SU-#769-9608 QUINTO MINING CORPORATION

Geophysical Report on an Airborne VLF-EM & Mag Survey

PS 1-2, Tomken 1-2, Snoball 1-4, Ken 1-8 claims Lillooet Mining Division

Lat 50°52'N Long 122°31'W NTS 92J/15E & 16W

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DATE OF WORK: June 12, 1981 DATE OF REPORT: July 2, 1981

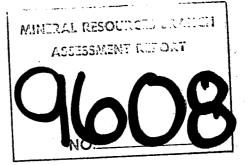


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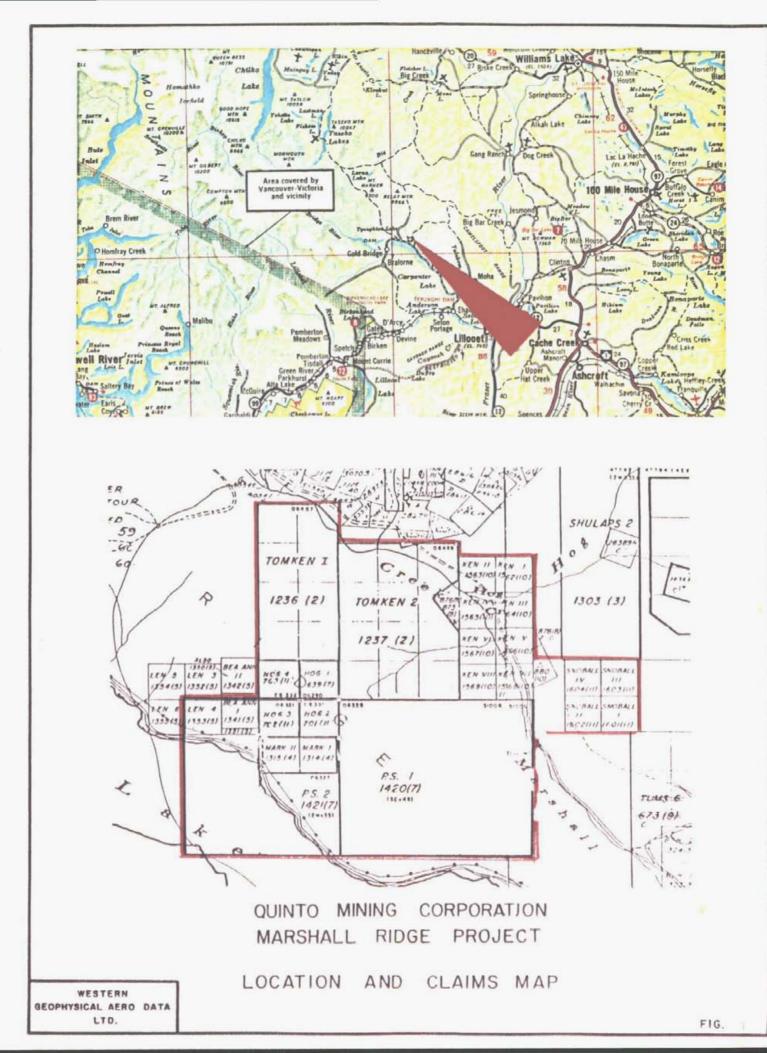
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VESTERN GEOPHYSICAL AERO DATA LTD. -

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INTRODUCTION

On June 12, 1981 Western Geophysical Aero Data Ltd. conducted 92 km of airborne magnetometer and VLF-electromagnetometer survey on behalf of Quinto Mining Corporation over their Marshall Creek Project area.

The purpose of the survey was to map any magnetically defineable geological trends and locate any near surface massive sulphide bodies across the claims area.

PROPERTY

The property consists of 72 contiguous units as described below and illustrated on Figure 1.

