owner/operator: G W R RESOURCES INC.

GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT

MIRACLE 2,3,4 AND 5 CLAIMS CLINTON MINING DIVISION
TIMOTHY MT. AREA, B.C., N.T.S. 92P/14W
Lat. 51°57'05"N, Long. 121°~~18"~~W 18'44"

AUTHOR: GLEN E. WHITE P.Eng.
DATE OF WORK: July 20 - August 25, 1987
DATE OF REPORT: October 7, 1987

9/88

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

During the summer of 1987 a program consisting of limited geological mapping, sampling, and induced polarization, magnetometer and VLF electromagnetic surveys was conducted over a portion of the Miracle claims in the Timothy Mountain area near Lac La Hache, B.C.

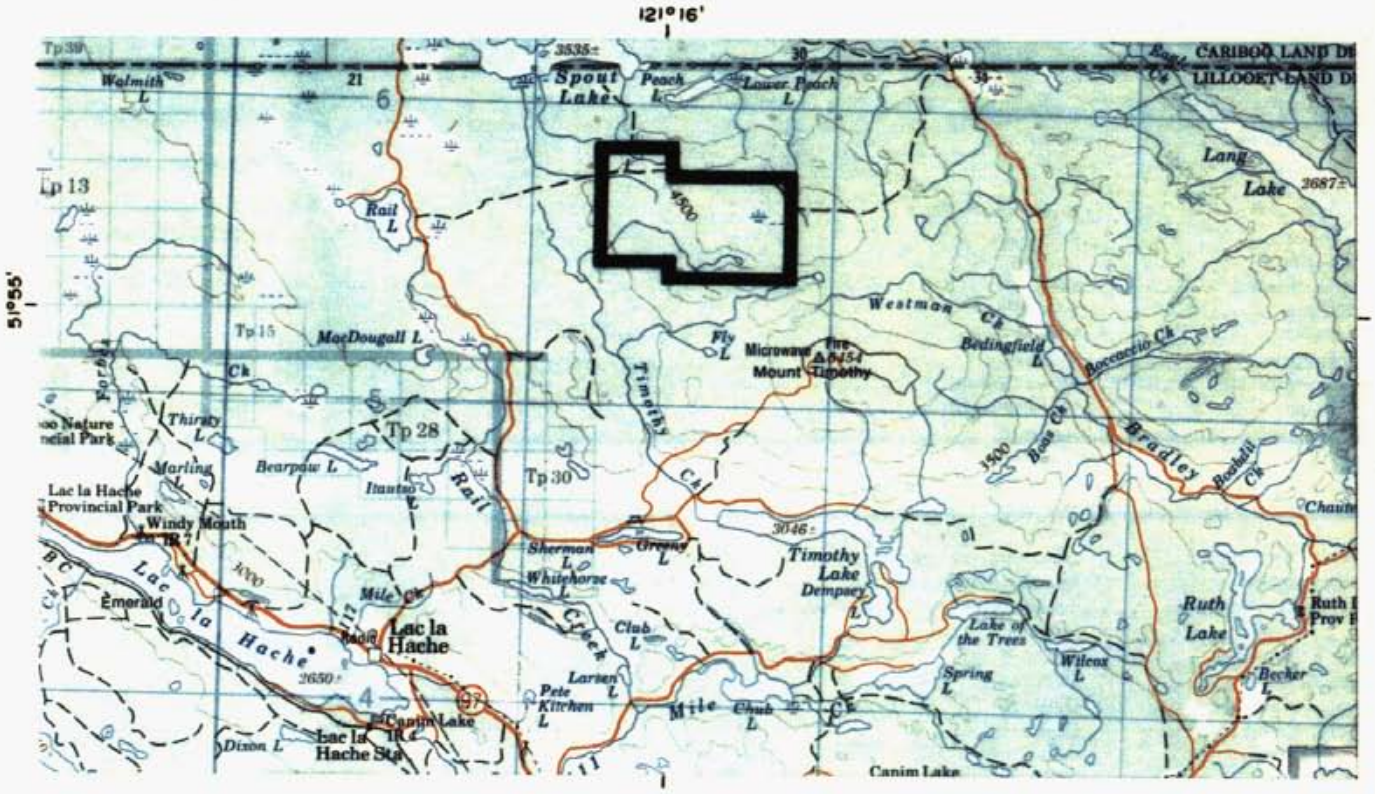
The surveys were conducted on behalf of G W R Resources Inc. by White Geophysical Inc. from July 20, to August 25 th.

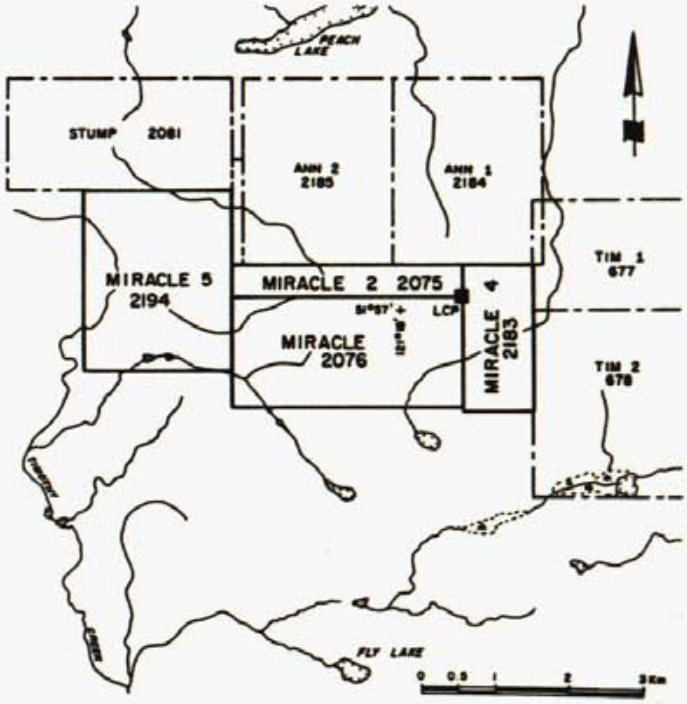
The purpose of the work was to explore the general area around a trench which had exposed a hydrothermally altered zone containing auriferous chalcopyrite mineralization. Selected prospectors samples had returned assays up to 1.5 oz/ton gold.

PROPERTY

CLAIM	#UNITS	RECORD #	RECORD DATE
Miracle 2	18	2075	September 8, 1986
Miracle 3	18	2076	October 6, 1986
Miracle 4	8	2183	May 4, 1987
Miracle 5	20	2194	May 13, 1987

The mineral claims were recorded in the Clinton Mining Division at the village of Clinton, B.C. and are in good standing through to 1988. The claims were staked by Mr. Neils Kriberg, an "old timer prospector" from Lac La Hache, B.C. and are under an option to purchase agreement with G W R Resources Inc.





G W R RESOURCES INC.

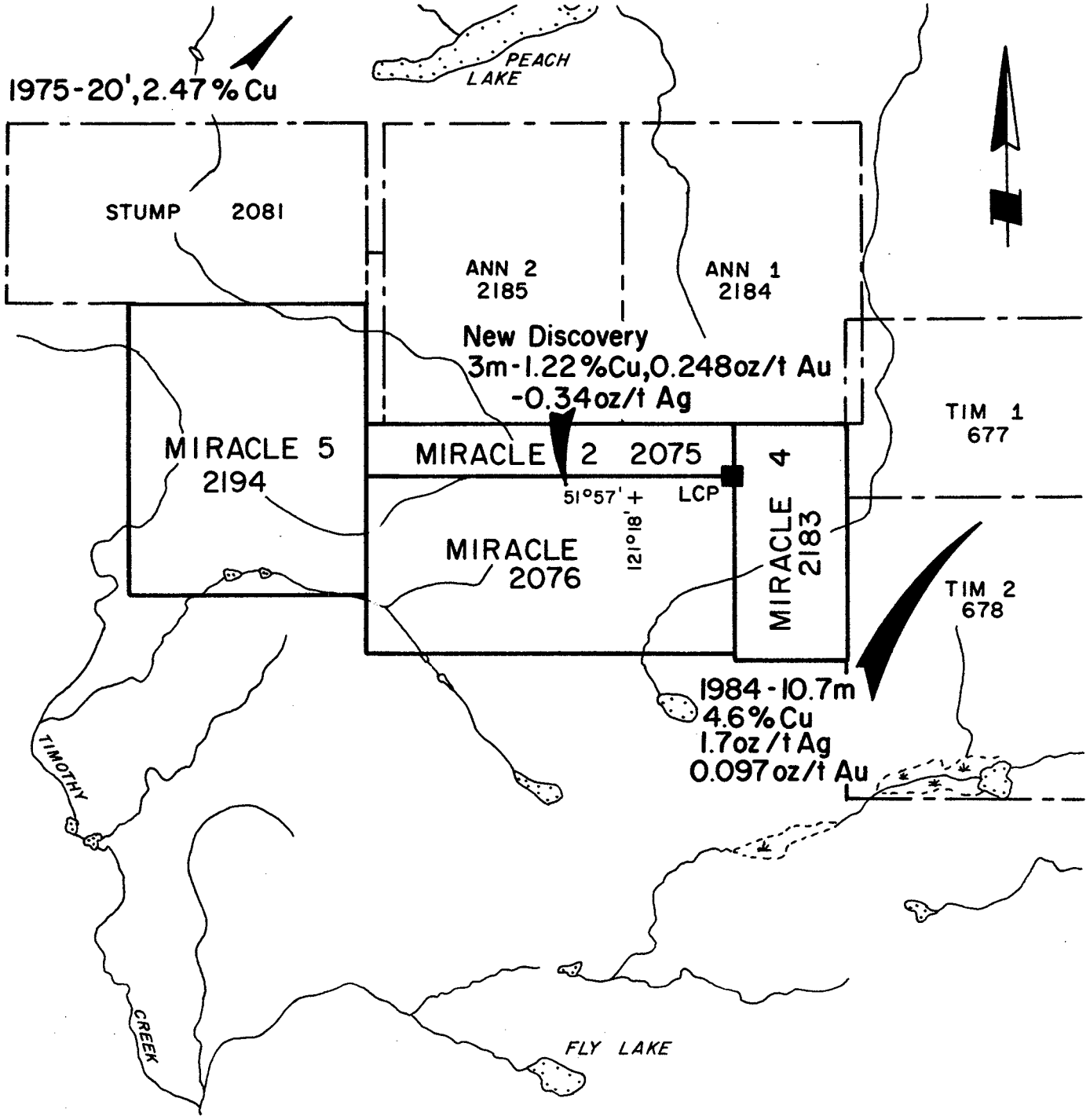
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

REGIONAL CLAIMS & LOCATION

N.T.S. 92P/14W

FIG. 1



G W R RESOURCES INC.

MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

DETAIL CLAIMS

N.T.S. 92P/14W

0 0.5 1 2 3 Km

PLATE 2

LOCATION AND ACCESS

The Miracle claim group is located some 18 kilometers northeasterly from the village of Lac La Hache, in the Cariboo region of British Columbia. Excellent gravel roads lead to the claim line between the Miracle 2 and 3 claims, a road distance of some 28 kilometers.

Access is via the Green Lake to Timothy Mountain road, which is being upgraded and winterized due to the new Timothy Mountain ski development project.

Lat. 51°57' N, Long. 121°18"W, N.T.S. 92P/14W

PHYSIOGRAPHY

Ridge pole pine, spruce and fir with a minimum of underbrush and clean logging slashes give facile working conditions. Water is available year around; a power line feeds the Timothy Mt. development, 10 kilometers to the east.

SURVEY GRID

A detailed survey grid was established around the main trench area. North - south lines spaced 50 meters apart were turned off at right angles from a two kilometer long east - west baseline and numbered at 25 meter intervals. A short line, line 1425 W was inserted over the middle of the trench.

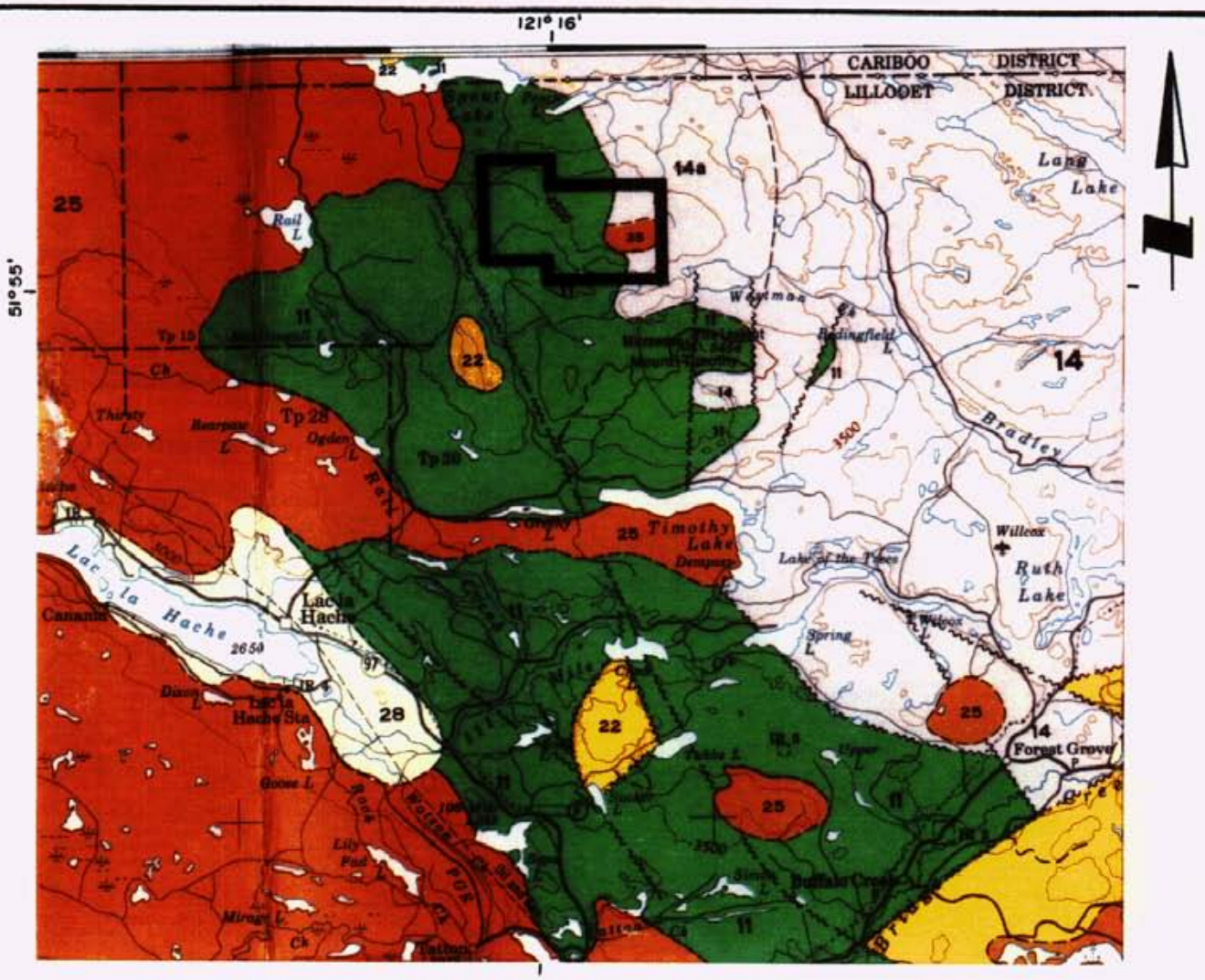
Some 27 kilometers of survey grid was prepared.

REGIONAL GEOLOGY

The regional geology for the area is shown on Figure 3 as depicted by G.S.C. Map 1278A, Bonaparte Lake Map Area, 1972. The Miracle claims are situated near the eastern edge of the Intermontane belt, a northwesterly trending assemblage of Upper Triassic-Lower Jurassic volcanic rocks. This belt of rocks comprises units of the Nicola, Takla and Stuhini Groups and is often referred to as the Quesnel Trough.

Nicola volcanic rocks of Triassic age underlay the property. They have been mapped as augite andesite flows and breccia, tuff, argillite, greywacke and grey limestone. The Takomkane granitic batholith of Triassic-Jurassic age lies to the east of this sequence of rocks. An extensive cover of Upper Tertiary (Miocene-Pliocene) basaltic lavas of the plateau type lie to the west.

The eastern edge of the Intermontane belt contains a linear band of alkalic stocks composed of diorite, monzonite and syenite. These stocks intrude the volcanic strata and commonly alter the country rocks. They are hosts for several alkalic suite porphyry mineral deposits such as Copper Mountain, Afton, Cariboo-Bell and the recently discovered QR gold Mine. The QR discovery is reported to contain some 6500 kilograms of gold reserves.



LEGEND

TRIASSIC

KARNIAN AND NORIAN

NICOLA GROUP

11 — *Augite andesite flows and breccia, tuff, argillite, greywacke, grey limestone,* 11a, *includes minor 3 and 10*

TRIASSIC OR JURASSIC

RHAETIAN OR HETTANGIAN

14 — *THUYA AND TAKOMKANE BATHOLITHS AND SIMILAR GRANITIC ROCKS, hornblende-biotite quartz diorite and granodiorite, minor hornblende diorite, monzonite, gabbro, hornblendite;* 14a, *diorite and syenodiorite,* 14b, *leuco-quartz monzonite and granodiorite*

TERTIARY

MIOCENE AND/OR PLIOCENE

25 — *Plateau lava; olivine basalt, basalt andesite, related ash and breccia beds, basaltic arenite;* 25a, *olivine gabbro plugs*

G W R RESOURCES INC.

TIMOTHY MOUNTAIN AREA

MIRACLE CLAIMS

REGIONAL GEOLOGY

0 5 10 20 30Km

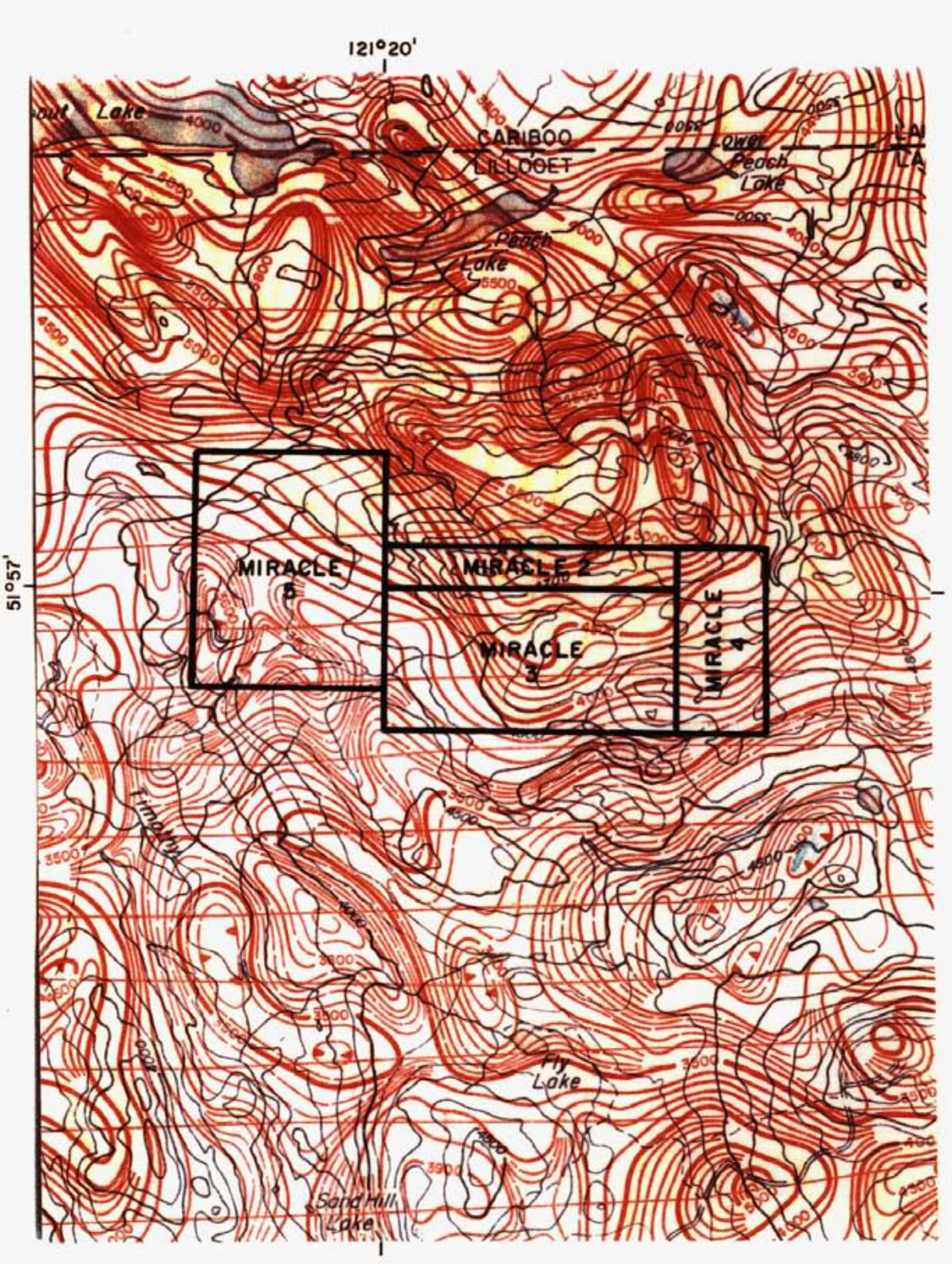
FIG. 3

PROPERTY GEOLOGY

The property lies on the nose of a major magnetic high as shown on Figure 4. This feature forms an arc like pattern which curves eastward and is some 10 miles in length. Geological investigation has shown this anomaly to be caused by magnetite rich alkalic stocks and dikes. Initial investigations in the area began in the late 60's when regional soil sampling located extensive evidence of copper mineralization.

Two principle properties were located at that time; the WC claims to the north of the Miracle claims and the Tim claims to the east, as shown on Figure 2. Craigmont Mines Ltd. diamond drilled on the WC claims and located a zone containing 20 feet of 2.47% copper, no assays were done for precious metals. The Tim claims were tested by Stallion Resources Ltd. in the fall of 1983, a zone of 10.7 meters assayed 4.6% copper, 1.7 oz/ton silver and .097 oz/ton gold.

The Miracle showing was located by prospectors Neils Kriberg and Don Fuller. It initially occurred as a minor exposure of heavy malachite stain along a new logging landing. Minor scraping exposed primary chalcopyrite in highly propylitized andesites. The author visited the property at this time and recommended further work. G W R Resources Inc. optioned the claims and completed a more extensive trenching program. Prospectors samples yielded over 1.5 oz/ton gold.



G W R RESOURCES INC.

