6000 0102 (0890) #9

McPHAR GEOPHYSICS LIMITED

SUPPLEMENTARY REPORT

ON THE

FURTHER INDUCED POLARIZATION RESULTS

FROM THE

CALICO PROSPECT

AND THE

LITTLE CALICO PROSPECT

MINERAL COUNTY, NEVADA

FOR

WALKER-MARTEL MINING COMPANY

PROPRIETARY

FOR GOVERNMENT USE ONLY

July 28, '66

CALICO & WEST CALICO

1. INTRODUCTION

The Calico Prospect and the Little Calico Prospect were chosen for further examination on the basis of very large airborne magnetic anomalies. One line has previously been surveyed with IP in each area. The test results indicated that in general the apparent resistivities were moderately low; the sources were expected to be deep, and it was necessary to use large electrode intervals. Under these conditions, it was expected that inductive coupling effects would disturb the IP results. However, it was felt that useful results would be possible if care were taken.

2. PRESENTATION OF RESULTS

The induced polarization and resistivity results are shown on the following enclosed data plots. The results are plotted in the manner described in the notes preceding this report.

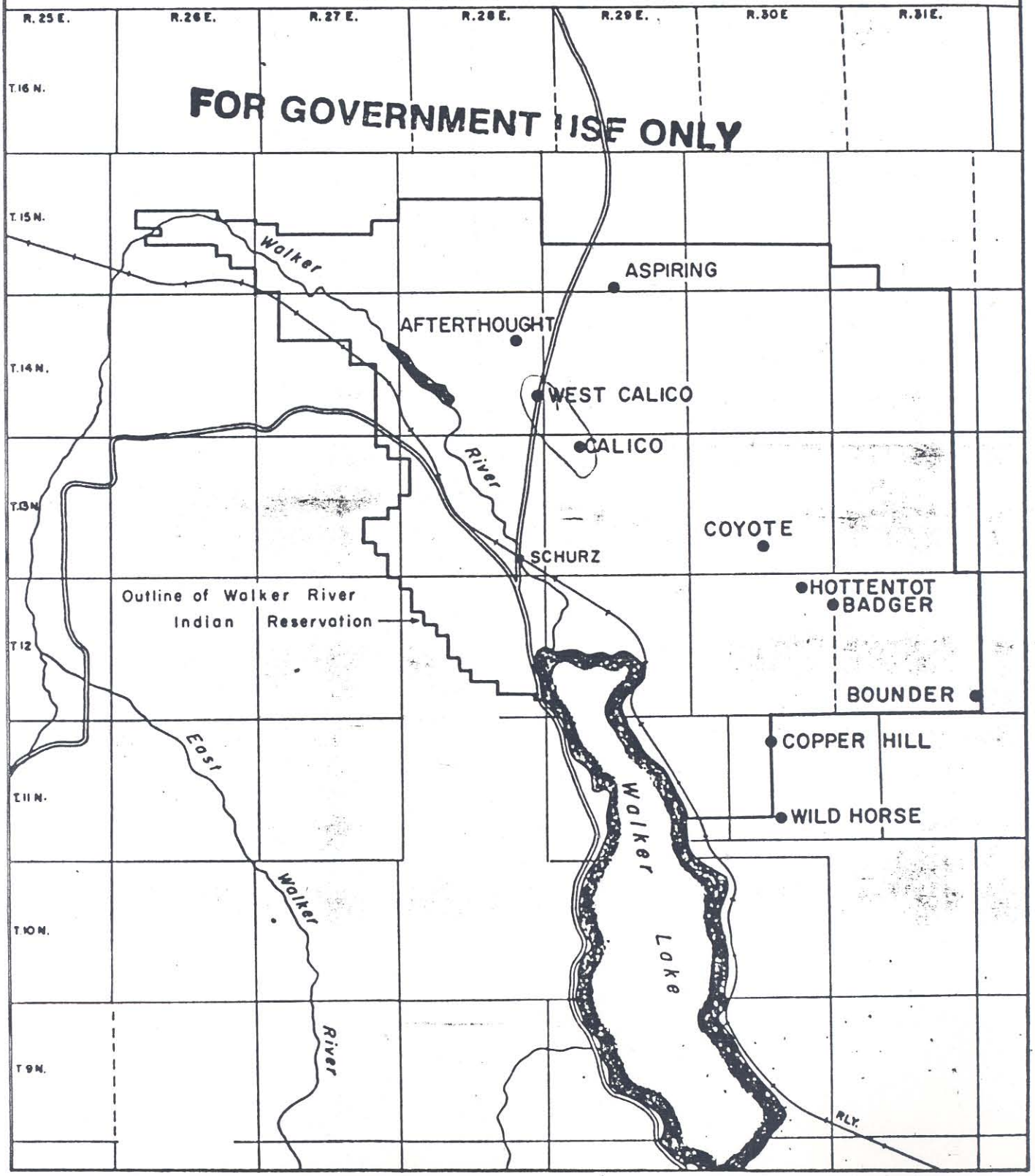
6000 0102 (0890) #9

WALKER-MARTEL MINING COMPANY

PROSPECT LOCATIONS FOR GEOPHYSICAL SURVEY PROGRAMS

PROPRIETARY

LOCATION MAP



a) Calico Prospect

Line 72.5 N. W.	1000' electrode intervals	Dwg. IP 2476-1
Line 92.5 N. W.	1000' electrode intervals	Dwg. IP 2476-2
Line 112.5 N. W.	1000' electrode intervals	Dwg. IP 2476-3
Line 132.5 N. W.	1000' electrode intervals	Dwg. IP 2476-4
	500' electrode intervals	Dwg. IP 2476-5
Line 152.5 N. W.	1000' electrode intervals	Dwg. IP 2476-6
Line 172.5 N. W.	1000' electrode intervals	Dwg. IP 2476-7
Line 10 NE	1000' electrode intervals	Dwg. IP 2476-8

Also enclosed with this report is Dwg. Misc. 3184, a location map of the area at a scale of 1" = 1000 feet. The outline of the airborne anomalies is shown on the map. Also shown is the 1000 gamma contour from a ground magnetic survey at the Calico. The definite and possible induced polarization anomalies are indicated by solid and broken bars respectively on this plan map as well as the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the induced polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the spread length; i. e. when using 1000' spreads the position of a narrow source can only be determined to lie between two stations 1000' apart. In order to locate sources at some depth, larger spreads must be used, with a corresponding increase in the uncertainties of location. Therefore, while the center of the indicated anomaly probably

corresponds fairly well with source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

3. DISCUSSION OF RESULTS

The recent results from the Calico Prospect and the Little Calico Prospect show definite IP anomalies in each area. However, due to low resistivities and inductive coupling effects the interpretation of the data is uncertain in some cases.

a) Calico Prospect

The line previously surveyed along the length of the magnetic anomaly indicated an anomaly of very great extent. Interpretation on the magnetic results, and the first drill holes at the center of the magnetic feature, indicated a depth of 800' to 1200' for the mineralization. Therefore, 1000' electrode intervals were used for the survey; it was hoped that the IP results would indicate zones of metallic mineralization that might exist adjacent to the magnetic anomaly but not directly correlating with it.