Claim Name PS I-II incl. Tomken I-II incl. Ken 1-8 incl. Snoball 1-4 Record Number 1421, 1420 1236, 1237 1562, 1569

LOCATION AND ACCESS

The claims are located approximately 50 km northwest of Lillooet, along Marshall Ridge which is bordered to the north by Marshall Creek and to the south by Carpenter Lake. The geographic center of the claims area is approximately latitude 50°52'N and longitude 122°31'W which lies in the Lillooet Mining Division of B.C. and N.T.S. 92 J/15E and 92 J/16W. (Figure 1)

Direct access to the property from Lillooet is via the Bridge River highway which runs along the northern shore of Carpenter Lake. The Marshall Creek road and several logging roads provide access to various areas within the claim group.

PREVIOUS WORK

Considerable mineral exploration has been conducted in the claims area during the early part of the century. Of particular notice are a number of tunnels driven to follow narrow veins with high gold and silver values.

More recently Quinto Mining Corporation has re-staked the claims area and conducted limited trenching with rock and soil geochemical analysis over portions of the claims area.

LOCAL GEOLOGY

The following geological description is taken from a preliminary evaluation report written by J.P. Elwell, P.Eng., on behalf of Quinto Mining Corporation:

"G.S.C. Map 92/J shows the claim area to be entirely underlain by the Bridge River (Ferguson) group of Triassic or older age consisting of a varied assemblage of greenstone, basalt, chert, argillite, phyllite and minor limestone which have been intruded in places by serpentenized ultra basic rocks. The rocks are highly contorted and altered and are cut by strong faults, some of which are filled with quartz calcite veins carrying sulphide mineralization and variable gold-silver values.

There are a number of known mineral occurances in the Ferguson rocks, the most notable of which is probably the Minto mine which was a successful gold and sulphide mineral producer for a number of years, the mineralization occurring in a quartz-calcite fissure vein. Other mineral occurrances which are, or have been under active exploration are the Peerless property, containing fissure viens with gold, silver, lead and zinc; a large disseminated zone of pyrite, chalcopyrite, and sphalerite occurring on the Wayside property of Carpenter Lake Resources; and the Dauntless prospect, which consists of a guartz vein in argillite carrying variable gold values."

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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-E4 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.

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DISCUSSION OF RESULTS

Twenty-six northeast-southwest oriented survey lines, totalling approximately ninety-two kilometers, were required to cover the claims area as shown on the interpretation map, Figure 2. Two VLF-EM transmission frequencies (21.4 Khz and 18.6 Khz) were monitored and the earths' total magnetic field intensity measured continuously along all flight lines.

I MAGNETIC SURVEY

The results of the magnetic survey are presented in contour form over a photomosaic base map of the survey area as Figure 2. Two magnetic trends are observed which appear to reflect major lithologic and structural features in the area. The weaker of the trends is a 150 gamma to 300 gamma magnetic high which occurs in the south-east portion of the survey grid on lines 1 through 5 inclusive (Figure 3). The feature is coincident with a topographic ridge however terrain clearance does not appear to be the cause of the feature observed.

The second magnetic trend is a strong high which trends northwest-southeast and is presently considered open southeast of line 5. The anomaly is strongest (approximately 1500 gammas above background) on the east end of line 9 (Figure 4) and gradually loses intensity and size until it pinches out in the vicinity of the conjunction of Hog Creek and Marshall Creek (line 15 - Figure 5). Indications of a continuation of this zone are observed on the eastern ends of lines 18 through 21 inclusive.

Possibly associated with this feature are a series of high spatial frequency, high intensity magnetic anomalies which closely follow Marshall Creek. These responses are first prominent on line 6 (Figure 6) and although they vary in strength and frequency they are observed on lines to the north in the immediate vicinity of Marshall Creek.

