81-1205-9982

RABBIT OIL & GAS LTD.

Geophysical Report
on an
Airborne VLF-EM & Magnetometer Survey
Foxy 1-8, Bee 1-10 claims
Lillooet Mining Division
Lat. 50°51'N Long. 122°45'W NTS 92 J/15

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Consulting Geophysicist

DATE OF WORK: Oct. 05-Oct. 16, 1981

DATE OF REPORT: Nov. 13, 1981

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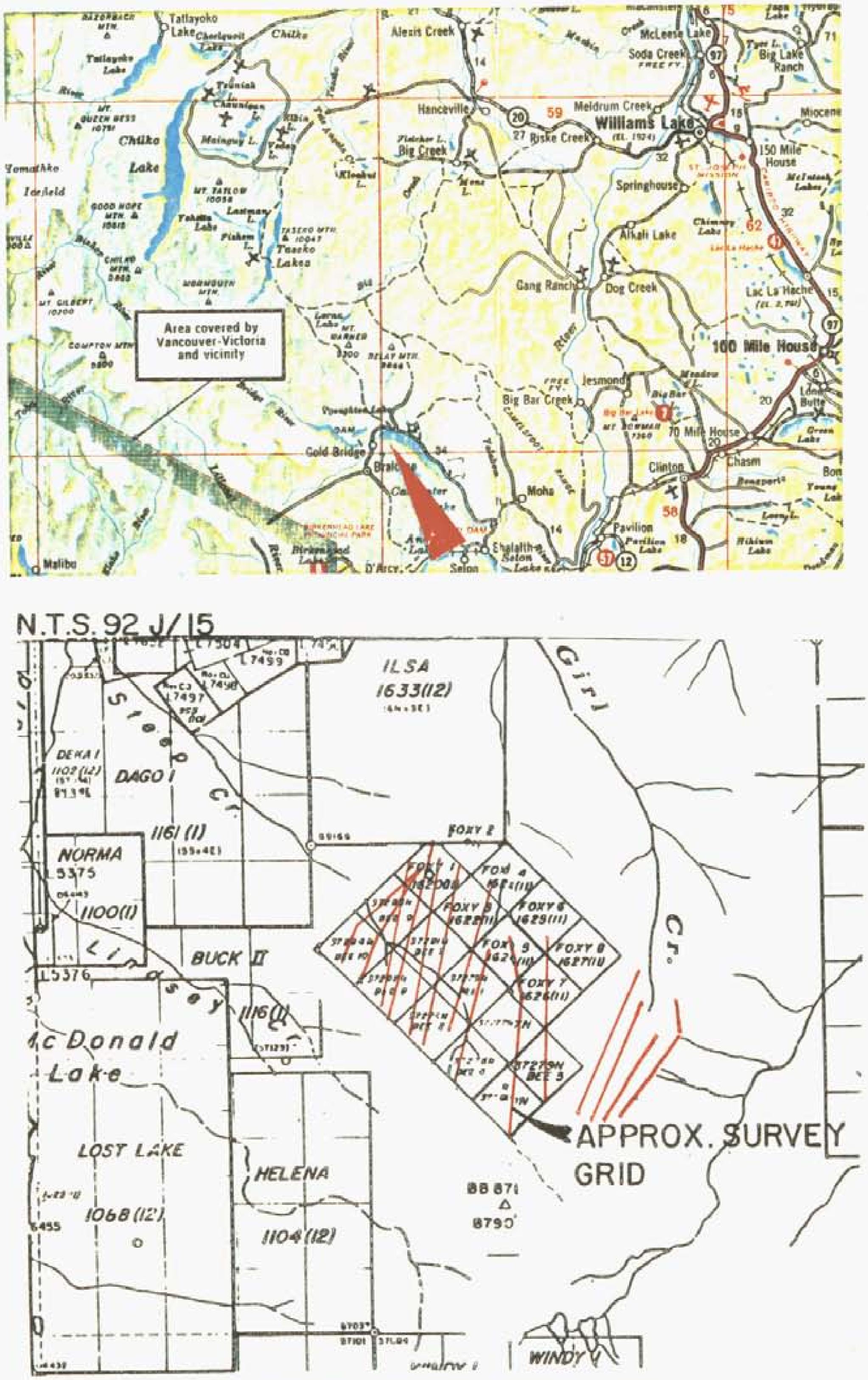
ILLUSTRATIONS



RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
LOCATION AND CLAIMS MAP

Western Geophysical Aero Data Ltd.

FIG. 1

INTRODUCTION

The Foxy and Bee claims are located in a relatively unexplored area of the Bendor Mountain Range due east of an area where numerous gold-quartz veins have been discovered and worked. On behalf of Rabbit Oil & Gas, Western Geophysical Aero Data Ltd. flew some 20 kilometers of airborne magnetometer and VLF-electromagnetometer survey across the claims area. The survey was conducted to provide information which could assist in geological mapping and direct follow-up ground exploration on the claim group.

