32D04SW0383 2.7964 PACAUD

010

GEOPHYSICAL SURVEY REPORT
ON THE
PERRON PROPERTY
BARRY HOLLINGER FOUR

PACAUD TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONTARIO

FOR

ALEXANDER H. PERRON

RECEIVED
APR 04 1985
MINING LANDS SECTION

APRIL 1, 1985

MARY GREER
GEOPHYSICAL TECHNICIAN

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010C

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ILLUSTRATIONS

Accompanying Plan Maps. . . . . In Back Pocket

Scale: 1 inch to 200 feet

Date: April 1985

Barry Hollinger Four

Ground VLF-EM Survey

Map No. 85-B4-1

Barry Hollinger Four

Ground Magnetometer Survey

Map No. 85-B4-2

GEOPHYSICAL SURVEY REPORT

ON THE

PERRON PROPERTY

BARRY HOLLINGER GRID

BOSTON TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONTARIO

INTRODUCTION

The Barry Hollinger Four Group was recorded on August 14, 1984, for claim No. L-737417 and April 13, 1984, for claims L-737418 to L-737420 inclusive.

A geophysical grid was subsequently established in October, 1984, on the property. During December 1984, two geophysical surveys (electromagnetic and magnetic) were completed over the entire property. The instruments used for this survey was a Phoenix 2 Unit and a Geometrics G-816 Proton Magnetometer.

This work was conducted by and under the active supervision of Alexander H. Perron with Fred Kiernicki of Kirkland Lake, assisting.

All drafting and interpretation was completed by Mary Greer.

The purpose of this report is to briefly describe the results attained in said surveys.

The anomalies detected are shown on the accompanying maps, at a scale of one inch to 200 feet, that form an integral part of this report.

PROPERTY DESCRIPTION

The Barry Hollinger Four consists of four (4) unpatented contiguous mining claims in Pacaud township, Larder Lake Mining Division, District of Timiskaming, Ontario and are further described as follows:

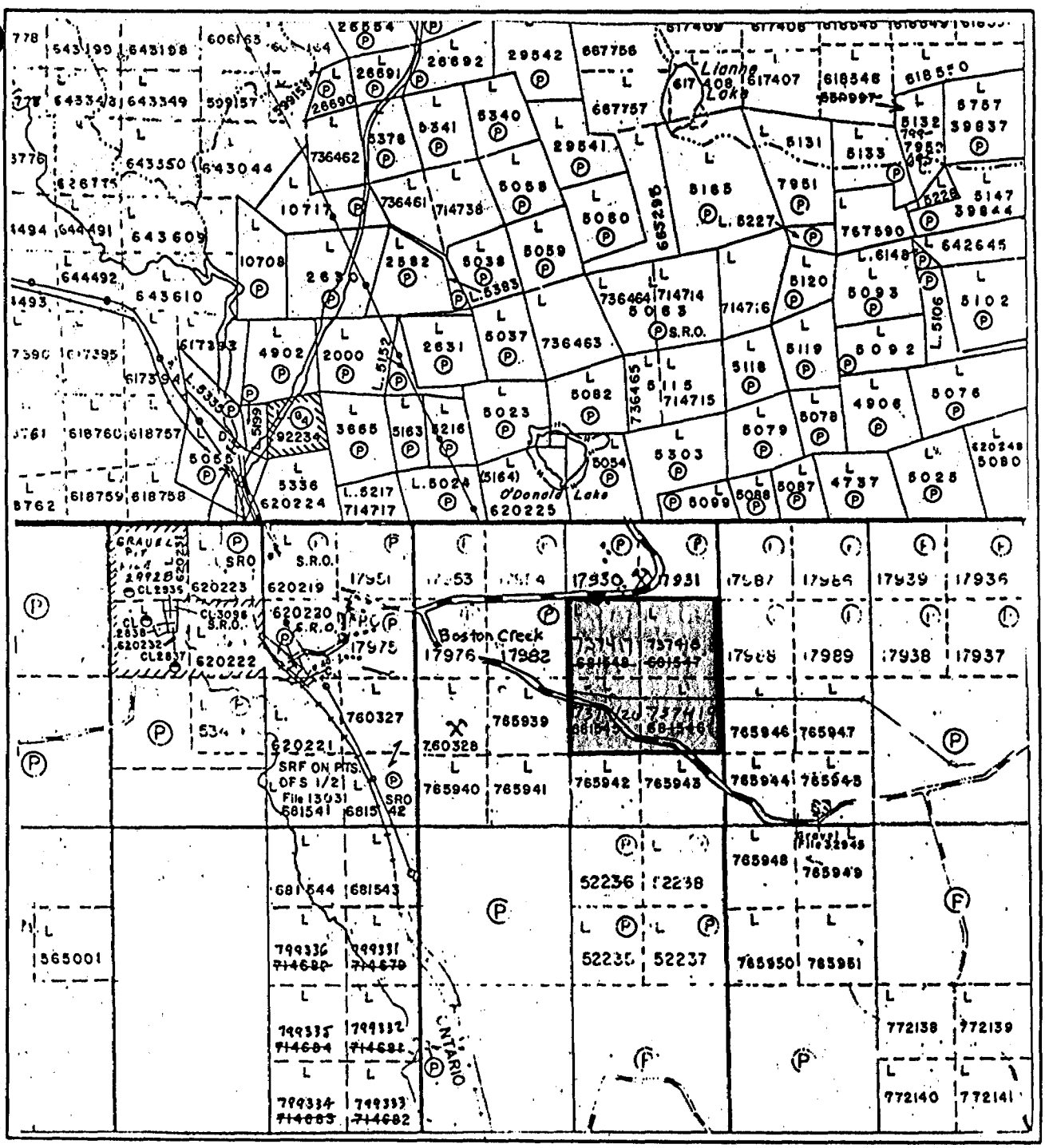
Claim No.	Township	No. of Claims
L-737417 - L-737420 (inclusive)	Pacaud	4

