

83-#723-11775

BAYVIEW RESOURCES LTD. 10/84
GEOPHYSICAL REPORT
ON AN
AIRBORNE VLF-ELECTROMAGNETOMETER
AND MAGNETOMETER SURVEY

BREM 15 CLAIM, NEW WESTMINSTER, M.D.
Lat. $49^{\circ}38'N$ Long. $122^{\circ}02'W$ NTS 92G/9E

Authors: E.Trent Pezzot B.Sc., Geophysicist
Glen E. White B.Sc., P.Eng,
Consulting Geophysicist

Date of Work: September 20, 1983

Date of Report: October 12, 1983

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,775



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-
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INTRODUCTION

On September 20, 1983, Western Geophysical Aero Data Ltd. conducted an airborne magnetometer and VLF-electromagnetometer survey in the Harrison Lake area of B.C. The survey was conducted on a participation basis for three separate companies and included property held by Bayview Resources Ltd.

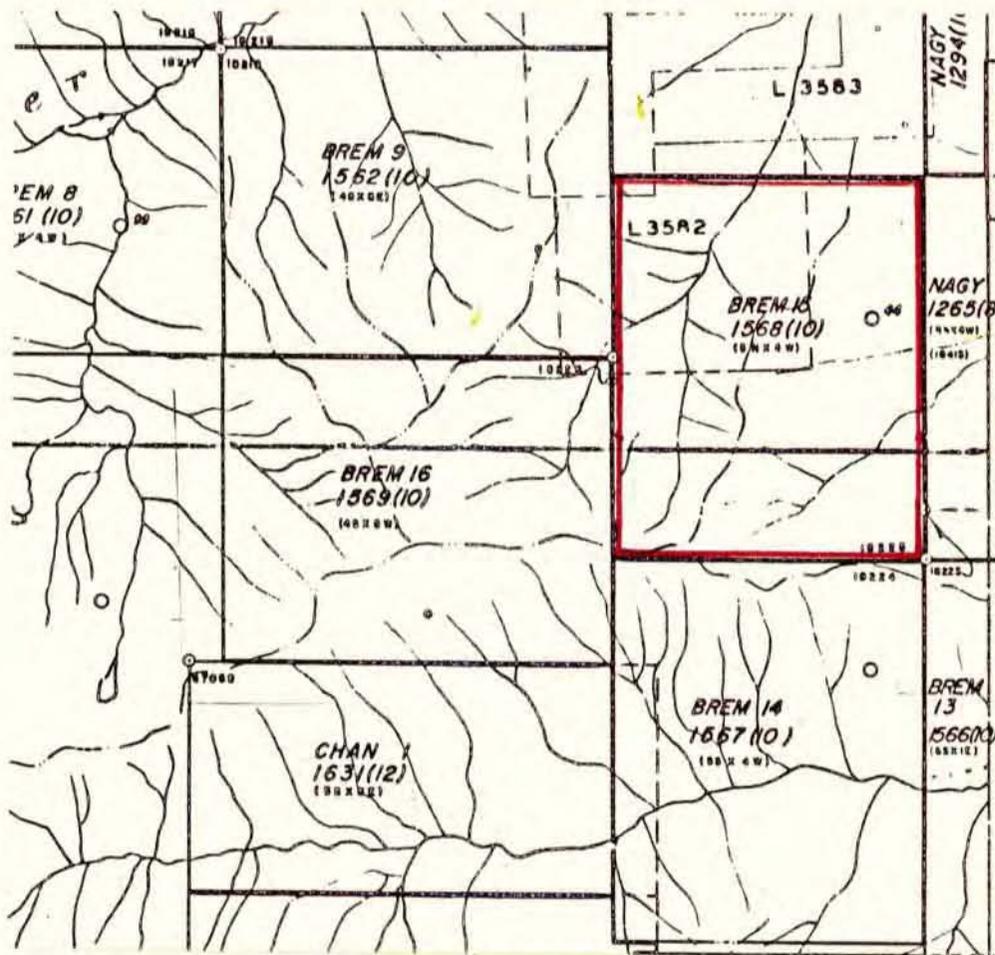
Recent exploration by Rhyolite Resources Inc. has outlined areas possessing significant gold and silver mineralization on properties adjacent to the Bayview Resources Ltd. holdings. It was the intention of this survey to determine whether the airborne system could effectively map the geology of the mineralized area and direct future exploration.

PROPERTY

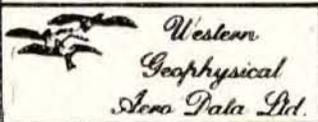
Bayview Resources Ltd. owns the BREM 15 claim (record #1568) which is a 20 unit claim located immediately southwest of the Rhyolite Resources Inc. holdings.

LOCATION AND ACCESS

The BREM 15 claim is located on the west side of Harrison Lake, approximately 150 kilometres from Vancouver. It lies within the New Westminster Mining Division and NTS 92G/9E. Approximate geographical co-ordinates are latitude $49^{\circ}38'N$ and longitude $122^{\circ}02'W$.



