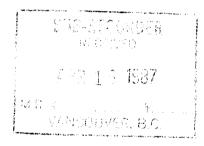
87-190-16008

GEOLOGICAL-GEOPHYSICAL ~189 REPORT Operator: ALGO RESOURCES LIMITED AU CLAIMS, Aspen Grove Area 31' Nicola M.D. LATITUDE: 49°57'N LONGITUDE: 120°28'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. Heymon Imperial Motals Corp.



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GEOLOGICAL BRANCH ASSESSMENT REPORT

16,008

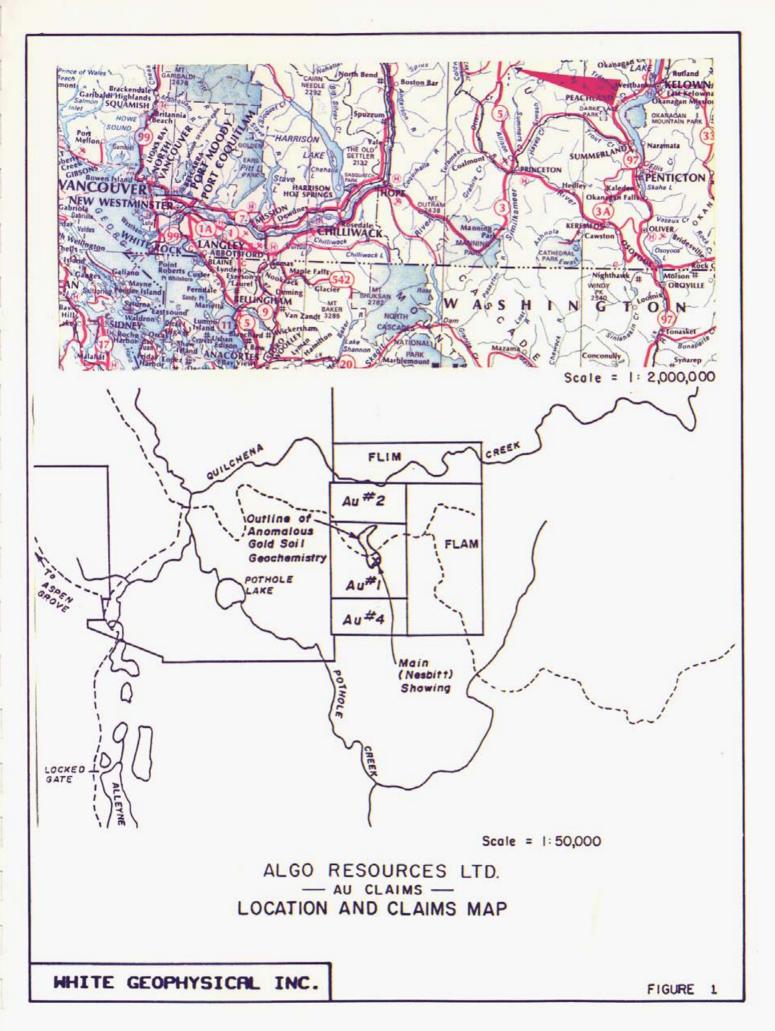
# TABLE OF CONTENTS

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1.1	INTRODUCTION	1
1.2	PROPERTY	1
1.3	LOCATION AND ACCESS	1
1.4	PREVIOUS WORK	2
2.	GEOLOGY	2
	2.1.1 REGIONAL GEOLOGY	2-4
	2.1.2 REGIONAL MINERALIZATION	4-5
	2.2.1 PROPERTY GEOLOGY	5
	2.2.2 PROPERTY MINERALIZATION	5-7
3.1	PROTON PRECESSION MAGNETOMEER SURVEY	8
	MULTIPOLE INDUCED POLARIZATION SURVEY	8-9
DISC	USSION OF RESULTS	9-11
CONC	LUSIONS	11
RECO	MMENDATIONS	12
INST	RUMENT SPECIFICATIONS	13-17
STAT	TEMENT OF QUALIFICATIONS:	
	J.C.FREEZE	18
	GLEN E. WHITE	19
COST	BREAKDOWN	20

# FIGURES

FIGURE 1 - Location and Claims Map
FIGURE 2.2.1 - Geology & Interpretation Map
FIGURE 3.1.1 - Magnetics Contour Map
FIGURE 3.2.1 - Apparent Chargeability Map
FIGURE 3.2.2 - Apparent Resistivity Map
FIGURES 3-20 - Multipole Profiles



# 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

## **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.

3

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

4

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).

5

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 chalcopyrite, sulphides (pyrite, pyrrhotite and arsenopyrite). Dawson (1986) states that 'the exact extent of the gold mineralization at the main showing has never precisely delineated, however, high grade been 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.

6

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	<5 ppb
		160° strike	
71540	L163 9&35W	Porphyritic Andesite -	10 ppb
		Calcite & Epidote	
71541	L163 9&85W	Porphyritic Andesite -	225 ppb
		Epidote & Malachite	
71542	L16S 9&85W	Porphyritic Andesite -	15 ppb
		Haematite Pervasive	
71543	L183 9&25W	Micromonzonite ? Py <u>&lt;</u> 1%	<5 ppb
71544	22&355 6&20W	Porphyritic Andesite -	<5 ppb
		Calcite & Epidote	
71545	L800S 4&25W	Volc Siltstone - Py <u>&lt;</u> 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.

8

# 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 this technique the technology. With potential field information is obtained through a multiconductor cable having 36 takeouts at 25 metre intervals. The cable is to six end and position presently configured up as 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 Time zero is sensed by direct reference to the information. scanned transmitter timing circuitry. The cable is 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.

WHITE GEOPHYBICAL INC.

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<sub>g</sub>, 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 The stacking of this multiple scan point is assured. 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.

9

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.

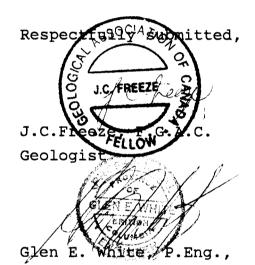
# CONCLUSIONS

geophysical-geological work has outlined several The 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 area of high resistivities which the occurs in an 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.



Geophysicist

# **GSM-8 PROTON PRECESSION MAGNETOMETER**

# SPECIFICATIONS

Resolution: 1 gamma Accuracy: <u>+</u> 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. internal - 12V 0.75Ah NiCd rechargeable Power Source: battery 3,000 readings per full charge. external - 12-32V input: 110/220V 50/.60Hz Battery Charger: 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: -9.999999999998499 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)
Maximum (MAX) 6.42
Minimum (MIN)
Modules (MOD) 2.21
In (LOG)
log (LGT)
e <sup>x</sup> (EXP)
Raise to power (Y t X) 43.92
Random number (RND)
Sign (SGN) 0.90
Square root (SQR) 8.74
Sine (SIN) 45.62
Cosine (COS) 45.69
Tangent (TAN)
Arcsine (ASN) 43.23
Arccosine (ACS) 43.98
Arctangent (ATN)
Cosecant (CSC)
Secant (SEC)
Cotangent (COT)
+ 1.08
÷
•
Ceiling (CEIL)
Floor (FLOOR)

#### 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	

#### 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**

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 

#### SIZE AND WEIGHT

HP-85A Weight: 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 guadrant) of the arcsine of the numeric expression in the current
- angular units. ATN-Principal value (1st or 4th guadrant) of the arctangent of the numeric expression in the
- current angular units. ATN2-Arctangent of Y/X in proper guadrant.
- 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.
- VALS-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 tunewriter 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.

Also outputs bytes remaining at the end of a

NORMAL-Cancels the effect of the PRINT ALL.

ON ERROR-Sets up a branch to the specified line

OFF ERROR-Cancels any ON ERROR statement

ON KEY #-Sets up a branch to the specified line

or subroutine each time the Special Function

or subroutine anytime an error occurs.

LET-Assigns a value to a variable or array element. LIST-Lists the program on the CRT IS device.

AUTO, or TRACE statements.

previously executed.

Key is pressed

program.

# 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	5% digits	Digits Displayed 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	

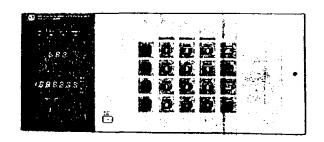
#### **Characteristics**

Effective Resistance Range	Effective Resistance Resolution	Current Source Range	Range
100 Ω	1 mΩ	1 mA	.100000
1 kΩ	10 mΩ	Aµ 100	1.00000
10 kΩ	100 mΩ	100 µA	10.0000
100 kΩ	<u>1Ω</u>	10 µA	10.0000

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

90 Days 23°C ± 5°C

Range Relays (Opt. 010)	5½ digits	Digits Displayed 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
4 ½	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:  $1(k\Omega \text{ imbalance in low lead, using tree switching, ac at 50 or 60 Hz, 25°C, <85% R.H.)$ 

#### Voltmeter Configuration

Number of Acquisition Cha (Options 10,	ionels	5½ digits	4% 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
<400	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.

