

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT

92918

REPORT ON THE  
AIRBORNE GEOPHYSICAL SURVEY  
ON THE  
TRAP 1 AND TRAP 2 MINERAL CLAIMS  
AND ADJACENT AREA  
MORRISON LAKE AREA, B.C.  
55° 10.8'N 126° 18.4'W

J.T. WALKER  
NORANDA EXPLORATION COMPANY, LIMITED  
OMINICA MINING DIVISION  
APRIL 22, 1981

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- (1) Magnetic Contours With Topographic Underlay
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- (3) Location Map
- (4) Claim Location

AIRBORNE GEOPHYSICAL SURVEY

on the

TRAP 1 AND TRAP 2 MINERAL CLAIMS

and adjacent area

NORANDA EXPLORATION COMPANY, LIMITED

INTRODUCTION

On March 24 and 25, 1981, Noranda Exploration Company, Limited carried out an airborne geophysical survey in the Morrison Lake area of B.C. covering an area of approximately 72 square kilometers. The survey area lies 70 kilometers northeast of Smithers, B.C. The area flown is outlined on the location map (93 M 1) at a scale of 1:250,000.

The mineral claims within the survey area are Trap 1 and Trap 2 comprising 30 units, the record numbers are, 1660 and 1661 respectively.

The purpose of the survey was to provide data for compiling a low level aeromagnetic contour map and to locate zones of conductivity at the VLF frequencies (18kHz - 21kHz).

Three measurements were recorded during the survey:

1. Total magnetic field intensity
2. Relative field strength of the horizontal component of the VLF-EM electromagnetic field from two transmitters
  - a) Seattle, Washington (Jim Creek) 18.6 kHz
  - b) Annapolis, Maryland 21.4 kHz

A Bell 206B helicopter, chartered from Highland Helicopters, Smithers, B.C. was used to fly the survey. Twenty-six lines were flown in a north-south direction for a total of 240 kilometers. The line spacing was nominally 300 meters with a helicopter terrain clearance of 60 meters. An aircraft speed of approximately 60 m.p.h. (100 km/hour) was maintained on the survey flight lines.

SURVEY PERSONNEL

Pilot: T. Brooks  
Navigator: M. Leahey  
Operator: T. Walker  
Data Reduction, Drafting: T. Walker

All personnel are employees of Noranda Exploration Company, Limited except T. Brooks an employee of Highland Helicopters.

#### SURVEY PROCEDURE AND NAVIGATION

A flight line base map of the survey area was prepared by enlarging a 1:50,000 N.T.S. topographic map to a scale of 1:25,000. Proposed flight lines and topographically located control points were plotted prior to flying the survey. During the survey, flight line path corrections were made by the navigator where necessary. Line information, control point locations and numbers, announced by the navigator, were recorded on stereo magnetic tape together with the VLF-EM data.

#### INSTRUMENTATION AND DATA RECORDING

The following instruments are installed in the helicopter for measuring and recording the geophysical data during flights.

a) Proton Magnetometer (ELSEC)

The magnetometer was manufactured by the Littlemore Scientific Engineering Co., Oxford, U.K. and is designated type 595. The magnetometer measures the total magnetic field at a 1 second cycle rate. The measurement is digitally displayed to one gamma and has an analog output of 100, 1000, and 10,000 gammas full scale. The 1000 gamma full scale output is normally used.

The toroidal wound detector is installed in a fibreglass "bird" towed beneath the helicopter on a 12 meter cable.

b) Electromagnetic Receiver (VLF-EM)

The VLF-EM receiver was manufactured by Sabre Electronic Instruments Ltd., Burnaby, B.C. The instrument has dual receivers tuned to 18.6 kHz (Seattle) and 21.4 kHz (Annapolis). Two omnidirectional antenna arrays are employed. They are mounted in the fibreglass "bird" also housing the magnetometer detector. The antenna arrays are designed to detect the horizontal magnetic component of the VLF fields. Signals originating from U.S. Navy transmitters near Seattle and Annapolis were utilized for this survey. The amplitudes of the horizontal component are measured continuously and displayed as relative field strengths. An analog output is provided for recording each measurement.

c) Recording System

Two recording systems were employed simultaneously during the survey.