BAYVIEW RESOURCES LTD.
 BREM 15 CLAIM
 LOCATION AND CLAIMS MAP



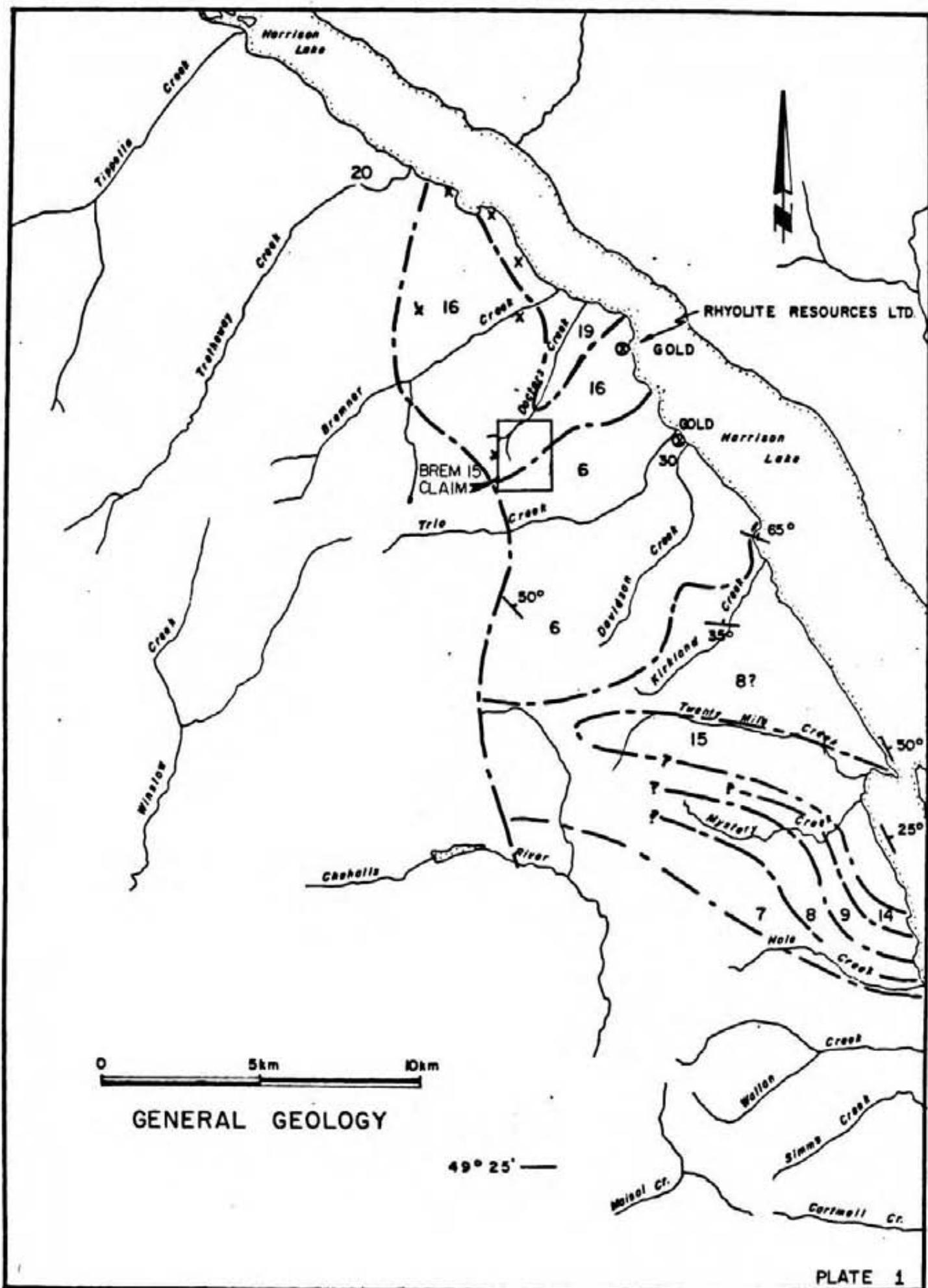
Access to the property is via a series of logging roads which begin at the Woods Creek Salmon Enhancement Spawning Beds which are located some 12 kilometres from highway #7 at the Sasquatch Inn, some 90 kilometres east of Vancouver. These roads follow a B.C. Hydro power line along the west shore of Harrison Lake. Another logging road which breaks off from the hydro right of way near Doctor's Bay intersects Doctor's Creek and provides direct access on to the BREM 15 claim.

GENERAL GEOLOGY

The general geology of the property is illustrated on Plate 1 of this report. The majority of the claim area is shown to be underlain by the Lower Cretaceous Fire Lake Group which consists of pyroclastics, greenstones, slates, greywacke, conglomerate and limestone. A nose of Eocene quartz diorite extends on to the property from the north along Doctor's Creek. To the south the Fire Lake Group is in contact with Middle Jurassic Harrison Lake Group comprised of flows, volcanoclastics and pyroclastics. The contact between these units strikes generally northeast-southwest in the area.

PREVIOUS WORK

No exploration work specifically applicable to the BREM 15 claim is known of by the authors. The general Harrison Lake area however, has been explored and worked by small prospecting firms and individuals for many years. Most recently, activity by Rhyolite Resources Inc. has discovered a reportedly economic deposit of gold and silver approximately 4 kilometres northeast of the BREM 15 claim.



