GEOPHYSICAL REPORT

ON 94E/6E

SPONTANEOUS POLARIZATION AND MAGNETIC SURVEYS

ON THE PROPERTY OF

McCLAIR

BY

TAKEO YOKOYAMA, M.SC., GEOPHYSICIST

AND

JUNICHI MORITA, M.TECH., GEOPHYSICIST

AUGUST 18th, 1972

CLAIMS SURVEYED

MAC GROUP: PIT 41,42,43,44,45,46,47,48,49,50,51,
52,53,54,55,56,77,80,82.84,85,86,
87,88,89,90,91,92,93,94,95,96,159,
161,162,165,166,169,170.

LAIR GROUP: PIT 57,58,59,60,160,163,164,167,171,
172,173,174,175,176,177,178,179,
180,181,182,183,184,185,186,187,
188,189,190,191,192,193,194,195,
196,197,198,199,200,201,202.

LOCATION

TWELVE MILES SOUTH SOUTHWEST OF CHUKACHIDA LAKE, B.C.

LAT. 57°N; LONG. 127°W

FIELD WORK

JUNE 22nd-JULY 5th, 1972

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CONTENTS

1) Introduction

The McClair property was staked last year as the result of anomalies detected by the reconnaissance geochemical survey.

I.P. and magnetic surveys were planned for the 1972 exploration programme in addition to geological and detailed geochemical surveys.

The survey lines were not completed when the writers arrived at the property, but were extended as occasion called. As the chaining work was done hurriedly, some of the lines are irregular.

As a result of break-downs in the I.P. instrument, an S.P. survey was made using a McPhar I.P. receiver. The survey was also delayed because of bad weather and a very steep topography. It ended in accomplishing three line miles of S.P. and six line miles of magnetic survey. Andesite lava is distributed throughout the whole area. No noteworthy showings had been found before completion of the survey. However, finely disseminated pyrite in the andesite was expected to cause an S.P. as well as I.P. anomaly.

Note: I.P. survey was made with the configuration of 400 ft. separation and 200 ft. movement using the pole-dipole array at the frequencies of 5 and 0.3 Hz.

Instrument trouble occured in the order of the engine of the generator, the receiver, and the transmitter. Eight days were wasted while trying to fix the instruments or lost as a result of bad weather (heavy snow fall, a strong wind, etc.)

In between break-down and weather delays, only two readings were obtained alongside of a prospecting pit. The results were as

follows:

Station	Apparent resistivity (ohm. feet/2π)	Frequency effect (%)
45E 14N	396	0.4
45E 16N	447	2.2

These values are considered to be ordinary for the area of andesite.

2) Spontaneous Polarization Survey

As the I.P. transmitter was broken down, an S.P. survey was tried using the McPhar I.P. receiver to make full use of waiting time for the instrument before moving to the Moosehorn property.

The S.P. survey is the fastest and least expensive of the electrical prospecting methods. It was used most frequently from 1913. But it is not used very often at the present for mining exploration because the penetration is not deep enough and many things can cause an anomaly as well as an ore body. An S.P. anomaly is affected by the quantity of sulphides, the extent of oxidation of the ore body, the condition of ground water, the rock distribution, the existance of soil and debris, shear zones, the topography, and many other things. Therefore quantative interpretation of S.P. is almost impossible.

As mineralized and heavily silicified rocks are considered to make a strong S.P. anomaly if the overburden is shallow, the S.P. method was expected to be effective on this property.

An S.P. survey was carried out on July 2nd, 3rd, and 4th. A McPhar I.P. receiver, Model 654 and porous pots were used. The instrument is not suitable for S.P work because of the slow reaction of the meter. Steep topography also make the survey inefficient. The base station was set at the camp site. The measurement was done every 100 ft. on lines 400 or 500 ft. apart. About three line miles in total were covered.

The station distribution might not be dense enough considering that repeatability and reliability are low in the case of S.P. survey.

The S.P. result is presented as a contoured plan at a scale of 1" = 200' in Fig. 212-GP-1.

A weak anomaly was obtained (most of the readings on the east hump were less than -20 mv). Several bands of stronger anomaly (less than -30 mv) running NW-SE were discriminated in the anomalous zone. This direction coincides with that of the geochemical anomaly and the location of the geochemical and S.P. anomalies roughly coincide.