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	Number of Digits Selected	85	Computer 9826°	1000L	1000E,F
Sequential	5½ digits	39( 33)**	39	39(25)	30(25)
Channels using external	4½ digits	97(88)	103	108(79)	88(79)
increment	3½ digits	112(107)	123	127(99)	107(99)
Random	5½ digits	13( 15)	27	21(16)	22(16)
Channels using software	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 <sup>6</sup> 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  $\mu$  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	20.4 kg	20.4 kg
(with assemblies in all slots)	(45 lbs.)	(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	<ul> <li>-Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass.</li> <li>-Two years Mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd.</li> <li>-One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W.P. McGill and Associates.</li> <li>-Two years Mining Geophysicist and supervisor airborne and ground geophysical divisions with Geo-X Surveys Ltd.</li> <li>-Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.</li> <li>-Fourteen years Consulting Geophysicist.</li> <li>-Active experience in all Geologic provinces of Canada.</li> </ul>

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# COST BREAKDOWN

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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

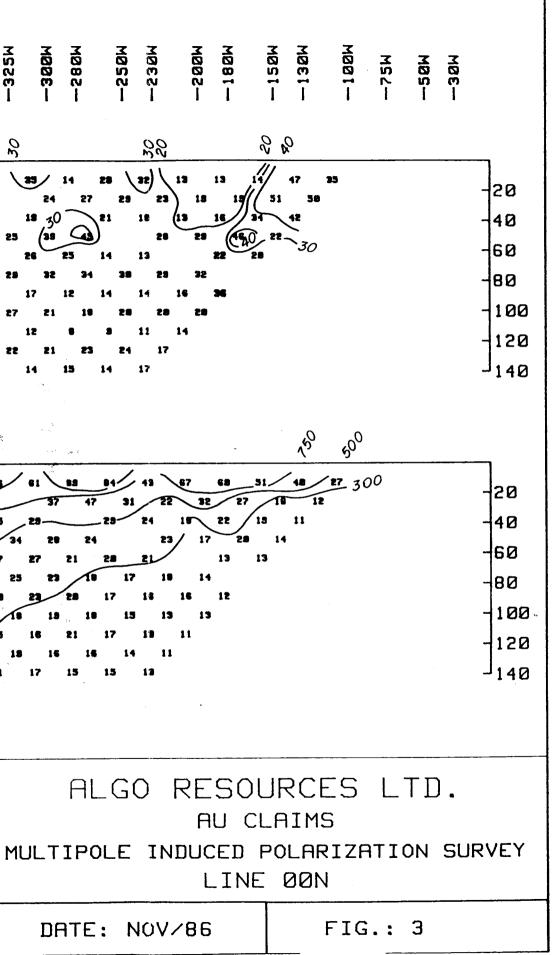
Meals and Accommodation 86 man days @ \$65	5,332.00
Vehicles, $2 - 4x4$ and trailer and fuel	3,500.00
Instrument lease, Multipole IP & magnetometer	7,500.00
Materials, Geophysics & linecutting	346.00
Geochemical analysis & materials	175.00
Computer processing	1,250.00
Drafting and printing	1,075.00
Interpretation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

TOTAL

\$42,328.00

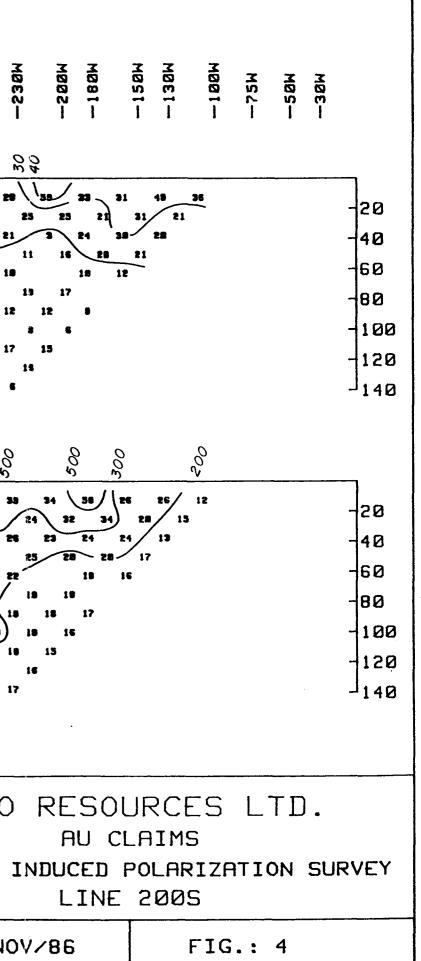
PRORATED SURVEY COSTS	
Grid Preparation	4,800.00
Magnetometer	3,500.00
Multipole IP (eleven separations)	30,028.00
Geology	3,500.00

-25*0*M 45@W 35.BW -325W 95 ØM .925M MØØG 875W BSBW 825M -775W -725W -675W 65.0W -625W -575N SSSW -500M 475W 425W -375W MØØE--28ØM 975W -750W NØØ 2-800M SSBW 4 8 8 W 6 Ø Ø M Ş 30 84 W B 88 888 60 20 60 APPARENT CHARGEABILITY (Milliseconds) 10 21 14 38 15 16 136 73 38 41 19 63 70 38 28 \ 32) 13 17 21 11 26 45 // 15,0 12 21 -14 12 23 27 17 18 / 22 18 24 12 32 36 38 27 (33) /13 15 23 15 ( 28 27 AD 34 23 19 17 15 14 22 -13-13 11 31 31 28 16 18 48 200 300 500 750 APPARENT RESISTIVITY (Ohm-metres\*10) 82 28 15 31 53 17 18 21 22 13 21 17 15 23 22 10 12 21 INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. METRES 0 25 50 75 100 WHITE GEOPHYSICAL INC. DATE: NOV/86

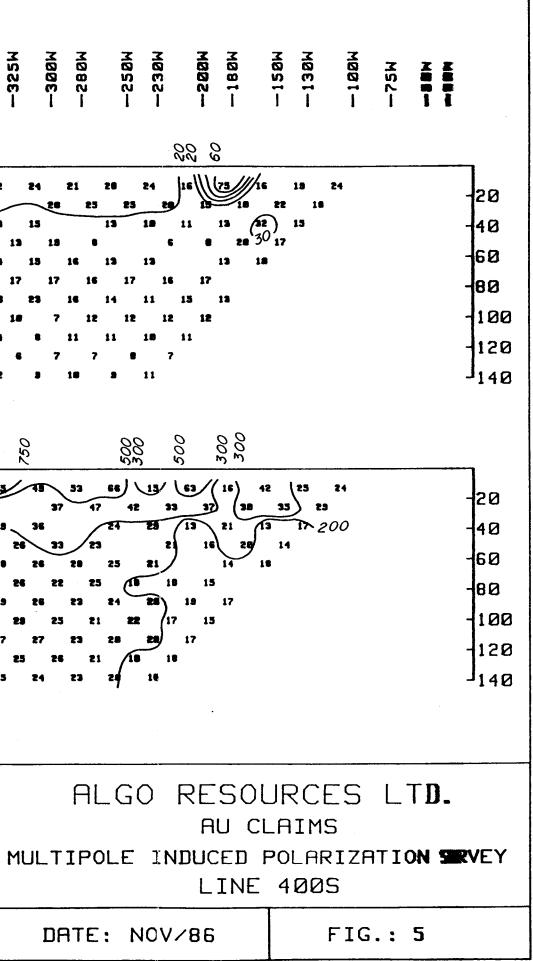


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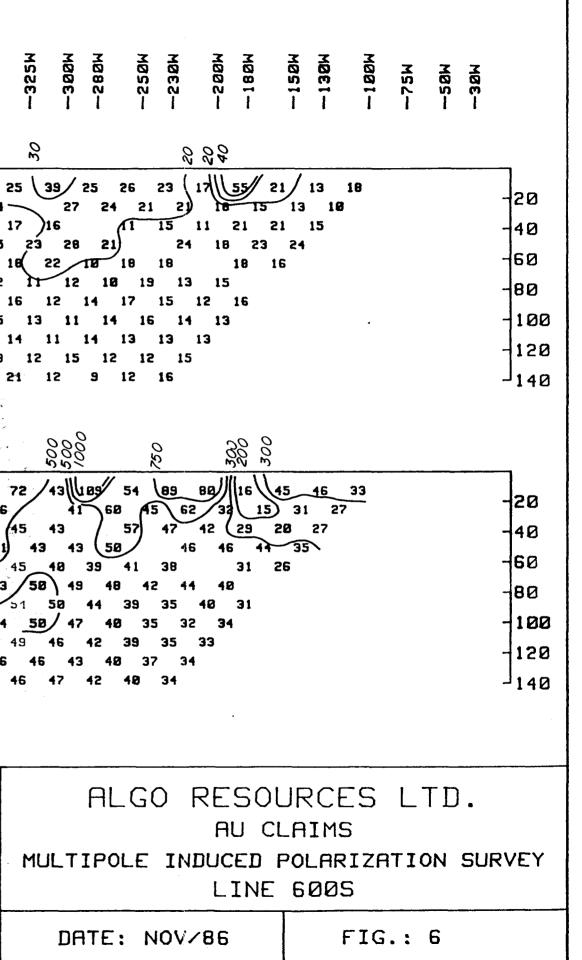
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-325W NOOE--6 ØØM -575W -525W -SØBW 475W -375W -25BM 975W 95.BM 675W -35 BW -28ØW NØS8-775W -75BW NØØ2--65.ØW -625M 458W 400M SN MØØ6-875W HEE8 -725W 425K 25 88 40 *°* B APPARENT CHARGEABILITY (Milliseconds)  $\mathcal{S}$ 30 88 50 50 28 / 37 48))(17 35 31 29 41 28 23 28/ 16 1 10 (33 22 24 21 24 .... 28 35. 23 28 15 18 20 23 11 (37 61 13 ~20 \ 13 11/ 17 17 23 13 44 23 33 38 } 14 300 300 500 00 300 750 APPARENT RESISTIVITY (Ohm-metres\*10) 38 \ 38 87 - 66 ) 53 **\15**/ 46 25 26 82 32 45 28 / 9 18 42 28 28 12 15 15 17 17 17/ 23 INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. METRES 0 25 50 75 100 WHITE GEOPHYSICAL INC. DATE: NOV/86