LEGEND

EOCENE

- 20 Granodiorite
19 Quartz Diorite

LOWER CRETACEOUS

- 16 FIRE LAKE GROUP: Pyroclastics, greenstones, slate, greywacke, conglomerate, limestone.
15 BROKEN BACK HILL: Pyroclastics, greywacke

MIDDLE JURASSIC

- 9 BILLHOOK CREEK FORMATION: Tuff, sandstone
8 MYSTERIOUS CREEK FORMATION: Pelite
7 ECHO ISLAND: Argillite, tuff
6 HARRISON LAKE: Flows, volcanoclastics, pyroclastics

TRIASSIC (and older)

- 1 HOZAMEEN GROUP: Volcanics, sediments

SYMBOLS

- Geological Contacts, approximate
⊗13 Mineral Prospect; MI number
x Recorded Pyritization
∠ 50° Bedding Attitude

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 100 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 KING KRA-10A 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 three independent modes: an analogue strip chart recorder, digital magnetic tapes and a digital video recovery system. A three-pen analogue power recorder provides direct, unfiltered recordings of the three geophysical instrument output signals. A Hewlett-Packard 9875 tape drive system digitally records all information as it is processed through an on-board micro-computer. 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 the date, real time and terrain clearance upon the actual flight path video recording to allow exact correlation between geophysical data and ground location. The input signals are averaged and updated on the video display every second. Correlation between the strip chart, digital tape and the video flight path recovery tape is controlled via fiducial marks common to all systems. Line identification, flight direction and pertinent survey information are recorded on the audio track of the video recording tape.

DATA PROCESSING

Field data is digitally recorded on magnetic cassettes in a format compatible with the Hewlett-Packard 9845 computer. The flight path locations are digitized, thus the information can be processed as either time series or space point data.

Total field intensity magnetic information is routinely edited for noise spikes and corrected for any diurnal variations recorded on a base magnetometer located in the survey area.

Total field intensity VLF-EM signals are sensitive to topographic changes and receiver oscillation. Oscillation effects can be removed by filters tuned to the dominant period. Long period terrain effects can be removed by subtracting a polynomial fitted base level from the data. The degree of the polynomial can be selected to best represent terrain variations observed in the survey area.

Short period terrain effects often have similar response parameters to target conductive features. An interpretational technique often useful in distinguishing between terrain anomalies and conductor anomalies is to observe the difference between the responses from two transmitter stations. Terrain variations normally affect both data sets to a similar degree and are much reduced on a difference plot. The amplitude of the response due to a conductive body is dependent upon the relationship between the conductors' strike and direction to the transmitter station. In most instances the anomalous responses will vary between frequencies and therefore remain evident on the difference plot.

DISCUSSION OF RESULTS

Approximately 55 kilometres of survey was required to evaluate the area of the BREM 15 claim. The magnetic data is presented in contour form as Figure 2 of this report and the VLF-EM data as profiles on Figures 3-5.

The northern half of the map area has a background magnetic intensity of approximately 57,000 gammas. The contours are dominated by two large magnetic lows (less than 57,000 gammas) which are flanked by and contain a number of weak magnetic highs forming randomly located dipole-type anomalies. No definitive orientation of the magnetic contours is observed in this area. A nose of higher magnetic intensities extends from the north-east down to line 16. This feature may be reflecting an unmapped volcanic intrusion.

The southern portion of the map area (lines 1-9) show a definite east-west orientation of the magnetic contours. Alternating magnetic highs and lows form strong gradient effects which likely follow to some degree either the Fire Lake Group-Harrison Lake Group contact or an alteration zone (or series of zones) associated with the contact. This east-west trend swings gradually to the northeast on the eastern side of the claim. These magnetic patterns are very similar to those observed across the Rhyolite Resources Inc. gold area where mineralization appears to be concentrated in alteration zones following a volcanic-diorite contact. Based on very limited information, an apparent relationship between high magnetic intensities and gold and silver mineralization has been postulated in that area.

The VLF-EM data are presented in profile form as Figures 3-5. A very strong anomaly is observed (primarily on the Seattle frequency) near the centre of line 12. This response forms part of an elongated northerly trending zone as illustrated on Figure 3. This anomaly can not be attributed to any receiver oscillation or abrupt terrain effects and is interpreted as reflecting a near surface, high conductivity unit. A number of weaker anomalies are also observed across the claim area as illustrated on Figures 3-5 which are attributed to geological sources. The high amplitude effects observed on the west ends of lines 16 and 18 are a result of anomalous receiver oscillation and not attributed to variations in surface conductivity.

SUMMARY AND CONCLUSIONS

On September 20, 1983 an airborne magnetometer and VLF-electromagnetometer survey was conducted across the BREM 15 claim on behalf of Bayview Resources Inc. Approximately 55 line kilometres of data was recovered to evaluate the area.

Extremely strong magnetic gradients trending east-west along the southern claim boundary were delineated by this survey. These gradients likely reflect an alteration zone associated with the Fire Lake Group-Harrison Lake Group contact mapped in the area. This response is very similar to the magnetics observed in the gold discovery area of Rhyolite Resources Inc. 4 kilometres to the northeast where mineralization occurs along a diorite-volcanic contact. A direct relationship between the high magnetic intensities and gold mineralization is postulated at this time, however it is based on very limited geophysical and geological information. The majority of the claim area possesses

relatively low magnetic intensities with a very weak north-easterly-southwesterly orientation. A number of weak dipole effects are observed across the claim which are presently unexplained.