PROPERTY

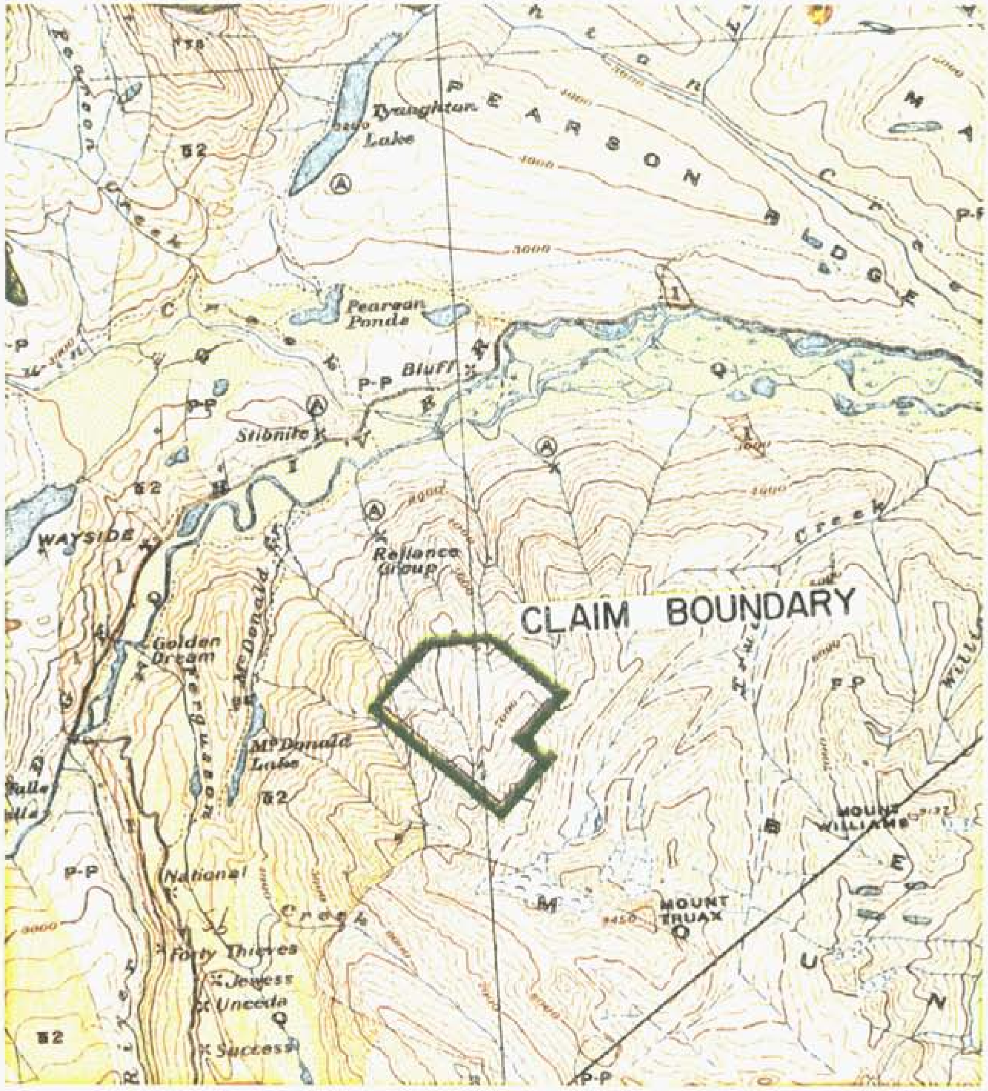
The property surveyed is comprised of 14 contiguous whole or partial units as described below and illustrated on Figure 1.

CLAIM NAME	RECORD NUMBERS
Foxy 1 - 8	1620 - 1627
Bee 1 - 10	37275 - 37284

LOCATION AND ACCESS

The claims are located approximately five kilometers east of the town of Gold Bridge, B.C. in NTS 92 J/15 and the Lillooet Mining Division. Approximate geographical coordinates are latitude 50°51'N and longitude 122°45'W.

The property is not directly accessible by ground vehicle. A loose surface, dry weather road provides vehicle access to the northern end of McDonald Lake and a point approximately two kilometers west of the northwest corner of the claim group.



RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS

LOCAL GEOLOGY

Western Geophysical Aero Data Ltd.

PLATE 1a

LOCAL GEOLOGY LEGEND

LEGEND

55

QUATERNARY	RECENT	Q	Fluvio glacial deposits
TERTIARY	OLIGOCENE ?	3	*Rexmount porphyry underlain by remnants of sediments containing lignite*
MESOZOIC	POST LOWER CRETACEOUS	2	Bendor batholith (*quartz diorite*)
MESOZOIC	LOWER CRETACEOUS	K	Eldorado series
MESOZOIC	UPPER JURASSIC	1	*Augite-diorite stock*
MESOZOIC	UPPER TRIASSIC		*Limestone lenses*
MESOZOIC	UPPER TRIASSIC	Ŧ2	Cadwallader series
MESOZOIC	TRIASSIC ?	Ŧ1	Shulaps volcanics *serpentine*
PALÆOZOIC	PENNSYLVANIAN-PERMIAN		*Limestone lenses*
PALÆOZOIC	PENNSYLVANIAN-PERMIAN	P-P	Bridge River series

Symbols

Geological boundary (*defined*)

Geological boundary (*assumed*)

Dip and strike

Vertical strata

Glacial striæ

Chromite

Magnesite

Antimony

Placer claims

Prospects

Western Geophysical Aero Data Ltd.

PLATE Ib

REGIONAL GEOLOGY

The claim group lies within the Bridge River series rocks of Paleozoic age as illustrated on Plate 1. This series forms the core of a regional anticline that pitches north-westward at a low angle beneath overlapping Mesozoic sediments. The Bridge River series is composed of metamorphosed sedimentary formations with interbedded volcanic rocks. The chief sedimentary member of the series is a bluish grey chert grading to cherty quartzite, occuring in bands one-half inch or more thick, separated by thin layers of argillite. These units rapidly disintegrate on exposure and form large talus slopes rather than prominent outcrops.

The volcanic rocks of the series consist almost entirely of dense, compact, black, altered basalts which in places display pronounced pillow structure. They are often altered beyond recognition and upon exposure to weathering rapidly disintegrate to crumbling greenstone.

Complex folding is a striking feature of the series. In addition, intense dynamic metamorphism has greatly obscured the original sedimentary structures. The series is separated from those of the Mesozoic age by a profound unconformity, indicative of considerable diastrophic disturbance at the close of the Palezoic era.

SURVEY GRID

A survey grid comprised of fourteen lines, labelled 1-14, was laid out over a photomosaic base of the claims area. The lines ran northeast-southwest at 200 meter intervals and were flown with an average terrain clearance of 100 meters. The actual position of the lines, as established by correlating the video flight path recovery tape to the photomosaic base, are illustrated on the interpretation map, Figure 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 on-board 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. 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

The magnetic data gathered is presented in contour form over a photomosaic base of the survey area as Figure 2. Two magnetic trends as defined by an increase of 100 gammas to 300 gammas above local background values, were delineated and labelled as Trends "A" and "B" on the interpretation map, Figure 2. Trend "A" extends across the survey grid from the northwest corner to the southeast, closely tracking a topographic ridge. There are two closed magnetic highs along this trend. The weaker occurs on the north end of line 5 (Figure 3) and is a result of decreased terrain clearance. The stronger (line 9, Figure 4) is likely the reflection of an area containing higher magnetic susceptibility materials.

