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ASSESSMENT REPORT FOR THE GRADIOMETER GEOPHYSICAL SURVEY CONDUCTED ON THE UPPER SECTION OF 50 MILE, CREEK, BETWEEN JUNE 21st AND 26th, 1988

Placer Lease: PL-7565
Tag Holder: Robin Ellie
Location: 61.5 Km Southwest of Dawson City, Yukon Territory
Latitude: 63 53'
Longitude: 140 38'

At the Request of

Mr. Lorne Mollot
Tel.: (819) 684-2946

Author's Address:

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Toronto, Ontario
M5S 2M2

August, 1988

This report has been examined by the Geological Evaluation Unit under Section 41 Yukon Placer Mining Act and is recommended as allowable representation work in the amount of $ 5000.00.

W.R. Baage

for Chief Geologist, Exploration and Geological Services Division, Northern Affairs Program for Commissioner of Yukon Territory.

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ASSESSMENT REPORT ON THE JUNE, 1988, GRADIOMETER SURVEY OF THE UPPER PORTION OF 50 MILE CREEK, LEASE PL-7565

For

LORNE MOLLOT

1. INTRODUCTION

Between June 21th and June 26th, 1988, a magnetometer survey was conducted for Lorne Mollot, on the behalf of the the property lease holder, Robin Ellie. The lease surveyed by Mychelle Mollot and assistants was PL-7565.

The objective of the survey was to locate, on contour and profile maps, positive magnetic anomalies indicative of buried magnetite deposits.

The survey was conducted with a sampling interval of five metres. The line separation, along the 1000 m baseline, was fifty metres and the total line coverage was approximately 1.3 kilometers.

Due to the large area to be covered by the present and future surveys of the fifty mile valley it was decided to experiment with how far survey lines could be spaced and still achieve meaningful results.

This survey was consequently designed with a grid spacing of 50m, a distance, which was felt, might be the maximum allowable to permit the gathering of significant data.

This report describes the survey logistics, theory, field procedures, local and regional geology and office data processing. It also fulfills assessment requirements for lease PL-7565 under section 41 of the Placer Mining Act. The final presentation of the report includes contour, profile and plan maps.

2. SURVEY LOCATION AND ACCESS

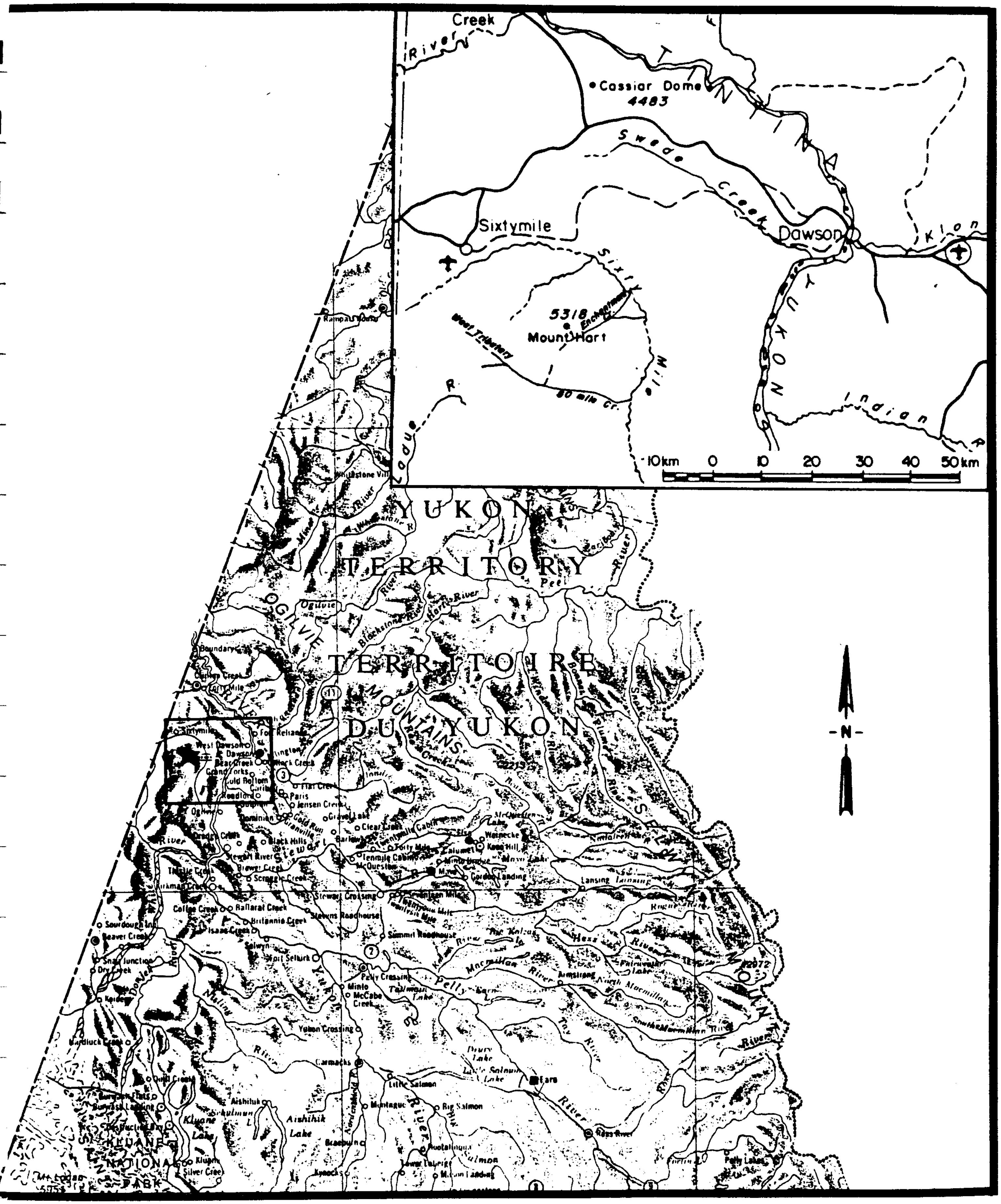
Post one of upper 50 Mile Creek lease, PL-7565, is located in the Fifty Mile valley, approximately 61.5 km southwest of Dawson city, Yukon Territory.

