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TARBO RESOURCES LTD.
GEOPHYSICAL REPORT
On An
AIRBORNE VLF-EM AND MAGNETOMETER SURVEY

Dago and Silver Run claims, Liard Mining Division
Lat. 57°15'N Long. 130°45'W 94G/7E

AUTHORS: E. Trent Pezzot, B.Sc., Geophysicist

Glen E. White, B.Sc., P. Eng.,
Consulting Geophysisist

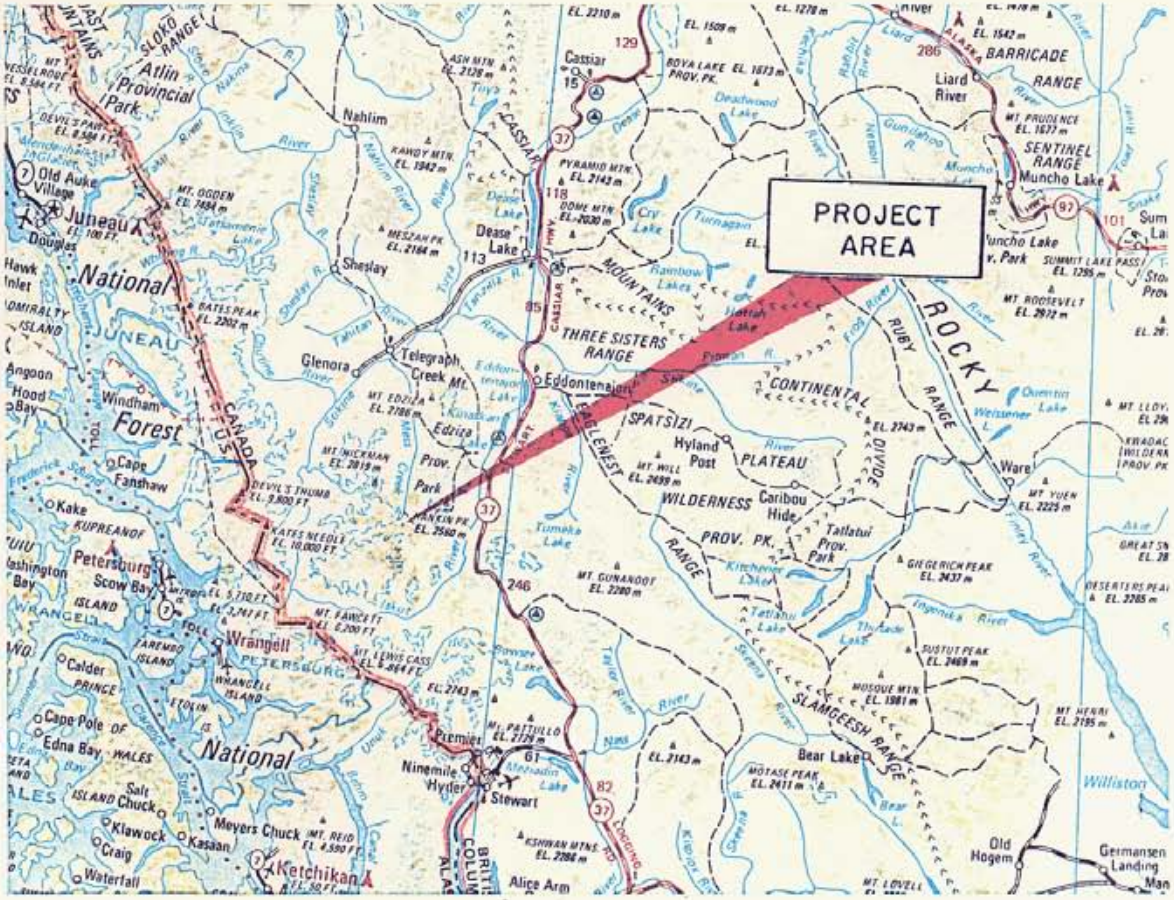
DATE OF WORK: August 13, 1980

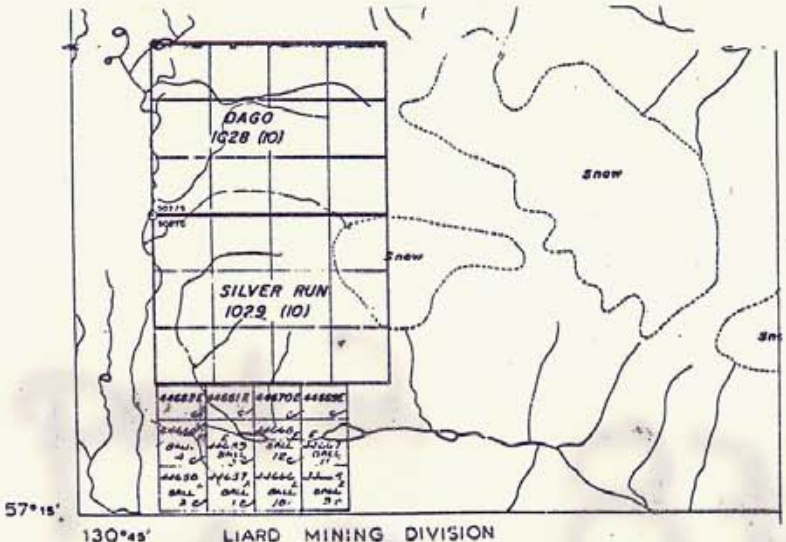
DATE OF REPORT: October 20, 1980

Operator: Edziza Resources Ltd.

