ARIS SUMMARY SHEET

District Geologist, Smithers | Off Confidential: 89.03.24

ASSESSMENT REPORT 17532 | MINING DIVISION: Omineca

PROPERTY: Mac
LOCATION: LAT 57 25 00 LONG 127 03 00
UTM 09 6365236 617126
NTS 094E06E
CLAIM(S): Mac III,Hyfly I-II
OPERATOR(S): Toodoggone Synd.
AUTHOR(S): Woods, D.V.
REPORT YEAR: 1988, 29 Pages
GEOLOGICAL SUMMARY: The area is underlain by Toodoggone volcanics of Lower to Middle Jurassic age consisting of green to grey quartzose, pyroxene(?), biotite, hornblende plagioclase porphyry flows and tuffs. These rocks have been intruded by granodiorite and quartz diorite stocks of Lower to Middle Jurassic age.
WORK DONE: Geophysical
MAGA 150.0 km
Map(s) - 2; Scale(s) - 1:10 000

Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
GEOPHYSICAL	$6,000.00

AUTHOR(S) Dennis V. Woods SIGNATURE(S) Dennis V. Woods

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED .... YEAR OF WORK 88

PROPERTY NAME(S) Mac III, Hyfly I, Hyfly II

COMMODITIES PRESENT Nil

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN ....

MINING DIVISION Omineca NTS 94E/6E

LATITUDE $57^{\circ}25'$N LONGITUDE $127^{\circ}03'$W

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Mac III 6904

Hyfly I 6932

Hyfly II 6933

OWNER(S)

(1) Clive Ashworth (2)

MAILING ADDRESS

744 W Hastings
Vancouver, B.C. V6C 1A3

FILMED

OPERATOR(S) (that is, Company paying for the work)

(1) Clive Ashworth (2)

MAILING ADDRESS

744 W Hastings
Vancouver, B.C. V6C 1A3

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

Lawyers Group, Toodoggone volcanics of lower to middle Jurassic age consisting of green to grey quartzose, pyroxene (?), biotite, hornblende plagioclase porphyry flows and tuffs. Intruded by granodiorite and quartz diorite stocks of lower to middle Jurassic age.

REFERENCES TO PREVIOUS WORK ....

(over)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST APPORTIONED
GEOLOGICAL (scale, area)			
Ground			
Photo			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne	150	Mac III, Hyfly I, Hyfly II	$6,000.00
GEOCHEMICAL (number of samples analysed for ....)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralogic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Legal surveys (scale, area)			
Topographic (scale, area)			
Photogrammetric (scale, area)			
Line/grid (kilometres)			
Road, local access (kilometres)			
Trench (metres)			
Underground (metres)			
		TOTAL COST	$6,000.00

FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT	REMARKS:
Value work done (from report)				
Value of work approved				
Value claimed (from statement)				
Value credited to PAC account				
Value debited to PAC account				
Accepted .... Date	Rept. No.			Information Class

LOG NO: 0627	RD.
ACTION:	
FILE NO:	

CLIVE ASHWORTH
SECOND VERTICAL DERIVATIVE REPROCESSING OF
AIRBORNE MAGNETOMETER SURVEY DATA
MAC III, HYFLY I AND HYFLY II CLAIMS
OMINECA MINING DIVISION
LATITUDE: 57° 25'N LONGITUDE: 127° 03'W
NTS 94E/6E

AUTHOR: Dennis V. Woods, Ph.D., P.Eng
Consulting Geophysicist

DATE OF WORK: 18 March 1988
DATE OF REPORT: 14 April 1988

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,532

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ILLUSTRATIONS

INTRODUCTION

In early 1986 an airborne magnetometer survey was conducted over the Toodoggone Gold Belt district (Figure 1). Over 10,000 line kilometers was flown over the district. Western Geophysical Aero Data Ltd. was commissioned by **Clive Ashworth** to reprocess and interpret the magnetic data obtained over the 60 units of the **Mac III, Hyfly I and II claim block.**

The intention of reprocessing of the magnetometer survey data is to more sharply define the geological structure of the area and direct further ground exploration to locations considered favorable for mineralization.

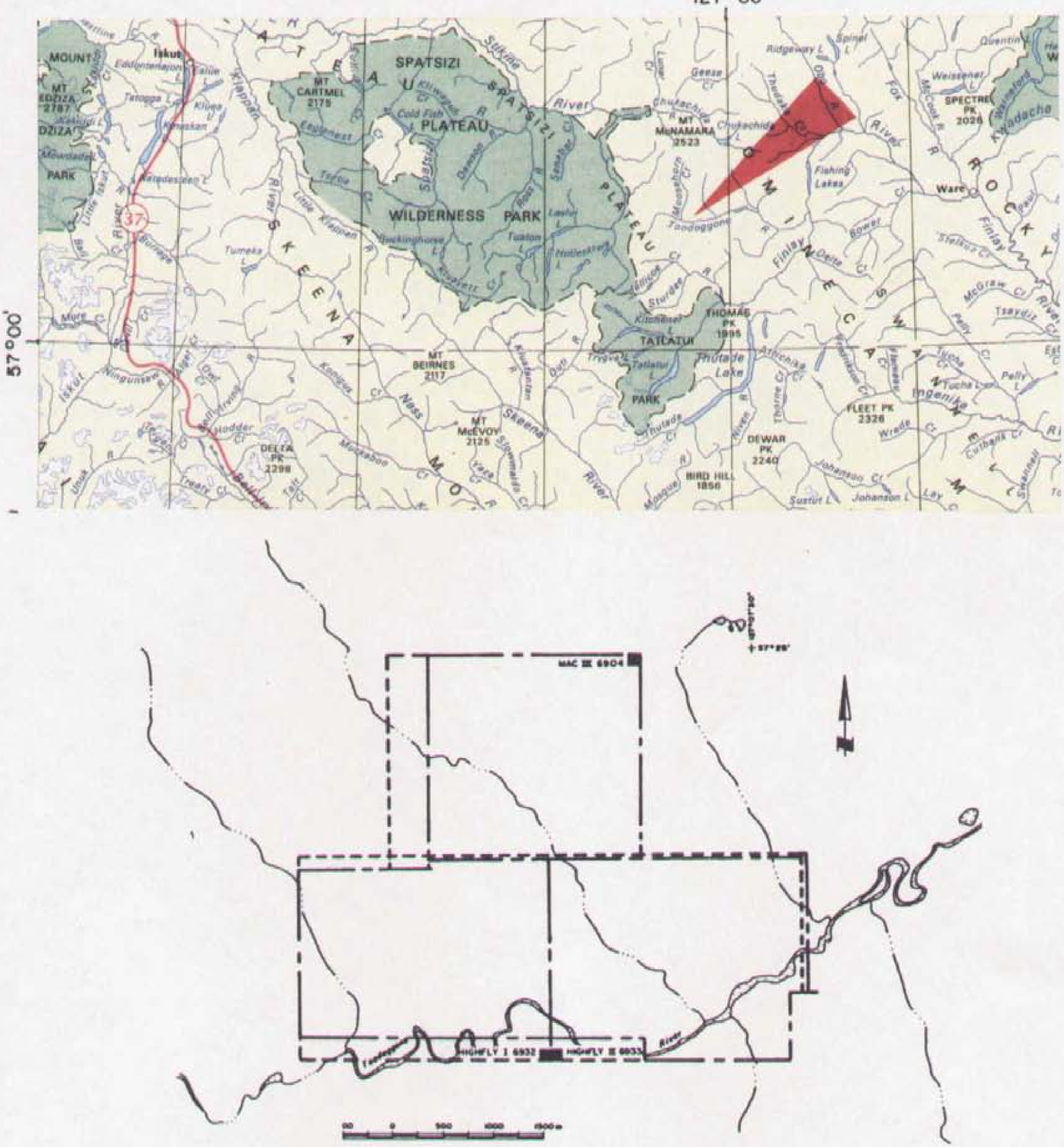
PROPERTY

The **Mac III, Hyfly I and II** claims are owned by **Clive Ashworth.** The claims were recorded on March 25,1985. They are described below and illustrated on Figure 1.

