COMINCO LTD.

EXPLORATION
NTS 105 G/2

WESTERN DISTRICT

093 797

1997 ASSESSMENT REPORT

RIFE PROPERTY

GEOPHYSICS

WATSON LAKE M.D., YUKON

PELLY MOUNTAINS AREA

WORK PERIOD:
MAY 8, 1997

LATITUDE: 61°10'

LONGITUDE:130°35'

NOVEMBER, 1997

DAVID C. HALL

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 3000.00.

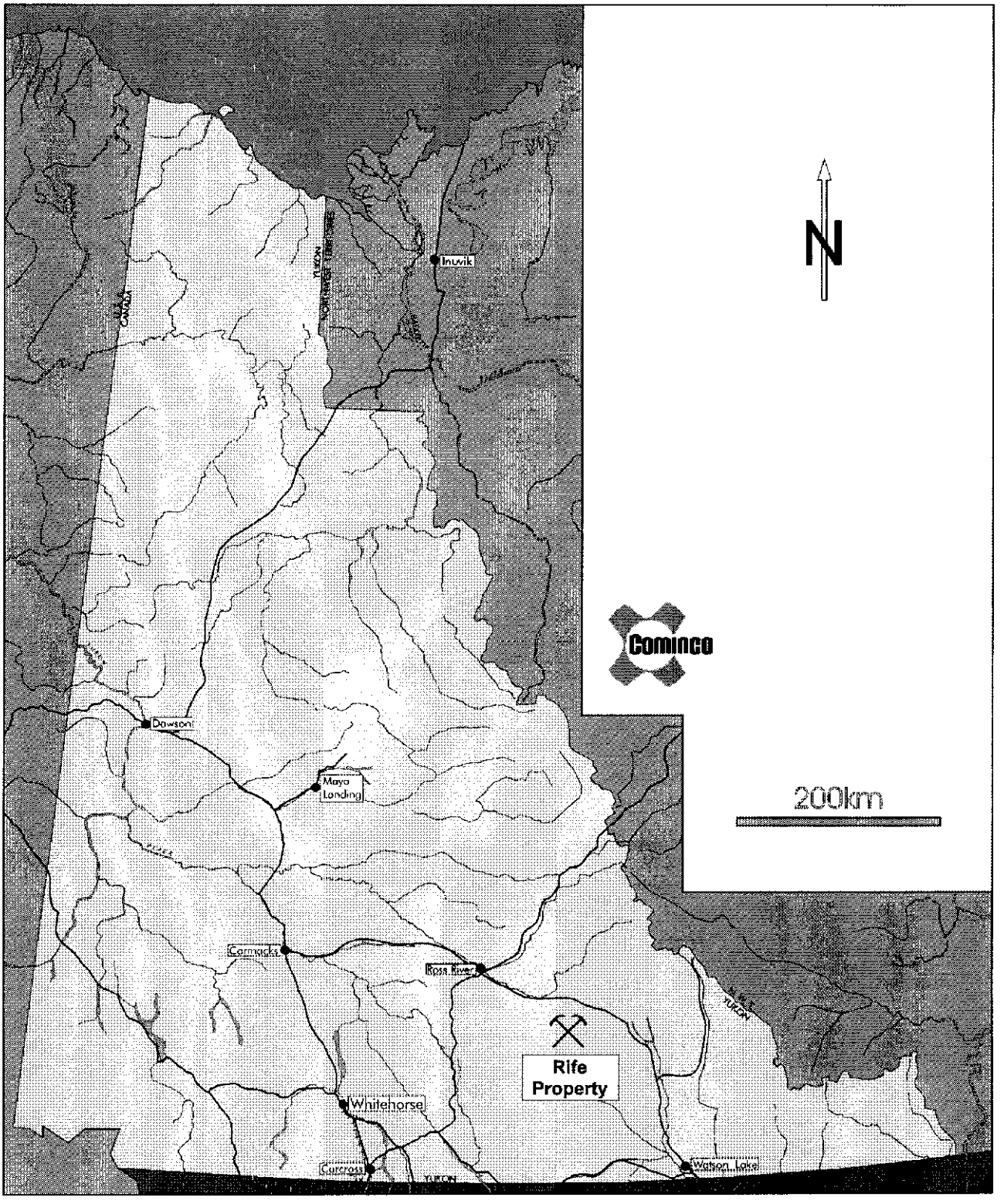
for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

TABLE OF CONTENTS

FIGURES

APPENDICES

ATTACHMENTS



Drawn by:		Traced by: a. m. a.	
Revised by:	Date:	Revised by:	Date:

RIFE
PROPERTY LOCATION

105 G/2

Scale: **As Shown** | Date: **August 1997** | Plate: **1**

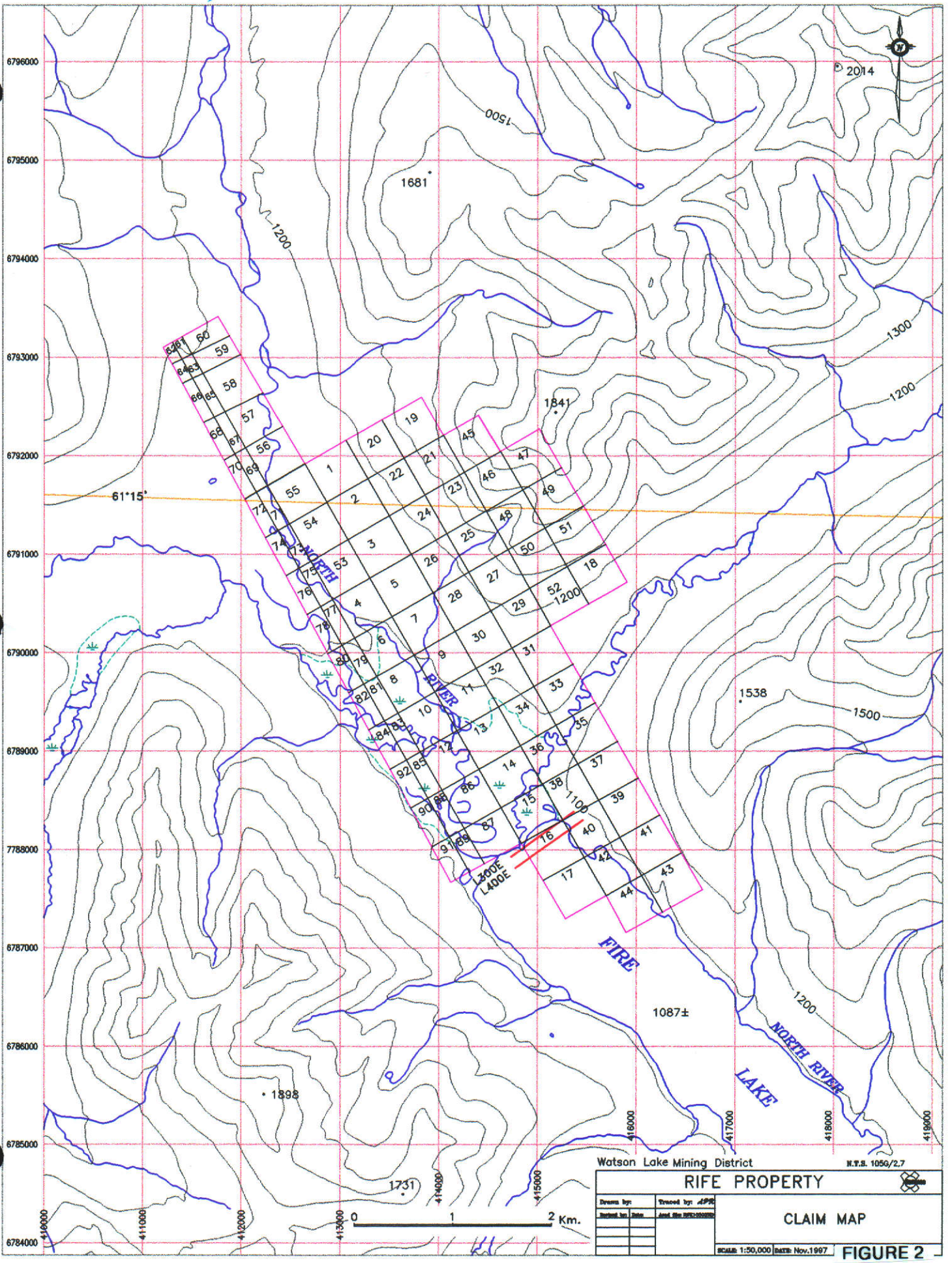

2014
1500
1681
1200
1300
1841
61°15'
NORTH
RIVER
1538
1087±
FIRE
LAKE
NORTH RIVER
1898
1731
L300E
L400E
Watson Lake Mining District
N.T.S. 105G/2,7
RIFE PROPERTY
CLAIM MAP
SCALE: 1:50,000
DATE: Nov.1997
0 1 2 Km.

FIGURE 2

Cominco Ltd.

Exploration
NTS: 105 G/2

Western Canada
November, 1997

1997 ASSESSMENT REPORT
RIFE PROPERTY, YUKON TERRITORY

1.0 SUMMARY

The RIFE property is located northwest of Fire Lake, 25 kms south of Cominco Ltd.'s ABM VHMS Deposit and approximately 120 kms southeast of Ross River. The property was staked to cover airborne geophysical targets identified during a Cominco Ltd. survey conducted in early 1994. Ground based geophysical surveys were conducted in 1994 and 1995 to define particular airborne targets. The latest survey conducted on May 8, 1997 consists of HLEM/MAG and gravity measurements on Fire Lake.

The rocks underlying this part of the southeastern Yukon Territory are thought to be part of the Yukon Tanana Terrane (YTT). The YTT consists primarily of a layered sequence of metamorphosed rocks composed of pre-Devonian quartzite, pelitic schist and minor marble. This sequence is termed the "lower unit" and is overlain by a late Devonian to mid-Mississippian, "middle unit" made of carbonaceous phyllite and schist with interbanded mafic and locally significant, felsic metavolcanics. The "upper unit" is Pennsylvanian marbles and quartzites. Volcanism within the "middle unit" was accompanied by the intrusion of 2-3 late Devonian to Mississippian, mafic to felsic metaplutonic suites. Felsic volcanics of the "middle unit" host Cominco Ltd.'s ABM VHMS Deposit.

The RIFE property itself, exposes an interval of mixed felsic and mafic metavolcanic gneissic schists and phyllites. Previous work on this property has included regional mapping and geochemical sampling by Cominco Ltd. sporadically since 1977 as well as several Minfile notations on this area.

2.0 LOCATION AND ACCESS

The RIFE property extends 6 kms northwest from Fire Lake. This area is about 23 kms south of Cominco Ltd.'s ABM VHMS Deposit and approximately 120 kms southeast of Ross River (Figure 1). The gravel, all-weather Robert Campbell Highway provides access to within 45 kms of the property. Direct access is by helicopter.

3.0 PROPERTY AND OWNERSHIP

The RIFE property is composed of 92 units, and are 100% owned by Cominco Ltd. (Figure 2).

NAME	UNITS	CLAIM NO.	DUE DATES
RIFE 1-44	44	YB50189-232	JUNE 15, 2002
RIFE 45-52	8	YB51206-213	JUNE 15, 2002
RIFE 53-92	40	YB84663-702	APRIL 15, 1998

4.0 PREVIOUS WORK

The RIFE property covers an area at the north end of Fire Lake which was previously staked by Atlas Exploration in 1966 (Minfile #33; Tak, #68; Ash) following an AEM/mag survey. Atlas

conducted ground geophysics, mapping and soil sampling. An EM anomaly was located in an area of extensive overburden and no mineralization was found.

The most significant showing in the RIFE area is the Fyre showings (Minfile #34) located on the adjoining claim block to the east. The area was initially staked by Cassiar Asbestos Corp. in 1960. Most recently Placer Dome Exploration optioned the property from Welcome North Resources Inc. in 1990. Mapping, soil surveys, along with airborne and ground geophysics were done in 1990/91 before the ground was dropped in 1992. The occurrence appears to be a Besshi-style VHMS deposit hosted in a complex package of Yukon Tanana Terrane mafic metavolcanics.

Previous work in this area by Cominco Ltd. included regional geochemical samping in 1977 followed by staking in 1994 based on an AEM/Mag survey flown in that year. Ground geophysical work was also done in 1994 and outlined a gravity anomaly showing a zone with a 0.3 mgal response. Cominco Ltd. also did geological mapping, geochemical sampling and diamond drilling of the RIFE project in 1996. Outcrop on the RIFE property is poorly exposed and restricted to ridges and hill slopes. The drilling done in 1996 suggested that the grid established near the drill hole should be extended further to the south to define a gravity anomaly that was identified in the 1994 geophysical work.

5.0 REGIONAL GEOLOGY

The YTT consists of a sequence of metamorphosed rocks comprising a *"lower unit"* (3l) of pre-Devonian quartzite, pelitic schist and minor marble, a late Devonian to mid-Mississippian *"middle unit"* (3F) comprising carbonaceous phyllite and schist with interbanded mafic and, locally significant, felsic metavolcanics (3G), and an *"upper unit"* of Pennsylvanian marbles and quartzite. Volcanism within the *"middle unit"* was accompanied by the intrusion of 2-3, late Devonian to Mississippian, mafic to felsic metaplutonic suites (Simpson Range suite and augen and monzonitic orthogneisses). This sequence appears to reflect stable platformal or shelf sedimentation with an intervening period of mafic to felsic arc volcanism developed within a more reduced basinal setting. Felsic volcaniclastics of the *"middle unit"* are host to Cominco's ABM VHMS Deposit.

The late Devonian to Triassic Slide Mountain Terrane (SMT) comprises a heterogeneous package of mafic to ultramafic plutonic rocks, mafic volcanics, massive carbonate and chert. This sequence was structurally emplaced as thrust bounded klippen on YTT rocks or as thrust slices imbricated within YTT rocks during a period of crustal shortening.

Late Triassic immature clastics comprising micaceous argillite, siltstone and sandstone unconformably(?) overlie the deformed and metamorphosed YTT rocks. These sediments are often closely associated with SMT volcanics and are invariably in fault contact with YTT rocks.

The SMT, Late Triassic sediments and Late Triassic to Middle Jurassic plutons are all affected by a period of Middle Jurassic to Late Cretaceous thrust faulting, during which the Finlayson Lake Fault Zone was formed. This complex fault zone contains both thrust and steep, transcurrent (?) faults and separates the YTT from autochthonous North America (Mortensen, 1983a; Mortensen and Jilson, 1985).

6.0 1997 FIELD WORK

In order to further evaluate the response from the 1994 airborne survey it was decided to extend coverage over Fire Lake itself. Thus on May 8, 1997 a Cominco crew based out of the KZK camp (27 km to the north) put in 2 lines over the ice and carried out HLEM/MAG and gravity measurements. (see figure 2 for line locations)

7.0 RIFE PROPERTY GEOPHYSICS

The May, 1997 survey consisted of 1.3 kms of horizontal loop electromagnetic, total field magnetic and gravity readings over the north end of Fire Lake. The survey was designed to cover a broad aeromagnetic feature located under the lake. Results of the ground magnetic survey indicate elevated readings in the order of 150 nT over a distance of several hundred metres (figure 4). Conductivity is minimal (figs. 3A, 3B, 3C) and the gravity response (fig. 5) does not indicate anomalous densities.

8.0 CONCLUSIONS AND RECOMMENDATIONS

On May 8, 1997 a Cominco Ltd. geophysical crew carried out 1.3 kms of HLEM/MAG and gravity readings on the ice at the north end of Fire Lake for the purpose of extending previous survey coverage and attempting to further define an aeromagnetic anomaly. Results were not encouraging and at this stage no further work is recommended.

Report by: David C Hall

D.C. Hall
Geophysicist

Endorsed by: Derek Rhodes

D. Rhodes
Senior Geologist

Approved for Release by: D W Moore

D.W. Moore
Manager, Exploration
Western Canada

Distribution:

[2] Mining Recorder
[1] Western District, Central Files

9.0 REFERENCES

HOLROYD, R.W., 1994. REPORT ON 1994 GEOPHYSICAL SURVEYS, PELLY MTN PROPERTY, WATSON LAKE M.D., YUKON; Cominco Report

JACKISCH, I , 1995. ASSESSMENT REPORT: GEOPHYSICAL SURVEYS ON THE CHIT, DOT, JIG, LING, RIFE AND ZOO CLAIMS OF THE PELLY MTN PROPERTIES, WATSON LAKE M.D., YUKON ; Cominco Report

MORTENSEN, J. K., 1983a. AGE AND EVOLUTION OF THE YUKON-TANANA TERRANE, SOUTHEASTERN YUKON TERRITORY [Ph.D. Thesis]; Santa Barbara, University of California, 155 p.

MORTENSEN, J. K. AND JILSON, G. A., 1985. EVOLUTION OF THE YUKON-TANANA TERRANE : EVIDENCE FROM SOUTHEASTERN YUKON TERRITORY; Geology, 13, p. 806-810.

APPENDIX I

STATEMENT OF EXPENDITURES

FIRE LAKE SURVEY, MAY 1997

RIFE CLAIMS

1. STAFF COSTS		$1,000.00
2. HELICOPTER		$1,500.00
3. EQUIPMENT		$ 200.00
4. DOMICILE		$ 350.00
	TOTAL	**$3,050.00**

APPENDIX II

CERTIFICATION OF QUALIFICATIONS

I, DAVID C. HALL, of 3476 W. 22nd Avenue, in the City of Vancouver, in the Province of British Columbia, do hereby certify:

i. THAT I graduated with a B.Sc., Honours in Geophysics from the University of Manitoba in 1976.

ii. THAT I have been actively practising Geophysics from 1976 to 1997, and am presently an employee of Cominco Ltd.

David C. Hall

David C. Hall, B.Sc.
Geophysicist

November, 1997

APPENDIX III-GEOPHYSICAL EQUIPMENT AND PROCEDURES

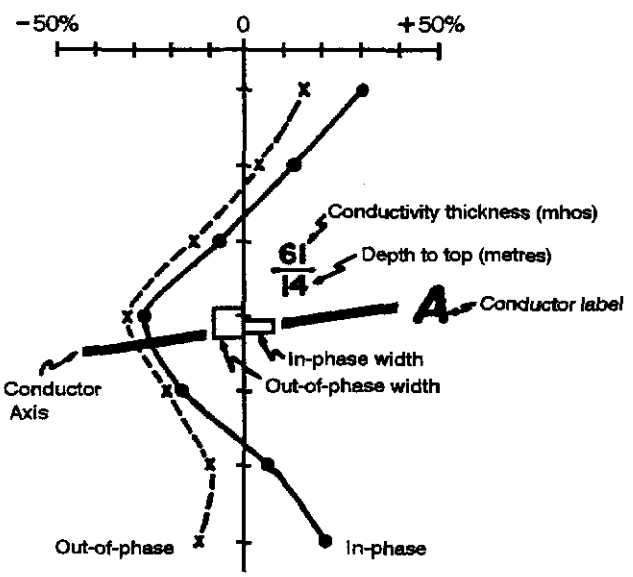
HORIZONTAL LOOP ELECTROMAGNETIC SURVEY

The HLEM system used was a Max-Min I-10 and a MMC data logger, manufactured by Apex Parametrics Ltd. The survey employed a 150 metre coil spacing. Three frequencies: 440, 1760, and 3520 Hz, were read at a 25 metre station interval.

For data collection, the receiver (Rx) and transmitter (Tx) were simultaneously tilted in a coplanar orientation paralleling the topographic slope (horizontal loop mode). The Rx-Tx separation of 150 metres was kept constant by using the interconnecting reference cable as a chain.

The HLEM results are presented in stacked profile form on 1:5000 plan maps, one map for each frequency. Data points are plotted half way between the Tx-Rx location. In-Phase (IP) data points are indicated by dots joined by a solid line; Out-of-Phase (OP) data is indicated by a dashed line. The conductor width, conductivity-thickness, and depth to top are discussed below using the lowest frequency (usually 440 Hz) that adequately defines the conductor. An interpretation legend which describes these features is shown below.

A conductor will show a negative IP and/or OP trough of width (with respect to background values) equal to that of the conductor width plus the length of the coil separation. The IP and OP widths due to a conductive source are shown, respectively, above and below the zero line. The shallower a conductor is from the surface, the higher will be the amplitude of the IP and OP responses. Better conductors will respond on progressively lower frequencies whereas poor conductors are seen only on the higher frequencies. A higher IP/OP response amplitude ratio is also indicative of better conductance.



HLEM INTERPRETATION LEGEND

MAGNETIC SURVEY

The instrumentation for the magnetic survey consisted of a pair of GSM-19 magnetometres manufactured by GEM Systems of Ontario. One of these was set up as a recording base station (taking readings every 3 sec.) and the other as a field unit taking measurements at each point of the survey grid. The field magnetometer and base were synchronized so that a field reading was taken at the same instant as a base station record. Readings on the grid were taken every 12.5 metres, which was decreased to every 5 metres in locations where the magnetic response changed rapidly. At the end of a survey day the two units were connected to a computer and the day's data was transferred to the computer memory. Corrections for diurnal magnetic field variations were applied to each survey station value before plots were made. Reading accuracies of ± 5 nT were attained for the magnetics survey.

The total field magnetic data is presented in stacked profile form at a scale of 1:5000. Conductor locations for the highest HLEM frequency (3520 Hz) are traced on the magnetic profile map.

GRAVITY SURVEY

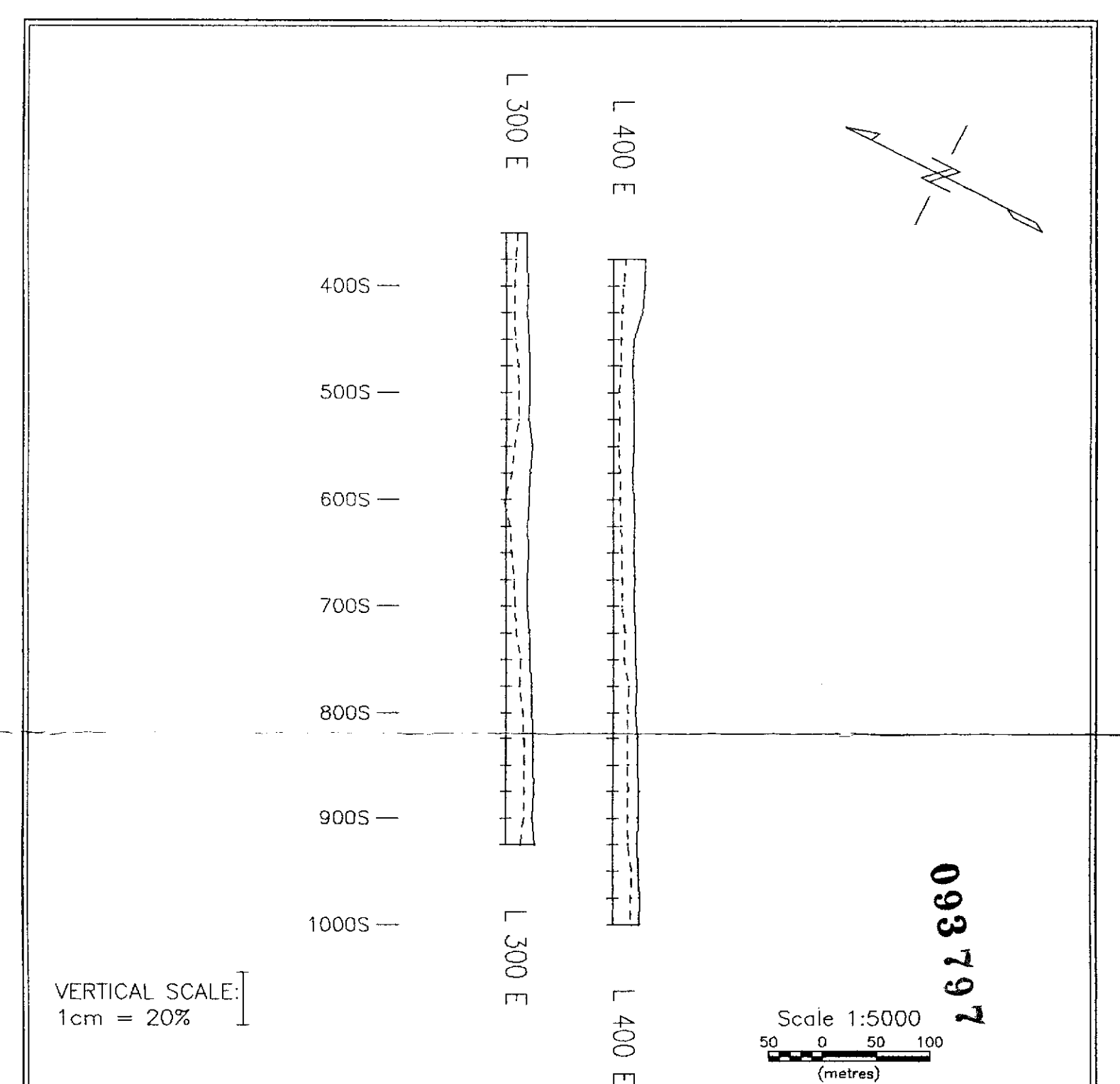
Gravity readings were taken with a LaCoste Romberg gravity meter, Model "G", S/N 494. This unit is sealed, internally pressure compensated, and thermostatically controlled during operation to minimize drift from atmospheric pressure and temperature changes. A base station was established on the grid and by utilizing base station readings (at least 2 per day) all gravity readings were corrected for diurnal drift and levelled to this common base. Gravity readings were corrected for latitude and elevation (including both free-air and Bouguer corrections). The data has been processed for a Bouguer density of 2.67 g/cc.

The elevation survey was carried out with a Nikon D-50 theodolite and Nikon prism reflector. A base station was established near the middle of the gravity line and the gravity stations were surveyed to the end of the line. On the return trip stations were checked at 100 metre intervals finally tying in to the survey base station. Any minor errors were distributed throughout the stations of that loop, resulting in individual station accuracies in the order of 0.05 metres.

With reading variations due to gravity meter reading accuracy and drift, and elevation errors, the overall accuracy of the corrected gravity values is probably in the order of 0.05-0.10 mgals.

PRESENTATION OF RESULTS

Reduction and plotting of this data was carried out on Geosoft software . All data is presented in profile form at a scale of 1:5,000. HLEM conductor locations are plotted on the total field magnetic profiles and gravity profiles.



VERTICAL SCALE:
1cm = 20%

OUT OF PHASE ---------
IN PHASE———————

Scale 1:5000
50 0 50 100
(metres)

093797

COMINCO EXPLORATION

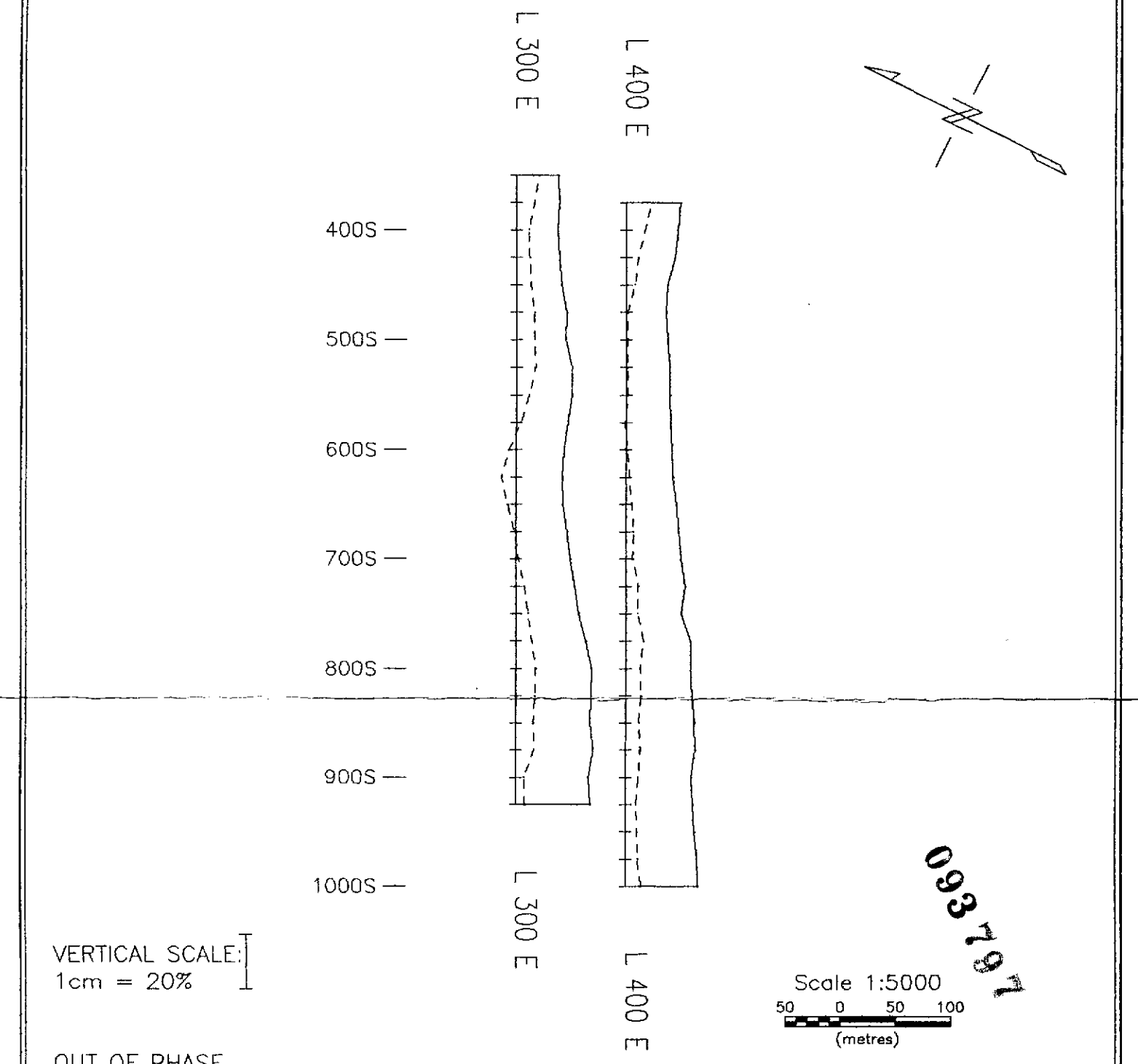
Cominco

NTS 105G

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

PELLY MOUNTAIN PROPERTIES
FIRE LAKE GRID
HORIZONTAL LOOP EM SURVEY: 440 Hz.
150 metre coil spacing

Scale: as shown | Date: MAY 1997 | Plate: **3A**



VERTICAL SCALE:
1cm = 20%

OUT OF PHASE ---------
IN PHASE ————————

Scale 1:5000
50 0 50 100
(metres)

093I91

COMINCO EXPLORATION

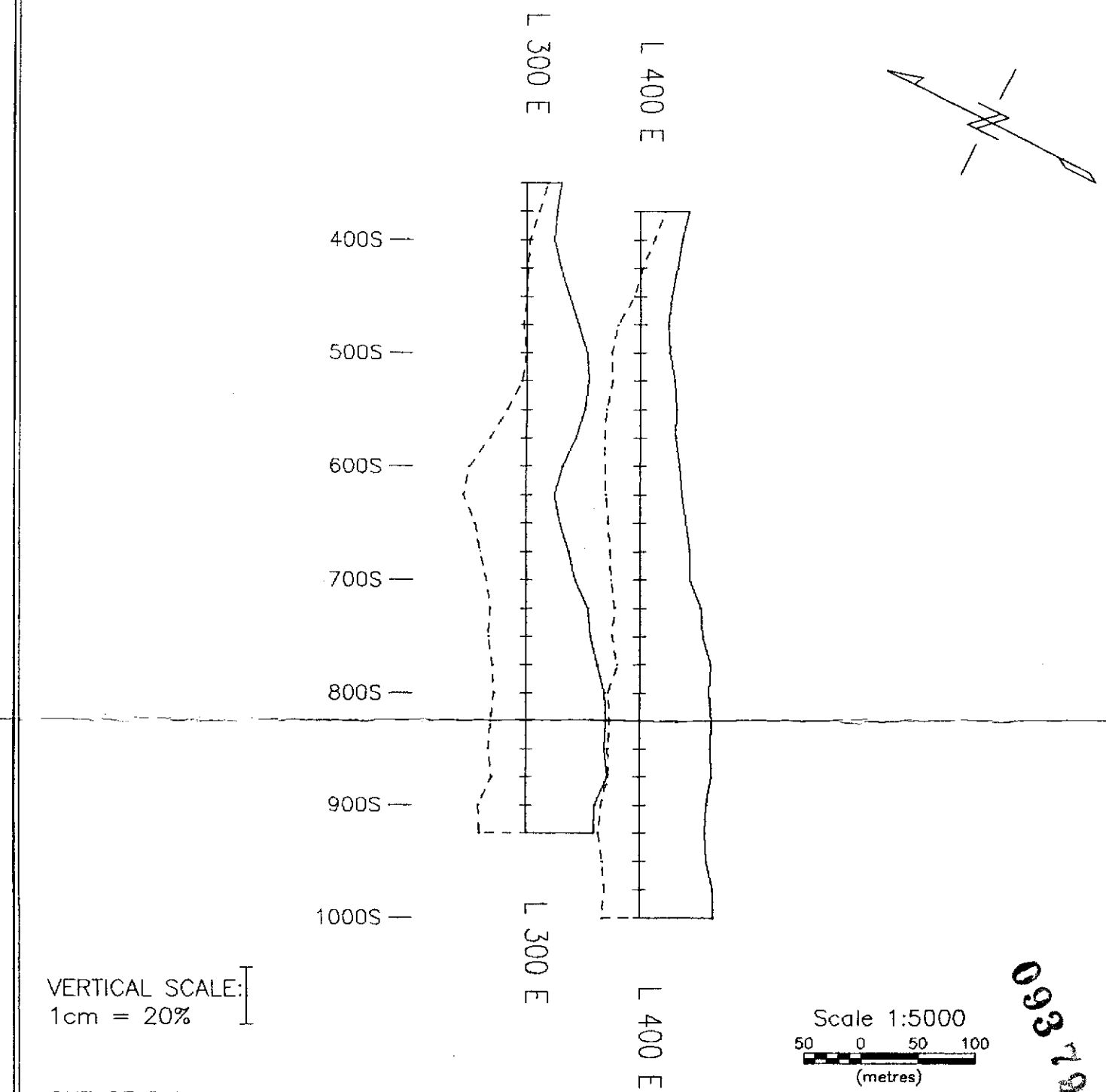
Cominco

NTS 105G

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

PELLY MOUNTAIN PROPERTIES
FIRE LAKE GRID
HORIZONTAL LOOP EM SURVEY: 1760 Hz.
150 metre coil spacing

Scale: as shown | Date: MAY 1997 | Plate: **3B**



VERTICAL SCALE:
1cm = 20%

OUT OF PHASE ---------
IN PHASE ————————

Scale 1:5000
50 0 50 100
(metres)

093 I 9 1

COMINCO EXPLORATION

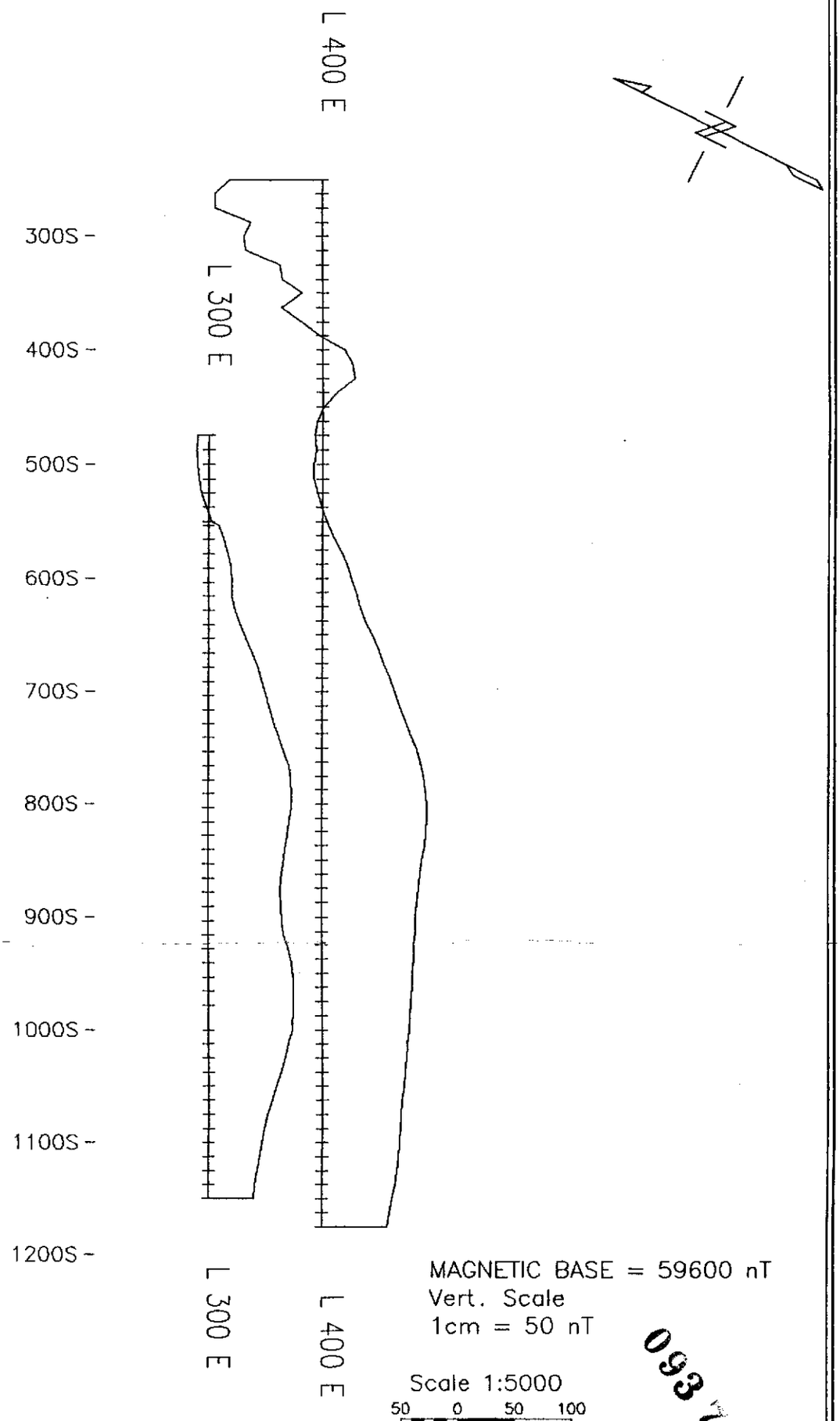
Cominco

NTS 105G

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

PELLY MOUNTAIN PROPERTIES
FIRE LAKE GRID
HORIZONTAL LOOP EM SURVEY:3520 Hz.
150 metre coil spacing

Scale: as shown	Date: MAY 1997	Plate: 3C



MAGNETIC BASE = 59600 nT
Vert. Scale
1cm = 50 nT

Scale 1:5000
50 0 50 100
(metres)

093I 9 W

COMINCO EXPLORATION

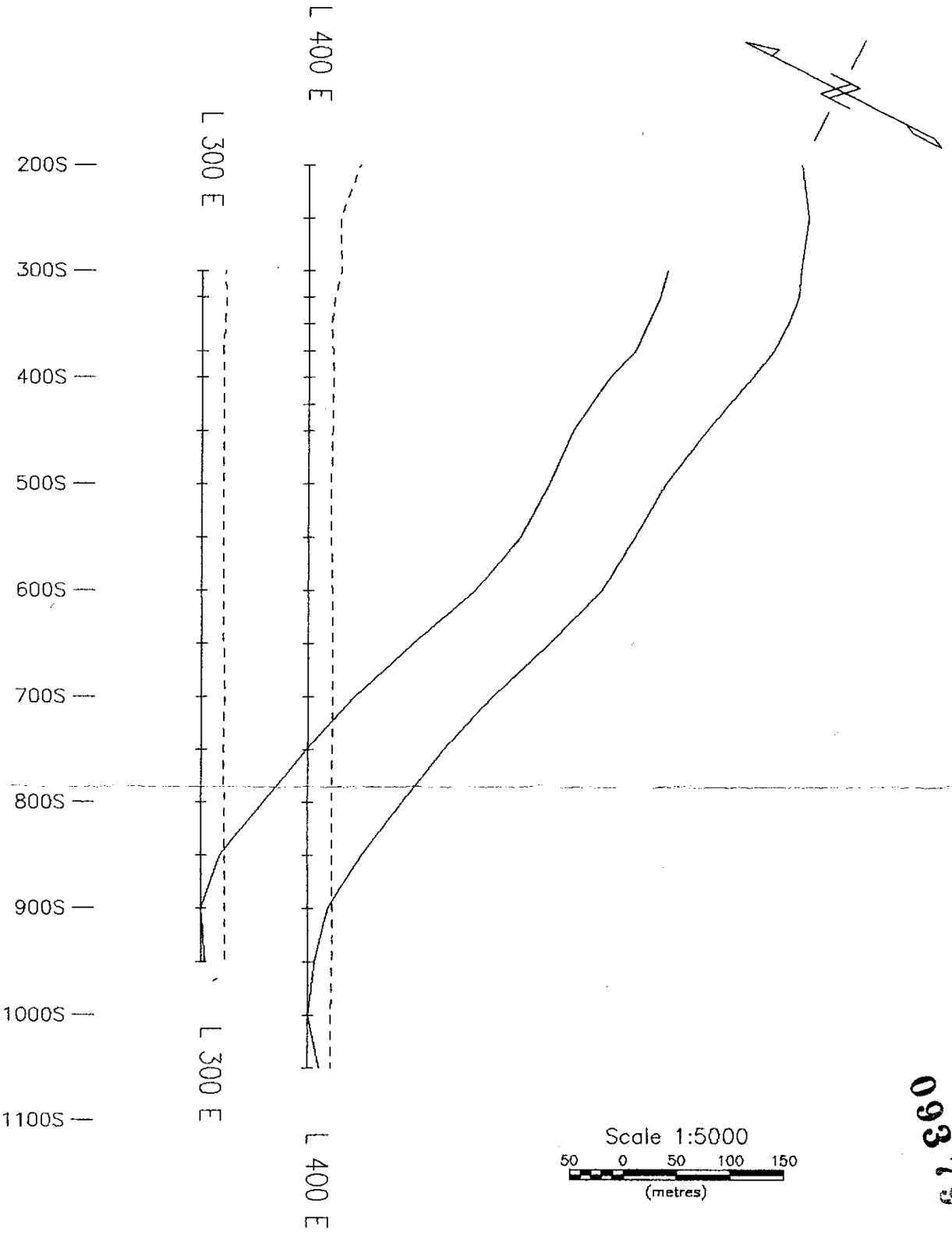
Cominco

NTS 105G

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

PELLY MTN PROPERTIES
FIRE LAKE GRID
TOTAL FIELD MAGNETICS SURVEY

Scale:	Date: MAY 1997	Plate: 4



VERTICAL SCALE:
TOPO:1cm=5 metres
GRAVITY:1cm=0.5 mgals

TOPOGRAPHY ---------
GRAVITY ———

COMINCO EXPLORATION

Cominco

NTS 105G

Drawn by:		Traced by:	
Revised by:	Date:	Revised by:	Date:

PELLY MTN PROPERTY
FIRE LAKE CLAIMS
BOUGUER GRAVITY SURVEY
(Density = 2.67 gm/cc)

Scale: as shown | Date: MAY 1997 | Plate: 5