Ownership of the aforementioned claims have been attested to by Alexander H. Perron of 103 Government Road East, Kirkland Lake, Ontario, and was not independently ascertained by the writer. (See figure 1a).

LOCATION AND ACCESS

The Barry Hollinger Four Group lies in the middle half of Lot 3, Conc. VI approximately one and one half miles from the village of Boston Creek, which is twelve (12) miles southeast of the town of Kirkland Lake.

The property is accessible via a secondary road that extends eastward from the village of Boston Creek into the Barry Hollinger Mine site, and may be reached via highway 112 and highway 564. (See Figure 1b).

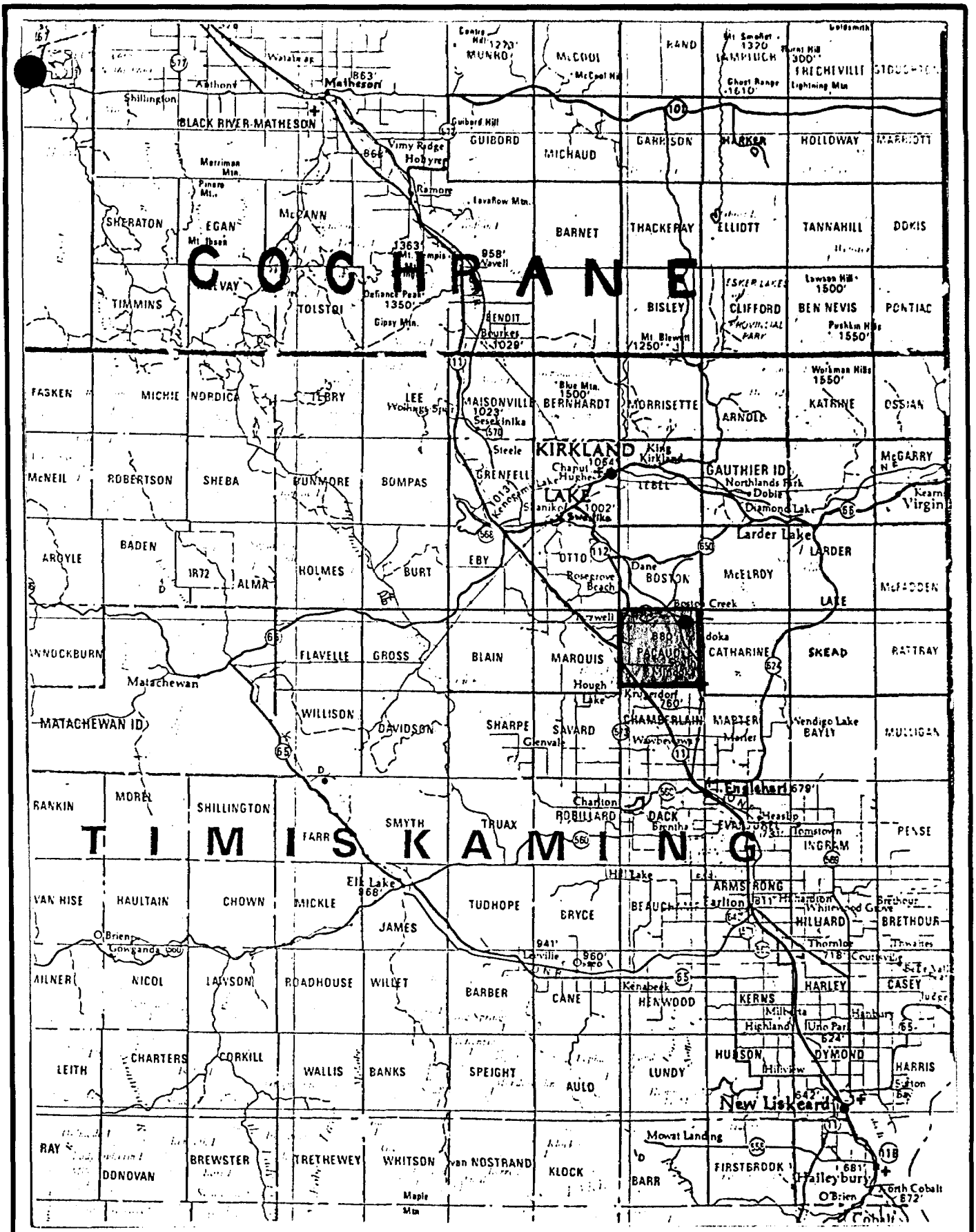


Claim Location Map

Scale: 1 inch to 1/2 mile

(Taken from a July 1984 claim map)

Figure 1a



Location Map

Figure 1b

PREVIOUS WORK

Scattered old trenching can be found throughout the property, however no records are available.

SURVEY PROCEDURE

A baseline was established south 400 feet east of the Barry Hollinger mine shaft, for a total length of 4,000 feet from the Boston - Pacaud township line.

A grid system of picket lines 400 feet apart with stations every 100 feet was established at right angles to the baseline. Readings were taken at 100 foot intervals on all picket lines and the baseline. The primary magnetic base station was set up at BL 16 + 00 S with secondary base stations established at each picket line - baseline intersection. The time interval between each secondary base check was within one half hour.

TOPOGRAPHY

The terrain consists of a low swampy area surrounded by high steep hills, which has a large percentage of exposed outcrop.

The high areas are covered by birch and poplar with spruce, balsam fir and larch occurring in the low areas. Swampy alder and bog occurs in the swamp.