Claim Name	**Record Number**	**Units**	**Record Date**
Mac III	6904	20	March 25, 1985
Hyfly I	6932	20	March 25, 1985
Hyfly II	6933	20	March 25, 1985

LOCATION AND ACCESS

The **Mac III, Hyfly I and II** claim block is located in the Toodoggone River area approximately 280 kilometers north of Smithers, B.C. The **Mac III and Hyfly I and II** claims are at the junction of McClair Creek with the Toodoggone River in NTS 94E/6E and the Omineca Mining Division. Approximate geographical coordinates are latitude 51° 25'N and longitude 127° 03'W.



CLIVE ASHWORTH

MAC III & HIGHFLY I - II CLAIMS

LOCATION AND CLAIMS MAP

FIGURE 1

The claims are at about 1200 to 1300 m elevation on the west side of McClair creek, rising to 1700 m on a ridge on the east side of the creek. Most of the area is covered by open forest consisting mainly of lodgepole pine, with some swampy areas containing willow and alder.

Access to the area is via the newly completed Omineca extension road or by fixed wing aircraft from Smithers, B.C. to the Sturdee River airstrip about 15 km southwest of the property. Access from the airstrip to the property is by helicopter which are usually based at the Sturdee River airstrip during the summer.

HISTORY AND PREVIOUS WORK

The Toodoggone area was investigated for placer gold in the 1920's and 1930's. A public company, Two Brothers Valley Gold Mines Ltd., undertook considerable test work, including drilling in 1934. Most of this work was directed towards extensive gravel deposits principally near the junction of McClair Creek and the Toodoggone River.

Gold-silver mineralization was discovered on the Chappelle (Baker Mine) property by Kennco Explorations (Western) Ltd. in 1969. DuPont of Canada Exploration Ltd. acquired the property in 1974 and began production at a milling rate of 100 tonnes per day in 1980. The mine closed in 1982 due to exhaustion of the known ore reserves.

Numerous other gold-silver discoveries were made in the 1970's and 1980's, including the Lawyers deposit which was discovered by Kennco in 1973 and optioned by SEREM Ltd. in 1979. Work on this property to date has included trenching, drilling and underground development. The mine is scheduled to begin production in late 1988 at a rate of 550 tonnes per day.

The gold-silver deposits on the Al property were discovered by Kidd Creek Mines Ltd. in the late 1970's. This property, together with the Moose and JD claims immediately to the east are now held by Energex Minerals Ltd. - the largest land holding in the Toodoggone area. Energex have outlined numerous showings and potential ore zones including the Thesis I and II, Bonanza and B.V. deposits. Open pit production is scheduled for late 1988 or early 1989.

Within the belt, three properties show ore reserves: Lawyers deposit (Serem Inc.) 2,000,000 tonnes 0.2 oz/tonne Au, 7.1 oz/tonne Ag, Al property (Energex Minerals Ltd.) 1,000,000 tonnes 0.2 oz/tonne Au, and the Shas deposit (International Shasta/Esso Minerals) 250,000 tonnes 0.21 oz/tonne Au.

The Toodoggone area has been the scene of intense exploration activity during the past four years with numerous companies exploring over 3,000 mineral claim units. Exploration and development expenditures to 1988 are estimated to be in the order of $150 million.

Previous work on the **Mac III, Hyfly I and II** claims is described by Donnelly (1985):

> " The area covered by the **Hyfly I, Hyfly II and Mac III** claim group was staked by AMAC Potash Ltd. in 1972 to cover a multi-element soil geochemical anomaly and because of the presence, in McClair Creek canyon, of a pyrite-rich monzonite intrusive. Amax completed reconnaissance surface geological mapping, and reconnaissance geochemical surveys (388 samples taken at 400 feet intervals on lines 700 to 1000 feet apart). (Allen, D.G., A.R.4497).

The same area was again staked by Texas Gulf Sulphur Co. (later Kidd Creel Mines) in 1980, who allowed their claims to lapse in 1984.

They also completed reconnaissance geological mapping and a geochemical survey on widely spaced lines (Sutherland, I.G., A.R. 9995, 10694).

The Mclair property was staked in 1985 to explore areas that appeared favorable to the adjacent Energex claim block on which several promising gold discoveries has been made in recent years. Black Diamond Resources Ltd. subsequently acquired options on the properties."

Donnelly (1985) also describes the results of a limited program of soil geochemistry, stream sediment sampling and prospecting carried out in 1985 for Black Diamond Resources Ltd.

A significant open-ended Zn, Au and Ag soil geochem anomaly was outlined at the east end of the survey grid near the McClair fault.

A regional aeromagnetic survey was carried out over the entire Toodoggone Gold Belt in 1986 by Western Geophysical Aero Data Ltd. Parkinson (1987) recovered a portion of this data over the **Mac III, Hyfly I and II** claims for Com-Air Containers (Canada) Inc. and presented it in hand contoured form on an orthophotomosaic base. The countoured magnetic data was interpreted in terms of the lithologies and structures on the property. Magnetic highs indicate the distribution and form of granitic intrusives, magnetic lows indicate possible alteration zones and linear patterns reflect the cross-faulted structure on the property.