The majority of the claims area exhibit a very uniform magnetic field with a background value of 57,300 gammas. Occassional high spatial frequency responses typical of atmospheric or electric noise are observed in this area, particularly in the vicinity of the power lines which parallel the Bridge River highway along the northern shore of Carpenter Lake. Some of these responses have a slightly longer period than the noise spikes observed or exhibit line to line correlation and might therefore represent very narrow, near surface veins or faults with anomalously high pyrrhotite or magnetite content. These zones are considered to be of questionable reliability however they are noted on the interpretation map and should be compared with existing geochemical and geological information. Particular attention should be afforded those magnetic anomalies which correlate with electromagnetic anomalies.

II VLF-EM SURVEY

The VLF-EM signal by nature travels in the plane parallel to the ground surface and as such does not provide a uniform background signal in any plane across areas of steep and variable terrain. As was expected the measured total horizontal field intensity of the VLF-EM signals did not produce contourable values in this area however anomalous electromagnetic responses are observed as field strength increases above local background values.

NO VLF-EM anomalies were observed which can be interpretted as a reflection of a large, near surface and conductive massive sulphide body. The anomalies which were observed are of varying intensity and exhibit very high spa-

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tial frequency. Some of those anomalies noted can be seen on the video data recovery system to be reflections of streams and powerlines and as such have not been flagged on the interpretation map.

A relatively weak but definative conductive trend (line 9, Figure 4) closely tracks Marshall Creek in the same manner as the high spatial frequency magnetic responses described above. The response is much broader than would be expected if caused by the creek itself and because of the anomalous magnetic responses is interpreted as the reflection of a major fault zone possibly containing narrow lenses or veins of pyrrhotite mineralization. A second, relatively broad, electromagnetic response is observed on lines 2 and 4 (Figure 7) along the flank of a regional magnetic high. The remaining VLF-EM anomalies observed and noted on the interpretation map are all very weak and of questionable reliability. The strongest of these are located on line 9 (Figure 8) and line 16 (Figure 9) as illustrated on the interpretation map.

SUMMARY AND CONCLUSIONS

On June 12, 1981 Western Geophysical Aero Data Ltd. flew some 92 kilometers of helicopter borne magnetometer and VLF-electromagnetometer survey on behalf of Quinto Mining Corporation over their Marshall Creek Project claims.

Both the VLF-EM and the magnetic responses indicate the presence of a major fault or shear zone which closely follows Marshall Creek across the claims area. A very strong magnetic high extends southeast from the conjunction between Marshall Creek and Hog Creek. This trend most likely defines an ultra-mafic intrussion common in this geological province. The weaker magnetic high on the south-eastern portion of Marshall Ridge is likely a similiar intrusion.

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The major portion of the claims area reflects a relatively stable magnetic environment with only very narrow and sporatic magnetic highs, some of which correlate with weak electromagnetic anomalies. These characteristics are often associated with minor faults or narrow pyrrhotite veins at or very near the surface. These narrow responses give the impression of an overall northwest-southeast trend although they are extremely weak and the line to line correlation illustrated is considered questionable.

No electromagnetic responses were observed which can be interpretted as reflecting a large, near surface and conductive, massive sulphide body.

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RECOMMENDATIONS

Ground geology, magnetometer and electromagnetometer surveys should be conducted over the following three areas in order to detail and identify the source of the geophysical anomalies observed:

- across Marshall Creek and Hog Creek where the interpretted major fault and ultra-mafic intrusion intersect.
- ii) across the electromagnetic anomaly observed on lines 2 and 4 on the southern slope of Marshall Ridge and the flank of the interpretted ultra-mafic intrusion.
- iii) across the magnetic and electromagnetic anomalies observed near the centre of lines 16 and 14.

The remaining geophysical anomalies should be correlated with known exploration information before deciding upon follow-up procedures. A detailed silt sampling program along all the streams draining Marshall Ridge, both to Marshall Creek and Carpenter Lake, might provide important information concerning the validity of the weaker geophysical anomalies and should be undertaken as part of the initial ground exploration.

