

5258

APPENDIX 1

1974 GEOPHYSICAL REPORT ON  
AN AEROMAGNETIC SURVEY  
on the  
VEGA COPPER CLAIMS  
in the  
OMENICA MINING DIVISION  
At coordinates  
56°08' N.LAT., 125°19' W.LONG.  
APPROXIMATELY 5 MILES NORTH  
WEST OF USLIKA LAKE  
for  
BP MINERALS LIMITED  
by  
G.M. DePAOLI, GEOPHYSICIST, BSc.  
WORK PERIOD, MAY 3,4, 1974.

94C/3W

1974 GEOPHYSICAL REPORT

TITLE Geophysical Report on an Aeromagnetic  
Survey on the Vega Copper Claims.

AUTHOR G.M. DePaoli, Geophysicist, B.Sc.

DATE May 1974.

COMMODITY Cu, Au.

LOCATION

-Area Uslika Lake  
-Mining Division Omenica  
-Coordinates 56 degrees 08 minutes N. Latitude,  
125 degrees 19 minutes W. Longitude.  
-NTS 94 C 3.

TABLE OF CONTENTS

	Page
INTRODUCTION-----	1
Location and Access-----	1
HISTORY AND GENERAL GEOLOGY-----	1
AEROMAGNETIC SURVEY-----	2
Method-----	2
Instrumentation-----	3
Magnetometer Map-2-----	3
Altimeter-----	3
Positioning Camera-----	4
Intervalometer-----	4
Ground Base Station-----	4
DATA PRESENTATION-----	4
RESULTS AND INTERPRETATION-----	5
CONCLUSIONS AND RECOMMENDATIONS-----	6
ASSESSMENT DETAILS-----	7
Work Summary-----	7
Personnel-----	7
Cost Statement-----	7

ILLUSTRATIONS

#1 FIGURE 1 - Location Map-----	After Page 1
#2 PLATE 1 - Magnetometer Contour Plan-----	In Pocket
#3 PLATE 2 - Magnetic Interpretation Map-----	In Pocket

## INTRODUCTION

On May 3rd and 4th, 1974, an airborne magnetometer survey was flown over the Vega Copper, Gold Property near Uslika Lake. The survey was flown by Scintrex Surveys Limited under the direction and supervision of G.M. DePaoli on behalf of BP Minerals Limited. Approximately 104 line miles of geophysical coverage was attained.

The purpose of the survey was to determine the magnetic signature of the Prospect and gain some perspective of its immediate geological setting.