Trend "B" runs subparallel to Trend "A" such that they are approximately 1 kilometer apart on line 1 and intersect in the vicinity of line 10. Trend "B" cuts across the strike of the local topography and changes character from a single magnetic high at the southeast end (line 8 - Figure 5) to a pair of closely spaced highs at the northwest end (line 2 - Figure 5). Trends "A" and "B" are likely reflections of the same geological unit, the presence of which is controlled by the local geomorphology.

A weak magnetic high is present on the north end of lines 10 and 11 (Figure 6) coincidental with a mountain crest which forms the head of a north facing cirque. Immediately southeast of the claim block a high magnetic trend on line 14 (Figure 7) cuts across the topography as shown on the interpretation map.

The VLF-EM receivers are designed to measure the total field intensity in the horizontal plane. As the helicopter changes speed to adjust to steep terrain the altitude of the towed airfoil often oscillates about the horizontal plane with a sinusoidal motion. In addition the VLF-EM signal travels in the plane parallel to local topography therefore changes intensity in the measuring plane across steep slopes. These conditions affect the data by changing the background level as evidenced on line 5 (Figure 3). Geologically induced VLF-EM anomalies are often superimposed over this noise or of similar character to it. The video flight path recovery tape is used to monitor the action of the towed receiver in order to differentiate between real anomalies and background noise.

The VLF-EM anomalies noted are all very weak and likely reflections of small, near surface inhomogeneities. They are located on the interpretation map, Figure 2, along with the magnetic responses. Anomalous responses were observed on line 4 (Figure 8), line 7 (Figure 9), line 9 (Figure 4) and line 11 (Figure 6).

SUMMARY AND CONCLUSIONS

Approximately 20 kilometers of airborne magnetometer and VLF-electromagnetometer survey was conducted across the Foxy and Bee claims during October, 1981. The survey was flown on a reconnaisance basis with the intention of obtaining magnetic data which could assist in geological mapping and direct ground exploration to anomalous areas within the claim group.

The magnetic survey delineated two major trends across the claims area as defined by 100 gamma to 300 gamma anomalies. The amplitude and geometry of these trends suggest the causitive body to be a plate-like unit of volcanic or volcanic derivative rocks, which plunges to the northwest. The unit appears to be present only at higher elevations suggesting that topographic lows are likely areas where erosion through the "volcanic" unit has exposed rocks with a lower magnetic susceptibility. Localized magnetic highs are interpretted as areas exhibiting an increased percentage of ferromagnetic materials.

The VLF-electromagnetic anomalies noted are all weak and appear to be randomly situated across the claims area. The sources of these anomalies are expected to be narrow, isolated features with a limited areal extent. Small intrusions, dykes or wet faults could generate this type of response and are all possible sources.

RECOMMENDATIONS

Due to the severe terrain in the area any further work should consist of geological mapping and geochemical soil sampling, primarily in the vicinity of the VLF-EM features. The results of this exploration activity will likely direct both the location and method of ground geophysical follow-up.

Respectfully submitted,

E. Trent Pezzot, B.Sc.,
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
GLEN E. WHITE

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

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 ± 500 λ, ± 1000 λ, or ± 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 - $-10^{\circ}C$ to $+60^{\circ}C$ Detector - $-40^{\circ}C$ to $+60^{\circ}C$
Dimensions:	Instrument Console - 30 cm x 10 cm x 25 cm 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	PRODUCTION	DATES	RATE	
J. Behenna	Survey Prep.	Oct 5-6	$150.	$ 300.00
J. Miller & J. Harrington	Survey	Oct 9-10	$400.	$ 800.00
J. Behenna	Data Recovery	Oct 13-15	$150.	$ 450.00

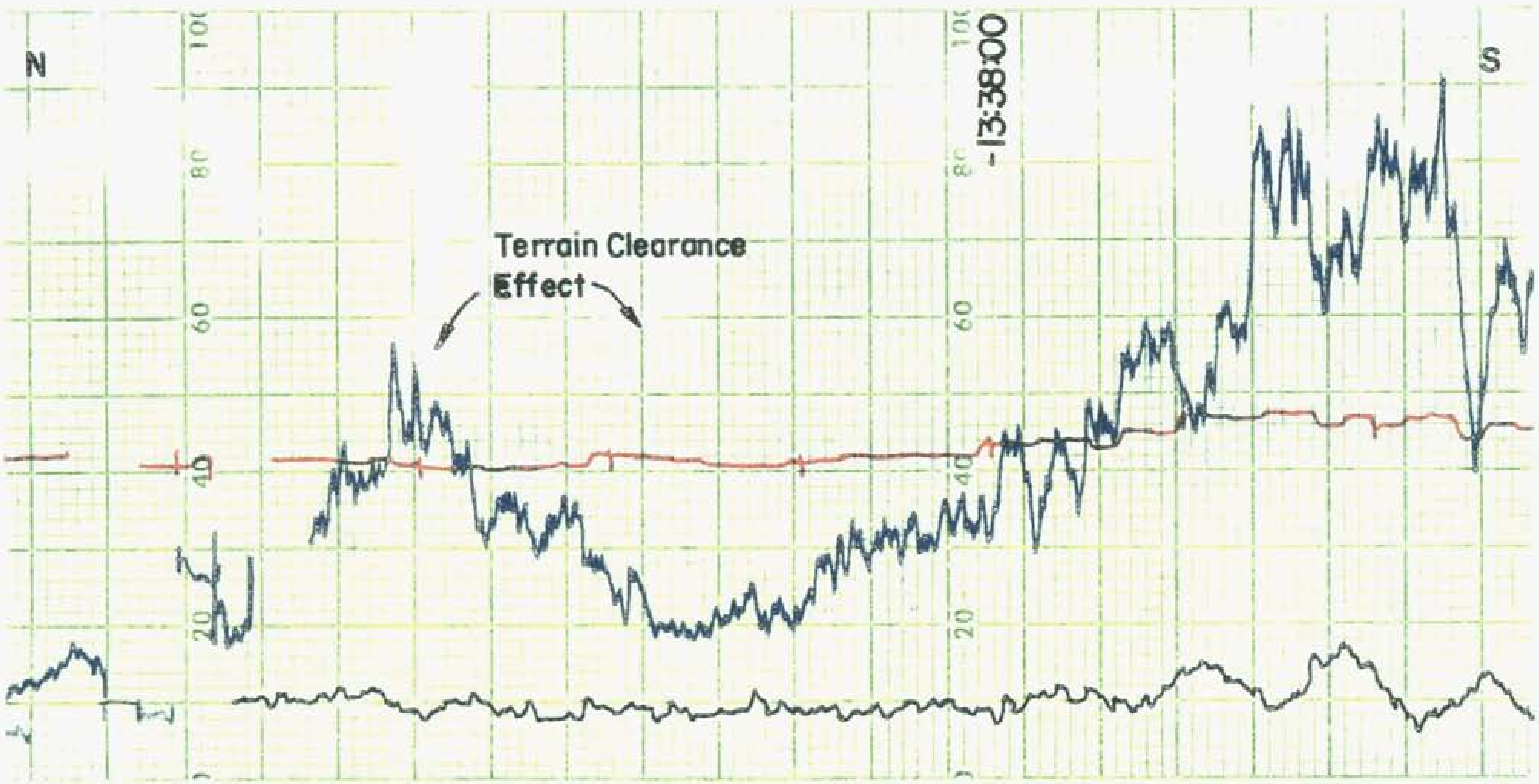
Helicopter	$ 738.00
Equipment Lease	$ 300.00
Vehicle Rental 2 days @ $85/day	$ 170.00
Meals & Accommodations	$ 75.00
Air Photography	$ 8.00
Photographics	$ 76.00
Interpretation & Report	$ 500.00
Drafting & Materials	$ 60.00
Reproduction & Report	$ 23.00
Total	$3,500.00