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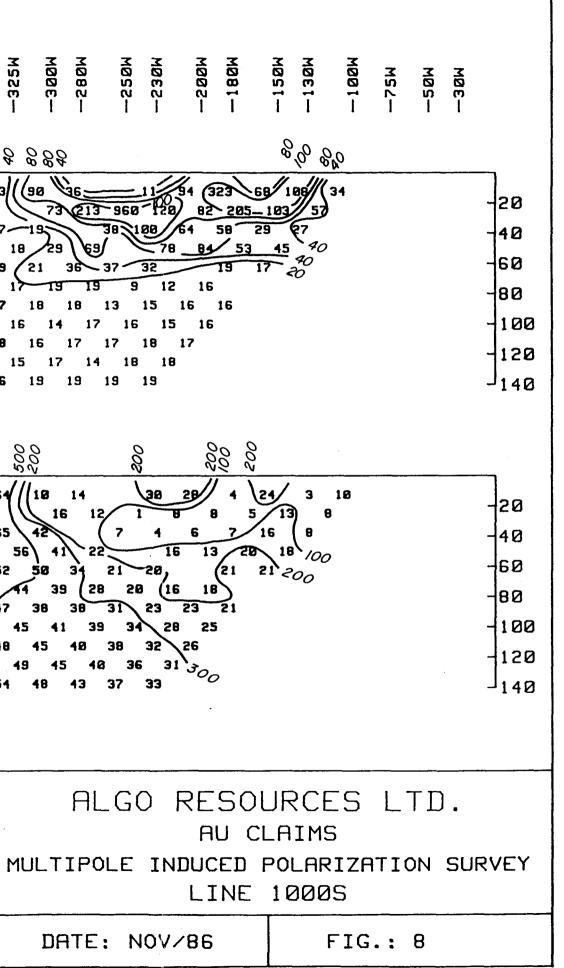


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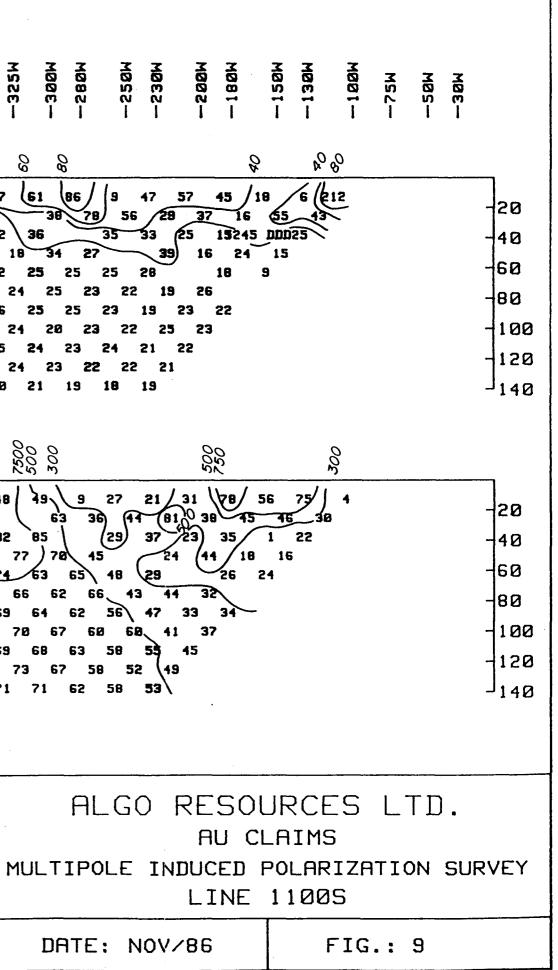
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-325W -375W -250M -95.0M -925W --75W --725W M202--675W -57SW 475W MØØE -28ØM -975W MØØ6-875W -85.BM -650W -625W - 6 ØØM -5501 SSSW -5 BBW 425N 4 8 Ø W ABSE. BZSM 45.0V APPARENT CHARGEABILITY (Milliseconds) 20 60 34 6 40 60 в 28 17 31 2 25 221 12 13 17 18 15 18 78 31 36 38 18 9 16 9 52 34 (91) 68 56 63 13 14 18 17 19 39 48 28 53 (18 27 26 183 //jez/// 28 47 (61 (86) 8 9 5 56 /29 7 8 7 (9 11 1) 35 17 17 28 17 14 28 19 28 39 38 37 42 28 28 21 13 7 22 -33 9 15 14/39/13 23 15 36 21 21 22<sub>40</sub> 30 20 27 26 17 22 7 12 9 22 22 19 22 18 34 20 13 / 8 / 11 15 15 15 (11 15 26 (33 / 14 19 11 18 17 13 11 15 23 8 8 12 16 20 25 13 16 19 21 23 17 28 24 23 23 22 7 11 11 24 12 17 13 14 19 22 22 22 17` 20 22 18 10 18 18 17 18 17 20 23 18 17 18 19 20 31 21 22 23 11 10 11 14 15 15 16 18 18 18 19 21 21 20 20 19 22 9 11 15 12 16 13 13 15 13 17 23 22 25 25 18 18 28 23 25 20 9 10 300 200 000 APPARENT RESISTIVITY (Ohm-metres) 7500 500 300 500 750 16 19/ 42 42 44 42 46/ 15/ 64) 93 62/ 87/ 61/ 43 33 57 78/(188 141 114) 92 148 39 9 27 21 31 78 56 35 25 27 31 25 22 17 26 35 24 19 19 24 45 82 82 78 74 52 40 45 61 55 78 87 78 76 95 (19 23 28 31 21 21 23 38 63 76 85 73 67 (49 44 52 51 59) 114 104 101 89 82 85 30 23 28 22 25 25 25 28 21 23 32 52 61 79 78 68 57 51 58 48 58 62 100 111 93 86 77 ) 78 45 26 24 27 23 30 44 55 70 77 74 60 60 53 47 54 62 60 108 89 81 74 63 65 48 26 25 25 28 24 25 22 24 26 30 39 48) 59 67 78 66 59 68 51 54 58 61 62 84 81 71 66 62 66 60 65 83 75 69 64 62 56 47 33 34 25 25 32 36 42 (53 60 66 66 65 62 55 56 57 57 28 25 24 67 71 81 / 81 70 67 60 68 41 37 27 24 23 28/ 37 39 45 51 59 61 60 66 57 59 58 55 58 69 26 24 24 26 34 41 44 48 53 56 68 61 56 56 65 64 74 63 58 66 63 60 27 32 37 44 45 49 52 58 26 25 62 63 62 60 56 63 67 ·63 78 73 67 58 64 68 71 71 62 58 **53** 27 26 30 34 41 45 46 49 52 57 64 60 62 59 62 63 6Ø 64 63 METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. 0 25 50 75 100

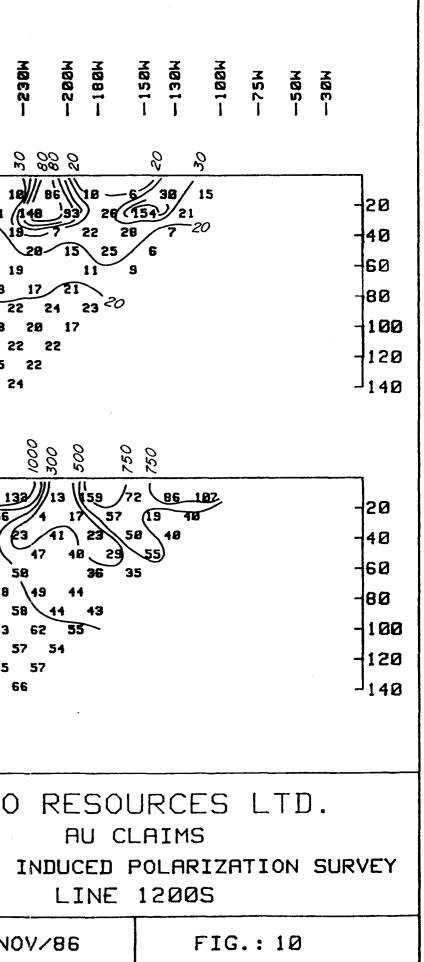
WHITE GEOPHYSICAL INC.