A number of strong VLF-EM anomalies were observed in the claim area. They appear to align in a general north-south direction henceforth are particularly evident on the Seattle frequency. The strongest of these is noted near the centre of line 12. These anomalies can not be explained on the basis of "bird" oscillation, terrain or geomorphic effects and are interpreted as reflecting surface or near surface, high conductivity geological units. Either graphitic or massive sulphide lenses would be the most likely sources for this type of response.

RECOMMENDATIONS

On the basis of this survey two areas within the BREM 15 claim warrant further exploration as outlined on Figure 2. The first lies along the southern claim boundary where a strong magnetic high is interpreted as reflecting an alteration zone along a geological contact. This magnetic response is very similar to the responses observed across the gold and silver mineralization areas of Rhyolite Resources Inc. Geological prospecting and geochemical analysis are recommended as initial procedures.

The second "Area of Interest" is a north-south trending band of high amplitude VLF-EM anomalies. The responses are considered valid in spite of the steep terrain in the

area and likely originate from surface or very near surface sources. This area should be explored for sulphide mineralization, initially by normal geological prospecting techniques. Based on the amount of outcrop available, a small VLF-EM reconnaissance survey may be necessary to precisely locate the anomalous zones.

A number of weaker VLF-EM anomalies were also flagged on the appropriate maps. Based on encouraging initial results these areas may also warrant further examination.

Respectfully submitted,



E. Trent Pezzot, B.Sc.

Geophysicist,



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

INSTRUMENT SPECIFICATIONSBARRINGER AIRBORNE MAGNETOMETER

MODEL: Nimbin M-123
TYPE: Proton Precession
RANGE: 20,000 to 100,000 gammas
ACCURACY: ± 1 gamma at 24 V d.c.
SENSITIVITY: 1 gamma throughout range
CYCLE RATES:
 Continuous 0.6, 0.8, 1.2 and 1.9 seconds
 Automatic 2 seconds to 99 minutes in 1 second steps
 Manual Pushbutton single cycling at 1.9 seconds
 External Actuated by a 2.5 to 12 volt pulse longer than 1 millisecond.

OUTPUTS:
 Analogue 0 to 99 gammas or 0 to 990 gammas
 - automatic stepping
 Visual 5 digit numeric display directly in gammas

EXTERNAL OUTPUTS:
 Analogue 2 channels, 0 to 99 gammas or 0 to 990 gammas at 1 m.a. or 1 volt full scale deflection.
 Digital BCD 1, 2, 4, 8 code, TTL compatible.

SIZE: Instrument set in console
 30 cm X 10 cm X 25 cm

WEIGHT: 3.5 Kg

POWER REQUIREMENTS: 12 to 30 volts dc, 60 to 200 milliamps maximum.

DETECTOR: Noise cancelling torroidal coil installed in airfoil.

INSTRUMENT SPECIFICATIONSSABRE AIRBORNE VLF SYSTEM

Source of Primary Field: VLF radio stations in the frequency range of 14KHz to 30 KHz.

Type of Measurement: -Horizontal field strength

Number of Channels: -Two; Seattle, Washington at 24.8 KHz
-Cutler, Maine at 17.8 KHz

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 SpecificationsFLIGHT PATH RECOVERY SYSTEMi) 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 Hz)

Tape: Betamax 1/2" 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

Instrument Specifications

DATA RECORDING SYSTEM

1) 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 Hz (Approx-
imately 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.H. 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 MC4-6670
Analogue/Digital Converter: 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

DATA RECORDING SYSTEM (CON'T)iii) Digital Magnetic Tape

Type: Hewlett Packard cartridge tape unit

Model: 9875A

Power Requirements: 24 volt d.c.

Data Format: HP's Standard Interchange Format (SIF)

Tape Cartridge: HP 98200A 225K byte cartridge compatible with HP Series 9800 desktop computers.

Tape Drive: Dual tape drives providing up to 8 hours continual recording time.

Controller: Internal micro-computer provides 23 built in commands.

: External computer generated commands.

COST BREAKDOWN

Survey Date: September 20, 1983

Survey Crew: E.Trent Pezzot- geophysicist, operator
M. McDermott- navigator

Office: September 21, 1983 - October 7, 1983

Office Staff: M. McDermott- flight path recovery
E.T. Pezzot-computer processing,
interpretation report
Glen E. White- consulting geophysicist,
report.

This survey was conducted on a participation basis with two other companies. The Bayview Resources Ltd. portion of the survey was completed for a fee of \$3,500.00 which includes an overall proportion of helicopter charges, data processing and report writing.

STATEMENT OF QUALIFICATIONS

NAME: PEZZOT, E. Trent

PROFESSION: Geophysicist - Geologist

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

PROFESSIONAL ASSOCIATIONS: Society of Exploration Geophysicist

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.

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

STATEMENT OF QUALIFICATIONS

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

PROFESSION: Geophysicist

EDUCATION: B.Sc. Geophysicist - 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 Explor-
ation Surveys Ltd.

Eleven years Consulting Geophysicist.