The new results were measured on lines surveyed across the strike of the magnetic anomaly. The results are much the same on all of the lines; the results on Line 132.5 N.W. are typical. To the southwest of the base line there is a very sharp resistivity contact with very low resistivities to the southwest. This feature correlates with the expected position of the regional, valley boundary fault, and it is felt that the low resistivities are due to the considerable thickness of recent alluvium that

is present in this area. In the low resistivity area, inductive coupling effects can be expected for 1000' electrode intervals, even when 1.25 cps is used.

To the northeast of the fault position, the apparent resistivities are somewhat higher. This probably reflects the presence of less-porous basement rocks at a depth considerably less than on the other side of the fault. Farther to the northeast, the resistivities decrease once again.

The IP measurements are fairly reliable in the zone of higher resistivities, and the expected inductive coupling effects would not be large. There seems to be a definite IP anomaly present on Line 132.5 N.W., just at and northeast of the base line. A similar anomaly is located on most of the other lines surveyed. To the southwest, the edge of the anomaly can not be interpreted due to the inductive coupling effects in the low resistivity areas. To the northeast, the anomaly became indistinct because the anomalous effects decrease in magnitude.

There is some depth indicated by the 1000' spread measurements, but the source seems to be getting shallower to the northwest. On Line 132.5 N.W., the results were checked using 500' electrode intervals. Inductive coupling effects are much less with 500' spreads, and a very definite IP anomaly was outlined. The source is indicated to be at depth, but the position of the source is much better defined than with 1000' spreads.

4. CONCLUSIONS AND RECOMMENDATIONS

The reconnaissance IP results from the Calico Prospect and the Little Calico Prospect have shown the widespread presence of metallic mineralization. In some cases the IP anomalies correlate with the magnetic highs, but in many places the IP anomalies are outside the magnetic high.

The interpretation of the IP results is considerably complicated by the presence of very low resistivity zones near the areas of geologic interest. These low resistivities appear to be due to considerable thicknesses of recent alluvium sediment. Since the expected mineralization is at considerable depth, it is necessary to use large electrode intervals for the survey; frequencies of 0.07 - 1.25 cps were used for the survey, but inductive coupling effects of as much as 1.0% to 3.5% are possible.

In the two areas surveyed, several anomalies are indicated. However, because of the presence of inductive coupling effects it is not always possible to fully evaluate the anomaly and determine the depth, lateral extent, and mineral concentration of the source.

A drill hole has already been spotted at 7+50 NE on Line 132.5 N.W. at the Calico. If mineralization of economic interest is intersected in this hole, further holes will be required. The IP data could be used to guide this drilling in a general way, but not in detail. The 500' spread results on Line 132.5 N.W., are much more definite than the 1000' spread results. If further drilling is going to be done, consideration should be given to repeating all of the lines, also intermediate lines with 500' spreads.

McPHAR GEOPHYSICS LIMITED

Philip G. Hallof

Dated: July 28, 1966

Philip G. Hallof,
Geophysicist.

6000 0102 (0890)

McPHAR GEOPHYSICS LIMITED

MEMORANDUM ON THE

INDUCED POLARIZATION RESULTS

FROM

ASPIRING PROSPECT

WEST CALICO PROSPECT

BADGER PROSPECT

FOR

WALKER-MARTEL MINING CO.

WEST CALICO FEB 23, 1966

At the end of the program of geophysical exploration recently carried out in Mineral County, Nevada for Walker-Martel Mining Company, reconnaissance test lines were surveyed in three areas. The results from these three lines have been drafted into final form, but a formal report has not been prepared; the results will be described here.

West Calico Prospect LINE NO. 0 FEB 23'66 1" = 300

The surface resistivities are low at the center of this line. There are some definite IP effects measured at depth at the eastern end of the line. These results should be extended, and parallel lines should be covered.

None of the anomalous effects located on the three lines above are as important as those at the Afterthought, Wildhorse Canyon or Copper Hill. However, some detail is warranted.

McPHAR GEOPHYSICS LIMITED

Dated: February 23, 1966

Philip G. Hallof

Philip G. Hallof,
Geophysicist.

McPHAR GEOPHYSICS LIMITED

REPORT ON

INDUCED POLARIZATION

AND RESISTIVITY SURVEYS

WALKER RIVER AREA

PAIUTE RESERVATION, NEVADA

FOR

MARTEL MINING COMPANY

CALICO AUG 13, '64

1. INTRODUCTION

In the last year, Martel Mining Company has been carrying out a mineral exploration program on the Paiute Reservation in the Walker River Area southeast of Reno, Nevada. Some of this work has centered about magnetic anomalies originally located by an airborne survey. In other areas exploration has been suggested by surface conditions indicated by geologic mapping.

The induced polarization method has been used in several areas to detect the presence of metallic mineralization. These results have been described in previous reports. The results described in this report were measured as a continuing part of the program.

2. PRESENTATION OF RESULTS

The induced polarization and resistivity results are shown on the following enclosed data plots. The results are plotted in the manner described in the notes preceding this report.

Line 0 1000 foot spreads; 0.1-1.0 cps Dwg. I.P. 2170-13

A long line has been surveyed along the northeast flank of the Calico Magnetic Anomaly. The line extends just past the center of the magnetic anomaly to the southeast, and well out into the magnetically flat area to the northwest. All of the measurements along the line indicate anomalous I.P. effects at depth.

The apparent resistivities are somewhat low, and because of the large electrode intervals used some frequency efforts would be expected from inductive coupling. However, for resistivities in the range 7.5 to 10 the frequency effects due to coupling for n=3 would be 3.5 to 4.5 per cent. The frequency effects measured are at least twice this magnitude.

The single line surveyed at the Calico Magnetic Anomaly indicates an extremely broad I.P. anomaly that extends well beyond the location of the magnetic high. The source of these I.P. effects is at considerable depth; since the source is so wide spread and does not correlate with the magnetic anomaly, it may be of little geologic interest. It can best be further evaluated by surveying parallel line 1000 feet to each side.