GENERAL GEOLOGY

According to the O.D.M. Map No. 1957-4 the underlying bedrock consists of basic volcanic lava flows of the Keewatin age. These rock types are

primarily gabbroic lava flows and andesite, basalt and pillow lava. The flows appear to be trending northwest-southeast and are facing east.

ECONOMIC GEOLOGY

The Perron claim adjoins the Barry Hollinger Gold Mines property to the north and the Bargnesi copper prospect.

The Barry Hollinger was originally known as the Patricia property and acquired in 1918. The mine was in operation until 1936 and 267,741 tons of ore was milled. Over $1.6 million dollars in gold and $3,800. in silver was recovered.

The property is underlain by two series of Keewatin volcanics, which lie in faulted contact. The Pacaud fault strikes southeast and separates sheared and altered tuffs and tuffaceous sediments on the southwest from basic lava flows on the northeast.

Underground operations were carried out primarily on the No.7 vein, although twelve (12) veins were found on the property.

The No. 7 vein strikes N 57° E and dips 70° SE. The presence of gold depends largely on the quartz and is found as irregular lenses in the vein.

The mine workings are primarily in basic lavas and the shaft is in Keewatin diabase. The mine is developed to the 2,250 foot level and a two compartment shaft extends from surface to the 1000 foot level with a three compart-

ment winze from the 1,000 foot level to the 2,250 foot level.

The Bargnesi property lying directly across from O'Donald Lake consists of a main showing of a quartz-carbonate vein stockwork which occurs in massive, dark green, dioritic lava. The property was worked through 1937 to 1956.