Active experience in all Geologic provinces
of Canada.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

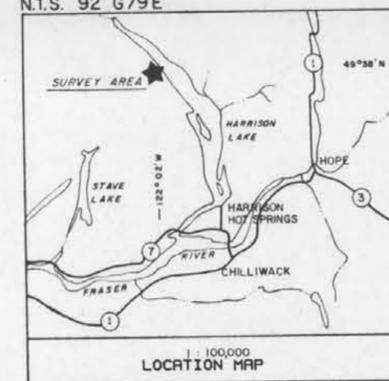
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KEY

- INSTRUMENT: Barringer M-123 Magnetometer
- Data corrected for diurnal variations
- Base Value= 56000 gammas
- Contour Interval= 50 gammas
- == Roads
- - - Claim boundary
- Claim post
- WWW Inferred Fault
- |||| VLF-EM Conductor
- Magnetic High
- Magnetic Low

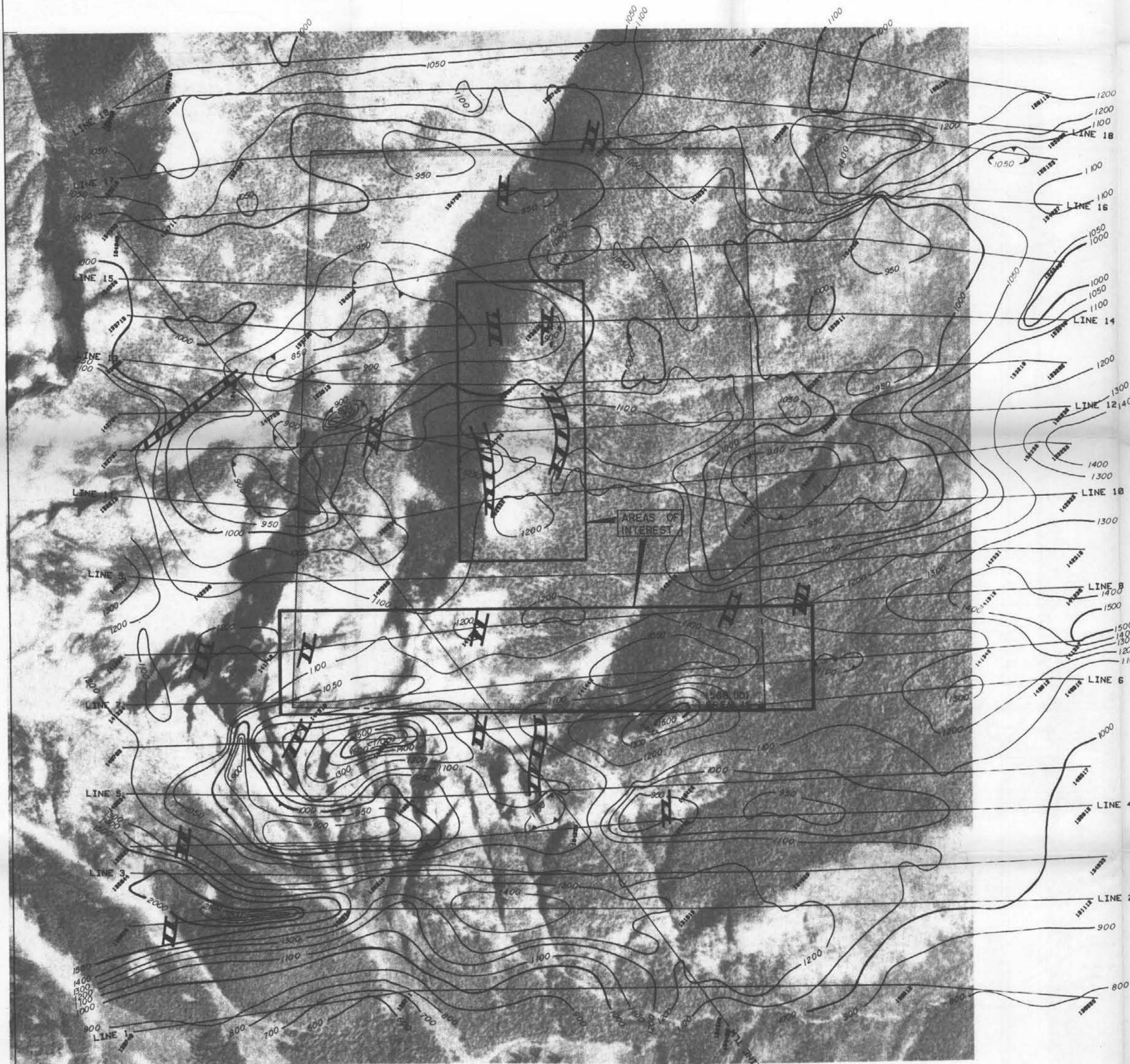
N.T.S. 92 G/9E



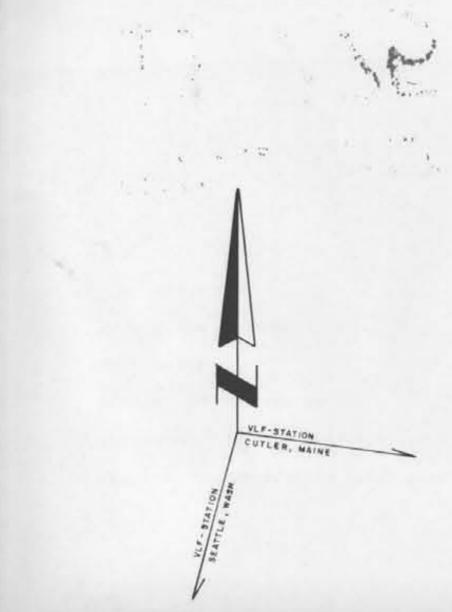
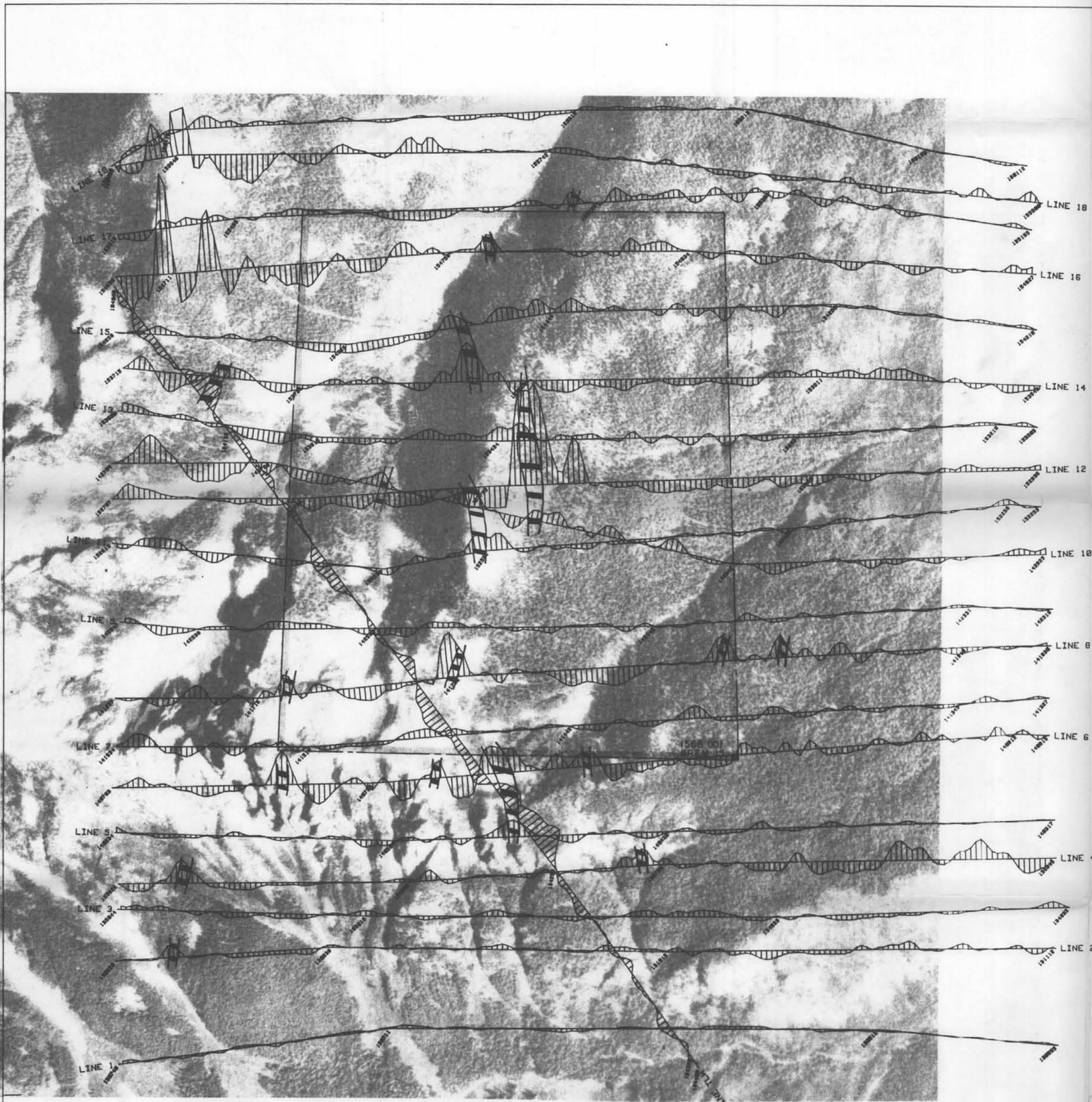
BAYVIEW RESOURCES LTD.,
BREM 15 CLAIM
MAGNETIC INTENSITY CONTOUR MAP
TOTAL MAGNETIC FIELD INTENSITY (GAMMAS)

DATE: SEPT 20/83

FIG.: 2



Western
Geophysical
Serv. Data Ltd.