McPHAR GEOPHYSICS LIMITED

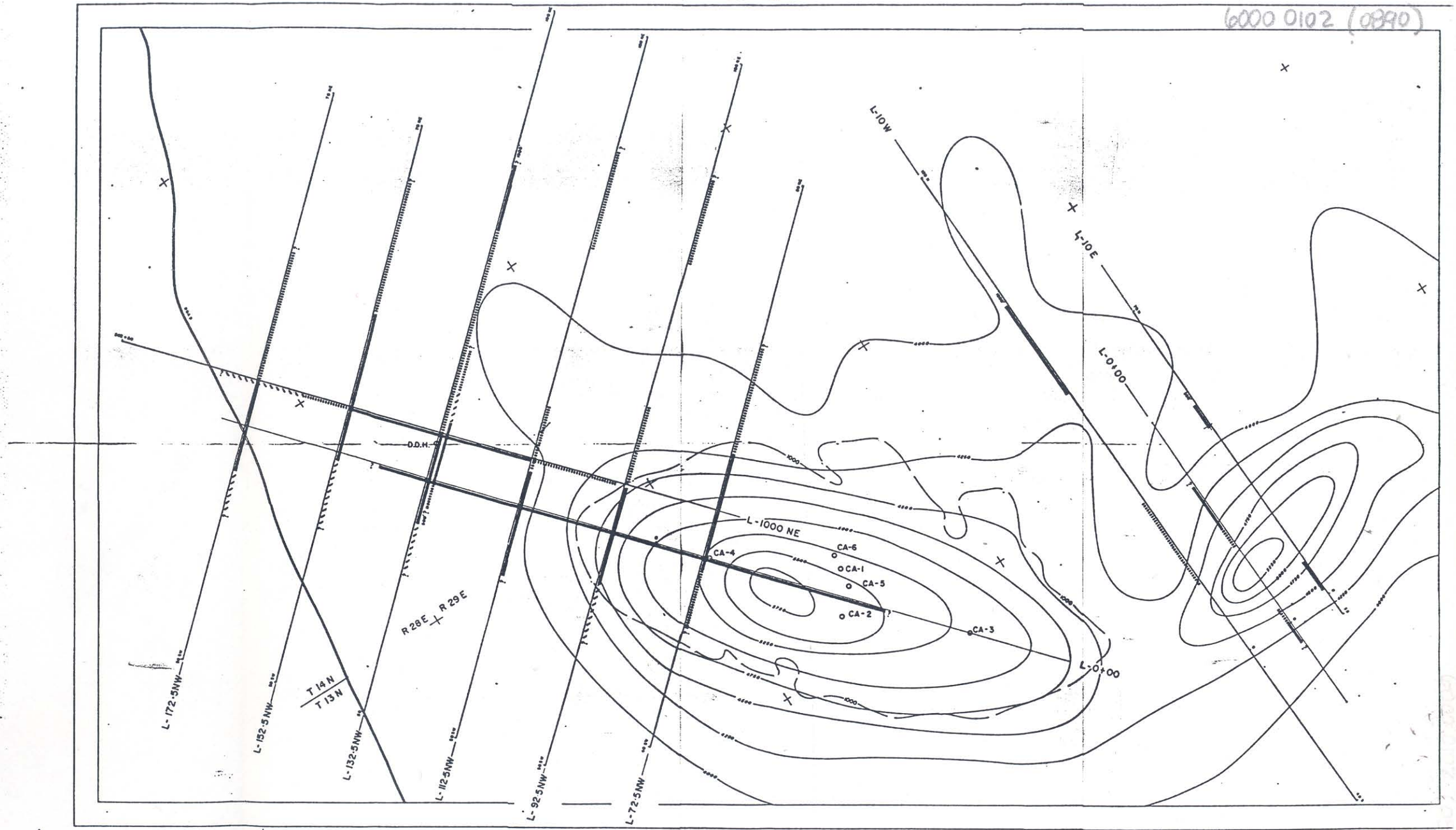
Philip G. Hallof

Philip G. Hallof.

Dated: August 13, 1964

LOCATION MAP

6000 0102 (0390)



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

Number at the end of anomaly indicates spread used

WALKER-MARTEL MINING COMPANY

CALICO AND LITTLE CALICO PROSPECT, MINERAL COUNTY, NEVADA

SCALE

ONE INCH EQUALS ONE THOUSAND FEET 0 1000

1000 γ CONTOUR FOR GROUND MAGNETIC SURVEY

250 γ CONTOUR INTERVAL FOR AERIAL MAGNETIC SURVEY

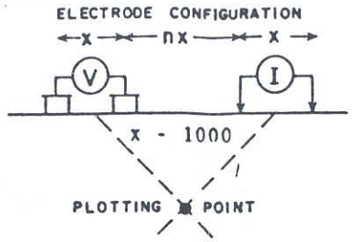
CA-1 DRILL HOLE

CA-1 INTERCEPTED MINERAL

SECTION CORNER

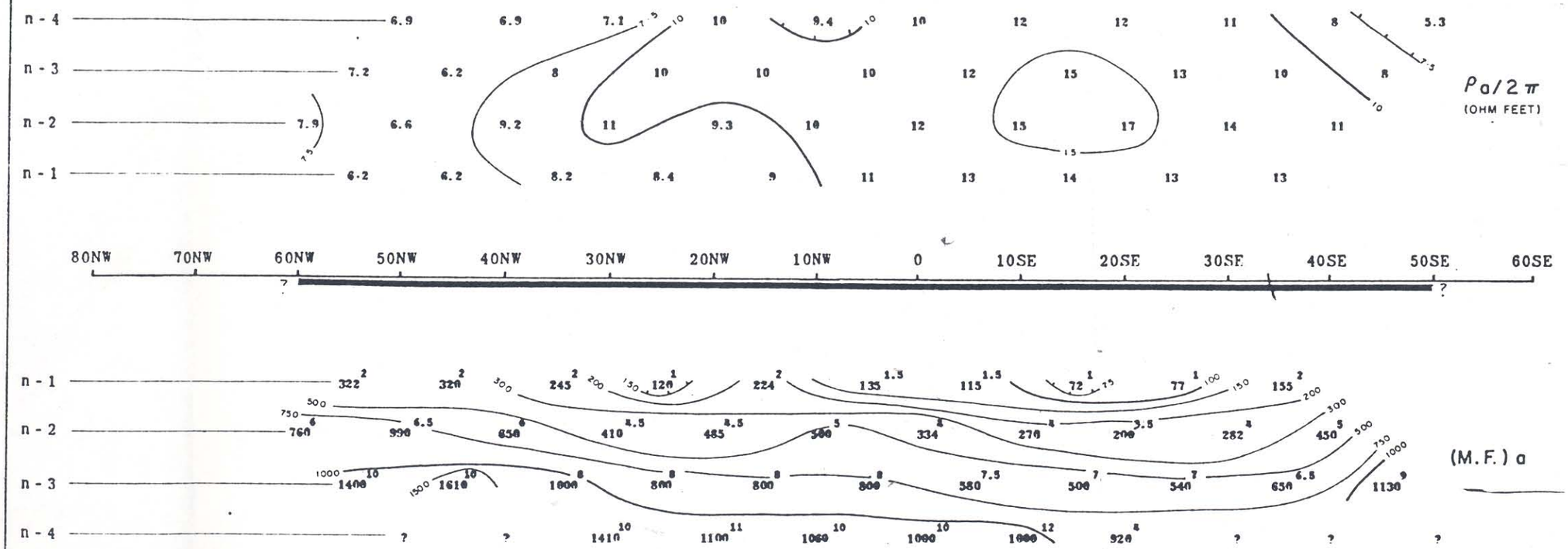
6000 0102 (0890)