Readings were also taken around two pits on 28N line and 43N line where pyrite-lead-zinc mineralization was found. The readings were about background values.

It is very hard to tell that any mineralization could be expected under the anomaly. Though very interesting gold anomalies were obtained by the geochemical survey last year, it is not clear what type of ore body might be expected in the geological situation of this property for the lack of showings.

Judging from the weak S.P. response, neither large quartz veins or massive sulphide ore bodies would be expected but an assemblage of small veins might exist.

Although a low grade sulphide or small scale ore body might be found, this property is not considered to be very promising from a geophysical point of view.

Any geophysical work looks neither very effective nor suitable for this property because of the very steep and rocky nature, in addition to an obscure target and very weak geophysical response. As the overburden is supposed to be very shallow, trenching might be the best way to explore the property. No drillholes are recommended.

3) Magnetic Survey

A magnetic survey was carried out from June 22nd to July 5th, 1972 on the McClair Property.

The vertical component of the magnetic field was measured by using a McPhar M-700 flux-gate type magnetometer. The accuracy of the instrument is itself 20 gammas. The readings were taken every 100 ft. along the grid line and O base line. Six line miles in total was covered by the magnetic survey. The direction of lines are nearly parallel with the magnetic longitude line.

The base station was set on the line and was occupied at least twice a day. No big variation was found on any measuring day. Diurnal variation was observed every 15 minutes between 9:00 and 21:00 hours on June 25th (incompletely) and again on July 3rd at the campsite. The variation was less than 80 and 60 gammas respectively. The results are shown in Fig. 212-GP-3. As the diurnal variation were unexpectedly low in this area considering the high magnetic latitide, the correction for it was omitted. It would not have a big effect on the interpretation.

The results of the magnetic survey are presented as a contoured plan at a scale of 1" = 200' in Fig. 212-GP-2.

The principal magnetic features on the map have a WNW-ESE trend. The most noticeable anomaly, more than 1,000 gammas, is detected at the northern end of the grid system. It is also expected that a large high magnetic anomaly lies south of the grid. Strongly magnetized volcanic rocks are presumed to underlie both areas. Topographical effect is thought to be considerable in this property, due to the steep slopes, and can not be ignored especially in the above-mentioned

anomalous areas.

Another conspicuous magnetic high anomaly is located near 15N between 45E and 58E line. This magnetic anomaly neither coincides with the S.P. nor geochemical anomalies. It is very hard to interpret the data because andesite is distibuted in the whole area and different rocks can hardly be expected to exist. It sometimes occurs that magnetite is richer in some parts and poorer in other parts in volcanic rocks as andesite and this may account for the anomaly.

Consequently, it is very doubtful if the magnetic survey is useful for exploration in this property.

4) Conclusion

Moderate grade anomalies were detected by S.P. survey. The direction of these were NW-SE. An S.P. anomaly roughly coincides with the geochemical anomaly in position and direction. The hump located at the eastern part of the property is the most hopeful. An assemblage of small veins might be expected.

Magnetic anomalies are hard to interpret for andesite is distributed in the whole area. Anyway, they have no correlation with S.P. and geochemical anomalies.

Regretfully, the I.P. measurement was not made because of instrument trouble. However, it is supposed, that I.P. survey could not be completed in most places even if the instrument were operating normally. Any electrical survey could encounter difficulty in such a rocky and very steep property. The transient array using the time domain method might be more applicable than other configurations.

In conclusion, neither large quartz veins nor great amounts of sulphide ore bodies are presumed to be situated in this property. Low grade or small ore bodies might be found; however this property is not considered very promising based on the geophysical results. No drill holes are recommended especially from the geophysical point of view. As the overburden is thought to be very shallow, trenching might be the best.

The following personnel were associated with the geophysical surveys:

TAKEO YOKOYAMA	GEOPHYSICIST AS I.P. AND S.P. OPERATOR
JUNICHI MORITA	GEOPHYSICIST AS I.P., S.P. AND MAGNETOMETER OPERATOR
MOHAN RAMALINGASWAMY	MAGNETOMETER OPERATOR
DOUG HOPPER	I.P. HELPER
RON BRITTEN	I.P. AND S.P. HELPER
BRIAN CHENEY	I.P. AND S.P. HELPER

AUGUST 18, 1972
VANCOUVER, B.C.