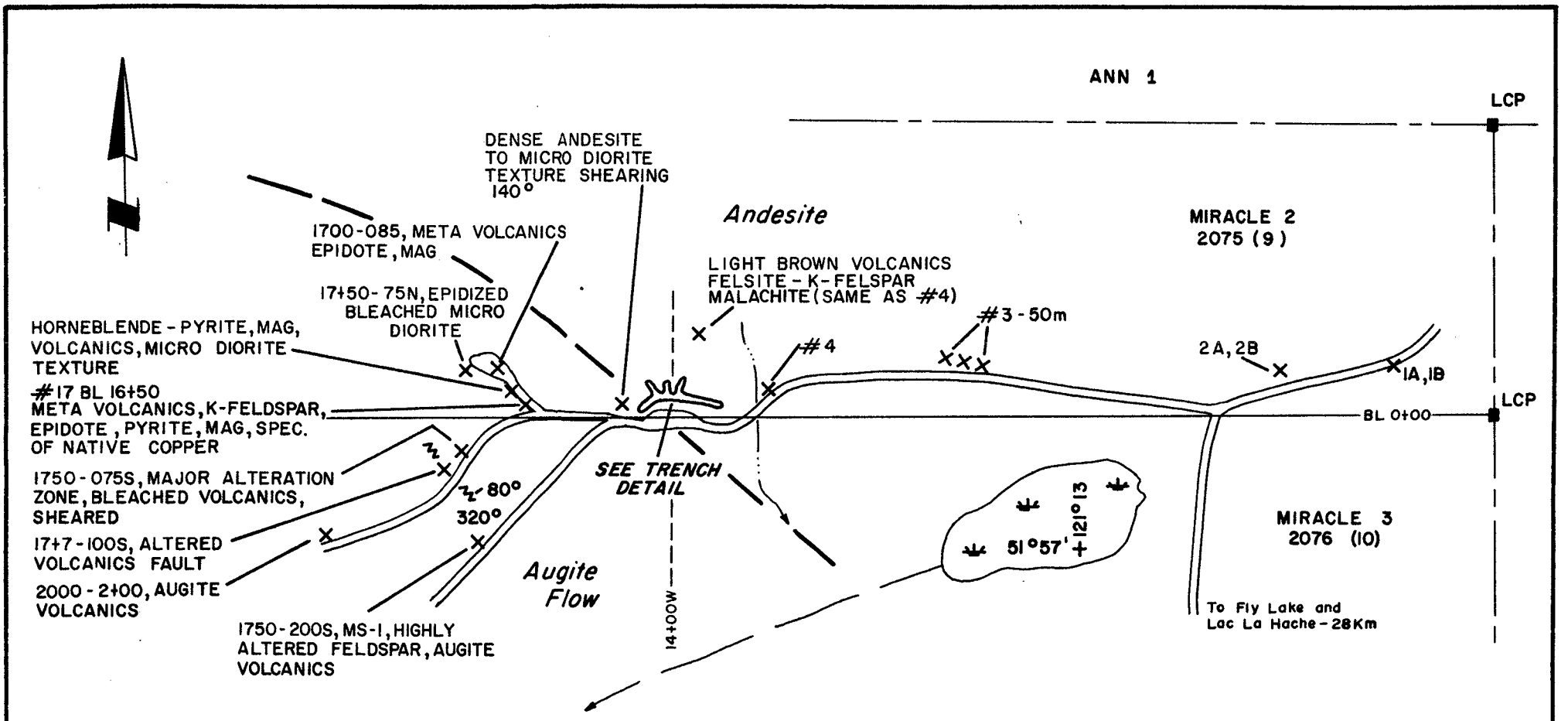
TIMOTHY MOUNTAIN AREA

MIRACLE CLAIMS

AIRBORNE MAGNETIC INTENSITY

Scale : 1" = 1 mile

FIG. 4



GEOLOGY

1A - Andesite
1B - Micro diorite, pyrite, some malachite epidote alteration
2A - Andesite, micro diorite, k-feldspar
2B - Epidote alteration, pyrite, malachite
3 - White altered volcanics, minor pyrite, brecciated carbonitized and silicified
4 - Light red-brown altered volcanics rusty fractures, carbonitized k-feldspar, horneblende laths

GEOCHEM

SAMPLE	Au (ppb)	Ag (ppm)	Cu (ppm)	SAMPLE	Au (ppb)	Ag (ppm)	Cu (ppm)
1A	140	0.4	6300	17+00W, 0+85N	<5	0.1	70
1B	<5	0.1	41	17+50W, 0+75S	<5	0.1	880
2A	1080	1.1	5300	17+50W, 200S (MS-1)	55	0.1	530
2B	10	0.1	324	17+75W, 1+00S	15	0.1	175
3 (9+50W, 0+50N	10	0.2	127				
4	20	0.1	97				

ASSAYS

SAMPLE	Au (ppb)	Ag (ppm)	Cu (ppm)
3-50m	<0.002	0.02	<0.01
17-0.5m	0.004	0.02	0.03

0 50 100 200 300 400 500 600m

G W R RESOURCES INC.

TIMOTHY MOUNTAIN AREA

MIRACLE CLAIMS

PROPERTY GEOLOGY

FIG. 5

PREVIOUS WORK

The Miracle showing is a new copper-precious metal discovery in propylitized andesites associated with alkalic intrusive rocks.

Exploration in the region began in 1966 with a reconnaissance geochemical soil sampling program conducted by Coranex Limited under the direction of J.R. Woodcock. Copper and molybdenum porphyry deposits, Holman kits with Biquinoline and colorimetric determinations were the order of the day.

The results of this excellent work precipitated the staking of the Rover, Peach, Fly and Tim group of claims. The Miracle claims would lie south of the then, Peach group. Pink syenite with small occurrences of meta-diorite, surrounded by zones of dioritization extend throughout the area.

Chalcopyrite was noted adjacent to meta-diorite and as occurring in association with orange alteration. A limited amount of gold assays were made at this time, with values of .04-.06 oz/ton gold over short widths. One trench recorded 40 feet of .33% copper and .02 oz/ton gold. Precious metal values were not obtained in any of the latter work.

Craigmont Mines did the only drilling in the area, in 1975. This was on showings located as a result of the above survey work. Good copper values were obtained in a number of holes; the best giving 20 feet of 2.47% copper.

The low base metal prices and introduction of super-royalities in the mid 70's resulted in the expiration of many of the mineral claims.

Guichon Explorco Limited explored the area of what now is the Miracle claims under the name of Core 1 - 8. This work was done in the early 80's in search for gold. Most of the anomalous gold values were in the 100 ppb range though one reached 200 ppb. The conclusion was that this area had favorable copper/silver/gold conditions. However the claims were allowed to lapse and were restaked by Mr.s Kriberg and Fuller.

MAGNETOMETER VLF ELECTROMAGNETOMETER SURVEYS

The VLF EM and Magnetic surveys were conducted simultaneously utilizing the Omni-Plus VLF/MAGNETOMETER System built by EDA Instruments Inc. This instrument contains several microprocessors and associated circuitry for monitoring, processing and storing data. The VLF EM portion of this instrument utilizes the VLF-electromagnetic fields generated by submarine navigation and communication stations which operate in the 15-30 khz frequency band.

The field generated by these stations is primarily horizontal. The instrument indicates the presence of a secondary field due to a conductor as a distortion in this horizontal field.

The distortion of this field produces an anomaly in the tilt angle, quadrature and total field intensity readings. VLF EM data is corrected for facing direction during data processing and is edited for spurious noise spikes.

For maximum coupling, a transmitter station located in the same direction as the geological strike of interest should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction from the transmitting station. The advantage of the Omni-Plus is that several stations can be recorded simultaneously since the instrument automatically orientates to the individual station direction.

The magnetics portion of this survey was conducted using the magnetometer system built into the Omni-Plus in conjunction with an EDA base magnetometer. The quartz clocks in the two instruments are synchronized in the morning. At the end of each survey day the field unit's readings are corrected using an RS232C interface and the built in microprocessors.

Following the diurnal correction procedure, data is dumped via the RS232C interface to a microprocessor which writes data to the disk for storage and later processing. The solid state memory of this instrument and the microprocessor give rapid data gathering at some 5 - 10 kilometers per day at 12.5m station intervals.

INDUCE POLARIZATION SURVEY

The survey was conducted utilizing a Huntec Lopo transmitter along with a Huntec Mark IV receiver deployed in a dipole-dipole array with "a" = 25 meters, n = 1, 2, 3 and 4. Approximately 11 kilometers of line was surveyed. An 8 second cycle time was used with a delay of 60 milliseconds.

The overvoltage discharge is read, integrated and is presented as chargeability in milliseconds. The physical parameters which govern the flow of the primary field are shown as apparent resistivity in ohm-meters.

DISCUSSION OF RESULTS

GEOLOGY

The author visited the property on July 20, 1987 and inspected the trenches and claim posts. Glacial detritus with a high clay content covers the area. Outcrop is sparse; thus a limited amount of detailed induced polarization and magnetometer, VLF electromagnetic surveying was recommended to try and trace the mineralization in the trenches.

Figure 5, illustrates the geology of the claims. The showing is in propylitized andesite. The northern area is underlain by medium to dark green andesite with a microdiorite texture. Propylitic alteration is evident along the logging road on the eastern side of the claims. The increase in epidote and calcite is accompanied by weak argillic alteration and malachite staining. Sample 2A from alteration

along the road gave 1080 ppb gold, while a lesser altered rock 1A yielded 140 ppb. Both were accompanied by weak pink potassic alteration.

Sample area #3 is a highly carbonitized volcanic unit. Grab samples were taken along 50 meters to search for any gold traces. A multielement ICP was also done. Gold and silver were trace, but magnesium, manganese and strontium were elevated indicating this zone needs to be further examined.

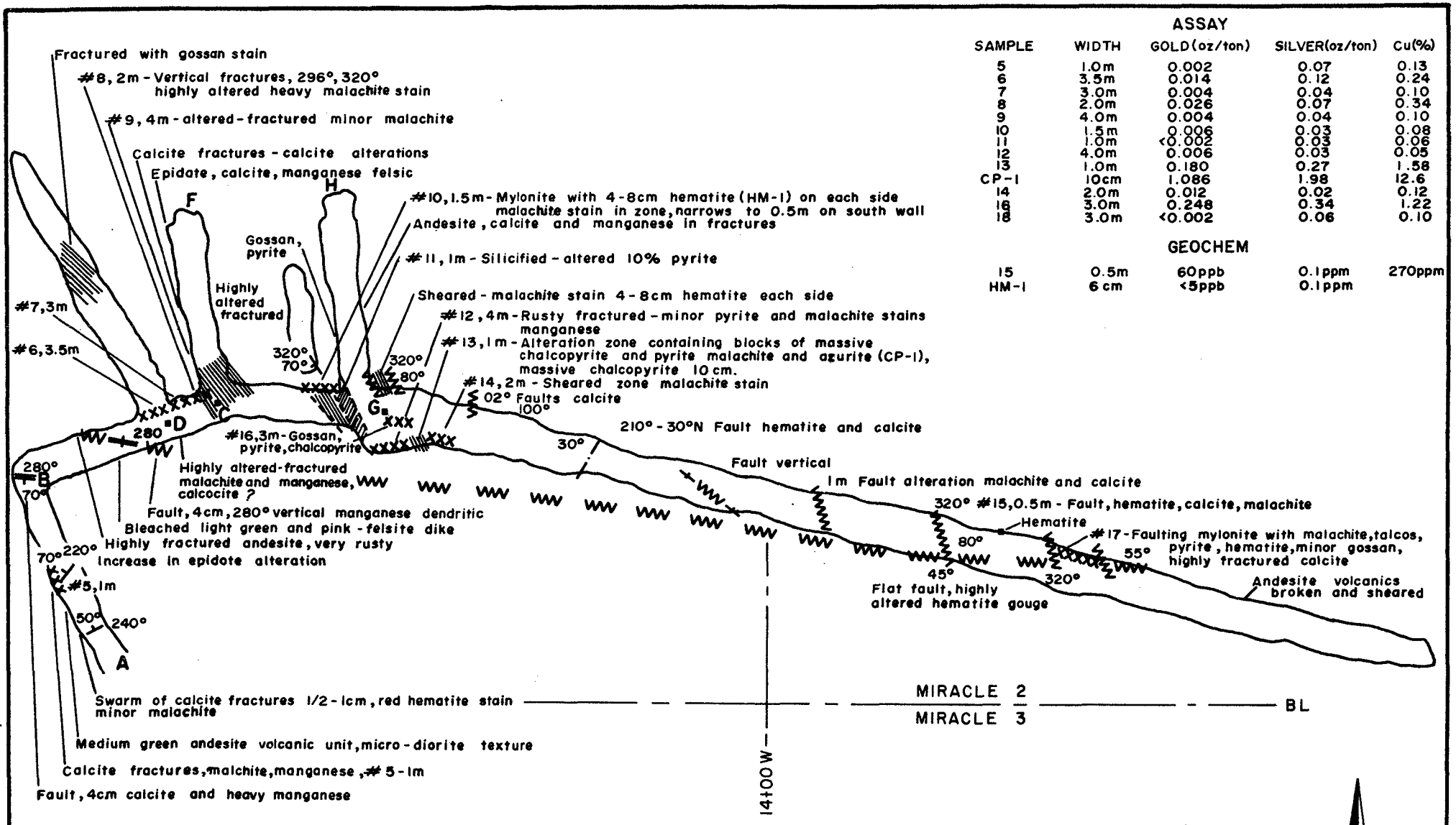
The rocks to the west of the trench are best described as mottled green epidote-pyrite feldspar rich volcanics. To the southwest the volcanics are dense grey magnetite bearing augite-plagiclase flows. These rocks have been extensively sheared as at 1750W-75 and 200S. They give rock geochemical values of up to 880 ppm copper and 55 ppb gold.

Detail on the trenches is shown on Figure 6. The outer portion of the trench in the area of points A, F and H contain many fractures of calcite. Progressively towards the middle there is an increase in epidote and pink potassium feldspar minerals, typical of propylitic and alkalic alteration. The trench is dominated by 320 degree faults. Mechanical grinding has occurred in the form of mylonite over a width of 1.5 meters. The walls of this zone are lined with 4-8 centimeter seams of specular hematite. The mylonite assays low gold values of .006 oz/t. Au. The hematite was barren. Malachite staining is prevalent in the mechanically

deformed zones due to the precipitation of copper by the high calcium content. Broad spaced reconnaissance sampling of rock changes, from one meter to four meters in length, gave anomalous values of .002 to .026 oz/t. gold, showing definite gold enrichment.

The center of the trench reached a depth of some six feet. It contains an intensely hydrothermally altered zone as depicted on Figure 7. This zone is controlled by the 320 degree faults and is lined with seams of hematite. Broken bands of chalcopyrite up to 10 centimeters thick are scattered throughout this alteration envelope. A 10 centimeter sample gave 1.086 oz/t. gold, 1.98 oz/t. silver and 12.6% copper. Sample # 13 taken across one meter avoiding the chalcopyrite lenses returned .18 oz/t. gold, .27 oz/t. silver and 1.56% copper. The zone appears to be widening in the bottom of the trench. Rubble was cleaned out and a sample taken. This was sample # 16 which ran .248 oz/t. gold, .34 oz/t. silver and 1.22% copper over three meters. The gold is associated with the chalcopyrite and has approximately a 1:1 gold to silver ratio.

Recent publications on the QR gold deposit of Dome Mines to the north, and personal communication with Dr. P. Richardson their Consultant, would indicate a strong similarity to the mineral assemblage and geological setting of that deposit.



ASSAY

SAMPLE	WIDTH	GOLD (oz/ton)	SILVER (oz/ton)	Cu (%)
5	1.0m	0.002	0.07	0.13
6	3.5m	0.014	0.12	0.24
7	3.0m	0.004	0.04	0.10
8	2.0m	0.026	0.07	0.34
9	4.0m	0.004	0.04	0.10
10	1.5m	0.006	0.03	0.08
11	1.0m	<0.002	0.03	0.06
12	4.0m	0.006	0.03	0.05
13	1.0m	0.180	0.27	1.58
CP-1	10cm	1.086	1.98	12.6
14	2.0m	0.012	0.02	0.12
16	3.0m	0.248	0.34	1.22
18	3.0m	<0.002	0.06	0.10

GEOCHEM

15	0.5m	60ppb	0.1ppm	270ppm
HM-1	6 cm	<5ppb	0.1ppm	

G W R RESOURCES INC.

TIMOTHY MOUNTAIN AREA

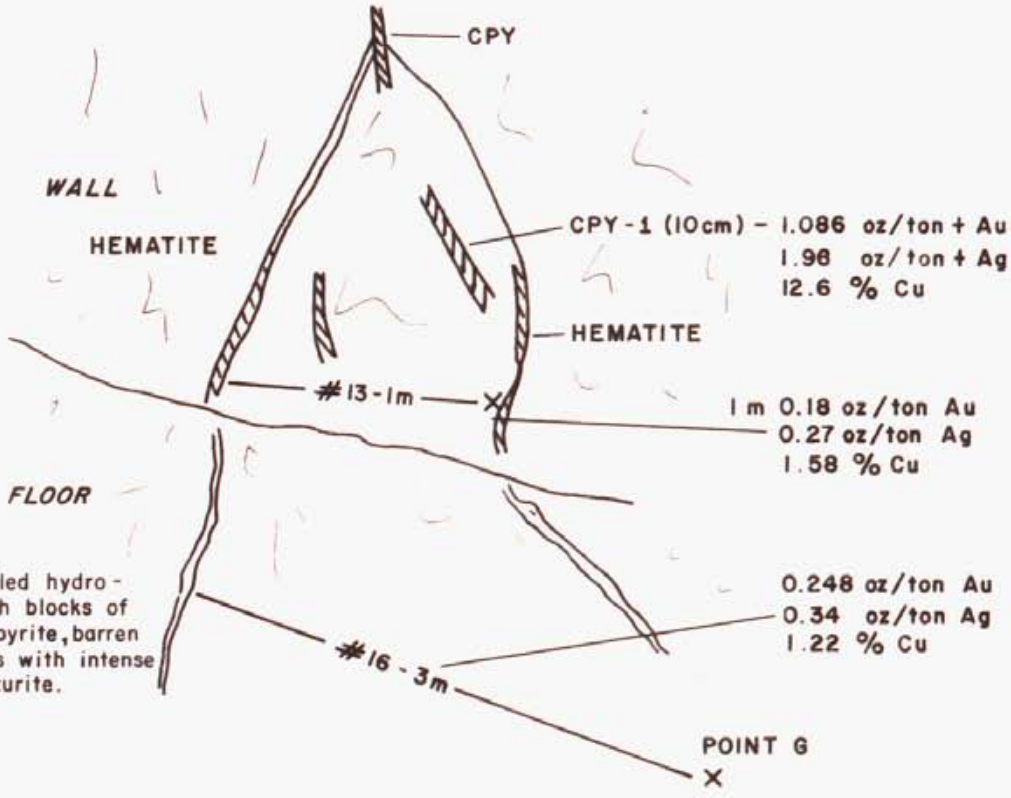
MIRACLE CLAIMS

TRENCH GEOLOGY

0 5 10 20 30m

FIG. 6

13
ALTERATION WITH CHALCOPYRITE
VIEW SOUTH



View south of fault controlled hydro-thermal alteration zone with blocks of primary auriferous chalcopyrite, barren hematite veins along walls with intense secondary malachite and azurite.

G W R RESOURCES INC.
TIMOTHY MOUNTAIN AREA
MIRACLE CLAIMS
HYDROTHERMAL ALTERATION ZONE

FIG. 7

SAMPLE #8
2m

HEAVY MALACHITE
AZURITE STAIN IN
VOLCANICS

#10
1·5m

HEMATITE MYLONITE WITH MALACHITE STAIN

HEMATITE
HM-1

2m #14 | 1m #13 | 4m #12

VIEW SOUTH FROM POINT 6 IN TRENCH

G W R RESOURCES INC.

MIRACLE CLAIMS

TRENCH PHOTOS

FIG. 8

VIEW OF TRENCH FROM
B TO C (NE)

VIEW OF TRENCH RUBBLE
LOOKING NORTH

SAMPLE # 15

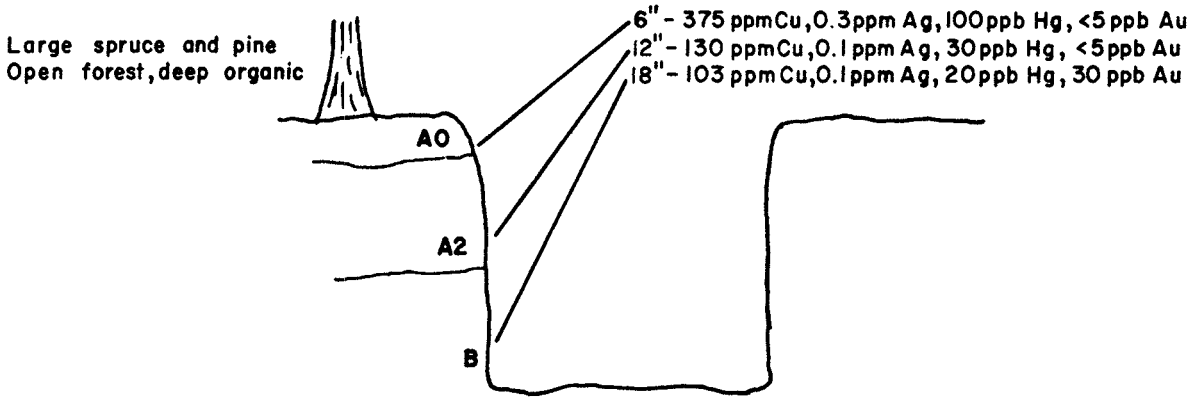
PART OF HEMATITE VIEN
IN FAULT ZONE

G W R RESOURCES INC.

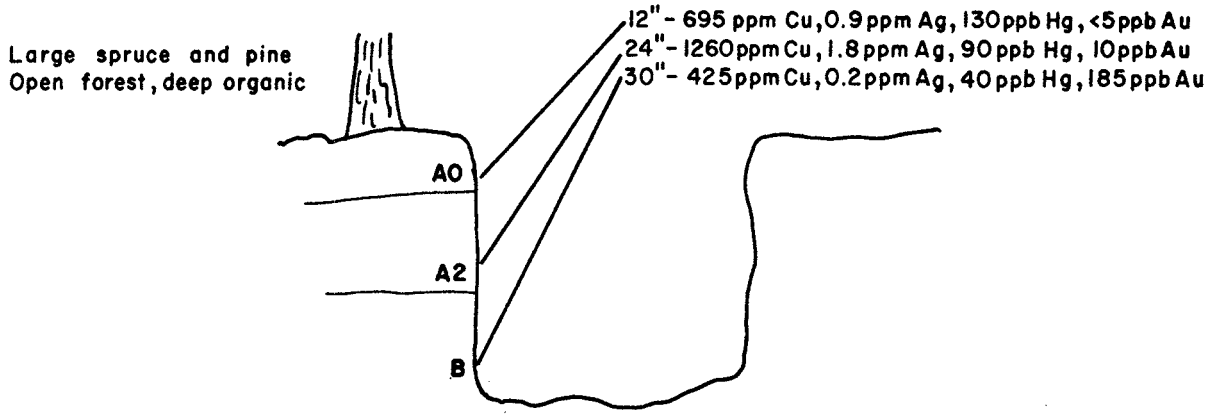
MIRACLE CLAIMS

TRENCH PHOTOS

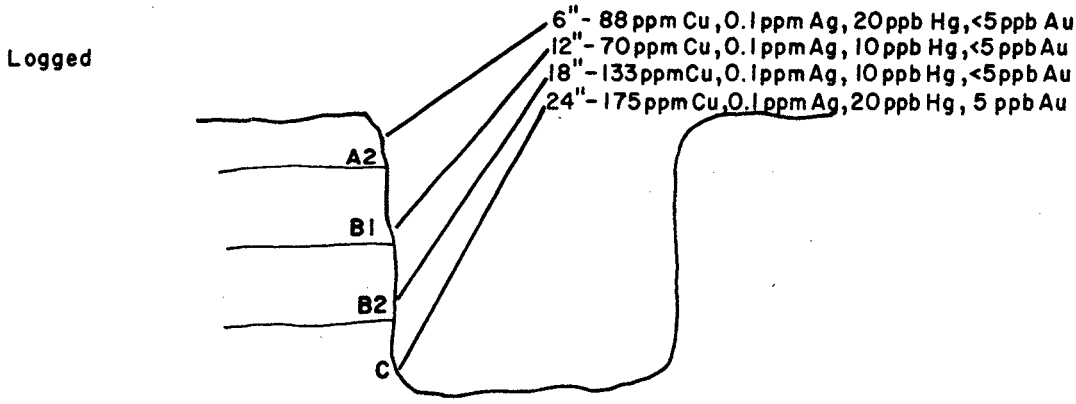
FIG. 9



L13+50W, 1+50N



L14+00W, 3+12S



L14+00W, 1+50S

G W R RESOURCES INC.

TIMOTHY MOUNTAIN AREA

MIRACLE CLAIMS

GEOCHEMICAL PROFILES

FIG. 10

MAGNETOMETER SURVEY

Figure 11 is a detailed contour map of the total field magnetic intensity values. The regional airborne magnetic data, illustrated on Figure 4, shows that the property lies on the nose of a strong magnetic high. This magnetic feature is part of a large regional arc that likely represents the alkalic intrusive complex. Similar magnetic highs are associated with the QR, CARIBOO BELL and AFTON deposits.

The ground magnetic intensity data varied from a low of just under 58500 gammas to highs of 65000 gammas. Background is some 59500 gammas. Geological investigation of the magnetic highs located primary magnetite in the augite flows and intrusive syenites. The magnetic low on line 1700 W at 100 S is caused by intensive alteration of the augite flow by a shear zone. At 200 S the logging road uncovered a large area of limonite where the volcanics have been hydrothermally altered. Several chunks of secondary hematite had been dug up by the road construction. This area is geochemically anomalous.

A long magnetic low occurs along the baseline on the eastern side of the property. The access road crosses this zone which is extensively overburden covered. However where it crosses, the soil is highly limonitic. A major fault zone is postulated. Magnetic modelling on lines 600 and 350 W, Figures 38 to 41 shows several possible low magnetic susceptibility causitive sources.

The model work on lines 1450 and 1600 W suggest a magnetite enriched rock unit which dips some 35 degrees to the north. This may possibly be the dip of the volcanic flows. Thus the large magnetic low on the eastern part of the grid may possibly be caused by an interbeded sedimentary unit.