DWG. NO.-1 170-13



McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY



LINE NO.-CALICO (O)

ANOMALOUS ZONE

POSSIBLE ANOMALOUS ZONE

NOTE
LOGARITHMIC CONTOUR INTERVAL

MARTEL MINING COMPANY

CALICO PROSPECT- PAIUTE RESERVATION, NEVADA.

Scale- One inch = 1000 Feet 0 1000 ft

FREQUENCY 0.07-1.25 CPS

DATE SURVEYED JUNE 1964

APPROVED PH

DATE 8/12/64

6000 0102 (0840)

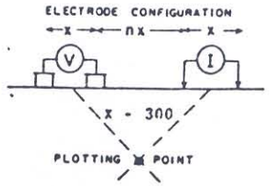
W -I.P.-

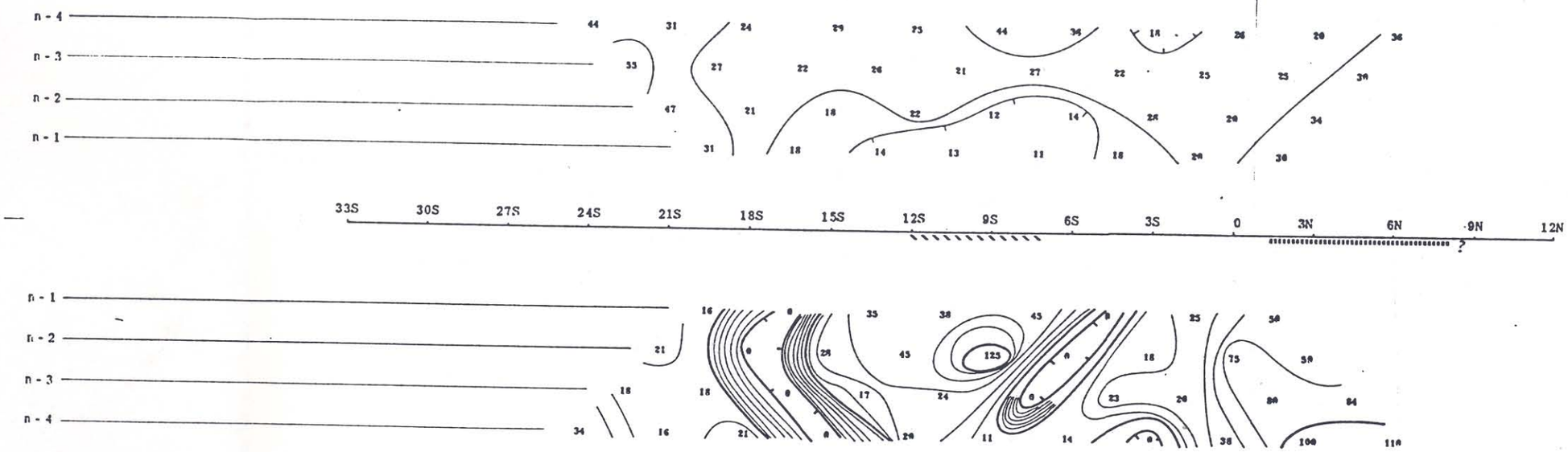
McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION





Pa/2π (OHM FEET)

(M.F.) a

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

WEST CALICO PROSPECT, MINERAL CTY., NEVADA - U. S. A.

Scale - One inch = 300 Feet

0 300 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.05-1.25 CPS

DATE SURVEYED JAN. 1966

APPROVED J.M.B.

DATE Feb. 23, 1966

6000 0102 (0890)

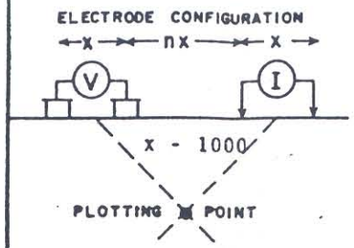
DWG. NO.- 2476-8

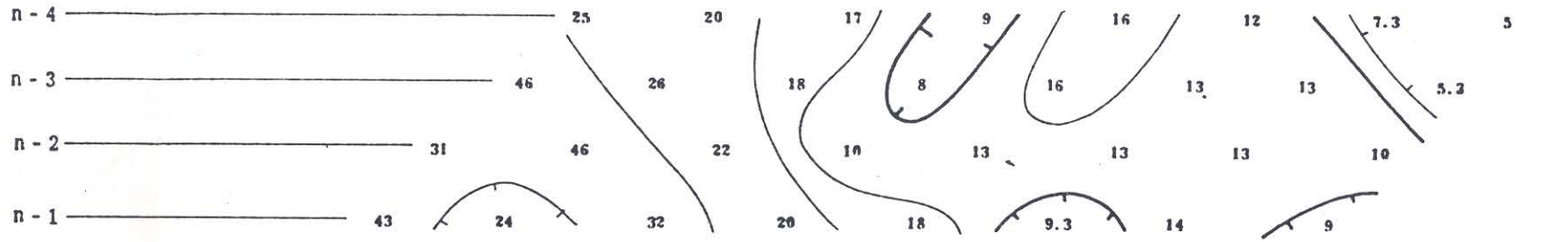
McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