Part 2
of 2

WESTERN GEOPHYSICAL AERO DATA LTD.





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LOCATION AND CLAIMS MAP

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FIG. 1

C O N T E N T S

ILLUSTRATIONS

INTRODUCTION

On August 13, 1980 Western Geophysical Aero Data Ltd. conducted forty-four kilometers of airborne VLF-EM and Magnetometer survey over the Tarbo Resources Ltd. Mt. Edziza project area in North Central B.C. The purpose of the survey was to detect any anomalous EM or Magnetic features which might be associated with a near surface massive sulfide body and provide location co-ordinates for follow-up detailing ground surveys.

PROPERTY

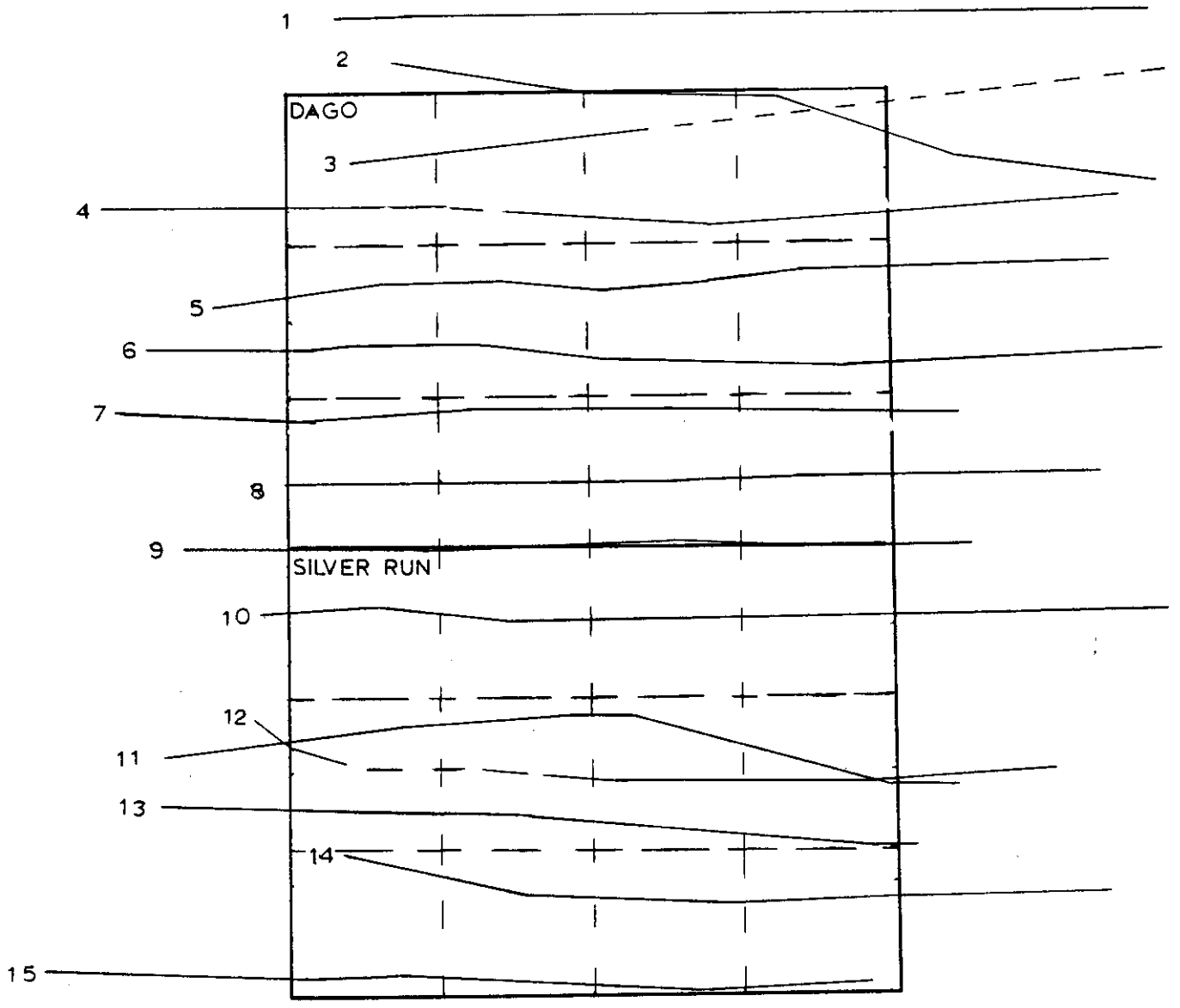
The Mt. Edziza project area is comprised of two adjacent 12 unit claims: the Dago 1028(10) to the north and the Silver Run 1029(10) to the south as illustrated in Figure 1.