Respectfully submitted,

E. Trent Pezzot, B.Sc., Geophysiciest

B.Sc., P.Eng., е, Consult d Geophysicist

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SABRE AIRPORNE 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

Digital dial plus analogue meter

Display:

Period:

Meter records last 1000λ , 2000λ , 5000λ , 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 + 500λ , + 1000λ , or + 2500λ . These scales are standard but virtually all others can be provided.

REsolution:

Detector:

1 gamma. Ultimate resolution depends on the accuracy of the chart recorder. Kerosene filled coil approximately 9 cm x 8 cm in diameter. Inductance - 60 millihenries

Resolution of the instrument itself is better than

- 1.7 m x 21 cm diameter

Resistance - 7.5 ohms Weight - 2.2 Kg.

Operating Temperature: Instrument - $-10^{\circ}C$ to $+60^{\circ}C$ Detector - $-40^{\circ}C$ to $+60^{\circ}C$

Dimensions: Instrument Console - 30 cm x 10 cm x 25 cm

Weight:

Instrument Console - 3.5 Kg. Towed Bird - 30 Kg.

Towed Bird

(VLF-EM antennae system housed in bird with magnetometer detector)

Power Source:

Two 12 volt, 28 amp-hour lead acid batteries (gelled electrolyte)

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 | | |
| 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. | | |

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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 onoff, 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 $\rm H_{Z}$ (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

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_)

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, 75Ω 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

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COST BREAKDOWN

| Personnel | Field | Office | Wages | Total |
|---------------------------|-------------|-------------------|---------------------|---------------|
| J Behenna | June 11, 12 | | 200 | \$ 400 |
| J Behenna | | June 15-18, 29 | 150 | \$ 750 |
| J Harrington | June 11, 12 | · · | 175 | \$ 350 |
| T Pezzot, Geophysicist | | June 13-15, 24-25 | 200 | \$1000 |
| 2 | | | | |
| Helicopter | | •••••• | · • • • • • • • • • | \$1115 |
| Instrument Lea | se | | | \$ 850 |
| Vehicle (all i | nclusive) | | | \$ 150 |
| Meals and Acco | mmodations | | | \$ 135 |
| Photomosaic | | | ••••• | \$ 100 |
| Drafting and M | aterials | | | \$ 350 |
| Interpretation | and Report | ••••• | | \$ 650 |
| Reproduction . | | ••••• | | \$ 150 |

Total \$6000.00

STATEMENT OF QUALIFICATIONS

NAME:

PEZZOT, E. Trent

PROFESSION: Geophysicist - Geologist

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

PROFESSIONAL ASSOCIATIONS:

IATIONS: 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:

PROFESSION:

EDUCATION:

PROFESSIONAL ASSOCIATIONS:

EXPERIENCE:

WHITE, Glen E., P.Eng.

Geophysicist

B.Sc. Geophysics - Geology University of British Columbia

Registered Professional Engineer, Province of British Columbia

Associate member of Society of Exploration Geophysicists.

Past President of B.C. Society of Mining Geophysicists

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

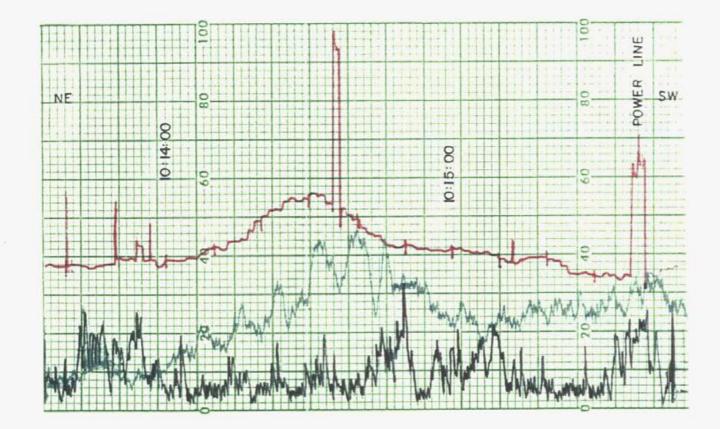
Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions with Geo-X Surveys Ltd.

Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.

Ten years Consulting Geophysicist

Active experience in all Geologic provinces of Canada

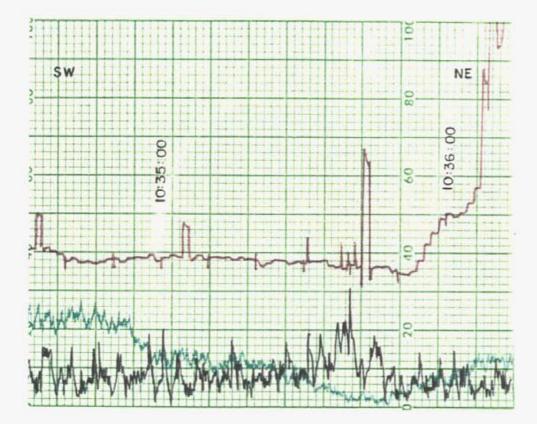
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QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT LINE - 4 -

WESTERN GEOPHYSICAL AERO DATA LTD. MAGNETOMETER BASE = 56,500 gammas MAGNETOMETER = VERTICAL SCALE | cm = 200 gammas VLF-EM = VERTICAL SCALE | cm = 10 %

MAGNETOMETER : RED VLF-EM (SEATTLE) : BLUE VLF-EM (ANNAPOLIS) : BLACK

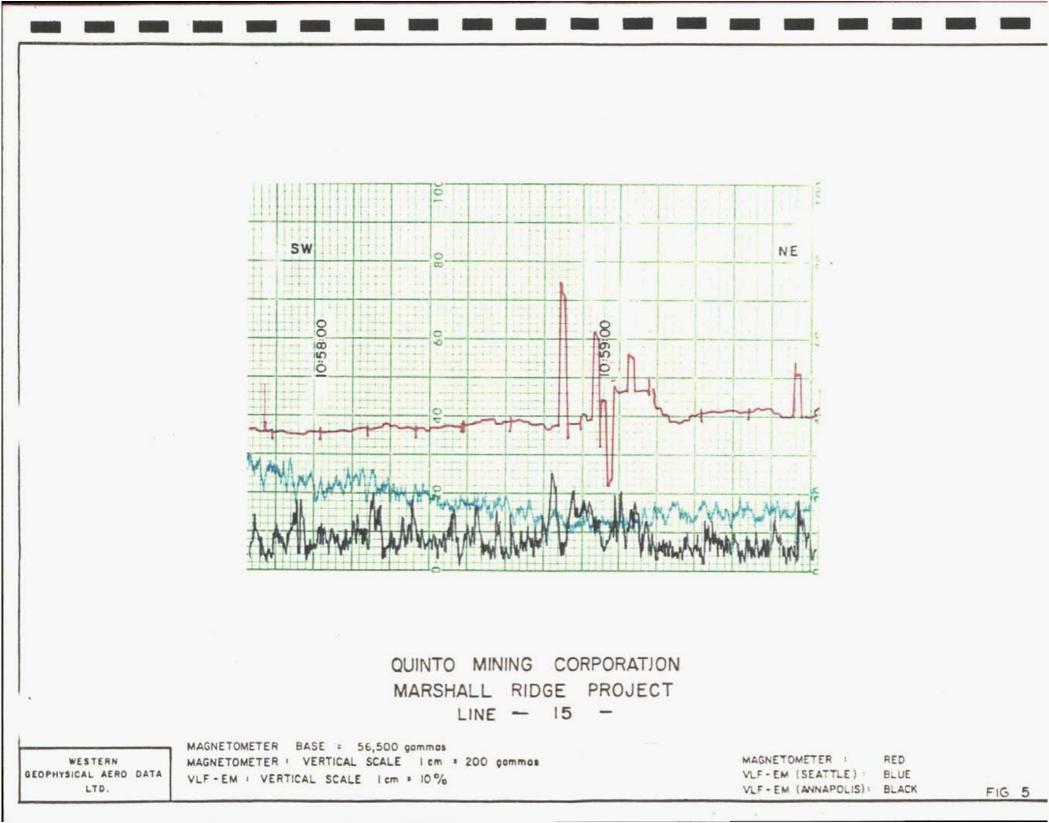


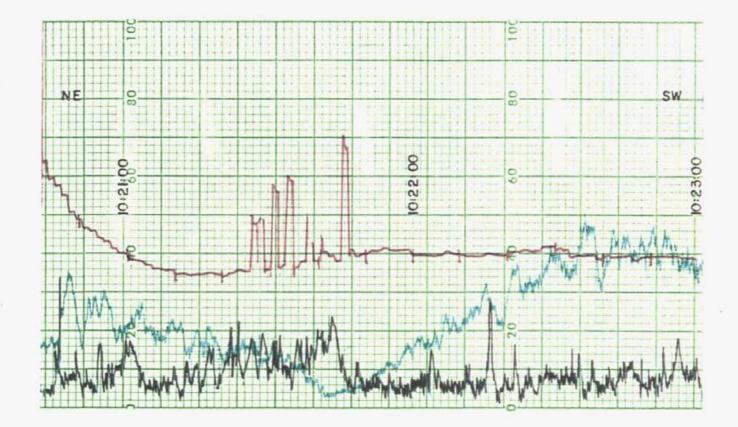
QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT LINE - 9 -