VLF ELECTROMAGNETIC SURVEY

The VLF electromagnetic data, Figure 12, depicts two long conductors of moderate strength, both of which are associated with low magnetic intensity values. The northwestern one does not give a chargeability response and thus is likely a fault or a lithologic contact. The eastern one was not covered. The faulting in the trench even though it appears intense did not conduct.

INDUCED POLARIZATION SURVEY

Plan map Figures 13 and 14 are of the chargeability and apparent resistivity data of "a" = 25 meters n = 2. The discovery trench is situated along the flank of a very strong northwest to southeast trending chargeability high. The detail sections of the trench area, lines 1350, 1400, 1425 and 1450 W as illustrated on Figures 23 to 26, show that the surface mineralization is more extensive at depth.

The strong chargeability high on lines 1550 and 1600 W occur on the southern flank of the magnetic high. The apparent resistivity data plot as a low area possibly indicating

hydrothermal alteration and mineralization similar to that in the trench. Mottled green metamorphosed andesite containing blebs of epidote, pyrite and chalcopyrite occurs in this area.

The strong chargeability anomaly to the south of the baseline on lines 1700 and 1750 W is situated on a magnetic low in the area of the sheared intensely limonite altered volcanics. The detail sections for these lines indicate that the anomaly intensity is increasing with depth. Rock geochemistry in this area yielded anomalous values of copper and gold which makes this a very good drill target.

Line 1400 was extended to the south to cross a small valley. It was thought that the depression could possibly be structurally controlled and thus should be tested. A strong chargeability anomaly was detected. This anomaly is associated with a moderate resistivity high and may reflect a well mineralized volcanic unit.

GEOCHEMISTRY

Three geochemical test pits were dug as illustrated on Figure 13. Mercury and copper are being scavenged by the organics while gold in each case is increasing with depth. Sample 1400W-312S was obtained over a strong chargeability high in a large draw with extensive overburden cover; it is very encouraging in that it has a high value of 1260 ppm copper and 185 ppb gold.

CONCLUSIONS

G W R Resources Inc. has acquired by option the Miracle 2, 3, 4 and 5 mineral claims in the Timothy Mountain area of the Central Cariboo Region of British Columbia.

Preliminary geological mapping and research has shown that this mineral occurrence is on a strong regional magnetic high which is associated with alkalic intrusives. The showing is auriferous chalcopyrite mineralization in intensely propylitized andesite which has been cut by major faults bearing 320 degrees. Extensive shearing with pervasive hydrothermal alteration accompanied by seams of hematite encapsulate broken bands of high grade and disseminated chalcopyrite.

The litho-geochemistry, geology and geophysical data suggest that this showing is part of a much larger anomalous condition. This is particularly evidenced by the large strong induced polarization anomaly which was only partially defined. The author could not find any outcrop or float of graphitic argillite which can also account for this type of response. However considerable epidote alteration with pyrite and chalcopyrite was seen in the volcanic rocks, thus this geological, geochemical and geophysical anomaly can be considered a high priority exploration target.

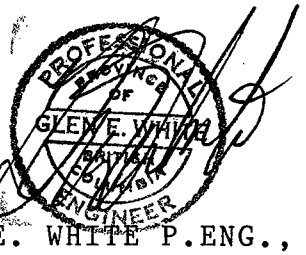
RECOMMENDATIONS

The Miracle claims contain a zone of 3 meters of .248 oz/ton gold associated with chalcopyrite mineralization. A separate company has located 10.7 meters of .097 oz/ton gold with 1.7 oz/ton silver and 4.6% copper immediately to the east of the claims. Old diamond drilling to the north contained an intersection of 20 feet of 2.47% copper which had not been assayed for precious metals.

Thus the very good geological, geochemical and geophysical results indicate that the Miracle claims warrant an extensive exploration program to search for a gold-copper deposit of economic quantities.

It is recommended that the remainder of the claims be surveyed, this would require some 150 kilometers of grid. The program should include detailed geological mapping, magnetometer, VLF electromagnetometer and induced polarization surveying and soil sampling. A preliminary diamond drill program should also be initiated over the present targets. Ten diamond drill holes are shown on Figure 42.

RESPECTIVELY SUBMITTED,



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CONSULTING GEOPHYSICIST.

BIBLIOGRAPHY

Campbell R.B., Tipper H.W., G.S.C. Memoir 363, 1972, Geology Of The Bonaparte Lake Map Area.

Gamble D. Guichon Explorco Limited, Geochemical Survey Core Claims, Clinton Mining Division, August 1983.

Butler P., Diamond Drilling Report On The Tim 2 Claim Stallion Resources Ltd., Clinton M.D., April 27/84.

Gamble A.P.D., Hoffman Dr. S.J., Assessment Report Soil Geochemical Survey On The Core 8 -13 Claims, Selco Division BP Resources Canada Limited, October, 1984.

Vollo N.B., DIAMOND DRILLING REPORT WC Claims, May 29/75

Janes R.H.,P.Eng., A Report on the Geochemistry of the Peach North & South Groups, Clinton Mining Division, Coranex Limited, August 1967.

Fox P.E., Cameron R.S., Hoffman S.J., Geology and Soil Geochemistry Of the Quesnel River Gold Deposit, British Columbia, GEOEXPO/86, The Association of Exploration Geochemists.

CERTIFICATE

I, Glen E. White, with a business address of 11751 Bridgeport Road, Richmond B.C. do hereby certify that:

1) I am a consulting geophysicist registered with the Association of Professional Engineers of British Columbia since 1977.

2) I am an Associate Member of the Society of Exploration Geophysicists.

3) I hold a B. Sc. degree (1966) in geology and geophysics from the University of British Columbia.

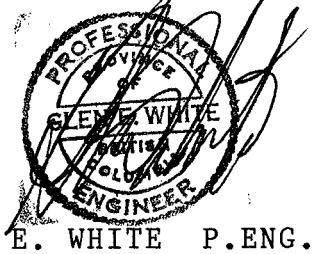
4) I have been practising my profession as a geophysicist-geologist for over 20 years.

5) I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly in the Miracle claims or securities of G W R Resources Inc.

6) I have based this report on a review of available Geological publications and exploration reports in the area of the Miracle claim group.

7) I consent to the use of this report in whole or in part by G W R Resources Inc. for publication or any filing statement or Statement of Material Facts as long as the context of the report is not violated.

DATED OCTOBER 7, 1987.



GLEN E. WHITE P.ENG.,
CONSULTING GEOPHYSICIST.

COST BREAKDOWN

PERSONNEL	DATE	WAGES	TOTAL
J. Hemmingsley	Aug 17-25/87	325/d	$2,925
D. Thorn	Aug 17-25/87	180/d	$1,620
L. Rodriques	Aug 17-25/87	180/d	$1,620
A. White	Aug 17-25/87	165/d	$1,485
A. Kriberg	Aug 11-25/87	180/d	$2,700
J. Edmenston	Aug 22-26/87	325/d	$1,625
D. Gagne	Aug 11-20/87	225/d	$2,250
Glen White P.Eng.	July 20, 23,24; Aug 17, 20, 1987	425/d	$2,125
Meals and accomodations, 70 man days @ $65			$4,550
Vehicles all inclusive 2(4x4) @ $125/d, 19 days			$2,375
Instrument lease I.P. system 10 days @ $325/d			$3,250
Omni plus mag-VLF EM system and base stn			$1,375
Sample analysis			$522
Materials			$270
Computer processing and plotting			$1,200
Interpretation and reports			$2,250
		TOTAL	$31,142

Technical Description of the VLF-3 VLF Electromagnetic System

Frequency Tuning
Automatic digital tuning. Can be tuned to any frequency in the range 15.0 to 29.0 Hz with a bandwidth of 150 Hz. Up to three frequencies can be chosen by keyboard entry for sequential measurements.

Field Strength Range
Fields as low as 100 nA/m can be received. Maximum received field is 2 mA/metre. These values are specified for 20 kHz. For any other frequency, normalize the above limits with station frequency in kHz/20.

Signal Filtering
Narrow bandpass, low pass and sharp cut-off high pass filters.

Measuring Time
0.5 seconds sample interval. As many as 2^{16} samples can be stacked to improve measurement accuracy.

VLF-Magnetic Field Components Measured
1) Horizontal amplitude, 2) vertical in-phase component, and 3) vertical quadrature components. Vertical components are displayed as a percentage of horizontal component and are related in phase to the horizontal component. Their range is ± 120%; reading resolution 1%.

VLF-Magnetic Field Sensor
Two air-cored coils in a backpack mounted housing with an electronic level for automatic tilt compensation. The error in the vertical in-phase component is less than 1% for tilts up to 25°.

VLF-Electric Field Dipole
Two capacitive electrodes with integral preamplifiers and 5 m of cable. Probe input impedance exceeds 100 megaohms and capacitance is less than 1 picofarad.

VLF-Electric Field Components Measured
In-phase and quadrature components of the horizontal electric field phase related to the horizontal VLF-magnetic field. These components are not recorded but are used in the calculations of resistivity and phase. The reading resolution is 1 ohm.

Apparent Resistivity Calculation

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

where:

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

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

Phase Angle Calculation
The phase angle θ is expressed as:

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

where:

- $E_x(Q)$ = horizontal quadrature VLF electric field, measured
- $E_x(I)$ = horizontal in-phase VLF electric field, measured

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

Digital Display
32 character, 2 line LCD display

Keyboard Input
14 keys for entering all commands, coordinates, header and ancillary information.

Languages
English plus French is standard.

Standard Memory
The internal 16K RAM solid-state memory records up to 1100 VLF-magnetic or 600 combined VLF-magnetic and VLF-electric measurements.

Clock
Real time clock with day, month, year, hour, minute and second. One second resolution, ± 1 second stability over 12 hours. Needs keyboard initialization only after battery replacement.

Digital Data Output
RS-232C serial interface for digital printer, modem, microcomputer or cassette tape recorder. Data outputs in 7 or 8 bit ASCII, one start, two stop bits, no parity format. Baud rate is keyboard selectable at 110, 300, 600 and 1200 baud. Carriage return delay is keyboard selectable in increments of one from 0 to 999. Handshaking is done through X-on/X-off protocol.

Dimensions
Console: 240 x 90 x 240 mm
VLF-Magnetic Sensor: 110 mm diameter, length 120 mm

Weights
Console with Non-Rechargeable Battery Pack; 3.5 kg.
Console with Rechargeable Battery Pack; 4.0 kg.
VLF-magnetic Sensor with harness; 1.5 kg
VLF-electric Sensor; total weight of capacitive electrodes plus cables is 0.9 kg.

Operating Temperature Range
-40°C to + 50° provided optional Display Heater is used below -20°C.

Power Requirements
Can be powered by external 12 V DC or one of the Battery Pack Options listed below. The current consumption is 0.2 A.

Technical Description of the MP-3 Proton Magnetometer

Total Field Operating Range
20,000 to 100,000 nT (1 nT = 1 gamma)

Gradient Tolerance
±5000 nT/m

Total Field Absolute Accuracy
±1 nT at 50,000 nT
±2 nT over total field operating range

Resolution
0.1 nT

Tuning
Fully solid-state. Manual or automatic keyboard selectable.

Fastest Cycle Time
2 seconds. For portable readings this is the time taken from the push of a button to the display of the measured value.

Continuous Cycle Times
Keyboard selectable in 1 second increments upwards from 2 seconds to 999 seconds.

Operating Temperature Range
-40°C to +50°C provided optional Display Heater is used below -20°C.

Digital Display
32 character, 2 line LCD display

Keyboard Input
14 keys for entering all commands, coordinates, header and ancillary information.

Languages
English plus French is standard.

Clock
Real time clock with day, month, year, hour, minute and second. Needs keyboard initialization only after battery replacement. One second resolution, ± 1 second stability over 12 hours.

Standard Memory
16K RAM internal solid-state memory in single reading mode records up to 1175 total field and gradient observations, or 1350 total field measurements including coordinates, time and header information. In continuous cycle mode, records up to 8000 total field measurements including time and header information.

Digital Data Output
RS-232C serial interface for digital printer, modem, microcomputer, cassette tape recorder, a second MP-3 or an IGS-2/MP-4. Data outputs in 7 or 8 bit ASCII, one start, two stop bits, no parity format. Baud rate is keyboard selectable at 110, 300, 600 and 1200 baud. Carriage return delay is keyboard selectable in increments of one from 0 to 999. Handshaking is done through X-on/X-off protocol.

Analog Output
For a strip chart recorder. 0 to 999 mV full scale with keyboard selectable sensitivities of 10, 100 or 1000 nT full scale.

Trigger Output
Allows MP-3 to act as master for other instrumentation.

Console Dimensions
240 x 90 x 240 mm includes mounted battery pack.

Weight
2.4 kg excludes batteries.

Power Requirements
Can be powered by external 12 V DC or one of the Battery Pack Options listed below.

Sensor Options

In the following options the actual sensors are identical, however, mountings and cables vary.

Portable Total Field Sensor Option
Includes sensor, staff, one short cable, one long cable and backpack sensor harness. Weight of sensor, cable and staff is 1.9 kg. Staff comprises four 0.5 m sections of 25 mm diameter aluminum tubing.

Base Station Sensor Option
Includes sensor, tripod, 50 m cable, external power cable and analog chart recorder cable. Weight of sensor, cable and tripod is 6.5 kg. Tripod is 530 mm collapsed, 1500 mm extended.

Gradiometer Sensor Option
For use with the Portable Total Field Sensor Option. Includes second sensor, cables and two 0.5 m staff extenders. Combined weight of Total Field and Gradiometer Sensor options with staff, 1 m extender and cables is 3.5 kg.

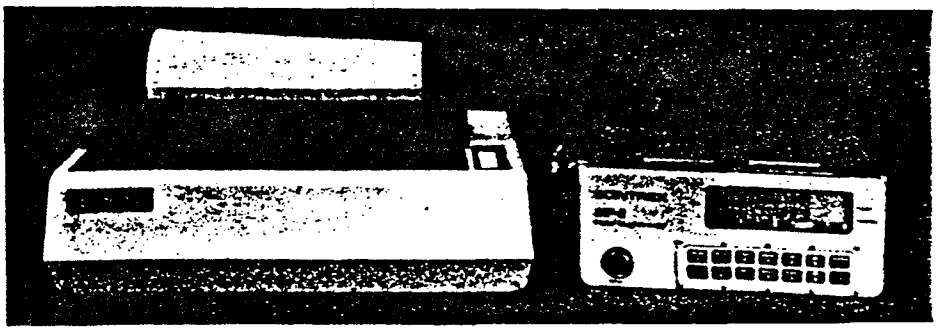
Marine Sensor Option
Includes sensor installed in a fish with cable up to 100 m in length.

Airborne Sensor Option
Includes sensor installed in a 'bird' with a tow cable or in a 'stinger' mounted on the aircraft.

Battery Pack Options

Non-rechargeable Battery Pack
Includes battery holder and 10 disposable 'C' cell batteries for installation on console. Nominal capacity is 4.0 Ampere hours. Used in low sensitivity total field magnetometry in

With the use of a modem the MP-3 can send its data across telephone lines.



The MP-3 outputs directly to a digital printer.

Technical Description of the MP-3 Proton Magnetometer

temperatures above 0°C. Weight is 0.9 kg. At 25°C gives 10,000 total field or 5000 total field gradient readings.

Rechargeable Battery Pack and Charger
Includes battery holder, 6 rechargeable, non-magnetic, sealed lead-acid batteries and charger for installation on console. Best for high sensitivity total field measurements, all gradient measurements and operation below 0°C. Pack weighs 1.3 kg. Nominal capacity is 2.5 Ampere hours. At 25°C gives 7000 total field or 3500 total gradient readings. Charger specifications are: 140 x 95 x 65 mm, 115/230 V AC; 50/60 Hz; 20 VA, overload protected.

Heavy Duty Rechargeable Battery Pack
Includes heavy duty rechargeable batteries installed in a console with a built-in charger. Used for rapid cycling base station or mobile applications. Total weight is 7.6 kg. Nominal capacity is 12.5 Ampere hours. Dimensions are 240 x 90 x 240 mm. Power requirements: 115/230 V AC; 50/60 Hz; 50 VA. Overload protected.

Low Temperature Battery Extender Kit
Comprises a cover for the bottom of the instrument console, a battery pack cover, a waist belt and a battery cable. Slots on the battery pack cover permit belt mounting next to the operator's body for warmth.

Optional Accessories

Language Options
In addition to English, a second language using Latin characters can replace French.

RS-232 Cable and Adaptor
Includes a special RS-232 data transfer cable and MP-3 to RS-232 cable adaptor. Used for communicating between the MP-3 and peripheral devices including a second MP-3 or IGS-2/MP-4 for diurnal corrections.

Minor Spare Parts Kit
Includes 2 keyboard diaphragms and two fuses.

Carrying Cases
A variety of carrying cases are available to suit different combinations of console and sensor options.

Display Heater
Required for cold weather operation. Powered by main batteries, thermostatically controlled to turn off above -20°C.

MP-3/4 Proton Magnetometer Function Tester
When connected between the console and sensor, applies a signal to test the polarizing circuit, the coil and the signal processing circuitry. Switch selectable magnetic field simulation at 22,500; 30,000; 45,000; 60,000 and 90,000 nT.

Peripheral Devices
Scintrex is prepared to recommend or supply digital printers, modems, cassette tape recorders, analog recorders and microcomputers with software.

Applications Software
Scintrex supplies fully documented software written for the IBM PC computer and certain other microcomputers which use the MS-DOS operating system. This software is designed to permit: 1) archiving of data, 2) processing of magnetic data and 3) profile and contour outputs on digital printers.

Memory Expansion Options

Memory Expansion I
Memory can be added on an existing board to complement the 16K RAM Standard Memory. This can be done in up to six 8K RAM increments to raise system memory to a total of 64K RAM. Each 16K RAM increment holds as many readings as the Standard Memory.

Memory Expansion II
An additional board is required on which an additional sixteen 8K RAM groups can be installed to bring the system total memory to 192K RAM. Each 16K RAM increment holds as many readings as the Standard Memory.

INSTRUMENT SPECIFICATIONS - MARK IV RECEIVER

Inputs

SIGNAL CHANNEL

Range	5 x 10 to 10 volts. Automatic gain ranging. Overload indication above 10 volts.
Resistance	Greater than 10 Ohms differential (i.e. between + and - terminals).
Capicatance	Less than 3 x 10 Farads
Bias Current	Less than 10 Amperes
Bandwidth	Basic bandwidth is 100 Hz. A 12 Hz digital lowpass filter is selectable via a switch on the programming panel.

SP Cancellation

Range	-5 to +5 volts (automatic)
Protection	Low leakage diode clamps, gas discharge surge arresters, field replaceable fuses.
Terminals	Two colour-coded (red and black) signal inputs plain chassis ground terminal. Push posts: 120 volt insulation, accepts maximum 1.5 mm diameter wire.

REFERENCE CHANNEL

Maximum Overload	5 volts peak
Indication	Operates above approximately 5 volts peak '
Resistance	2 x 10 Ohms differential
Capacitance	Less than 3 x 10 Farads
Input Connector	Four pin female (includes battery and ground, for operating reference isolation amplifiers)

Battery

10 Nickel-Cadmium "F" cells in series. Nominal 12.5 volts. 8 hours continuous operation in RUN or STANDBY mode. LOW BATTERY indicator operates at a nominal 11.5 volts. Automatic shut-down occurs at approximately 10 volts to prevent battery damage and/or bad data. Battery voltage is available on digital display via keypad.

Functional Specifications

Electrical

MEMORY

Random Access Memory (RAM)	4k, expandable to 8k
Erasable Programmable Read Only Memory (EPROM)	6k, expandable to 8k

SIGNAL CHANNEL	
Automatic Gain Ranging Amplifier	x1 to 4096 in increments of 2n
Aliasing polynomial, 24	100 hz low pass fourth order MURROMAF Filter db/octave roll off
Sample and Hold A/D Converter	12-bit, signal aperture 125 x 10 seconds
Sampling Rate	Frequency domain mode 512 Hz Time domain mode 256 Hz
Synchronization	Determined by phase locked loop. Frequency of input signal should be within 0.01% of frequency setting on sub-panel for minimum synchronization delay.
Rejection filters	Greater than 40 db at rejection frequency, auto tuned at start of reading.
Self Calibration	Compensates for drift in analogue circuitry to improve accuracy of amplitude and phase measurements.
MECHANICAL	
M-4 Receiver with Battery Pack	45 cm x 33 cm x 14 cm, 9.1 kg
M-4 Receiver (with battery pack and cassette DataLogger)	Same dimensions, 10.1 kg

Replaceable battery pack	3.3 cm x 11 cm x 45 cm, 3 kg

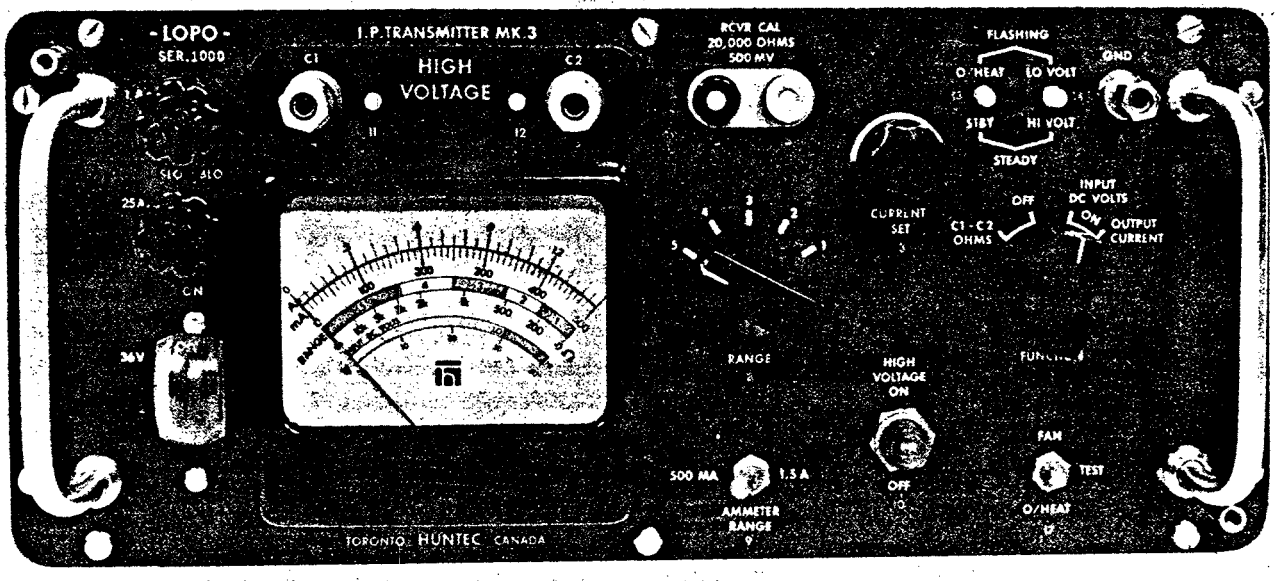
ENVIRONMENTAL

Temperature	Operation: -20°C to +55°C Storage: -40°C to +70°C
Humidity	Moisture proof, operable in light drizzle. Splash-proof switches, keypad protected by rubber boots, gasket seals on programming panel cover, main chassis and cassette loader
Altitude	-1525 m to 4775 m
Shock and Vibration	Suitable for transport in bush vehicles

DISPLAYS AND INDICATORS

Analogue Meter	Ohms scale for receiver electrode resistance measurements and indication of instrument activity, which facilitates qualitative judgments of signal and noise levels.
LCD, 3 1/2 digits	Provides the operator with numeric indication of measurement results, and of instrument faults discovered during execution of diagnostic routines. An over-range arrow indicates that the display reading is to be multiplied by 1000.
Signal Overload	Blinks red when the peak signal at either input with respect to the ground terminal exceeds about 10 volts.

REF Overload	Blinks red when the reference input level should be reduced (active only during the reference "ON" time).
Low Battery	Blinks red when the battery voltage falls below 11.5 volts.
Power	Steady red indicates power is on.



M-3 "LOPO"

Induced Polarization Transmitter

FEATURES

One man portable: operates from rechargeable battery pack.
Automatic regulation of output current, eliminates errors due to changing polarization potential, battery voltage and load resistance.
Adjustable timing cycle to suit all geologic conditions.
Precision control of timing by crystal clock.
Precision calibrated signal output for receiver testing.
Operates into a short circuit without damage at 1.5 amps maximum.
Maximum of 1800 volts output for high resistivity areas.
Delivers full power in both arctic and tropical regions.