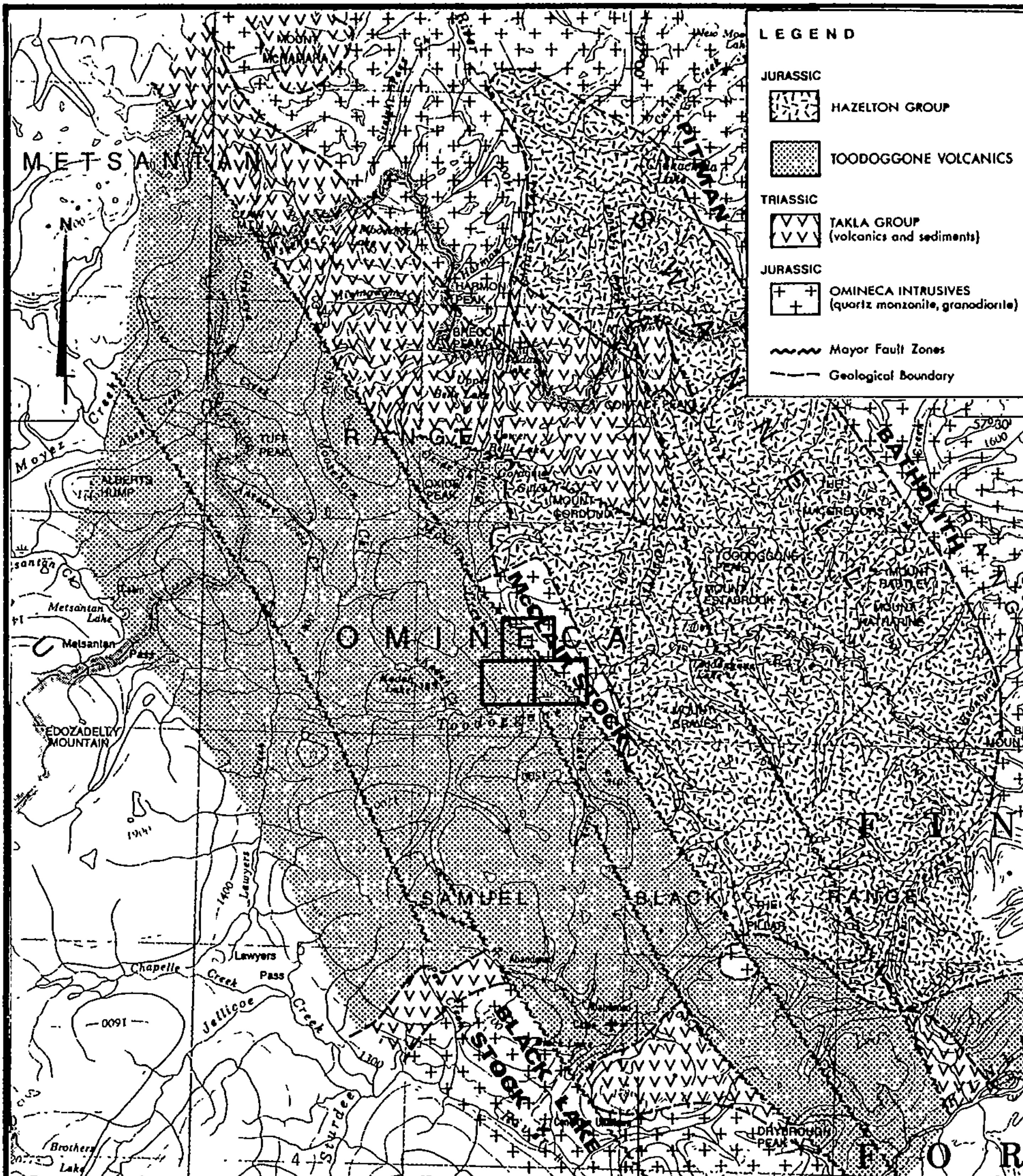
REGIONAL GEOLOGY

The general geology of the area is shown on Preliminary Map 61, B.C. Ministry of Energy, Mines and Petroleum Resources by L.J. Diakow, A.Panteleyev and T.G.Schroeder, 1985 and an Open File, Geologic Survey of Canada, by H.Gabrielse, C.J.Dodds, J.L.Mansy and G.H.Eisbacher, 1976 (Figure 2).

The Toodoggone River area is set within the Intermontaine Belt. The main geologic units are the Upper Cretaceous Sustut Group, the Lower to Middle Jurassic Toodoggone Volcanics, the Upper Triassic Takla Group and Permian carbonate units thought to belong to the Asitka Group. Several intrusive bodies of quartz monzonitic to grano- dioritic composition, irregular in size and shape (belonging to the Omineca Intrusives) intruded the volcano -sedimentary complex in several localities. Swarms of dykes and small stocks are related to these intrusions.

The Asitka group limestones were deposited in a marine environment. The Takla rocks are the product of a volcanic event that may have been accompanied by an uplift of the whole area (possibly changing the environment from submarine to sub-areal). The result is a complex of interlayered volcanic and sedimentary units. This was followed by a period of regression and related deformations. These followed a volcanic episode during which the cyclic Toodoggone Volcanic rocks were formed. The event started with a quartzose acidic extrusion, followed by a mafic extrusion, and then by several intermediate extrusions. Much of the volcanics were porphyritic flows but within each cycle there are pyroclastic units and conglomerates, lahars and sandstones (reworked pyroclastics).

Of the structural elements, the most prominent are three fault zones, trending northwest-southeast, which are intermittently exposed where outcrop is developed and are clearly outlined by the airborne geophysics. They had a major role not only in



CLIVE ASHWORTH

HIGHFLY I & II, MAC III

REGIONAL GEOLOGY

N.T.S. 94E/6E

SCALE 1:250,000

FIGURE 2

distribution of geologic units, but also in the emplacement of minerals. The same, northwest-southeast trend is also the general strike of the majority of the lithostratigraphic members.

Local uplifts accompanying intrusions resulted in several domal structures, characterized by a circular distribution of volcano-sedimentary units surrounding an intrusive core. The Toodoggone River area is an important host of numerous precious metal and base metal prospects. Four main mineral deposit types have been identified:

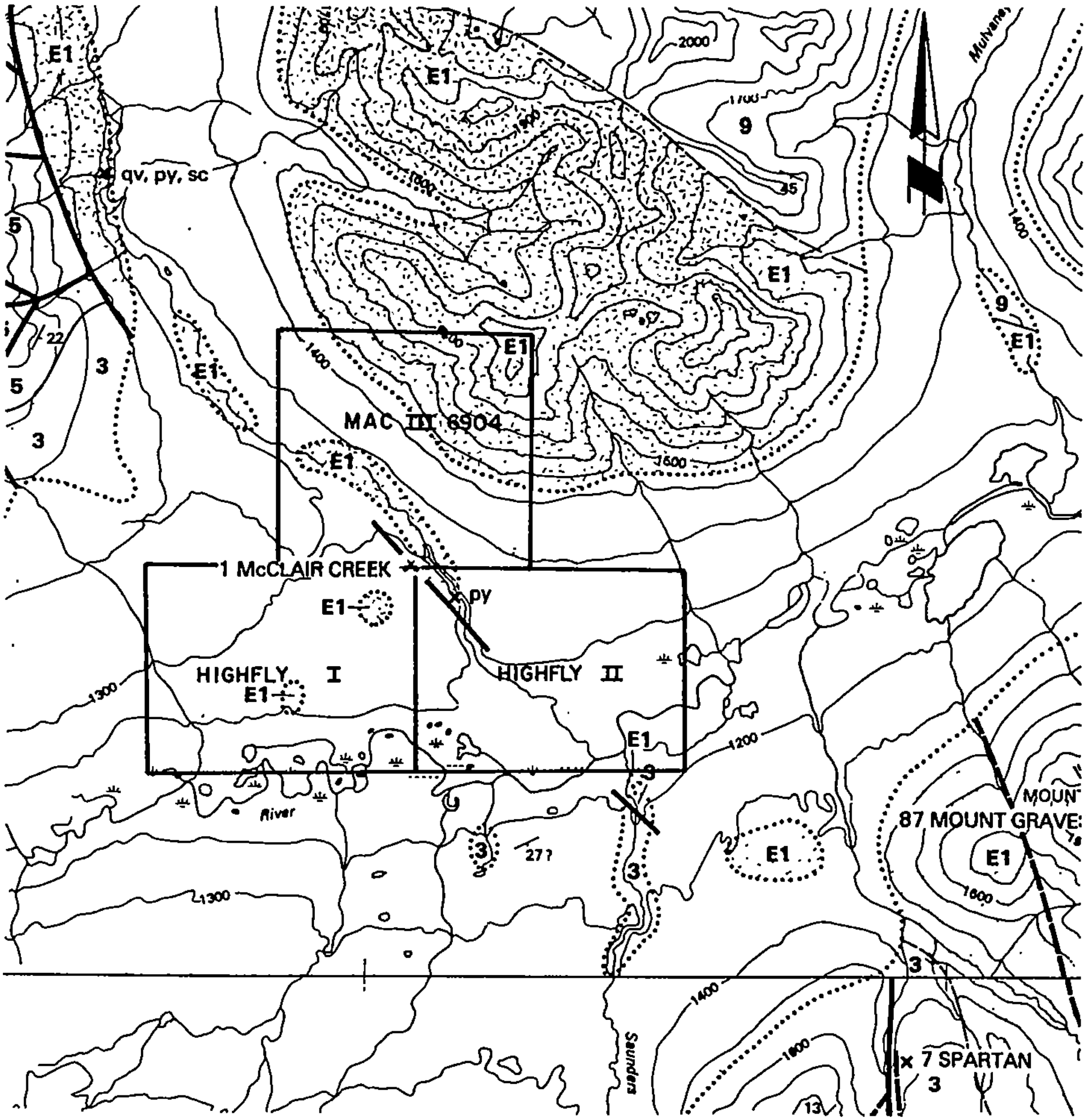
- porphyry - occurring mainly in Takla Group volcanics and Omineca intrusives.
- skarn - contact of limestones (Asitka, and some in Takla) with intrusive.
- stratabound - occurring in Takla limestones interbedded with cherts.
- epithermal - occurring mainly in Toodoggone Volcanics and in Takla rocks.