1. Chart recorder, Model 7155B manufactured by Hewlett Packard is used to record the aeromagnetic data in profile form. The recorder has an event marker, controlled by the navigator to record control point locations. The points are numbered in flight by the operator.

2. The tape recording system consists of a Sony stereo cassette recorder Model TC 124 and a frequency modulator manufactured by Sabre Electronic Instruments Ltd., This system records both VLF-EM measurements on the left channel and all in flight conversation between pilot, navigator and operator on the right channel. The right channel also records an event tone (1000 kHz) controlled by the navigator to indicate control points locations.

High Fidelity cassette magnetic tapes (Phillips Type) are used to record the in-flight data and conversation.

d) Playback System

The playback system consists of a stereo cassette tape recorder (Sony TC 124), demodulator and 2 pen strip chart recorder (M.F.E. Model M-26). To retrieve the in-flight tape recorded data, the tapes are replayed, demodulated and the data is reproduced in profile form on the strip chart recorder. Playback is in real time and all voice recorded information, control points numbers and tones are written on the strip charts during playback.

c) Radar Altimeter

A Mark 10 radar altimeter, manufactured by Bonzar Inc. was installed to measure and display helicopter terrain clearance during the survey as an aid to the pilot in maintaining a constant aircraft clearance.

DATA REDUCTION AND PRESENTATION

All survey data are presented on a plan map at a scale of 1:25,000. Corrected flight line and control points are drawn and numbered. Flight line direction is indicated at the beginning of each line. The topographic contour map, used as a base map for the survey, is used as an underlay to allow ground positioning.

a) Aeromagnetic Data

The magnetic data is presented as isomagnetic contours of the total field as presented on the Magnetic Contour Map (Drawing No. 1). Contour values are based on a datum of 58,000 gammas total magnetic field intensity. The results are not corrected for diurnal variations.

Magnetic values at 50, 100 and 200 gamma intervals were picked on the in-flight profile recordings. These points were then transcribed to the flight line plan map with reference to the flight line and control points. The transcribed points of equal magnetic intensity were then contoured.

b) Electromagnetic Data (VLF-EM)

The recorded VLF-EM data measures the relative field strength (horizontal component). A significant conductive anomaly is indicated by a definitive increase in the field strength. Anomaly locations are corresponding to the profile width at the half height. The enclosed number within the bar represents the percent increase in relative field strength. The anomalous locations are transcribed to the flight line base as was described under aeromagnetic data.

DISCUSSION OF RESULTS

The magnetic contour map was prepared using contour intervals of 50, 100, and 200 gammas, areas of high magnetic relief were contoured at 200 gammas. Contour values are referenced above 58,000 gammas total field.

The aeromagnetic results show two distinct features, an area of high magnetic relief (200 - 2600 gammas) defined on the west and north by a steep magnetic gradient. West and north of the gradient the magnetic pattern shows low values and low relief (0 - 300 gammas). These two magnetic features generally define the areas underlain by volcanic rock (high magnetic relief) and sedimentary rocks. The intrusives within the survey area do not appear to be magnetically distinct.

Results of the VLF-EM survey indicate 12 anomalies located on lines 7, 12, 13, 14, 15, 16 and 21. The response of these anomalies is shown on copies of the in-flight profiles at the right of Drawing No. 1. The profiles show the relative field strength of the horizontal component of the VLF signal, the top trace is from transmitter Seattle, the bottom trace is from transmitter Annapolis.

The anomaly on line 7 shows a modest, long response to Tx. Seattle with a short weak response from Tx. Annapolis at the north end. This anomaly is coincident with a magnetic low (300 gammas).

The two anomalies on line 12, (Tx. Seattle) coincide with the steep magnetic gradient.

A group of four anomalies, lines 14, 15 and 16 are located within the Trap Mineral Claims within and east of an area of extensive bulldozer trenching. The responses are moderate from Tx. Seattle and Tx. Annapolis. The broad profiles on line 14 and 15 would suggest Topographic effect, however, these anomalies are located in a saddle and downhill to the west.