Figure 1 shows the location of the survey area with respect to nearby population centers at scale of 1:5,000,000.

Access to the grid was gained by helicopter out of Dawson.

2.1 Lease Information

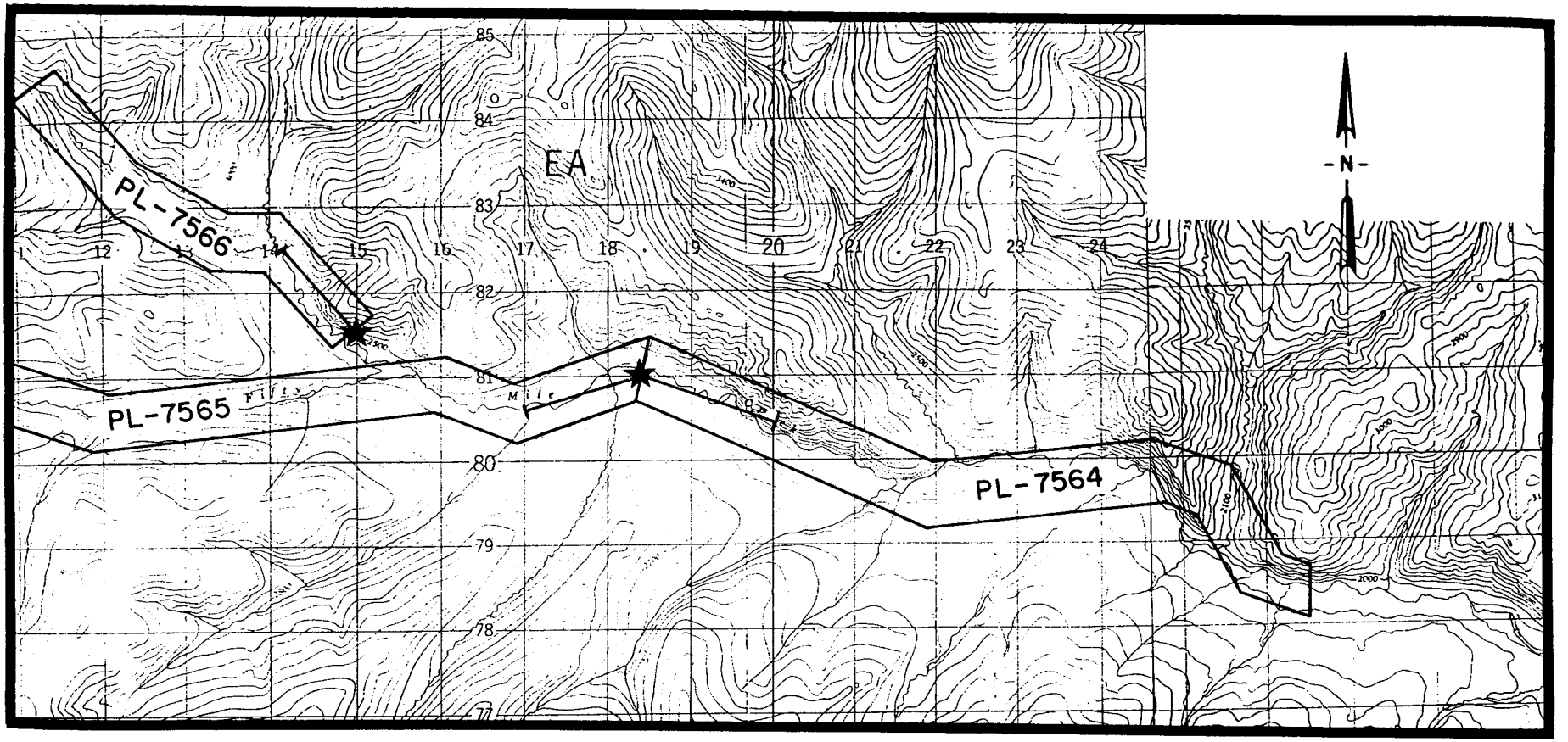
Lease Number: PL-7565
Tag Holder: Robin Ellie
Lease Length: 5 miles
Claim Sheet: 115-N-15