DESCRIPTION

The Huntec M-3 LOPO Transmitter is a time domain, battery operated transmitter weighing 45 pounds with battery pack. It delivers over 160 watts of DC power into loads from 100 ohms to 6000 ohms. It operates at reduced power into all loads from a short circuit to an open circuit.

It may be used with any time domain receiver, and special timing options are available if the standard 16 combinations are insufficient.

Output current is automatically controlled to within 1% of a current set point chosen by the operator, and is affected neither by battery voltage, nor by load variations.

The battery pack is detachable and rechargeable. Typically, when used with the companion M-3 Receiver, a full day's operation may be obtained between charges.

The high sensitivity and noise immunity of the Huntec M-3 Receiver makes the Huntec M-3 system, comprising the LOPO and Receiver together, a highly portable, rapid field system, comparable in performance to other systems of several times the weight and power.

huntec (70) LIMITED
1450 O'CONNOR DR
TORONTO 374
ONTARIO, CANADA
PHONE 416 751 8055
CABLE: HUNTOR
TELEX: 06-22797

OUTPUT CHARACTERISTICS

LOAD RANGE SELECTION	RESISTANCE, Ohms	CURRENT, Amperes	
	0	0.100	1.50
	50	.100	1.20
	100	.090	1.02
	100	.090	1.02
1	160	.080	0.95
	220	.075	.75
	220	.075	.75
2	370	.055	.60
	520	.050	.50
	520	.050	.50
3	835	.040	.40
	1150	.035	.33
	1150	.035	.33
4	1925	.025	.24
	2700	.020	.22
	2700	.020	.22
5	4450	.015	.16
	6200	.014	.14
	10,000	.010	.100
	20,000	.008	.055
	40,000	.005	.030
	80,000	.003	.017

SPECIFICATIONS

Maximum Current 1.5A D.C.

Maximum Voltage 1,800V D.C.

Load Range Zero to infinity in five ranges.

Maximum D.C. Load Power In excess of 160 watts at 75% efficiency into following load resistances.
Range 1 = 100 to 230 ohms
Range 2 = 230 to 520 ohms
Range 3 = 520 to 1200 ohms
Range 4 = 1200 to 2700 ohms
Range 5 = 2700 to 6100 ohms

Load Current Continuously adjustable, Max. Current/Min. Current = 10/1
When the transmitter is operated at half its available output current, it will hold this current constant to within 1% while the load resistance changes by ± 100%, or when the input voltage changes by ± 20% of its original value.

Turn On Time Less than 10^{-3} seconds.

Turn Off Time Less than 10^{-3} seconds.

Cycle Time 2, 4, 8, or 16 seconds.
Cycle time is defined as 2 x (current on time + current off time).

Duty Ratio 1:1, 1.28:1, 1.67:1, 2.2:1
Duty ratio is defined as: (current on time)/(current off time).

Timing Accuracy ± 0.01%
Additional timing programmes including square wave output are available as options.

Voltages 24 to 36 volts D.C.

Maximum Current 12 amperes

Batteries Six GC-680-1 lead-acid Gel/Cel, 8 amp-hour.
The input power source can be batteries or any unregulated D.C. source between 30-40 volts supplying 10 to 15 amperes.

Switches and Controls
- Load resistance selector switch.
- Current adjustment continuous control.
- Ammeter range switch 0.5 amp and 1.5 amps full scale.
- Transmitter ON/OFF and meter function switch.
- Battery ON/OFF master switch (magnetically tripped circuit breaker).
- High voltage ON/OFF (Standby/Operate) switch.
- Test switch: for cooling fan and overheat indicator and protective circuits.
- Fuses: one 25A Slo-Blo for main power, one 2A Slo-Blo for control circuits.

Connections
- Output terminals to current stakes.
- Receiver calibration signal output:
  V_p = 500 millivolts
  V_s/V_p = 20%
  Source resistance = 20,000 ohms.
- Panel grounding terminal.

Indicators
- Standby/Overheat light: Steady green when set is on Standby (High Voltage off). Flashing green when maximum temperature being approached.
- Low-volt/Hi-volt: Steady amber when input voltage greater than 40 volts. Flashing amber when input voltage drops below 30 volts. Normally off.

Ambient Temperatures —30° F to +120° F (—35° C to +50° C).
Forced air cooling by automatically actuated internal fan.

Altitude —30,000 to +20,000 feet (—9,150 to +6,100 m). Note: If the upper limit is exceeded, high voltage breakdown during operation may occur.

Humidity The set may be operated in saturated air, and in rain without damage or risk of malfunction.

Blowing Snow Cooling fan will not normally operate during winter. It is recommended that air vents be sealed off with cardboard to prevent blowing snow from entering set.

Instrument Package 14.5 x 6 x 8.5 inches overall (37 x 15.2 x 22.5 cm)
18.5 pounds (8.4 Kg)

Battery Package 14.5 x 8.5 x 5.75 inches overall (37 x 22.5 x 14.7 cm)
27 pounds (12.3 Kg)

APPENDIX A

ASSAY CERTIFICATES

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : WHITE GEOPHYSICAL INC.

11751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

Project : MIRACLE
Comments:

*Page No. : 1
Tot. Pages: 1
Date : 10-AUG-87
Invoice # : I-8719319
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8719319

SAMPLE DESCRIPTION	PREP CODE		Cu %	Ag oz/T	Au oz/T
3	207	---	< 0.01	0.02	< 0.002
5	207	---	0.13	0.07	0.002
6	207	---	0.24	0.12	0.014
7	207	---	0.10	0.04	0.004
8	207	---	0.34	0.07	0.026
9	207	---	0.10	0.04	0.004
10	207	---	0.08	0.03	0.006
11	207	---	0.06	0.03	< 0.002
12	207	---	0.05	0.03	0.006
13	207	---	1.58	0.27	0.180
14	207	---	0.12	0.02	0.012
CP-1	207	---	12.60	1.98	1.086

ALL ASSAY DETERMINATIONS ARE PERFORMED OR SUPERVISED BY B.C. CERTIFIED ASSAYERS

CERTIFICATION : D Christie

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

To : WHITE GEOPHYSICAL INC.

11751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

Project : G.W.R. RESOURCES
Comments:

*Page No. : 1
Tot. Pages: 1
Date : 12-SEP-87
Invoice # : I-8721518
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8721518

SAMPLE DESCRIPTION	PREP CODE		Cu %	Ag oz/T	Au oz/T
16	207	--	1.22	0.34	0.248
17	207	--	0.03	0.02	0.004
18	207	--	0.10	0.06	< 0.002

ALL ASSAY DETERMINATIONS ARE PERFORMED OR SUPERVISED BY B.C. CERTIFIED ASSAYERS

CERTIFICATION : B Thwaites

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

To : WHITE GEOPHYSICAL INC.

11751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

Project : G.W.R. RESOURCES
Comments:

**Page No. : 1-A
Tot. Pages: 1
Date : 15-SEP-87
Invoice # : I-8721517
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8721517

SAMPLE DESCRIPTION	PREP CODE		Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm
L9+50W 050N	299	238	0.32	0.2	10	50	0.5	2	>15.00	< 0.5	18	14	127	3.24	< 10	< 1	0.04	< 10	4.09	3460	< 1

CERTIFICATION : BC

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To : WHITE GEOPHYSICAL INC.

11751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

Project : G.W.R. RESOURCES
Comments:

Date : 15-SEP-87
Invoice # : I-8721517
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8721517

SAMPLE DESCRIPTION	PREP CODE		Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Se ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L9+50W 050N	299	238	0.02	3	190	6	< 5	20	540	< 0.01	< 10	< 10	63	10	102

CERTIFICATION :

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

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Project : G.W.R. RESOURCES
Comments:

**Page No. : 1-A
Tot. Pages: 1
Date : 15-SEP-87
Invoice # : I-8721519
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8721519

SAMPLE DESCRIPTION	PREP CODE		Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm
16	299	238	2.36	9.0	20	50	0.5	< 2	0.66	0.5	28	4	>10000	9.48	< 10	< 1	0.96	< 10	0.58	2040	24

CERTIFICATION : BC

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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Comments:

Date : 15-SEP-87
Invoice # : I-8721519
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8721519

SAMPLE DESCRIPTION	PREP CODE		Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Se ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
16	299	238	0.04	2	1870	18	< 5	< 10	40	0.07	< 10	< 10	132	< 5	30

CERTIFICATION :

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: WHITE GEOPHYSICAL INC.

11751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

Project : G.W.R. RESOURCES
Comments:

Date : 14-SEP-87
Invoice # : I-8721516
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8721516

SAMPLE DESCRIPTION	PREP CODE		Cu ppm	Ag ppm Aqua R	Au ppb FA+AA
L9+50W 050N	205	--	-----	-----	10
L1700W 085N	205	--	70	0.1	< 5
L1750W 075S	205	--	880	0.1	< 5
L1750W 200S MS1	205	--	530	0.1	55
L1775W 100S	205	--	175	0.1	15

CERTIFICATION : Hans Bichler

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 BROOKSBANK AVE., NORTH VANCOUVER,
BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

To : WHITE GEOPHYSICAL INC.

11751 BRIDGEPORT RD.
RICHMOND, BC
V6X 1T5

Project : MIRACLE
Comments:

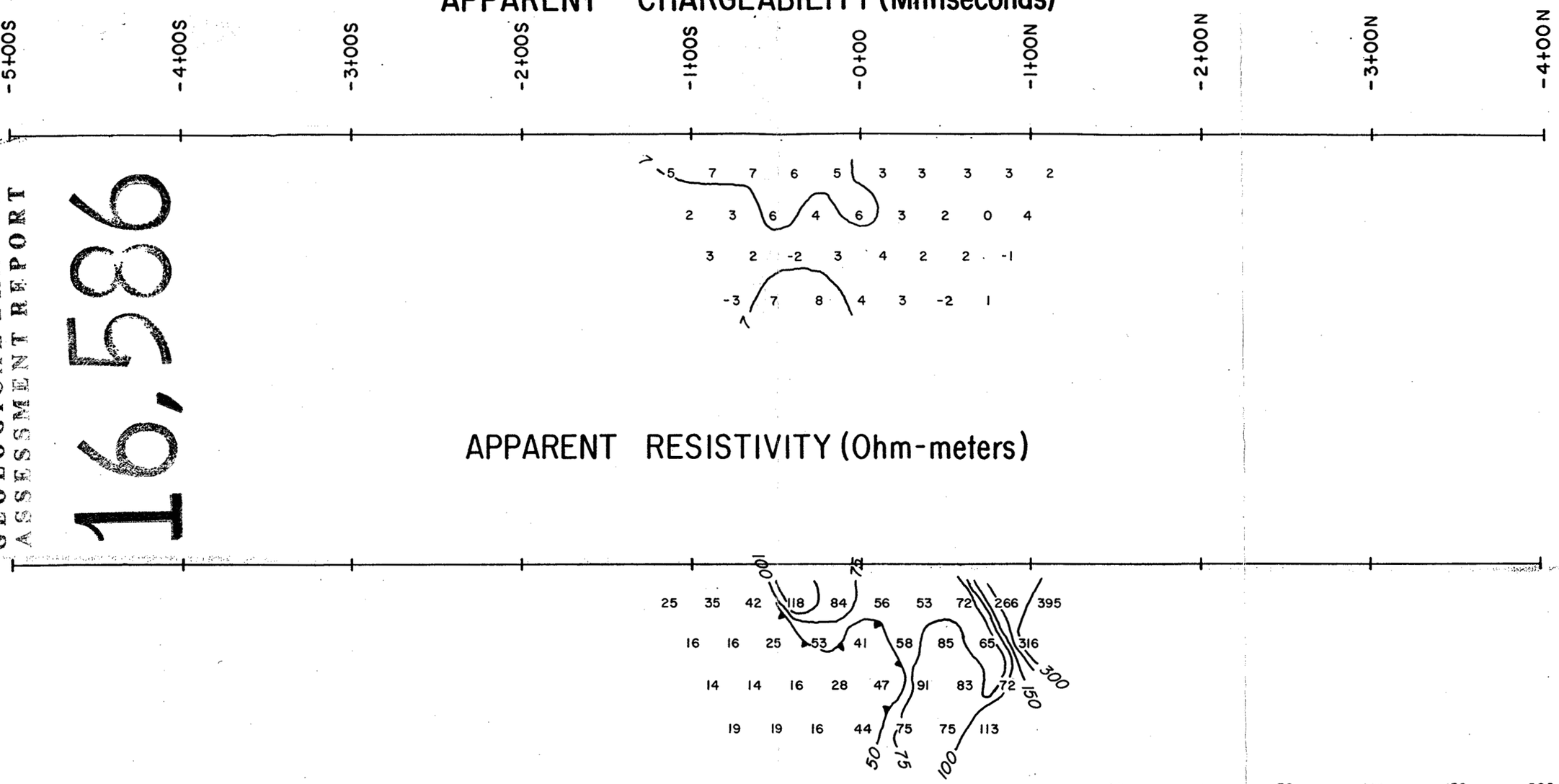
*Page No. : 1
Tot. Pages: 1
Date : 25-AUG-87
Invoice # : I-8719320
P.O. # : NONE

CERTIFICATE OF ANALYSIS A8719320

SAMPLE DESCRIPTION	PREP CODE		Cu ppm	Ag ppm Aqua R	Au ppb FA+AA
1A	205	--	6300	0.4	140
1B	205	--	41	0.1	< 5
2A	205	--	5300	1.1	1080
2B	205	--	324	0.1	10
4	205	--	97	0.1	20
15	205	--	270	0.1	60
HM-1	205	--	-----	0.1	< 5

CERTIFICATION : Bart Bichler

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)

50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

G W R RESOURCES INC.
MIRACLE CLAIMS

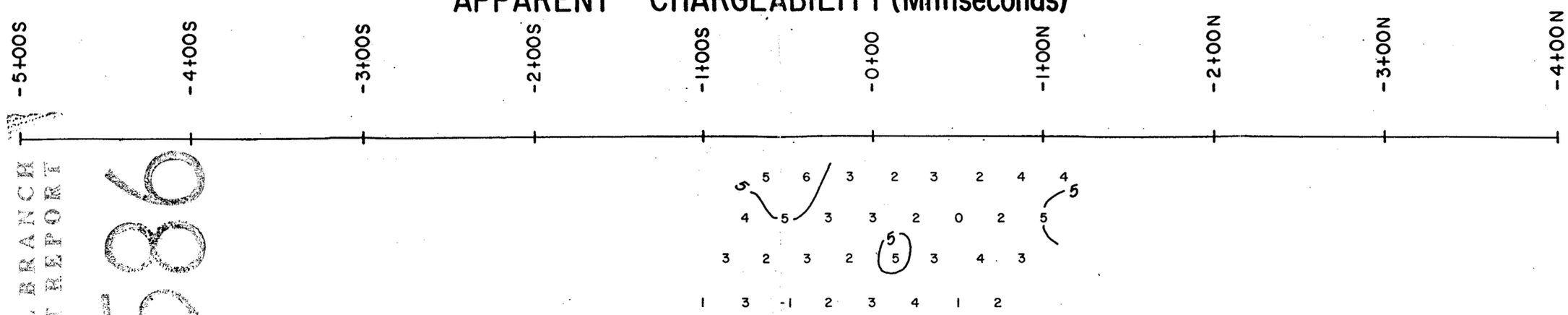
INDUCED POLARIZATION

LINE 9+50W

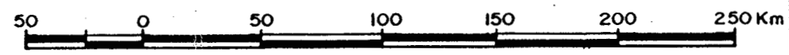
DATE : AUG., 1987

FIG. 15

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

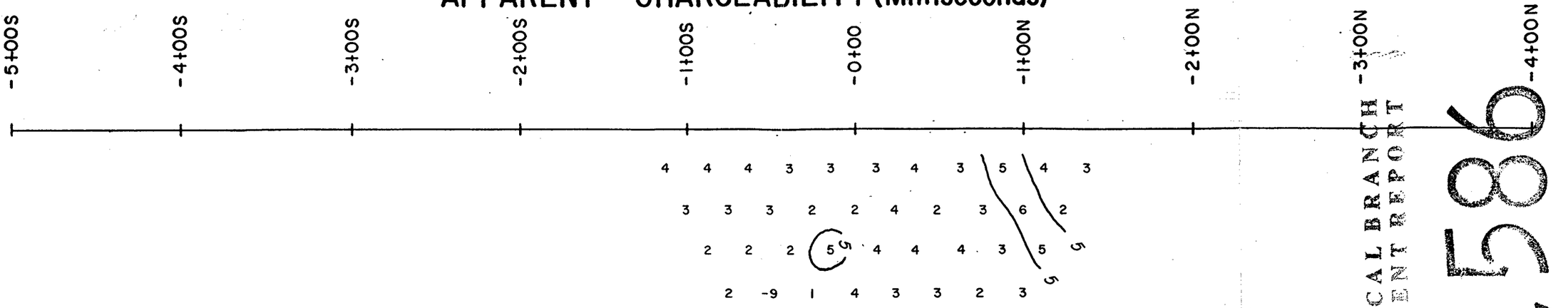
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 10+00W

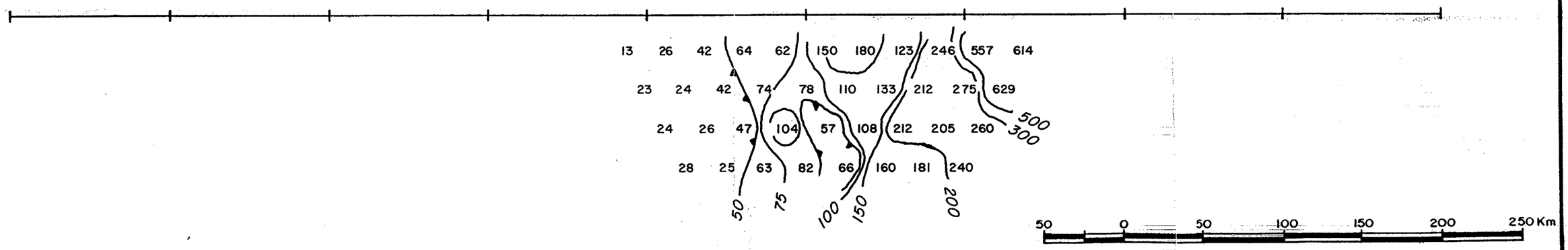
DATE : AUG., 1987

FIG. 16

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

G W R RESOURCES INC.
MIRACLE CLAIMS

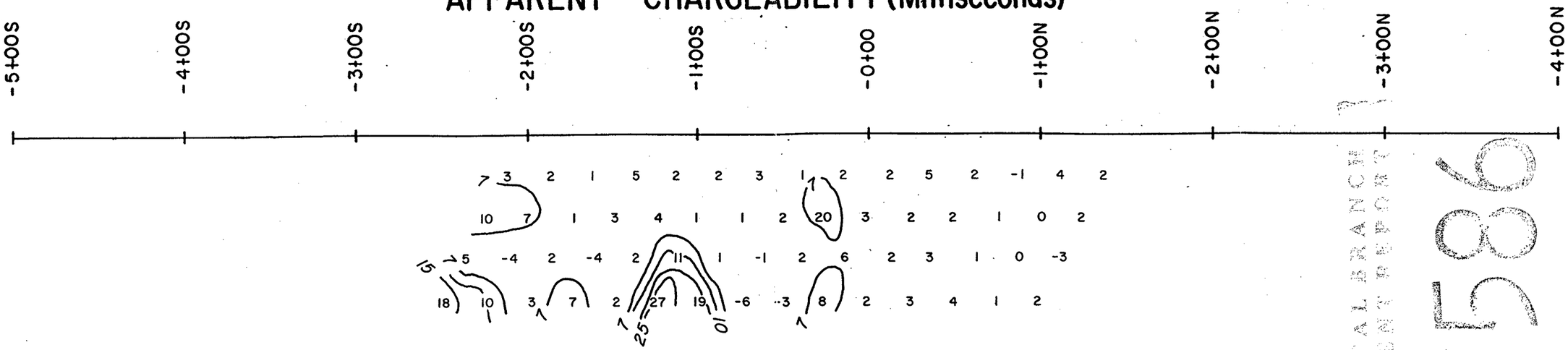
INDUCED POLARIZATION

LINE 10+50W

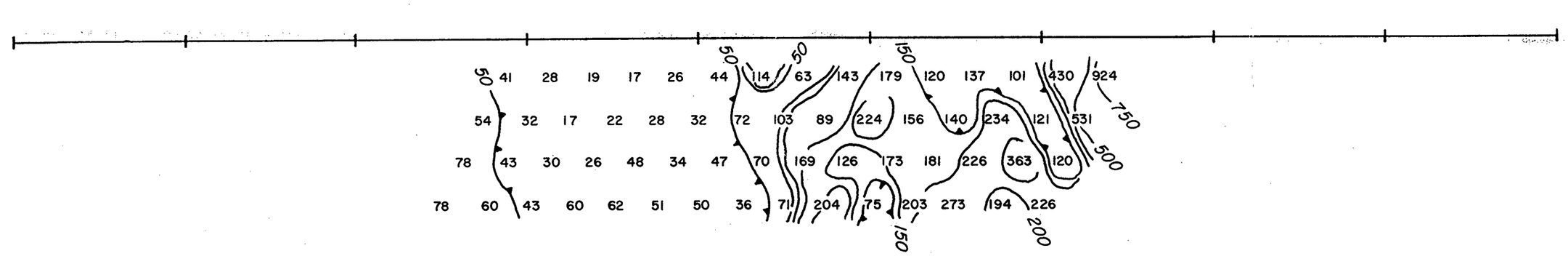
DATE : AUG., 1987

FIG. 17

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

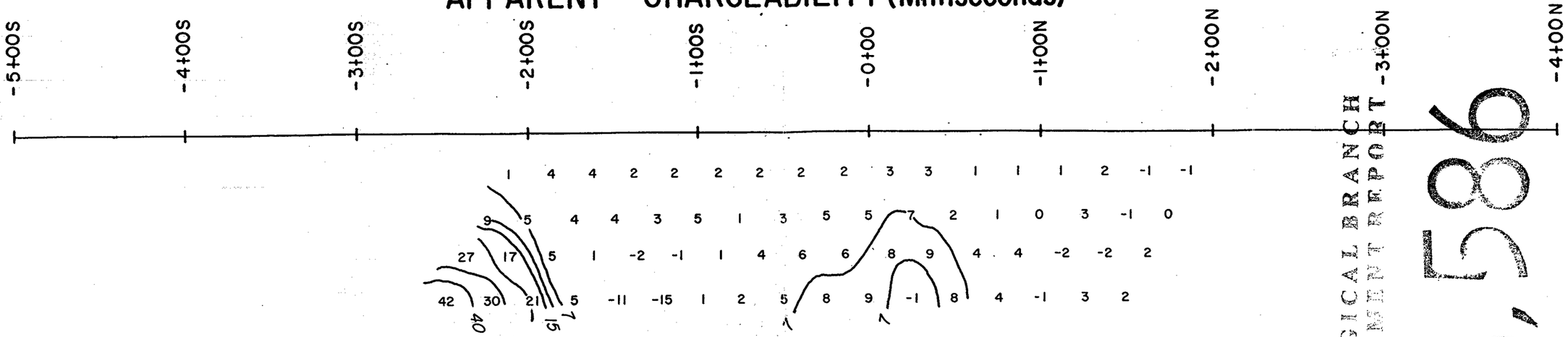
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 11+00W

