

3455

REPORT TO
ACAPLOMO MINING & DEVELOPMENT CO. LTD. (N.P.L.)
MERRITT, B.C.
ON MAGNETIC AND ELECTROMAGNETIC SURVEYS
OF A PORTION OF ITS MAKELSTEIN CLAIMS
ON IRON MOUNTAIN
NEAR MERRITT, B.C.
BY
SHERWIN F. KELLY, P. ENG.
GEOPHYSICIST AND GEOLOGIST
MERRITT, B.C.

JANUARY 10, 1972

REPORT ON
GEOPHYSICAL SURVEYS

TO

ACAPLOMO MINING & DEVELOPMENT CO. LTD.

TABLE OF CONTENTS

Introduction	P. 1
Location and Access	2
X Fig. 1, Location Mapfacing .	2
Site of Work	3
Base Line and Grid Lines	3
Instruments Used	4
Survey Procedures	
Magnetic	5
Electromagnetic Procedures	6
Survey Observations	
Magnetic Results	7
Electromagnetic Profiles	8
Conclusions	9
Declaration of Expenditures	11
Certificate of Qualifications	12

Maps Bound in Back of Report

✓ Fig. 2 ---- Magnetic Profiles

3 Fig. 3 ---- Electromagnetic VLF Profiles

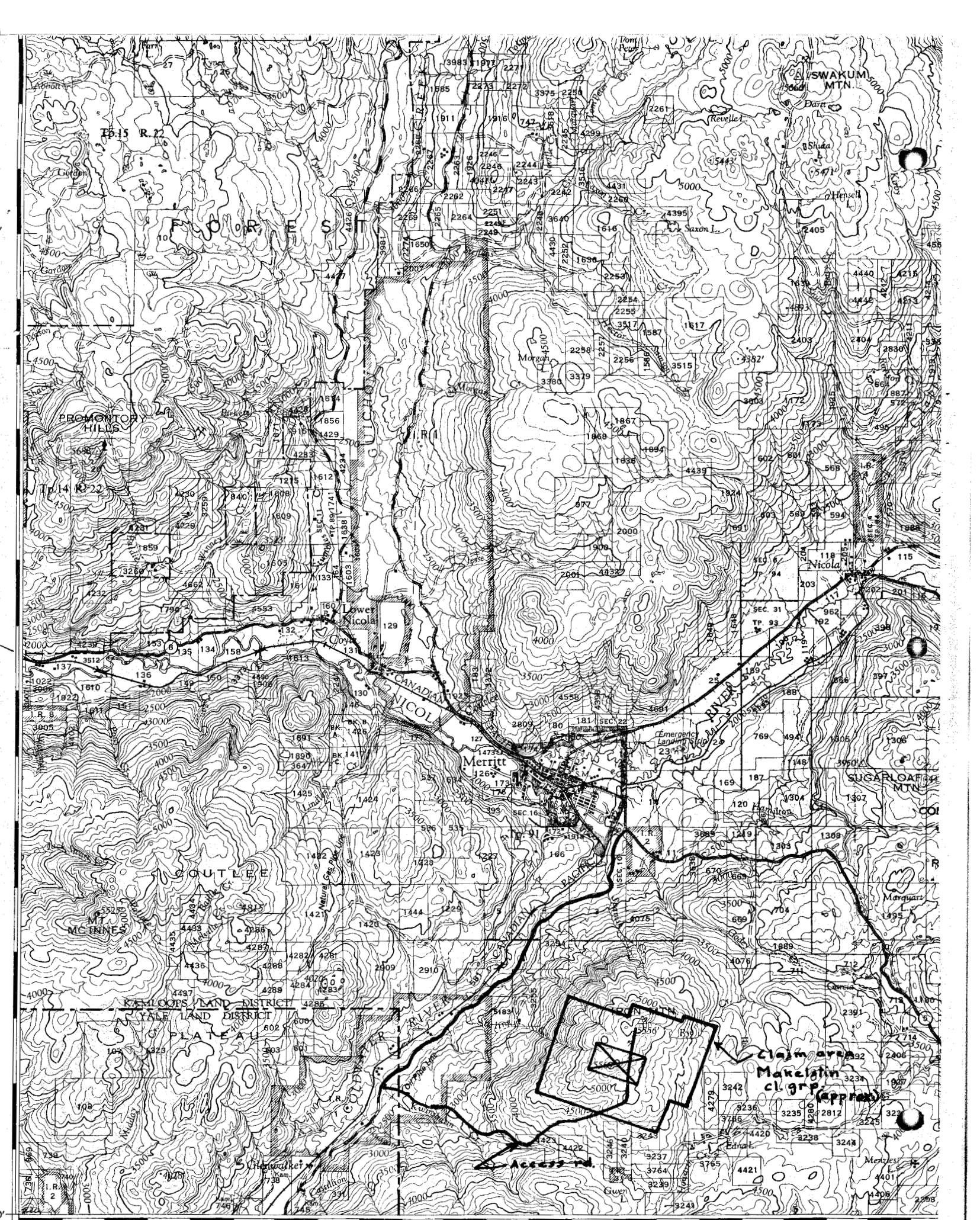
REPORT TO
ACAPLOMO MINING & DEVELOPMENT CO. LTD. (N.P.L.)
ON MAGNETIC AND ELECTROMAGNETIC SURVEYS
OF A PORTION OF ITS MAKELSTIN CLAIMS