INSTRUMENTATION

i) Electromagnetic Survey:

The VLF-EM method uses as a source, one of the main submarine communications transmitters in the 15 to 25 kHz band found throughout the world. These submarine communication radio waves travel in a single mode parallel to the surface of the earth along the earth-air surface.

Without vertical conductors and travelling over flat ground, the magnetic field component of this radio or surface wave is horizontal and perpendicular to it's direction of travel.

VLF instruments are capable of picking up these structures that change the direction of the waves by measuring the tilt angle of the major axis of the polarization ellipse. This is illustrated by the tilt angle being zero on flat ground, but when a conductor is present the tilt angle will acquire a finite value. The direction of tilt indicates the direction of the conductor. Calculations of such parameters as depth, depth extent, dip and width of the conductor is very minimal.

The VLF easily illustrates the location of the upper limit of dipping structures which can be seen or plotted as VLF profiles as areas of greatest change in tilt angle per unit of distance.

The instrument used for this EM survey was a Phoenix VLF-2 unit. The sensitivity of this unit is $\pm$ 1% for the in-phase and $\pm$ 1% for the quadrature. The operating frequency for the Phoenix VLF-2 is from 15-25 kHz.

For the purpose of this EM survey the station used was Cutler, Maine, which has a frequency of 24.0 kHz.

All the readings were taken facing east at 100 foot intervals and the topography was noted for future use in the interpretation of the EM results.

ii) Magnetic Survey:

This system uses a backward motion of spinning protons of a hydrogen atom within a fluid of hydrogen and carbon. These spinning magnetic protons are caused to have two opposite poles by applying a magnetic field using a current within a coil of wire. When the current is stopped, the protons precess about the earth's magnetic field and in turn generate a small current in the wire. This frequency of precession is proportional to the earth's total magnetic field.

This instrument is read directly in gammas which is the absolute value of the earth's total field for that station.

The instrument used for this survey was a Geometrics G-816 Proton Magnetometer, this instrument has a sensivity of one gamma.

The diurnal variation was monitored by closing each loop at any secondary check station, at a gridline-baseline intersection.

Diurnal corrections were applied by linear distribution of any observed variation over the time between base stations. The corrections were calculated by using a time vs. drift graph.

PRESENTATION AND DISCUSSION OF RESULTS

i) Electromagnetic Survey:

The field data is presented on a map at a horizontal scale of one inch to 200 feet, drawing number 85-B4-1, found in the back pocket of this report.

The VLF-EM data is illustrated as profiled data along the survey lines and is plotted at a vertical scale of 1 inch = $\pm$ 40% with the in-phase below and the quadrature above.

One conductor found on the claim (85-A) has a northwest-southeast trend occurring from L 24 + 00 S 9 + 00 W to L 36 + 00 S 1 + 00 E. Other areas were active as well but seem to have no relationship with each other but rather with low swampy areas. The high in-phase response found on L 16 + 00 S appears to be caused by cables and old power lines.

ii) Magnetic Survey:

The field data is presented on a map at a horizontal scale of one inch to 200 feet, drawing number 85-B4-2.

The magnetic data is illustrated as isomagnetic contours (contour interval 100 gammas) on a map of corrected magnetic values recorded at each station.

A magnetic high was found on the western corner of the property. It appears to trend northwest-southeast from L 24 + 00 S 8 + 00 W to L 36 + 00 S 4 + 00 E. A magnetic low occurs between this

high and a magnetic high occurring in a straight line northwest-southeast from L 16 + 00 S 4 + 00 E to L 24 + 00 S 12 + 00 E.

CONCLUSIONS AND RECOMMENDATIONS

The VLF-EM conductor occurs in close association with the wide magnetic high which may represent the Pacaud fault and the contact between altered tuffs and tuffaceous sediments on the south side and basic lava flows on the north.

This area should require further examination as well as the magnetic high found in one northeast corner which cuts across a relatively low magnetic area.

Respectfully submitted,

Mary Greer

April 1, 1985

Mary Greer
Geophysical Technician

BIBLIOGRAPHY

Sixty-sixth Annual Report of the

Ontario Department of Mines

Volume LXVI, Part 5, 1957

Geology of Boston Township and part of

Pacaud Township by K.D. Lawton

C E R T I F I C A T E

I, Mary Greer, of Kirkland Lake, Ontario, do hereby certify:

1) That I am a Geophysical Technician and reside at: 49 McKelvie Avenue, Kirkland Lake, Ont. P2N 2K6.