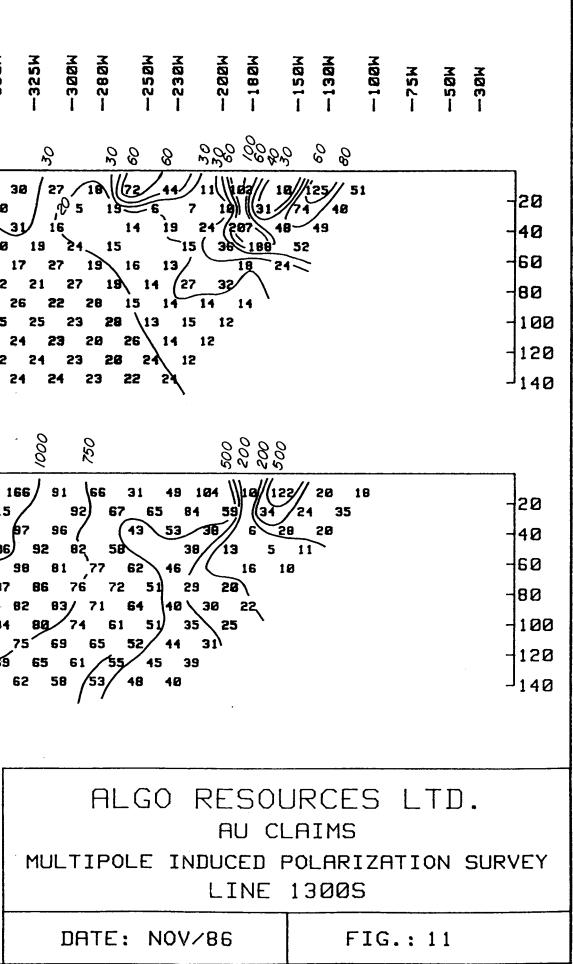
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INSTRUMENT: 36 CHANNEL MUL	TIPOLE I.P.	METRES 0 25 50 75 100	MULTIPOLE I
WHITE GEOPHYSICAL INC.			DATE: NO

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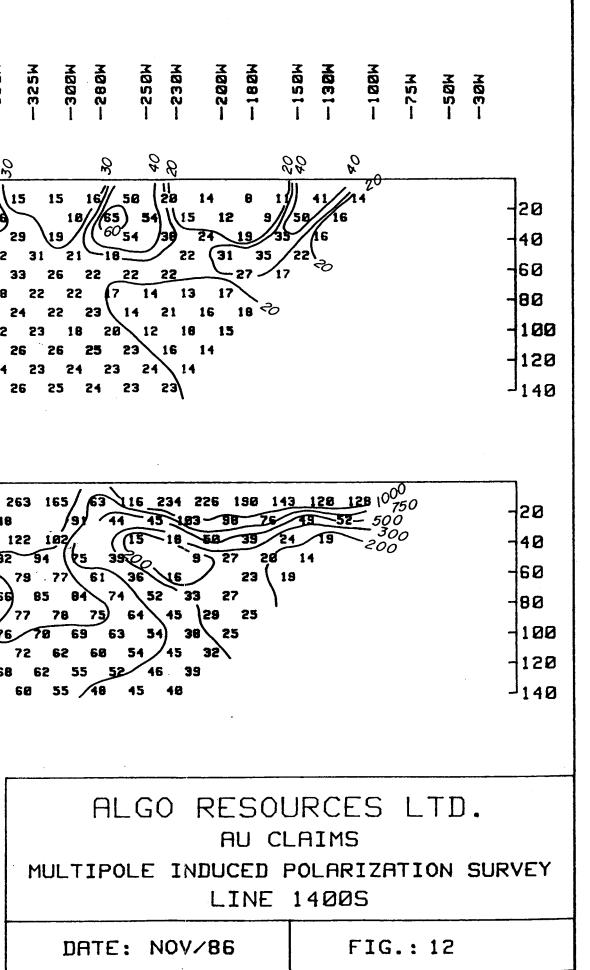
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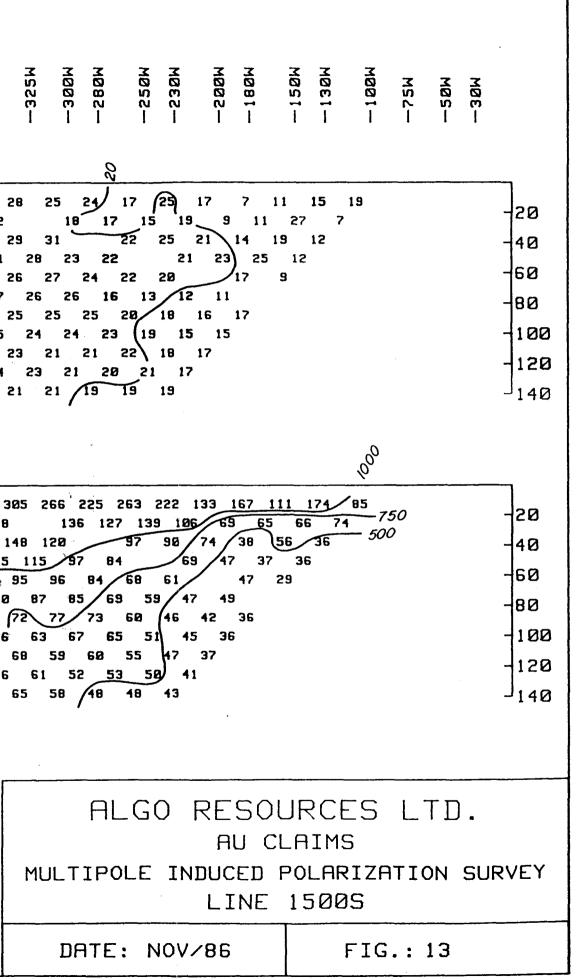
-95.ØW 975W 925W -750W -375W -325W MØØE. MØØG 87.5W Maa--575W -85.0W HØØ8 775W 725W 675W 65.ØW 625W 6 Ø Ø M SSBW 525W -SBBW 475N 45.BW 425W 4 8 8 M -35.BW -28 ØM -25.BW 00/ *§*° 20 80 100 100 60 **\$** 30 5 8 APPARENT CHARGEABILITY (Milliseconds) 30 51 (341//67// 9 10 9 16 23 27 74 13 59 31 30 36 27 10 19 101 110 22 16 30 27 18 72 13 19 51 63///15 8 20-17 22 /46 21 58 17 17 14 16 30 1/42 51 65 1 5 19 6 7 -51-15 9 6 27 26 16 13 10 21 24 27 24 28 31 20 19 22 21 10 - 8-10 10 31 16 9/ 38/ 19 16 14 17 20 22 30 30 30 30 33 19 22 23 20 19 24 12 7 12 12 10 15 17 14 ,14 12 13 16 18 20 23 24 28 26 21 9 10 13 28 28 18 22 17 27 19 16 13/  $12 \ 17_{0} 14 \ 16 \ 22 \ 17 \ 22$ 23 27 22 30 21 22 19 14 (27 27 15 /22) 14 (20 20 22 10 11 15 11 13 22 25 21 24 27 25 25 22 19 16 19 21 21 17 22 23 22 26 23 15 16 18 19) 20 21 11 13 26 \ 14 12 22 22 28 -24 20 13 15 17 18 21 21 22 23 24 24 28 11 22 23 28 24 12 26 25 24 10 11 16 13 11 13 21 18 28 21 23 **26** 24 23 22 28 26 26 24 26 500 1000 750 500 750 200 300 750 APPARENT RESISTIVITY (Ohm-metres) 21 15 23 24 24 ( 19 15 6 20) 70 95 57 139 90 86 47 39 136 131 147 156 59 38 24 50 31 21 18 19 22 22 24 17 15 16 46 (81 77 97 112 85 62 43 4 93 114 87 118 115 92) 20 20 20 24 22 21 16 15 33 61 75 96 94 100 74 55 45 41 128 96 105 108 97 96 26 21 20 22 23 21 (19 18 90 48 63) 92 96 94 91 66 57 43 43 98 106 97 106 92 82 43 28 39 26 82 58 21 21 21 22 20 20 27 41 (52 /76 91 96 83 81 64 51 45 46 (106 90 95 98 81 36 77 62 36 26 22 22 20 21 20 27 38 45 66 80 93 90 80 77 59 51 46 54 86 87 87 86 76 72 51 29 28 22 21 20 21 27 36 41 58 70 82 87 83 77 71 58 52 54 62 86 86 82 83/ 71 64 40 30 22 35 26 34 26 22 21 21 27 33 39 52 68 72 79 81 79 78 78 58 58 62 67 98 84 88 74 61 51 35 25 34 25 22 21 25 33 37 50 58 66 70 75 80 74 69 67 62 65 66 68 79 75 69 65 52 44 33 25 22 25 / 31 36 46 53 68 65 68 74 75 73 67 71 67 69 65 61 / 55 / 45 39 68 64 69 32 25 25 30 33 43 50 57 60 62 68 71 73 70 72 75 71 71 64 66 62 58 53 48 40 METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. 50 75 100 25 WHITE GEOPHYSICAL INC. DATE: NOV/86