Of the four, the epithermal type is the most important, and has been subdivided into two subtypes: fissure vein deposits associated with fracture zones and possibly caldera formations, and hydrothermally altered and mineralized deposits (associated with major fault zones).

Most common ore minerals in epithermal type deposits are argentite, electrum, native gold and silver. Baker Mine and Lawyers Deposit are the two most prominent deposits of this type in the area.

LOCAL GEOLOGY

As shown in Figure 3, the **Mac III and Hyfly I and II** claims lie at the confluence of McClair Creek with the Toodoggone River. Hence, much of the property is covered by glacial valley



CLIVE ASHWORTH
LOCAL GEOLOGY
SCALE – 1: 50,000

FIGURE 3

overburden. Only a few, small, outcrop exposures occur to the west of McClair Creek. Better exposure is found to the northwest on the flanks of a small mountain.

The property geology has been described by Donnelly (1985):

> " The eastern portion of the claims is entirely underlain by porphyritic feldspar-biotite monzonite. In many places along McClair Cr., the monzonite is highly fractured and mineralized with pyrite. This intrusive uniformly contains about 1% magnetite. To the west this area is underlain by Toodoggone volcanics. Previous work by Amax and Kidd Creek Mines and our work show these volcanics consist of hornblende-feldspar andesite, crystal and lapilli tuffs, and tuff breccias. At the present time the exact location of the contact is unknown but the presence of magnetite in the monzonite should make it easy to trace with a magnetometer survey.
>
> The only mineralization found on the property consisted of weak to moderate pyritization of fractured, sheared monzonite along McClair Creek.
>
> The Moosehord-McClair fault system, one of the major ones in the area, cuts through the property. The canyon of McClair Creek represents the major visible break. However, additional splays may underlie the western portion of the claims."

Portions of the McClair stock east of the property have been mapped by Bekdache and Seyward (1988) on the Mac I, II and IV claims. They found Hazelton Group porphyritic andesite flows capping the monzonitic intrusives at higher elevations to northeast of McClair Creek.

AIRBORNE MAGNETIC SURVEY

This survey monitors and records the output signal from a proton precession magnetometer installed in a bird designed to be towed 30 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 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 proton magnetometer. A Hewlett-Packard 9875 tape drive system digitally records all information as it is processed through an onboard micro-computer. The magnetic 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, with the time of day fiducial, on magnetic cassettes in a format compatible with the Hewlett-Packard 9845 computer. The recovered flight path locations are digitized and the field data is processed to produce plan maps of each of the parameters. A variety of formats are available in which to display this 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.

DISCUSSION OF RESULTS

The **Mac III, Hyfly I and II** claims were surveyed in February and March of 1986. One hundred and fifty line kilometres of magnetometer data have been reprocessed to examine these claims and the surrounding area.

Survey lines were flown east-west on 200 meter centres with data being digitally recorded at one second intervals, providing an average station spacing of 25 meters. The sensors were towed beneath the helicopter and maintained an average terrain clearance of 60 meters.

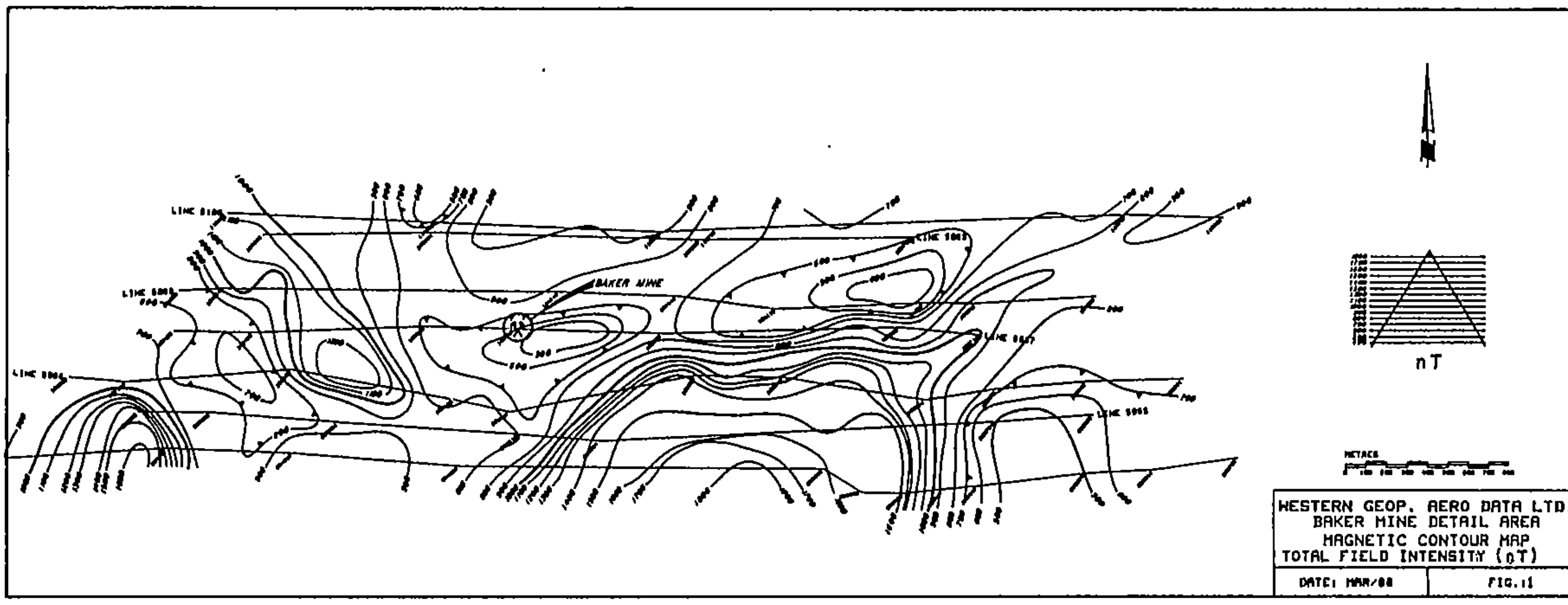
This survey was flown as part of a regional package covering the Toodoggone Gold Belt from the Finlay River in the south to the Chukachida River in the north. Over 10,000 line kilometers of data was gathered to assist the geological mapping of the area as well as to locate specific targets for ground exploration.