2) That I graduated from Sir Sandford Fleming College at Lindsay, Ontario, in 1978, with a diploma as a Geological Technician.

3) That I was employed as a Geophysical Technician by H. E. Neal and Associates for 18 months.

4) That I have been practising my profession for a period of five (5) years and I am qualified to write this report.

5) That I supervised and participated in this survey.

April 1/85
Date

Mary Greer
Mary Greer
Geological Technician

Ministry of Natural Resources
Ontario

Report of Work (Geophysical, Geological, Geochemical and Expenditures)

W8508-119

2.7

(L 737418)

The Minin

32D04SW0383 2.7964 PACAUD

900

Type of Survey(s) - MAGNETIC • GEOPHYSICAL - ELECTROMAGNETIC	Township or Area PACAUD
Claim Holder(s) ALEXANDER H. PERRON	Prospector's Licence No. K-19026
Address 103 GOVERNMENT ROAD EAST, KIRKLAND LAKE, ONTARIO P2N IA9	
Survey Company PERRONS	Date of Survey (from & to) 23 12 84 (Day Mo. Yr.) 25 12 84 (Day Mo. Yr.)
	Total Miles of line Cut 4.2 MILES
Name and Address of Author (of Geo-Technical report) MARY GREER	

Credits Requested per Each Claim in Columns at right

		Days per Claim
Special Provisions For first survey: Enter 40 days. (This includes line cutting) For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical	
	- Electromagnetic	20
	- Magnetometer	20
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	737417				
	737418				
	737419				
	737420				

RECEIVED
APR 10 1985
MINING LANDS SECTION

MAR 25

Total number of mining claims covered by this report of work. 4

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
160	MAR 25 1985	
	Date Approved as Recorded: April 9/85	Branch Director

Date: March 25/85 Recorded Holder or Agent (Signature): Mary Greer

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
MARY GREER, 49 MCKELVIE AVE., KIRKLAND LAKE, ONTARIO P2N 2K6

Date Certified: March 25/85 Certified by (Signature): Mary Greer

3362 (81/9)

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) GEOPHYSICAL SURVEY - MAGNETIC - ELECTROMAGNETIC

Township or Area PACAUD

Claim Holder(s) ALEXANDER H. PERRON
103 GOV'T RD. E., KIRKLAND LAKE, ONT

Survey Company PERRONS P2N 1A9

Author of Report MARY GREER

Address of Author 49 MCKELVIE AVE., KIRKLAND LAKE, ONT P2N2K6

Covering Dates of Survey DEC. 23/84 TO DEC. 25/84
(linecutting to office)

Total Miles of Line Cut APPROX. 4.0 MILES

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim.
Geophysical	
–Electromagnetic	20
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: April 1/85 SIGNATURE: Mary Greer
Author of Report or Agent

Res. Geol. _____ Qualifications 2.4529

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	737417
L	737418
L	737419
L	737420

TOTAL CLAIMS 4

If space insufficient, attach list

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 147 Number of Readings MAG - 137 VLF - 130

Station interval 100 FEET Line spacing 400 FEET

Profile scale 1 INCH = ±

Contour interval 100 GAMMAS

MAGNETIC

Instrument GEOMETRICS G-816

Accuracy – Scale constant ± 1 GAMMA

Diurnal correction method CLOSED LOOPS

Base Station check-in interval (hours) EVERY 1/2 HOUR

Base Station location and value BL 16 + 00 S 58465 GAMMAS

ELECTROMAGNETIC

Instrument PHOENIX VLF-2 UNIT

Coil configuration HORIZONTAL AND VERTICAL

Coil separation INFINITY

Accuracy ± 1

Method: ☒ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency CUTLER, MAINE 24.0 KHz (specify V.L.F. station)

Parameters measured IN-PHASE AND QUADRATURE

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

_____

_____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

_____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

_____

Drainage Development _____

Estimated Range of Overburden Thickness _____

_____

_____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

_____

_____

_____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

_____

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_____

_____

_____

_____

_____

_____

PERRONS

103 GOVERNMENT ROAD EAST - KIRKLAND LAKE, ONTARIO - P2N 1A9 - (705) 567-7057

APRIL 1, 1985

Mr. Fred Matthews,
Lands Administration Branch,
Mining Lands Section,
Ministry of Natural Resources,
Room 6450, Whitney Block,
Queen's Park,
Toronto, Ontario
M7A IW3

RECEIVED
APR 0 1 1985
MINING LANDS SECTION

Dear Sir:

RE: Geophysical Survey Report
Pacaud Township
Larder Lake Mining Division

Enclosed herewith please find a duplicate copy of the following:

- Report dated April 1, 1985, by Mary Greer entitled:

  Geophysical Survey Report on the
  Perron Property
  Barry Hollinger Four
  Pacaud Township
  Larder Lake Mining Division
  District of Timiskaming, Ontario

I trust this is the information required to correspond with the Report of Work filed concerning the above noted township.