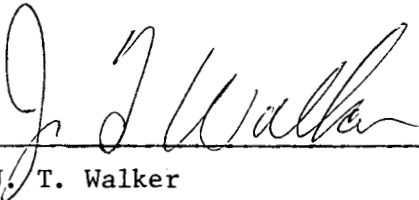
The anomaly located on line 21 correlate well with the known pyrite zone east and slightly south of the Morrison Deposit.

CONCLUSIONS AND RECOMMENDATIONS

The Airborne Aeromagnetic and VLF-EM Survey has provided a low level magnetic contour map and has indicated several VLF-EM anomalies. The VLF anomalies are rated by field strength and each response curve is shown.

All anomalies should be located by ground VLF-EM survey and followed up by appropriate exploration techniques.

April 22, 1981



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J. T. Walker

Geophysicist

Noranda Exploration Company, Limited.

STATEMENT OF QUALIFICATIONS

I James T. Walker of the City of Vancouver, Province of British Columbia do certify that:

1. I have been an employee of Noranda Exploration Company, Limited since May, 1958.
2. I have held the position of Geophysicist for Noranda Exploration Company, Limited, British Columbia since June, 1965.
3. I am a member of the Canadian Institute of Mining and Metallurgy.
4. I am a member of the Canadian Exploration Geophysical Society.
5. I am a member of the British Columbia Geophysical Society.

April 22, 1981



J. T. Walker  
Geophysicist

Noranda Exploration Company, Limited.



NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT                      HEARN HILL                      DATE              April 1981  
TYPE OF REPORT              AIRBORNE GEOPHYSICS

a) Wages:

No. of Days              21  
Rate per Day              \$ 90.36  
Dates From:              March 15 to March 26  
Total Wages              21 x \$ 90.36                      1,897.56

b) Food and Accomodation:

No of days              21  
Rate per day              \$ 10.00  
Dates From:  
Total Cost              21 x \$ 10.00                      210.00

c) Transportation:

No of ~~days~~ hours 5.2  
Rate per ~~day~~ h \$ 380.7953  
Dates From:  
Total Cost              5.2 x \$ 380.7953                      1,980.14

d) Instrument Rental:

Type of Instrument              Airborne Geophysical System  
No of days              3  
Rate per day              \$ 240.00  
Dates From:  
Total Cost              3 x \$ 240.00                      720.00

Type of Instrument

No of days

Rate per day \$

Dates From:

Total Cost                      X \$

f) Analysis  
(See attached schedule)

g) Cost of preparation of Report

Author

Drafting

Typing

200.00

h) Other:

Orthophoto Map 3,685.21

Supervisor D. E. Cross, P. Eng

& G.E. Dirom, P. Eng 1/2day 230.00

each @ \$230/day

3,915.21

Total Cost

\$8,922.91

e) Unit costs for

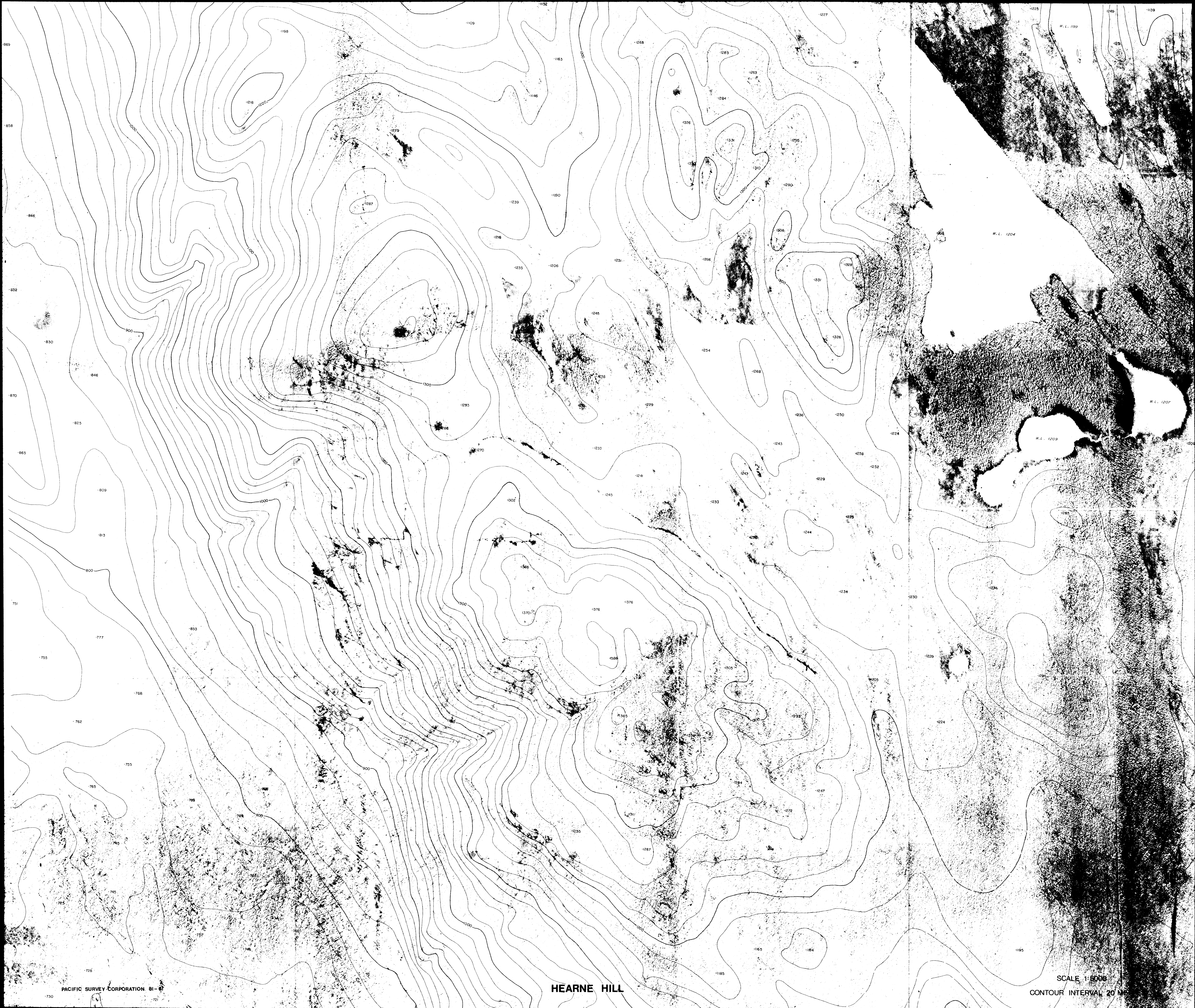
No of days 21

No of units 240 Km

Unit costs 37.17879 / Km

Total Cost 240 x 37.17879

\$8,922.91