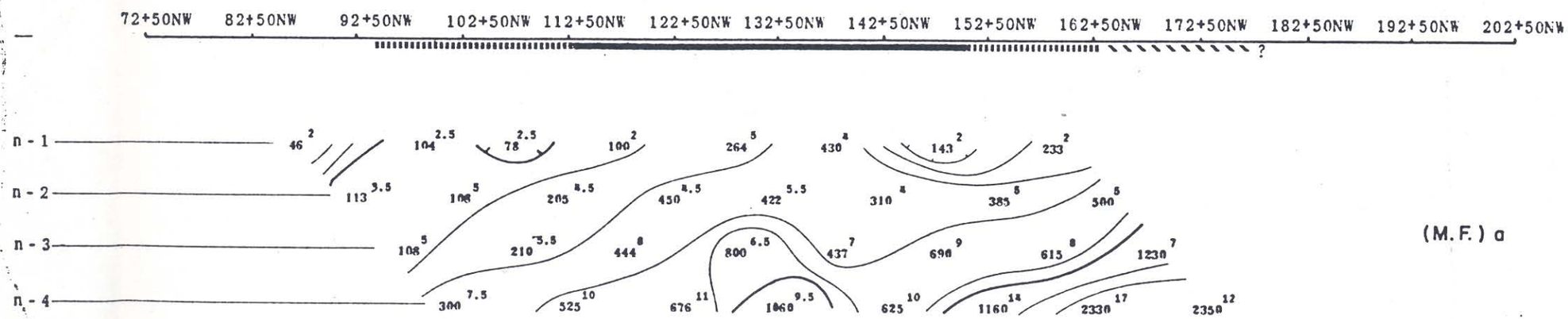
NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION





Pa/2π
(OHM FEET)



(M.F.) a

LINE NO.- 10 NE

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale - One inch = 1000 Feet

0 1000 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED [illegible]

DATE 7/27/66

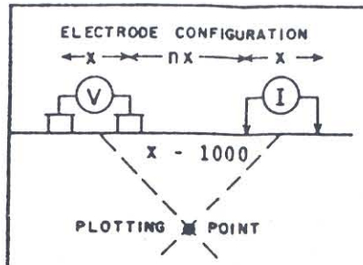
6000 0102 (0890)

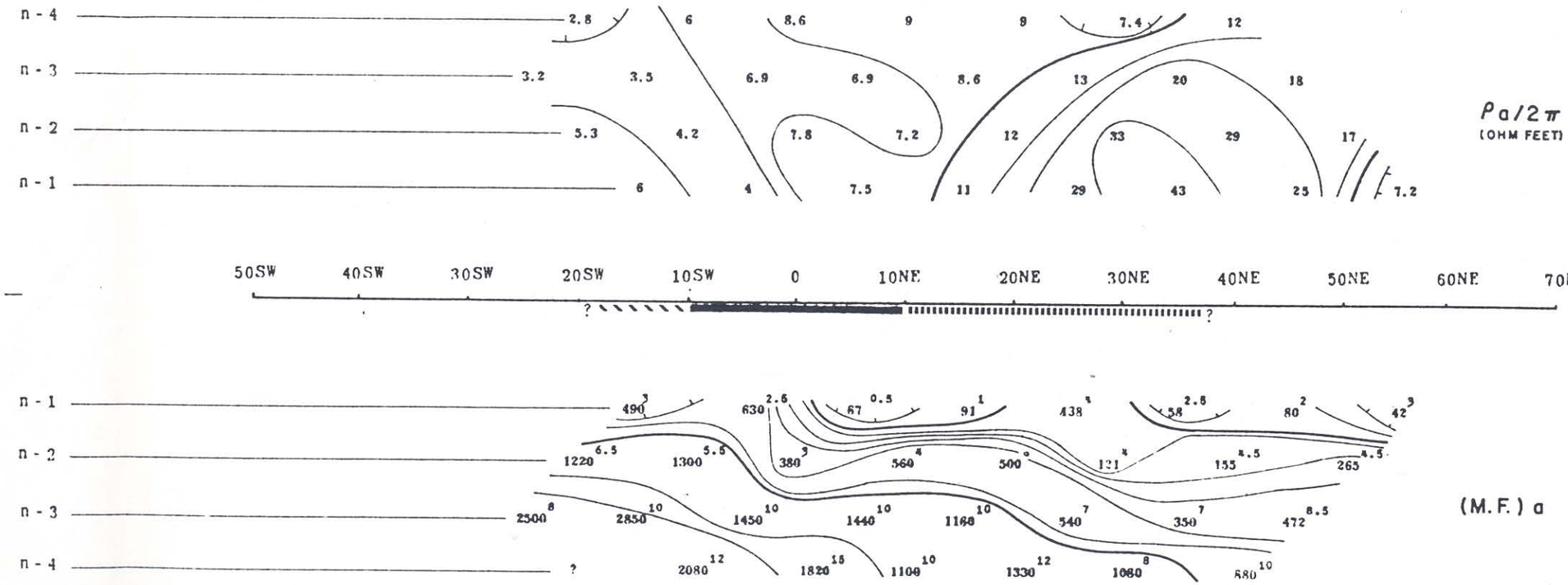
DWG. NO.-1 2476-7

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale - One inch = 1000 Feet

0 1000 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED

DATE 7/27/66

LINE NO.- 172.5 N.W.

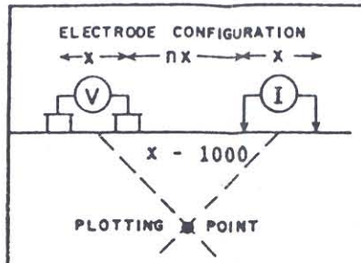
6000 0102 (0890)