Scale 1 : 5,000,000

LOCATION MAP

Figure 1



Legend :

PL-7565 — Placer lease boundary, Lease number

3000 — Elevation contour

Creek, pond

★ — Placer lease post

GRID LOCATION MAP

Scale 1 : 50,000

Figure 2

3. SURVEY GRID AND COVERAGE

A property claim map and an outline of the survey grid may be found in Figure 3. The baseline of the grid, which begins at lease post 1, is oriented east-west. The survey lines running north-south are 50 metres apart. The grid has a total of 19 survey lines. Lines L-800W and L-850W were omitted due to cliff on the north side of the creek and steep embankment on the south. The steep embankment, due to stormy conditions prevalent throughout the duration of the survey, had begun to slump, making access in that area dangerous.

A detailed breakdown of the survey coverage follows in Table 1.

TABLE 1
PRODUCTION SUMMARY: MAGNETIC SURVEY

LINE	COVERAGE FROM	TO	LINE LENGTH (METRES)
L-1000W	90.0N	40.0S	130.0
L-950W	90.0N	00.0S	90.0
L-900W	40.0N	15.0S	55.0
L-750W	20.0N	10.0S	30.0
L-700W	30.0N	5.0S	35.0
L-650W	35.0N	00.0S	35.0
L-600W	15.0N	00.0S	15.0
L-550W	30.0N	20.0S	50.0
L-500W	30.0N	25.0S	55.0
L-450W	35.0N	25.0S	60.0
L-400W	50.0N	35.0S	85.0
L-350W	55.0N	35.0S	90.0
L-300W	55.0N	25.0S	80.0
L-250W	60.0N	10.0S	70.0
L-200W	35.0N	5.0S	40.0
L-150W	85.0N	25.0S	110.0
L-100W	90.0N	10.0S	100.0
L-50W	85.0N	5.0S	90.0
L-00W	80.0N	10.0S	90.0
Total:			1310.0

4. PERSONNEL

	FROM	TO
Ms. Mychelle Mollot	June 21, 1988	June 21, 1988
	June 25, 1988	June 26, 1988
Mr. Andrew Robinson	June 21, 1988	June 21, 1988
	June 25, 1988	June 26, 1988
Mr. Wayne Froughton	June 21, 1988	June 21, 1988
	June 25, 1988	June 26, 1988
Mr. Claude Turcotte	June 21, 1988	June 21, 1988
	June 25, 1988	June 26, 1988
Mr. Mark Bergeron	June 21, 1988	June 21, 1988
Mr. Grant Jenson	June 21, 1988	June 21, 1988

Ms. Mychelle Mollot - Geophysicist, B.Sc.(Eng), Queen's University. Ms. Mollot operated the EDA Omni IV Magnetometer and was responsible for data quality and the day-to-day operation and direction of the survey as well as the data processing and preparation of this report.

Mr. Robinson, Froughton, Bergeron, Jenson and Turcotte - Assistants. They cut and flagged the survey lines.

Mr. Carson Austin - Consulting Engineer, JVX Ltd., Mr. Austin produced the profile and contour maps from the office of JVX Ltd, Toronto, Ontario.

5. INSTRUMENTATION

An EDA OMNI IV proton precession magnetometer, with a sensitivity of 0.1 gamma, was selected for the survey. It was used in the total field and gradient modes.

The instrument records: total field and gradient readings, time of reading and station locality as programmed prior to the survey.