### Location and Access

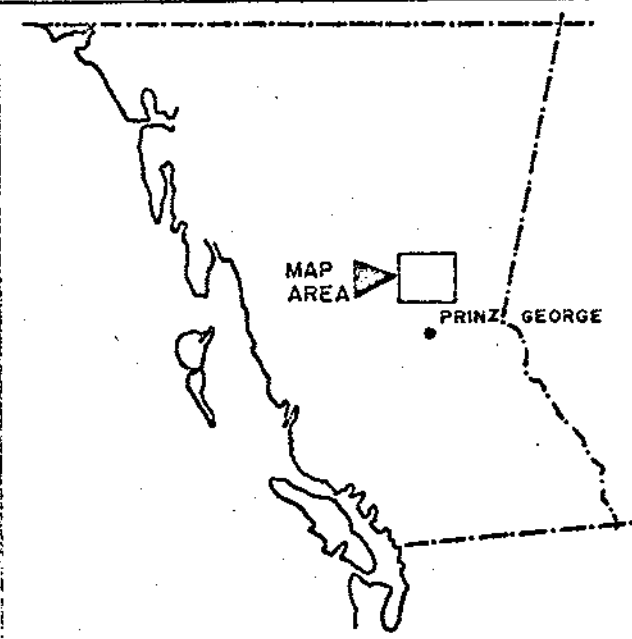
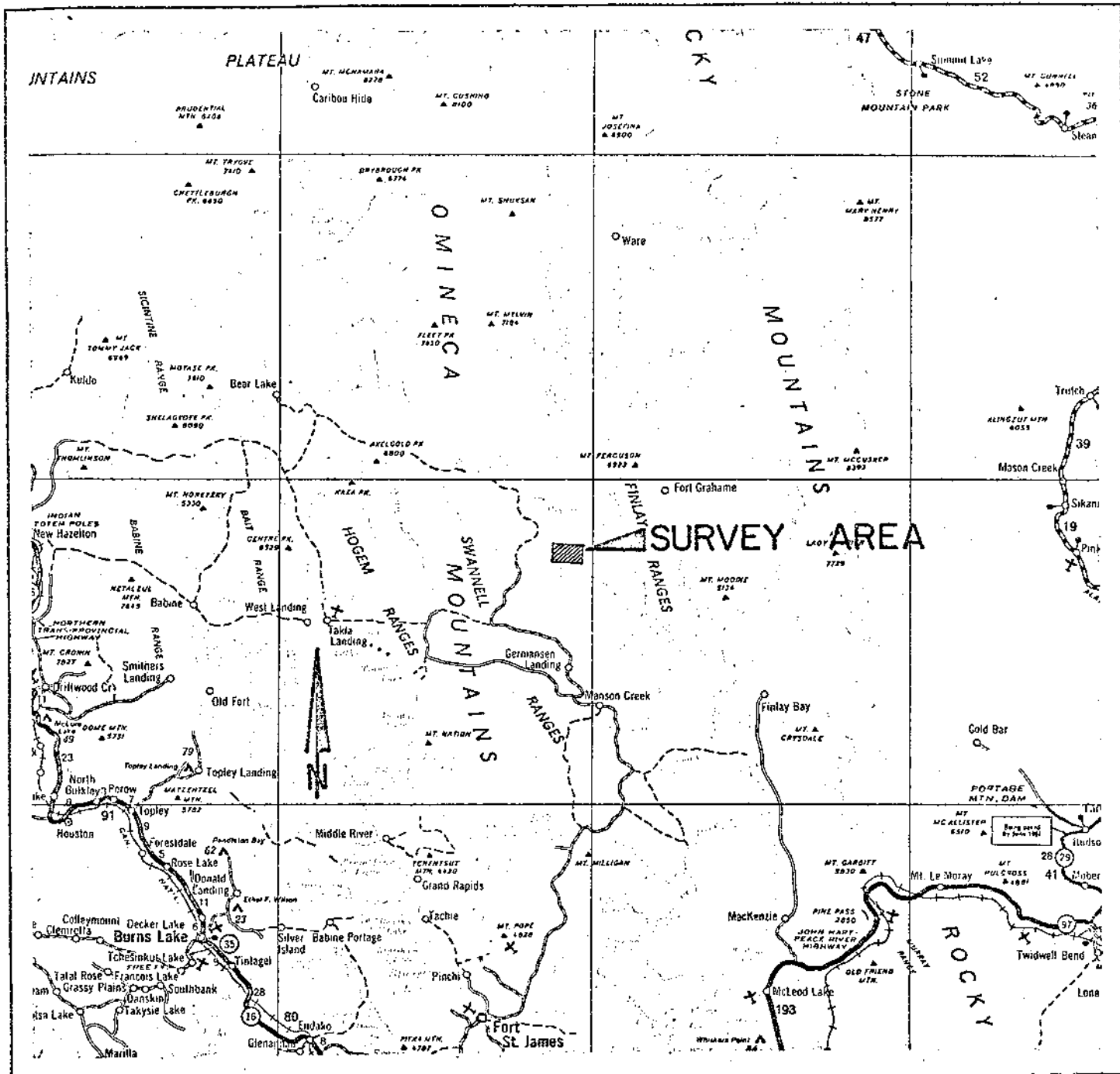
The property is located in the Omenica Mining Division about 25 miles north of Germansen Landing, British Columbia. The survey area, approximately 6 X 3.5 miles, extends northwest from Uslika Lake and is centered at coordinates 56 degrees 08 minutes N. Latitude, 125 degrees 19 minutes W. Longitude. (see location map after Page )

An access road to the property connects with the Germansen Landing - Aeiken Lake road at the north end of Uslika Lake.