BY
SHERWIN F. KELLY, P. ENG.
GEOPHYSICIST AND GEOLOGIST

INTRODUCTION

In November, 1971, geophysical surveys by magnetic and electromagnetic techniques were conducted on the Makelstin Nos. 61 and 62 mineral claims, in a group of claims belonging to Acaplomo Mining & Development Co. Ltd. (N.P.L.). This company holds about sixty claims covering the top of Iron Mountain, on the south-east outskirts of Merritt, in the Nicola Mining Division of British Columbia. The elevation at the property is about 5500 feet. Affidavits covering the assessment work thus performed, were filed in the office of the Mining Recorder in Merritt, on November 29, 1971. This report is submitted in support of that affidavit.

The surveys reported herein, are not complete. They represent only the commencement of a program, still continuing, to cover the eastern portion of the Acaplomo holdings and tie in to the survey work already completed, in the central portion of the claim block. Some of the lines covered by the work described below, were on a reconnaissance spacing, to get an idea of the type of magnetic reaction occurring in this area.



121°00' Merritt, B.C. Sheet 92 1/2E. Scale: 1 in. = 2 miles. 45' Fig. 1

The magnetic profiles are shown, but contouring the results in plan, will be postponed until the survey is further advanced. The profiles of the VLF electromagnetic reactions are also depicted.

LOCATION AND ACCESS

The Makelstin Group of about sixty mineral claims, extends north-south along the ridge of Iron Mountain and down both its east and west flanks, some five miles south-east of Merritt. The co-ordinates are $120^{\circ} 45'$ west longitude and $50^{\circ} 2'$ north latitude. Figure 1 shows the approximate outline and location of these claims, entered on a portion of the Merritt topographic sheet 92 I-SE.

Access to these claims has previously been solely by the Coldwater Road, a gravel highway which runs southerly from the east boundary of the town of Merritt. This road is followed for about six miles to Kwinshatin Creek, where a gravel road turns off to the east. This latter road swings north and goes to the top of the mountain, to provide servicing access for some micro-wave towers located on the summit. It is a graded road, suitable for passenger cars. The distance from the turn-off to the summit of the mountain is about eight miles. This access road traverses the middle of the Acaplomo holdings and passes within a couple of hundred feet of the old shaft.

An alternative access road now exists, which goes up the north face of Iron Mountain. It is a logging road recently constructed, which does not show on the topographic map. It leaves the Merritt-Princeton Highway about a mile east of the Coldwater turnoff and zig-zags to the south, up the face of the Mountain. It gives access to the north-east corner of the Makelstin Claim Group, where the work now being reported was carried out.

SITE OF WORK

The magnetic and electromagnetic surveys reported on herein, were carried out along grid lines which had previously been cut on claims Makelstin #61 and #62, in the north-east corner of the Makelstin claim group. The grid lines had been cut between November 22nd and November 26th.

The work done on claims Makelstin #61 and #62, was to be applied to claims Makelstin #12 to #20. Claims Makelstin #61 and #62 and #12 to #20, are all in the group Aca #2.

