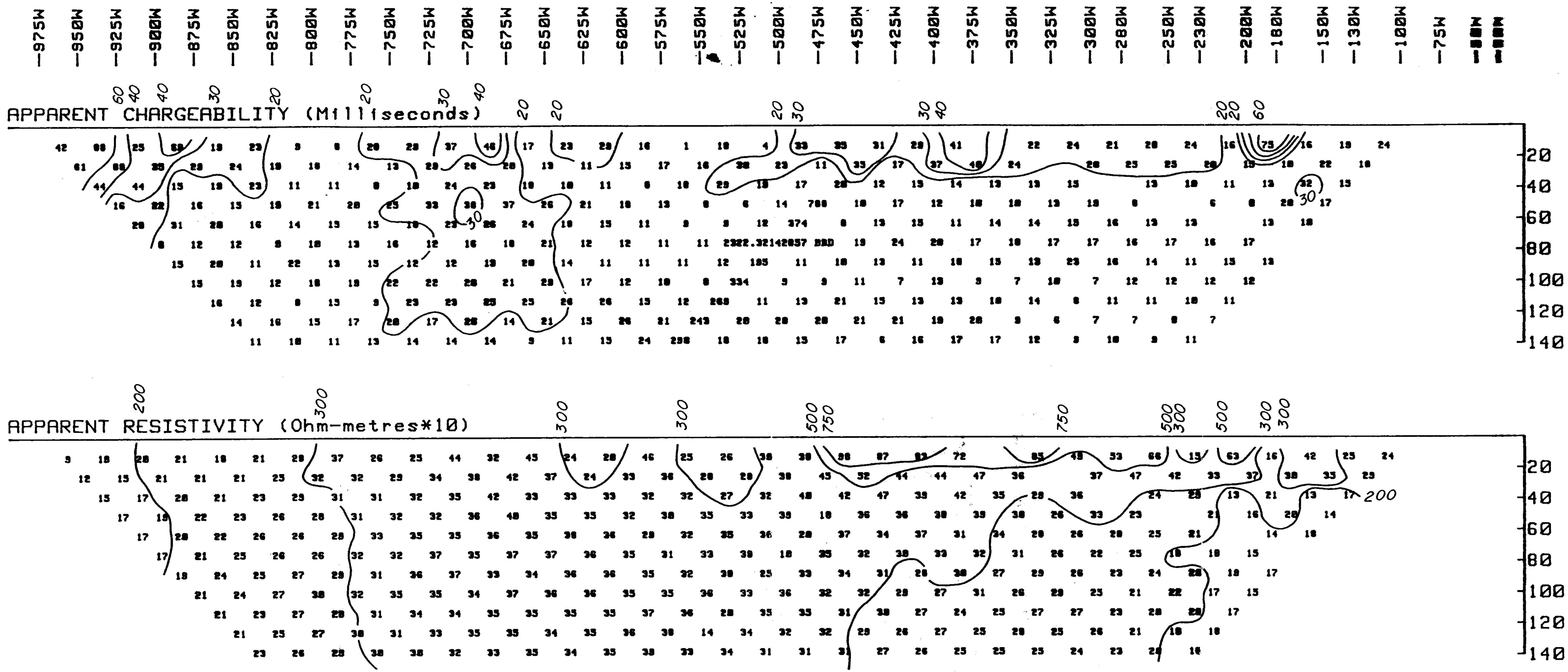
INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.
AU CLAIMS
MULTIPOLE INDUCED POLARIZATION SURVEY
LINE 200S

DATE: NOV/86	FIG.: 4



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

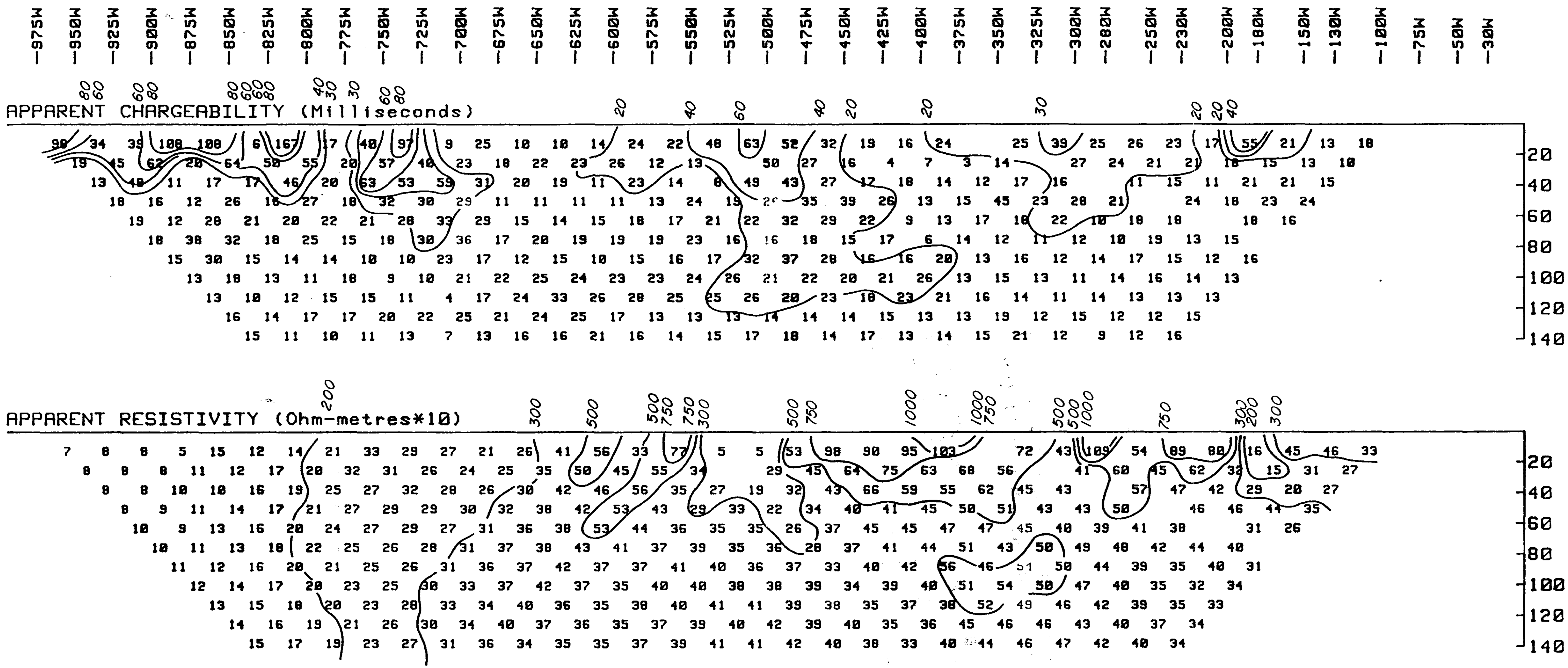
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 400S

DATE: NOV/86

FIG.: 5

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.