### HISTORY AND GENERAL GEOLOGY (from J.E. Armstrong GSC)

The Vega Property was initially discovered in 1928 and during the 10-year period ending in 1938 it was explored by surface striping and by an adit from Vega Creek comprising at least 500 feet of underground work. At that time the gold and copper content of the showings were of chief interest. Cinnibar was found on the property in 1942 and more trenching was done in search of mercury ore. The property has been idle since 1944.

The claims on which the showings occur are mainly underlain by northwesterly trending, steeply dipping, dark green, andesitic



BP MINERALS LTD.

USLIKA LAKE AREA, B.C.  
MAY 24, 1974

SCALE 1" = 34 MILES

5258  
M 1

*Michael J. Lewis*

LOCATION MAP

FIG. 1

flows, breccias and tuffs of the Takla Group. The andesite exposed in the adit contains numerous pebbles and boulders of feldspar porphyry up to several feet in diameter. Minor interbeds of argillite and conglomerate are exposed in several trenches and Lower Jurassic fossils have been observed.

A major shear or fault zone striking north 15 degrees west and dipping 65 degrees southwest crosses the property several hundred feet west of the adit.

The main gold - copper showings, as exposed in the underground workings, consist of chalcopyrite, pyrite and minor bornite either disseminated through the andesite or concentrated along calcite stringers that lie along fractures.

#### AEROMAGNETIC SURVEY

##### Method

A Scintrex Map-2 total intensity nuclear resonance magnetometer was utilized on the survey. This unit was installed, together with a Bonzer radio altimeter, a Vinton 16 mm positioning camera and a Scintrex 1A-2 intervalometer, in a Allouette II helicopter on charter from Okanagan Helicopters. The installation of equipment took place at Prince George while local refueling for the survey was at Germansen Landing.

The survey traverses were flown at a line spacing of  $1/4$  mile in the southern portion of the survey area and decreased to  $1/8$  mile spacings in the northern portion over the showings. Flight navigation and flight path recovery were based on photomosaics on a scale of  $1" = 1000'$ . The magnetometer sensor was flown 75 feet below the helicopter and mean terrain clearance for the aircraft was 300 feet. Magnetic and radio altimeter data was recorded on a multichannel analogue recorder.

The Total Magnetic Field within the survey area is approximately 58,000 gammas; the Inclination of the Field is 76°N.

#### INSTRUMENTATION

##### Magnetometer - Map-2

The Map-2 is a lightweight, one gamma airborne proton precession magnetometer with a range of 20,000 to 100,000 gammas and an automatic five digit visual display.

The Map-2 tracks automatically over its full 80,000 gamma range. This advantage is particularly significant in surveys flown at low terrain clearances in areas of high magnetic relief, conditions which are common in mineral prospecting.

The instrument is of compact modular design and has both digital and analogue outputs. The analogue outputs are either 100 or 1000 gammas full scale, with automatic stepping.

The measuring sequence can either be sequentially triggered internally through its own programmer or initiated by a suitable command pulse.

In addition while on internal triggering, the instrument provides an external output command pulse enabling other instrumentation to be synchronized with the magnetometer.

##### Altimeter

A Bonzer, high frequency solid state radio altimeter was employed to continuously indicate the mean terrain clearance of the helicopter. The altimeter is installed in the aircraft so that the elevation of the sensing bird will be less by the usual vertical displacement of the bird below the aircraft.

The output of the Bonzer was expressed in analogue form on a suitable graphic recorder.

### Positioning Camera

A vinten mark III 16 mm positioning camera was employed with a wide angle lens. Photographs of the ground were taken with sufficient frequency to give a complete record of the flight path of the helicopter. The frequency of exposure is controlled by the intervalometer referred to below.

### Intervalometer

A Scintrex IA-2 intervalometer provided regularly spaced timing pulses which drive the positioning camera exposure mechanism and produces synchronous fiducial marks on the side pen of the geophysical graphic recorder. Because of the synchronization of the geophysical traces and the positioning camera it is then possible to relate the geophysical events of interest to their proper ground location. The timing pulse frequency may be adjusted in accordance with the ground speed of the aircraft so that an adequate flight path record is obtained.