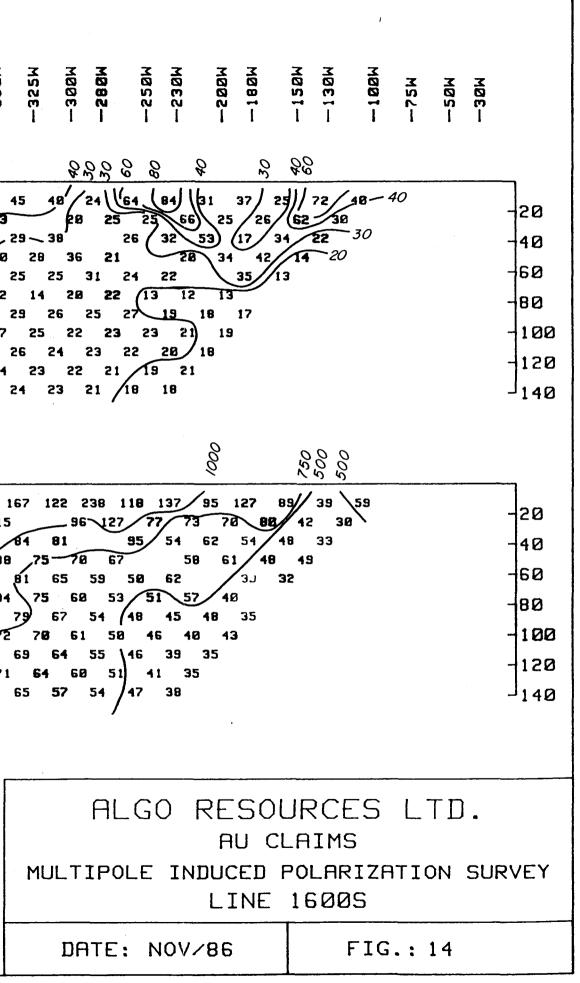
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-380W -375W -230W 325W -600M 35 ØW --75ØW --725W --7 00M -675W -65@W 550W -525W SØØW 475W 4 S Ø W 425M 4 0 0 M -95.0M MØØ6--85@W 625W 575W 975W 8251 00 80 A ģ 30 30 30 50 APPARENT CHARGEABILITY (Milliseconds) 18 17 15 19 12 11 9 17 28 11 19 31 23 9 12 20 19 23 21 19 22 27 31 26 28 20 29 31 14 13 9 8 8 11 14 12 30 14 7 14 16 28 23 26 30 31 33 31 31 32 31 28 23 22 14 11 11 8 11 10 10 15 16 26 11 19 16 15) 18 24 31 29, 35 16 30 30/ 28 26 27 24 22 20 13 10 11 9 4 10 19,0 13 11 9 17 12 19 19 20 23 27 29 31 37 39 31 28 27 26 26 16 13 12 11 13 11 9 7 7 122 11 11 7 13 9 18 28 12 17 29 29 32 35 32 28 26 25 25 28 18 16 17 13 **B** 4 16 13 18 19 20 24 26 28 32 32 31 32 27 25 24 24 23 (19 15 15 9 9\ 31 12 10 9 17 10 9 10 13 17 18 20 23 23 28 31 32 30 26 29 24 23 21 21 22 18 17 11 7 5 10 9 9 14 12 12 16 17 20 21 23 26 29 34 34 32 33 30 24 23 21 20 21 17 12 11 13 13 11 11 11 11 12 16 16 19 24 22 14 33 30 31 26 29 28 28 21 21 19 19 19 500 200 750 000, APPARENT RESISTIVITY (Ohm-metres) 26 16 22 17 36 23 17 30 25 33 51 69 63/120 74 59 132 108 103 226 35 48) 52/ 37 (51/46 33) 24 21 21 26 27 16 23 27 29 43 61 66 95 100 71 82 81 150 128 177 198 136 127 139 106 69 41 45 47 41 (30 24 19 25 25 26 25 25 29 37 52 63 86 89 84 80 71 (140 150 121 146 148 120 43 43 37 28 23 24 24 24 25 25 28 35 46 54 78 84 81 92 74 72 134 122 108 115 115 97 84 24 19 18 18 18 19 21 22 27 38 44 61 71 72 82 78 67 63 108 99 12 95 96 84 68 61 10<sup>0</sup> 39 38 33 28 25 23 24 25 27 29 38 46 61 72 76 84 81 80 68 82 102 93 80 87 85 69 59 47 49 37 33 27 24 23 25 26 31 36 42 56 64 70 82 78 78 79 83 84 94 88 72 77 73 60 46 42 36 38 37 37 33 27 25 24 26 29 36 40 51 60 65 75 78 76 77 89 85 76 84 76 63 67 65 51 45 36 36 36 32 28 25 25 28 34 38 48 54 59 69 72 75 77 86 89 78 73 77 68 59 60 55 47 37 36 35 32 27 26 27 32 36 46 52 55 65 66 78 76 84 87 81 72 68 66 61 52 53 58 41 35 35 31 28 28 /31 35 44 48 51 60 63 67 73 84 83 81 77 68 63 65 58 /48 48 43 METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. 0 25 50 75 100 WHITE GEOPHYSICAL INC. DATE: NOV/86



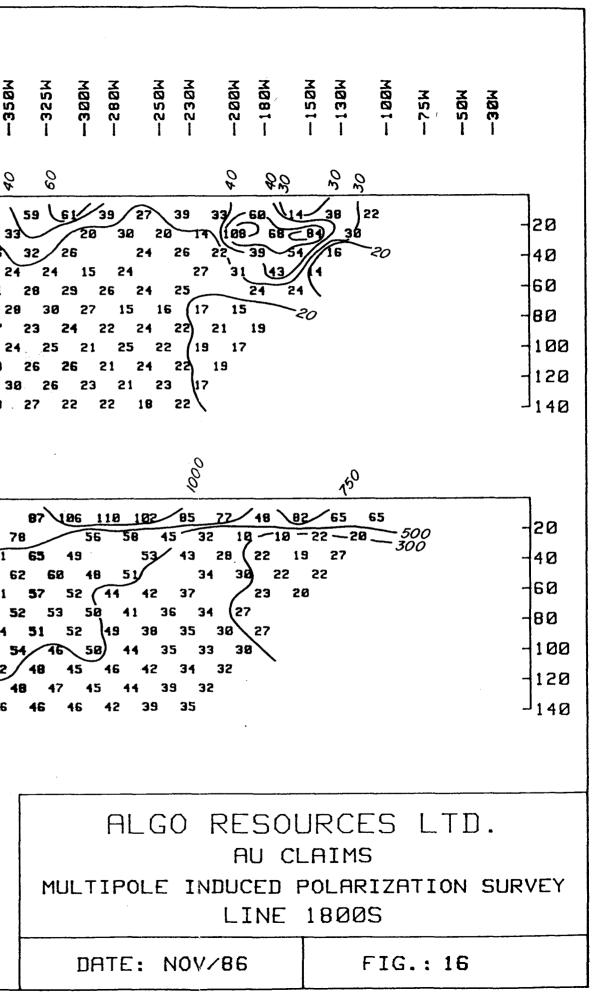
-325W 375W MØØE. 95.BW MØØG 875W 725W 575W 475W 975W 850W 775W 750W -7 BBM 675W 65.**Ø**M 625W SSBW SZSW SØØW 458W 4 0 0 M 35.0M 325W 280M 825W NØØ8 25.BM 6 Ø Ø M 2 2 A 8 88 90 00 80 50 80 80 28 APPARENT CHARGEABILITY (Milliseconds) 7/131\_105\_9/ 33 59/ 7/158 88 50 57 24 24 23 19/1 15 13 13 12 11 12 8 21 10 B (37-13 BZ 14 15 21 31 24 35 35 33 38 24 48 33 28 25 25 11 **11 12** 11 11 19 13 14 12 12 10 18 18 7 17 13 10 23 22 32 29 37 36 33 29 29 20 29 38 1 23 12 22 12 18 28 27 29 25 30 31 30 30 28 36 21 14 12 13 12 11 11 10 12 12 8 12/25 19 26 28  $32_{AO}$  28 **37** 35 31/27 32 25 25 31 24 22 13 12 12 13 11 11 10 9 10 10 11 (22 16 28 26 29 141) 39 38 29 (24 19 22 14 28 22 13 12 13 12 12 11 11 11 8 19 15 20 25 28 31 34 34 37 32 32 29 29 26 25 27 19 18 17 13 12 12 11 10 10 18 15 20 24 27 /31 39 37 35 36 34 **(28** 27 25 22 **23** 23 21) 19 13 12 10 11 11 -11 14 19 23 25 31 31 37 38 37 38 35 38 26 24 23 22 28 18 11 12 16 6 10 22 26 26 32 33 34 37 32 28 32 24 23 22 21 19 21 11 10 10 10 9 10 11 7 13 13 14 16 24 28 27 31 33 32 34 33 31 25 24 23 21 18 18 11 12 11 9 500 300 1000 750 APPARENT RESISTIVITY (Ohm-metres) 65 52 28 27 25 38 20 22 23 30 45 39 76 18 29 82 294 322 312 262 64 69 53 63 60 43 31 30 30 28 21 19 27 48 44 85 56 (85 126 201 179 182 154 115 63 53 48 31 38 28 25 21 26 34 42 · . 51 44 53 89 115 144 134 138 115 84 81 65 65 63 59 55 (46 36 29 27 25 23 24 29 35 (68 <u>58</u> 43 68 63 89 112 102 103 105 88 75 78 67 64 63 55 52 44 35 29 26 24 25 27 32 53 . 44 63 74 68 94 105 99 95 95 81 65 59 50 62 64 62 63 59 53 48 42 34 28 26 25 29 38 47 41 42 61 71 74 78 94 97 91 89 84 75 68 53 51 57 48 56 58 47 41 33 27 26 29 30 42 39 39 57 68 74 83 78 86 89 88 78 79 67 54 48 45 48 35 6Ø 58 55 48 45 39 32 28 29 31 42 37 37 52 63 78 77 82 75 80 79 75 72 78 61 58 46 48 43 57 52 48 44 38 32 30 31 40 36 35 49 58 64 (76 80 79 71 74 75 74 69 64 55 46 39 35 56 51 45 42 37 33 31 39 35 35 46 54 63 73 78 77 75 67 71 72 71 64 60 51 41 35 54 50 44 42 38 33 38 34 35 45 51 57 67 74 74 73 71 63 69 68 65 57 54 47 38 METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. 0 25 50 75 100 WHITE GEOPHYSICAL INC. DATE: NOV/86