BASE LINE AND GRID LINES

A new Base Line for this area was started by cutting and picketing south from the north edge of claims Makelstin #61 and #62. Starting at the final post for these two claims, the line was cut and picketed south, approximately along the claim location line for a distance of 1600 feet. Grid lines were then turned off from this Base Line at 200 foot intervals. Starting 100 feet south of the final claim post, they were: Line 0, which was run 100 feet south of the north boundary of the two claims, extended 1500 feet east and 1500 feet west of the Base Line; Line 2, which also was run 1500 feet east and 1500 feet west; Line 4, which was run 300 feet west and 1500 feet east; Line 6, which was run 300 feet west and 1500 feet east; Line 8 was run 1500 feet east; Line 10 was not cut; Line 12 was run 1500 feet east. The grid lines were cut and picketed at 100 foot intervals, numbered east and west from the Base Line. Except for Lines 0 and 2, these lines were designed to connect eventually with, respectively: Line 4000 (Line 4), Line 3800 (Line 6), Line 3600 (Line 8), Line 3400 (Line 10, not cut) and Line 3200 (Line 12). Those lines had been cut on a previous grid, extending east from Base Line 1 to the east boundary of Makelstin #60.

It should be noted that, on the sketch map on the back of the affidavit dated November 29, 1971, the directions of Lines 4, 6, 8 and 12 inadvertently were inverted. They should have extended easterly from the Base Line across Makelstin No. 62.

Line cut and picketed amounted to 2.69 miles. Of this, 1.29 miles were run by the electromagnetic survey and 0.85 miles of line were run by the magnetic survey.

INSTRUMENTS USED

For the magnetic survey, a vertical force fluxgate magnetometer was employed, manufactured by Scintrex Ltd., of Concord, Ontario. It was an MF-2 model, serial no. 102004, the same as used in the last previous magnetic work, reported under the date of August 20, 1971.

For the electromagnetic work, the same Ronka EM-16 was utilized as before, manufactured by Geonics Ltd. of Toronto, Ontario with serial no. 78.

The Ronka EM-16 instruments are designed to tune in on one or more radio stations of the U.S. Navy, set up to communicate with ships at sea, particularly submarines. The electromagnetic waves emitted by the vertical antennae of these stations, in the fifteen to twenty-five kiloHertz (kHz) band, propagate horizontally through the ground (as well as above the surface) and are subject to distortion by sub-surface conductivity contrasts. Such contrasts may arise from overburden variations, wet shear zones or faults, formational contacts and especially from metallicly conductive, sulphide mineral deposits. The distortions of the electromagnetic field resulting from such contrasts, are measured with this instrument.

With it, observations are made of the tilt of the ellipse of polarization of the primary field (the in-phase component) and of the ratio of the out-of-phase, secondary vertical field (quadrature component) to the primary horizontal field.

SURVEY PROCEDURES

Magnetic

The MF-2 Fluxgate magnetometer was set to read on the 10K scale. A provisional base station was established on a stump at the right-hand side of a logging trail, going uphill from a landing stage for logging operations. It was the second landing on the recently constructed logging road previously mentioned, which turns off the Merritt-Princeton Highway to go up the north face of Iron Mountain. The stump is about 50 feet south of station 1500 E on line 6. The base station thus set, read 720 at the beginning of the survey day and 750 at the end of the day. A value of 730 was arbitrarily assigned as the base station value at this point. As the survey is continued, this provisional base will be tied in to one of the base stations, previously set in this area, in order to determine its value with respect to the datum already established for the prior work to the west.

A reading was taken on the provisional base station, following which line 6 S was run east, from the Base Line to station 1500 E; line 8 S was run from station 1500 E to the Base Line and line 12 S was run from the Base Line to station 1500 E and a reading was taken on the provisional base station. Readings were taken at 100 foot intervals.

Correction for diurnal variation was made and the resultant readings plotted with the assumed value of 730 for the base station.

The readings on the profiles are entered as scale readings. The gamma value, however, is ten times the scale reading. See Figure 2. It must be kept in mind that the reading of 720, referred to this provisional base station, may not correspond to the true 720 value, previously set for the datum of this area, because this new base had not yet been tied to the master base station (near station 400 E on line 3200 N) serving as reference for this entire area.

The readings taken during the current survey, are not contoured for reasons set forth in the paragraph above. This will be done as the survey progresses, the new base is tied in, and more lines run. A subsequent report will show the contours of the completed survey.

Electromagnetic Procedures

Observations were made of in-phase and out-of-phase components of the electromagnetic field, using the VLF instrument. Observations were taken at 100 foot intervals along Line 0 from the Base Line to station 1500 W. On Line 2, the observations were extended 1500 feet east and 1500 feet west of the Base Line. On Line 4, the observations extended 200 feet east and 300 feet west of the Base Line. On Line 6, they extended 1600 feet east and 300 feet west of the Base Line. The results are shown on Figure 3. All readings were taken with the operator facing east.