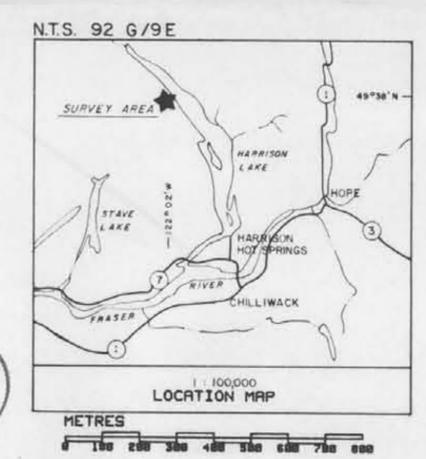
KEY

INSTRUMENT: Sabre Total Field Intensity VLF-EM
 Transmitter Station, Seattle (24.8 Khz)
 Vertical Scale, 10%/cm.

--- Roads
 Claim boundary
 ■ Claim post
 II VLF-EM Conductor

GEOLOGICAL BRANCH
 ASSESSMENT REPORT

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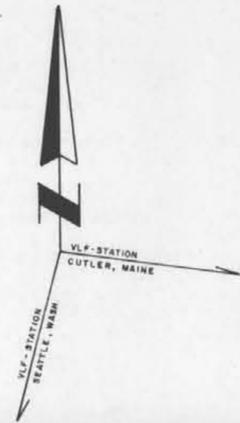
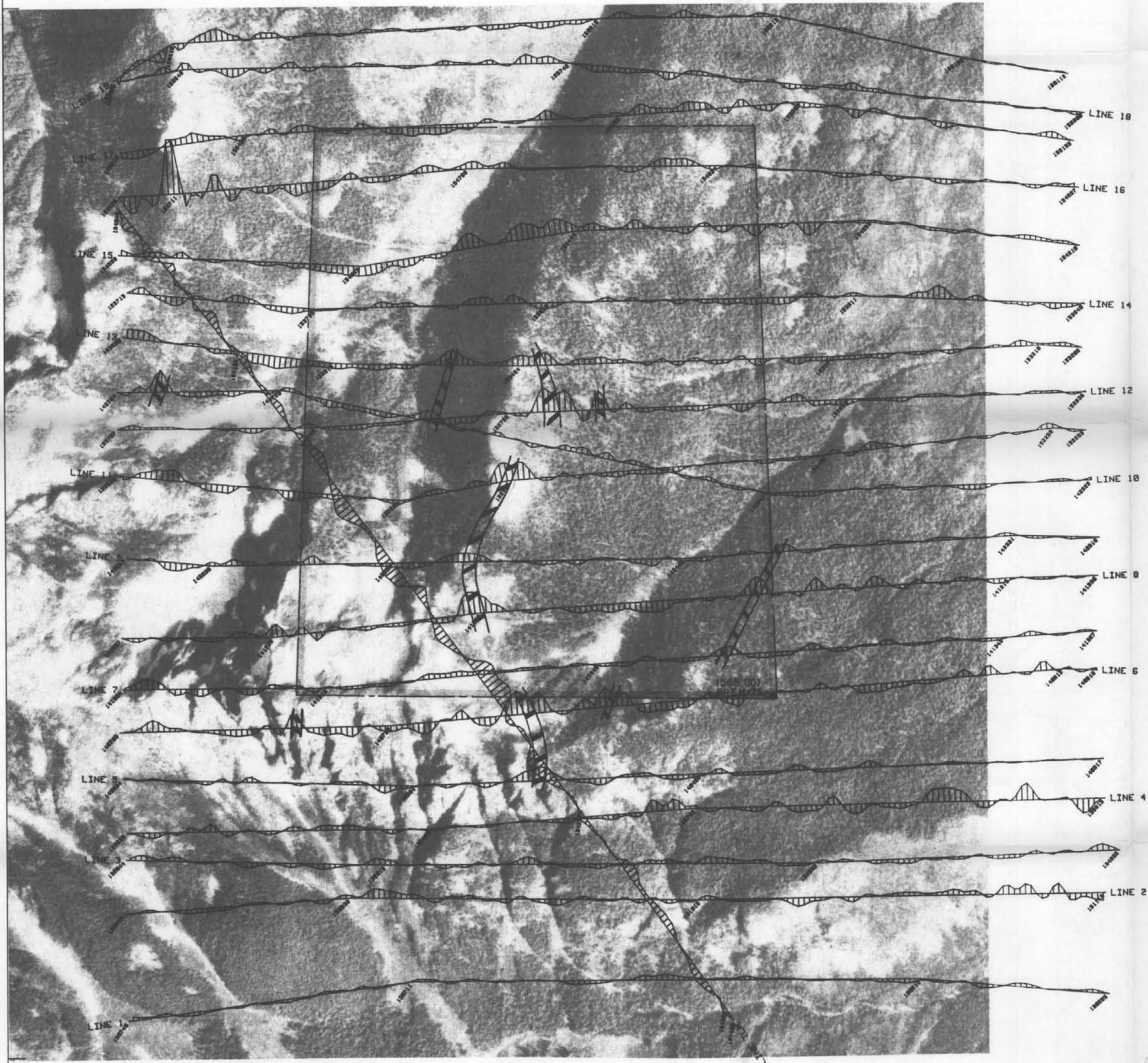


Western
 Geophysical
 Services Ltd.

To accompany the Geophysical Report on the Brem 15 Claim

BAYVIEW RESOURCES LTD.
 BREM 15 CLAIM
 TOTAL FIELD INTENSITY VLF-EM
 VLF-EM PROFILES (SEATTLE)

DATE: SEPT 20/83 FIG.: 3



KEY

INSTRUMENT: Sabre Total Field Intensity VLF-EM
 Transmitter Station, Cutler (17.8 Khz)
 Vertical Scale, 10%/cm.