95.0M -975W -925W .875W 675W 375W 35ØW 325W MØØE. 25.BM MØØG BSBW 825M NGG8 775W -75 ØW 725W 7 0 0 M 575W SSBW 525W S BBW 475W 425W 4 8 B M 65**0**h 625h 6 8 8 M 45.BV CHARGEABILITY (Milliseconds) 00 00 000 \$ 30 60 50 9/38/15 13/100 149 57 60 141 -52 32 28 16 12 13 15 17 16 15 16 13 23 39 26 28 28 46 44 18 17 16 15 13 28 18 10 21 13-24-28 46 22 19 23 A4 35 33) 49 (37) 26 24 28/ 16 10 20 8 42 16 19 29 30 44 26 28 49 49 48 (26 19 22 (15 20 23) 18 15 15 14 13 13 18 20 10 19 10 25 34 36 10 28 20 20 30 38 41 43 42 27 25 28 20 23 15 14 13 15 15 16 15 16 12 14 18 22 /35 34 (41 41 48 39 24 28 21 28 25 28 15 16 17 12 12 14 17 11 16 15 15 12 16 16 15 13 12 11 13 12 11 15 18 22 / 32 46 36 35 37 36 33 28 26 25 25 24 17 18 14 15 13 **38** 37 39 42 41 38 23 28 (19<sup>20</sup> 17) 29 13 1 27 35 15 14 15 13 14 11 13 13 12 13 19 23 47 51 36 37 36 35 32 24 24 23 22 21 12 13 13 15 13 14 2Ø 20 31 38 12 11 10 12 13 13 12 11 12 13 15 18 27 32 37 36 39 37 35 34 33 32 21 22 19 23 21 13 13 14 14 14 14 13 17 15 17 17 18 25 30 40 44 45 47 26 33 32 31 29 20 20 18 14 17 14 14 13 13 12 14 15 18 28 28 35 38 48 44 45 31 29 29 38 26 23 23 21 28 15 00, 500 750 APPARENT RESISTIVITY (Ohm-metres) 30 35 48 46/ 55/ 39 29 40 38 16 17 37 19 40 33 34 35 48 61 90 213 222 224 220 157 204 151 194 13 34 43 48 / 52 (49 34 33 42 31) 18 23 26 /30 41 40 39 41 (50 / 79 93 150 142 139 135 115 116 107 115 39 45 (52 50) 46 39 37 34 (28 23 23 30 35 40 38 43 49) 68 84 89 110 101 110 111 92 87 92 10 51 47 45 48 34 33 27 22 27 33 38 42 43 47 68 77 85 83 181 95 98 91 78 77 84 40 48 49 49 46 46 36 38 / 32 28 27 31 35 37 42 48 (57 69 79 83 85 88 92 84 82 77 72 76 6 45 41 42 43 43 38 31 (29 28 27 27 30 32 34 36 39) 59 67 69 74 71 85 77 74 70 62 57 52 39 42 44 40 37 31 28 29 29 29 32 35 39 49 58 62 64 64 61 59 77 75 69 66 58 51 4 40 42 42 39 36 31 29 31 30 29 32 35 39 44 45 63 67 67 67 64 75 69 64 58 50 42 41 41 41 38 35 32 30 32 32 32 36 44 50 60 59 65 64 65 65 62 67 62 58 53 43 3 81 94 88 83 79 76 70 63 57 51 44 352 290 246 192 154 124 106 97 87 82 88 86 85 83 40 38 36 33 32 34 35 39 45 48 50 53 52 61 62 61 62 59 55 50 ⁄47 42 3 39 39 ALGO METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. MULTIPOLE : Ø 50 75 100 25 WHITE GEOPHYSICAL INC. DATE: NO

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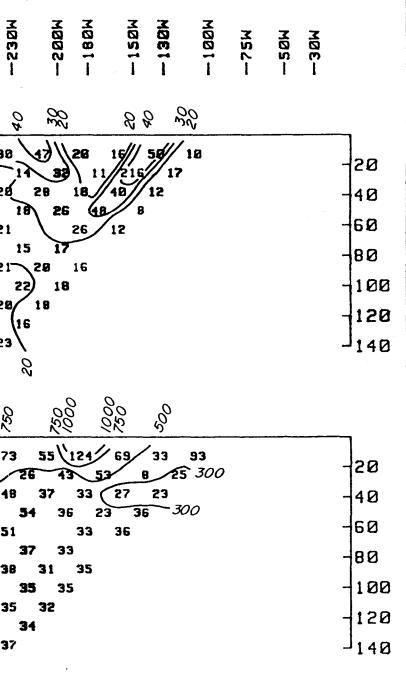
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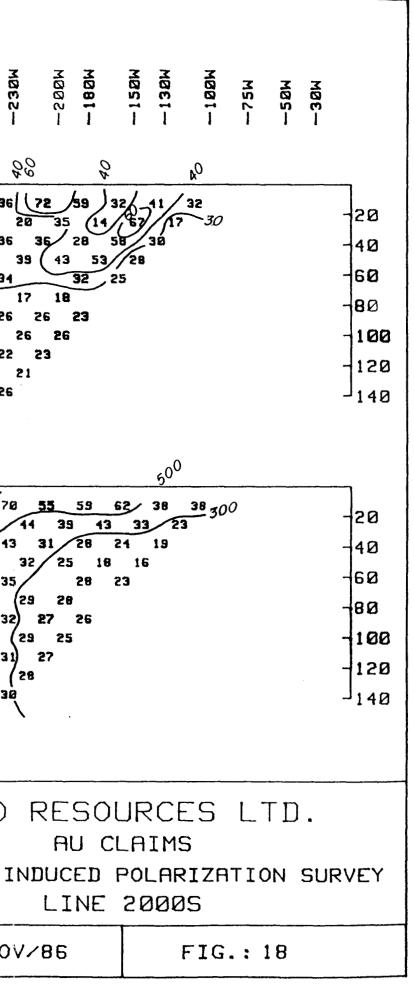
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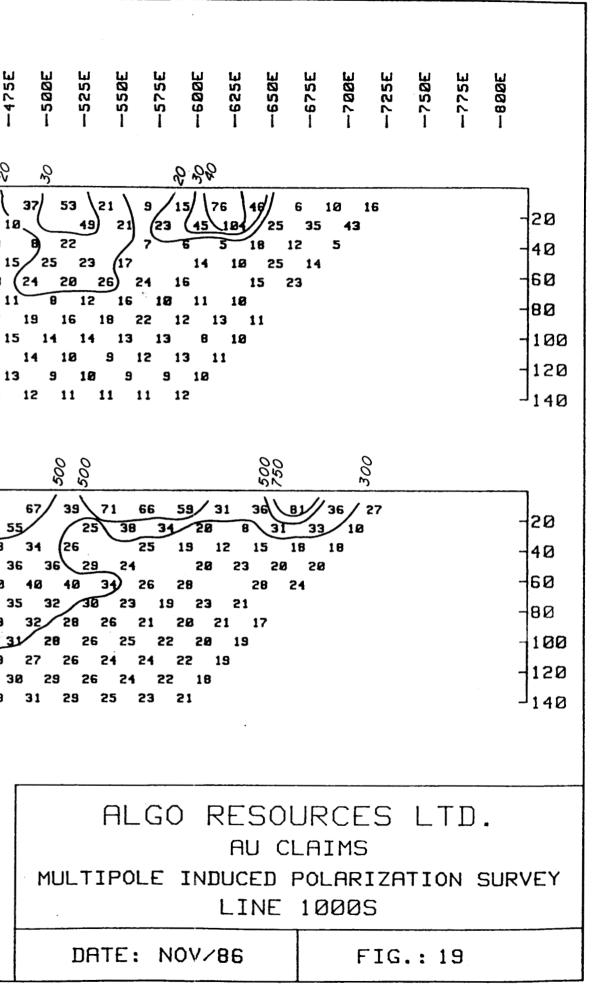
# ) RESOURCES LTD. AU CLAIMS INDUCED POLARIZATION SURVEY LINE 1900S



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-130E -150E -- 18ØE -- 28ØE -280E -300E -325E -350E -375E -400E -450E -15@W -- 1.00W -- 7.5W -23**0**E -25ØE 13ØW - 1 ØØE 475E 5585 SADE SSSE -3 ØE -5 ØE -3*B*W 75E - 86 APPARENT CHARGEABILITY (Milliseconds) 3 12 16 9 14 14 19 24 8 23 14 17 18 59 28 18 25 27 21 28 17 7 8 46 25 23 29 26 25 24 14 7 5 4 11 17 16 14 14 12 16 18 16 17 21 13 24 18 49 21 23 45 184 28 26 29 29 24 20 13 6 7 9 13 13 6 15 17 21 18 20 16 13 10 B 9 B 22 33 25 23 25 23 22 20 11 8 10 11 14 16 18 18 20 18 21 28 25 14 5 6 15 25 23 (17 32 23 23 22 22 28 18 11 18 12 14 17 16 19 21 18 22 21 27 28 22 28 (24 28 26) 24 16 30 24 22 22 21 19 17 11 12 13 13 15 17 18 17/22 23 28 23 15 12 11 11 8 12 16 18 11 18 31 25 20 22 19 18 17 13 13 13 17 16 20 17 20 21 28 22 20 14 17 17 19 16 18 22 12 13 11 29 23 21 21 19 19 17 15 14 16 18 18 19 21 21 22 20 14 14 14 20 15 14 14 13 13 28 22 21 20 19 19 17 15 15 16 18 18 (20 21 25 19 15 18 15 13 11 14 10 9 12 13 11 28 21 21 19 20 18 17 15 15 18 15 17 20 22 20 16 13 16 17 14 13 9 10 27 20 20 19 19 19 17 16 17 18 17 18 22 19 19 14 11 6 7 6 12 11 11 11 12 300 500 500 500 500 500 APPARENT RESISTIVITY (Ohm-metres) 40) 59 53/41/61 76/47 66 84 68 66 68 64 49 65 98 64 76 75 85 62 49 25 56 79 82 71 76 81 75 56 39 31 37 (51 58 49 53 68 62 59 75 58 58 56 51 51 55 25 38 34 28 48 54 58 51 56 62 56 40 30 29 37 44 44 44 50 52 55 57 51 39 42 41 37 38 34 26 73 69 78 62 54 41 34 37 44 46 52 54 53 68 65 53 (48 38 38 35 36 36 36 29 24 61 69 65 73 78 71 68 60 53 42 42 43 45 51 61 58 60 70 63 54 49 41 39 40 40 40 34 26 28 68 75 78 69 63 58 52 46 44 42 49 55 57 57 62 62 55 46 42 36 35 35 35 32 38 23 19 23 21 78 74 76 65 62 56 54 47 43 45 52 53 58 62 58 55 58 43 48 36 36 33 32 28 26 21 28 69 72 71 62 59 58 53 46 45 49 51 57 62 58 55 52 46 42 48 34 32 3V 28 26 25 22 28 19 67 70 69 60 60 56 52 47 49 48 53 59 57 55 50 48 45 40 38 34 29 27 26 24 24 22 19 65 67 67 61 60 56 53 51 48 50 56 58 55 51 (49 46 45 39 35 32) 30 29 26 24 22 18 66 67 67 61 59 55 53 5a 50 53 55 53 53 5b 46 45 41 37 34 29 31 28 25 23 21 METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. 0 25 50 75 100 WHITE GEOPHYSICAL INC. DATE: NOV/86