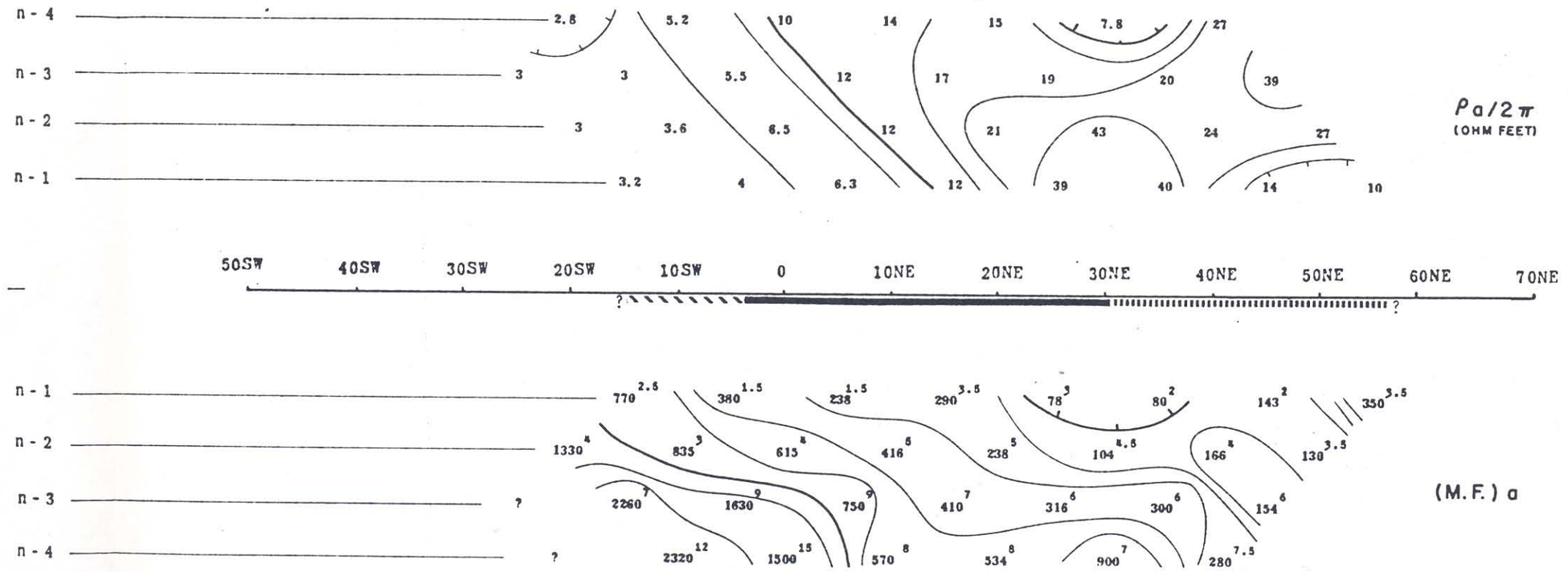
DWG. NO.- 2476-6

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





LINE NO.- 152.5 NW

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale - One inch = 1000 Feet

0 1000 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED

DATE 7/27/66

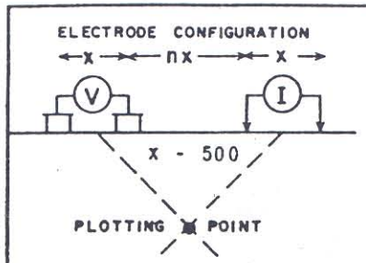
6000 0102 (0890)

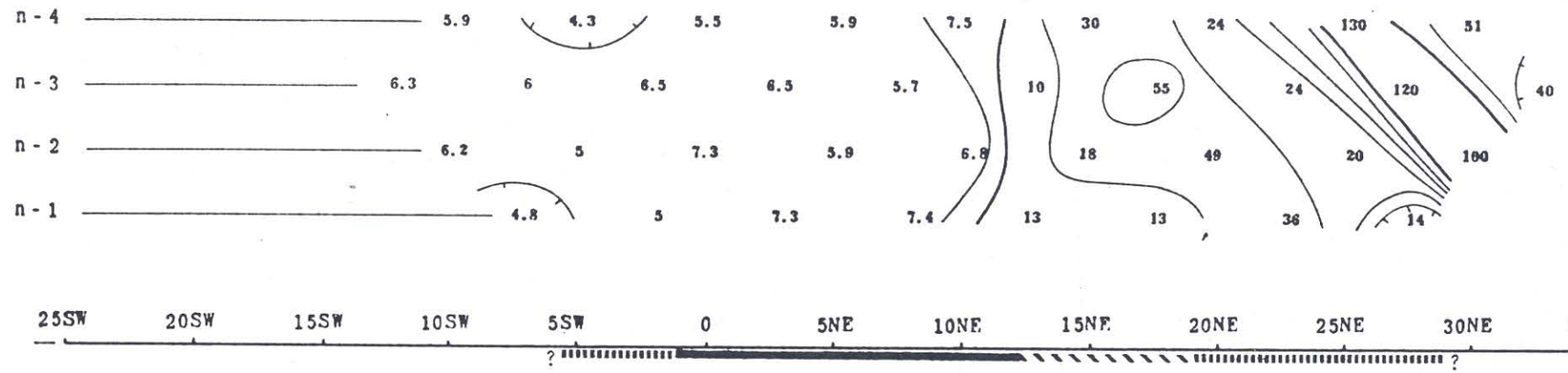
DWG. NO.- 2476-5

McPHAR GEOPHYSICS LIMITED

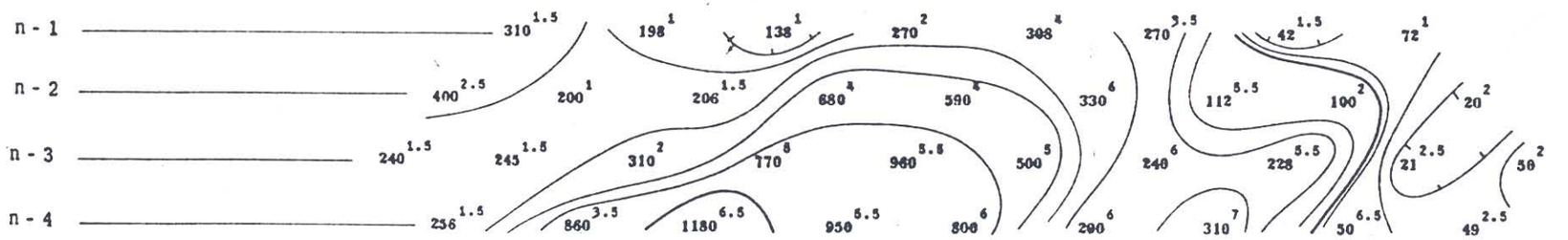
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





Pa/2π
(OHM FEET)



(M.F.) a

LINE NO.- 132.5 NW

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪

POSSIBLE / / / / / / / / /

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale-One inch = 500 Feet 0 500 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED [illegible]

DATE 7/21/66

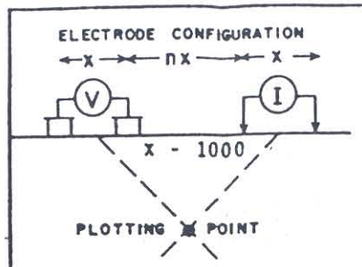
6000 0102 (0890)