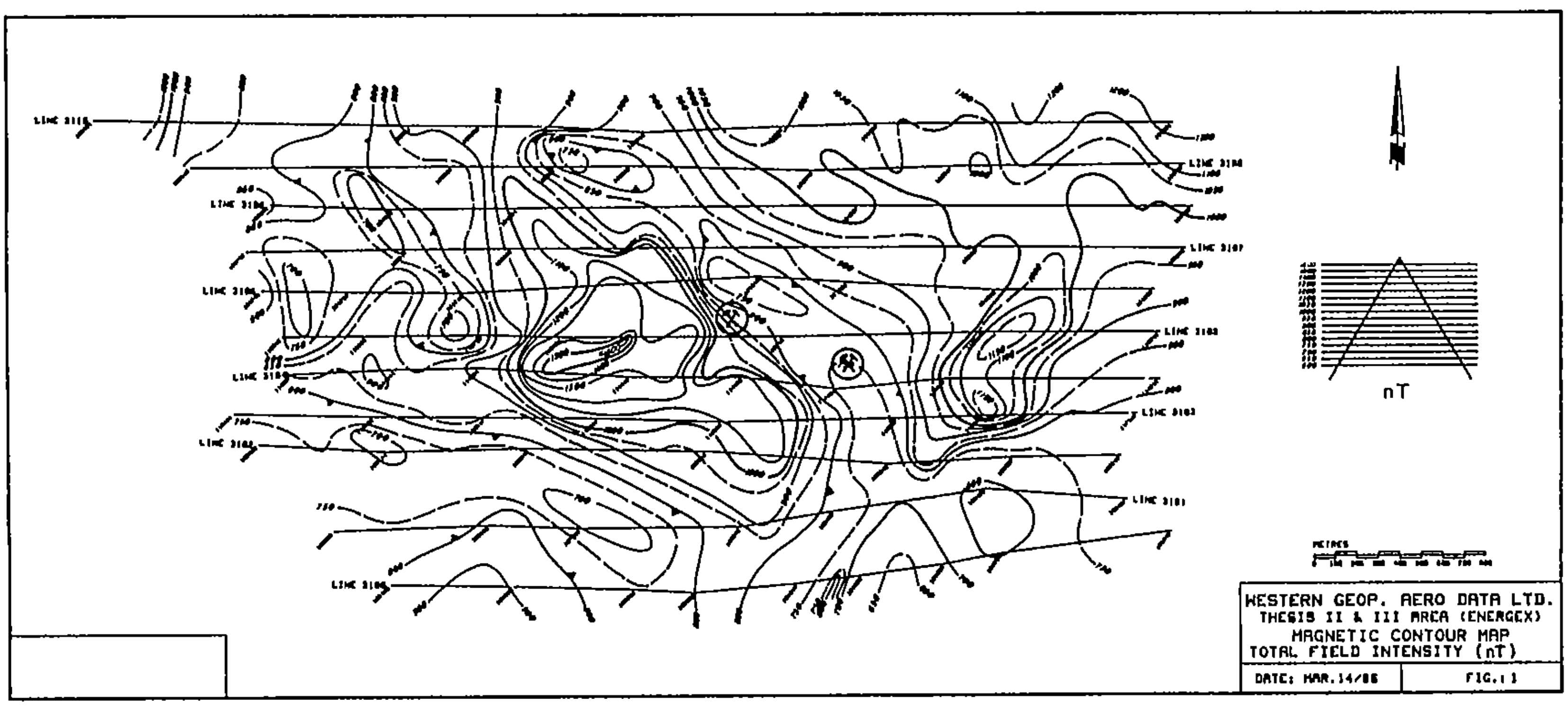
The magnetic data is a useful tool for mapping both regional and local geological structures. Many localized magnetic variations are observed which are attributed to lithological changes.

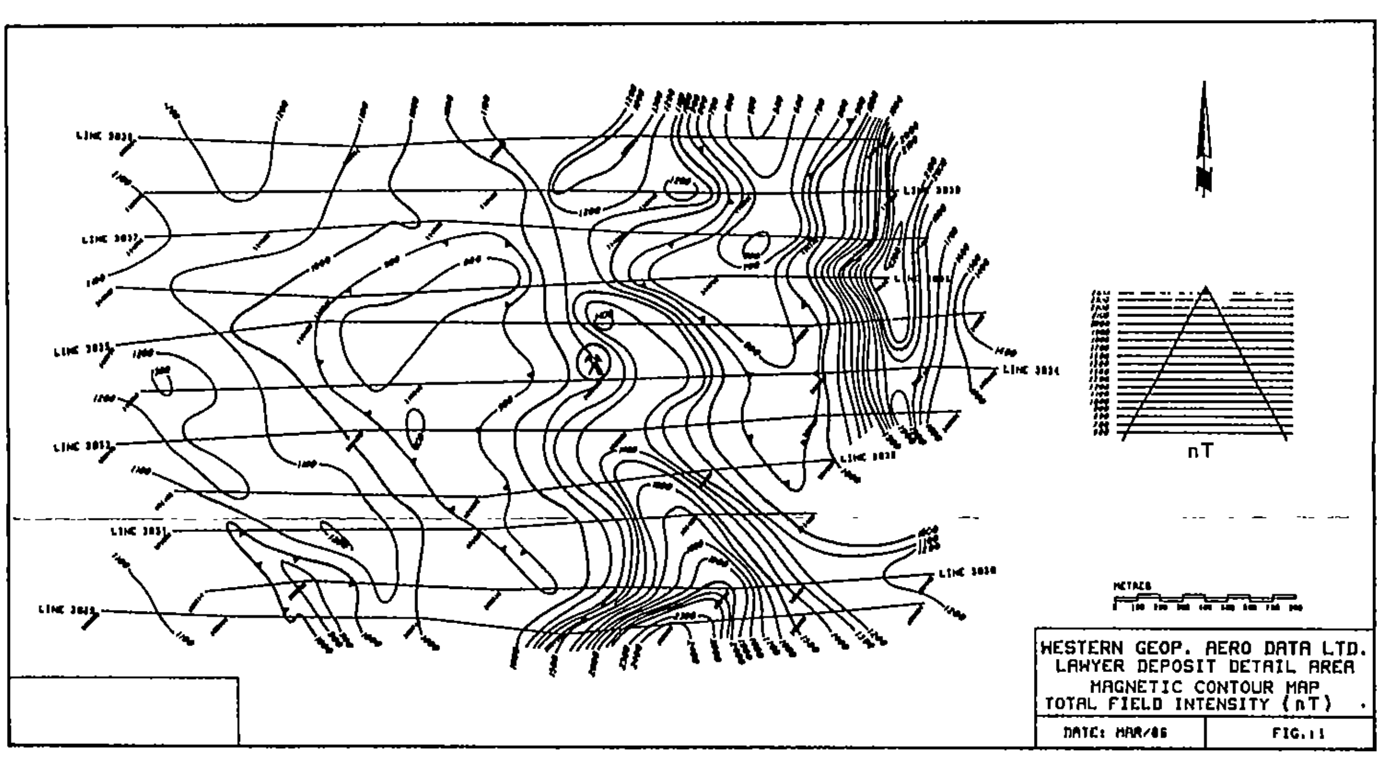
There are two distinctive magnetic signatures observed in the Toodoggone region which appear consistent across the large survey area. Firstly, Jurassic intrusions appear as magnetic highs; typically with an intensity of greater than 59,300nT. Secondly, major fault and shear zones appear as linear magnetic lows, generally with intensities of less than 59,000nT, and often positioned along the flanks of intrusive bodies. The combination of these two signatures are observed across many of the larger epithermal precious metal deposits in the area. Figure 4 of this report illustrates this effect at the Baker Mine, Lawyers and Thesis deposits. The magnetic response is interpreted as reflecting only the general geological environment of these area and does not map any mineralization directly.