RESPECTFULLY SUBMITTED

Takeo Yokoyama

Takeo Yokoyama, M.Sc.
Geophysicist

Junichi Morita

Junichi Morita, M.Tech.
Geophysicist

Approved: A. K. Hitchy P Eng.

STATEMENT OF QUALIFICATIONS

I received a Bachelor of Science degree from Kyoto University in 1960 in Geology.

I received a Master of Science degree from Kyoto University in 1962 in Physical Geology.

I have been continuously employed on most type of geophysical surveys and related work, since graduation, for Sumitomo Metal Mining Co. Ltd.

Takeo Yokoyama

Takeo Yokoyama

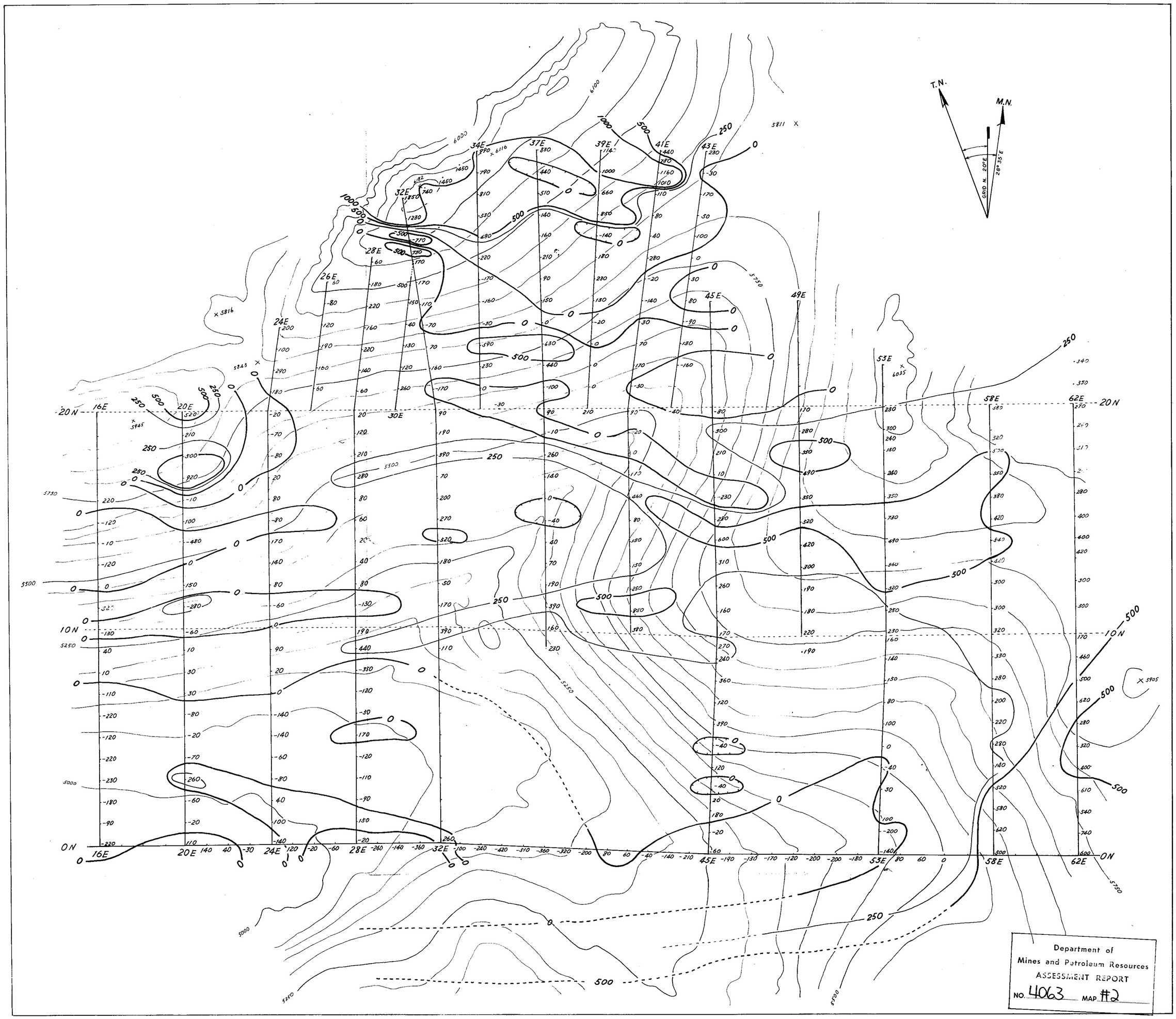
I received a Bachelor of Technology degree from Kumamoto University in 1969 in Mining Engineering.