The profiles on Figure 3 record the tilt of the instrument for minimum audio signal of the in-phase component. A positive value means a tilt forward of the lower stem of the instrument, away from the operator's body. A negative value shows the lower stem was tilted back, towards his body. This tilt points towards a better conductor; a positive value means such a conductor lies in front of the operator and a negative one that it is behind him.

The tilt is measured in percentage slope, equivalent roughly to the tangent of the angle of tilt.

For the out-of-phase component, the percentages recorded on the profiles of readings, represent the ratios of the quadrature components to primary field. This offers an indication of the relative conductivities of the anomaly -- causing bodies. For maximum information, both components are observed and recorded.

SURVEY OBSERVATIONS

Magnetic Results

The profiles of magnetic observations are shown on Fig. 2. The readings range from about 700 to about 790 scale divisions which, when multiplied by ten, gives a total range of 900 gammas. The profiles are quite irregular and of sawtooth appearance. The magnetic relief is intermediate, however, between the two types noted in previous reports. One of these types exhibits a very accentuated pattern of peaks and depressions and is found generally north of Line 3000 N, west of Base Line No. 1 and south of Line 900 N. The other type, which occurs as a sort of basin lying mostly east of Base Line No. 1, between Lines 900 N and 3000 N, is characterized by very weak magnetic relief. The profiles shown on Fig. 2 fall between these categories, but in general show tendencies towards more pronounced variations than do those profiles in the areas of flat relief.

Just how these profiles fit into the overall pattern will have to be determined as the work continues to the north and to the south and as the lines are extended west to connect with those which were run from Base Line 1.

The profiles shown on Fig. 2 do not exhibit striking concordance from one line to the next, except close to the Base Line and at the eastern extremity of each line. Well marked peaks occur on or close to the Base Line on all three profiles and, again on each line between stations 1200 E and 1500 E. Except for these two series of peaks, the intermediate portions of the profiles, although quite irregular in appearance, do not seem to show close correlation of the peaks and valleys from one line to the next.

Electromagnetic Profiles

The electromagnetic profiles shown on Fig. 3, exhibit some cross-overs of interest. By cross-over is meant a location where the in-phase and out-of-phase profiles cross each other in opposite directions. In view of the fact that these readings were taken facing east, the cross-overs of interest are such as the ones shown at the west ends of Lines 0 and 2, where the in-phase component changes from positive to negative going east and the out-of-phase component goes from negative to positive in the same direction. This indicates a conductor in the vicinity of that cross-over, east of station 14 west and west of station 13 west. Other cross-overs of interest, but in which the reactions of the out-of-phase components are not so marked, occur on Line 6 close to station 2 E and on Line 2 close to station 4 E. The intermediate line, no. 4, does not extend far enough to catch the trace between these cross-overs, but seems to be approaching such an intersection. Other cross-overs of less marked character but nevertheless of possible interest, are found close to station 6 W on Lines 0 and 2 and between stations 13 E and 14 E on Line 2. There are some near-cross-overs on Line 6, in the vicinity of station 9 E and on Line 2 at station 9 E.

These profiles are similar to those shown on Fig. 7 in my report of January 4, 1971. That map depicted the VLF results on claims Makelstin #57, #58, #59 and #60. It showed that the reactions were more pronounced to the south, in the vicinity of Line 3200 N., which would correspond roughly with Line 12 of the present survey. Since the VLF work in this present survey was done in the northern portion of Makelstin #61 and #62, the results are more nearly comparable to those obtained on Lines 3800 N. and 4000 N. in the previous report just cited. On the map, Fig. 7 in that report, the VLF reactions tended to become less pronounced towards the north. The present survey essentially extends the observations in the northern part of those claims, easterly across the northern part of claims Makelstin #61 and #62 and shows reactions very similar to the ones previously recorded to the west. The present survey has not yet extended far enough south to reach the area of more accentuated reactions, as noted on Fig. 7 of the prior report. Therefore, as the work is continued to the south it will become evident whether or not the reactions in this area tend to increase in that direction, as they did in the area previously surveyed immediately to the west.

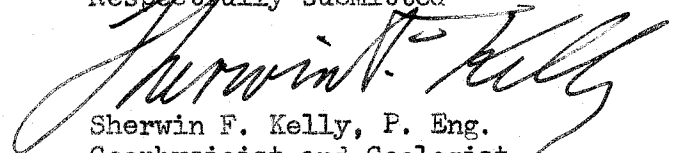
CONCLUSIONS

The results of the magnetic work indicate that the area of claims Makelstin #61 and #62 lies in a zone intermediate between the markedly high reactions previously recorded to the north and west and those of flat relief encountered immediately to the south-west.

