REVISED GEOPHYSICAL SURVEY REPORT
ON THE
PERRONS PROPERTY
MISEMA EIGHT GRID

CATHARINE TOWNSHIP

LARDER LAKE MINING DIVISION

DISTRICT OF TIMISKAMING, ONTARIO

FOR

ALEXANDER H. PERRON

MAY 2, 1986

MARY GREER
GEOPHYSICAL TECHNICIAN

ILLUSTRATIONS

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INTRODUCTION

The Misema Eight Grid was recorded on April 15, 1982 and October 8, 1982.

This is a supplementary report to the geophysical report written March 11, 1984. A second VLF-EM Survey was completed, using a Geonics EM16 Unit. This work was performed for assessment purposes only.

All work, 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 Misema Eight Grid consists of a contiguous block of eight, 40 acre, unpatented mining claims located in Catharine Township, Larder Lake Mining

Division, District of Timiskaming, Ontario, and are further described as follows:

Claim No.	No. of Claims
L-642535-538 (inclusive)	4
L-664063-066 (inclusive)	4
Total Number of Claims	8

Mr. Alexander H. Perron of 103 Government Road East, Kirkland Lake, Ontario, is the owner of the aforementioned (8) claims, and was not independently ascertained by the writer. (See Figure 1a).

LOCATION AND ACCESS

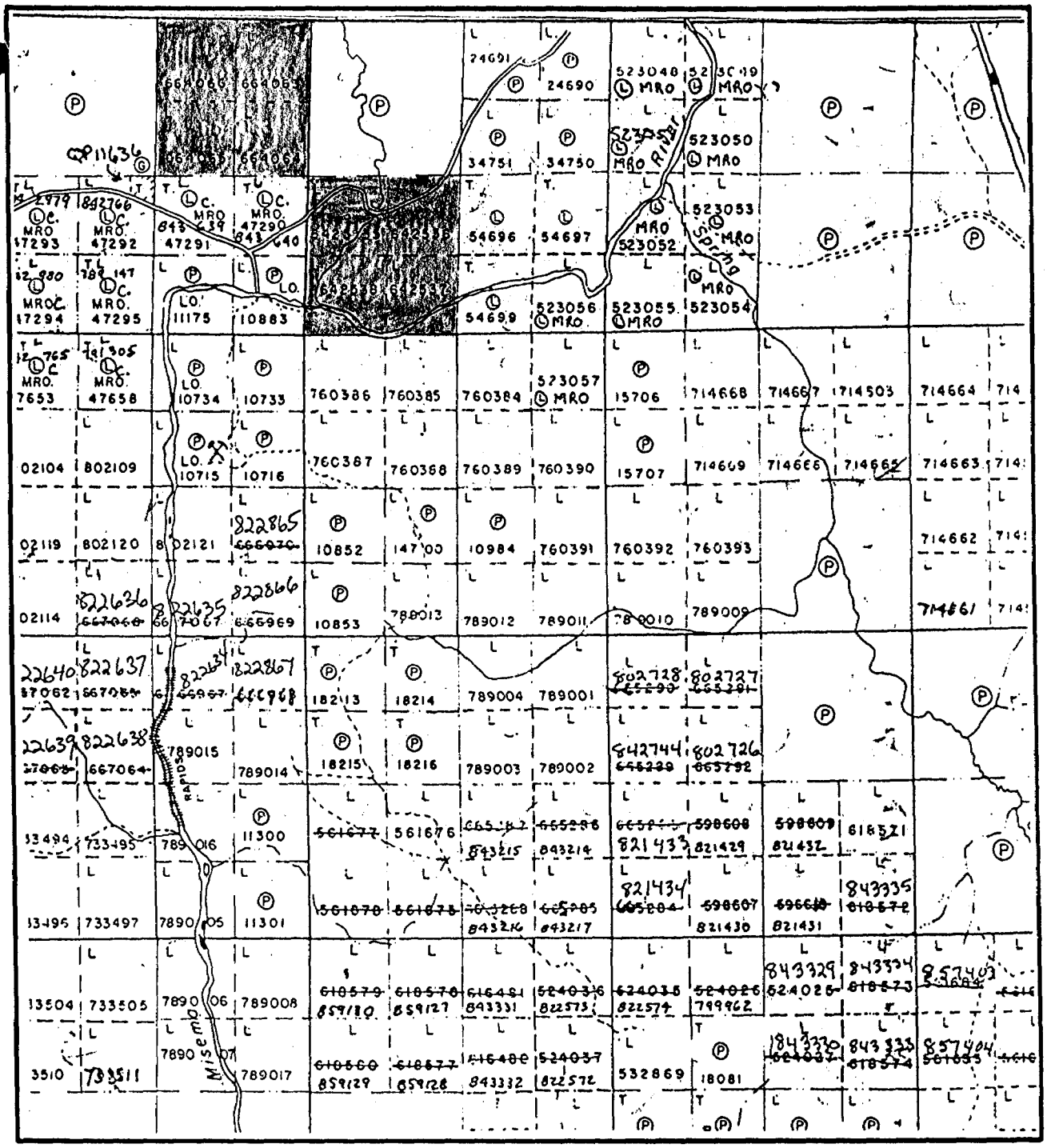
Misema Eight Grid encompasses the Conc. VI, Lots 8 and 9, Catharine Township, approximately 12 miles southeast of the town of Kirkland Lake, Ontario.