LOCATION AND ACCESS

The Dago and Silver Run claims are located eleven kilometers due west of the northernmost fork of Ball Creek, adjacent of the southern boundary of the Mt. Edziza recreation area and six kilometers north-east of Arctic Lake. They lie within NTS 104 G/7E in the Liard Mining Division at Latitude $57^{0}15'$N and Longitude $130^{o}45'$W. No roads exist to the area and access is via helicopter only. The nearest fixed wing air strip is at the Shaft Creek camp apppoximately fifty kilometers north-east of the project area.

SURVEY GRID

A survey grid composed of 15 lines approximately two kilometers long and spaced two hundred meters apart was laid out to cover the two claims. The video flight path recovery system shows the actual survey grid flown covers the claims as shown on Figure 2.



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MT. EDZIZA PROJECT

SURVEY GRID

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FIG. 2

AIRBORNE VLF-ELECTROMAGNETIC AND MAGNETIC SURVEY

This survey system simultaneously monitors and records the output signal from a proton precession magnetometer and two VLF-EM receivers installed in a bird designed to be towed 50 feet below a helicopter. A gimbal and shock mounted TV camera, fixed to the helicopter skid, provides input signal to a video cassette recorder allowing for accurate flight path recovery by correlation between the flight path cassette and air photographs of the survey area. A Bonzer radar altimeter allows the pilot to continually monitor and control terrain clearance along any flight path.

Continuous measurements of the earth's total magnetic field intensity and of the total horizontal VLF-EM field strength of two transmission frequencies are stored in two independent modes: an analogue strip chart recorder and a digital video recovery system. A three-pen analogue power recorder provides direct, unfiltered recordings of the three geophysical instrument output signals. Correlation between the strip chart and the video flight path recovery tape is controlled via fiducial marks common to both systems. The magnetic and electromagnetic data is also processed through the onboard micro-computer, incorporating an analogue to digital converter and a character generator, then superimposed along with real time and terrain clearance upon the actual flight path video recording to allow exact correlation between geophysical data and ground location. An optional time-averaging filter of 1, 2 , 3, 4 or 5 seconds is available on the VLF-EM data to provide more easily contourable values in noisy areas. The continuous input magnetic signal is processed at the maximum A/D converter rate, averaged and updated on the video display every second. Line identification, flight direction and pertinent survey information are recorded on the audio track of the video recording tape.

DISCUSSION OF RESULTS

On August 13, 1980 forty-four kilometers of airborne magnetometer and VLF-EM survey was flown over the TARBO RESOURCES LTD. Mt. Edziza project area. Output signals from a proton precession magnetometer and two VLF-EM receivers were simultaneously monitored and recorded in two separate storage modes: digitally on a video cassette tape and as an analogue strip chart recording.