Changes in the ambient magnetic field with time were monitored and recorded by a second fixed EDA OMNI IV. The base station took measurements at 30 second intervals. The base station magnetic data was used to automatically correct the survey magnetic data for diurnal variations to a datum of 57000 gammas.

The magnetometer (gradiometer and total field) survey data were archived in the field on a Cordata microcomputer. At the conclusion of each day's data collection, data resident in the OMNI IV memory was transferred, via serial communication link, to the computer - thereby facilitating editing, processing and presentation.

6.0 GEOLOGY

6.1 Geomorphic Setting

50 Mile Creek is located in the Yukon Plateau Division of the Cordilleran Region. The region is characterized by drainage divides at about 3300 ft locally and rising to about 4500 ft. These divides are formed of crooked ridges separated by dendritic valleys and are drained by master streams from 1000 to 1500 feet above sea level. A few summits, locally called domes, with altitudes of about 5000 ft occupy ridge intersections.

The Yukon Plateau geomorphic province occupies the central or interior Yukon Territory, on both sides of the Tintina Trench (see Figure 1). Ridge and upland altitudes from 3000 to 5000 feet are common in the Yukon Plateau Division. The Division is bound on the north by the Olgivie Mountains where numerous summits are as high as 7000 feet. (Milner, 1980)

6.2 Regional Geology

50 Mile Creek is situated within the Yukon Crystalline Terrane which is the result of Triassic regional metamorphism, southwest of the Tintina Trench. The Tintina Trench is the topographic expression of a Mesozoic right lateral fault of some 250 miles displacement. (Milner, 1980)

6.2.1. Bedrock Geology

The premesozoic basement rocks of the region consist of the Klondike and Nasina series as well as ultramafic rocks.

The Klondike series consists of the Klondike Schists and the Pelly Gneisses. The Klondike Schists are: quartz-sericite schist, quartz-eye schist, chlorite schist phase, quartz carbonate-chlorite schist, amphibole-quartz schist, and amphibolite rock

The Pelly Gneisses are gneissic granite and mylonite.

The Nasina series consists of graphitic phyllite, black quartzite, black carbonate phyllite, white marble, and banded quartz rock.

The ultramafic rocks are peridotite serpentite and steatite.

Covering the basement rocks are the post mesozoic covering rocks. These consist of the lower Tertiary sedimentary rocks, lower Tertiary igneous rocks (basic dikes, basic to intermediate flows and pyroclastics, acidic igneous rocks and quartz veins) and upper, tertiary and quartenary sedimentary rocks. (Milner, 1980)

6.3 Local Geology

All of the survey area is located within the Pelly Gneiss geological unit, as defined on Geological Survey of Canada Map 18-1973 (See Figure 4).

To the south of the survey area, indicated by white, are areas which represent the limits of geological mapping. North of the survey area are the Chert and Metachert, Klondike Schists, Carmacks Group, Diorite, and Hornblende Monzonite geological units.

The definitions of the geological units are as follows:

Pelly Gneiss- strongly foliated to gneissic muscovite chlorite biotite granodiorite; minor augen gneiss; includes some undifferentiated foliated muscovite quartz monzonite.

Chert and Metachert- grey weathering pale green and purplish brown hornfelsed argillaceous chert with lesser interbedded chloritic phyllite and marble.

Carmacks Group- brown weathering, green and red andesite, basalt and flow breccia.

Diorite- dark brown, fine-grained diorite and gabbro.