### Ground Base Station

During flight periods a ground magnetometer base station was set up at Germansen Landing to monitor the diurnal variation of the Earth's Field. The instrument employed was a Scintrex MF-2 fluxgate magnetometer and readings were recorded on a EPR-2T Polyrecorder manufactured by TOA Electronics.

All survey flying was completed in 3.9 hours on May 4, 1974 between 11:30 am and 3:30 pm. During this period the ground station displayed a diurnal variation of less than 1 gamma and no diurnal corrections were applied to the data.

### DATA PRESENTATION

The results of the survey are presented in contour form



on Plate 1 (in pocket) on a scale of approximately 1'' = 1000'. Flight lines, fiducial points and pertinent topographic features are shown. The contour interval is variable depending upon the magnetic intensities.

An interpretation of the magnetic features is presented in Plate 2 (in pocket). Magnetic boundaries, possible faults and labelled anomalies are displayed.

#### RESULTS AND INTERPRETATION

A series of magnetic anomalies were obtained trending approximately north  $20^{\circ}$  west through the center of the survey area. Several of the anomalies have been labelled in Plate 2.

Anomalies labelled #1(a) - (f) are considered to be the most significant anomalies in the map area. Because of their similar character they have been grouped together and may reflect a continuous geological feature. Anomaly #1(a) which is interpreted to represent a near surface source is the most interesting since the underground workings are located near its western margin. Some of the other anomalies in this group represent deeper sources. Anomaly #1(b) for example is interpreted to reflect a source between 200 - 300 feet below ground surface and it may not be explained by surface exposures.

Anomaly #2 contains the highest amplitude on the property, however it is coincident with a topographic ridge which has enhanced its indicated susceptibility. The response, however, is too high to be solely a topographic effect. Anomaly #3 is the second highest amplitude anomaly and it does not have a topographic correlation. Its indicated width is 600 feet and it is interpreted to be near surface. At this time little can be said of anomalies

#4, #5, and #6. They all are elongated, possibly fault controlled and reflect susceptibilities similar to those of anomaly #1(a).

#### CONCLUSIONS AND RECOMMENDATIONS

Several rock types collected over the property have a high magnetic response. These include a mineralized andesite, a barren andesite and a brecciated monzonitic intrusive rock. It is impossible by magnetics alone to deduce which of the above rock types is reflected by any one magnetic anomaly. The fact however, that the mineralized rock types discovered to date have a positive magnetic response makes it mandatory to investigate and explain each obtained anomaly.

Each anomaly should be thoroughly prospected and those having geological interest should be more accurately defined with a ground magnetic survey. In areas of poor outcrop exposure induced polarization surveys should be employed to define the subsurface sulphide distribution. Ultimate drill targets should be finally decided upon in areas having favourable and coincident geological, geochemical and geophysical parameters.

Respectfully submitted,

*Garry DePaoli*

G.M. DePAOLI, GEOPHYSICIST, B.Sc.

*May 27, 1974*

ASSESSMENT DETAILSWORK SUMMARY

104 line miles of aeromagnetic surveying.

Survey Period May 3,4 1974.

Data Reduction and Report Writing May 7-27, 1974.

PERSONNEL

G.M. DePAOLI, Geophysicist, B.Sc., 5305 E. Georgia St.,  
Burnaby 2, B.C. V5B 1V3.

M.J. Lewis, Geophysicist, M.Sc., Scintrex Surveys Ltd.,  
890 W. Pender St., Vancouver, B.C.