In order to more precisely define the positions of faults interpreted from the magnetic data, the original data files from the **Mac III, Hyfly I and II** claims and surrounding areas have been transferred to a microcomputer/plotter for interactive reprocessing and machine contouring. The contour plot is shown in Figure 5 on an orthophotomosaic base map. The data was then enhanced by smoothing and applying a second vertical derivative transformation. This processing procedure has the effect of suppressing near-surface magnetic responses and enhancing more deep-seated, large-scale variations due to faults and lithologic contacts. A contour plot of the second vertical derivative is shown in Figure 6.

The contoured magnetic data shown in Figure 5 confirms the general geological mapping as illustrated in Figure 3 and discussed by Donnelly (1987). High magnetic intensities in the northeast corner of the property occur over the McClair monzonite stock and lower values are found in the southwest over Toodoggone volcanics. Four other areas of possible monzonite-grandiorite intrusives have also been identified by high magnetic intensities. Two of these occur outside the **Mac III, Hyfly I and Hyfly II** property to the southeast and to the southwest. The







MAGNETIC RESPONSE EXAMPLES
BASE VALUE 58,000 – nT

WESTERN GEOPHYSICAL AERO DATA LTD.

FIG. 4

prominent, kidney-shaped magnetic high in the northeastern corner of **Hyfly I** is likely due to a grandiorite stock, as indicated in Figure 3. The less pronounced elogate magnetic high in the southeast corner of **Hyfly II** is possibly due to a granitic intrusive at greater depth (i.e. >200 m).

The magnetic highs in the northeast corner of **Mac III and Hyfly II** are part of the larger McClair intrusive which extends about three kilometers to the north and east. As shown in Figure 3, intrusives have been mapped in northeast corner of **Mac III** but are covered by overburden in the northeast corner of **Hyfly II.** areas of low magnetic intensity within the McClair intrusive are directly correlateable to topographic valleys and may be due to deeper overburden cover, or to alteration along faults within the valleys.

Dominant northwest-southeast faulting is evident on the magnetic data by sharp gradients and low magnetic lineaments. Two major faults appear to form a graben structure across the centre of the **Mac III, Hyfly I and II** property. These two faults, along with the Moosehord-McClair Fault between them, continue to the north where they appear to be primary structures controlling mineralization on the Energex JD property. Other north-south and east-west trending faults have also been identified in the intrusives in the northeast part of the property.

The positions of these faults and the outlines of the intrusives are much more precisely defined on the vertical second derivative contour map shown in Figure 6. In particular, the graben bounding faults are sharply defined in Figure 6 by a linear magnetic low and an adjacent steep gradient.

SUMMARY AND CONCLUSIONS

The **Mac III, Hyfly I and II** property was covered by an airborne magnetic survey in February and March 1986 as part of a region survey. In order to evaluate the mineral potential of the property, 150 line kilometers of data were computer processed and plotted using a vertical second derivative filter. This procedure results in a more precise definition of geologic contacts and structures which may control mineralization.

The magnetic data display a variety of features which have been interpreted to be due to monzonite-granodiorite-quartz diorite intrusives. Magnetic highs occur on the northeastern part of the property over the mapped McClair stock, and in a few isolated areas over the rest of the property. Linear magnetic gradients and associated lows are due to faulting. The dominant faulting is in a northwest-southeast direction which is continuous with known gold mineralization about 4 km to the northwest. Other faults are evident over the McClair intrusive in the northeastern part of the property.

RECOMMENDATIONS

The most important type of economic mineralization identified in the Toodoggone Gold Belt area are epithermal precious and base metal deposits, hosted principally by lower and middle units of Toodoggone volcanics. Mineralization occurs principally in fissure veins, quartz stockworks, breccia zones and areas of silicification, generally close to major fault systems and associated with intrusive activity.

The **Mac III, Hyfly I and II** property fits the fault and intrusive criteria for this geological model and there are areas within the claims exhibiting low magnetic intensities which could be reflecting a suitable volcanic host environment or alteration zones. Ground confirmation of granodiorite intrusives and Toodoggone volcanics, or of the geophysically inferred faults is recommended as a first stage for follow-up exploration on the property.

Exploration should initially consist of a program of geological prospecting and mapping, and geochemical soil sampling. Efforts should be concentrated along the low intensity magnetic trends and gradients which delineate and surround the faults illustrated on Figures 5 and 6. A limited amount of ground magnetometer and VLF-EM surveying should be carried out to precisely locate these faults in overburden areas.

Exploration should focus on the dominant northwest-southeast faults which bisect the property, particularly in the vicinity of interpreted or mapped granodioritic intrusives. Areas of primary interest should be: 1) the south-central area of **Mac III**, 2) the north-central area of **Hyfly I**, 3) the north-central area of **Mac III**, and 4) the southeast corner of **Hyfly II**.

Contingent upon favorable preliminary exploration results an induced polarization survey should be considered for delineating favorably anomalous areas of silica brecciation and sulphide mineralization. Induced polarization techniques have proven useful in this environment for detecting gold bearing silicified zones. Based on encouraging results, trenching and diamond drilling may be warranted.

Respectfully Submitted,

Dennis V. Woods, Ph.D., P.Eng.
Consulting Geophysicist

COST BREAKDOWN

The geophysical data was computer processed and analysed, and this report prepared for an all inclusive fee of $5,500.00. This total is based on a cost of $25/km for reprocessing magnetometer data.

150 km of Magnetometer data @ $25/km	$3,750.00
GEOPHYSICAL SUBTOTAL	**$3,750.00**
Interpretation & Report	$1,500.00
Drafting, reproduction, etc.	$ 750.00
TOTAL	**$6,000.00**
TOTAL ASSESSMENT VALUE OF THIS REPORT	**$6,000.00**

REFERENCES

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SCHROETER, T.G., 1981 — Toodoggone River, BCMEMPR Geological Fieldwork 1980, Paper 1981-1.