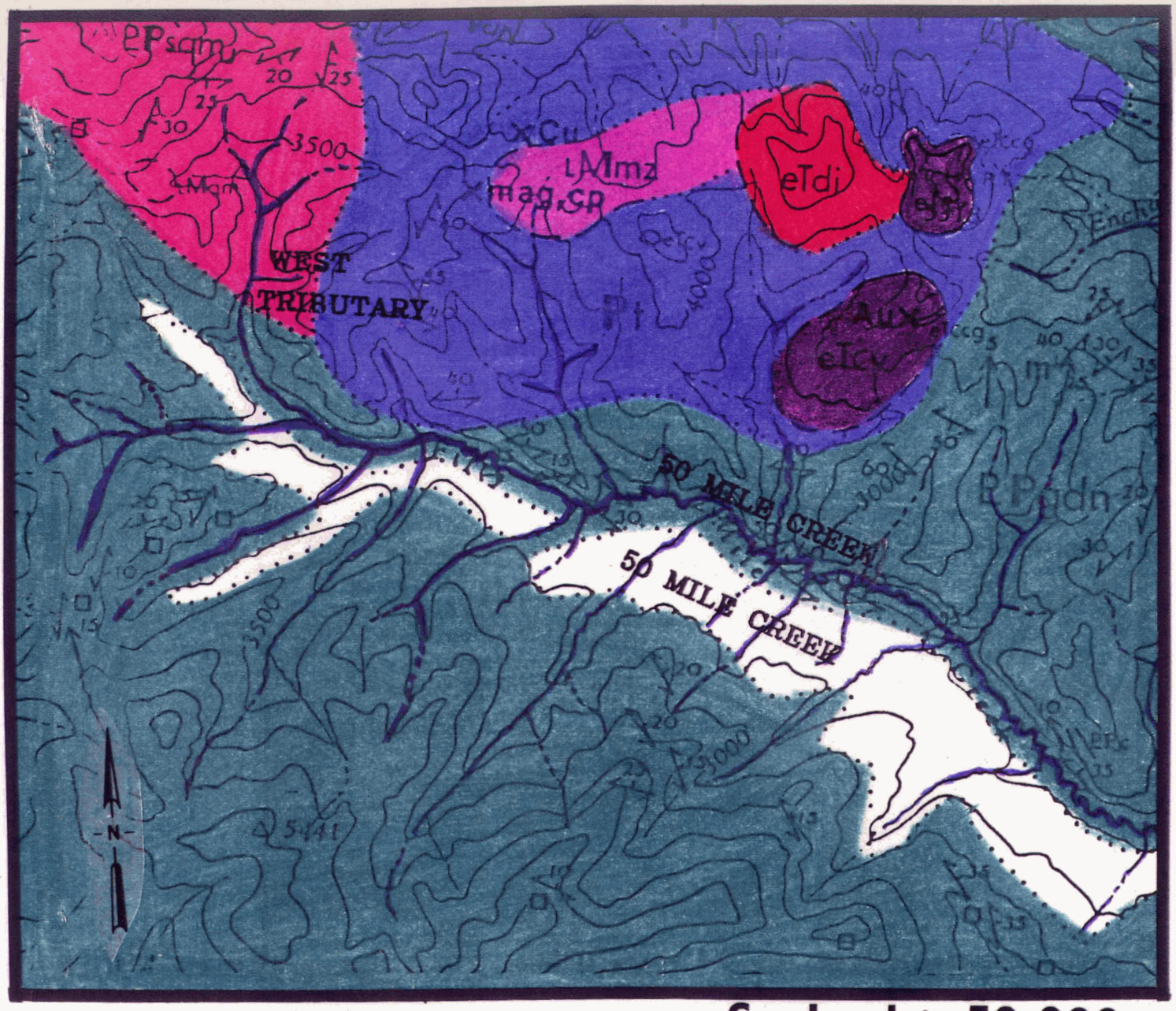
Hornblende Monzonite- medium-grained equigranular hornblende monzonite.

Klondike Schist- black and orange weathering well foliated pale green chlorite, muscovite, quartz schist.

7. THEORY

7.1 Earth's Magnetic Field

The earth's magnetic field is similar in form to that of a bar magnet (see Figure 4). The origin of the field is not well understood, but



Geology map

Scale 1 : 50,000

LEGEND

Chert and Metachert: grey weathering pale green and purplish brown horfelsed argillaceous chert with lesser interbedded chloritic phyllite and marble

Klondike Schists: black and orange-weathering well foliated pale green chlorite muscovite quartz schist; includes augen gneiss and amphibolite

Pelly Gneiss: strongly foliated to gneissic muscovite chlorite biotite granodiorite; minor augen gneiss; includes some undifferentiated foliated muscovite quartz monzonite

Carmacks Group: brown weathering, green and red andesite, basalt and flow breccia