The electromagnetic reactions correspond in general appearance with those obtained in the northern portion of the claims immediately to the west and seem to confirm that the conditions shown on that prior survey, will probably continue easterly across the claims currently being investigated.

Before any further conclusions can be drawn as to the significance of the work in the present survey, it will be necessary to continue the examination, fill in the gaps and extend the work further south. This program is in progress and will be covered in a later report.

Respectfully submitted

A handwritten signature in cursive script, reading "Sherwin F. Kelly". The signature is written in dark ink and is positioned above the typed name.

Sherwin F. Kelly, P. Eng.
Geophysicist and Geologist

Adelphi Hotel
Merritt, B.C.
January 10, 1972

Declaration of Expenditures

The geophysical surveys herein reported, were conducted under my supervision. The field work, including the line cutting, was carried out between the 22nd and 28th days of November, 1971.

The line cutting was done by Bud Johnston and George Cressy, both of Merritt, B.C., on a contract basis.

Cutting and picketing of 2.69 miles of Base Line and grid lines, @ \$125 per mile \$ 336.00

The geophysical field work was carried out by Robert Veale, assisted by John Kalinowski, both of Vernon, B.C. on a contract basis.

1.29 miles of line run by electromagnetic survey @ \$50 per mile\$ 64.50

0.85 miles of line run by magnetic survey at \$50 per mile \$ 42.50

4 days' rental of 4-sheel drive truck at \$30 per day \$ 120 .00

Fee to Sherwin F. Kelly, P. Eng. for preparation of report \$ 350.00

\$ 913.00

Of this sum, \$900 was claimed to apply to Makelstin claims #12 to #20.

I hereby certify that the above expenditures were duly and properly incurred for the work performed and reported on herein.

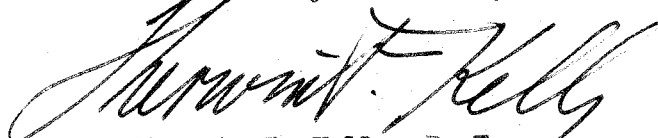

Sherwin F. Kelly, P. Eng.
President

CERTIFICATE OF QUALIFICATIONS

I, Sherwin F. Kelly, P. Eng., residing at the Adelphi Hotel in Merritt, B.C., certify that: --

- (1) I am a registered Professional Engineer in the Province of British Columbia.
- (2) I received the degree of B. Sc. in Mining Engineering from the University of Kansas in 1917.
- (3) I pursued graduate work in geology and mineralogy at the Sorbonne, Ecole des Mines and Museum d'Histoire Naturelle in Paris and at the University of Kansas and the University of Toronto. I also taught those two subjects at the two latter universities. I received my training in geophysics from Prof. Conrad Schlumberger of the Ecole des Mines, in Paris.
- (4) I have practised as a geologist and geophysicist in Europe, North Africa, United States, Canada, Mexico, Central America, South America and the Caribbean, since 1920,. Since 1936, my work has been principally as a consultant.
- (5) This report of a geophysical survey conducted on a portion of the Makelstin group of mineral claims, held by Acaplomo Mining & Development Co. Ltd. (N.P.L.) is based on field work carried out under my direction.