--- Roads
 Claim boundary
 ■ Claim post
 VLF-EM Conductor

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

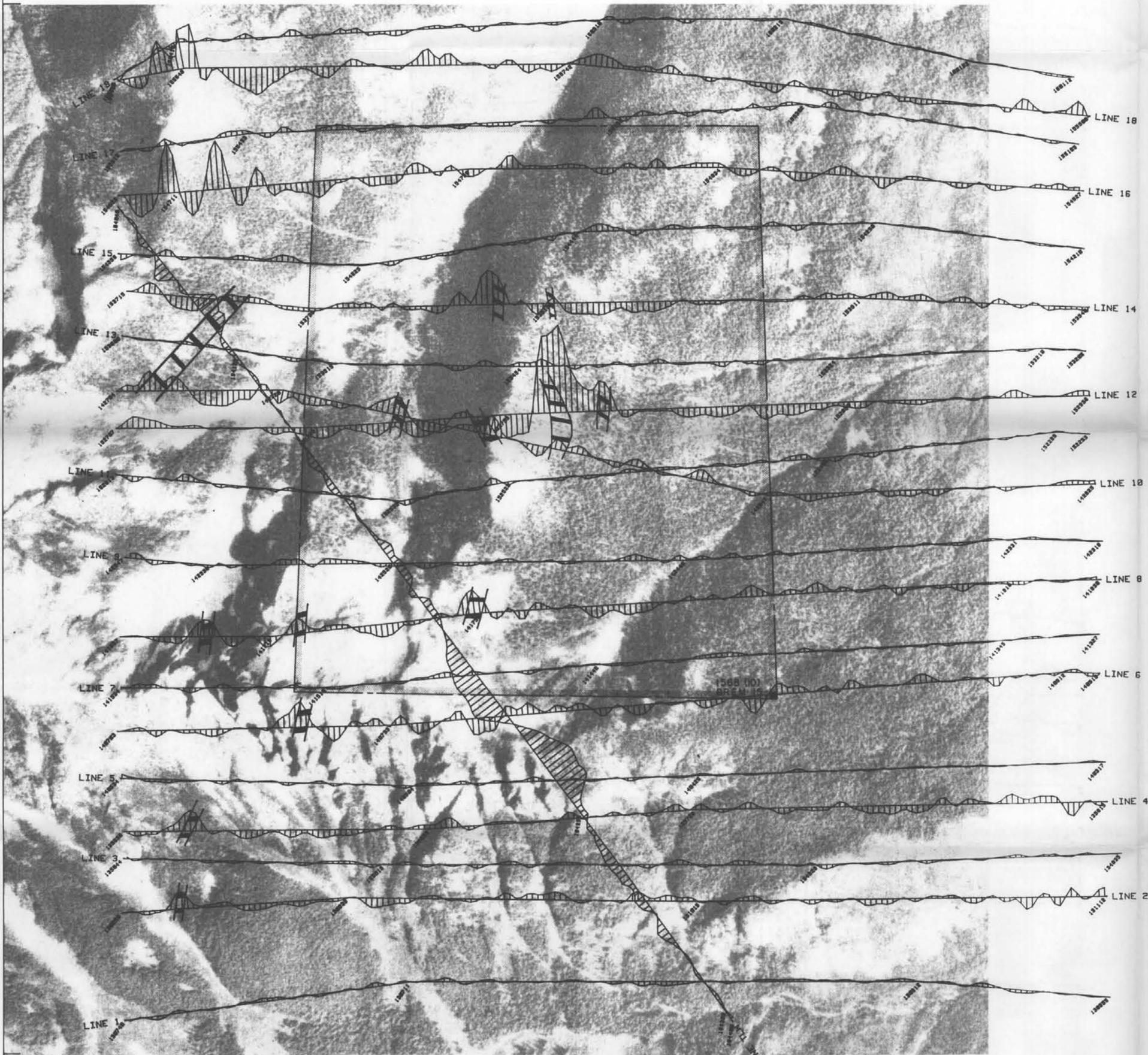
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BAYVIEW RESOURCES LTD.
 BREM 15 CLAIM
 TOTAL FIELD INTENSITY VLF-EM
 VLF-EM PROFILES (CUTLER)

DATE: SEPT 20/83 FIG.: 4

*Western
 Geophysical
 Aero Data Ltd.*



KEY

- INSTRUMENTS: Sabre Total Field Intensity VLF-EMS
 Transmitter Station#1, Seattle (24.8 Khz)
 Transmitter Station#2, Cutler (17.8 Khz)
 Vertical Scale, 10%/cm.
- == Roads
 --- Claim boundary
 ■ Claim post
 || VLF-EM Conductor

GEOLOGICAL BRANCH
 ASSESSMENT REPORT

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N.T.S. 92 G/9E



METRES
 0 100 200 300 400 500 600 700 800

BAYVIEW RESOURCES LTD.
 BREM 15 CLAIM
 VLF-EM DIFFERENCE PROFILES
 (SEATTLE - CUTLER)

DATE: SEPT 20/83

FIG.: 5