A. Cote, Instrument Technician, 182 Searle Ave.,  
Downsview, Toronto, Ontario.

D. Peterson, Pilot, #205-A Evergreen Drive, Port Moody, B.C.

A. Trachsler, Data Reduction, #8320 Mansen Crescent,  
Burnaby, B.C.

COST STATEMENT

Helicopter Charges, Allouette II	
5.9 hours at 300 per hour -----	\$1,770.00
Scintrex Billing (attached) -----	\$2,361.56
G.M. DePAOLI	
May 2,3,4,16,17,18,20,21,24,25,26,27.	
11.4 days at 100.00 per day -----	\$1,138.44
TOTAL SURVEY COST -----	<u>\$5,270.00</u>

**SCINTREX SURVEYS LIMITED**

GEOPHYSICAL CONSULTANTS & CONTRACTORS  
A DIVISION OF SCINTREX LIMITED

May 24th, 1974

Mr. G. M. DePaoli  
Geophysicist  
5305 East Georgia Street  
Vancouver, B. C.

RE: PROFESSIONAL SERVICES RENDERED:

For Professional Services rendered as per our contract dated  
April 24th, 1974:

(a) Personnel, equipment and Survey		
2 days (May 3 and 4/74) at \$350.00/day		\$700.00
(b) 104 line miles @ \$15.00/line mile		\$1560.00
(c) Incidental expenses		
Room and Board	\$81.00	
Telephone	\$5.18	
Taxi	\$4.50	
	\$90.68	
Plus 12%	\$10.88	
		<u>\$101.56</u>
		\$2361.56
Less: Down Payment		<u>\$2000.00</u>
Total Due:		<u>\$361.56</u>

Terms: Due when rendered. Any amounts outstanding after 30 days  
will bear interest at the rate of 1% per month.

CERTIFICATION

I Garry M. DePaoli, of the city of Burnaby, in the Province of British Columbia, HEREBY CERTIFY AS FOLLOWS:

1. That I am a graduate of the University of British Columbia, Vancouver, British Columbia with a Bachelor of Science Degree in Combined Honours Geophysics and Geology. (1969)
2. That I have practiced my profession as a Geophysicist continuously for the past 5 years in Northern Ontario, Quebec, Manitoba, Western U.S.A., Yukon Territories, and British Columbia.
3. That I am a member in good standing of the Society of Exploration Geophysicists, The Geological Association of Canada, The Canadian Institute of Mining and Metallurgy, and the B.C. Society of Exploration Geophysicists.
4. That I have no interest directly or indirectly in the Vega Property nor do I expect to receive any.
5. That the information contained herein was compiled under my direction and supervision during the period May 3-27, 1974.

*Garry DePaoli*  
G.M. DePAOLI,  
GEOPHYSICIST, B.Sc.