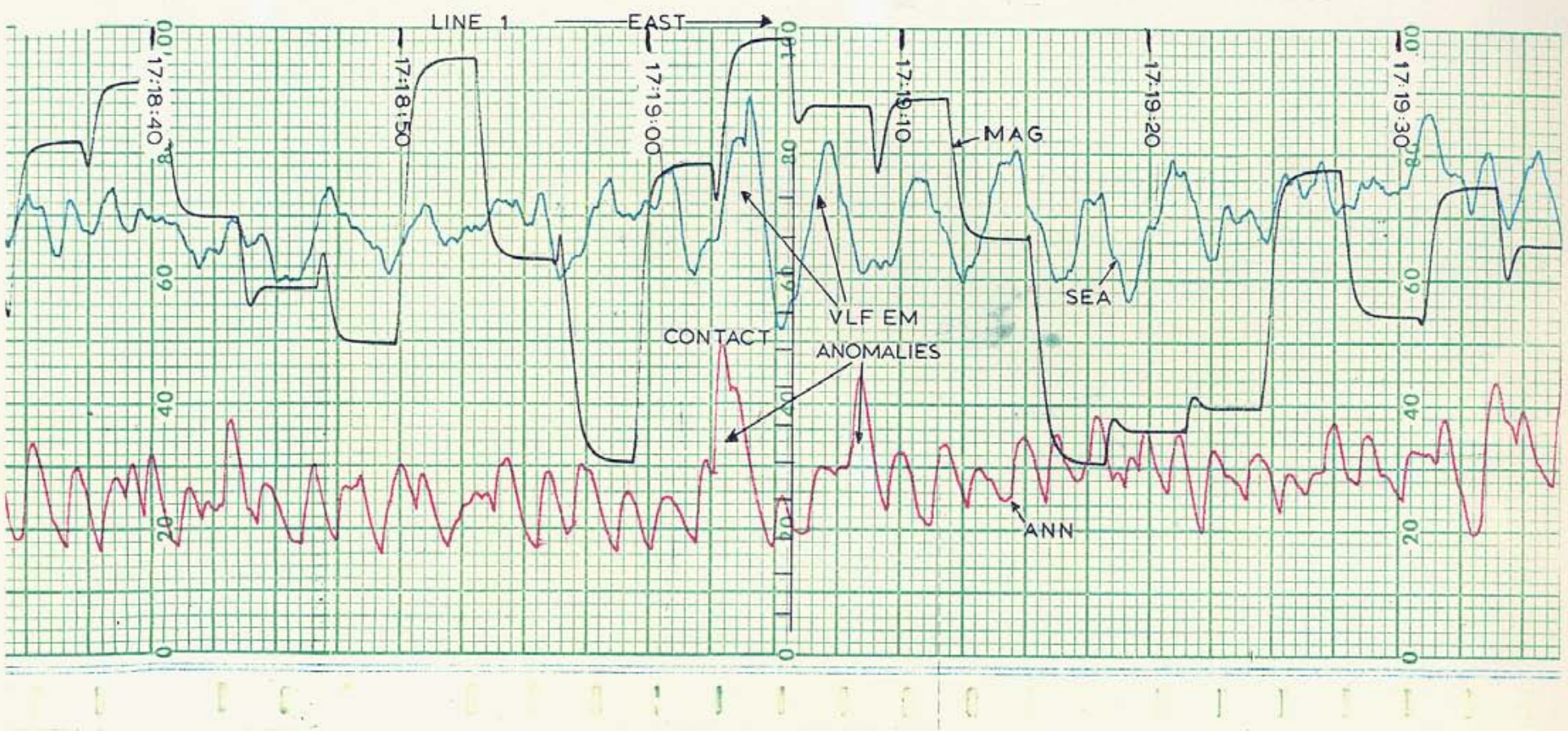
I VLF-EM Survey

Two VLF frequencies were monitored by the airborne system: 21.4 KHz (Annapolis, Maryland) and 18.6 KHz (Seattle, Washington) and both data sets are used in the interpretation. Oscillation of the bird due to high winds and steep terrain superimposed a sinusoidal background signal on a number of lines. Although anomalous zones are readily observable above this noise the data is not contourable. The interpretation map (Figure 3) delineates the anomalous zones and notes the increase in total horizontal field intensity above the local background.

Most of the survey lines display a background shift and character change on both the Annopolis and the Seattle frequency data. This relatively distinct VLF-EM response is believed to reflect a geological contact trending roughly north-south down the centre of the survey grid as shown on Figure 3. To the west of this contact the VLF-EM data displays a weak, flat response. A large number of weak, anomalous responses are present in this area

but all correlate to geomorphic features such as swamps, streams, lakes or flood plains. None of the responses observed west of the contact zone are typical of a near surface massive sulfide anomaly. A relatively strong total field intensity increase is observed on both VLF-EM frequencies at the contact itself (Figure 4). This conductive response is likely a reflection of some alteration zone associated with the contact.

East of the contact the VLF-EM responses are stronger and more variable than those observed to the west. The overall response suggests this geological unit is composed of alternately layered conductive and resistive zones striking roughly N30^{o}E. The strongest responses observed (Figure 5) consist of four parallel zones trending NE-SW across lines 10 to 13 inclusive as illustrated on Figure 3. Line 14 shows a weaker broad response along strike indicating these zones either finger out or plunge to depth to the south-west. Northeast of this area a number of anomalous responses of varying magnitude are observed. The stronger ones have been delineated on Figure 3.



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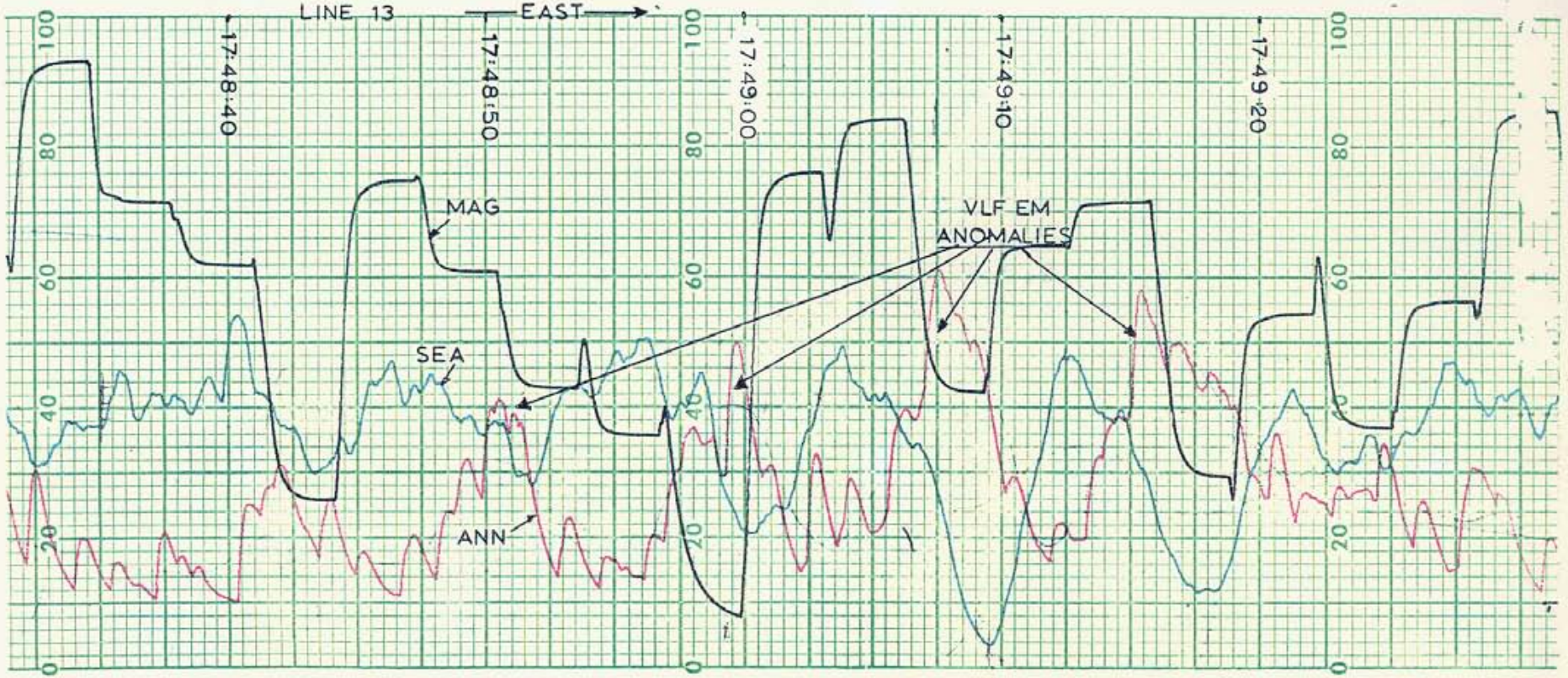
VLF – EM RESPONSE