Diorite: dark brown, fine-grained diorite and gabbro

Hornblende Monzonite: medium-grained equigranular hornblende monzonite

Figure 3

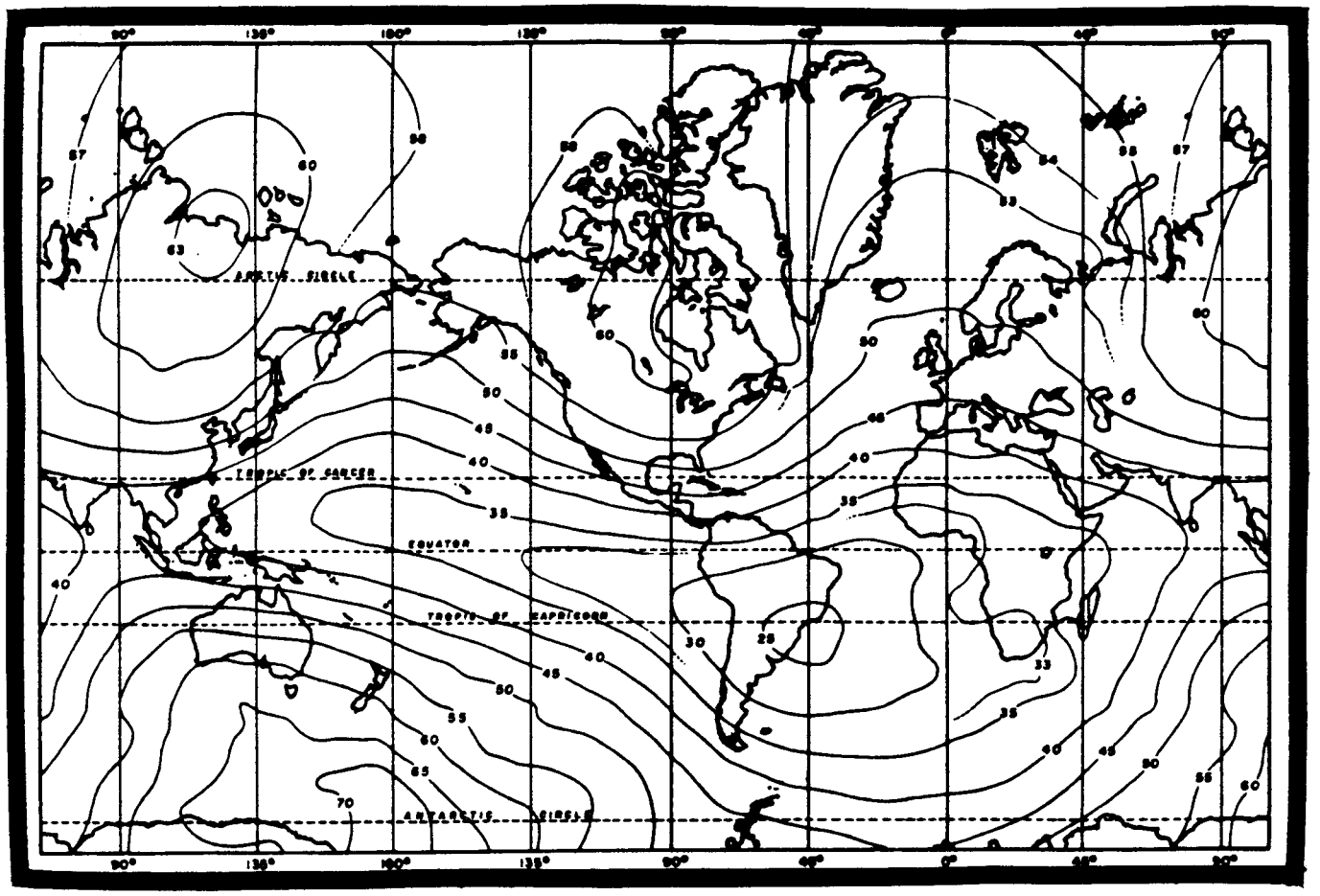


Figure 5

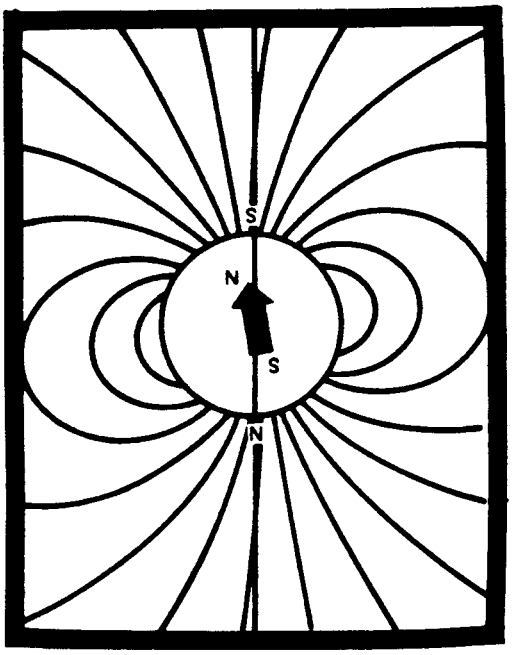


Figure 4

thought to be due to currents in a fluid conductive core. The flux lines of the geomagnetic field are vertical at the north and south magnetic poles where the strength is approximately 60,000 gammas. In the equatorial region, the field is horizontal and its strength is approximately 30,000 gammas (see Figure 5).

7.2 Time variations

The primary geomagnetic field is, for the purposes of normal mineral exploration surveys, constant in space and time. Magnetic field measurements may, however, vary considerably due to short term external magnetic influences. The magnitude of these variations is unpredictable. In the case of sudden magnetic storms, it may reach several hundred gammas over a few minutes. It is therefore necessary to take continuous readings of the geomagnetic field with a base station magnetometer for the duration of the survey.