This property is readily accessible via a secondary road that extends eastward approximately three miles from the village of Boston Creek. Boston Creek is located approximately 15 miles southeast of Kirkland Lake and may be reached via highway 112 and 564.

The aforementioned secondary road is easily travelled by standard drive in the summer and snowmobile in the winter. (See Figure 1a).

PREVIOUS WORK

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



Claim Location Map

Scale: 1 inch to 1/2 mile

Taken from a March 1986

Figure 1a

In June 1981 Amax Minerals Exploration conducted a geological survey over claims L-664063 to L-664066 (inclusive). The survey was by pace and traverse and local outcrop was located and identified. No geophysical surveys were performed, although a geophysical survey was proposed.

SURVEY PROCEDURE

A northwest-southeast baseline was established from the common post of claims L-664064 and L-642535. The baseline was cut 3,150 feet south to the Misema River and extended diagonally northwest for 3,800 feet.

A grid system of picket lines 400 feet apart with stations each 100 feet, was established at right angles to the baseline.

Readings were taken at 100 foot intervals on all picket lines and the baseline.

TOPOGRAPHY

The general terrain of this property varies from jack pine covered sand ridges to the southeast section of the property, to gently sloping poplar, birch and spruce spotted with small outcrops to the northwest section. The difference in elevation averages 75 feet. A slow moving creek passes through the centre of the southeast group with the Misema River flowing west along the southern boundary.

GENERAL GEOLOGY

O.D.M. Geological Map, 2043, covering Catharine and Marter townships, at a scale of one inch to one-half mile, indicates that the bedrock is underlain

by Keewatin volcanics. This includes intermediate to acidic volcanics that are mainly pyroclastic. The local exposed outcrops are classified as a carbonatized fragmented andesite.

ECONOMIC GEOLOGY

Situated to the immediate northwest of the claim group, along the McElroy-Catharine township line, lies the Cathroy-Larder Mine property.

Cathroy-Larder Mines was incorporated in 1943 to succeed Yama Gold Mines. Yama Gold Mines produced 22,250 tons grading 0.14 oz. Au/ton between 1938 to 1942. A new gold zone was discovered by Cathroy-Larder about 1,000 feet south of the shaft. After considerable underground development, including surface and underground diamond drilling, ore reserves were calculated at 280,000 tons grading 0.20 oz. Au/ton.

Mirado Nickel optioned the property in 1960 conducting additional surface and underground drilling. In 1980 the property was optioned by Canamax (Amax) and further surface diamond drilling was performed as well as surface stripping over the south ore body.

The rocks within the mine area belong to the Skead-Group which are mainly dacites, andesites, rhyolite flows and pyroclastics. These rocks are cut by small dikes of syenite, lamprophyre and diorite.

The ore is stratabound within pyroclastic units. The shaft ore body is at or near the upper contact of the Skead pyroclastics. The south ore bodies are approximately 1,500 feet from the top of the Skead group.

The upper contact of the Skead group within the mine area strike about S 70° E and dip steeply north to vertical. The ore zones consist of many narrow quartz-calcite-sulphide and massive sulphide seams. The sulphides are pyrite, chalcopyrite and sphalerite, gold is found in fractures in the pyrite.

Presently the property has been optioned by Golden Shield Resources, who are presently involved with an underground exploration after dewatering the underground workings.