WESTERN
GEOPHYSICAL AERO DATA
LTD.

FIG. 4



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MT. EDZIZA PROJECT

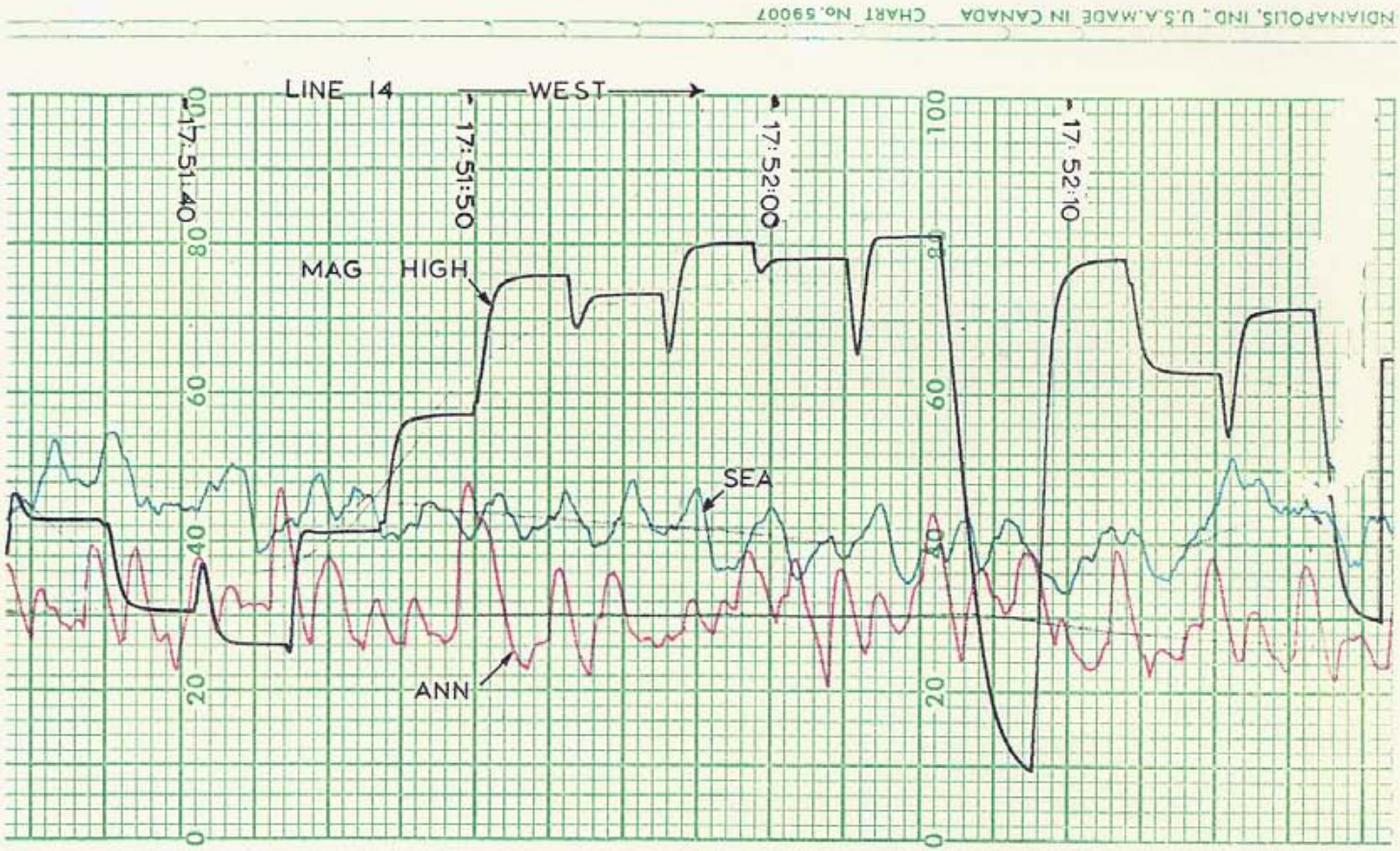
VLF – EM RESPONSE

WESTERN
GEOPHYSICAL AERO DATA
LTD.