I received a Master of Technology degree from Kumamoto University in 1971 in Applied Geophysics.

I have been employed on most type of geophysical work, since graduation, for Sumitomo Metal Mining Co. Ltd.

Junichi Morita

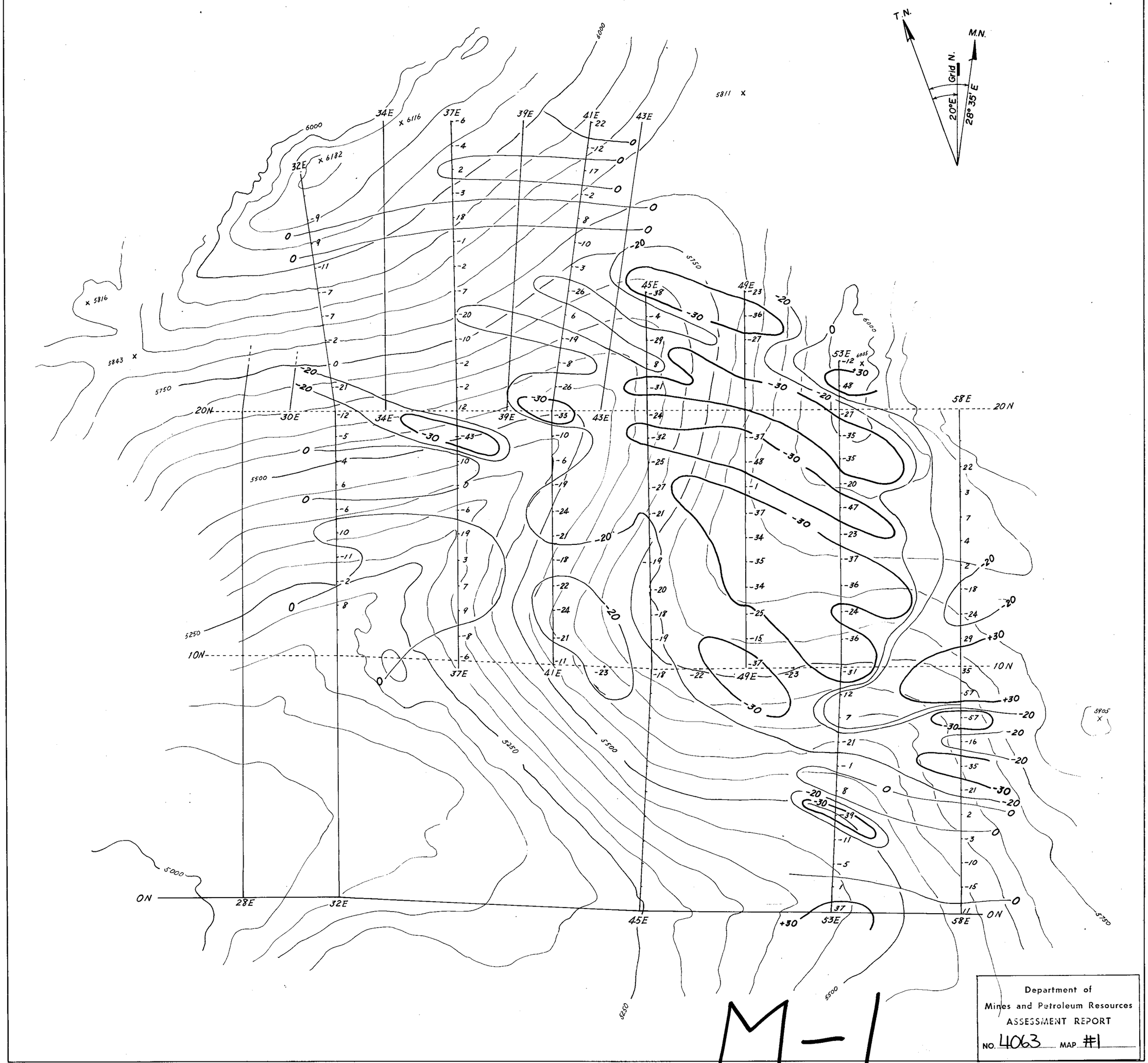
Junichi Morita



To Accompany Geophysical Report
by T. Yokoyama and J. Morita
on the McClair Property
Twelve Miles Southwest of
Chukachida Lake, B.C.
Omineca Mining Division
Dated: 18 Aug., 1972

T. Yokoyama
J. Morita

SULLIVAN RODGERS
—SUMAC—
McCLAIR PROPERTY
VERTICAL MAGNETIC COMPONENT
Unit : Gammas (γ)
Map No. 212 - GP - 2