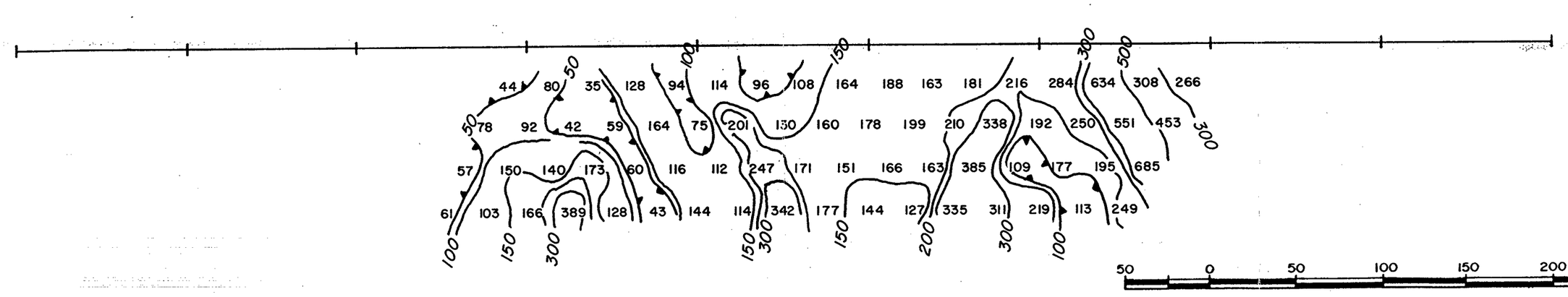
DATE : AUG., 1987

FIG. 18

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

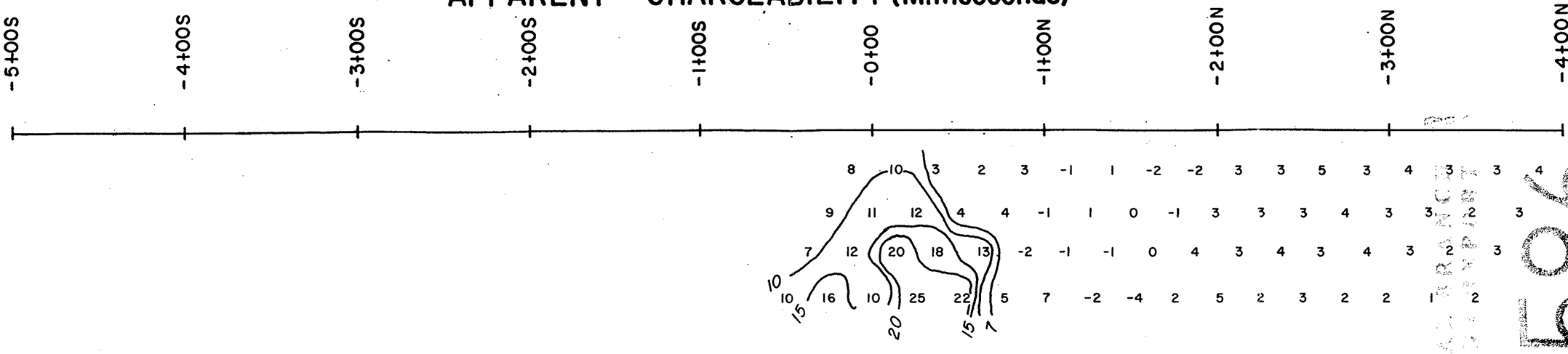
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 11+50W

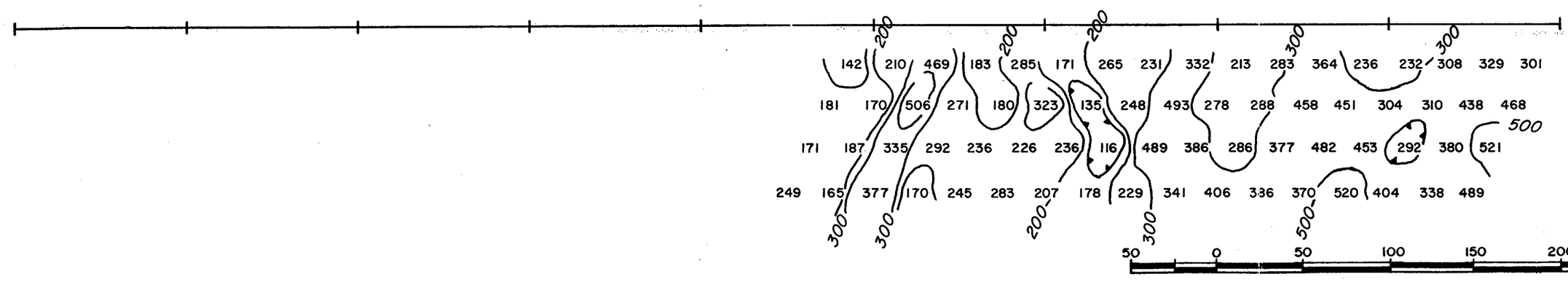
DATE : AUG., 1987

FIG. 19

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

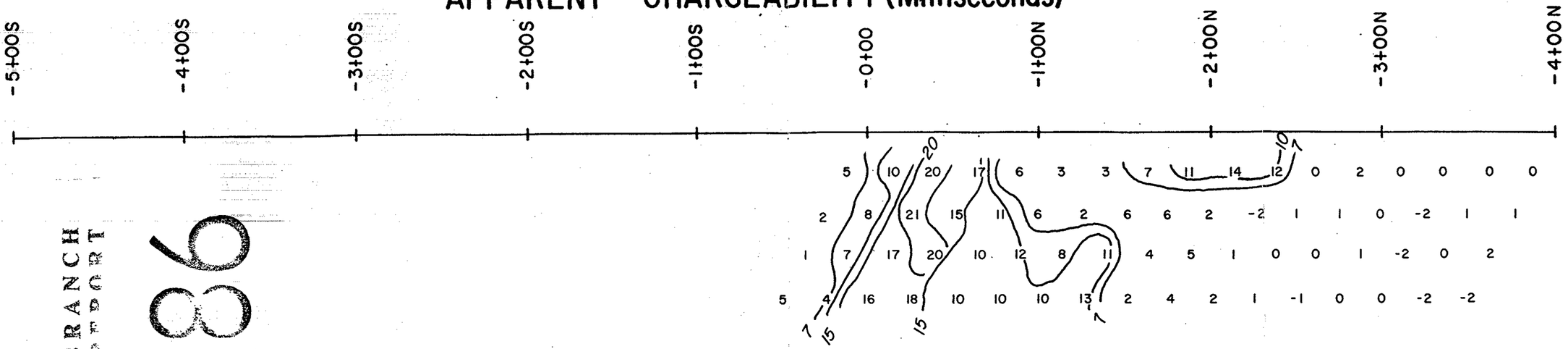
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 12+00W

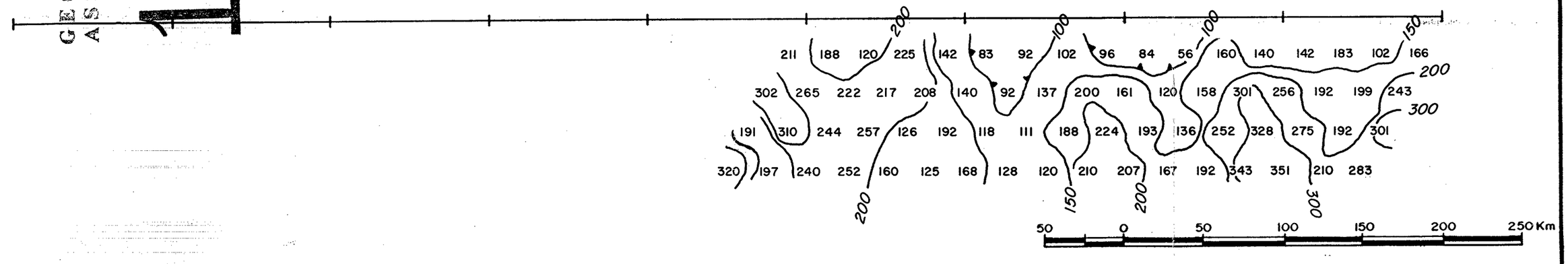
DATE : AUG., 1987

FIG. 20

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

GWR RESOURCES INC.
MIRACLE CLAIMS

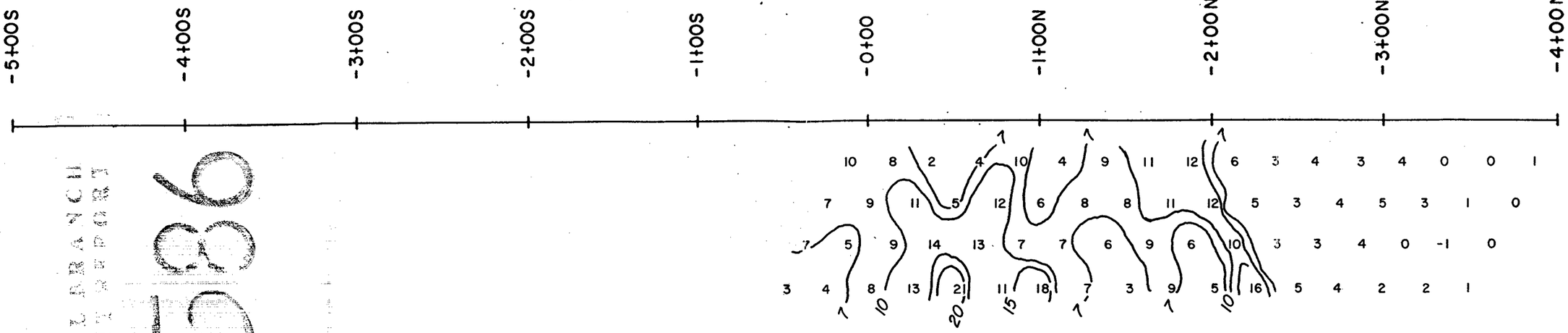
INDUCED POLARIZATION

LINE 12+50W

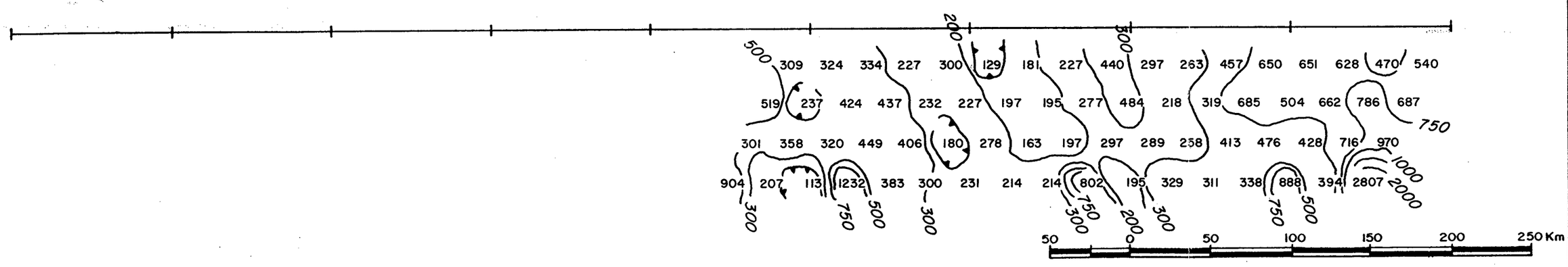
DATE : AUG., 1987

FIG. 21

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

G W R RESOURCES INC.
MIRACLE CLAIMS

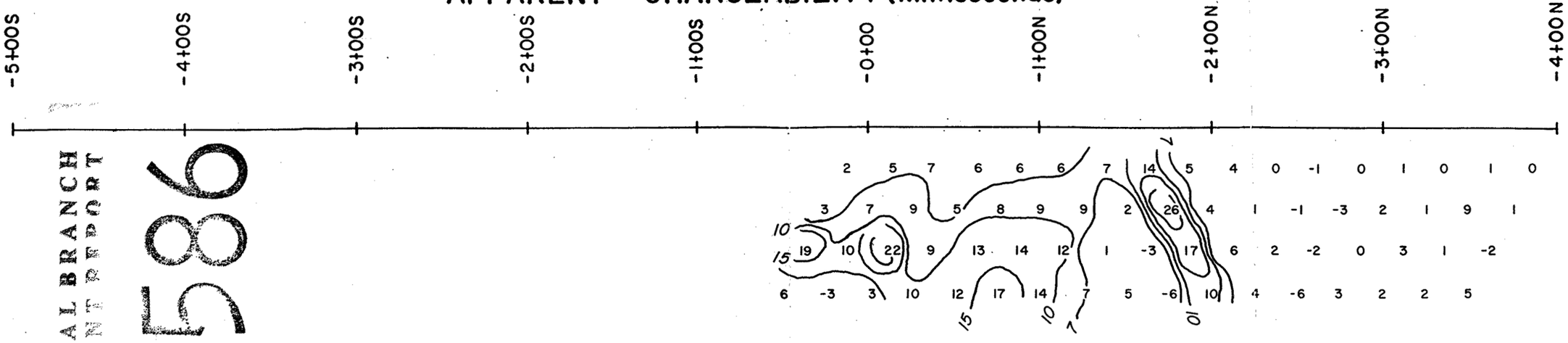
INDUCED POLARIZATION

LINE 13+00W

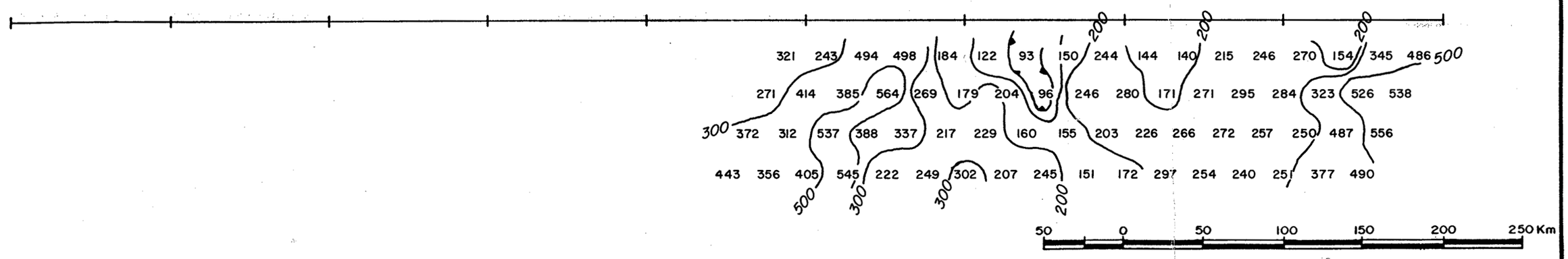
DATE : AUG., 1987

FIG. 22

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

GWR RESOURCES INC.
MIRACLE CLAIMS

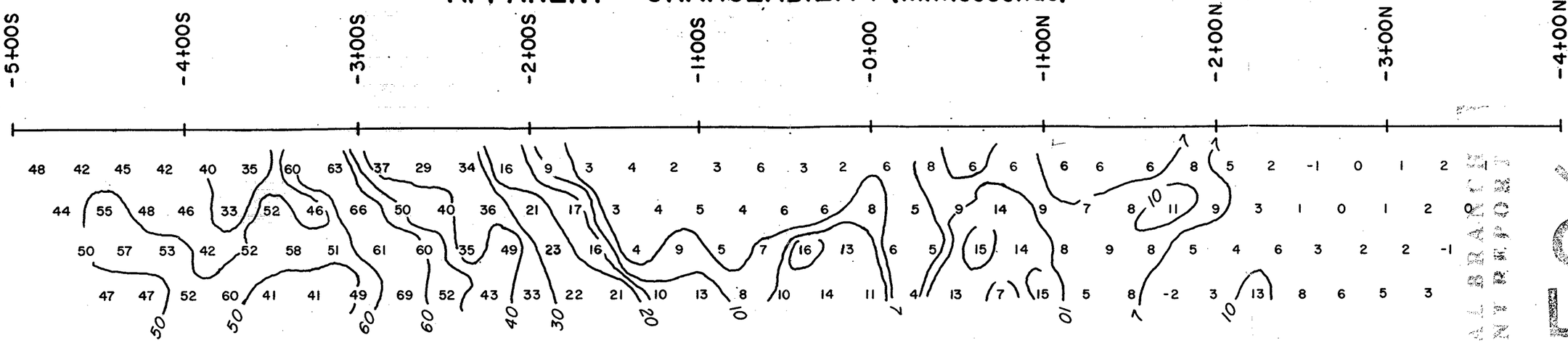
INDUCED POLARIZATION

LINE 13+50W

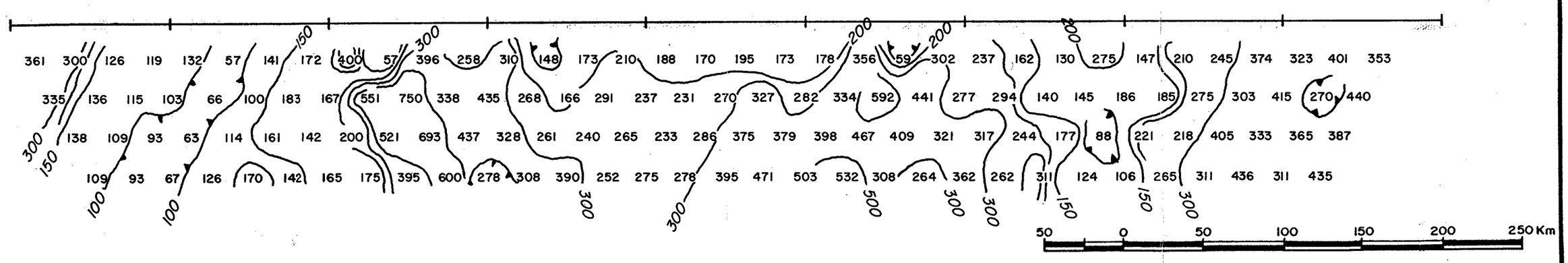
DATE : AUG., 1987

FIG. 23

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



17,550

INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

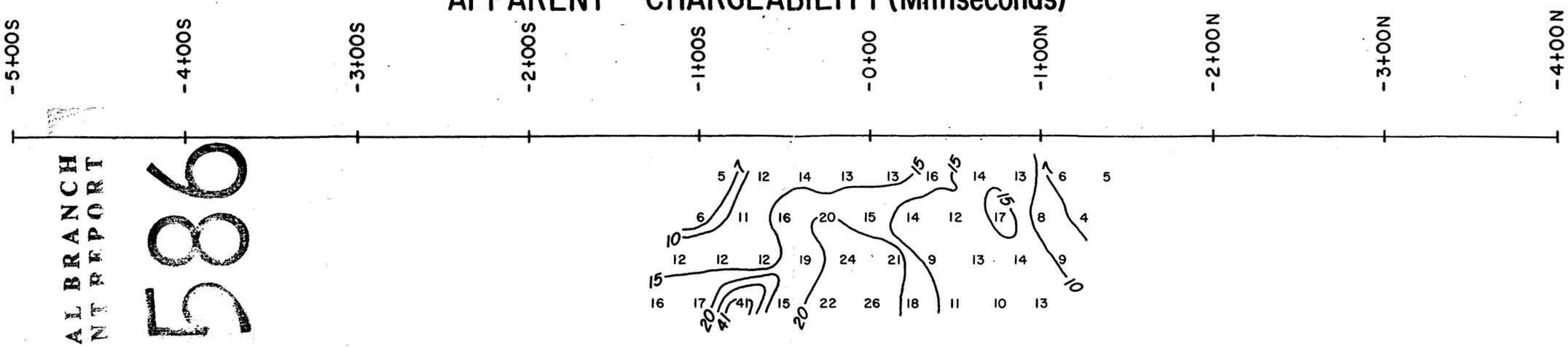
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 14+00W

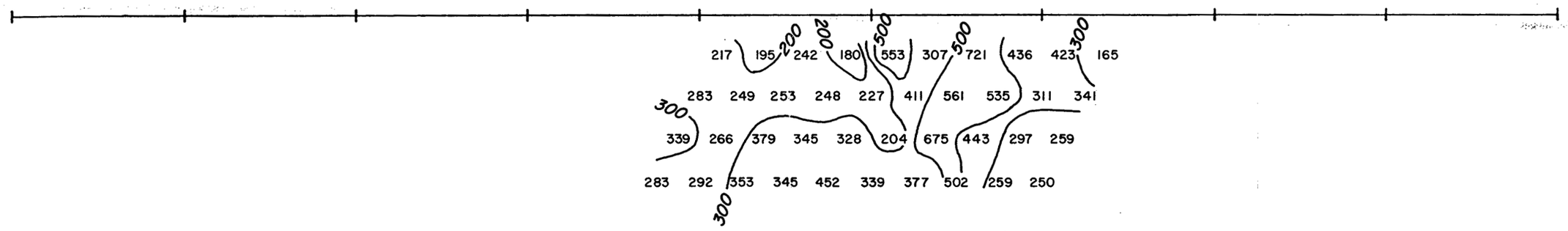
DATE : AUG., 1987

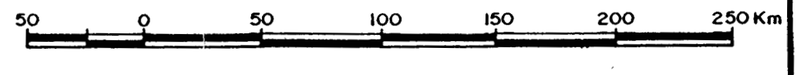
FIG. 24

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)





INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

G W R RESOURCES INC.
MIRACLE CLAIMS

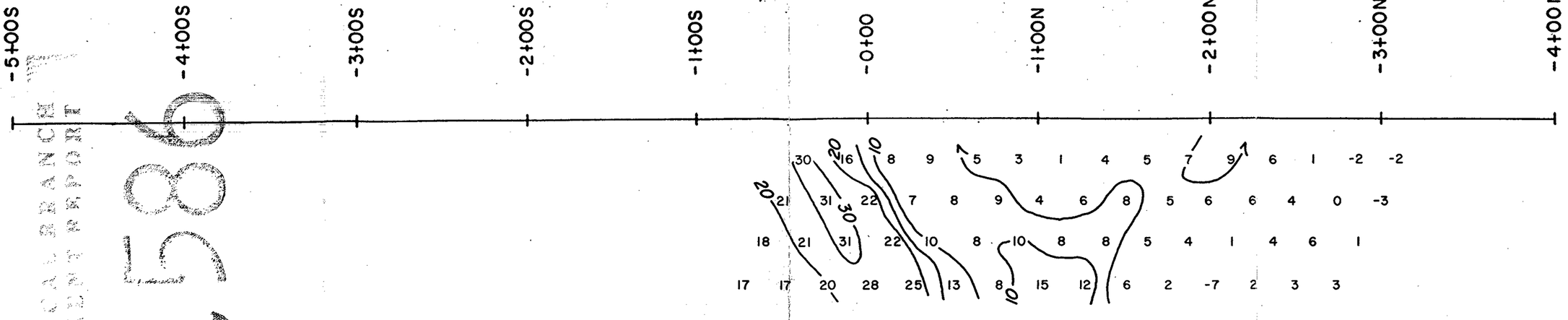
INDUCED POLARIZATION

LINE 14+25W

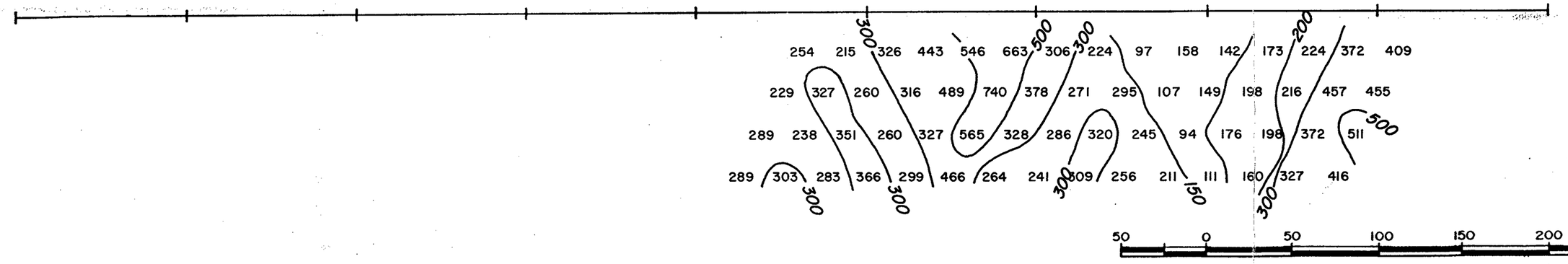
DATE : AUG., 1987

FIG. 25

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

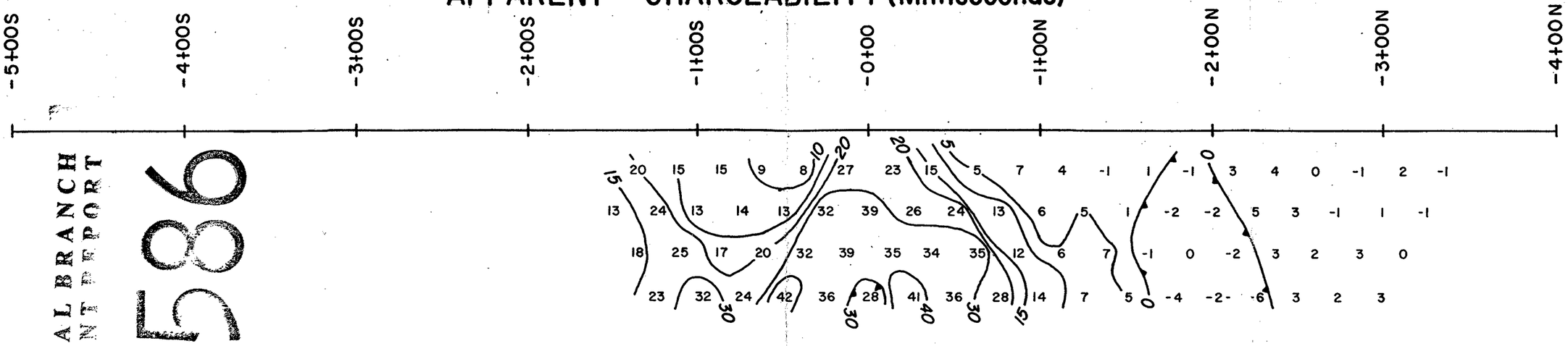
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 14+50W

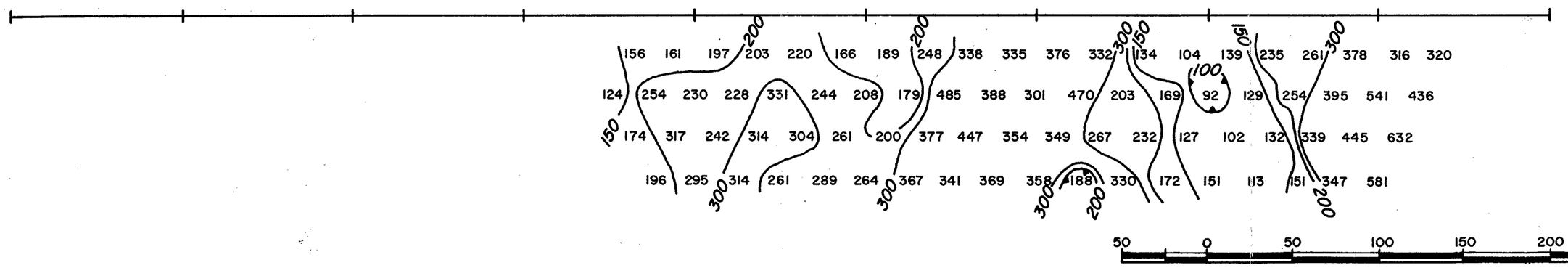
DATE : AUG., 1987

FIG. 26

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

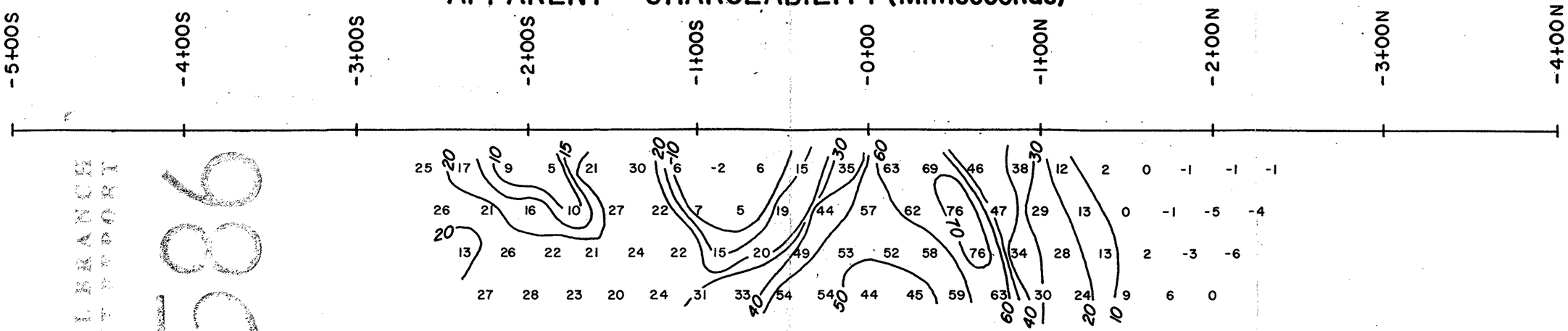
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 15+00W

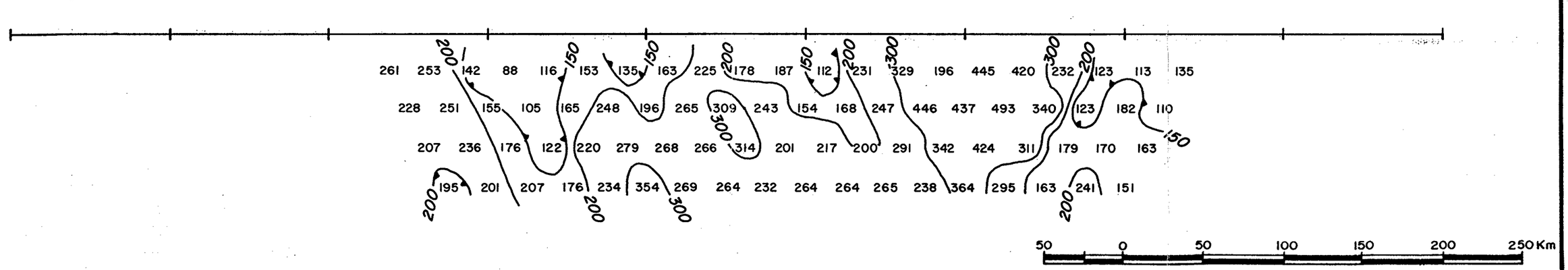
DATE : AUG., 1987

FIG. 27

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

G W R RESOURCES INC.
MIRACLE CLAIMS

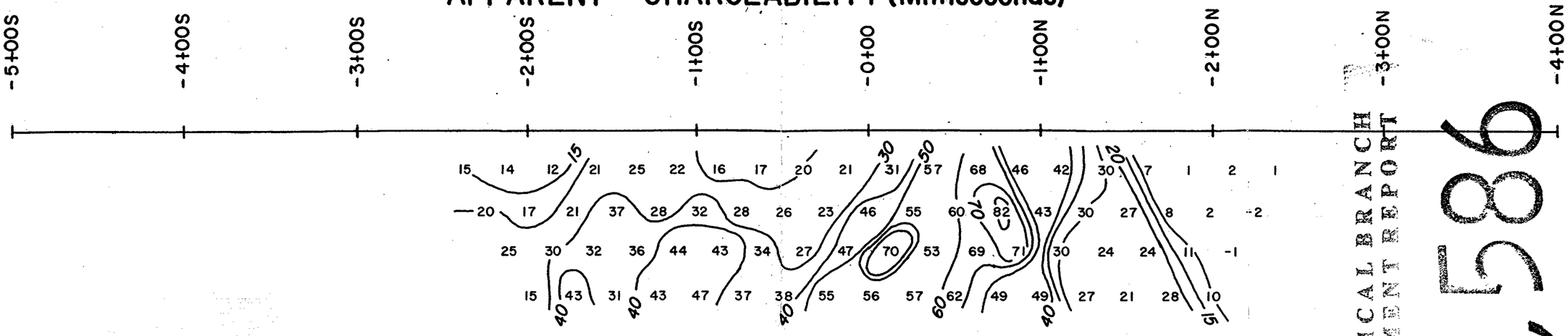
INDUCED POLARIZATION

LINE 15+50W

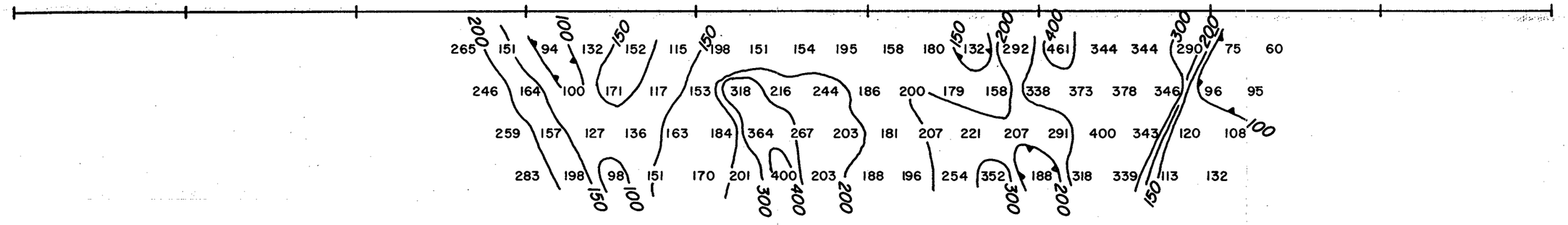
DATE : AUG., 1987

FIG. 28

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

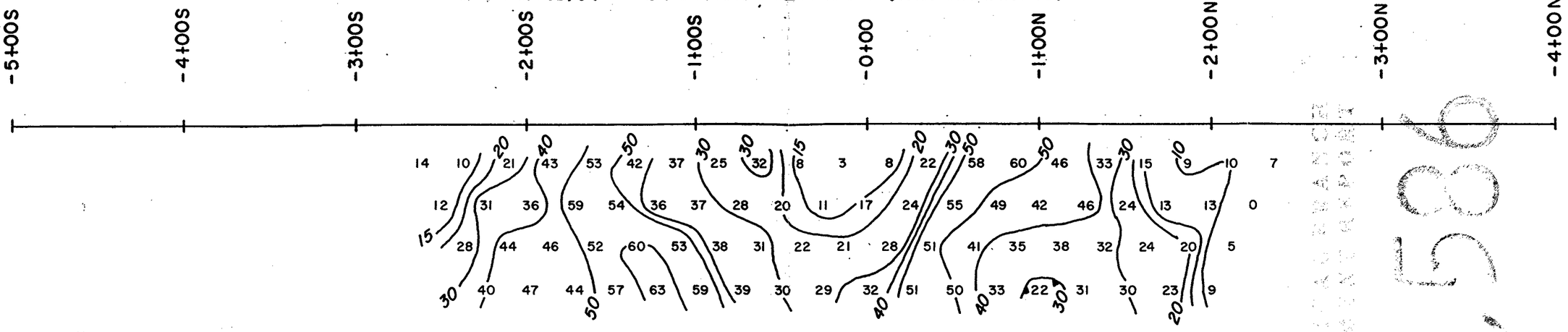
G W R RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 16+00W

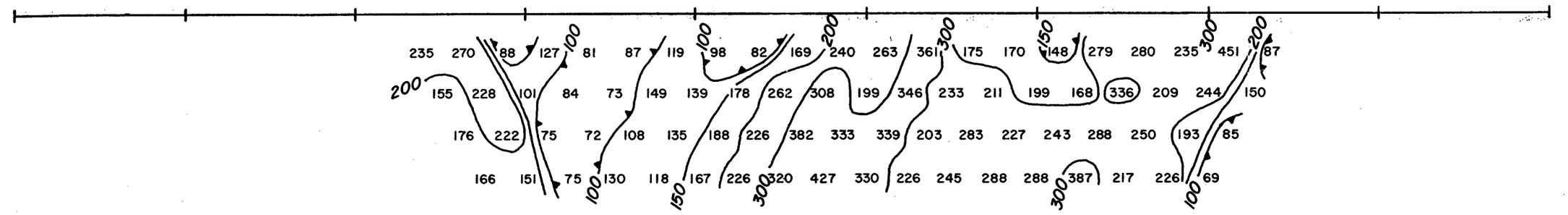
DATE : AUG., 1987

FIG. 29

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

G W R RESOURCES INC.

MIRACLE CLAIMS

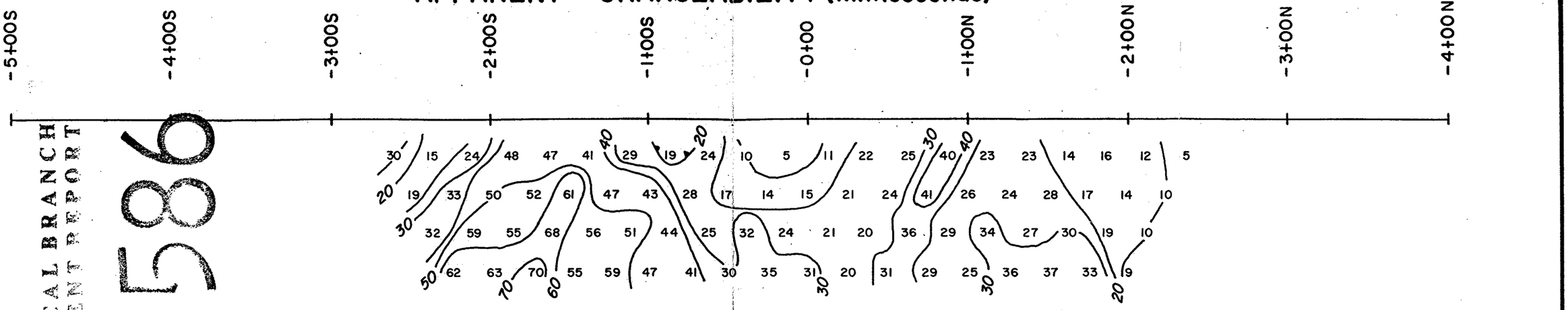
INDUCED POLARIZATION

LINE 16+50W

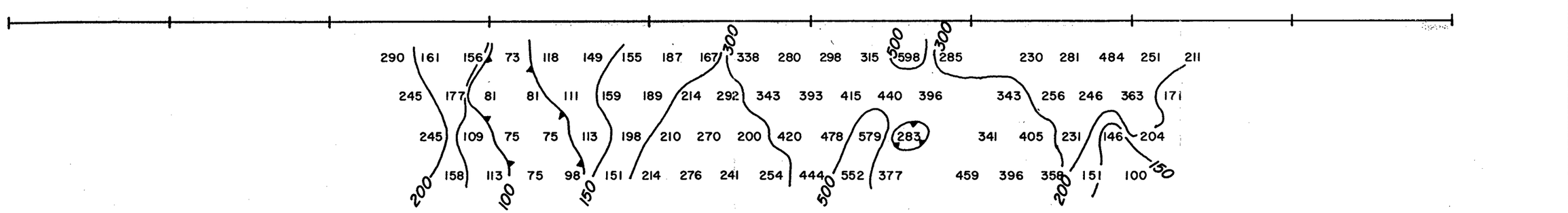
DATE : AUG., 1987

FIG. 30

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

GWR RESOURCES INC.
MIRACLE CLAIMS

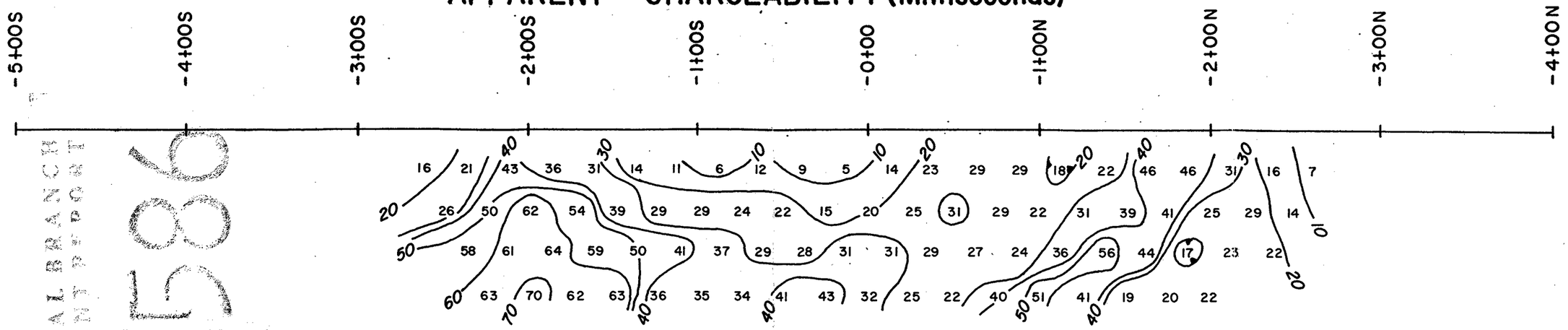
INDUCED POLARIZATION

LINE 17+00W

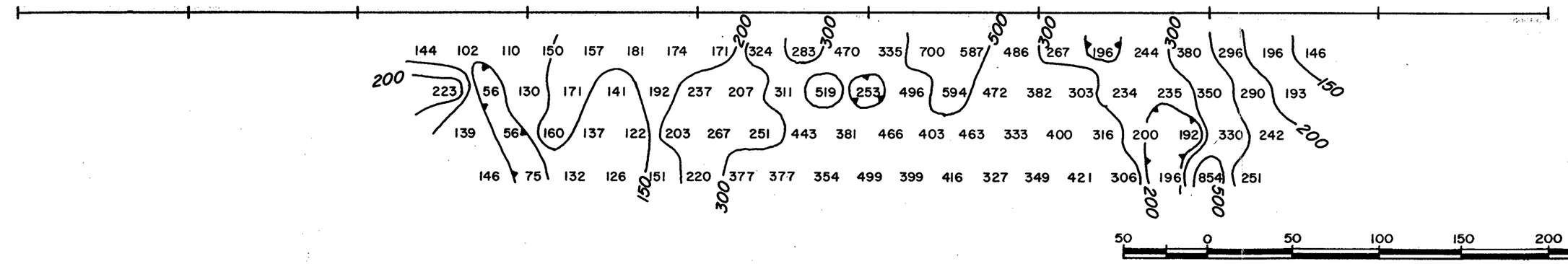
DATE : AUG., 1987

FIG. 31

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



INSTRUMENT : HUNTEC MARK IV

To accompany the Geophysical Report on the MIRACLE CLAIMS.

WHITE GEOPHYSICAL INC.

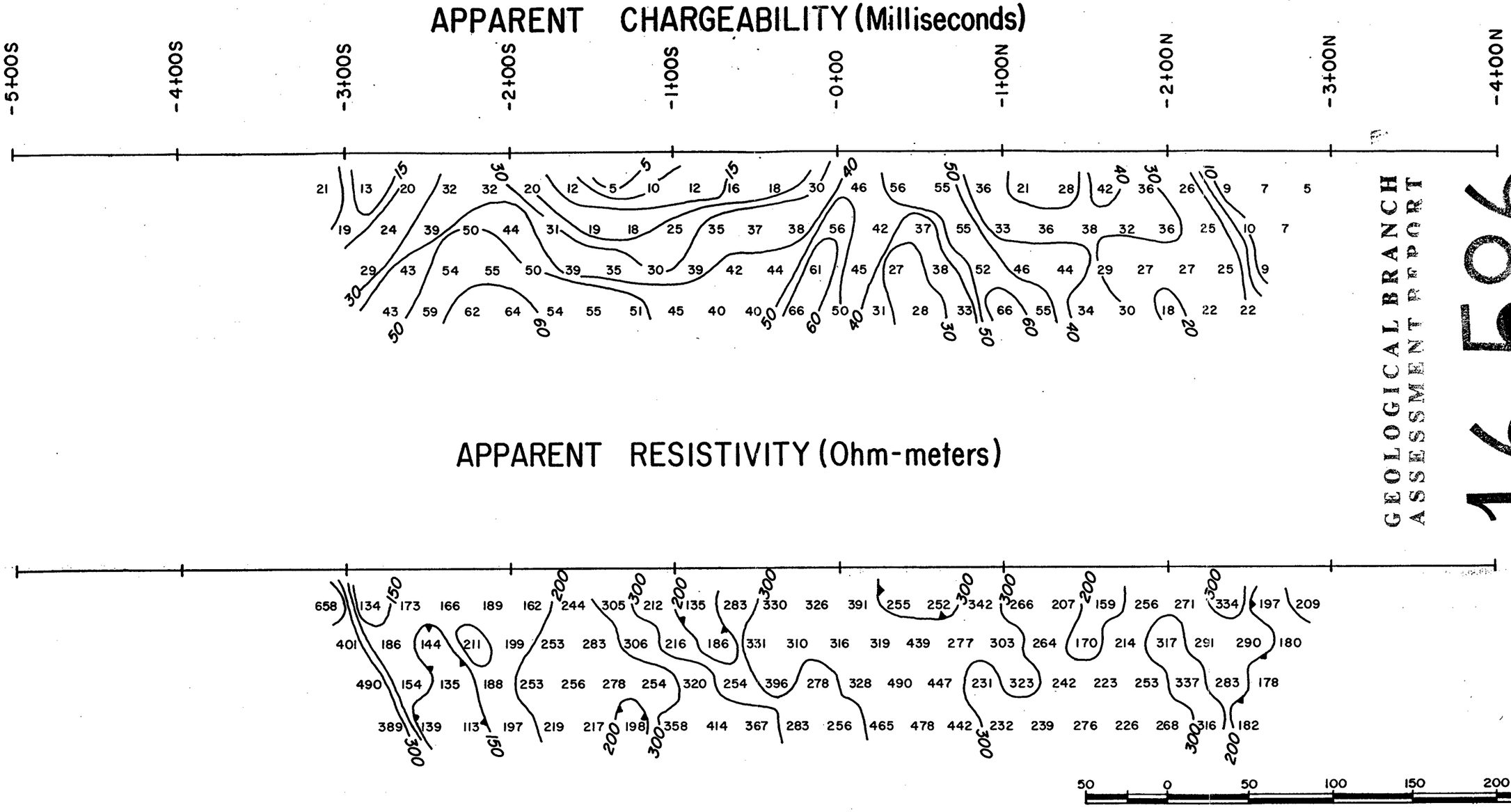
GWR RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION

LINE 17+50W

DATE : AUG., 1987

FIG. 32



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,586

INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

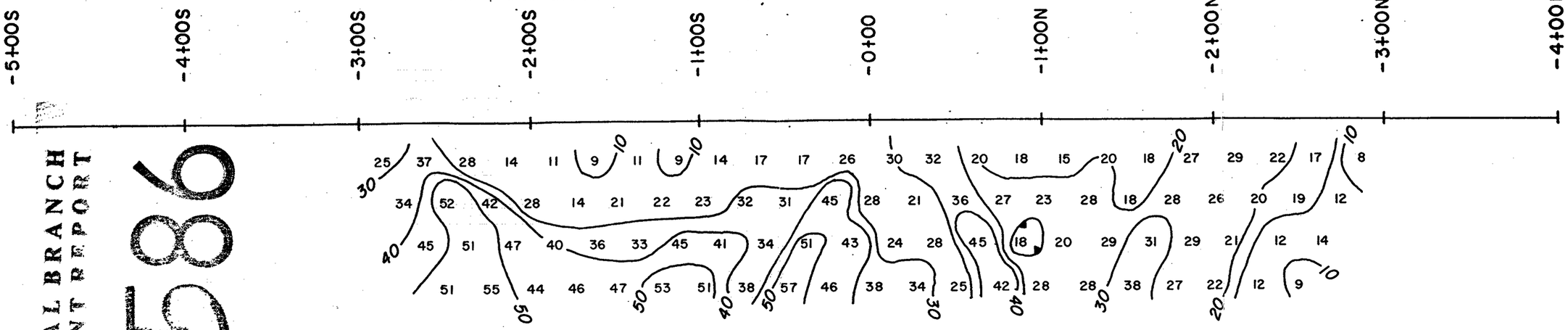
GWR RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION
LINE 18+00W

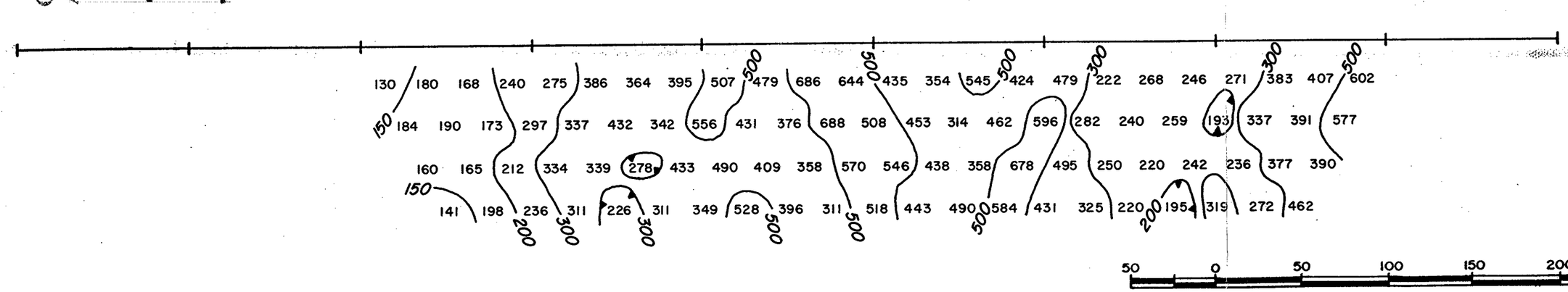
DATE : AUG., 1987

FIG. 33

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

GWR RESOURCES INC.
MIRACLE CLAIMS

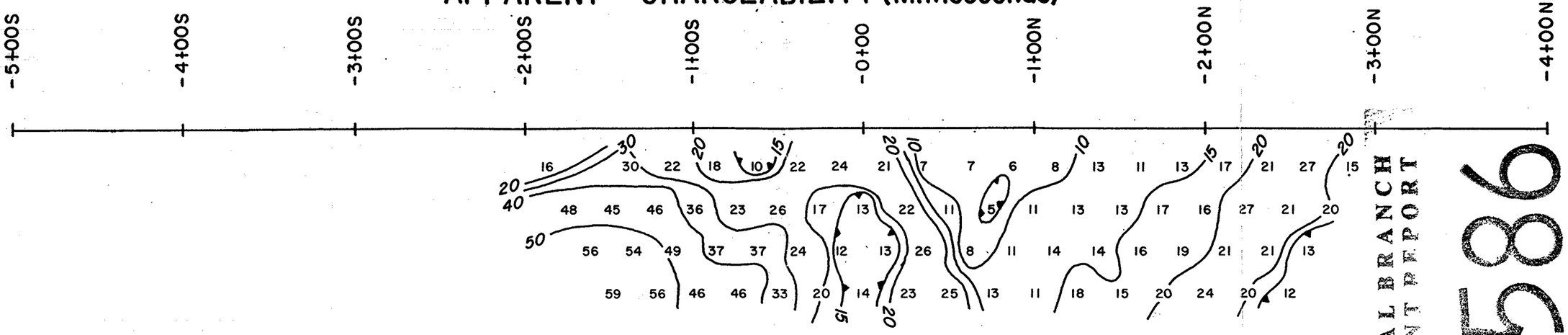
INDUCED POLARIZATION

LINE 18+50W

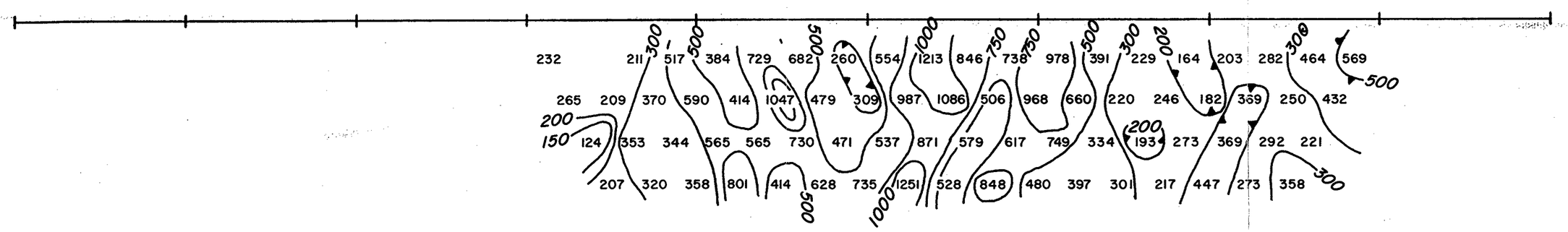
DATE : AUG., 1987

FIG. 34

APPARENT CHARGEABILITY (Milliseconds)



APPARENT RESISTIVITY (Ohm-meters)



50 0 50 100 150 200 250 Km

INSTRUMENT : HUNTEC MARK IV

WHITE GEOPHYSICAL INC.

To accompany the Geophysical Report on the MIRACLE CLAIMS.

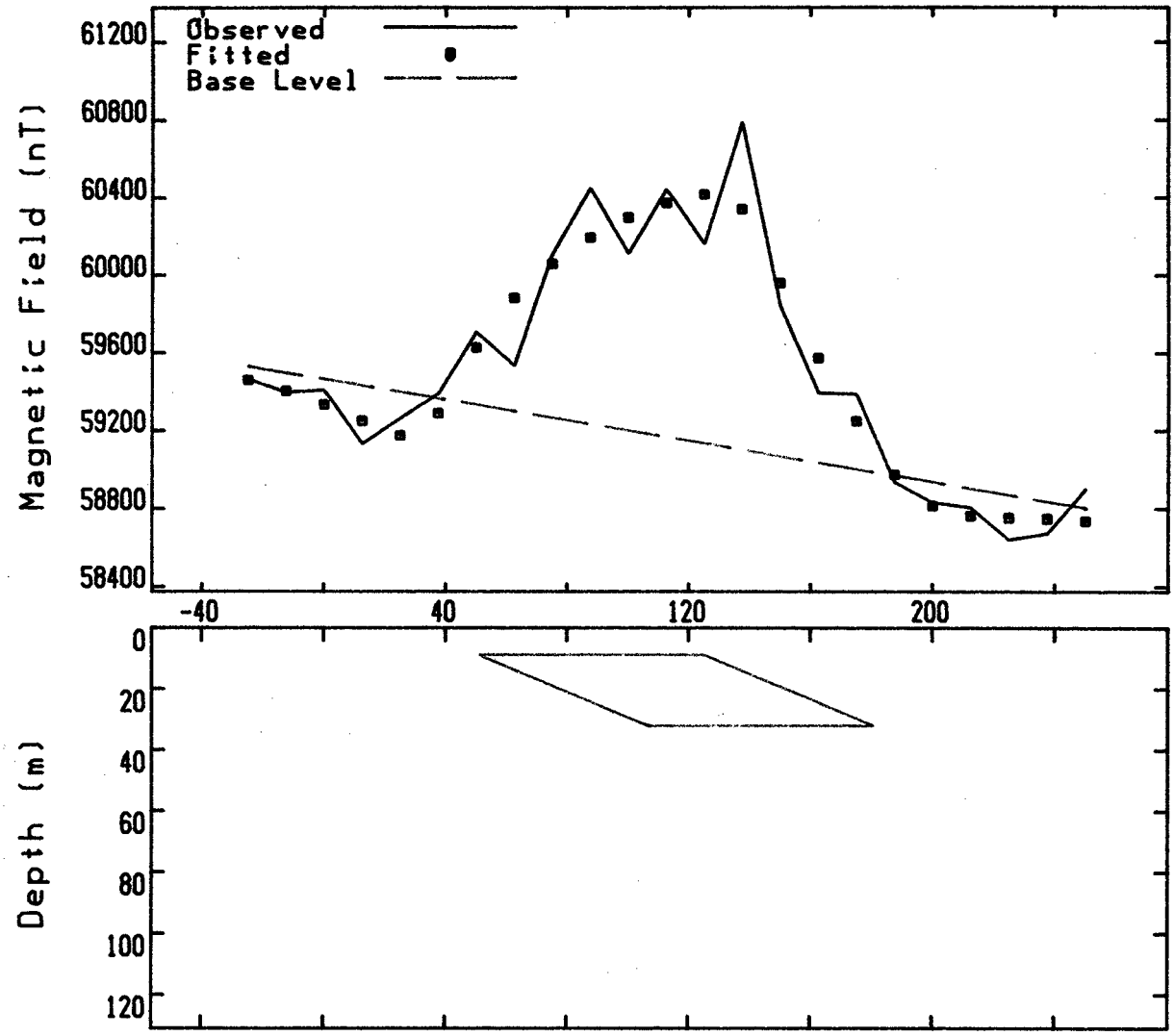
GWR RESOURCES INC.
MIRACLE CLAIMS

INDUCED POLARIZATION

LINE 19+00W

DATE : AUG., 1987

FIG. 35 -



MODEL PARAMETERS:

Model Type		TABULAR2
Depth	L	8.97 m
Half Width	F	36.9 m
Half Length	X	75.0 m
Dip	F	23 deg
Thickness	F	23.2 m
Susceptibility	F	0.00999 emu
Position	F	88 m
Base Level	F	59230 nT
Base Slope	F	-2.64 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	59000 nT
Inclination	85 deg
Declination	22 deg

PLAN DIRECTIONS:

Strike Perp	45 deg
Line Direction	0 deg

G W R RESOURCES INC.

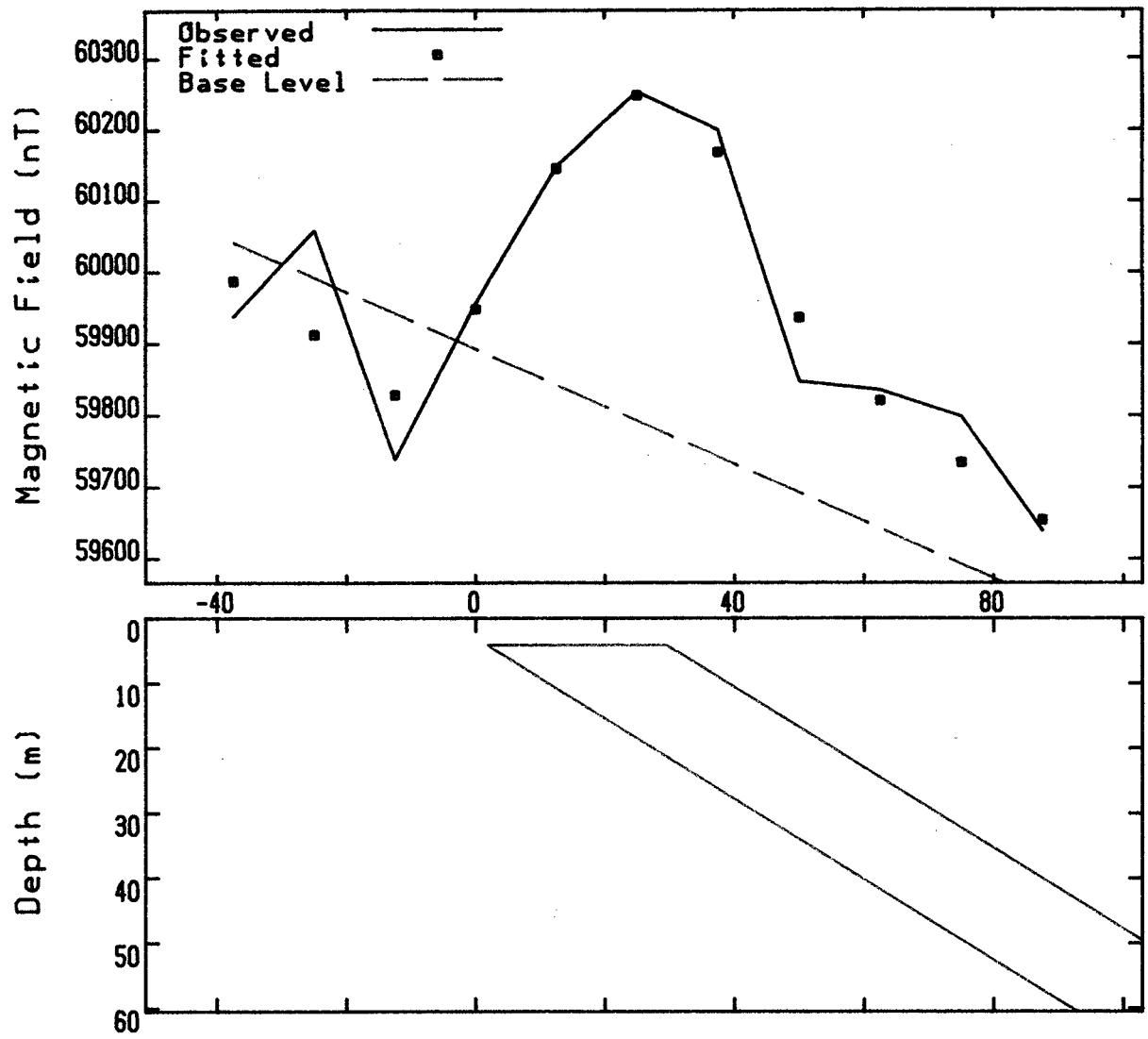
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

MAGNETIC MODEL - LINE 350 W

N.T.S. 92P/14W

FIG. 36



MODEL PARAMETERS:

Model Type		TABULAR2
Depth	L	4.19 m
Half Width	F	13.8 m
Half Length	X	75.0 m
Dip	F	32 deg
Thickness	L	624 m
Susceptibility	F	0.00291 emu
Position	F	15.59492 m
Base Level	F	59829.36 nT
Base Slope	F	-3.998234 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	59600 nT
Inclination	85 deg
Declination	22 deg

PLAN DIRECTIONS:

Strike Perp	45 deg
Line Direction	0 deg

G W R RESOURCES INC.

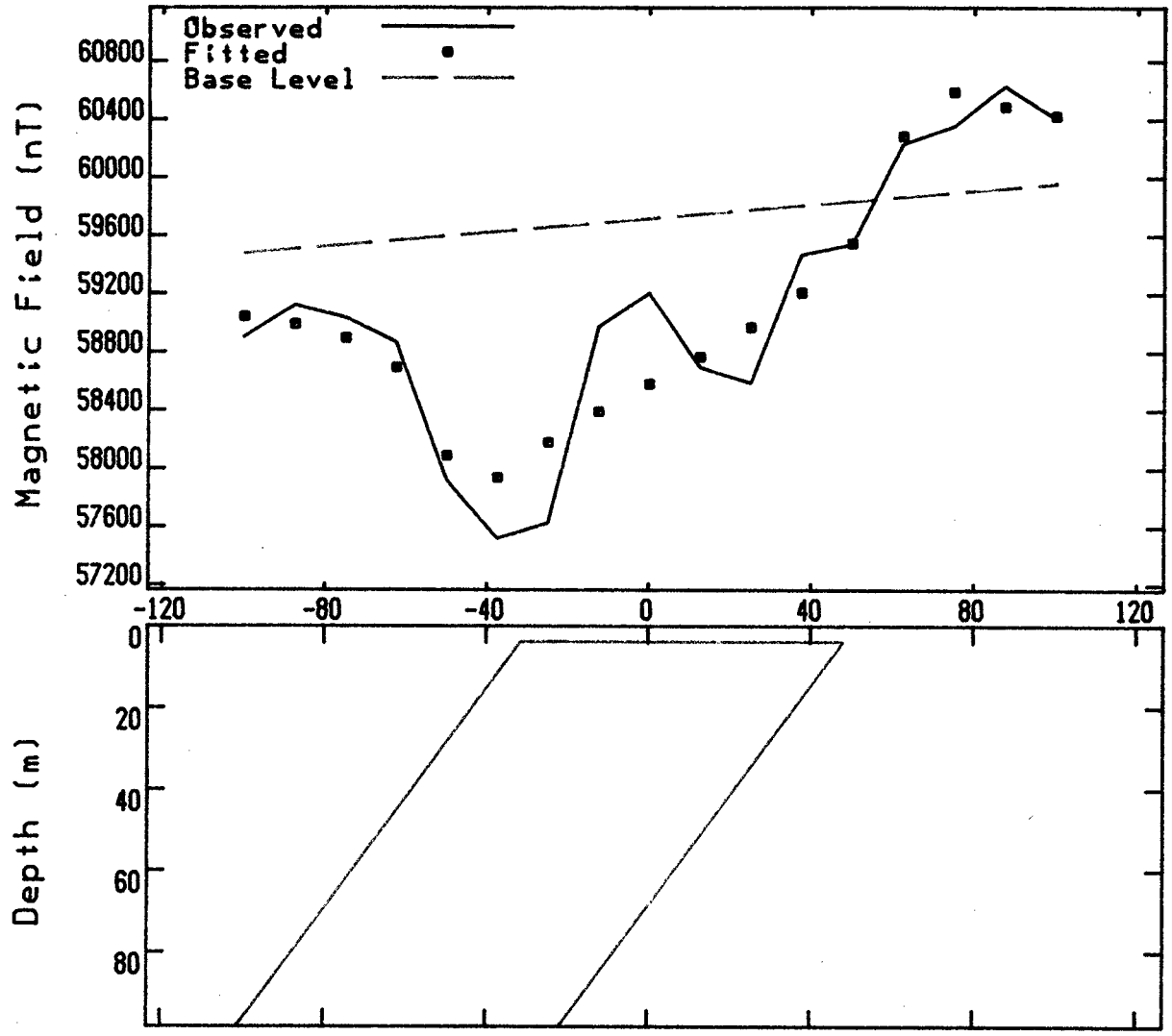
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

MAGNETIC MODEL - LINE 1450W

N.T.S. 92P/14W

FIG. 37



MODEL PARAMETERS:

Model Type		TABULAR
Depth	L	3.79 m
Half Width	F	39.8 m
Dip	F	126 deg
Susceptibility	L	-0.00536 emu
Position	F	8.037364 m
Base Level	F	59737.11 nT
Base Slope	F	2.375 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	58500 nT
Inclination	85 deg
Declination	22 deg

PLAN DIRECTIONS:

Strike Perp	45 deg
Line Direction	0 deg

G W R RESOURCES INC.

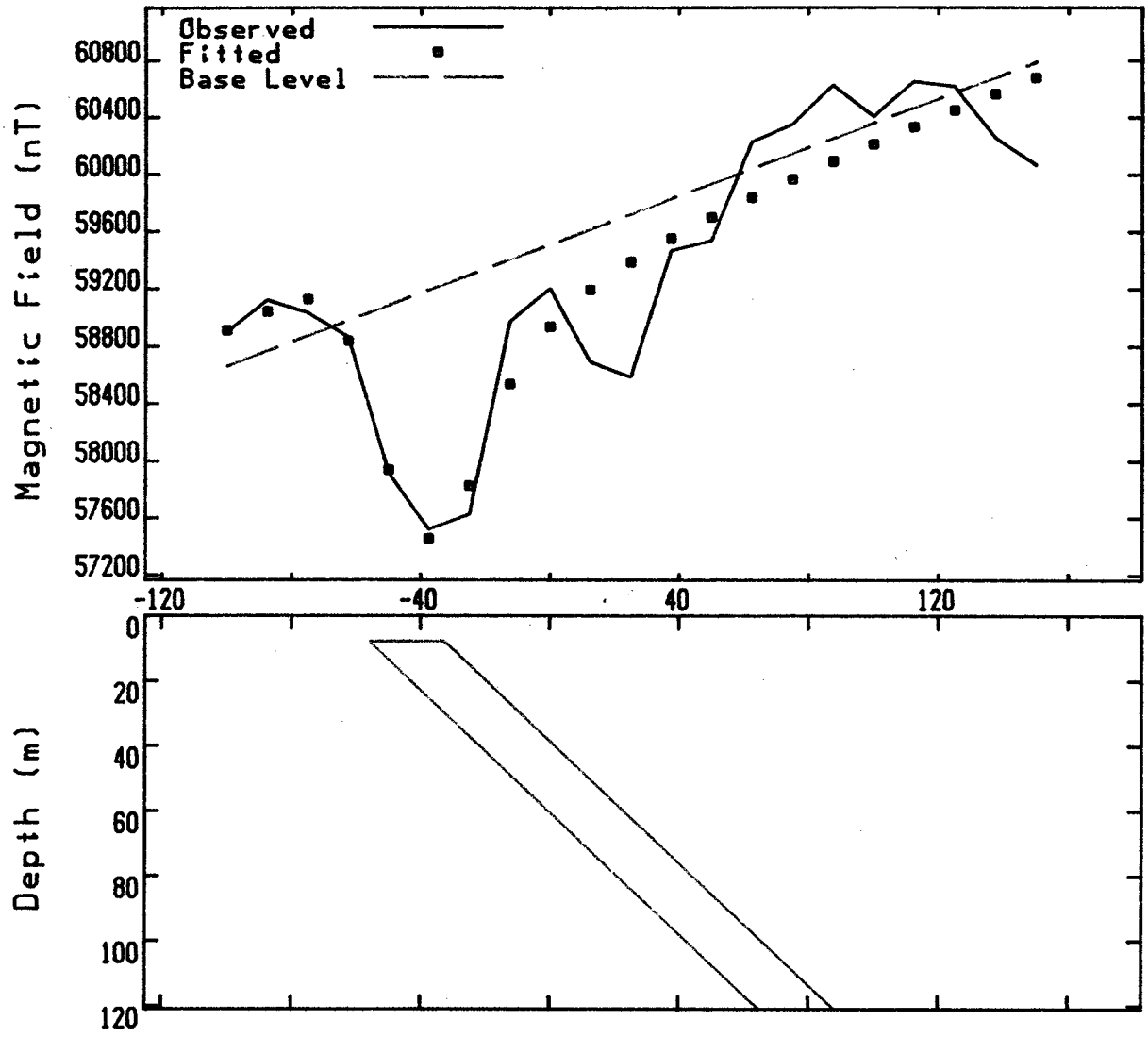
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

MAGNETIC MODEL - LINE 600 W

N.T.S. 92P/14W

FIG. 38



MODEL PARAMETERS:

Model Type		TABULAR
Depth	L	7.84 m
Half Width	F	11.5 m
Dip	F	43 deg
Susceptibility	F	-0.0122 emu
Position	F	-44.21261 m
Base Level	F	59137.39 nT
Base Slope	F	8.48753 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	58000 nT
Inclination	85 deg
Declination	22 deg

PLAN DIRECTIONS:

Strike Perp	45 deg
Line Direction	0 deg

G W R RESOURCES INC.

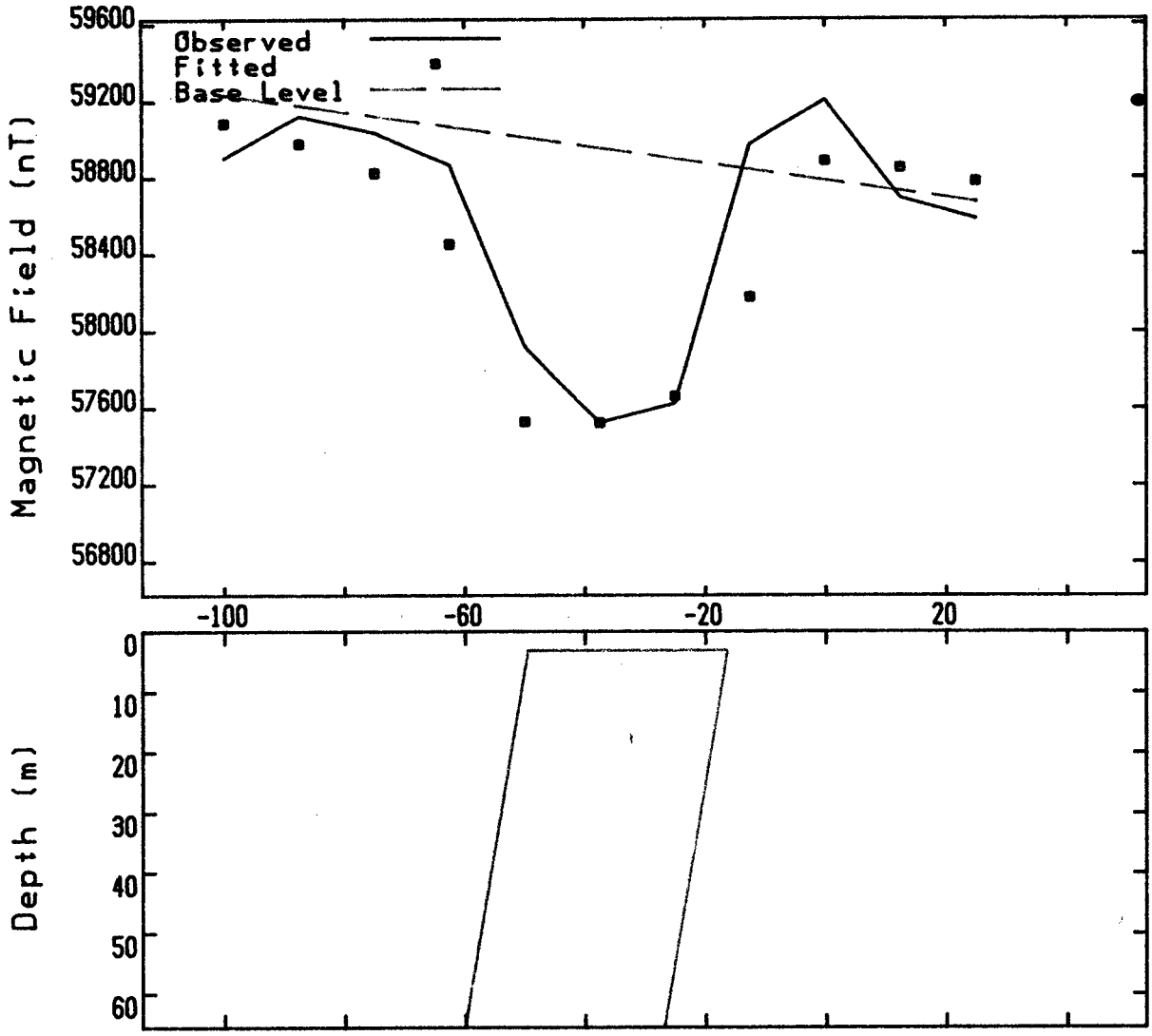
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

MAGNETIC MODEL - LINE 600 W

N.T.S. 92P/14W

FIG. 39



MODEL PARAMETERS:

Model Type		TABULAR
Depth	L	3.22 m
Half Width	F	16.6 m
Dip	F	100 deg
Susceptibility	F	-0.00460 emu
Position	F	-33 m
Base Level	F	58932 nT
Base Slope	F	-4.48 nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	58000 nT
Inclination	85 deg
Declination	22 deg

PLAN DIRECTIONS:

Strike Perp	45 deg
Line Direction	0 deg

G W R RESOURCES INC.

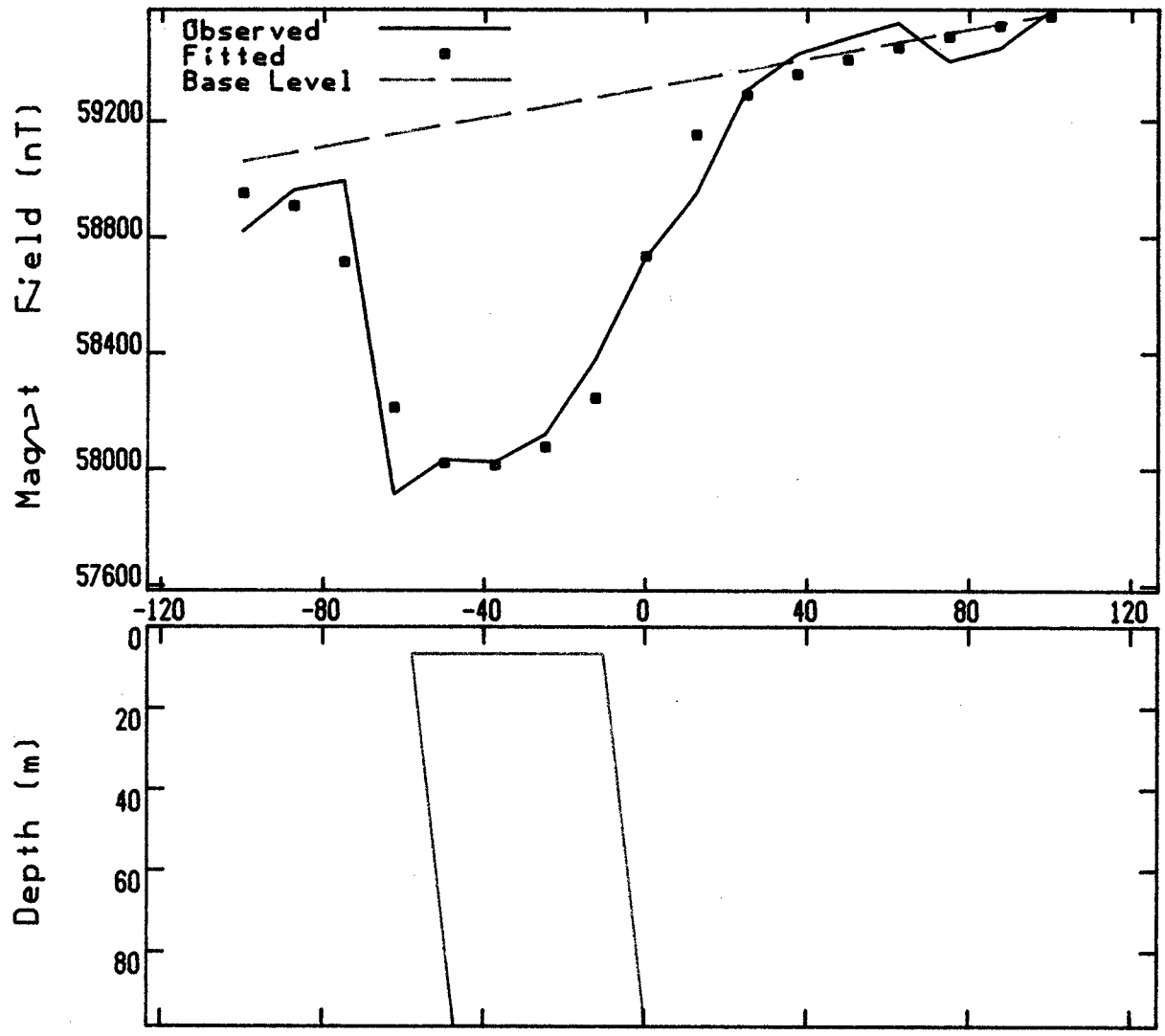
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

MAGNETIC MODEL - LINE 600 W

N.T.S. 92P/14W

FIG. 40



MODEL PARAMETERS:

Model Type		TABULAR	
Depth	L	6.55	m
Half Width	F	23.8	m
Dip	F	83	deg
Susceptibility	L	-0.00399	emu
Position	F	-34.45189	m
Base Level	F	59227.86	nT
Base Slope	F	2.515589	nT/m

(F-fitted, X-fixed, L-limit)

GEOMAGNETIC FIELD:

Field Strength	58500 nT
Inclination	85 deg
Declination	22 deg

PLAN DIRECTIONS:

Strike Perp	45 deg
Line Direction	0 deg

G W R RESOURCES INC.

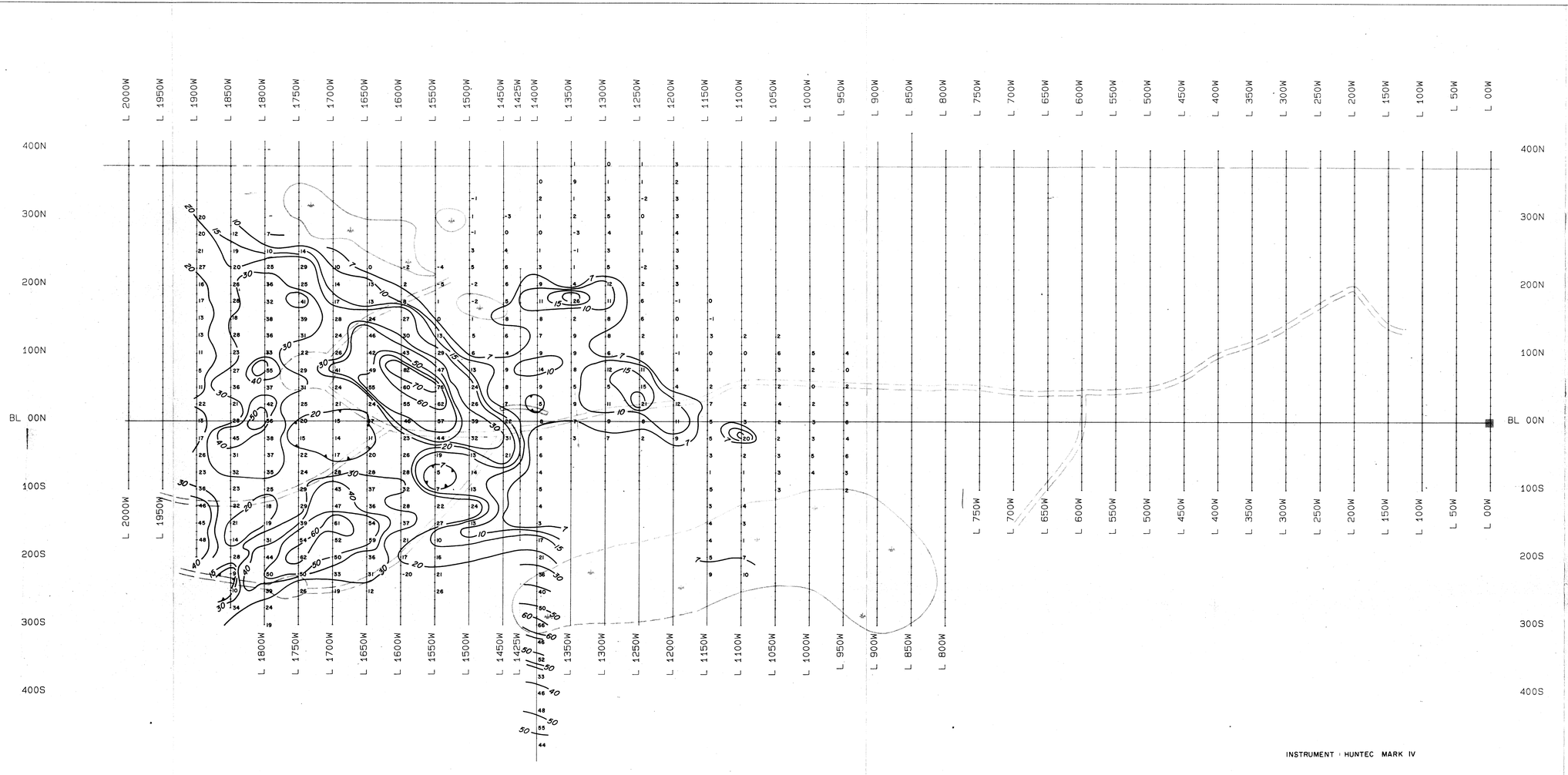
MIRACLE CLAIMS

TIMOTHY MOUNTAIN AREA

MAGNETIC MODEL - LINE 350 W

N.T.S. 92P/14W

FIG. 41



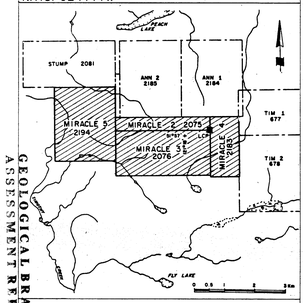
INSTRUMENT : HUNTEC MARK IV

To accompany Geophysical Report on the TIMOTHY MOUNTAIN PROJECT

16,586

GEOLOGICAL BRANCH ASSESSMENT REPORT

N.T.S. 92 P/14W



G.W.R. RESOURCES INC

TIMOTHY MOUNTAIN PROJECT

MIRACLE CLAIMS

INDUCED POLARIZATION SURVEY

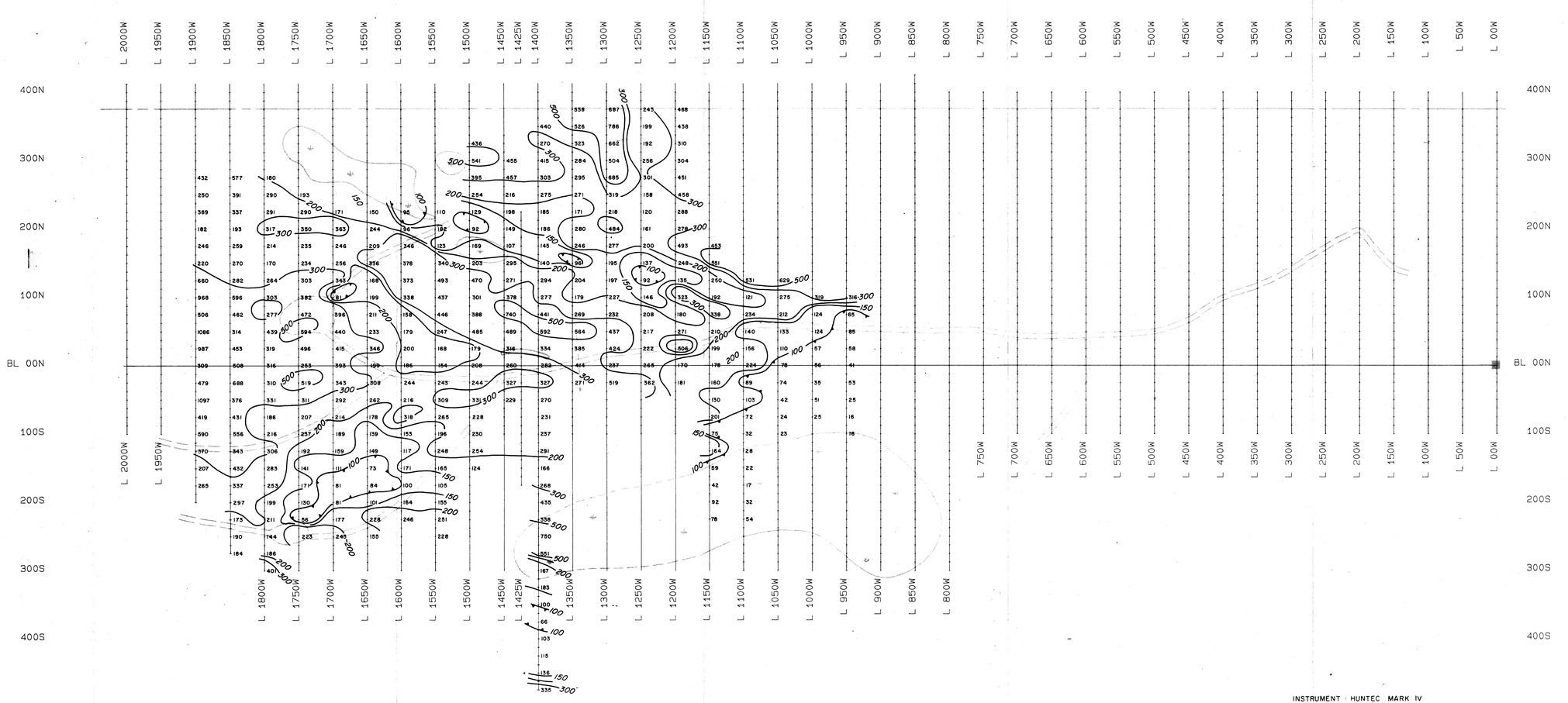
APPARENT CHARGEABILITY

Scale 1: 2500.0

0 50 100 150 200 250 M

Date: JUNE 1987 | FIG. 13

WHITE GEOPHYSICAL INC.



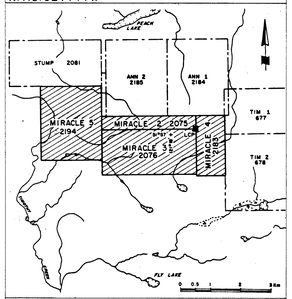
INSTRUMENT : HUNTEC MARK IV

To accompany Geophysical Report on the TIMOTHY MOUNTAIN PROJECT

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,586

N.T.S. 92 P/14W



G.W.R. RESOURCES INC

TIMOTHY MOUNTAIN PROJECT

MIRACLE CLAIMS

INDUCED POLARIZATION SURVEY

APPARENT RESISTIVITY

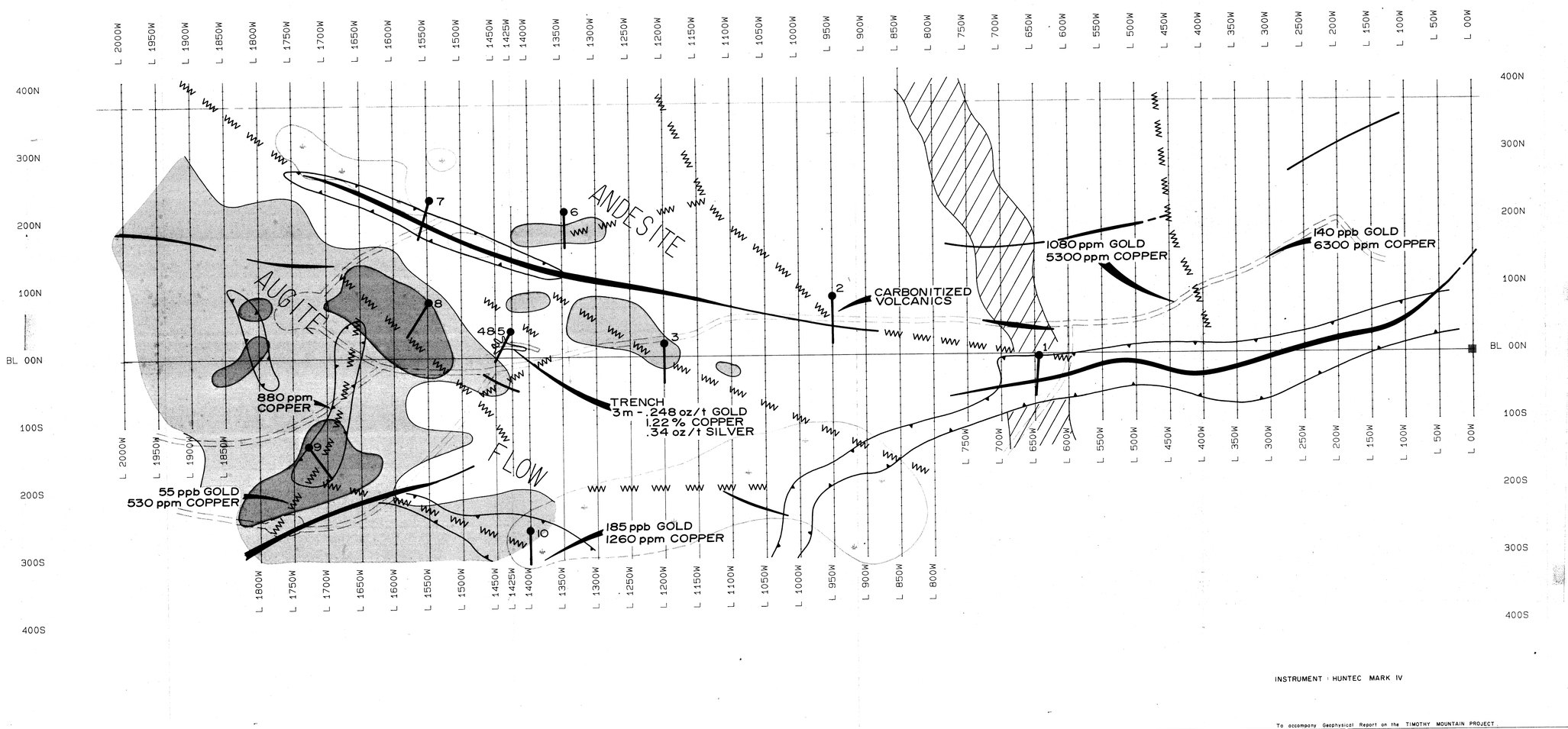
Scale 1: 2500.0

0 50 100 150 200 250 M

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE

Date: JUNE 1987 | FIG. 14

WHITE GEOPHYSICAL INC.



INSTRUMENT : HUNTEC MARK IV

To accompany Geophysical Report on the TIMOTHY MOUNTAIN PROJECT.

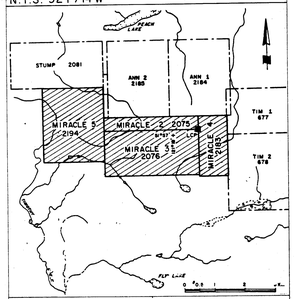
LEGEND:

- Inferred fault
- VLF-EM conductor
- Proposed DDH
- Mafic dike
- Magnetic low
- Chargeability zone
- Chargeability high

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,586

N.T.S. 92 P/14 W



G.W.R. RESOURCES INC

TIMOTHY MOUNTAIN PROJECT

MIRACLE CLAIMS

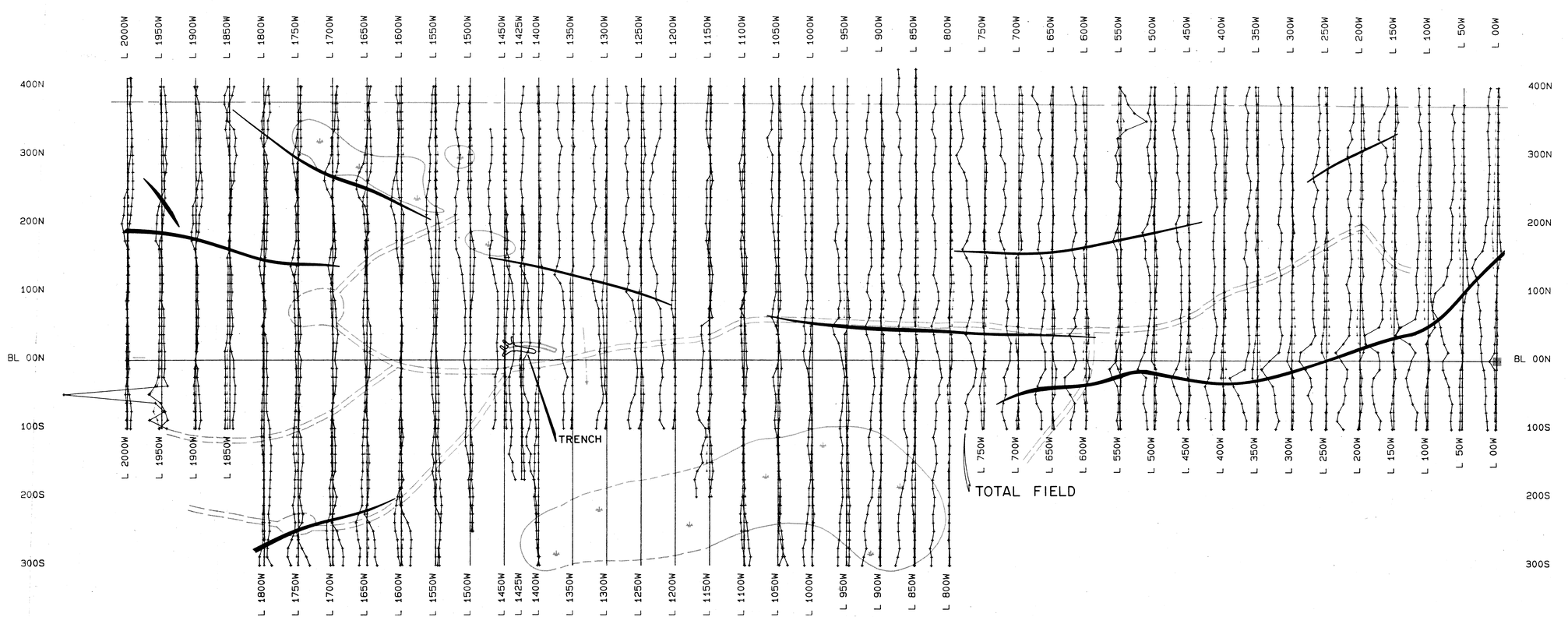
INTERPERATION MAP

Scale 1: 2500.0

0 50 100 150 200 250 M

Date: JUNE 1987 | FIG. 42

WHITE GEOPHYSICAL INC.



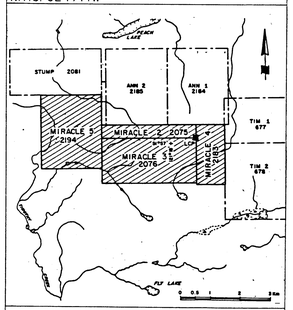
LEGEND

Total field = 400% / cm
Quadrature = 10% / cm
Inphase = 10% / cm
= VLF-EM conductor

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,586

N.T.S. 92 P/14W



G W R RESOURCES INC.

TIMOTHY MOUNTAIN PROJECT

TRANSMITTER: JIM CREEK.....L 1600W - L 2000W

TRANSMITTER: HAWAII.....L 00W - L 1550W

Scale 1: 2500.0

0 50 100 150 200 250 M

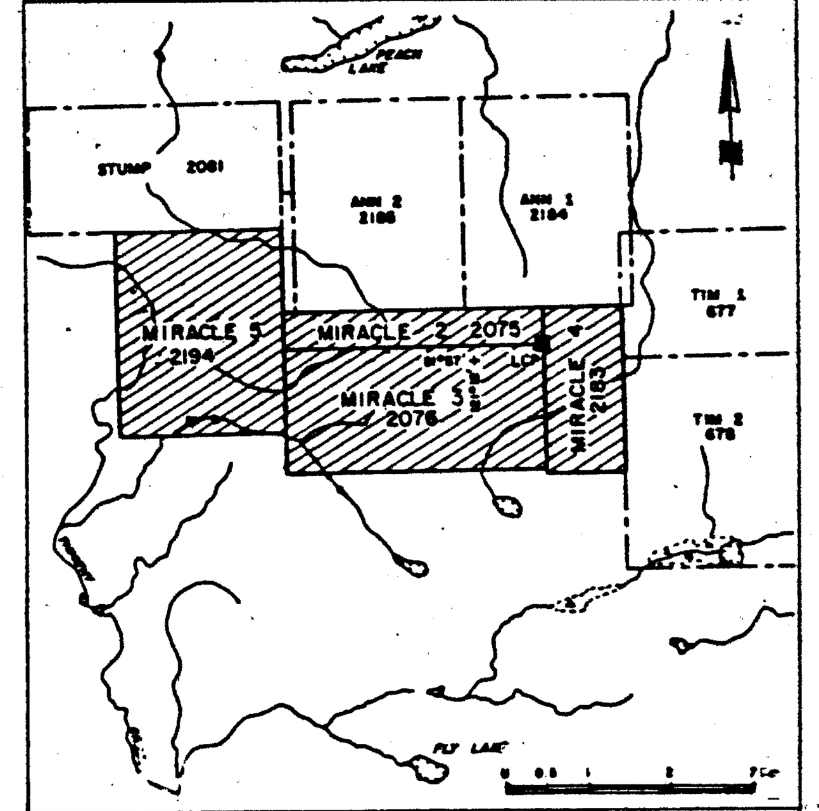
Date: JUNE 1987 | FIG. 12

WHITE GEOPHYSICAL INC.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,586

N.T.S. 92 P/14W



G W R RESOURCES INC.

TIMOTHY MOUNTAIN PROJECT
TOTAL FIELD MAGNETIC SURVEY
MIRACLE CLAIMS

Scale 1: 2500.0

0 50 100 150 200 M

Date: 12 SEPT. 87		FIG. 11

White Geophysical Inc.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
GLEN E. WHITE