Respectfully submitted,

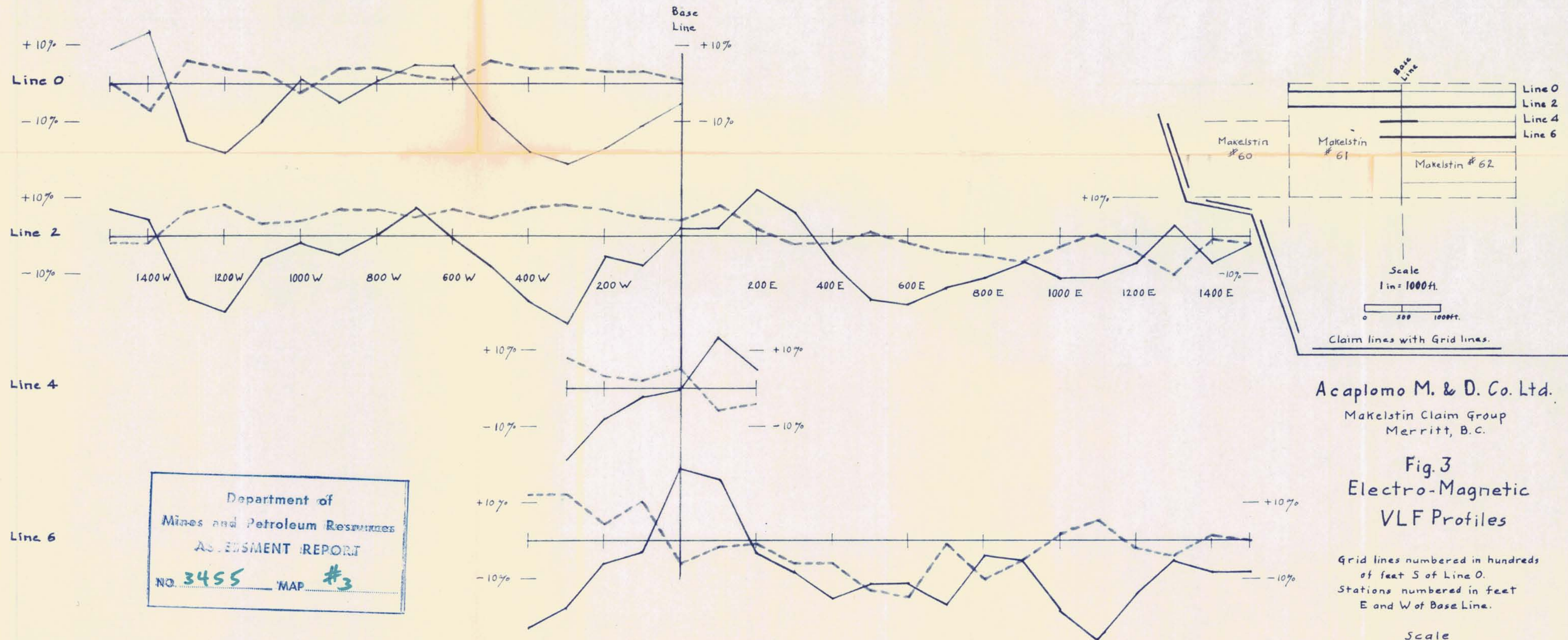


Sherwin F. Kelly, P. Eng.,
Geophysicist and Geologist

Adelphi Hotel
Merritt, B.C.
January 10, 1972

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. **3455** MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3455 MAP #3

Acaplomo M. & D. Co. Ltd.
Makelstin Claim Group
Merritt, B.C.

Fig. 3
Electro-Magnetic
VLF Profiles

Grid lines numbered in hundreds
of feet S of Line 0.
Stations numbered in feet
E and W of Base Line.

Scale
1 in. = 200 ft.