INSTRUMENT SPECIFICATIONS

HERZ TOTEM - 2A VLF-EM SYSTEM

Source of Primary Field:	-Global network of VLF "OMEGA" radio stations in the frequency range of 14 KHz to 30 KHz
Number of Channels:	Two; Field selectable by 100 Hz steps. Ex: Seattle, Washington at 24.8 KHz Annapolis, Maryland at 21.4 KHz
Type of Measurement:	Total Field Strength (Location of Conductors) Vertical Quadrature (useful in interpreting the quality and depth to a conductor) Horizontal Quadrature (orientation of field & structures)
Type of Sensor:	Ferrite antennae array of 3 orthoganal coils mounted in a fiberglass bird with preamp.
Output:	-0 to $\pm$ 1000 mV displayed on two switch selectable analogue meters. -noise monitoring light. - audio monitor speaker.

Filters:	Noise blanking spherics (lightning) Anti Aliasing filters (Adjacent Stations) Crystal Controlled Phase Lock loop digital tuning. 1 sec. output Time Constant.
Sensitivity:	130 micro V/m at 20 kHz.

INSTRUMENT SPECIFICATIONS

BARRINGER 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 air foil.

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 in housing, mounted on helicopter skid.

ii) Video Recorder:

Model:	Sony SLO-340
Power Supply:	12 volt DC / 120 volt AC (60Hz)
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:	KING KRA-10A Radar Altimeter
Power Supply:	27.5 volts DC
Output:	0-25 volt (1 volt /1000 feet) DC signal to analogue meter, 0-10 v (4mv/ft) analogue signal to microprocessor.
Mounting:	fixed to T.V. camera housing, attached to helicopter skid.

INSTRUMENT SPECIFICATIONS

DATA RECORDING SYSTEM

i) Chart Recorder

Type:	Esterline Angus Miniservo III Bench AC Ammeter - Voltmeter Power Recorder.
Model:	MS 413B
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 z-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 (Approximately 30 W).
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 DC signals 1,0 - 25 DC signals
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.

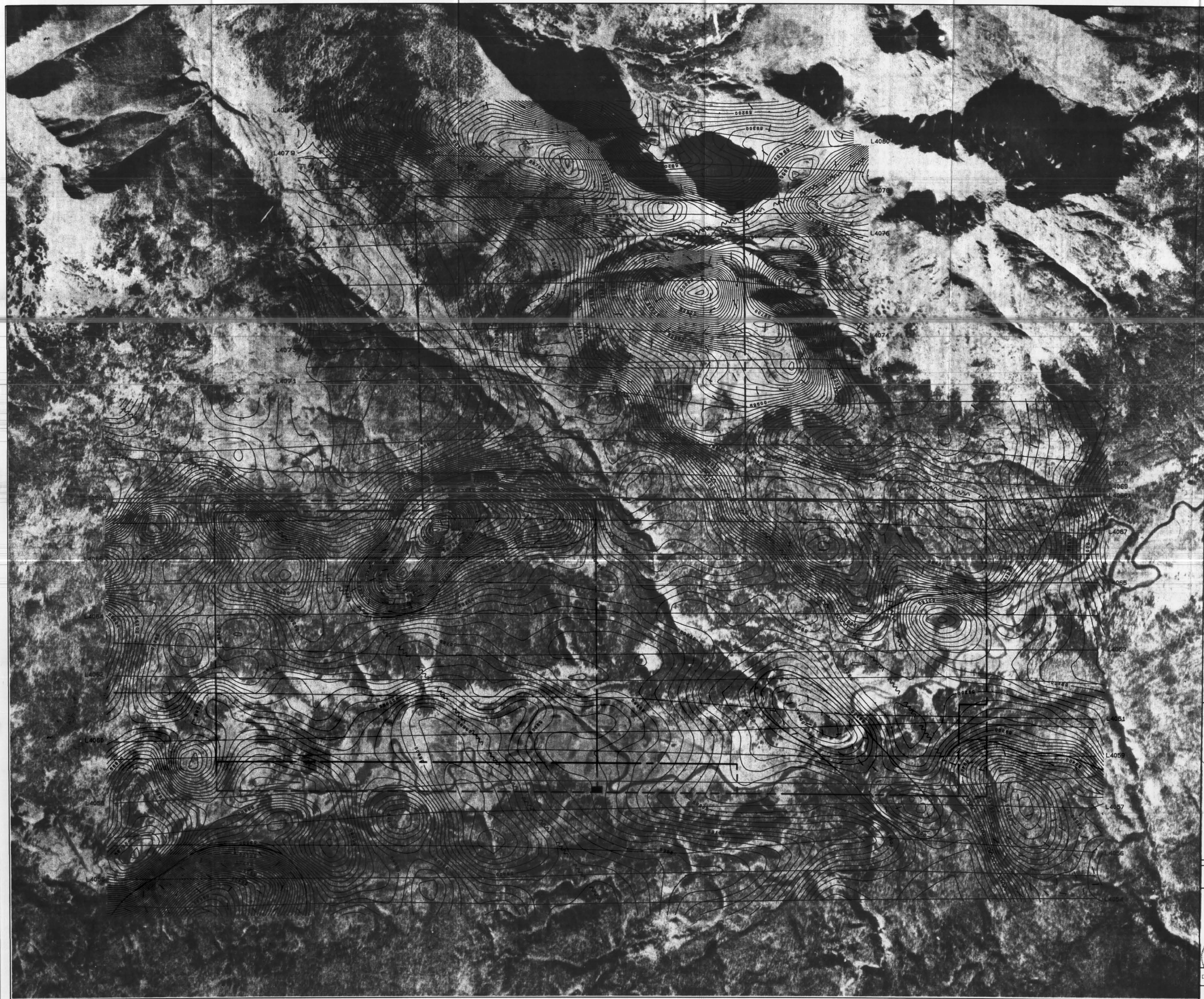
iii) Digital Magnetic Tape

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.

STATEMENT OF QUALIFICATIONS

NAME:	WOODS, Dennis V.
PROFESSION:	Geophysicist
EDUCATION:	B.Sc. Applied Geology Queen's University
	M.Sc. Applied Geophysics Queen's University
	Ph.D. Geophysics Australian National University
PROFESSIONAL ASSOCIATIONS:	Registered Professional Engineer Province of British Columbia
	Society of Exploration Geophysicists
	Canadian Society of Exploration Geophysicists
	Australian Society of Exploration Geophysicists
	President, B.C. Geophysical Society
EXPERIENCE:	1971-79 - Field Geologist with St. Joe Mineral Corp. and Selco Mining Corp. (summers). - Teaching assistant at Queen's University and the Australian National University.
	1979-86 - Professor of Applied Geophysics at Queen's University. - Geophysical consultant with Paterson Grant & Watson Ltd., M.P.H. Consulting Ltd., James Neilson and Assoc. Ltd., Foundex Geophysics Ltd. - Visiting research scientist at Geological Survey of Canada and the University of Washington.
	1986-88 - Project Geophysicist with Inverse Theory and Applications Inc. - Chief Geophysicist with White Geophysical Inc.