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. 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 Exploration Surveys Ltd.
	Eleven years Consulting Geophysicist.
	Active experience in all Geologic provinces of Canada.



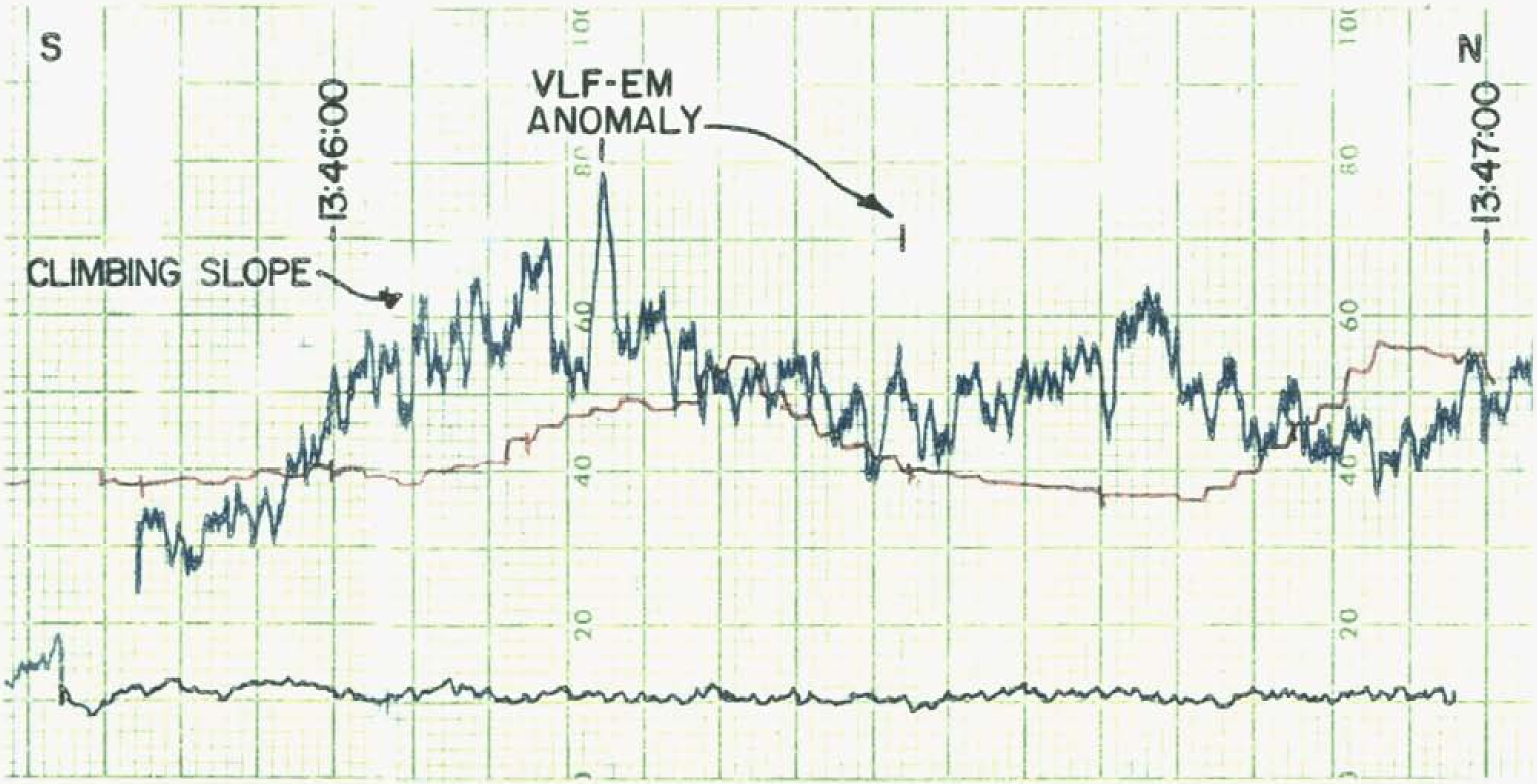
RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
— LINE 5 —

Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE : 56700 γ
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. 3