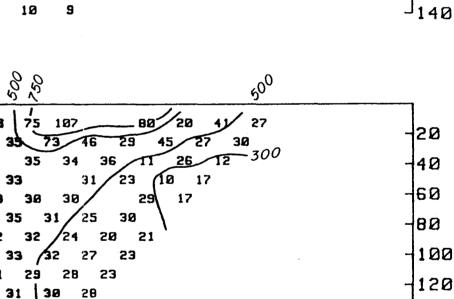


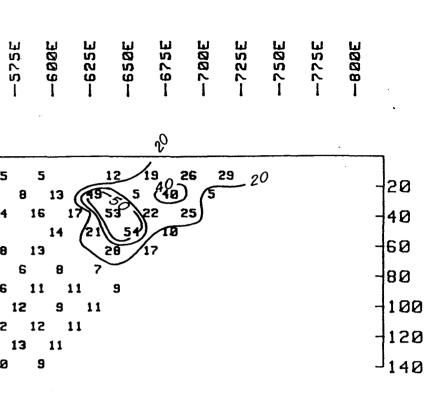
-- 180E -- 200E -230E -250E -130E -150E -280E -300E 3755 -75E -100E -325E -35*0*E 4 ØØE SBBE 550E 150W 425E 45ØE 475E 5255 13@W 1 8 BW -75W -5 ØW -3 ØW 3 8 1 2 8 1 7 9 – дғ 2020 APPARENT CHARGEABILITY (Milliseconds)  $v^0$ 2020 2/(38 18/36/5 5 42 33 31 26 30 27 28 27 26 22 23 18 14 7 1 17 15 21 14 13 24 9 20 34 29 27 26 25 25 24 24 23 21 21 9 5 5 11 16 11 9 12 15 8 11 (21 (6)) / 29/20` 22) 14 16 17 33 28 26 25 26 27 28 26 25 22 20 16 14 16 14 14 11 10 12 14 5 9 20 42) 14 18 31 27 26 25 26 27 27 25 23 22 17 15 15 15 13 14 14 13 16 14 13 10 10 10 20 15 11 24 23 22 20 17 17 14 16 15 10 12 14 13 11 33 28 27 26 26 27 26 14 15 16 24 21 16 20 ) 19 16 15 14 16 12 30 27 26 26 13 17 16 14 13 24 23 21 20 19 18 17 16 17 17 / 29 27 28 26 26 16 9 21 22 22 21 19 19 19 17 16 27 23 22 20 18 15 15 14 13 13 25 23 23 21 19 19 18 18 17 17 16 26 15 13 13 13 15 12 11 29 24 24 23 22 20 18 18 18 17 16 17 16 13 10 11 12 10 11 9 7 13 11 28 25 25 28 26 25 25 24 24 21 21 18 20 15 17 13 17 15 16 15 14 13 15 10 10 16 10 9 500 500 750 500 APPARENT RESISTIVITY (Ohm-metres) 79 71 73 64 138 115 114 77 66 56 68 77 33 35 21 84 64 27 27 47 88 88 67 55 99 70 36 75 107 88 77 75 (85 136 128 183 75) 63 64 (75 58 34 (28 58 74 (88 29 48 42 53 56 51 48 62 18 33 73 46 81 76 97 118 132 111 94 72 78 72 66 52 33 46 56 64 43 37 39 41 53 57 58 43 47 46 78 98 (101 113 123 103) 86 22 72 64 68 46 45 52 52 55 44 37 38 42 53 52/ 44 37 39 **33** 38 **13 38 35 38 13 30** 30, 98 96 185 189 116 96 85 75 66 59 53 54 58 58 -48 54 43 39 39 39 46 93 98 102 102 106 92 84 69 61 54 58 55 47 45 49 50 42 39 37 39 42 39 38 36 38 97 99 100 102 106 93 78 66 58 58 60 53 45 46 47 49 43 37 37 38 35 32 44 44 39 98 103 87 77 62 61 59 57 51 46 45 47 49 41 38 37 35 42 39 35 33 33 /32 27 23 96 97 96 98 97 85 72 65 62 57 56 51 45 46 46 47 48 38 36 44 38 35 31 94 93 34 96 94 93 78 72 64 59 54 55 50 45 45 44 46 40 36 33 31 30 28 94 93 35 38 38 35 94 94 94 92 90 82 73 64 58 55 53 50 45 44 43 44 38 35 34 34 48 35 33 38 29 ALGO RESOURCES LTD. METRES INSTRUMENT: 36 CHANNEL MULTIPOLE I.P. Ø 25 50 75 100 WHITE GEOPHYSICAL INC. DATE: NO

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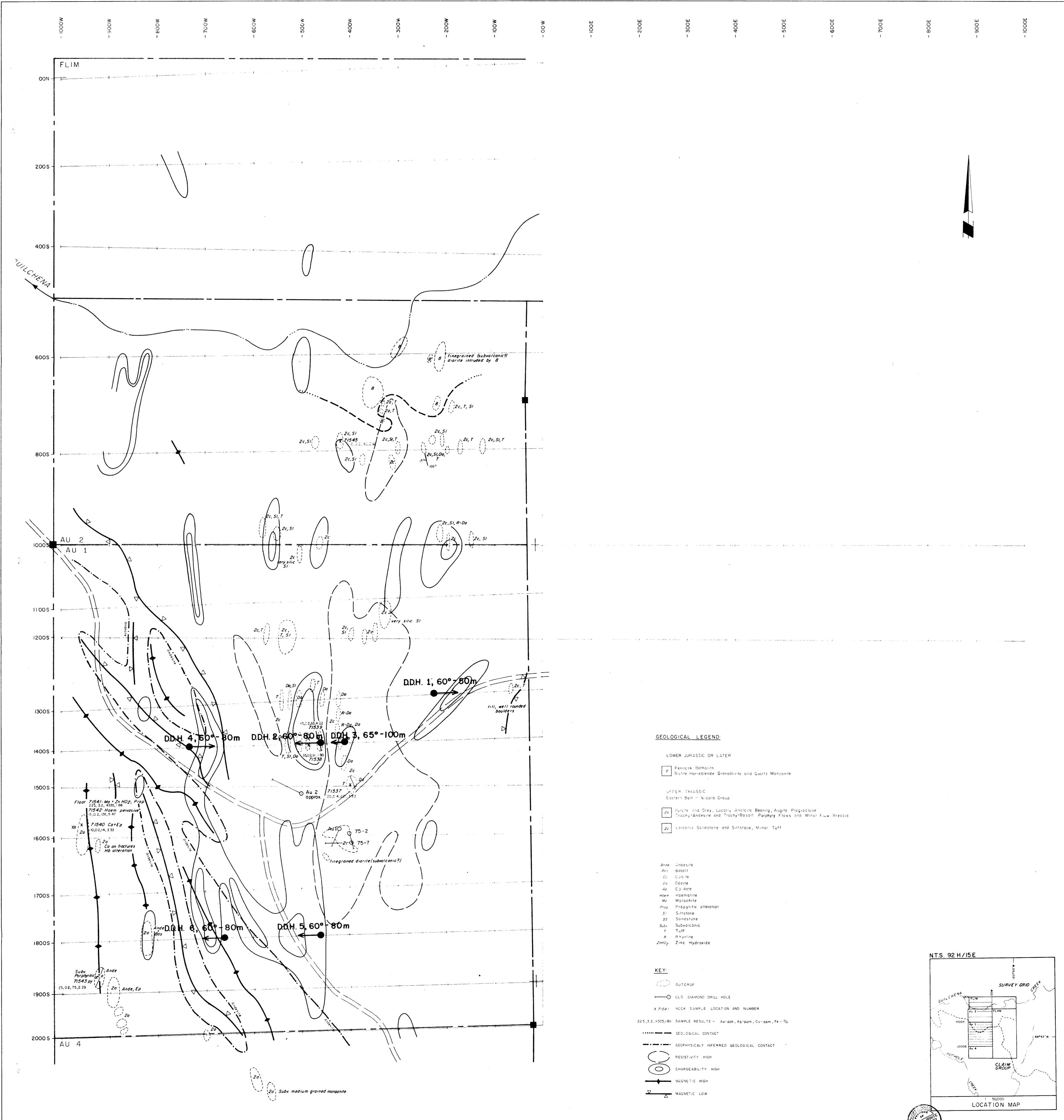
# AU CLAIMS MULTIPOLE INDUCED POLARIZATION SURVEY LINE 1200S