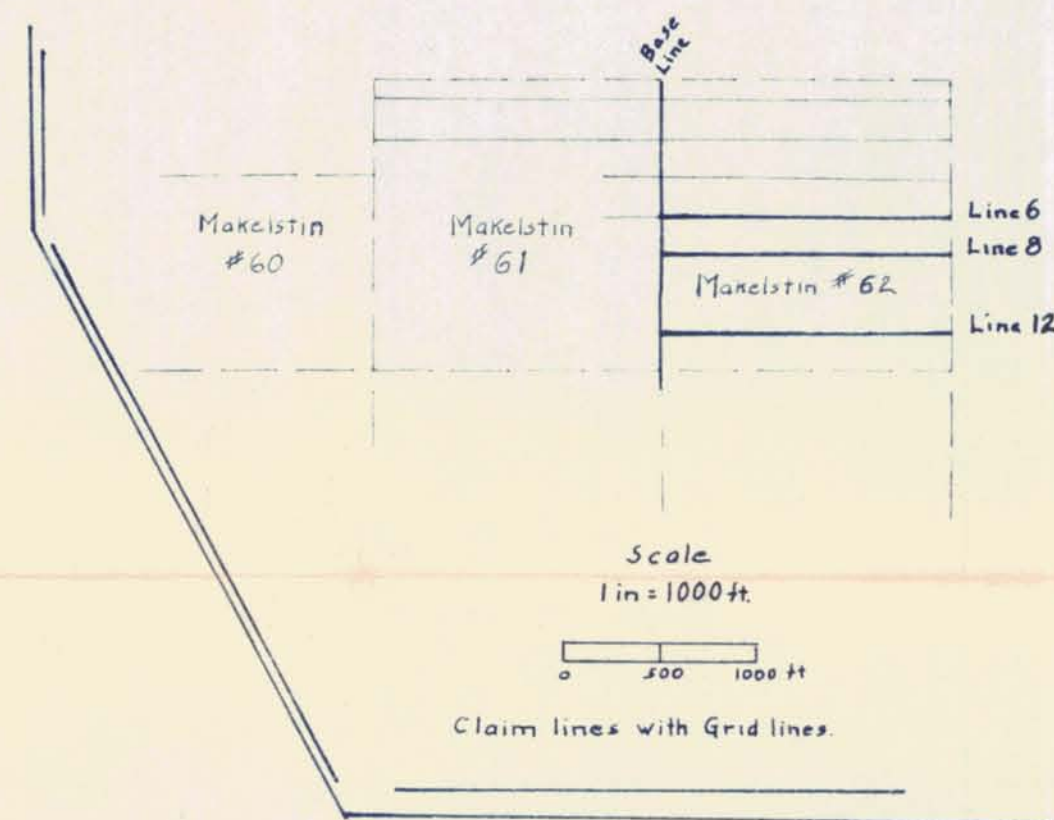
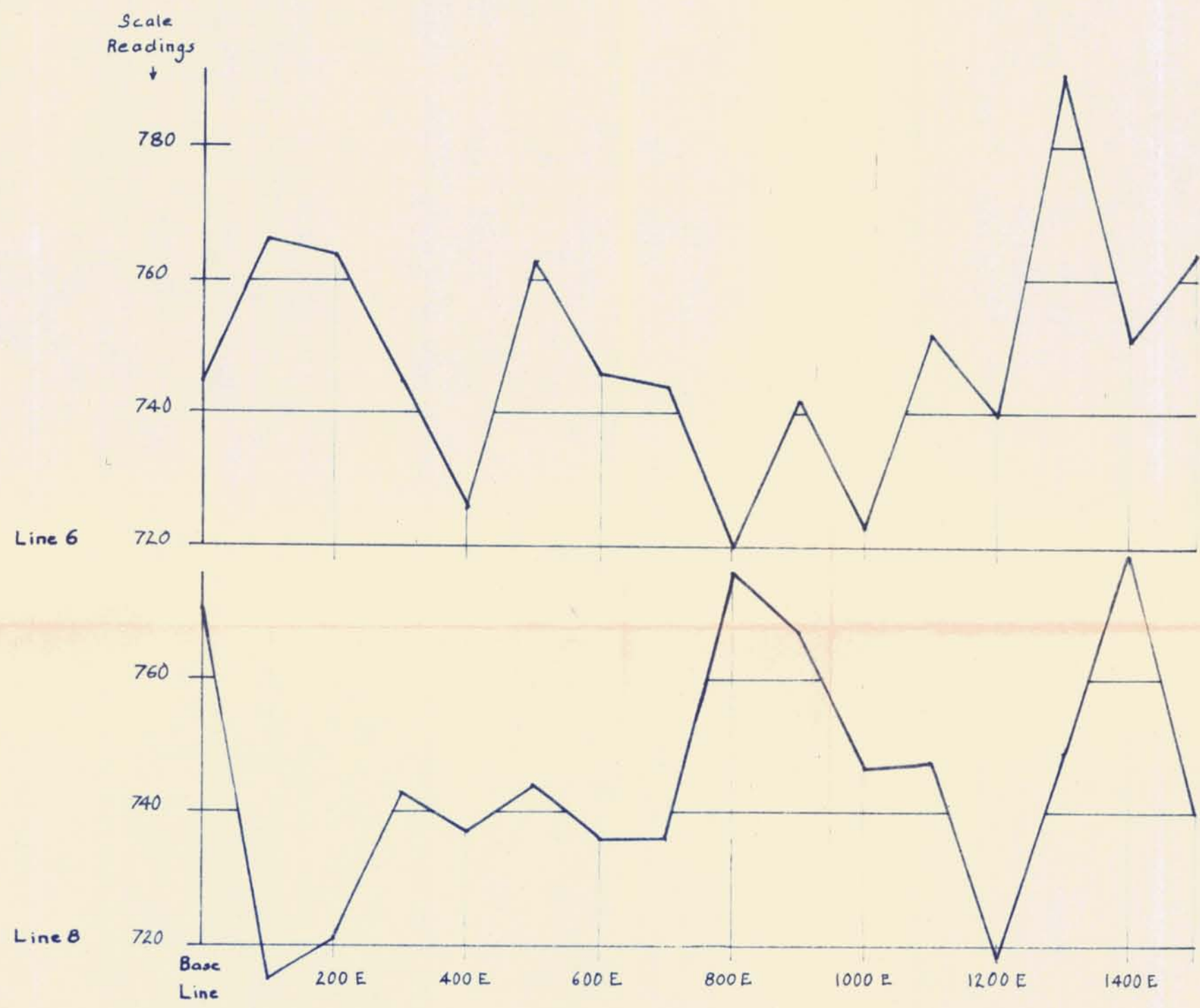
Above scale applies along grid lines.
Scale for separation of grid lines (200 ft.)
is 2 in. = 200 ft. along Base Line.