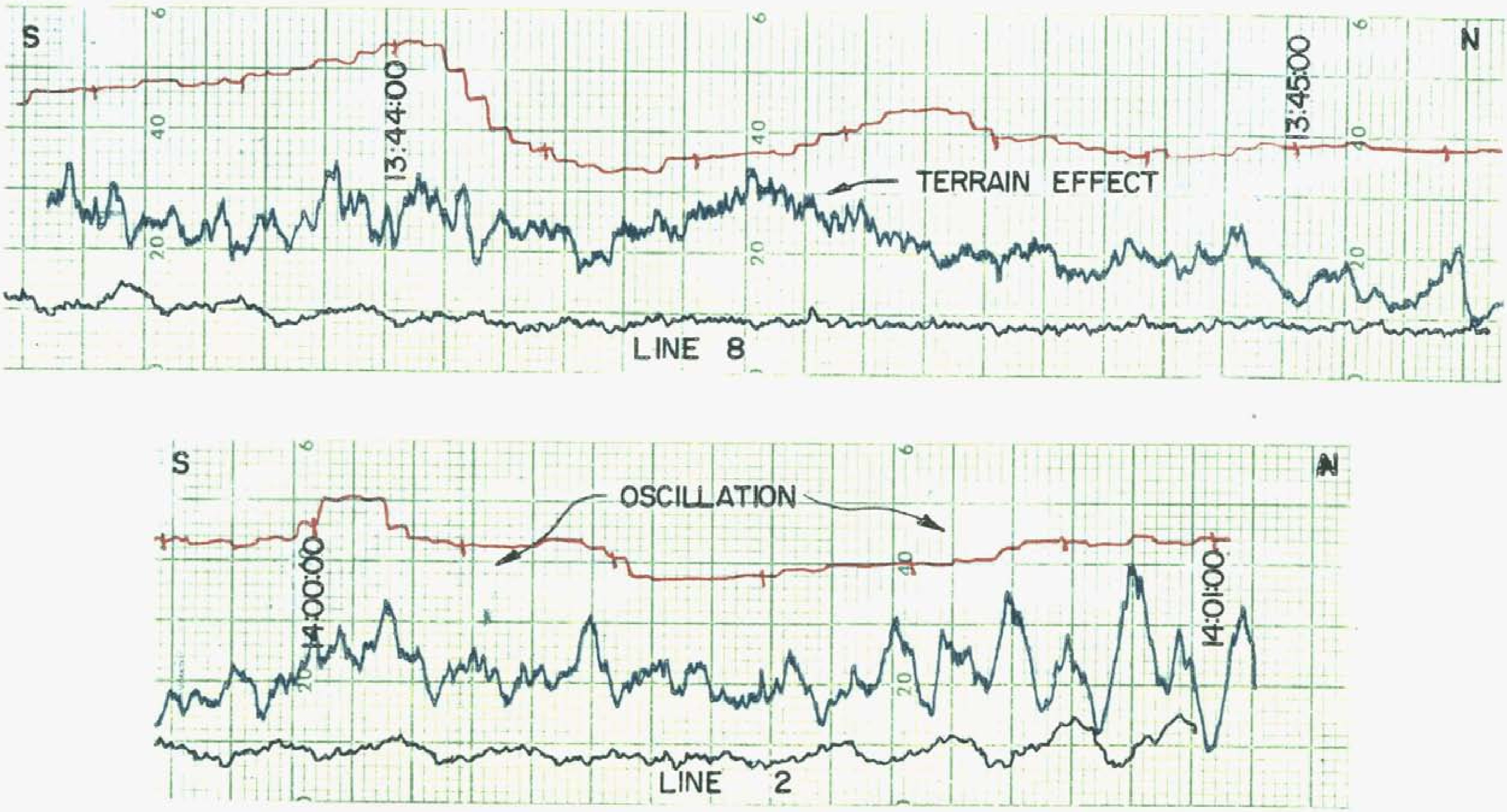
RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
– LINE 9 –

Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE = 56700 γ
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



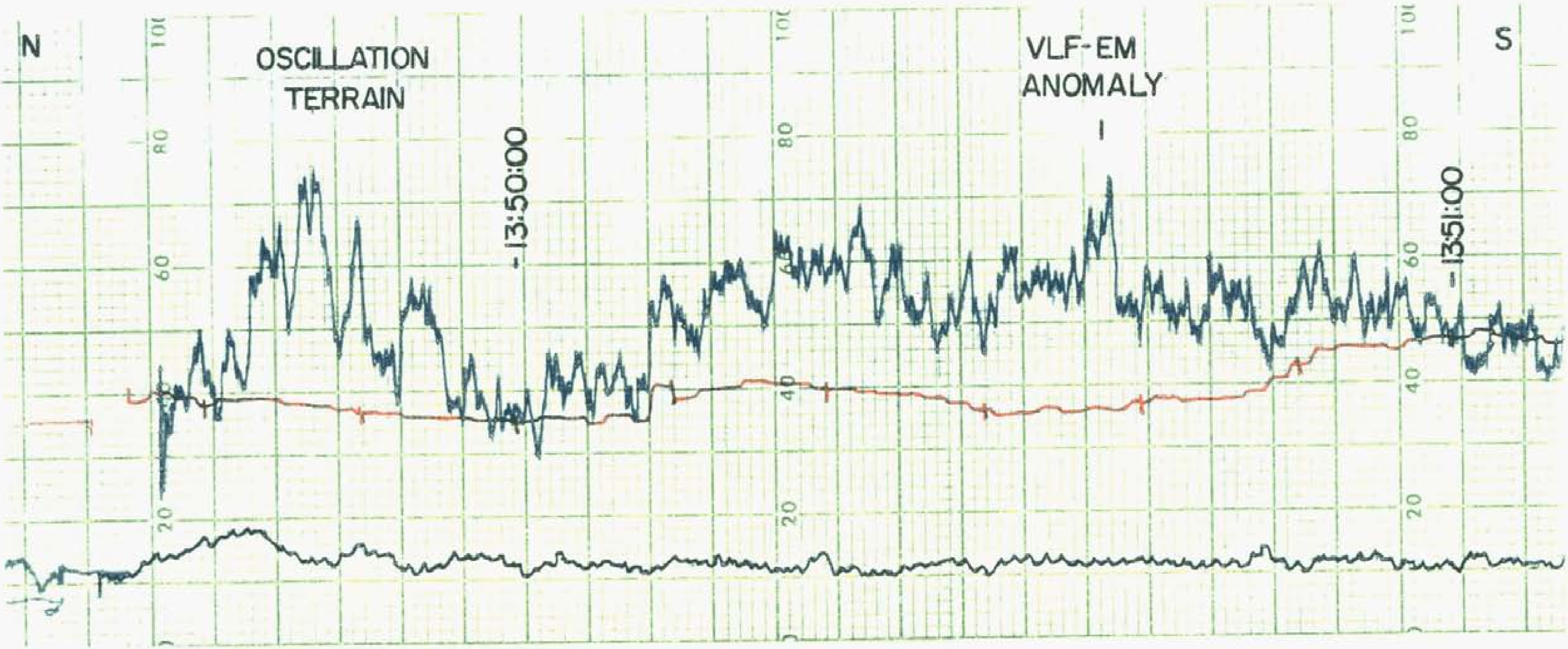
RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
– LINE 8&2 –

Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE = 56700 γ
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. 5



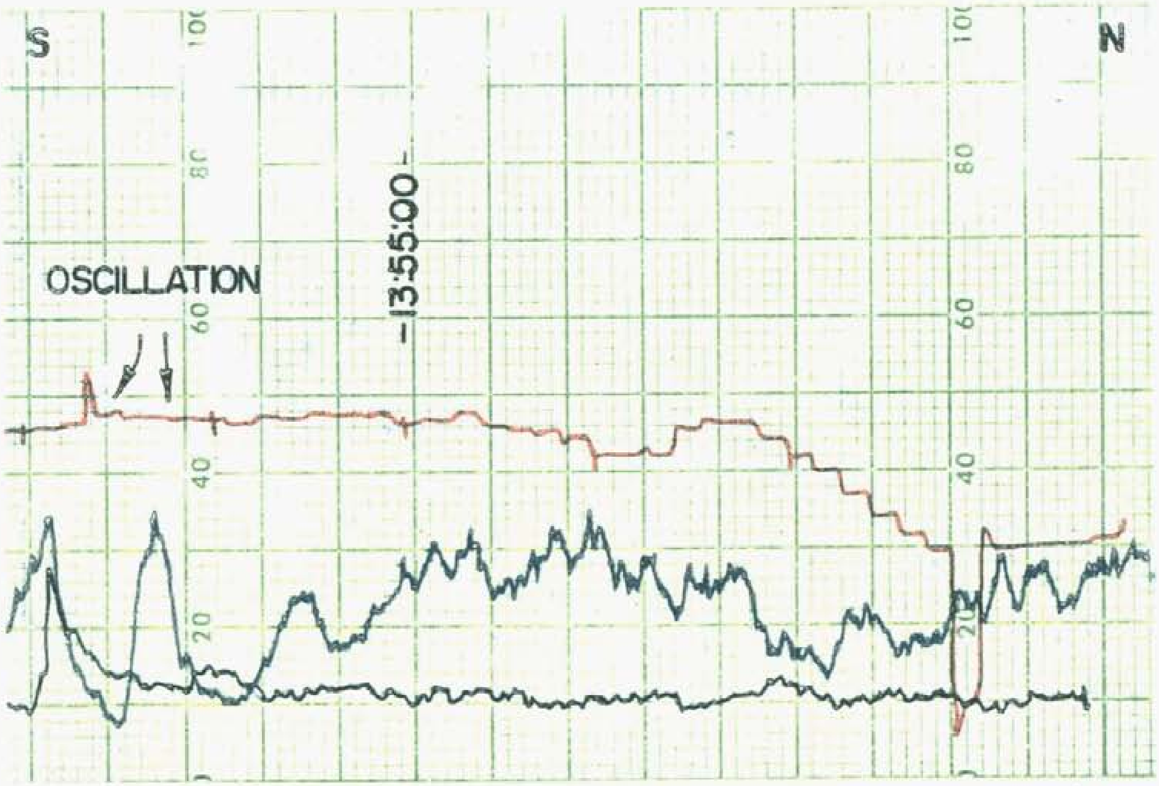
RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
— LINE 11 —

Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE : 56700 γ
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. 6



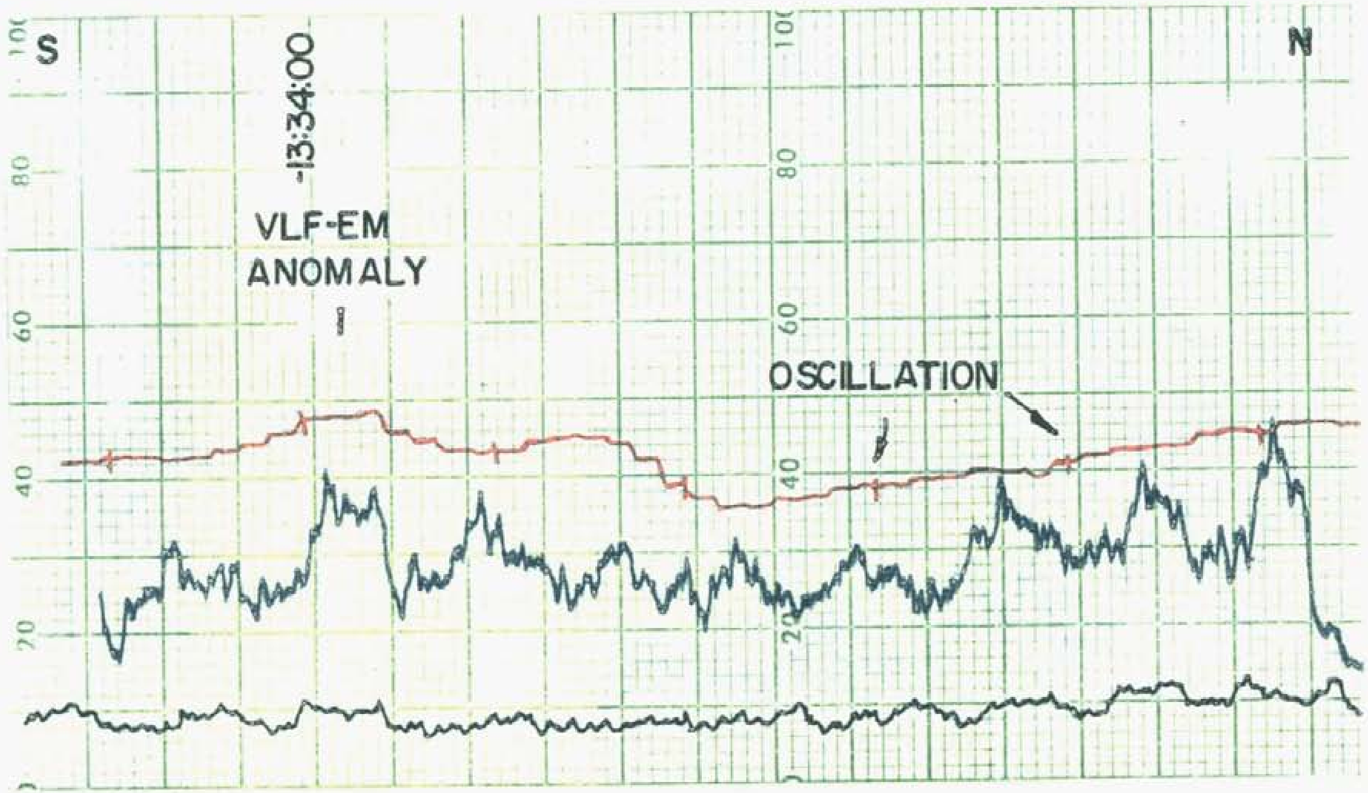
RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
- LINE 14 -

Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE = 56700 λ
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. 7



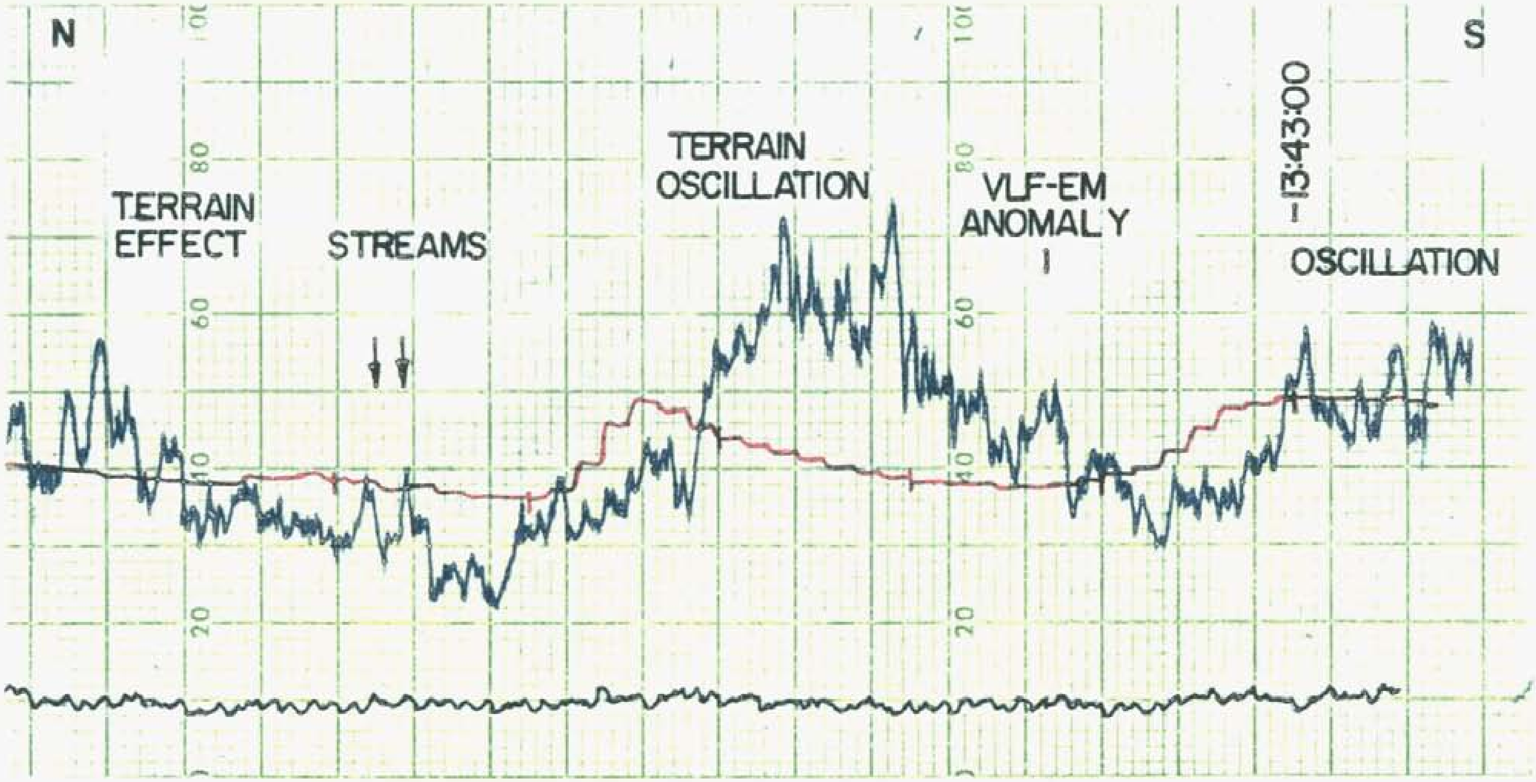
RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
– LINE 4 –

Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE = 56700 λ
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. 8