LEGEND :

Interpreted fault

Interpreted intrusives

GEOLOGICAL BRANCH
ASSESSMENT REPORT

N.T.S. 94E/6E

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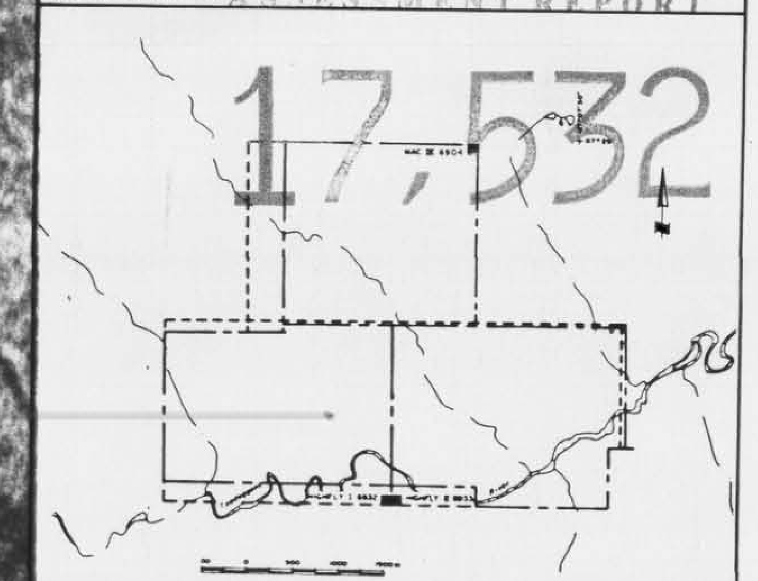


CLIVE ASHWORTH

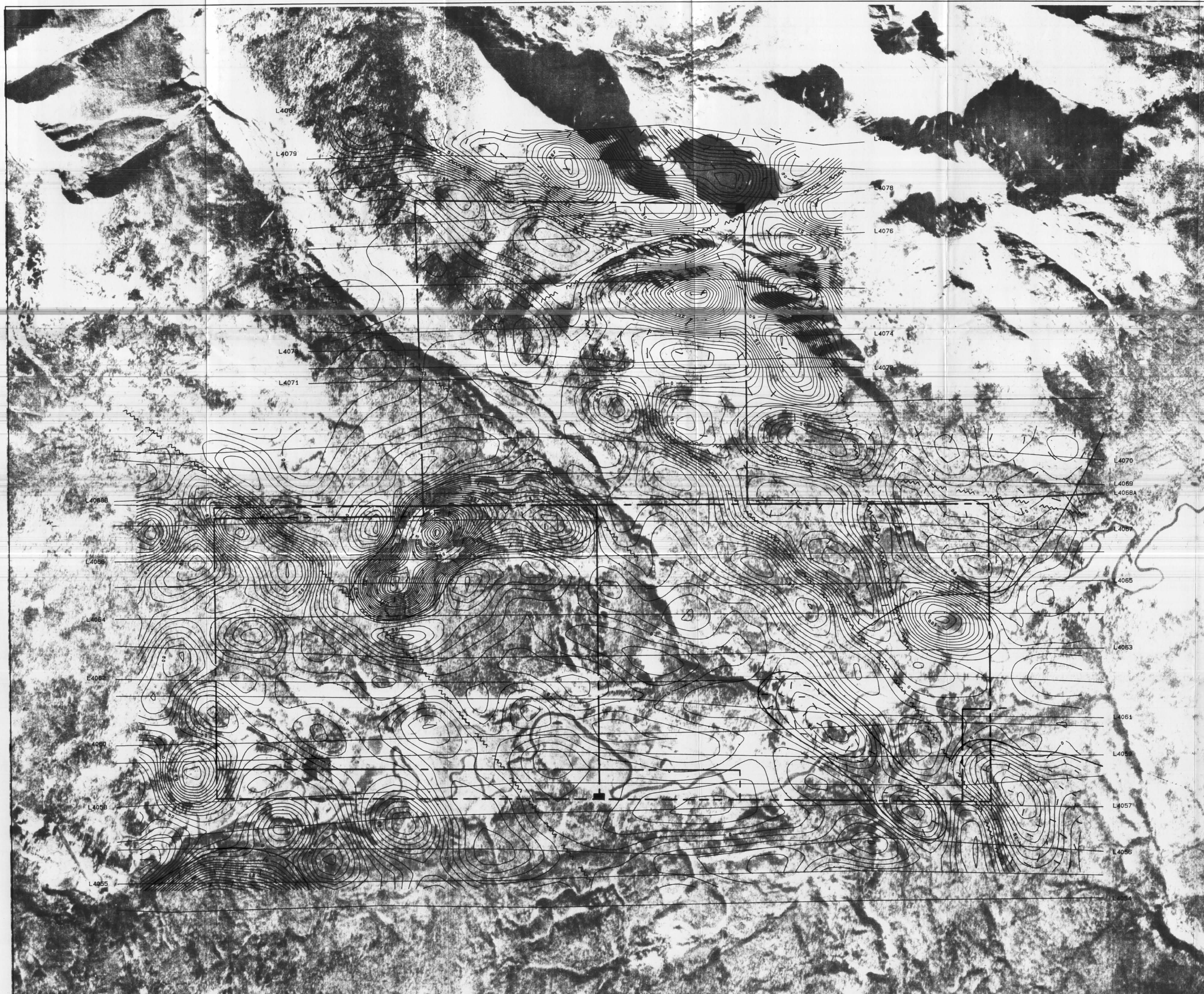
HYFLY I & II, MAC III CLAIMS
AIRBORNE MAGNETIC SURVEY
CONTOURED TOTAL FIELD

Scale 1: 10000.0

0 200 400 600 800 1000 M

Date: March 1988	Survey: Feb-Mar 1986	Figure 5

WESTERN GEOPHYSICAL AERO DATA LTD.



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LEGEND

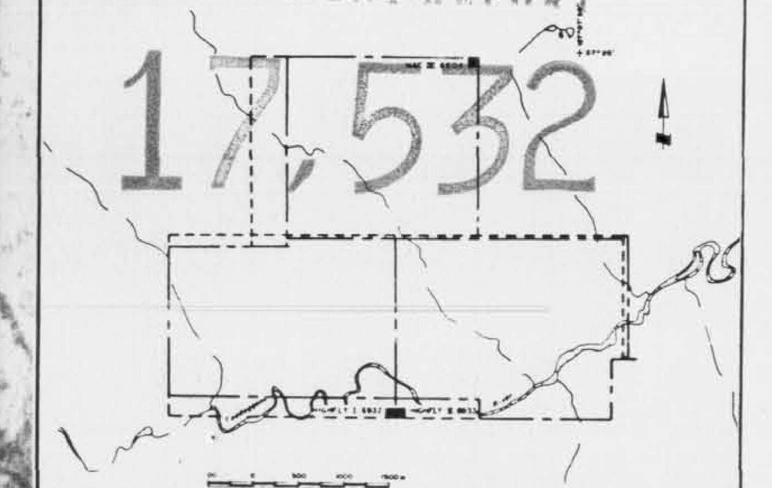
Interpreted fault

Interpreted intrusives

NTS 94E/6E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,532



CLIVE ASHWORTH

HYFLY I & II, MAC III CLAIMS
AIRBORNE MAGNETIC SURVEY
VERTICAL SECOND DERIVATIVE

Scale 1: 10000.0

0 200 400 600 800 1000 M

Date: March 1988	Survey: Feb-Mar 1988	Figure 6

WESTERN GEOPHYSICAL AERO DATA LTD.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. V. WOODS