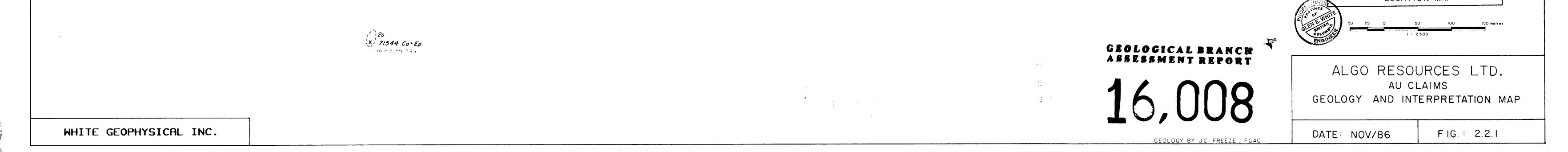




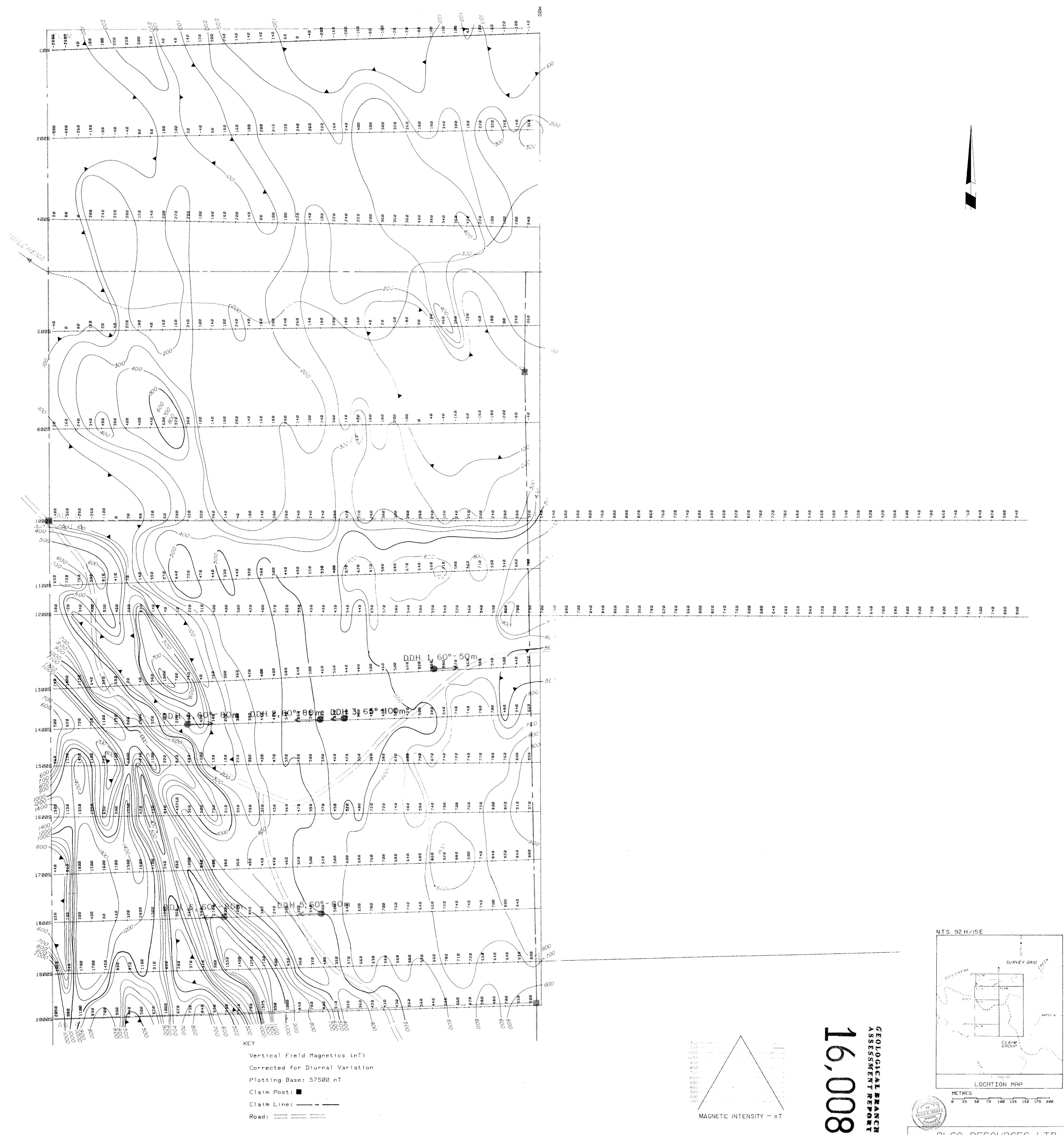


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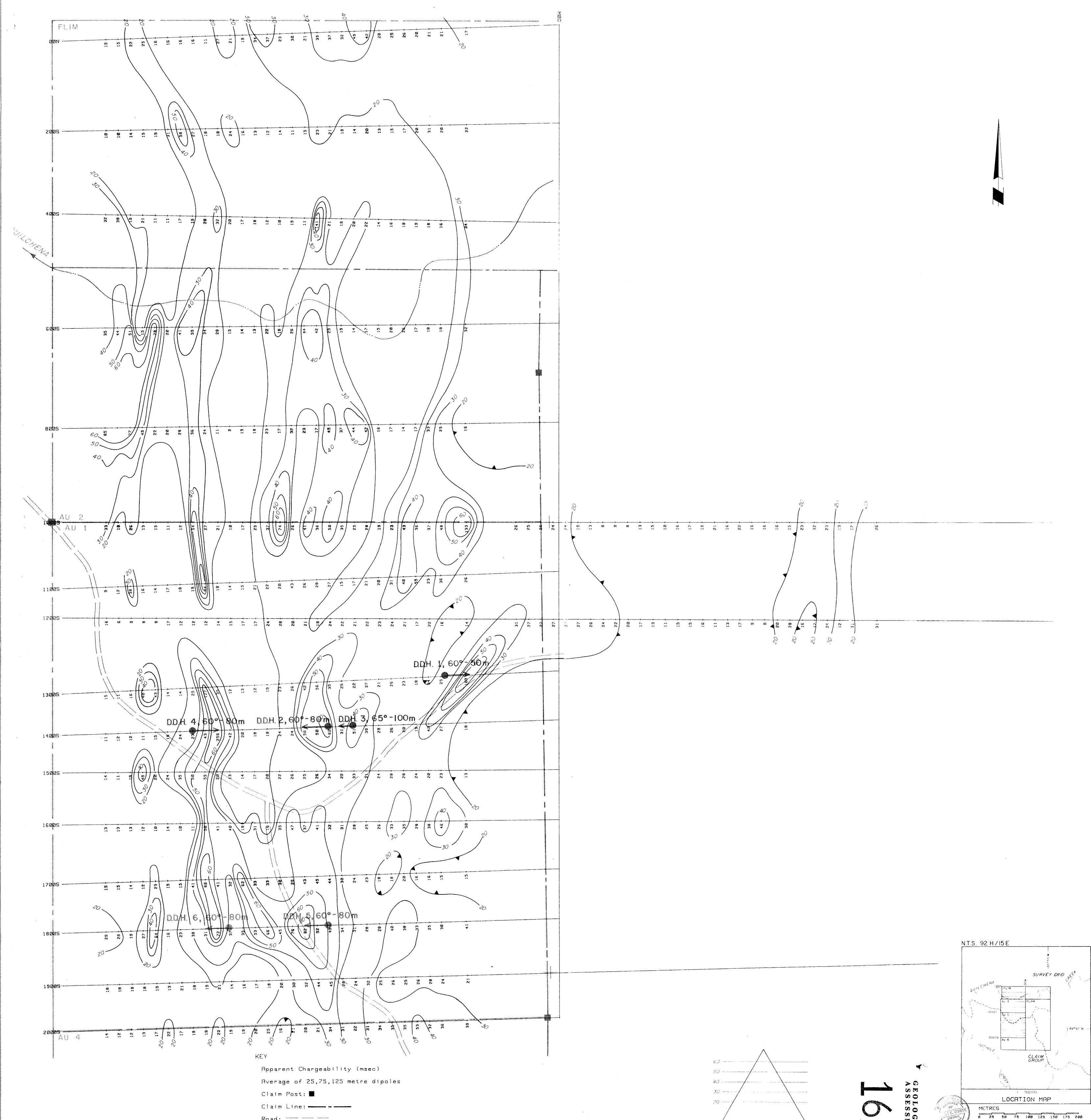
MAGNETIC INTENSITY - nT Road: \_\_\_\_\_ \_\_\_\_ .

WHITE GEOPHYSICAL INC.

INSTRUMENT: SCINTREX MF-2 FLUXGATE MAGNETOMETER

To accompany Geophysical Report on the AU CLAIMS

DATE: NOV/86 FIG.: 3.1.1



Road:	CHARGEABILITY - (m sec)	COLUMD C. A
		ALGO RESOURCES LTD. AU CLAIMS APPARENT CHARGEABILITY (MSEC)
	INSTRUMENT: 36 CHANNEL MULTIPOLE I.P.	25,75,125 METRE DIPOLES
WHITE GEOPHYSICAL INC.	To accompany Geophysical Report on the AU CLAIMS	DATE: NOV/86 FIG.: 3.2.1