FIG. 5

II Magnetometer Survey

The total field intensity of the earth's magnetic field over the survey grid was measured by a proton precession magnetometer. The data recorded is extremely noisy, possibly a result of either magnetic storm interference or internal instrumentation malfunctions. Although subtle magnetic variations are lost, a regional high trend is observed. The magnitude (700 gammas to 1000 gammas above background - see Figure 6) and precise physical boundaries of this zone are questionable but its' existance and general location as shown on Figure 3 is considered reliable. The western boundary of the magnetic high is close to the VLF-EM defined contact between lines 7 and 11 and likely originates from the same geological feature.



TARBO RESOURCES LTD.

MT. EDZIZA PROJECT

MAGNETIC RESPONSE

WESTERN GEOPHYSICAL AERO DATA LTD.

FIG. 6

SUMMARY AND RECOMMENDATIONS

Western Geophysical Aero Data Ltd. flew forty-four kilometers of airborne total field intensity VLF-EM and Magnetometer Survey over the Mt. Edziza project area on behalf of Tarbo Resources Ltd. on August 13, 1980.

The VLF-EM data, recorded on two transmission frequencies, defines a geological contact zone trending roughly north-south across the survey grid. A number of total horizontal field strength increases, likely reflections of conductive geologic facies, are noted east of this contact zone. The amplitude of these anomalies are not as large as would be expected from a near surface massive sulfide body but those associated with any encouraging geological input warrant further inspection by a more detailing ground survey. The contact zone itself should be examined on the north end of the property where associated high amplitude VLF-EM anomalies occur.

A 700 gamma magnetic high, observed between lines 6 and 15, is likely associated with the VLF-EM defined contact described above. The magnetic zone is large in areal extent and is likely a regional geological unit, not specifically associated with any massive sulfide body.

Respectfully submitted,
WESTERN GEOPHYSICAL AERO
DATA LTD.

E. Trent Pezzot, B.Sc.
Geophysicist

Glen E. White, B.Sc., P. Eng.
Consulting Geophysicist

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE

Instrument Specifications

SABRE AIRBORNE MAGNETOMETER

Type:	Proton Precession
Range:	20,000 gammas to 75,000 gammas
Repetition Rate:	Approximately 1 second or 3 seconds selected by toggle switch
Output:	Designed to operate into any potentiometric chart recorder with 0 to 0.1 volt scale
Display:	Digital dial plus analogue meter
Period:	Meter records last 1000 λ, 2000 λ, 5000 λ, of total field depending on scale selected. Zeroing system allows chart recording pen to be positioned anywhere on paper, so that if the pen is centred, the resulting scales that can be selected are $\pm$ 500 λ, $\pm$ 1000 λ, or $\pm$ 2500 λ. These scales are standard but virtually all others can be provided.
REsolution:	Resolution of the instrument itself is better than 1 gamma. Ultimate resolution depends on the accuracy of the chart recorder.
Detector:	Kerosene filled coil approximately 9 cm x 8 cm in diameter. Inductance - 60 millihenries Resistance - 7.5 ohms Weight - 2.2 Kg.
Operating Temperature:	Instrument - -10°C to +60°C Detector - -40°C to +60°C
Dimensions:	Instrument Console - 30 cm x 10 cm x 25 cm Towed Bird - 1.7 m x 21 cm diameter
Weight:	Instrument Console - 3.5 Kg. Towed Bird - 30 Kg. (VLF-EM antennae system housed in bird with magnetometer detector)
Power Source:	Two 12 volt, 28 amp-hour lead acid batteries (gelled electrolyte)

Instrument Specifications

SABRE AIRBORNE VLF SYSTEM

Source of Primary Field:	VLF radio stations in the frequency range of 14 KH_z to 30 KH_z.
Type of Measurement:	- Horizontal field strength
Number of Channels:	- Two; Seattle, Washington at 18.6 KH_z
	- Annapolis, Maryland at 21.4 KH_z
Type of Sensor:	- Two ferrite antennae arrays, one for each channel, mounted in magnetometer bird.
Output:	- 0 - 100 mV displayed on two analogue meters (one for each channel)
	- recorder output posts mounted on rear of instrument panel
Power Supply:	- Eight alkaline 'AA' cells in main instrument case (life 100 hours)
	- Two 9-volt alkaline transistor batteries in bird (life 300 hours)
Instrument Console:	- Dimensions - 30 cm x 10 cm x 25 cm
	- Weight - 3.5 Kg.