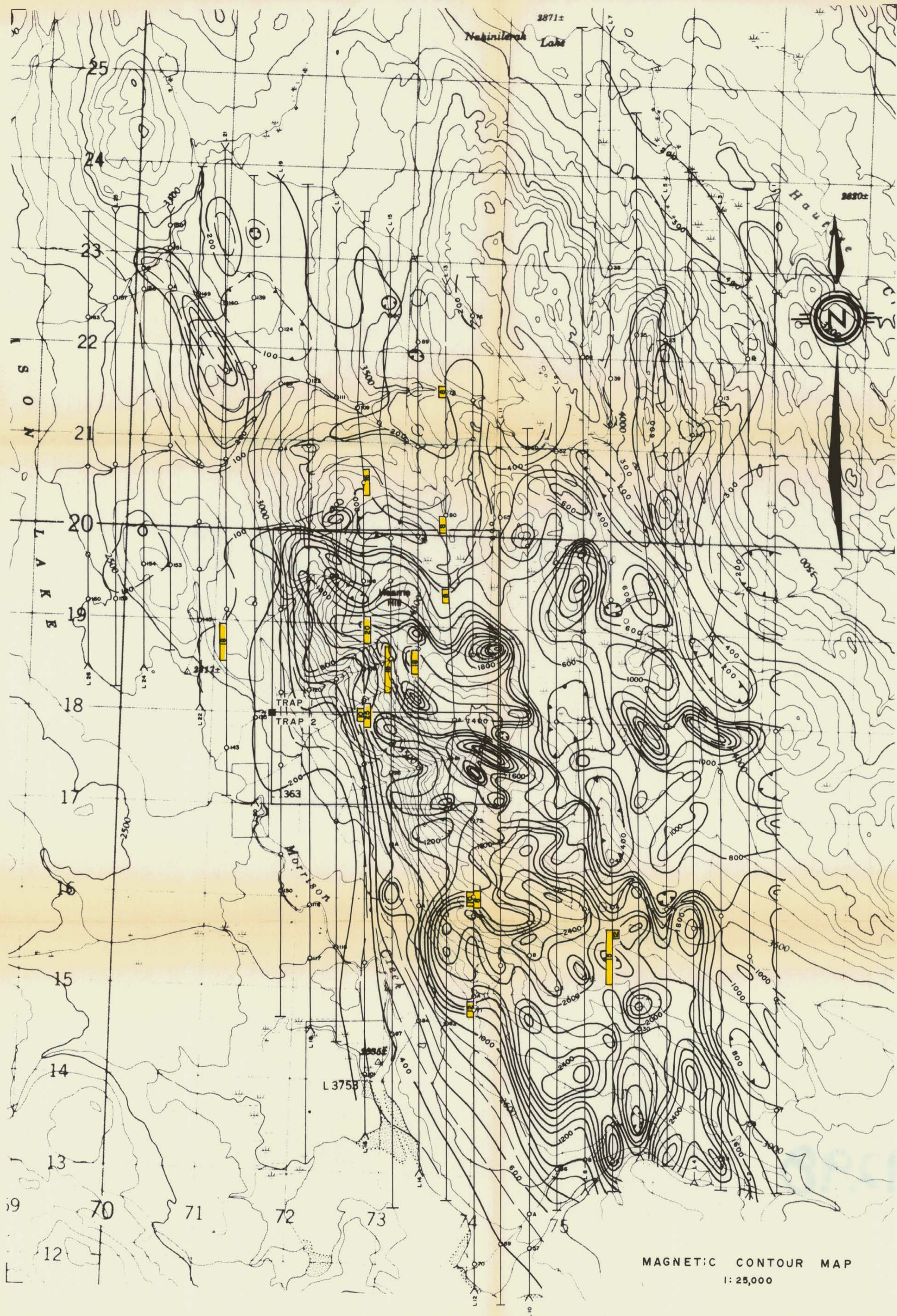


PACIFIC SURVEY CORPORATION. BI-67

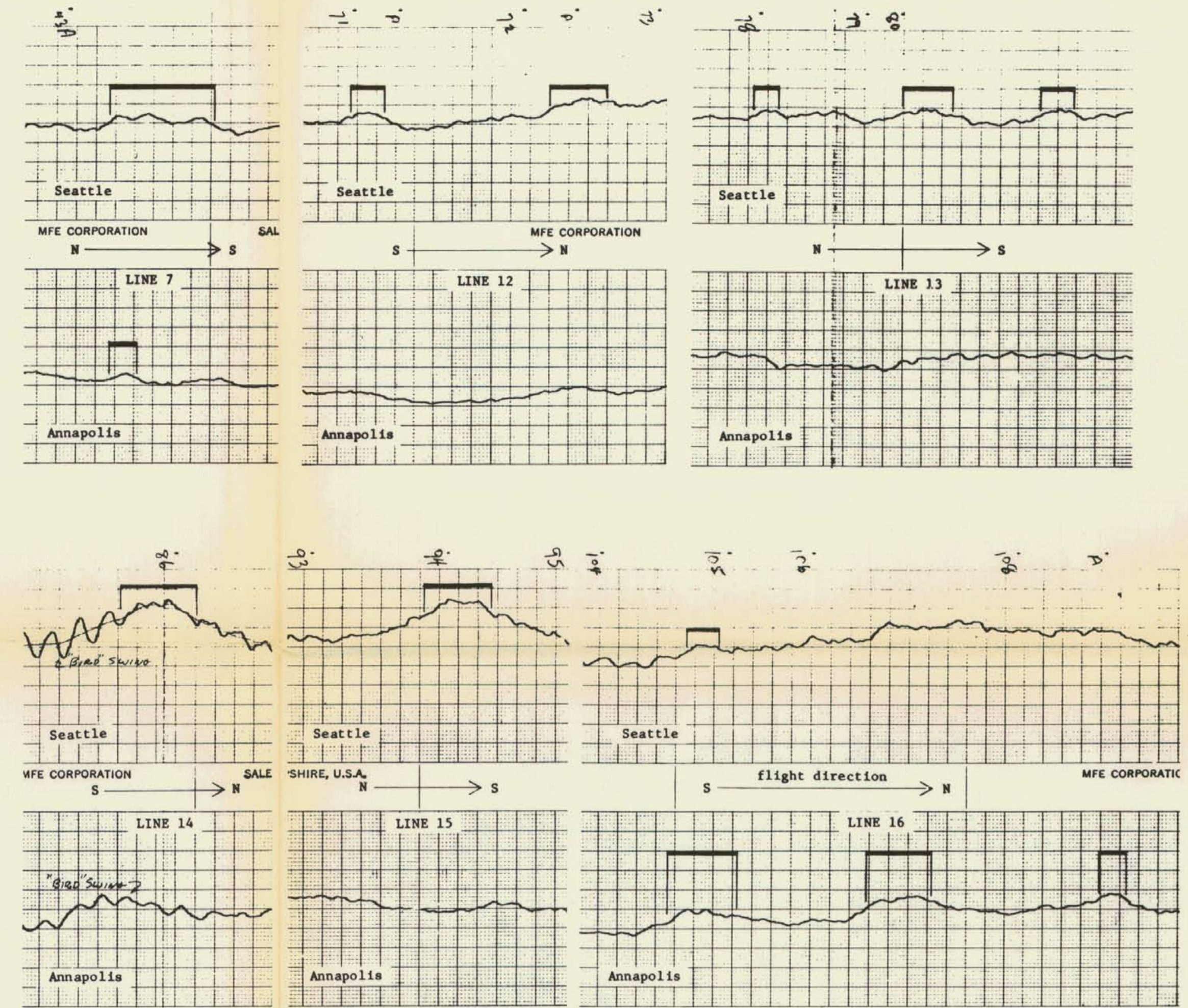
HEARNE HILL

SCALE 1:5000  
CONTOUR INTERVAL 20 FT.

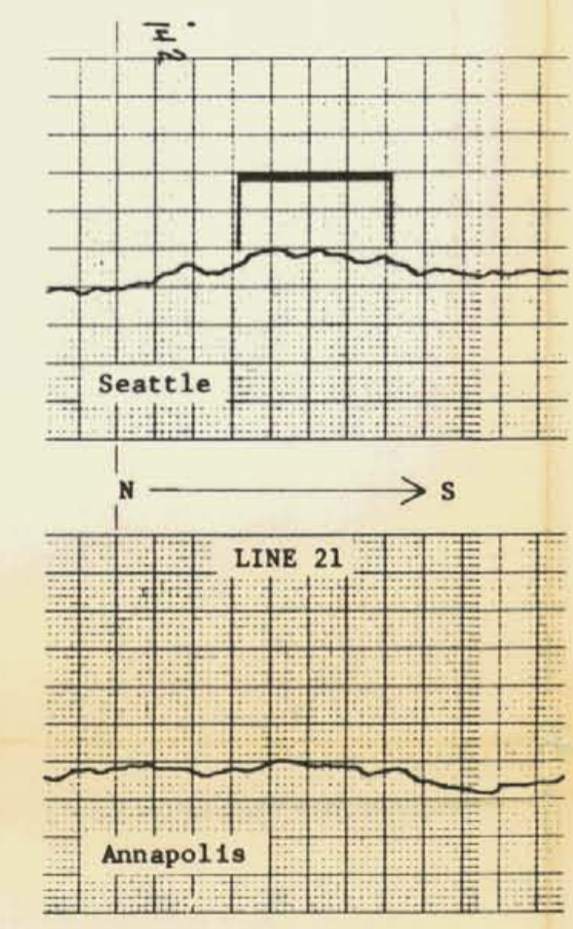
9298



MAGNETIC CONTOUR MAP  
1:25,000

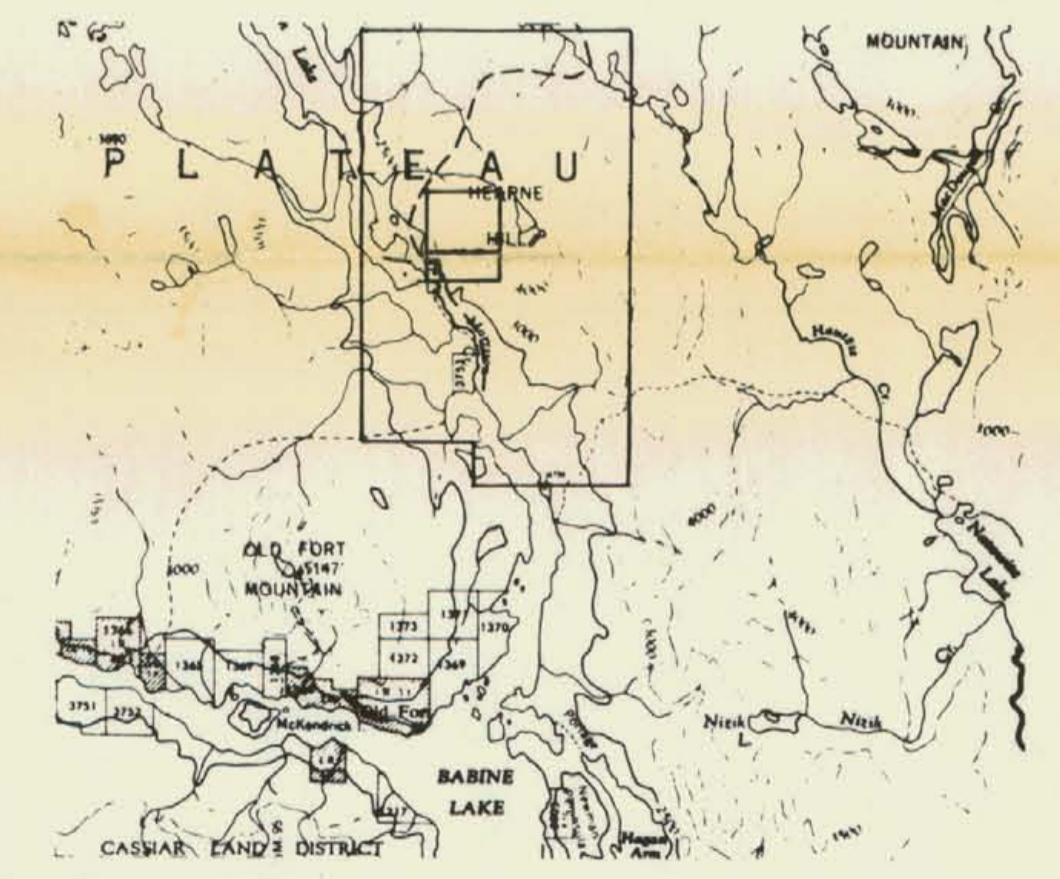


VLF-EM CHARTS  
SHOWING FIELD STRENGTH ANOMALIES



LEGEND

- L3 → 10 Flight line number and direction, numbered control point.
- Magnetic measurement is total field.
- Reference level - 58,000 nanoteslas.
- Contour Interval - 50, 100, and 200 nT
- VLF-EM measurement - Field Strength (horizontal component)
- Transmitters - Seattle, Annapolis
- VLF-EM Anomaly showing % F.S. increase



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**9298**  
NO.

LOCATION MAP  
1:250,000

To accompany Airborne Geophysical Report  
by J.T. Walker, Geophysicist, on the  
TRAP 1 and 2 Mineral Claims, Omineca M.D.  
Dated: April 22, 1981

*J.T. Walker*

REVISED	HEARNE HILL AIRBORNE
	MAGNETOMETER & VLF-EM SURVEY
	TERRAIN CLEARANCE - 60 Meters
	FLIGHT LINE SPACING - 400 Meters
PROJ. No.	SURVEY BY: T. WALKER, M. LEAHEY DATE: MARCH, 1981
N.T.S. 93 M I	DRAWN BY: T. WALKER SCALE: 1:25,000
DWG. No.	<b>NORANDA EXPLORATION</b>
1	OFFICE: VANCOUVER