+10%
0
-10%
1 in. = 20%
-10%

N (astr.)

Observations made with
Ronka M-16 VLF instrument.
Readings taken facing EAST.

Shirwin F. Kelly, P. Eng.
Report dated Jan. 10, 1972



N (astr)

Acaplomo M. & D. Co. Ltd.
Makelstin Claim Group
Merritt, B.C.

Fig. 2
Magnetic Profiles

Grid lines numbered in hundreds of feet S of Line 0.
Stations numbered in feet E of Base Line.

Scale
1 in. = 200 ft.

0 100 200 ft.

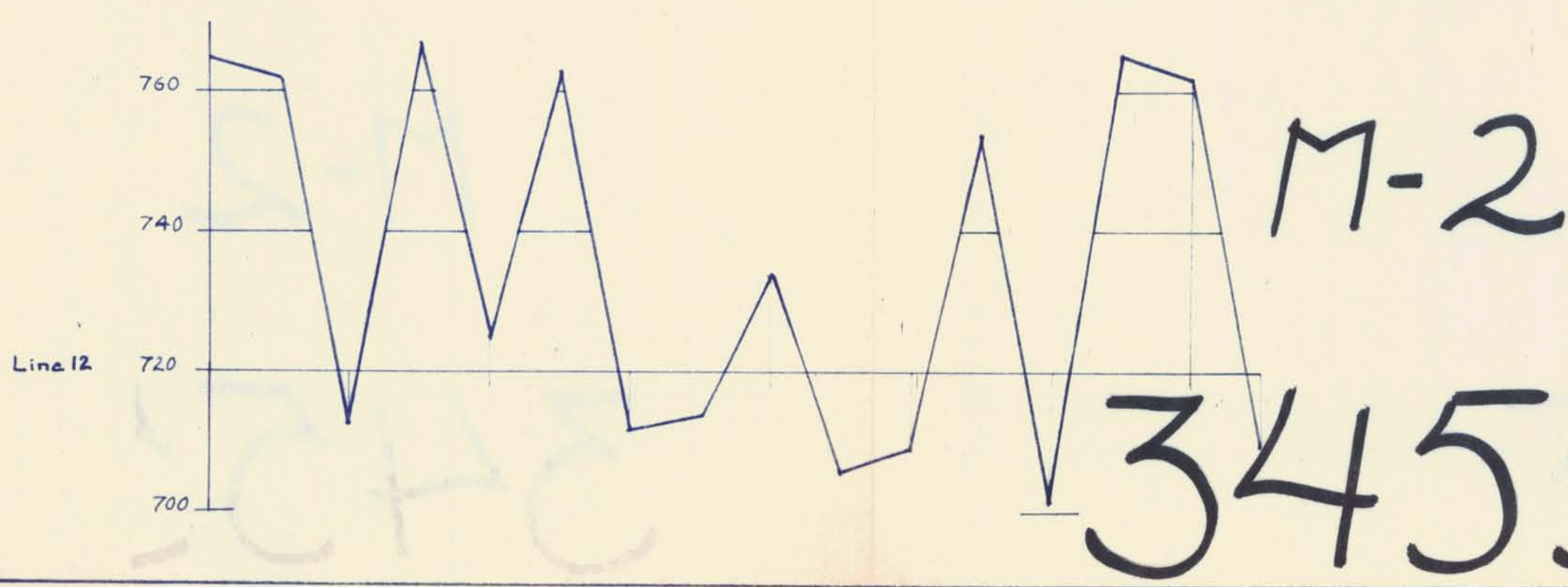
Above scale applies along grid lines.
Scale for separation of grid lines (200 ft.)
is 3 in. = 200 ft. along Base Line.

720
700

1 in. = 20 sc. div. reading
= 200 gammas.

Vertical component earth's magnetic field measured with a Scintrex MF 1 Flux-gate Magnetometer.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3455 MAP #2



Shawin F. Kelly P. Eng.
Report dated Jan. 10, 1972.