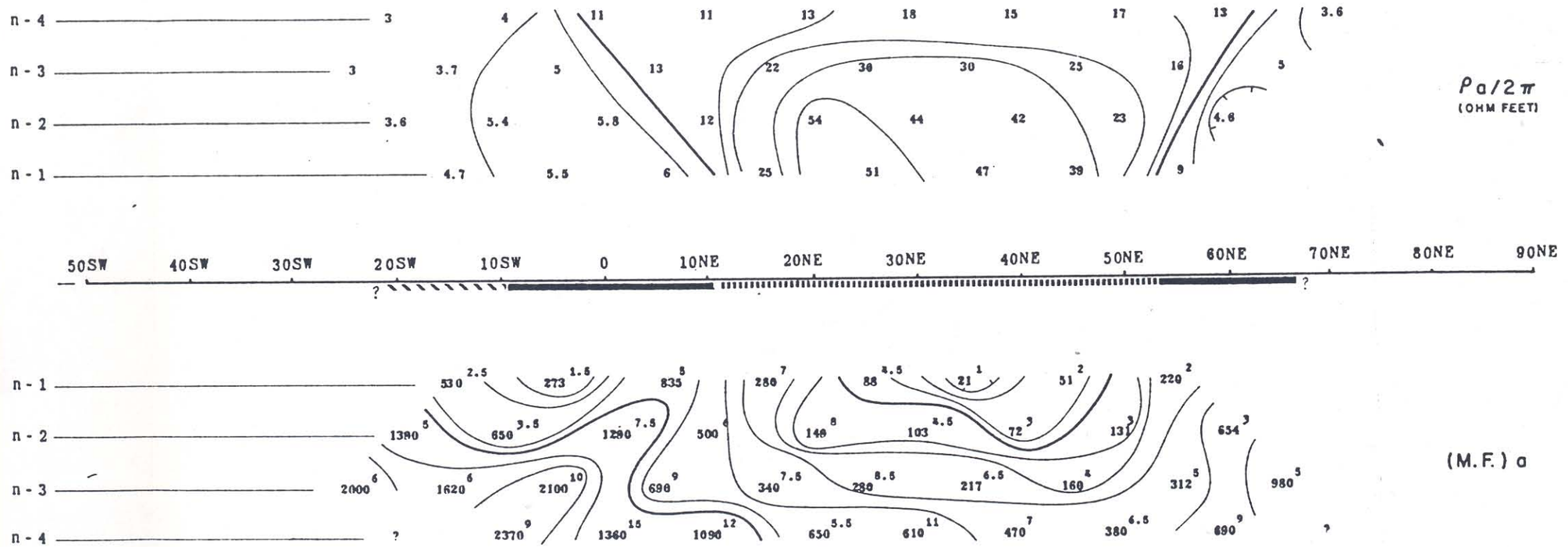
DWG. NO.-1 2476-4

McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100





SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale - One inch = 1000 Feet 0 1000 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED PH

DATE 7/27/66

LINE NO.- 132.5 N W

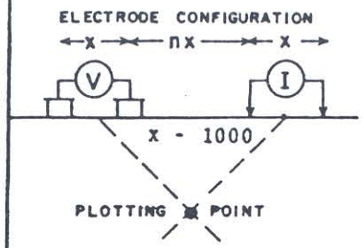
DWG. NO.-I.P.- 2476-3 6000 0102 (0890)

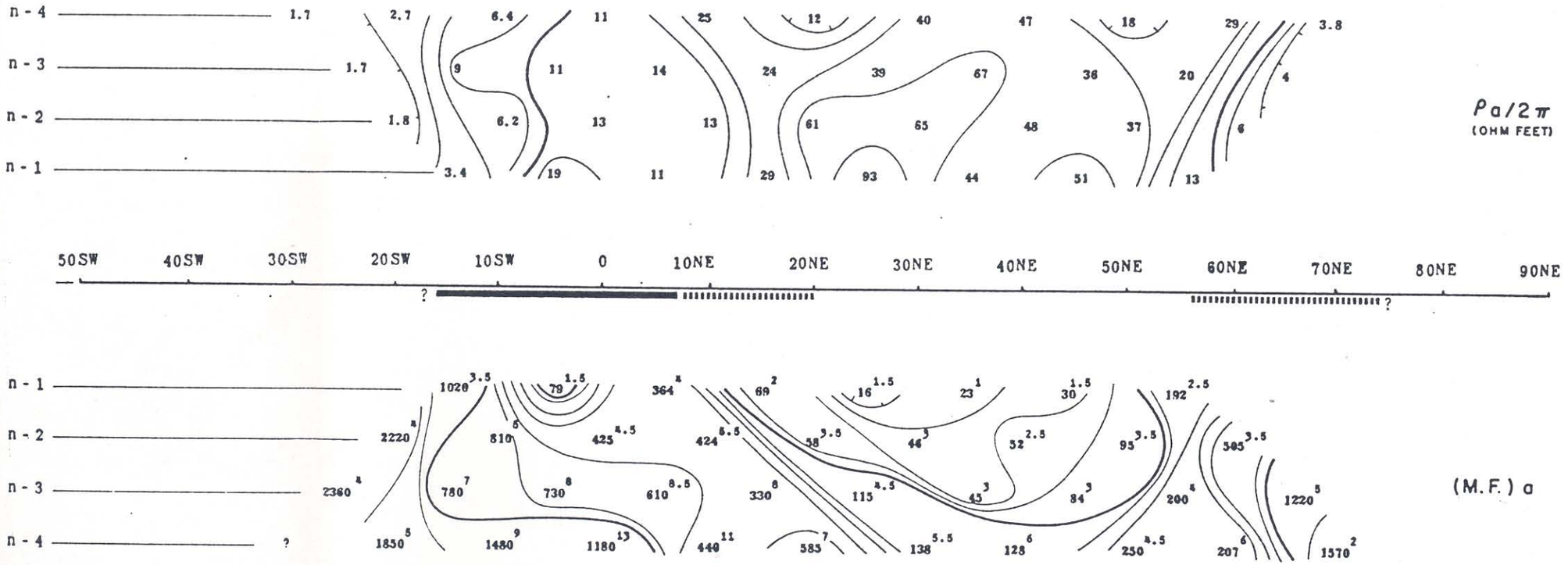
McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION





Pa/2π (OHM FEET)

(M.F.) a

LINE NO.- 112·5 NW

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE ——————

PROBABLE .....

POSSIBLE / / / / / / / /

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale- One inch = 1000 Feet 0 1000ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 07 & 13 C.P.S.