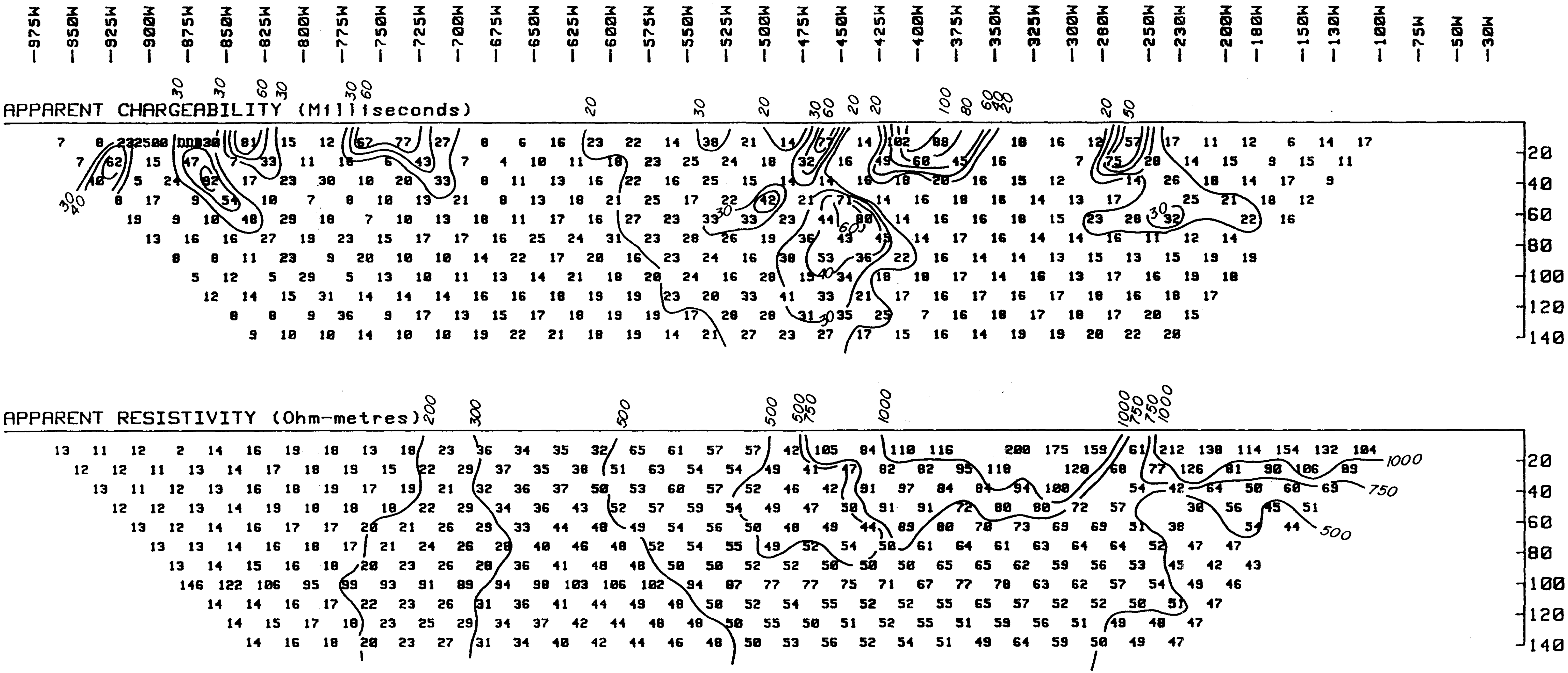
AU CLAIMS

MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 600S

DATE: NOV/86

FIG.: 6



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

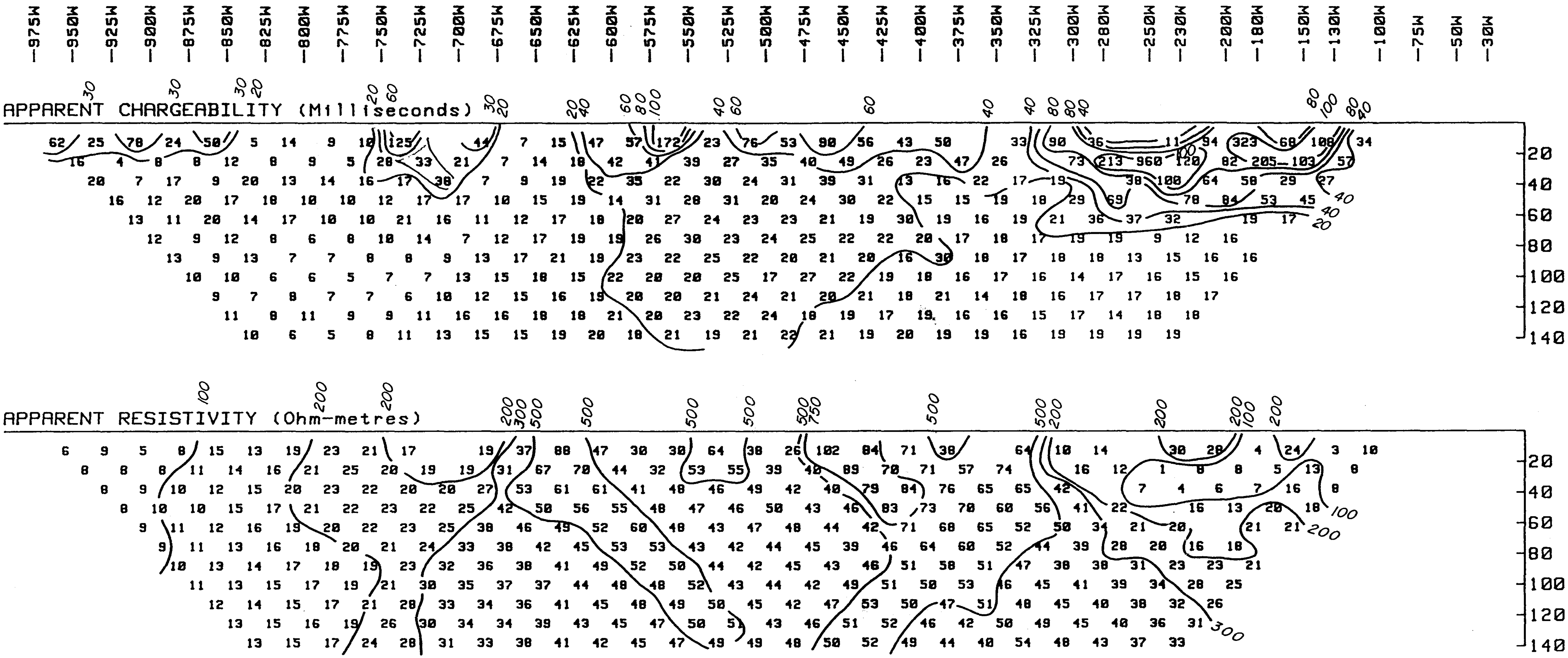
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 800S

DATE: NOV/86

FIG.: 7

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

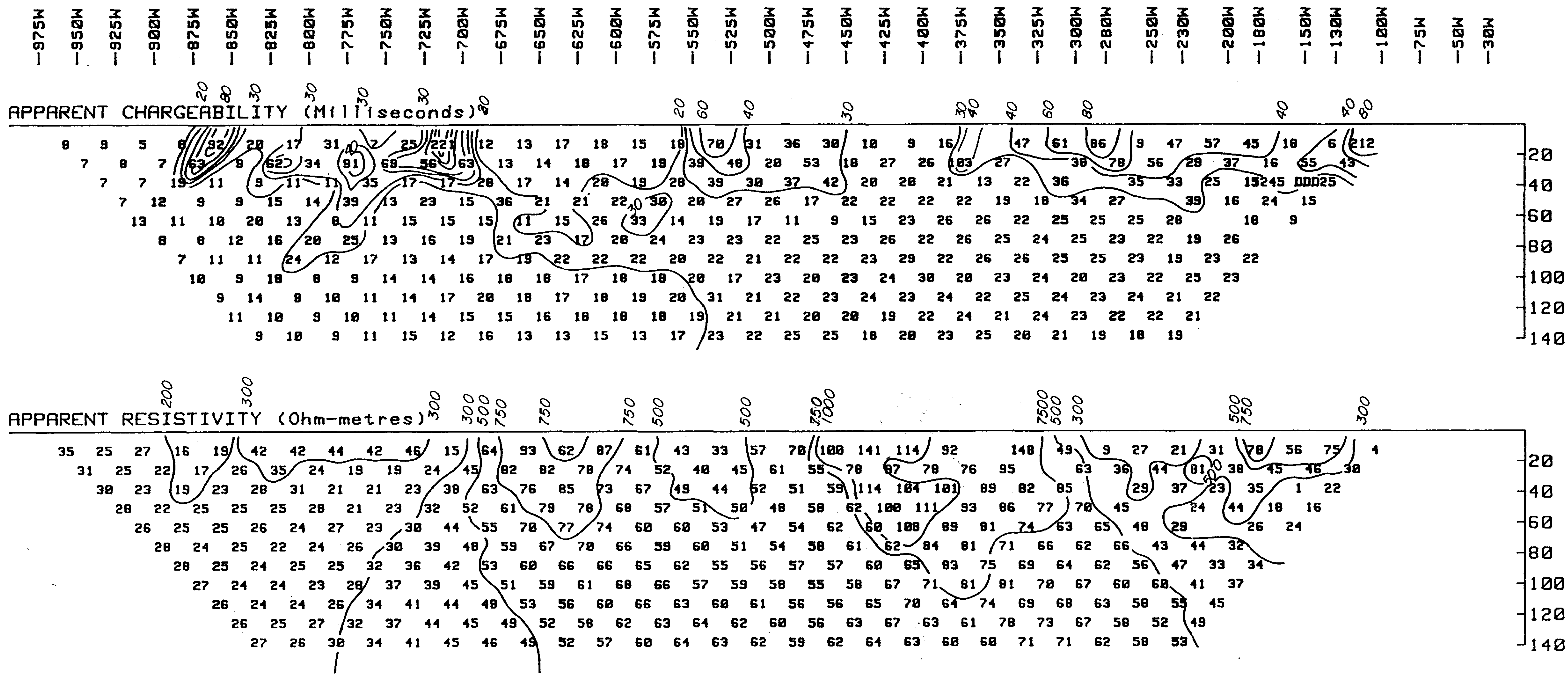
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1000S

WHITE GEOPHYSICAL INC.

DATE: NOV/86

FIG.: 8



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

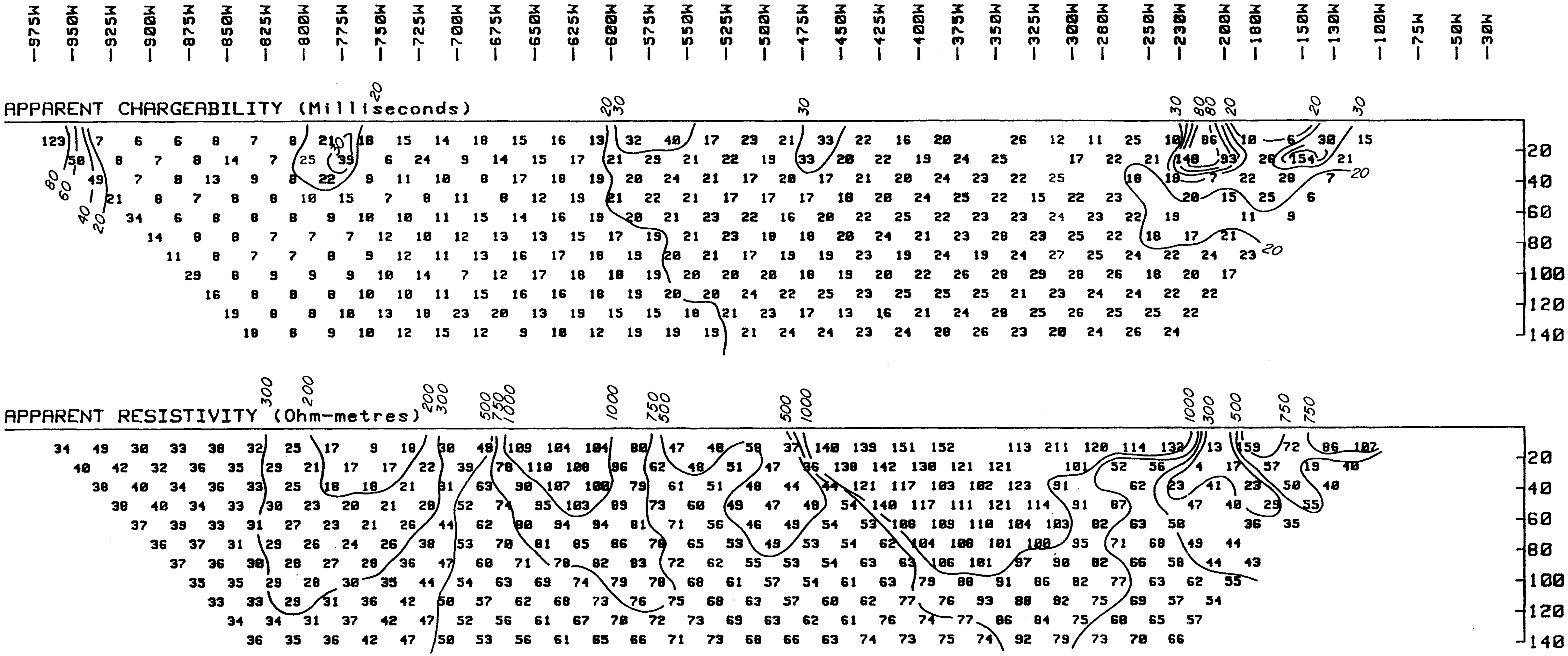
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1100S

DATE: NOV/86

FIG.: 9

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.