WESTERN GEOPHYSICAL AERO DATA LTD. MAGNETOMETER BASE = 56,500 gammas MAGNETOMETER : VERTICAL SCALE 1 cm = 200 gammas VLF-EM : VERTICAL SCALE 1 cm = 10 %

MAGNETOMETER : RED VLF - EM (SEATTLE) : BLUE VLF - EM (ANNAPOLIS) : BLACK

FIG. 4



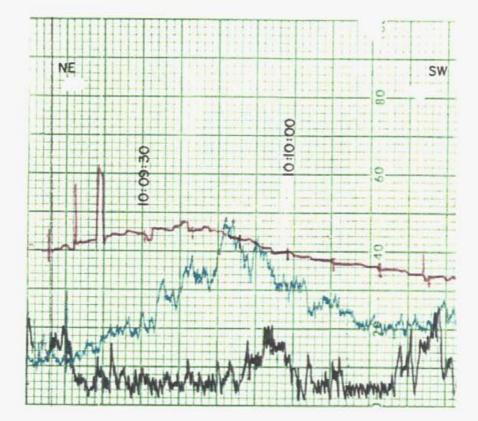


QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT LINE - 6 -

WESTERN GEOPHYSICAL AERO DATA LTD. MAGNETOMETER BASE = 56,500 gammas MAGNETOMETER : VERTICAL SCALE | cm = 200 gammas VLF-EM : VERTICAL SCALE | cm • 10 %

MAGNETOMETER : RED VLF-EM (SEATTLE) : BLUE VLF-EM (ANNAPOLIS) : BLACK

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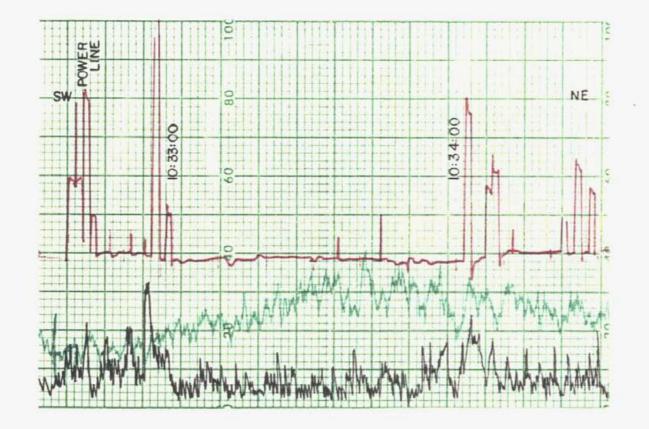


QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT LINE - 2 -

WESTERN GEOPHYSICAL AERO DATA LTD. MAGNETOMETER BASE = 56,500 gammas MAGNETOMETER | VERTICAL SCALE | cm = 200 gammas VLF-EM | VERTICAL SCALE | cm = 10 %

MAGNETOMETER : RED VLF-EM (SEATTLE) : BLUE VLF-EM (ANNAPOLIS) : BLACK

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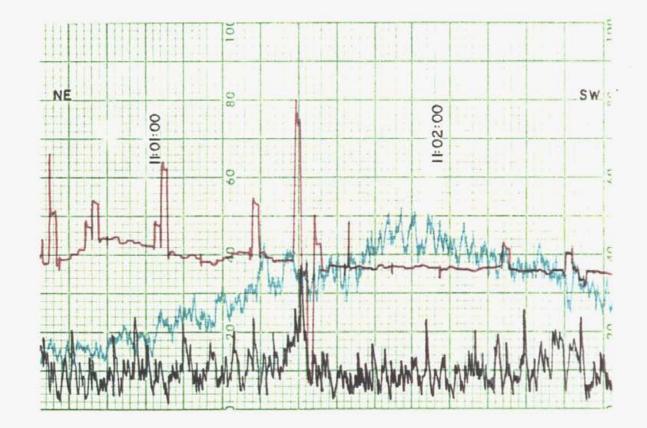


QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT

LINE - 9

. WESTERN GEOPHYSICAL AERO DATA LTD. MAGNETOMETER BASE = 56,500 gammas MAGNETOMETER + VERTICAL SCALE | cm = 200 gammas VLF - EM + VERTICAL SCALE | cm = 10 %