DATE SURVEYED JUNE, 1966

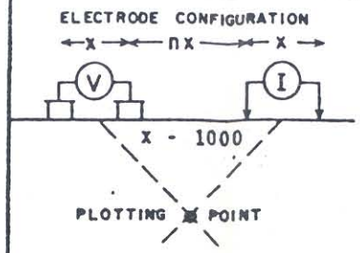
APPROVED [illegible]

DATE 7/27/66

6000 0102 (0890)

DWG. NO.- 2476-2

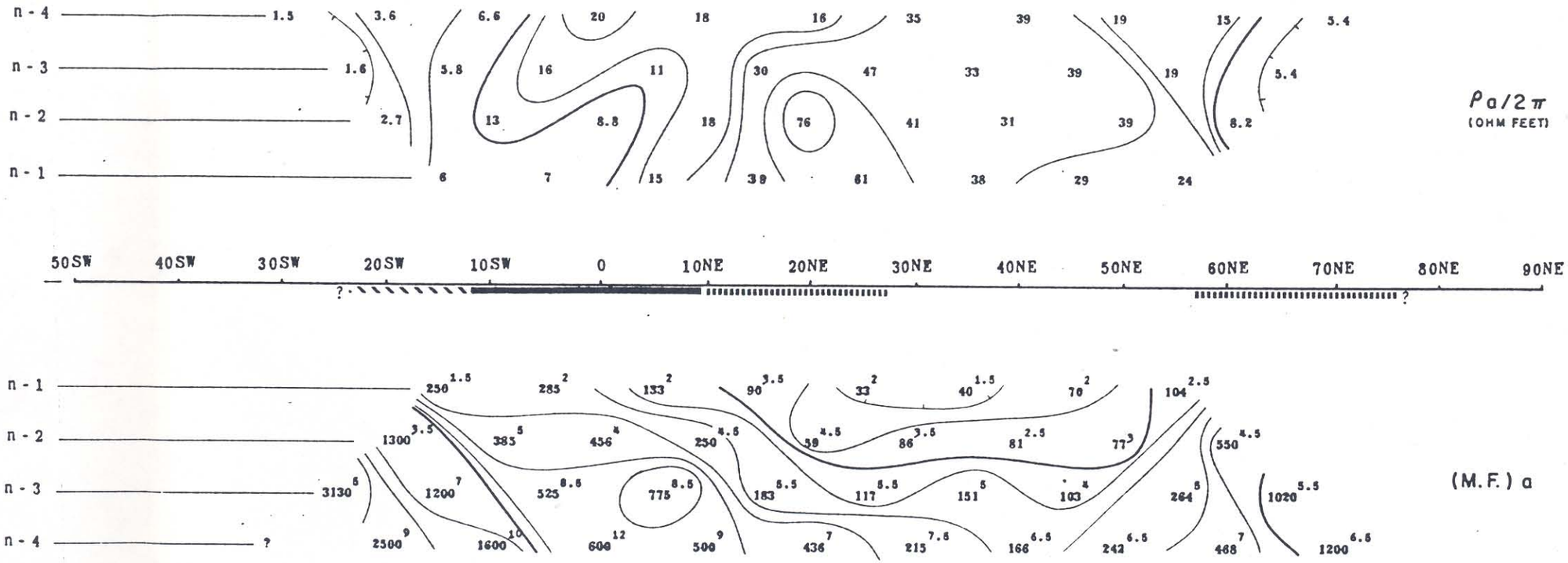
ELECTRODE CONFIGURATION



McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100



LINE NO.- 92·5 NW

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale- One inch = 1000 Feet 0 1000 ft

NOTE LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED P

DATE 7/27/66

6000 0102 (0890)

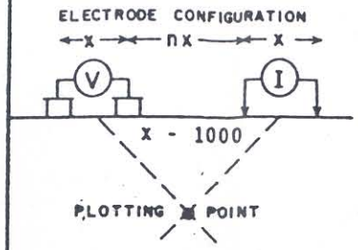
DWG. NO.- 2476-1

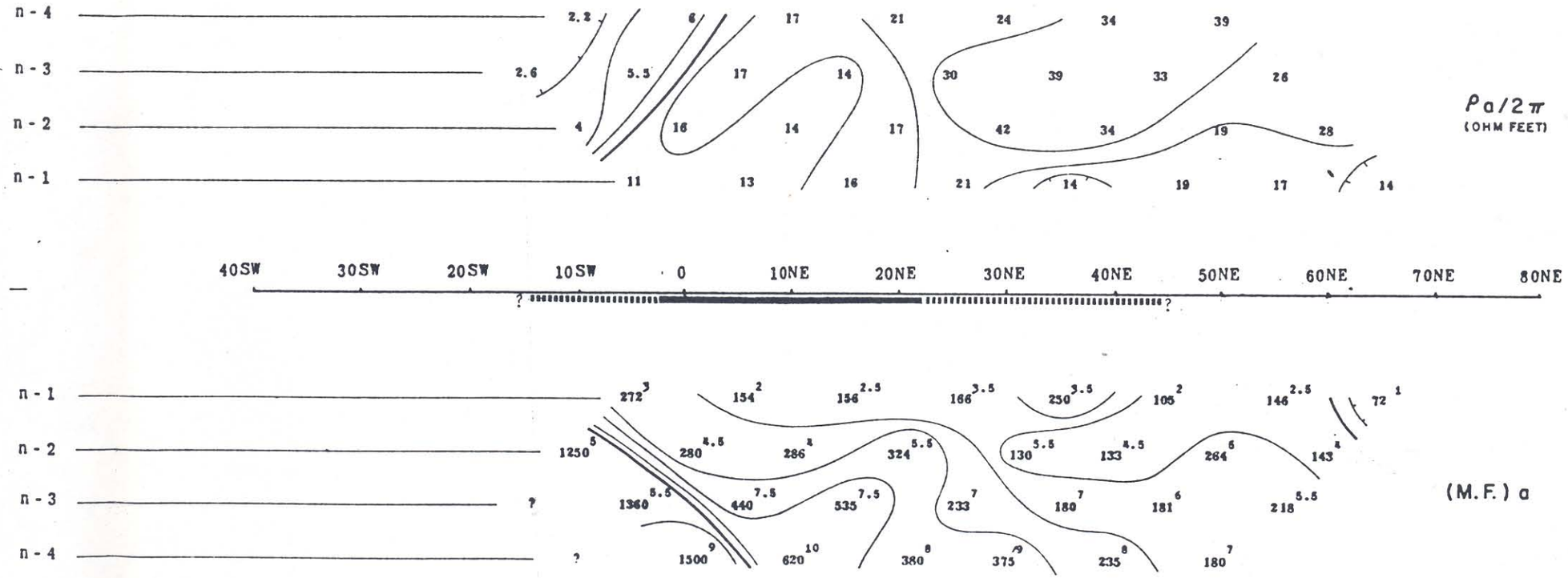
McPHAR GEOPHYSICS LIMITED

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: CONTOURS AT LOGARITHMIC MULTIPLES OF 10-15-20-30-50-75-100

ELECTRODE CONFIGURATION





LINE NO.- 72·5 NW

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

PROBABLE

POSSIBLE

WALKER-MARTEL MINING COMPANY

CALICO PROSPECT, MINERAL COUNTY, NEVADA

Scale - One inch = 1000 Feet 0 1000 ft

NOTE: LOGARITHMIC CONTOUR INTERVAL

FREQUENCY 0.7 & 1.3 C.P.S.

DATE SURVEYED JUNE, 1966

APPROVED PH

DATE 7/27/66