RABBIT OIL & GAS LTD.
FOXY, BEE CLAIMS
– LINE 7 –

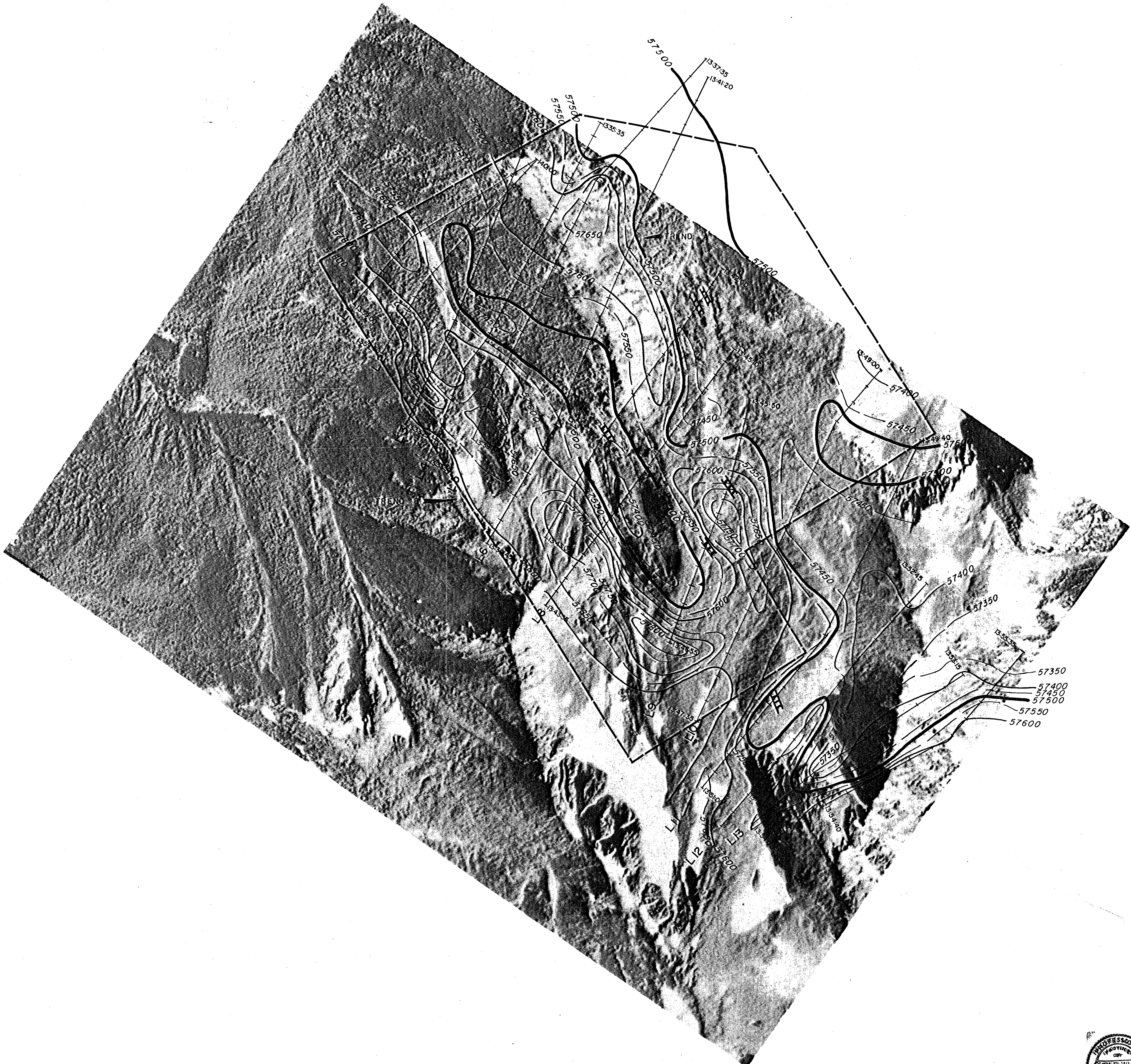
Western Geophysical Aero Data Ltd.

MAGNETOMETER BASE VALUE : 56700 λ
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. 9

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 9982



LEGEND:

FLIGHT LINES

5 SECOND INTERVALS

CLAIM BOUNDARIES - APPROXIMATE DUE TO DISTORTION OF PHOTOMOSAIC

57600 TOTAL MAGNETIC FIELD INTENSITY CONTOURS - gammas

VLF-EM ANOMALIES

INSTRUMENTS:

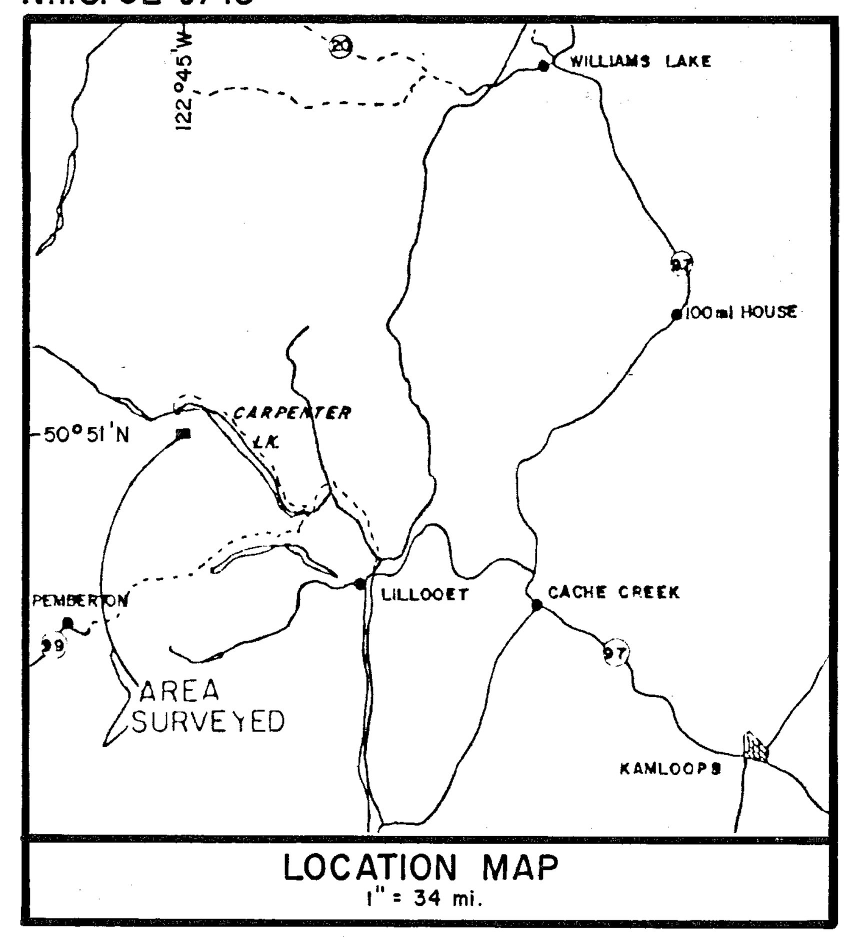
SABRE AIRBORNE MAGNETOMETER

SABRE AIRBORNE VLF-ELECTROMAGNETOMETER

i) JIM CREEK, WASHINGTON - 18.6 Khz.

ii) ANNAPOLIS, MARYLAND - 21.4 Khz.

N.T.S. 92 J/15



LOCATION MAP
1" = 34 mi.

200m 100m 0 200m 400m 600m 800m
1 : 10,000

RABBIT OIL & GAS LTD.

FOXY, BEE CLAIMS

LILLOOET MINING DIVISION - BRITISH COLUMBIA

GEOPHYSICAL INTERPRETATION MAP

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA GLEN E. WHITE

Western Geophysical Aero Data Ltd.

Interpreted By: E.T.P.
Drawn By: N.L.P.
Checked By: E.T.P.
Date: NOV./81
Fig. No.: 2