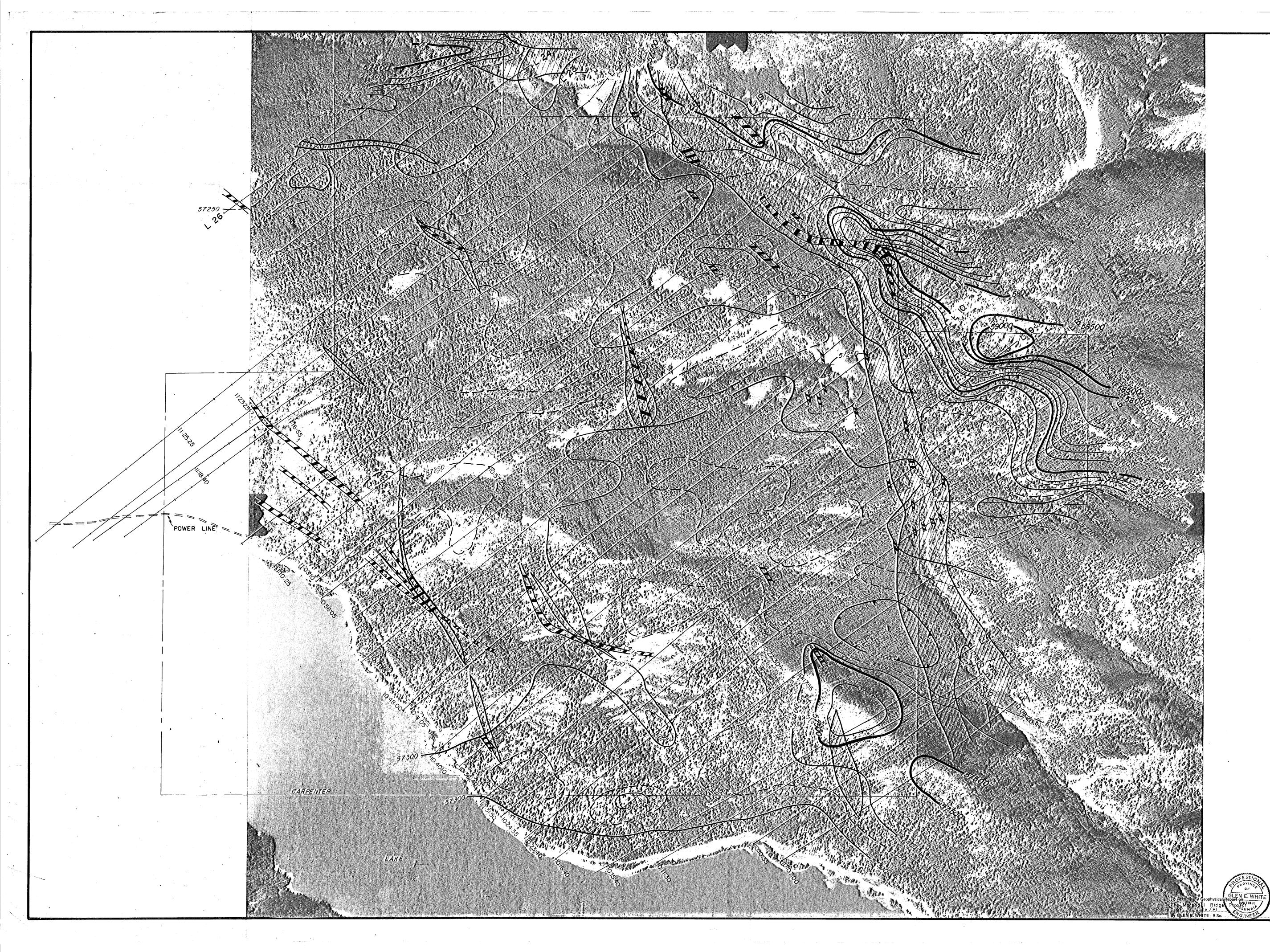
MAGNETOMETER : RED VLF-EM (SEATTLE) : BLUE VLF-EM (ANNAPOLIS): BLACK



QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT LINE - 16 -

WESTERN GEOPHYSICAL AERO DATA LTD. MAGNETOMETER BASE = 56,500 gammas MAGNETOMETER + VERTICAL SCALE | cm = 200 gammas VLF-EM + VERTICAL SCALE | cm = 10 %

MAGNETOMETER : RED VLF-EM (SEATTLE) : BLUE VLF-EM (ANNAPOLIS) : BLACK



LEGEND: ------ APPROXIMATE CLAIM BOUNDARY FLIGHT LINE t 5 SECOND INTERVAL \sim 57992 \smile TOTAL MAGNETIC FIELD INTENSITY CONTOURS, INTERVAL 50 > or 100>HIGH SPATIAL FREQUENCY MAGNETOMETER RESPONSE VLF-EM ANOMALY INSTRUMENTS SABRE AIRBORNE MAGNETOMETER SABRE AIRBORNE VLF-ELECTROMAGNETOMETERS i) Jim Creek, Washington - 19.6 Khz . ii) Annapolis, Maryland — 21.4 Khz MINICIAS COLOURCES DRAHON N.T.S. 92 J/15 E ,92 J/16 W mi. HOUSE ACHE CREEK SURVEYED KAMLOOPS LOCATION MAP 200 m 400m 800r 1 : 10,000 QUINTO MINING CORPORATION MARSHALL RIDGE PROJECT LILLOOET MINING DIVISION - BRITISH COLUMBIA AIRBORNE MAG & VLF-EM SURVEY GEOPHYSICAL INTERPRETATION MAP Interpreted By: E.T.P Western Drawn By: N.L.P. Checked By: G.E.W. Date: JUNE /81 Fig. No.: 2 Geophysical Aero Data Ltd.