Yours truly,

PERRONS

Mary Greer
Geophysical Technician

RECEIVED
APR 0 1 1985
MINING LANDS SECTION

MG/p
Encls.

Mining Lands Section

File No 2.7964

Control Sheet

TYPE OF SURVEY

✓ GEOPHYSICAL

____ GEOLOGICAL

____ GEOCHEMICAL

____ EXPENDITURE

MINING LANDS COMMENTS:

lgd

Signature of Assessor

11/4/85

Date

LD

M-380

Boston Twp.

Marquis Twp.

Catharine Twp.

Chamberlain Twp.

VI V IV III II I

12 11 10 9 8 7 6 5 4 3 2 1

THE TOWNSHIP
OF

PACAUD

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND
CROWN LAND SALE
LEASES
LOCATED LAND
LICENSE OF OCCUPATION
MINING RIGHTS ONLY
SURFACE RIGHTS ONLY
ROADS
IMPROVED ROADS
KING'S HIGHWAYS
RAILWAYS
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED

NOTES

400' Surface rights reservation around all lakes and rivers.

(P) S.R.O. shown thus:

PLAN NO. M 380

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

M-380

320845W0383 2.7964 PACAUD

200

L 16+00 S

L 20+00 S

L 24+00 S

L 28+00 S

L 32+00 S

L 36+00 S

L 737417

L 737418

L 737420

L 737419

Conc. IV

Lot 3

N

SYMBOLS

Isomagnetic contours

Base station

Claim post

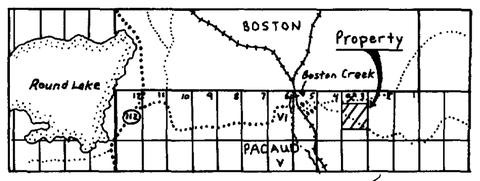
Claim line

Road

INSTRUMENTATION

GEOMETRICS G-816
PROTON MAGNETOMETER
Contour interval - 100 γ
Contoured by: Mary Greer

KEY MAP



BARRY HOLLINGER FOUR

GROUND MAGNETOMETER SURVEY 27964

PACAUD TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONTARIO

200 0 200 400 600

Scale: 1 inch to 200 feet

PERRONS'
KIRKLAND LAKE CANADA

Drawn by: Mary Greer | Map No. 85-B4-2 | Date: April 1985

32D04SW0383 2.7964 PACAUD

L 16+00 S

L 20+00 S

L 24+00 S

L 28+00 S

L 32+00 S

L 36+00 S

L 737417

L 737418

L 737420

L 737419

84-A

85-A

Conc. IV

cable

Lot 3

N

SYMBOLS

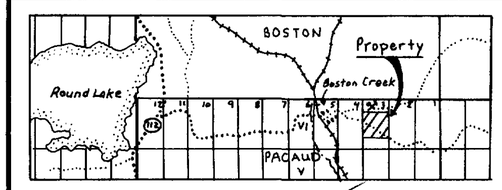
In-phase
Quadrature
Claim post
Claim line
Road

INSTRUMENTATION

PHOENIX M-2
Cutler, Maine 24.0 kHz
Vertical scale: 1 inch = ±40%

Positive
Negative
85-A
VLF-EM Conductor
Negative
Positive

KEY MAP



Mary Greer

BARRY HOLLINGER FOUR

GROUND VLF-EM SURVEY

2.7964

PACAUD TOWNSHIP
LARDER LAKE MINING DIVISION
DISTRICT OF TIMISKAMING, ONTARIO

200 0 200 400 600

Scale: 1 inch to 200 feet

PERRONS'
KIRKLAND LAKE CANADA

Drawn by: Mary Greer | Map No. 85-B4-1 | Date: April 1985

32D04SW0383 2.7964 PACAUD