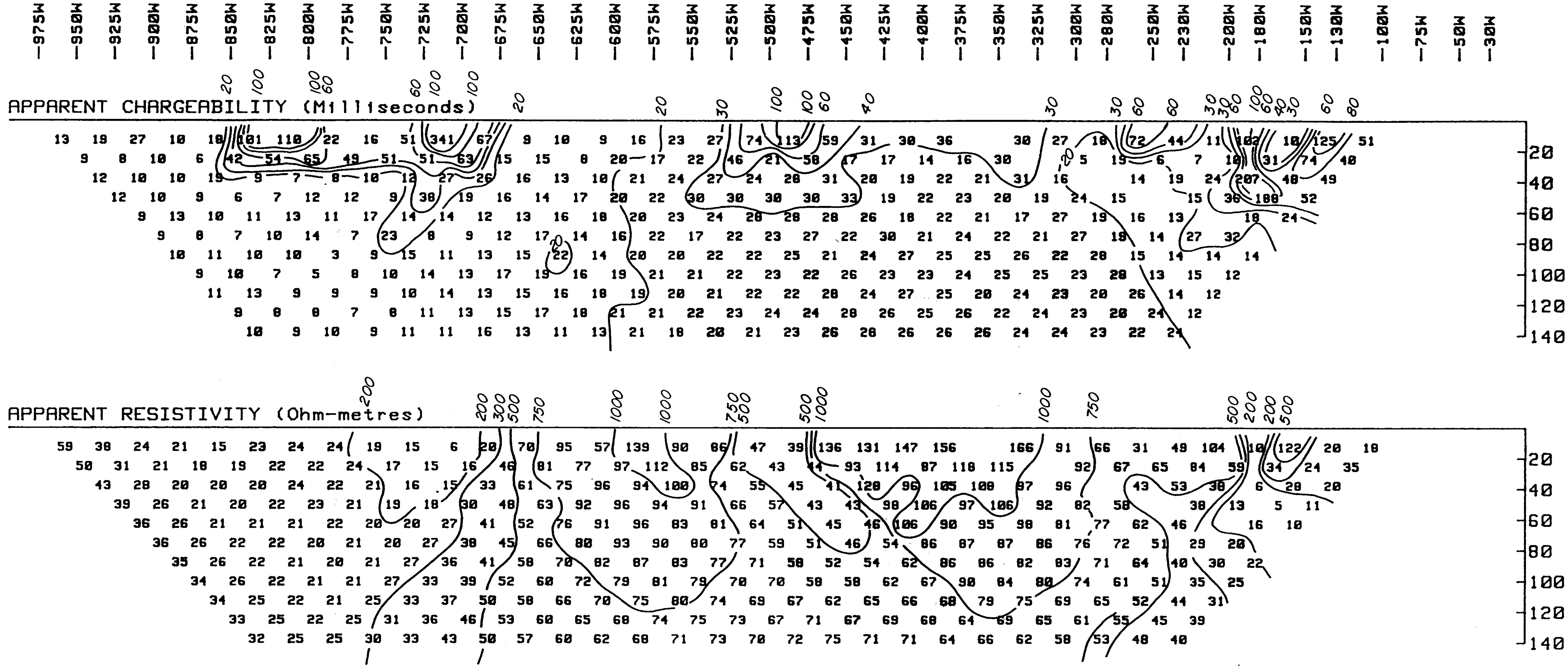
AU CLAIMS

MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1200S

DATE: NOV/86

FIG.: 10



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES

0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

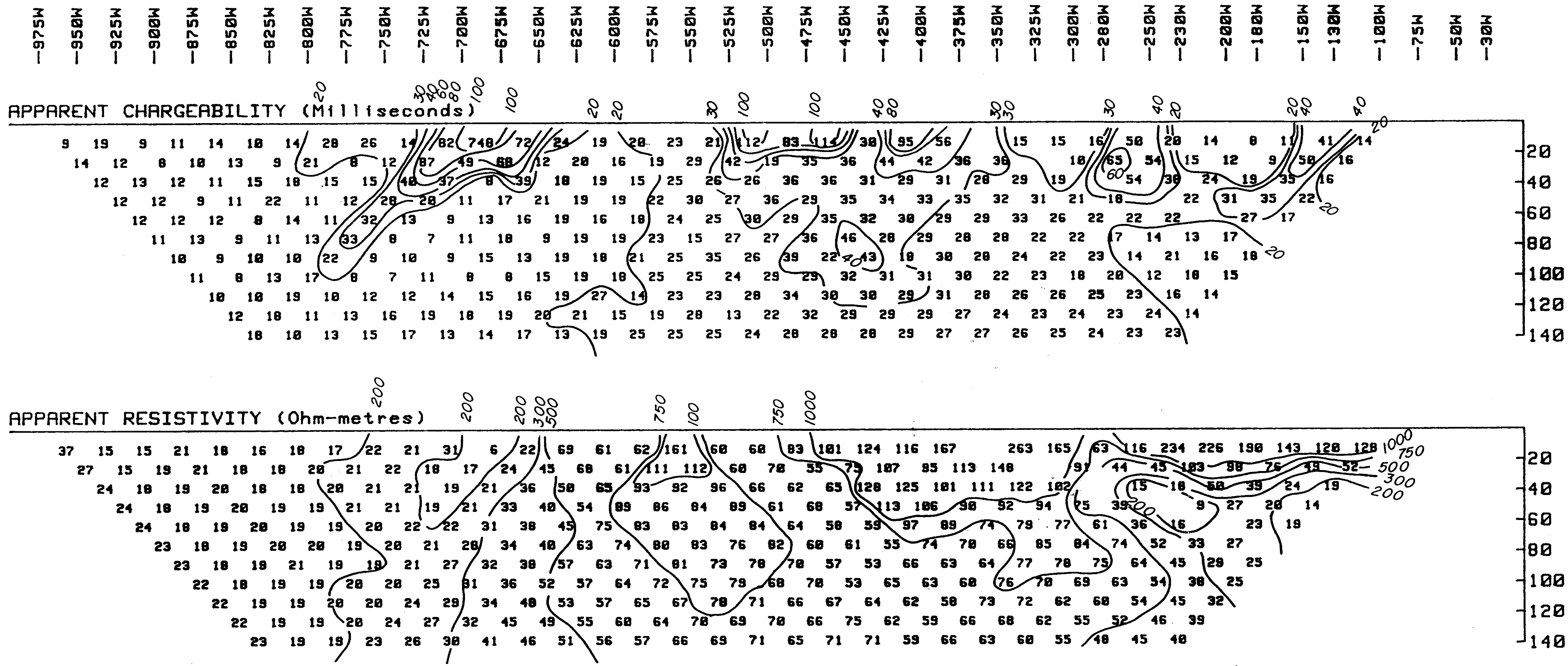
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1300S

DATE: NOV/86

FIG.: 11

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

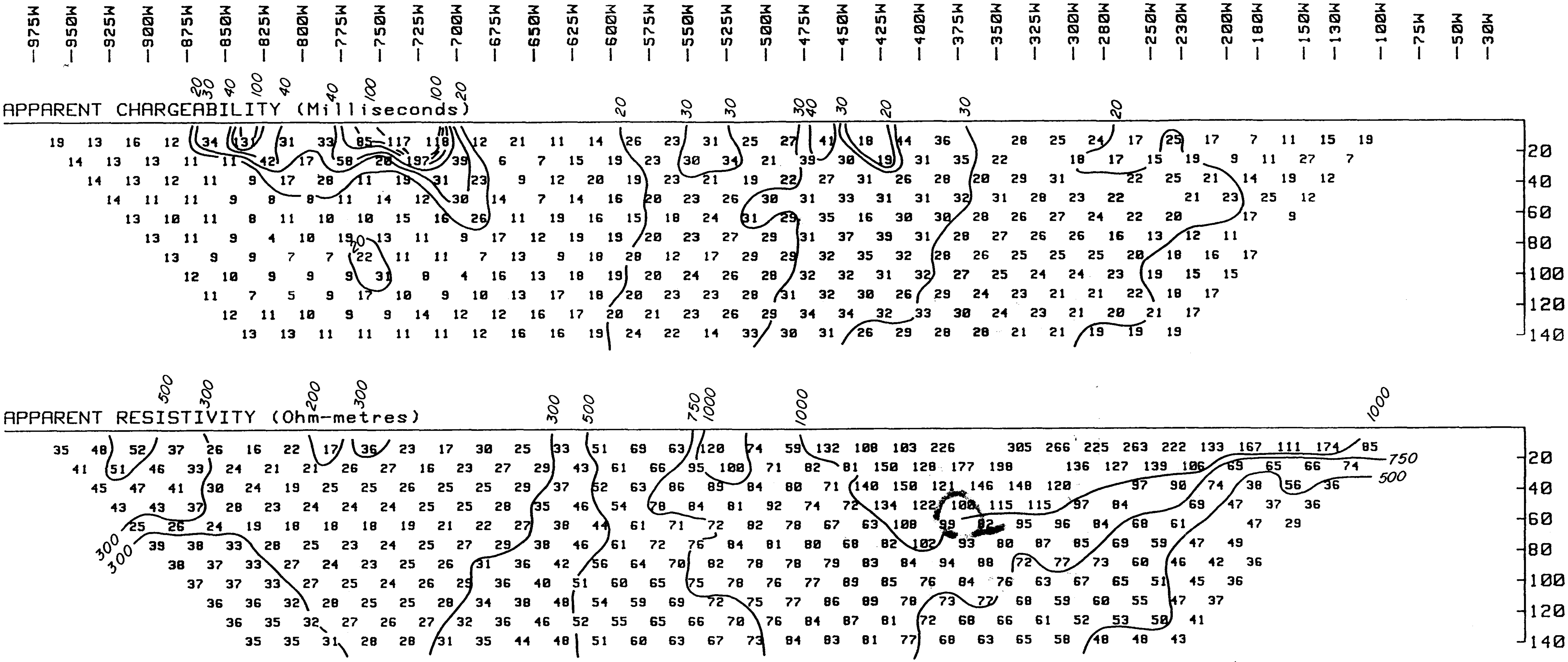
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1400S

WHITE GEOPHYSICAL INC.

DATE: NOV/86

FIG.: 12



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

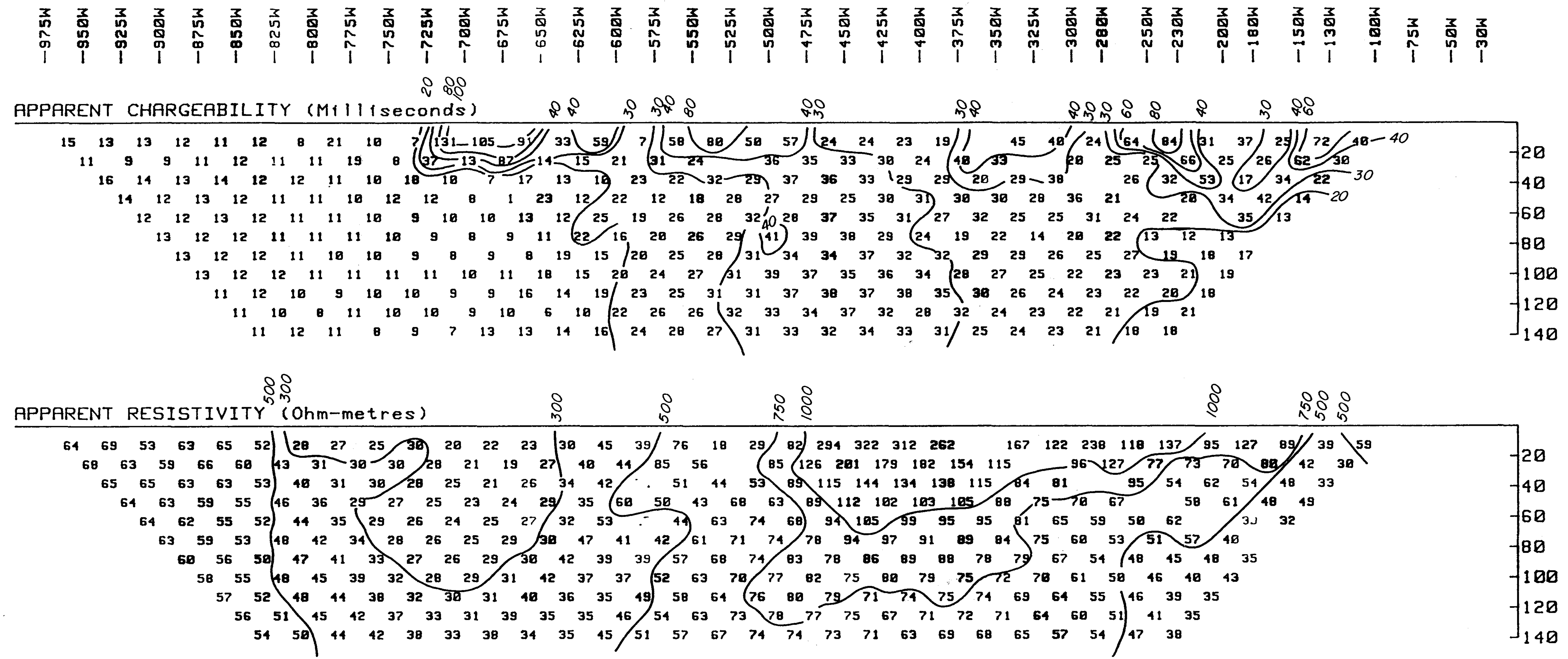
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1500S

DATE: NOV/86

FIG.: 13

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

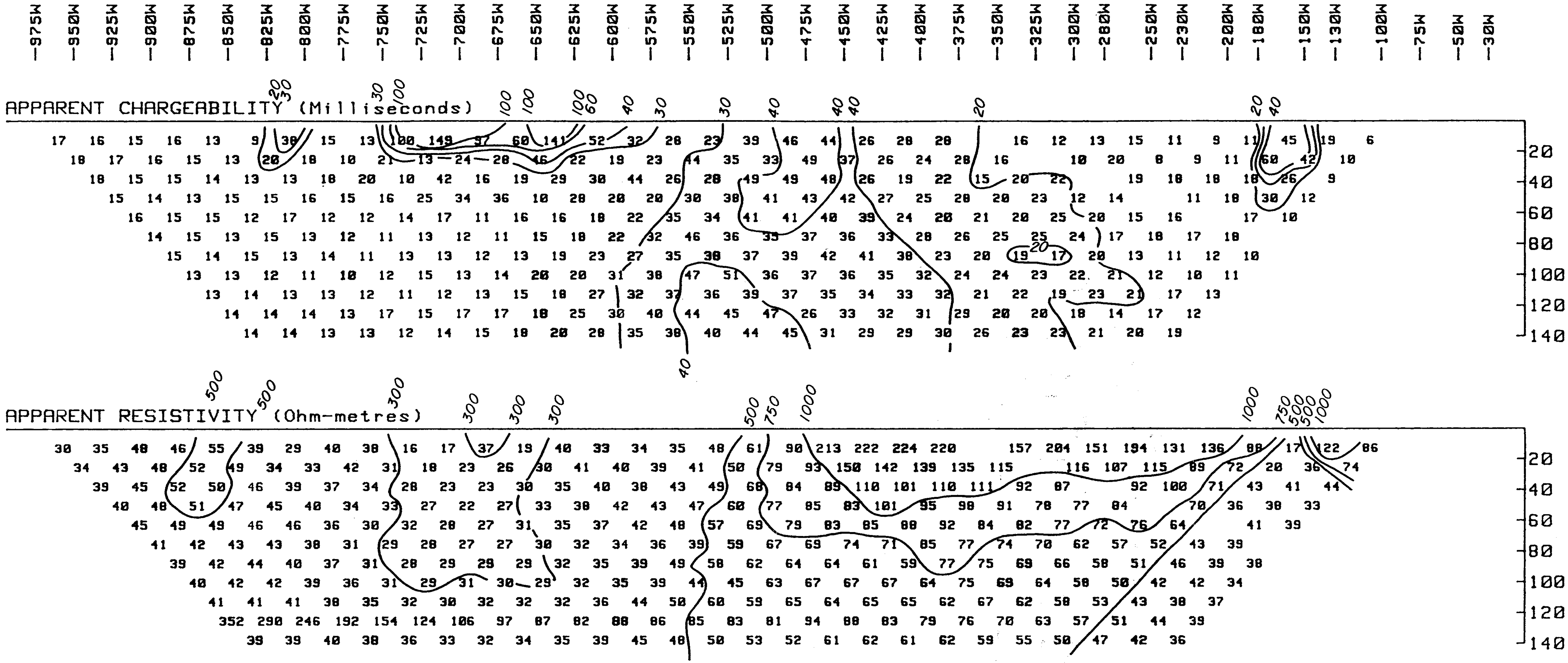
METRES
0 25 50 75 100

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.
AU CLAIMS
MULTIPOLE INDUCED POLARIZATION SURVEY
LINE 1600S

DATE: NOV/86

FIG.: 14



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

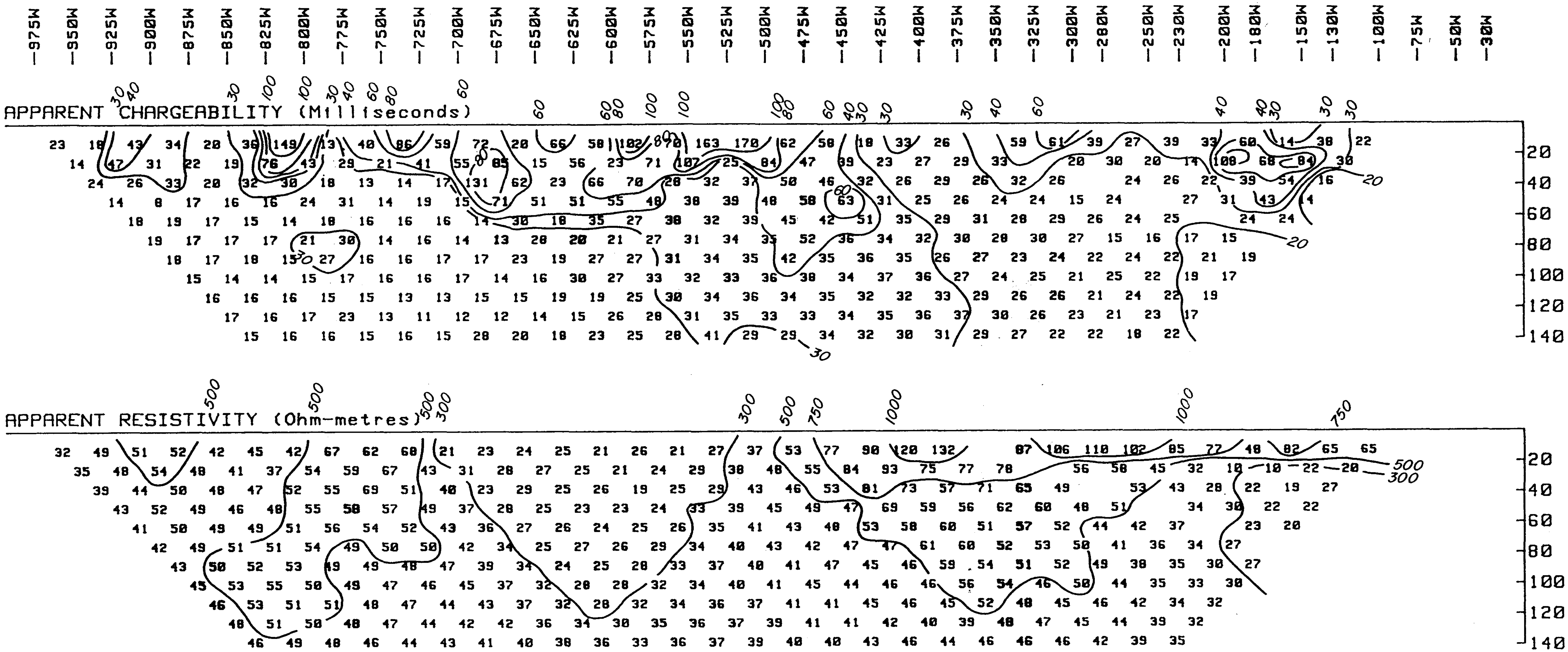
METRES
0 25 50 75 100

ALGO RESOURCES LTD.
AU CLAIMS
MULTIPOLE INDUCED POLARIZATION SURVEY
LINE 1700S

DATE: NOV/86

FIG.: 15

WHITE GEOPHYSICAL INC.



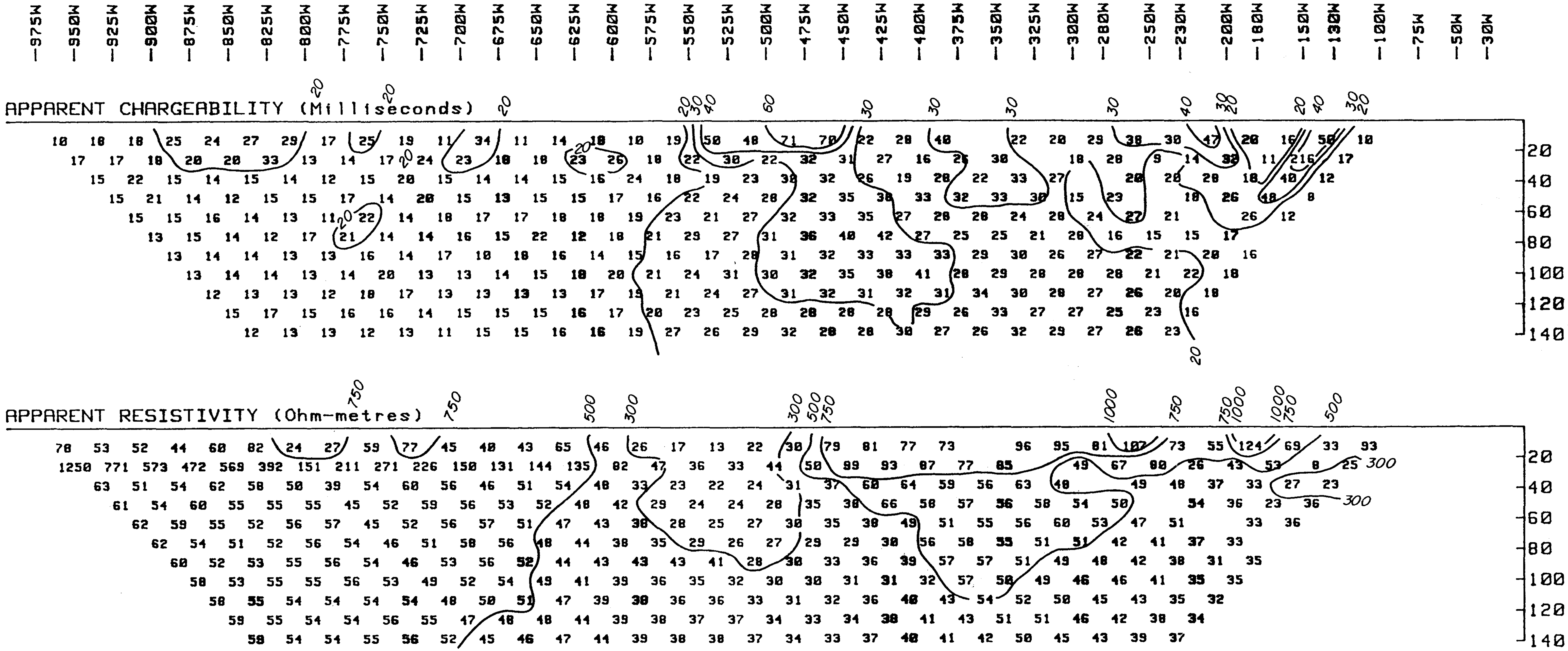
INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.
AU CLAIMS
MULTIPOLE INDUCED POLARIZATION SURVEY
LINE 1800S

DATE: NOV/86 | FIG.: 16

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

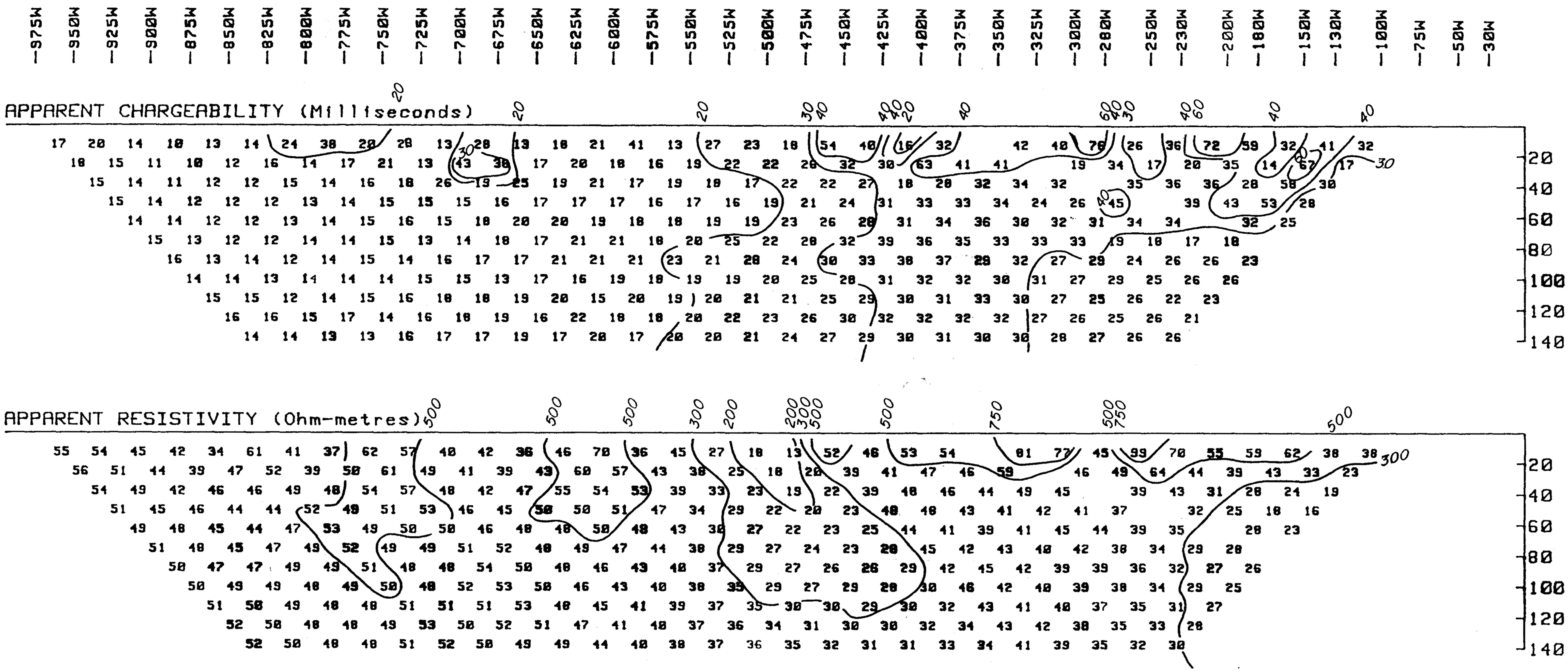
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1900S

DATE: NOV/86

FIG.: 17

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

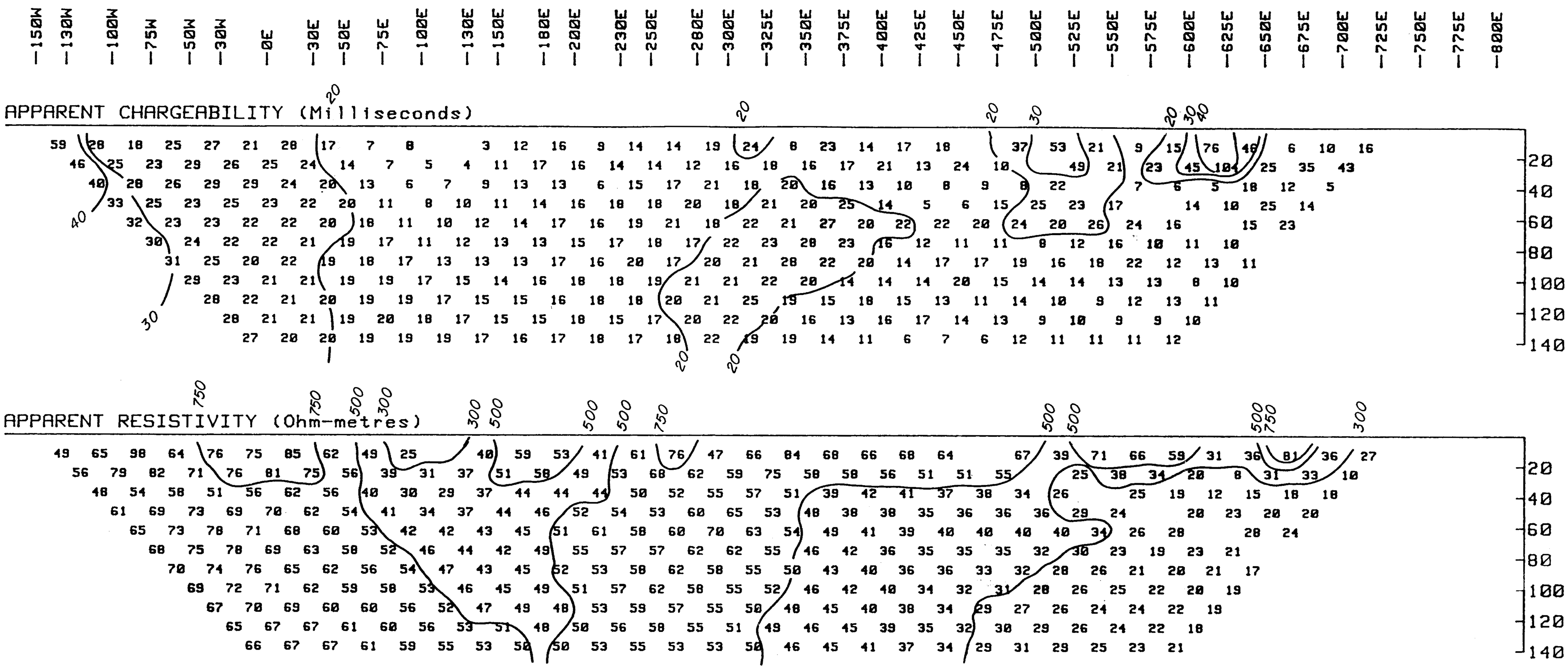
METRES
0 25 50 75 100

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.
AU CLAIMS
MULTIPOLE INDUCED POLARIZATION SURVEY
LINE 2000S

DATE: NOV/86

FIG.: 18



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

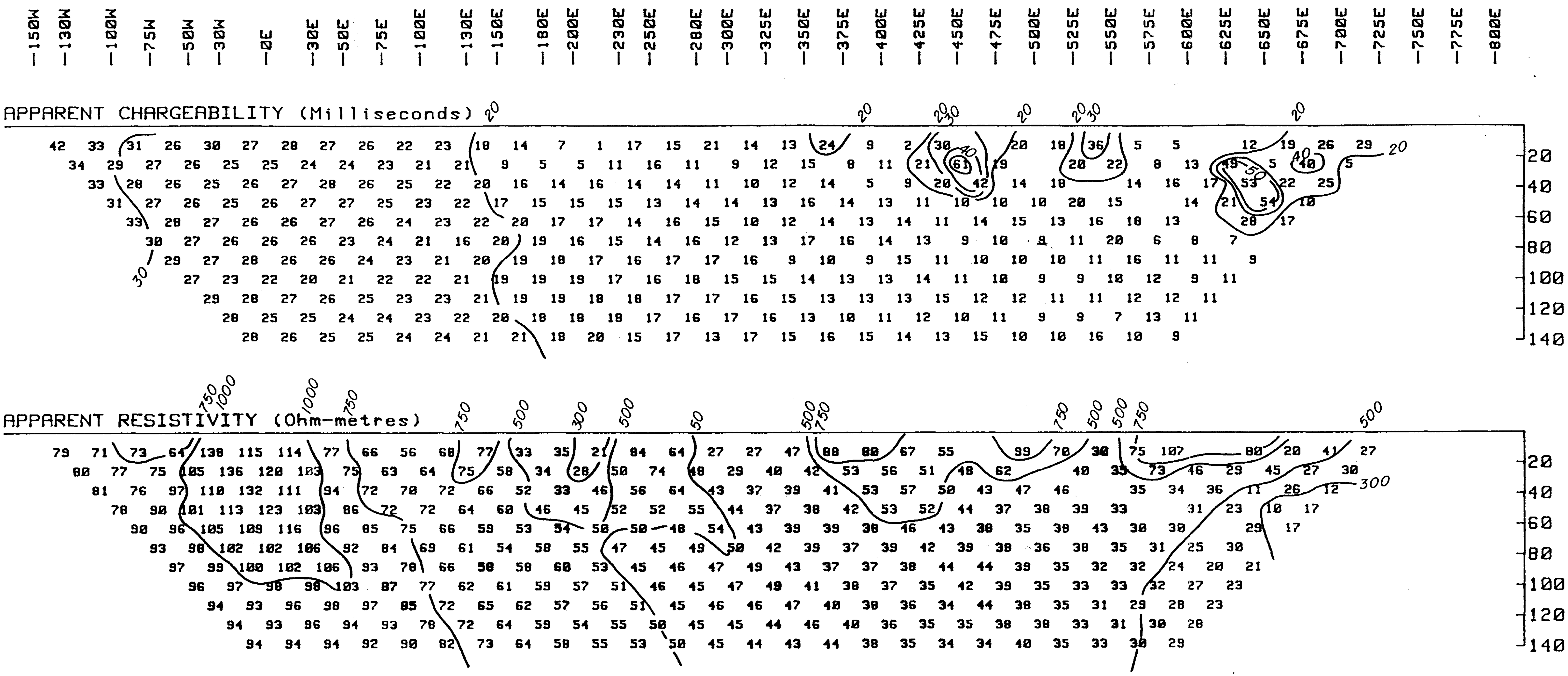
MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1000S

DATE: NOV/86

FIG.: 19

WHITE GEOPHYSICAL INC.



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

METRES
0 25 50 75 100

ALGO RESOURCES LTD.

AU CLAIMS

MULTIPOLE INDUCED POLARIZATION SURVEY

LINE 1200S

WHITE GEOPHYSICAL INC.

DATE: NOV/86

FIG.: 20

Chemex Labs Ltd.

•Analytical Chemists •Geochemists •Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 043-52597

2891 W. 14th AVE.
VANCOUVER, BC
V6K 2X3

Semi quantitative multi element ICP analysis

Nitric-Aqua-Regia digestion of 0.5 gm of material followed by ICP analysis. Since this digestion is incomplete for many minerals, values reported for Al, Sb, Ba, Be, Ca, Cr, Ga, La, Mg, K, Na, Sr, Tl, Ti, W and V can only be considered as semi-quantitative.

CERTIFICATE OF ANALYSIS

TO : WHITE GEOPHYSICAL INC.

13751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

** CERT. # : A8621556-001-A
INVOICE # : I8621556
DATE : 16-DEC-86
P.O. # : NONE
ALGO RESOURCES

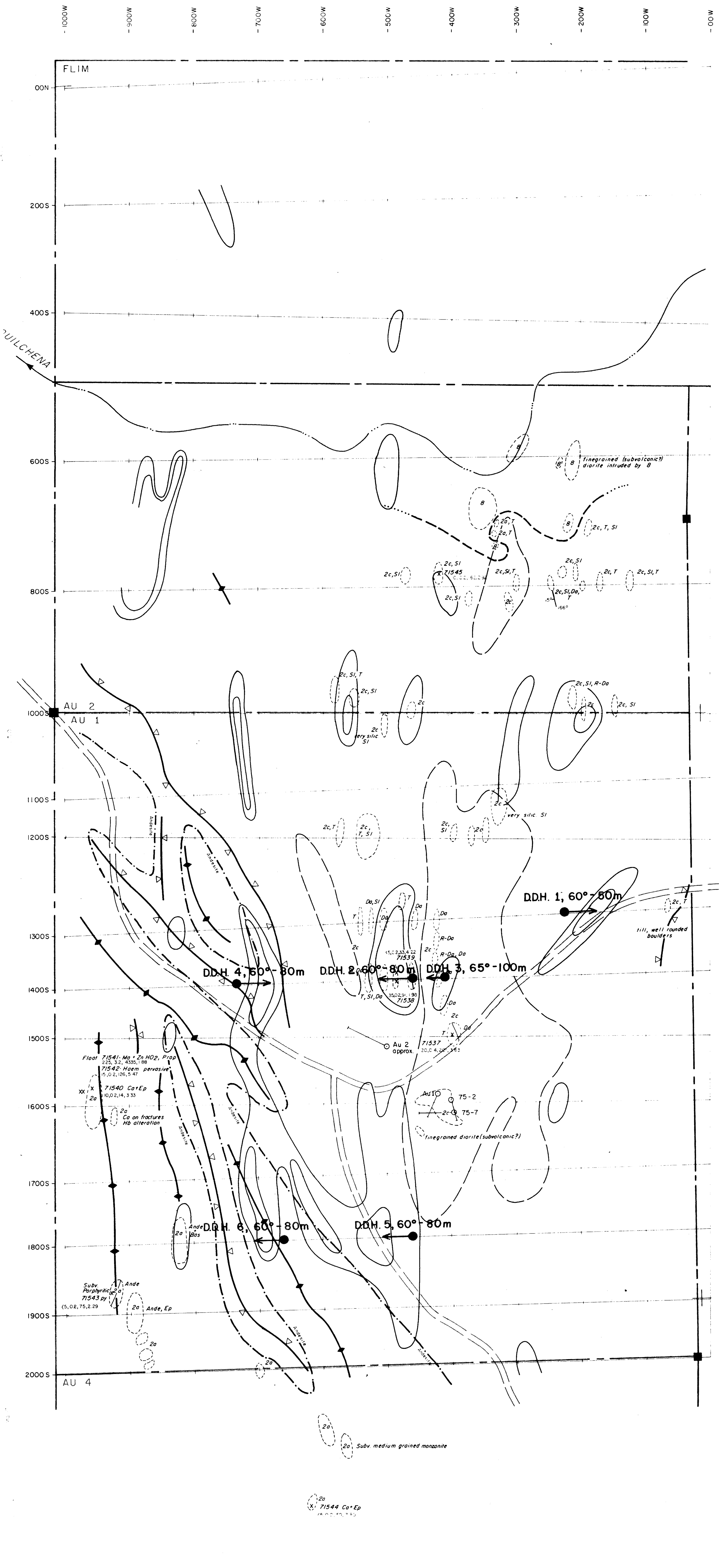
COMMENTS :
CC: J.D. FREEZE

Sample description	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm	
71537	20	2.06	0.4	5	80	<0.5	<2	1.68	<0.5	20	7	201	3.63	<10	0.23	10	1.10	458	<1	0.18	5	1340	2	<5	90	0.28	<10	<10	159	<5	38	--
71538	35	1.31	0.2	10	70	<0.5	<2	1.79	<0.5	11	37	91	1.93	<10	0.19	10	0.56	346	1	0.18	22	1290	4	<5	79	0.21	<10	<10	123	<5	32	--
71539	<5	0.59	0.2	30	320	<0.5	<2	>15.00	<0.5	6	8	33	4.22	40	0.02	<10	2.67	2290	<1	0.01	2	360	6	<5	31	0.01	<10	<10	35	5	12	--
71540	10	1.36	0.2	10	90	<0.5	<2	4.73	<0.5	20	74	14	3.33	10	0.61	<10	1.58	716	<1	0.07	25	1210	6	<5	112	0.17	<10	<10	132	<5	50	--
71541	225	1.27	3.2	10	20	<0.5	<2	3.01	<0.5	12	56	4335	1.88	<10	0.12	<10	0.79	398	<1	0.02	19	1380	4	<5	368	0.22	<10	<10	90	<5	20	--
71542	15	1.68	0.2	15	100	<0.5	<2	3.02	<0.5	27	66	126	5.47	<10	0.73	<10	2.44	809	<1	0.08	27	1490	4	<5	65	0.28	<10	<10	190	<5	68	--
71543	<5	1.06	0.2	10	90	<0.5	<2	0.62	<0.5	9	16	75	2.29	<10	0.22	<10	0.87	346	<1	0.12	7	620	6	<5	34	0.09	<10	<10	55	<5	18	--
71544	<5	3.72	0.2	<5	10	<0.5	<2	6.91	<0.5	21	29	59	3.89	20	0.03	<10	1.77	827	<1	0.03	18	870	6	<5	767	0.21	<10	<10	164	<5	68	--
71545	10	1.20	0.2	10	40	<0.5	<2	1.26	<0.5	14	20	162	2.92	<10	0.18	10	0.46	255	<1	0.16	17	1390	4	<5	100	0.21	<10	<10	92	<5	34	--

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,008

Certified by ....