Instrument Specifications

DATA RECORDING SYSTEM

i) Chart Recorder

Type: Esterline Angus Miniservo III Bench AC Ammeter - Voltmeter Power Recorder
Model: MS 413 B
Specification: S-22719, 3-pen servo recorder
Amplifiers: Three independent isolated DC amplifiers (1 per channel) providing range of acceptable input signals
Chart: 10 cm calibrated width 2-fold chart
Chart Drive: Multispeed stepper motor chart drive, Type D850, with speeds of 2, 5, 10, 15, 30 and 60 cm/hr. and cm/min.
Controls: Separate front mounted slide switches for power on-off, chart drive on-off, chart speed cm/hr - cm/min. Six position chart speed selector. Individual front zero controls for each channel.
Power Requirements: 115/230 volts AC at 50/60 H_z (Approximately 30 VA)
Writing System: Disposable fibre tipped ink cartridge (variable colors)
Dimensions: 38.6 cm x 16.5 cm x 43.2 cm
Weight: 9.3 Kg.

ii) Digital Video Recording System

Type: L.M. Microcontrols Ltd. Microprocessor Control Data Acquisition System
Model: DADG - 68
Power Requirements: 10 - 14 volts dc, Maximum 2 amps
Input Signal: 3, 0 - 100 mvolt d c signals
1, 0 - 25 volt d c signal
Microprocessor: Motorola MC-6800
CRT Controller: Motorola MC-6845
Character Generator: Motorola MCM-6670
Analogue/Digital Convertor: Intersil 7109
Multiplexer: Intersil IH 6208
Digital Clock: National MM 5318 chip
9 volt internal rechargeable nickle-cadmium battery
Fiducial Generator: internally variable time set controls relay contact and audio output
Dimensions: 30 cm x 30 cm x 13 cm
Weight: 3 Kg

Instrument Specifications

FLIGHT PATH RECOVERY SYSTEM

i) T.V. Camera:

Model: RCA TC2055 Vidicon
Power Supply: 12 volt dc
Lens: variable, selected on basis of expected terrain clearance
Mounting: Gimbal and shock mounted to housing
- housing bolted to helicopter skid

ii) Video Recorder:

Model: Sony SLO - 340
Power Supply: 12 volt dc / 120 volt AC (60 H_z)
Tape: Betamex ½" video cassette - optional length
Dimensions: 30 cm x 13 cm x 35 cm
Weight: 8.8 Kg
Audio Input: Microphone in - 60 db low impedance microphone
Video Input: 1.0 volt P-P, 75 Ω unbalanced, sync negative from camera

iii) Altimeter:

Model: Bonzer Mk 10 Radar Altimeter
Power Supply: 12 - 25 volts dc
Output: 0 - 25 volt (1 volt / 1000 feet) dc signal split to microprocessor and analogue meter
Mounting: fixed to T.V. camera housing, attached to helicopter skid

COST BREAKDOWN

Personnel	Field Work	Wages	Total
J. Behenna	August 13, Sept. 23-26	$175	$875
N. McGarry	August 13, Sept. 23-26	$145	$725

T. Pezzot, Geophysicist - Supervisor and Interpreter

Shipping and airfares - proportioned	$600
Truck lease and general expenses	$250
Instrument lease - proportioned	$850
Materials - photomosaic and drafting	$150
Interpretation and reports	$550
	$4000

Note: Helicopter charges paid directly by client - approximately 3 hrs. at $408/hr. $1224

Project Total $5224

STATEMENT OF QUALIFICATIONS

NAME: PEZZOT, E. Trent

PROFESSION: Geophysicist - Geologist

EDUCATION: University of Brisish Columbia - B.Sc. - Honors Geophysics and Geology

PROFESSIONAL ASSOCIATIONS: Society of Exploration Geophysicists

EXPERIENCE: Three years undergraduate work in geology - Geological Survey of Canada, consultants.

Three years Petroleum Geophysicist, Senior Grade, Amoco Canada Petroleum Co. Ltd.

Two years consulting geophysicist, Consulting geologist - B.C., Alberta, Saskatchewan, N.W.T., Yukon, western U.S.A.

Two years geophysicist with Glen E. White Geophysical Consulting & Services Ltd.

STATEMENT OF QUALIFICATIONS

NAME: WHITE, Glen E., P. Eng.

PROFESSION: Geophysicist

EDUCATION: B.Sc. Geophysics - Geology
University of British Columbia

PROFESSIONAL ASSOCIATIONS: Registered Professional Engineer, Province of British Columbia

Associate member of Society of Exploration Geophysicists.

Past President of B. C. Society of Mining Geophysicists.

EXPERIENCE: Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass.

Two years Mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd.