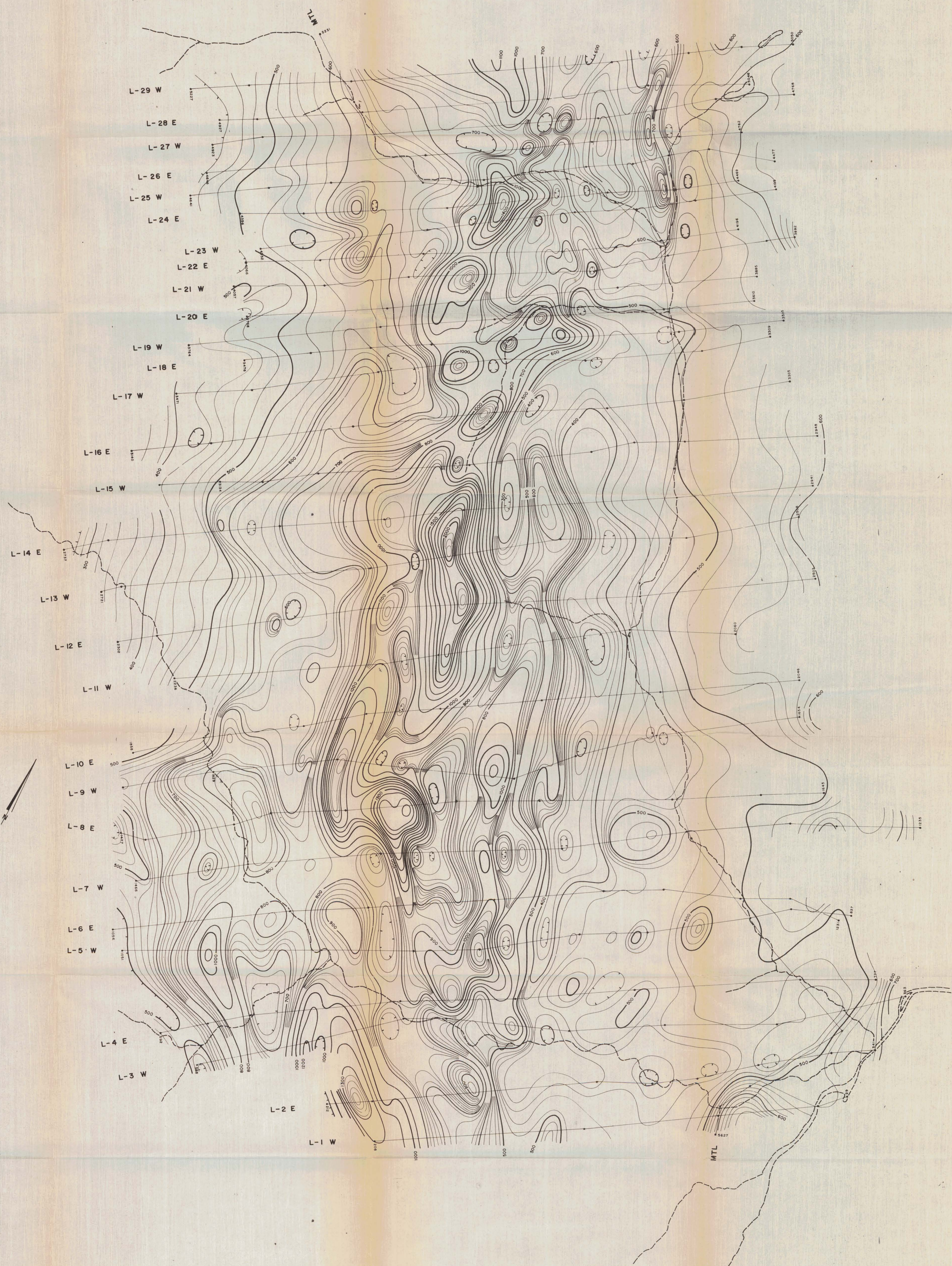
Burnaby 2, B.C.  
May 27, 1974.

A P P E N D I X 1

AIRBORNE MAGNETIC SURVEY

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 5258 MAP.....





**LEGEND**

- L-2 E ———— FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINT
  - 500 GAMMA CONTOUR INTERVAL
  - 100 GAMMA CONTOUR INTERVAL
  - 20 GAMMA CONTOUR INTERVAL
  - MAGNETIC LOW
- MAP 5-1878R  
 ALQUETTE 3 HELICOPTER  
 AIRCRAFT TERRAIN CLEARANCE APPROX 300  
 FLIGHT LINE SPACING APPROX 1000  
 FLIGHT DIRECTION EAST - WEST  
 BASE INTENSITY ARBITRARY

PLATE I  
**BP MINERALS LTD.**  
 USLIKA LAKE AREA, B.C.

AIRBORNE GEOPHYSICAL SURVEY  
 MAGNETOMETER CONTOUR PLAN

APPROX SCALE 1" = 1000'  
 0 1000 2000 3000

SURVEY BY SCINTREX SURVEYS LIMITED  
 FLOWN AND COMPILED MAY 1974

**5258**  
**M2**

TO ACCOMPANY A LOGISTIC REPORT  
 BY MICHAEL J. LEWIS M.Sc. PANG GEOPHYSICS  
 DATED MAY 24 1974

Department of  
 Mines and Geology Resources

NO 5258 #2 SHEET 1 OF 1



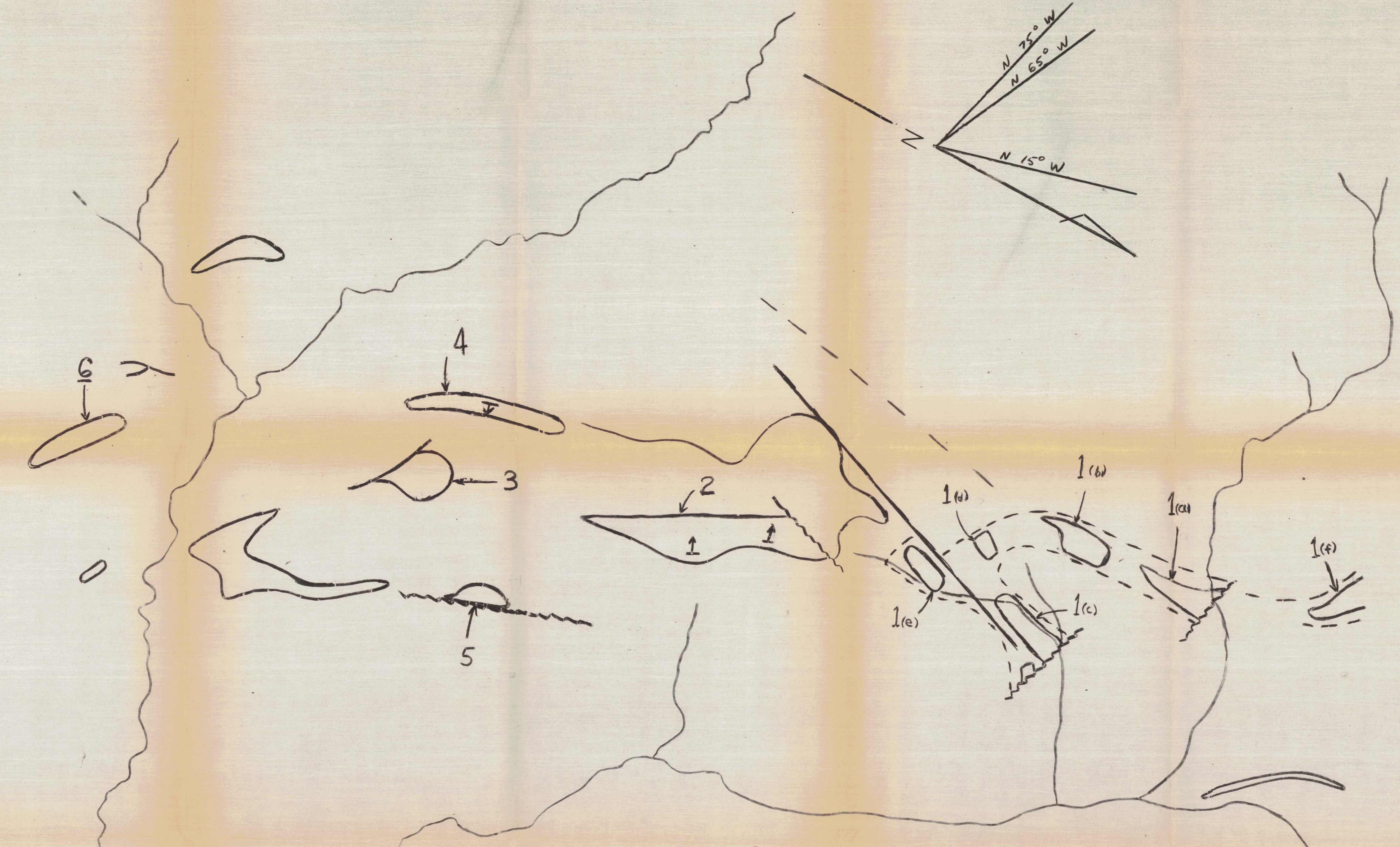


PLATE 2  
 BP MINERALS LIMITED  
 USLIKA LAKE

MAGNETIC INTERPRETATION  
 MAP

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 5258 MAP #3

SCALE 1"=1000'  
 DATE MAY, 1974  
 G.M. DEPAOLI

LEGEND

- MAGNETIC BOUNDARY
- POSSIBLE FAULT
- FAVOURABLE FEATURE
- DRAINAGE
- 1(a) ANOMALY NUMBER

5258  
 MAP 3