GEOLOGICAL LEGEND:

LOWER JURASSIC OR LATER

8	Pennask Batholith Biotite Horneblende Granodiorite and Quartz Monzonite

UPPER TRIASSIC
Eastern Belt – Nicola Group

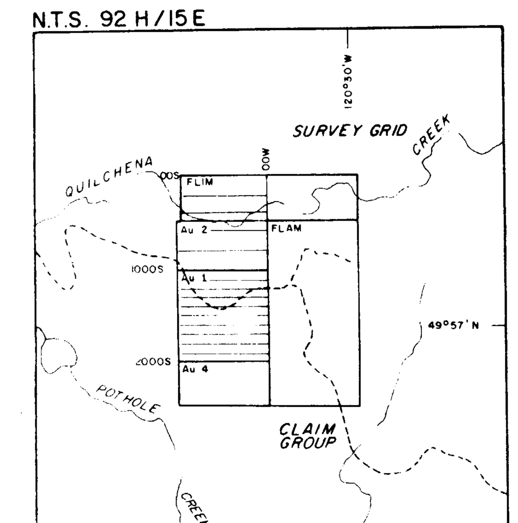
2a	Purple and Grey, Locally Analcite Bearing, Augite Plagioclase Trachy-Andesite and Trachy-Basalt Porphyry Flows and Minor Flow Breccia
2c	Volcanic Sandstone and Siltstone, Minor Tuff

Ande	Andesite
Bas	Basalt
Cc	Calcite
Da	Dacite
Ap	Epidote
Haem	Haematite
Ma	Malachite
Prop	Propylitic alteration
Sl	Siltstone
SS	Sandstone
Subv	Subvolcanic
T	Tuff
R	Rhyolite
$ZnHO_2$	Zinc Hydroxide

KEY:

- OUTCROP
- OLD DIAMOND DRILL HOLE
- X 71541 ROCK SAMPLE LOCATION AND NUMBER
- 225,3.2,4335,1.88 SAMPLE RESULTS – Au-ppb., Ag-ppm., Cu-ppm, Fe – %
- GEOLOGICAL CONTACT
- GEOPHYSICALY INFERRED GEOLOGICAL CONTACT
- RESISTIVITY HIGH
- CHARGEABILITY HIGH
- MAGNETIC HIGH
- MAGNETIC LOW

N.T.S. 92 H/15E



1 : 50,000
LOCATION MAP

PROFESSIONAL ENGINEER – PROVINCE OF BRITISH COLUMBIA – GLEN E. WHITE

50 25 0 50 100 150 metres
1 : 2500

GEOLOGICAL BRANCH ASSESSMENT REPORT

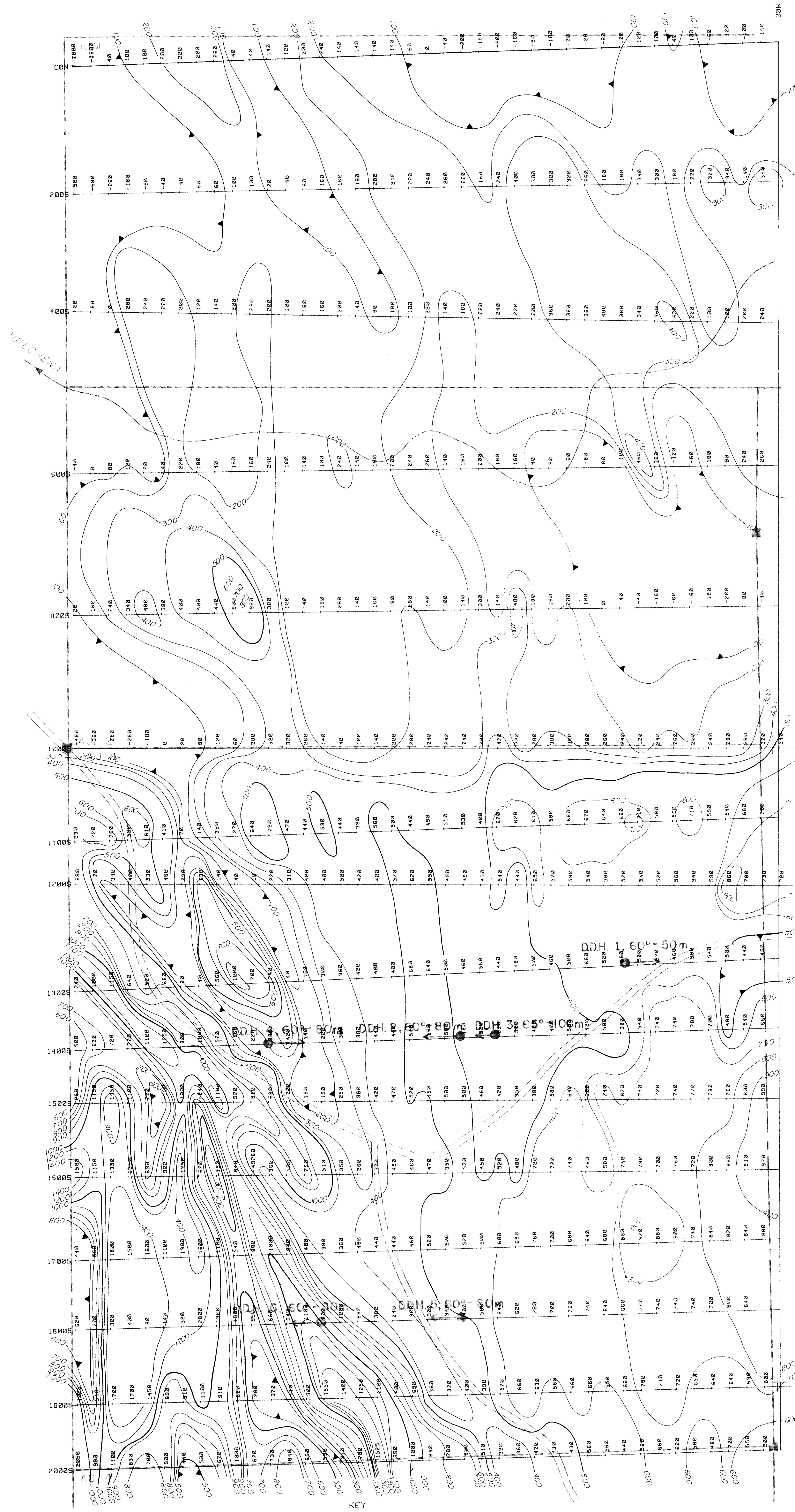
16,008

GEOLOGY BY J.C. FREEZE, FGAC

WHITE GEOPHYSICAL INC.

ALGO RESOURCES LTD.
AU CLAIMS
GEOLOGY AND INTERPRETATION MAP

DATE: NOV./86 | FIG.: 2.2.1



KEY

Vertical Field Magnetics (nT)