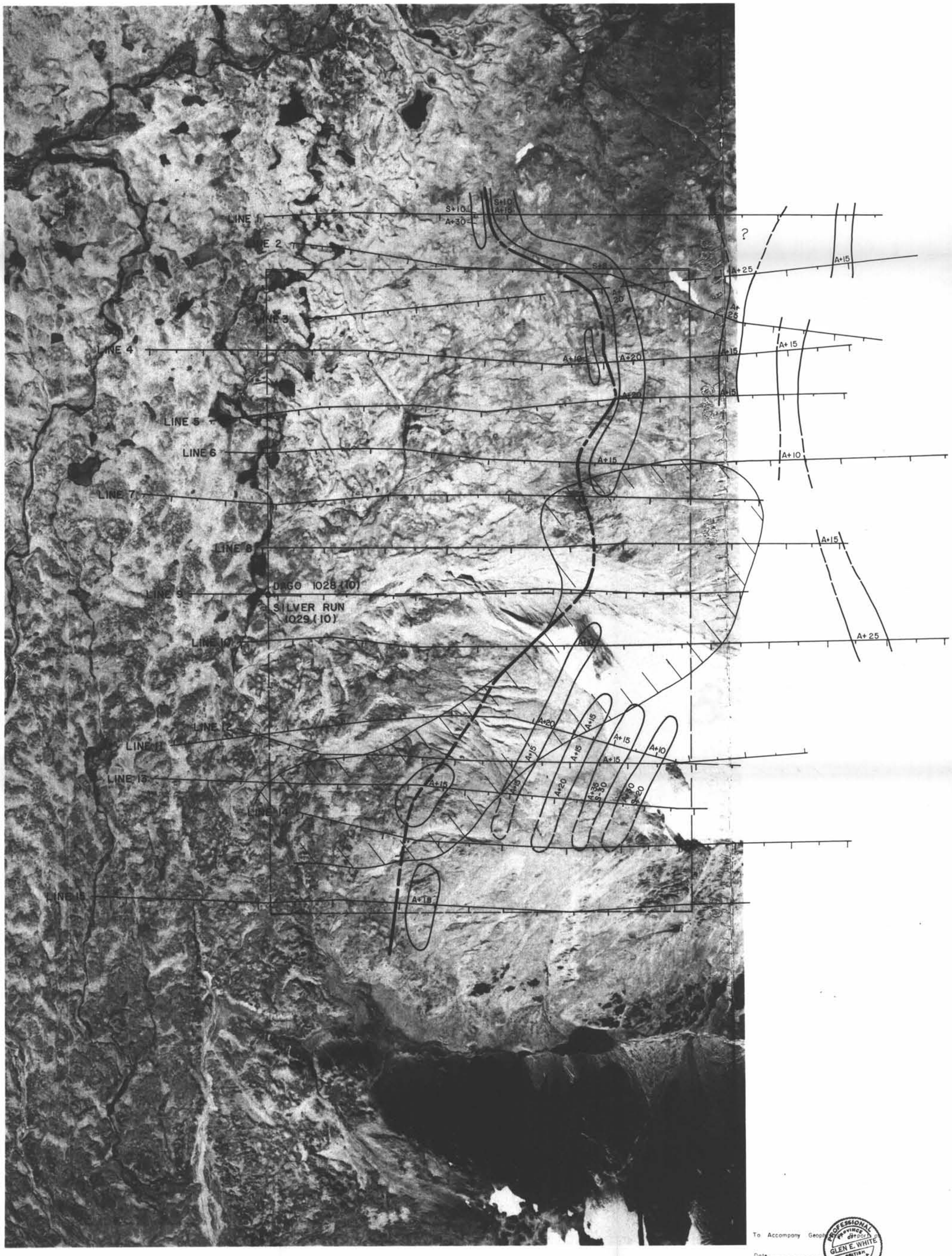
One year Mining Geophysicist and Technical Sales Manager in the Pacific north-west for W. P. McGill and Associates.

Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd.

Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.

Ten years Consulting Geophysicist.

Active experience in all Geologic provinces of Canada.



N

LEGEND:

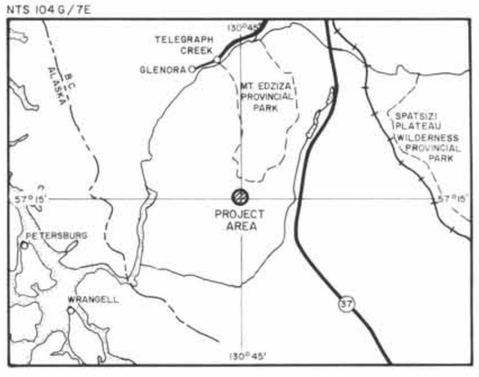
- Magnetometer high
- VLF-EM anomaly
- A+15 — Tx station, Amplitude above background
- VLF-EM defined contact
- Claim post & claim boundary
- A ≡ Annapolis 21.4 KHz
- S ≡ Seattle 18.6 KHz

Part 2
#2

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 8738

INSTRUMENT: Sabre Airborne VLF-EM & Magnetometer

NTS 104 G/7E



0 100 200 400 600 800 1000
APPROX. SCALE 1:40,000

TARBO RESOURCES LTD.
MT. EDZIZA PROJECT
LIARD MINING DIVISION B.C.

GEOPHYSICAL INTERPRETATION MAP

Western Geophysical Aero Data Ltd.

INTERPRETED BY:	E.T.P.
DRAWN BY:	J.W.F.
CHECKED BY:	G.E.W.
DATE:	OCTOBER, 1980
FIGURE No.	3

To Accompany Geoph[illegible]

Date

By GLEN E. WHITE, B[illegible] GEOPHYSICIST

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE