

ASSESSMENT REPORT ON THE
AIRBORNE GEOPHYSICAL SURVEY
ON THE
SAL 1 to 11 MINERAL CLAIMS
AND ADJACENT AREA
LAFORME CREEK
NORTH OF REVELSTOKE B.C.
51°10'N 118°10'W

J.T. WALKER
NORANDA EXPLORATION COMPANY, LIMITED
REVELSTOKE MINING DIVISION
OCTOBER 16, 1981

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Drawing No. 1

- (1) Magnetic Contours With Topographic Underlay
- (2) VLF-EM Anomalies
- (3) Location Map
- (4) Claim Location

AIRBORNE GEOPHYSICAL SURVEY
on the
SAL 1 to 11 MINERAL CLAIMS
AND ADJACENT AREA
NORANDA EXPLORATION COMPANY, LIMITED

INTRODUCTION

On July 11, 1981, Noranda Exploration Company, Limited carried out an airborne geophysical survey in the Revelstoke area of B.C. covering an area of approximately 80 square kilometers. The survey area lies at the confluence of LaForme Creek and the Columbia River, 20 kilometers northwest of Revelstoke. The area flown is outlined on the location map (82 M 1) at a scale of 1:250,000.

The mineral claims within the survey area are the Sal 1-11 comprising 200 units, the record numbers are, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1160, 1161, 1162 and 1163 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, Revelstoke, B.C. was used to fly the survey. Eleven lines were flown along contour lines starting at the 2000 foot contour and continuing to the height of land (6500 feet). The line spacing was nominally 500 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: C. Hildebrandt
Navigator: T. Lewis
Operator: T. Walker
Data Reduction, Drafting: T. Walker, S. Nep.

All personnel are employees of Noranda Exploration Company, Limited except C. Hildebrandt 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 1:20,000. 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 omni-directional 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 Marantz stereo cassette recorder Model CD-330 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 point 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 Marantz stereo cassette tape recorder (Model CD 330), 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.

e) 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 1:20,000. 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 25 and 50 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 indicated by a bar symbol. The bar length corresponds to the profile width at the half height. The enclosed number 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 results of the airborne magnetometer survey are plotted on the Aeromagnetic Contour Map using contour intervals of 25 and 50 gammas (nanoteslas). The contour values are referenced above 58,000 gammas total field.


The magnetic field shows only modest relief within the survey area, ranging from 200 to 800 gammas. One prominent magnetic "high" is indicated north of St. Cyr Creek, on the Sal 2 Mineral Claim. The size of this anomaly has been reduced by the results of this survey as compared to the anomaly indicated by the Aeromagnetic Series map 4404G (sheet 82 M1).

The results of the airborne VLF-EM survey have indicated several anomalies on both the Seattle and Annapolis frequencies. Four VLF - EM anomaly groups are worthy of note:

- 1) Two anomalies near the end of flight line No.6 located on the south gradient of the magnetic high,
- 2) Two anomalies located 1 km. north of Martha Creek, (flight line No.3 control point 15 and flight line No.4 control point 28.
- 3) Anomaly on flight line No.6 between control points 46 and 47.
- 4) Two anomalies near the end of flight line No.1 approximately 0.5 kilometers north of Hathaway Creek.

CONCLUSIONS AND RECOMMENDATIONS

The airborne geophysical survey has provided data for the compilation of a low level aeromagnetic contour map. This low level survey provides sharper definition of the magnetic features than indicated by the aeromagnetic series (map 4404G). The low VLF-EM anomaly groups listed above warrant further investigation utilizing geological and geochemical follow-up methods.



J.T. Walker

STATEMENT OF QUALIFICATION

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 am a member of the Canadian Institute of Mining and Metallurgy, the British Columbia Geophysical Society, and the Canadian Exploration Geophysical Society.
3. I have held the position of Geophysicist for Noranda Exploration Company, Limited, British Columbia since June 1965.



James T. Walker
Geophysicist
NORANDA EXPLORATION COMPANY,
LIMITED
(No Personal Liability)

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT La Forme

DATE Decmeber 1981

TYPE OF REPORT Airborne Geophysics

a) Wages:

No. of Days 17
Rate per Day \$127.4476
Dates From: July 1, 1981 - October 31, 1981
Total Wages 17 x \$127.4476 2,166.61

b) Food and Accomodation:

No of days 17
Rate per day \$10.8335
Dates From: July 1, 1981 - October 31, 1981
Total Cost 17 x \$ 10.8335 184.17

c) Transportation:

No of days 17
Rate per day \$153.0235
Dates From: July 1, 1981 - October 31, 1981
Total Cost 17 X \$153.0235 2,601.40

d) Instrument Rental:

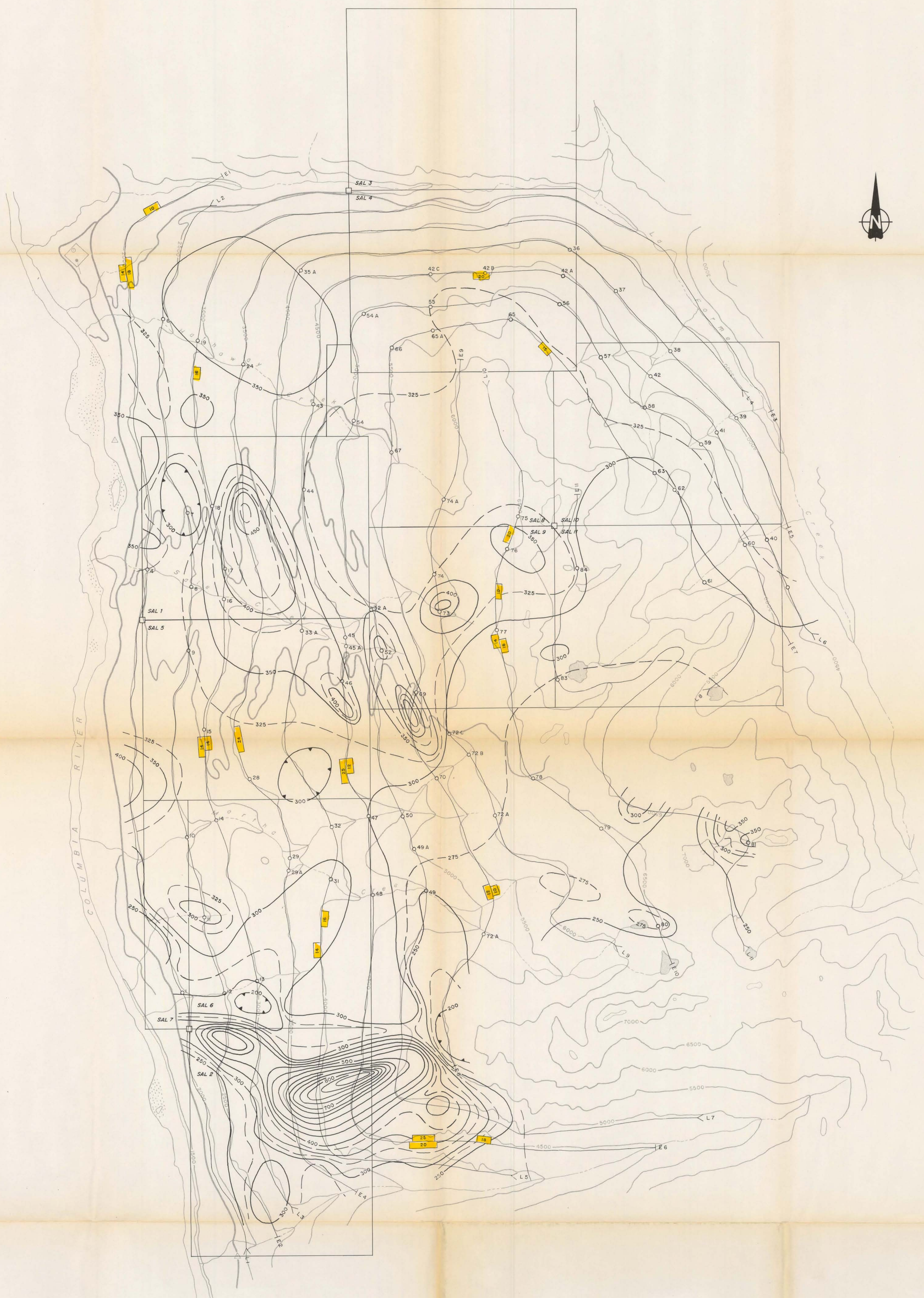
Type of Instrument
No of days
Rate per day \$
Dates From:
Total Cost X \$

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	127.45
Drafting	88.26
Typing	127.45
h) Other:	
Camp & Field Supplies	<u>20.51</u>

Total Cost \$5,315.85

e) Unit costs for Airborne Geophysics	
No of days	
No of units	160 Line Km.
Unit costs	33.224 / Line Km
Total Cost	160 × \$33.224 <u><u>\$5,315.85</u></u>

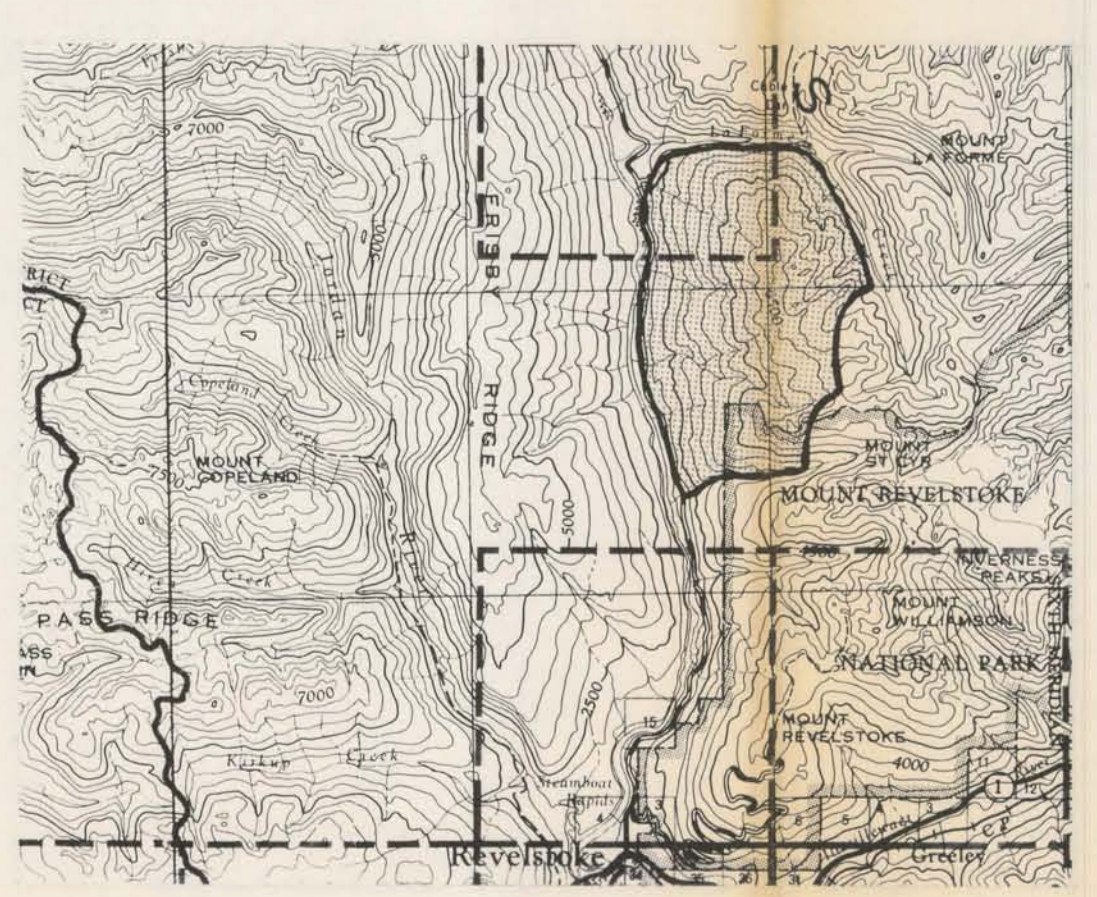
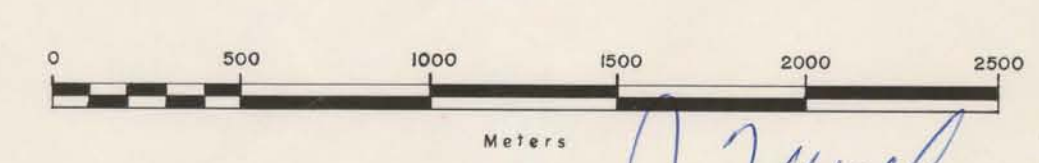


AEROMAGNETIC CONTOUR MAP
1:20,000

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10,099
NO.

LEGEND

- L3 → Flight line number and direction, numbered control point.
- Magnetic measurement is total field.
Reference level - 58,000 nanoteslas.
Contour interval - 25, 50, 100 nT.
- VLF-EM measurement - Field Strength (horizontal component)
Transmitters - Seattle
Annapolis
- ▲ VLF-EM Anomaly showing % F.S. increase



LOCATION MAP
1:250,000

To accompany Airborne Geophysical Report
by J. T. Walker, Geophysicist, on the
SAL 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 Mineral Claims, Revelstoke M.D.
Dated: October 16, 1981

REVISED	LA FORME CREEK AIRBORNE	
	MAGNETOMETER & VLF-EM SURVEY	
	MEAN TERRAIN CLEARANCE - 60 Meters	
	FLIGHT LINE SPACING - 500 Meters	
PROJ. No. 1084-D10	SURVEY BY: T. WALKER, T. LEWIS	DATE: JULY 1981
N.T.S. 82 M1	DRAWN BY: T. WALKER, S. NEP	SCALE: 1:20,000
DWG. No.	NORANDA EXPLORATION	
	OFFICE: VAN COUVER, B.C.	