7.3 Magnetometer Method

The magnetometer method of exploration consists of measuring the magnetic field of the earth as influenced by rock formations having different magnetic properties and configurations (Schultz, 1987).

For this survey the vertical magnetic gradient was measured, as well as the total field, to provide information on the depth of the source. This information arises from the observation that long wavelength variations in gradient profiles follow the total field most closely, and from noting that long wave variations are due to deeper sources.

7.4 Measured Field

The measured field is the vector sum of primary, induced and remnant magnetic effects. Thus, there are three factors, excluding geometric factors, which determine the magnetic field. These are the strength of the earth's magnetic field, the magnetic susceptibilities of the rocks and minerals present and their remnant magnetism.

The intensity of magnetization induced in rocks by the geomagnetic field F is given by:

$$I = kH$$

where:

I is the intensity of magnetization
k is the volume magnetic susceptibility
H is the magnetic field intensity

The susceptibilities of rocks are determined primarily by their magnetite content since it is strongly magnetic and widely distributed.

The remnant magnetization of rocks depend both on their composition and previous history. Whereas the induced magnetization is nearly always parallel to the direction of the geomagnetic field, the natural remnant magnetization may bear no relation to the present direction and intensity of the earth's field. The remnant magnetization is related to the direction of the earth's field at the time the rocks were last magnetized. Interpretation of most magnetometer surveys is normally done by assuming no remnant magnetic component.

7.5 Proton Magnetometer

The proton precession magnetometer is so named because it utilizes the precession of spinning protons or nuclei of the hydrogen atom in a sample of hydrocarbon rich fluid (Coleman fuel was used in this survey) to measure the total magnetic intensity. The spinning protons in the fluid behave as small, spinning magnetic dipoles, These magnets are temporarily aligned or polarized by application of a uniform magnetic field generated by a current in a coil of wire. When the current is removed, the spin of the protons causes them to precess about the direction of the ambient or earth's magnetic field, much as a spinning top precesses about the gravity field.

The precessing protons then generate a small signal in the same coil used to polarize them, a signal whose frequency is precisely proportional to the total magnetic field intensity and independent of the orientation of the coil, i.e., sensor of the magnetometer. The proportionality constant which relates frequency to field intensity is a well known atomic constant: the gyromagnetic ratio of the proton. The precession frequency, typically 2000 Hz, is measured by modern digital counters as the absolute value of the total magnetic field intensity with an accuracy of 0.1 gamma, in the earth's field of approximately 50,000 gammas.

8. DATA PROCESSING AND PRESENTATION

8.1 Data Processing

To allow for the computer processing of the magnetic data, the data resident in the OMNI IV's memory was transferred via a serial communication link to the Corona computer - thereby facilitating editing, processing and presentation operations. All the data was archived on floppy disk.

All data has been reviewed and the necessary editing has been performed. The corrected data have been ink-plotted in plan as contour and offset profiles on a Nicolet Zeta drum plotter, interfaced to an IBM PC/XT microcomputer.

8.2. Data Presentation

Contoured and offset profile plan maps of the corrected data were computer generated and fine-drafted on mylar, at a scale of 1:1000 with appropriate contour intervals.

The final presentation products are as follows:

Table 2: Presentation Plate Index

Plate 1: Total Field Magnetics and gradient Contour Maps, scale 1:1000
: Total Field Magnetics, and Gradient, Offset Profiles, scale 1:1000

9.0 INTERPRETATION AND RECOMMENDATIONS:

9.1 Introduction

Although placer gold deposits cannot be located by a magnetometer survey, the common accessory mineral, magnetite, can. Alder and Alder (1985) demonstrate the correlation between positive magnetic total field anomalies with gold content in pay channels in the Keithley Creek and other areas in British Columbia and Alaska. (Schultz, 1987)

The aim of the interpretation is to locate areas, on the profile and contour maps, which contain placer deposits of magnetite. These areas would be considered the most promising in terms of potential gold content.

The most promising areas of the survey grid are where a local total field high and a vertical gradient high occur together. Line to line correlations between simultaneously occurring highs were made and zones were defined depending on their strike extent.

These zones were classified, using the guidelines below, as either high or medium priority exploration zones and marked on both profile and contour maps. Recommendations, as to the most promising targets for further exploration by shafting or drilling, were given.

High Priority Zone: Anomalies in high priority zones are well defined, with short wave lengths. They correlate over three lines or more. The targets within these zones should be considered first for further exploration.