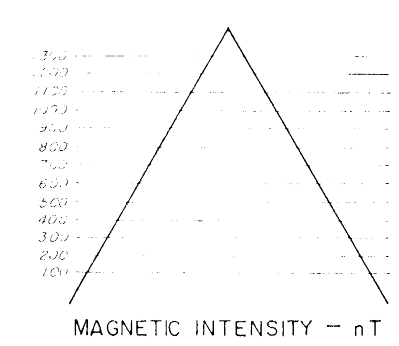
Corrected for Diurnal Variation

Plotting Base: 57500 nT

Claim Post: ■

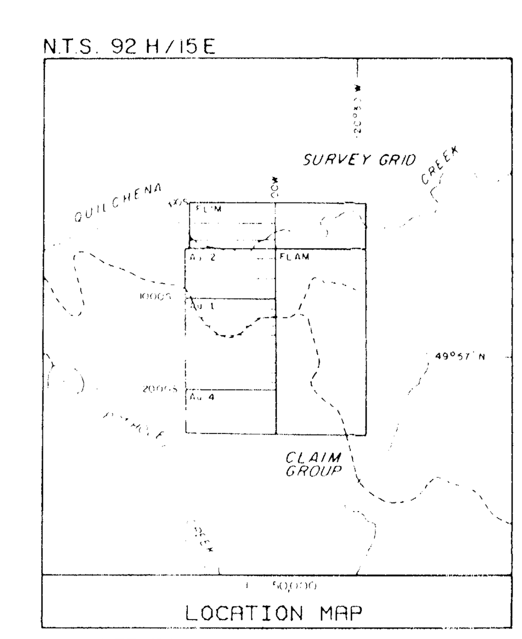
Claim Line: — - —

Road: ═══



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,008



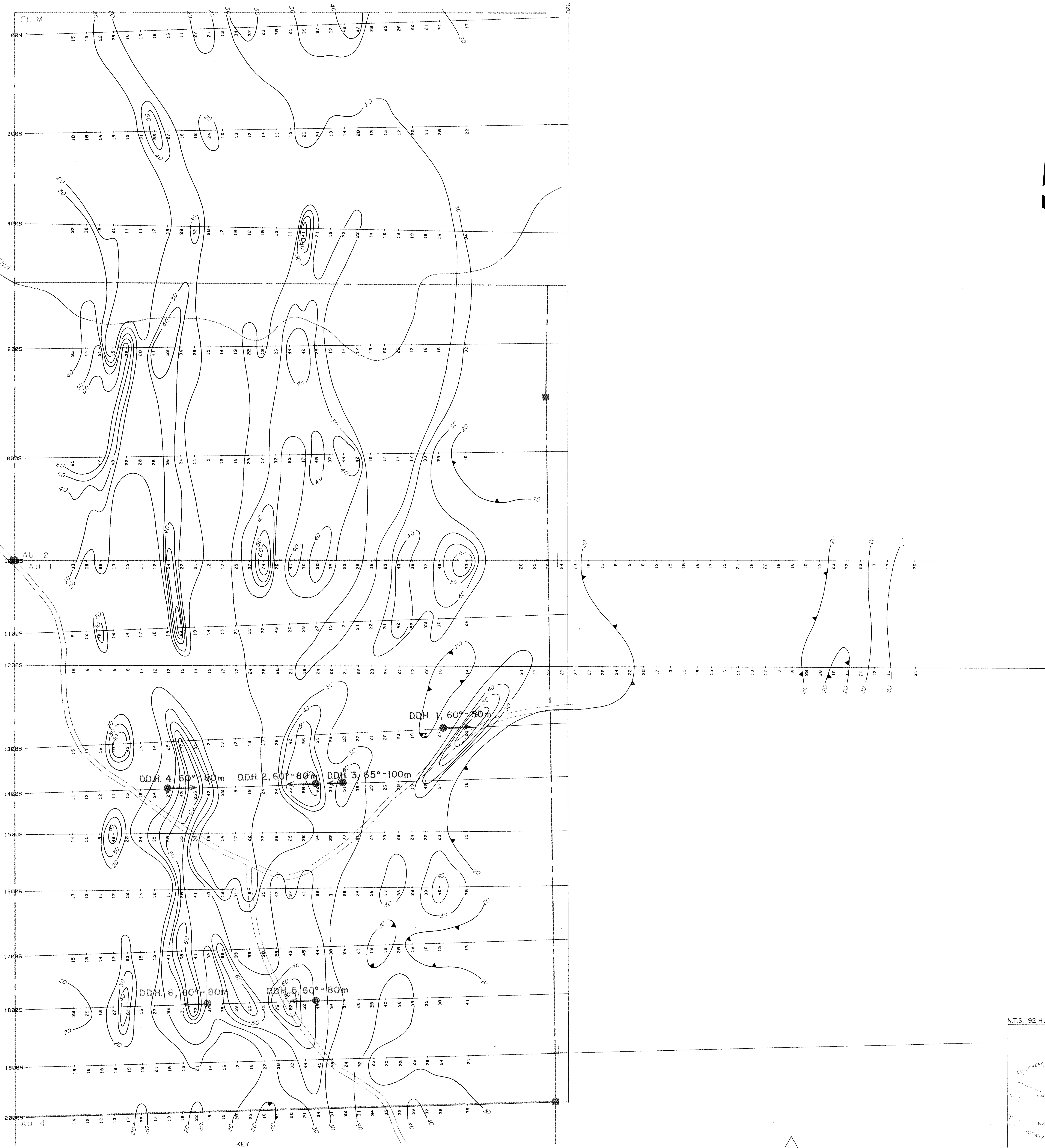
INSTRUMENT: SCINTREX MF-2 FLUXGATE MAGNETOMETER

To accompany Geophysical Report on the AU CLAIMS

ALGO RESOURCES LTD.
AU CLAIMS
MAGNETICS CONTOUR MAP
VERTICAL FIELD MAGNETICS (NT)

DATE: NOV/86	FIG.: 3.1.1

WHITE GEOPHYSICAL INC.



KEY

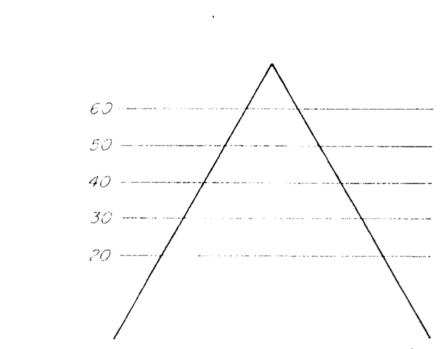
Apparent Chargeability (msec)

Average of 25,75,125 metre dipoles

Claim Post: ■

Claim Line: —— - ——

Road: ═══



GEOLOGICAL BRANCH
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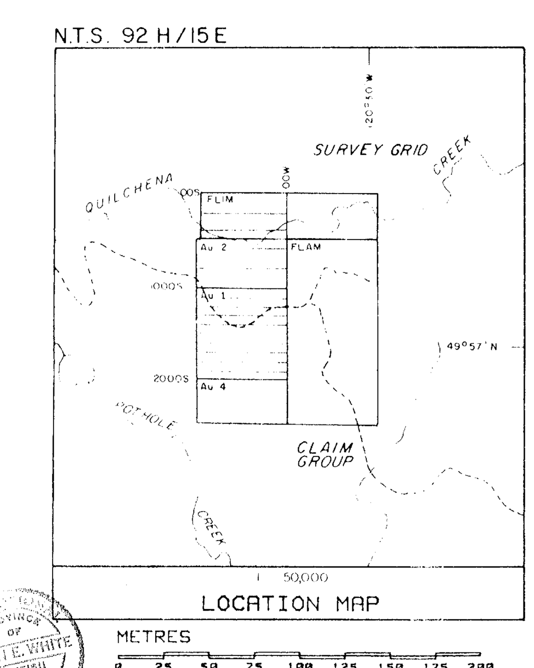
16,008



INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

To accompany Geophysical Report on the AU CLAIMS

WHITE GEOPHYSICAL INC.

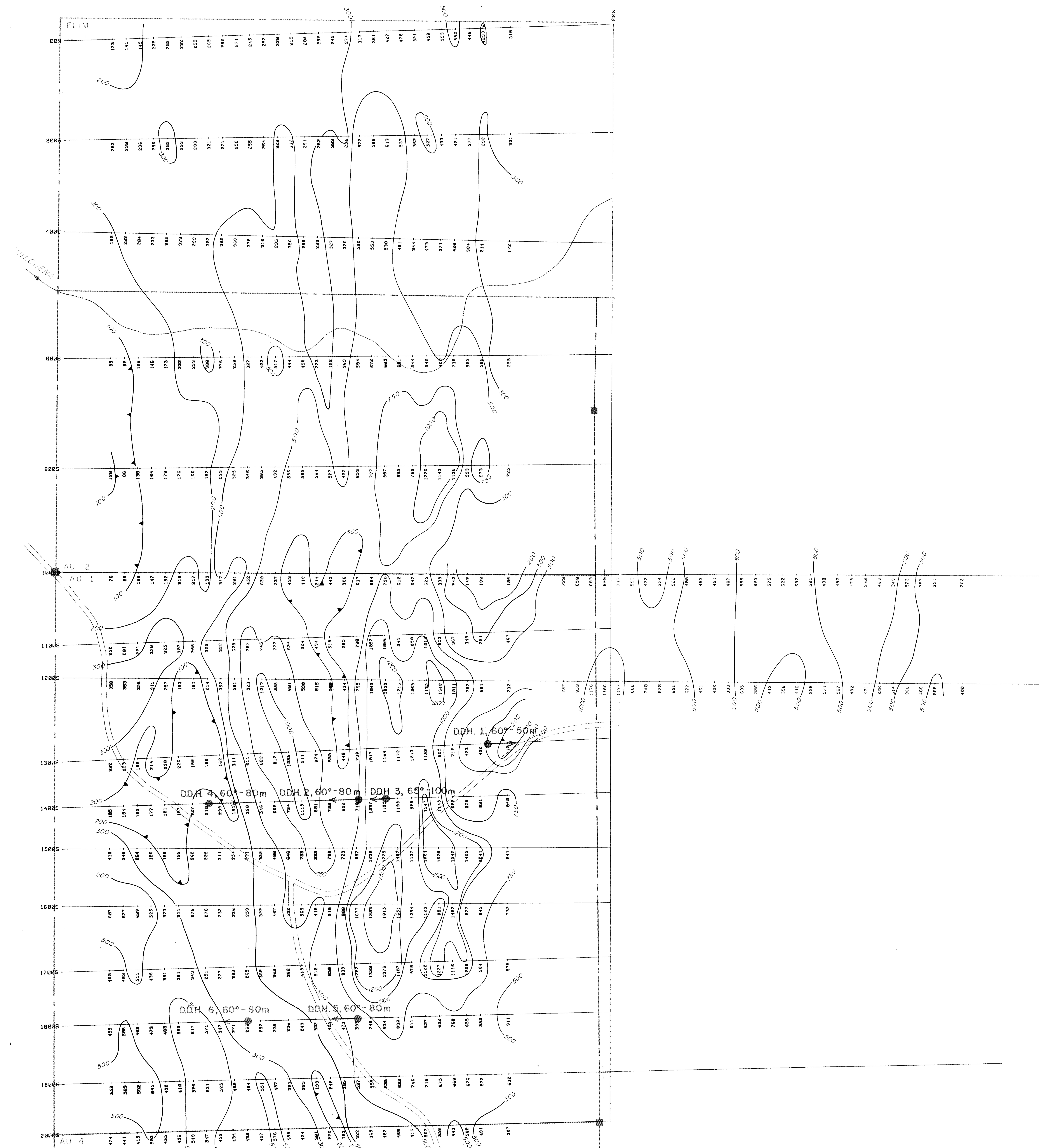
ALGO RESOURCES LTD.

AU CLAIMS

APPARENT CHARGEABILITY (MSEC)

25,75,125 METRE DIPOLES

DATE: NOV/86 | FIG.: 3.2.1



KEY

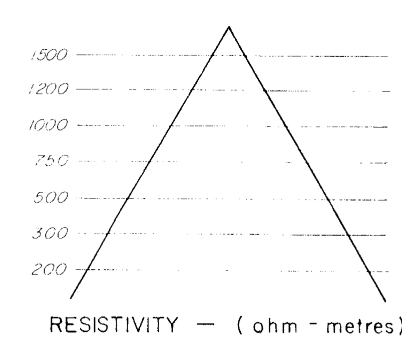
Apparent Resistivity (Ohm-m)

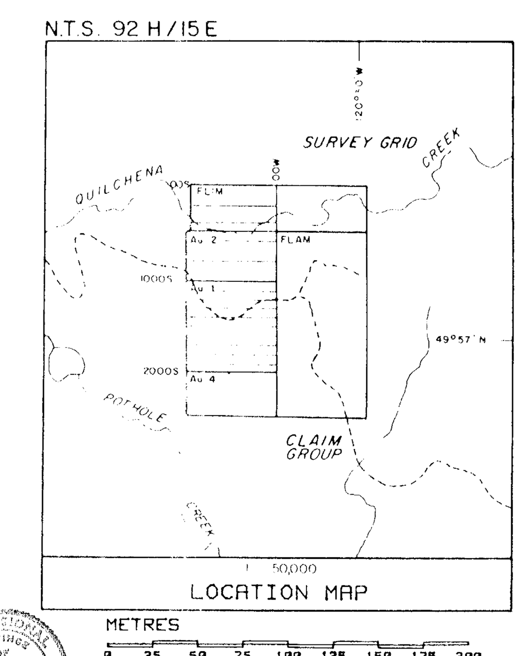
Average of 25,75,125 metre dipoles

Claim Post: ■

Claim Line: — — —

Road: ═ ═ ═





GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,008

INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.

To accompany Geophysical Report on the AU CLAIMS

ALGO RESOURCES LTD.

AU CLAIMS

APPARENT RESISTIVITY (OHM-METRES)

25,75,125 METRE DIPOLES

DATE: NOV/86	FIG.: 3.22

WHITE GEOPHYSICAL INC.