Date : August, 1972 | Scale: 1" = 200'



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4063 MAP #1

M-1

4063

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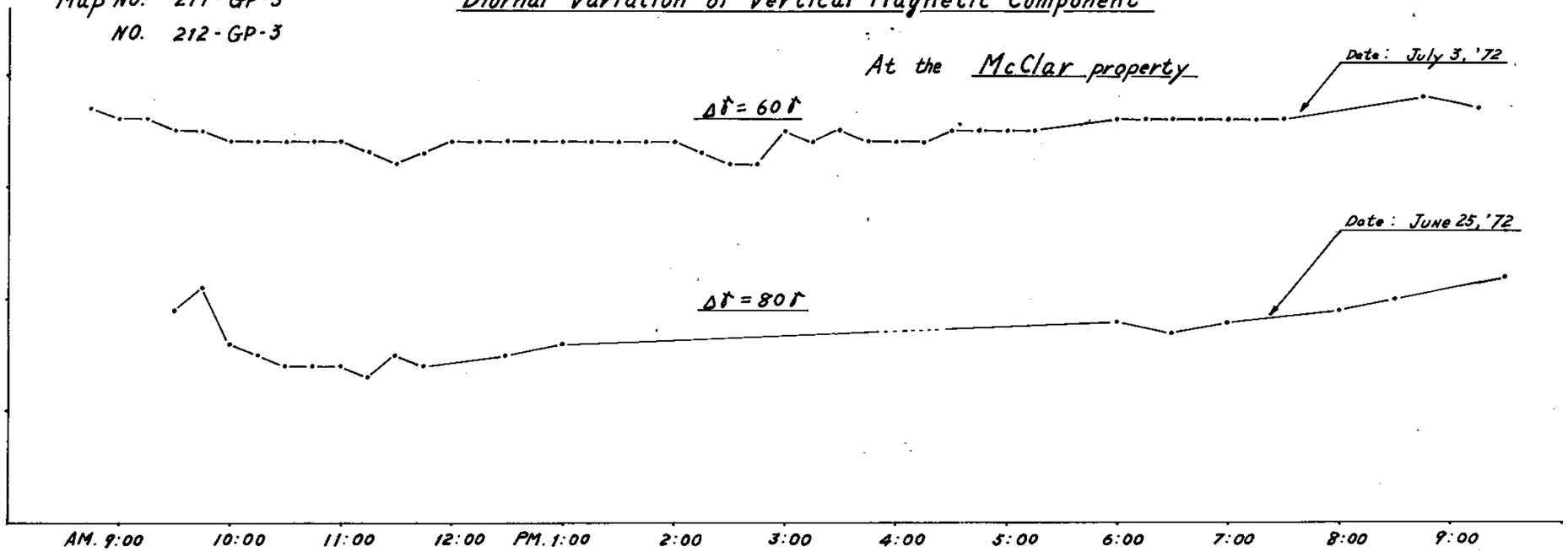
SULLIVAN RODGERS	
—SUMAC—	
McCLAIR PROPERTY	
SPONTANEOUS POLARIZATION (S.P.)	
Unit : Millivolt (mV)	
Map No. 212 - GP - 1	
Date : August, 1972	Scale: 1" = 200'

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4063 MAP #3

Map NO. 211-GP-5
NO. 212-GP-3

Diurnal Variation of Vertical Magnetic Component

At the McClar property



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