The most promising areas of the survey grid are where a local total field high and a vertical gradient high occur together. Line to line correlations between simultaneously occurring highs were made and zones were defined depending on their strike extent.

These zones were classified, using the guidelines below, as either high or medium priority exploration zones and marked on both profile and contour maps. Recommendations, as to the most promising targets for further exploration by shafting or drilling, were given.

High Priority Zone: Anomalies in high priority zones are well defined, with short wave lengths. They correlate over three lines or more. The targets within these zones should be considered first for further exploration.

Medium Priority Zone: Anomalies in medium priority zones are well defined, with short wave lengths. They correlate over two lines. The targets in these zones should be considered for further exploration after those in the high priority zones.

9.2 Interpretation

Refer to Plate 1 (in the plastic pouch), which contains the contour and profile maps of the total field and vertical gradient data.

Zone A:

Zone A is large and well defined. It is characterized, on the profile map, by well defined, medium amplitude, total field and vertical gradient anomalies. The zone extends from line L-00W, Station 10S, to line L-100W, Station 20S, and trends east-west.

Recommendation:

High priority, shaft or drill on line L-100W at station 20S.

Zone B:

Zone B is medium sized and well defined. It extends from line L-200N Station 45W to line L-250N station 30W. On line 250W both the gradient and total field anomalies were local highs, while on line L-250W the gradient anomaly is a line high and the total field anomaly is local high

Recommendation: Medium Priority Zone, drill or shaft at station 45N on line L-200W.

10.0 CONCLUSION

A Gradiometer survey was conducted on the upper 50 Mile lease, PL-7564 at the request of Mr. Lorne Mollot, on June 21st and between June 25th and June 26th, 1988.

The line and station spacings were fifty meters and five meters respectively. The line spacing was not sufficiently small to delineate small zones, but was large enough to delineate medium to large zones.

Line to line correlations of simultaneously occurring gradiometer and magnetometer high were made. Each correlation was called a zone and given a label. These zones are believed to be the magnetic response of placer deposits of magnetite. Since magnetite is a common accessory mineral of gold these zones may also contain placer deposits of gold.

Recommendations for drilling or shafting exploration were given as summarized below.

Summary of Recommendations:

Zone A: High priority, shaft or drill on line L-100W at station 20S.

Zone B: Medium Priority Zone, drill or shaft at station 45N on line L-200W.

Further gradiometer exploration of the survey grid, to delineate small placer deposits of magnetite, is recommended at a line spacing of 25 meters.

11.0 STATEMENT OF ASSESSMENT COSTS

For gradiometer survey conducted on the upper 50 Mile placer lease PL-7565

Line Cutters	
5 cutters, 3 days @ $150/day/cutter: (Includes administrative overhead)	$2250.0
Geophysicist	
Mychelle Mollot, BSc.(Eng), 3 days @ $400/day:	1200.0
Equipment Rental	
EDA Magnetometer plus base station	279.0
Computer, printer and radio	117.0
All Terrain Vehicles	300.0
Purchased Items	
Batteries, hip chain, hip chain thread, flagging tape	75.0
Transportation	
Helicopter*	1300.0
Equipment Shuttle to and from Dawson	
Camp Costs	
Food 5 people, 3 days @ $25.0/day/person	375.0
Camp gear, Prospector tents, stove, cooking utensils, etc.	300.0
Report Preparation	
Report writing, drafting, computer consultant, map and figure preparation, binding and photocopying	1250.0
TOTAL COST OF 1988 ASSESSMENT WORK:	$7446.0

* Because a helicopter was used to access all 50 mile leases, surveyed at the request of Mr. Lorne Mollot, during June, the cost of the return trip from Dawson City by helicopter has been divided equally between the leases.

If there are any questions with regard to the survey please contact the undersigned.

Respectfully Submitted,

Mychelle A. Mollot, B.Sc.(Eng)
Consulting Geophysicist

GRADIENT PROFILE

TOTAL FIELD PROFILE

GRADIENT CONTOUR

TOTAL FIELD CONTOUR

Cliff

METRES

120094	LORNE MOLLOT
(47)	WEST SOML 1
	PL-7565
TOTAL FIELD MAGNETIC SURVEY PLAN MAP VERTICAL MAGNETIC GRADIENT PLAN MAP	
MAG CONTOUR INTERVALS = 10 & 50 GAMMAS MAG POSTED BASE VALUE = 57500 GAMMAS GRADIENT CONTOUR INTERVALS = 2 & 10 EDM OMNI IV	
SCALE 1 : 1000	
SURVEY BY MOLLOT LTD. JUNE 1988	COMPILATION BY JVX LTD. AUGUST 1988
PLATE 1	