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 interface.

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 was a Geonics VLF-EM16 Unit. The sensitivity of this unit is $\pm$ 1% for the inphase and $\pm$ 1% for the quadrature. The operation frequency for the EM16 is from 15-25 kHz and the station selection is made by plug-in units.

For the purpose of this survey the station used was Annapolis, Maryland, which has a frequency of 21.4 kHz.

All readings were taken perpendicular to the station and the topography was noted for further use in the interpretation of the EM results.

PRESENTATION AND DISCUSSION OF RESULTS

Electromagnetic Survey:

The field data is presented on a map at a horizontal scale of one inch to 200 feet, drawing number 8-86-1a found in the back pocket of the report.

The VLF-EM data is illustrated as profiled data along the survey lines and is plotted at a vertical scale of 1 inch to $\pm$ 40° with the positive to the left and the negative to the right.

There were three (3) conductors located on the property. Two (2) were found in the northwest claim group and one (1) in the southeast claim group. Most of the property is fairly flat with possibly VLF-signal source noise, giving the profiles an uneven appearance.

The conductors in the northwest claim group occur over an area predominantly outcrop. Some association may be made between the outcrops and these conductors.

CONCLUSIONS AND RECOMMENDATIONS

These conductors may be associated with structural grological features found by previous stripping of the outcrops. The conductor locations should be examined in the field to relate any possible associations, and further work should be considered.

Respectfully submitted,

Mary Green

May 2, 1986

Mary Green
Geophysical Technician

BIBLIOGRAPHY

James A. Grant

1963: Geological Report No. 18, Catharine and Marter Townships: Ontario Department of Mines

CERTIFICATE

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, Ontario, 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 have been continuously engaged in my profession for the past six (6) years and I am qualified to write this report.

4) That I supervised and participated in this survey.

May 2 / 86
Date

Mary Greer
Geophysical Technician

Ministry of Natural Resources
Ontario

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

146

W8608-146

Mi

32D04SW0272 2.9137 CATHARINE

900

Type of Survey(s)	Township or Area
GEOPHYSICAL SURVEY - ELECTROMAGNETIC	CATHARINE

Claim Holder(s)	Prospector's Licence No.
ALEX H. PERRON	K-19026

Address: 103 GOVERNMENT ROAD EAST, KIRKLAND LAKE, ONTARIO P2N IA9

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
PERRONS	29 (Day) 03 (Mo.) 86 (Yr.) 05 (Day) 04 (Mo.) 86 (Yr.)	APPROX. 12 MILES

Name and Address of Author (of Geo-Technical report): MARY GREER, 49 MCKELVIE AVENUE, KIRKLAND LAKE, ONT. P2N 2K6

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	
	- 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	642535				
	642536				
	642537				
	642538				
	664063				
	664064				
	664065				
	664066				

RECEIVED
APR 28 1986
MINING LANDS SECTION

LARDER LAKE MINING DIVISION
RECEIVED
APR 14 1986

Total number of mining claims covered by this report of work: 8

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	APR 14 1986	
	Date Approved as Recorded	Branch Director
	86.5.28	

Date: APRIL 14/86

Recorded Holder or Agent (Signature)

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 AVENUE, KIRKLAND LAKE, ONTARIO P2N 2K6

Date Certified

Certified by (Signature)

1362 (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 - ELECTROMAGNETIC

Township or Area CATHARINE

Claim Holder(s) ALEXANDER H. PERRON
103 GOV'T RD. E., KIRKLAND LAKE, ONT P2N 1A9

Survey Company PERRONS

Author of Report MARY GREER

Address of Author 103 GOV'T RD.E.,KIRKLAND LAKE,ONT.

Covering Dates of Survey MARCH 29, 1986 TO APRIL 5,1986
(linecutting to office)

Total Miles of Line Cut 12 MILES (APPROXIMATELY)

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 _____
–Radiometric _____
–Other _____
Geological _____
Geochemical _____

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

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

DATE: May 2/86 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-	642535
L-	642536
L-	642537
L-	642538
L-	664063
L-	664064
L-	664065
L-	664066

TOTAL CLAIMS 8

If space insufficient, attach list

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 337 Number of Readings VLF-EM = 674

Station interval 100 FEET Line spacing 400 FEET

Profile scale 1" = 20°

Contour interval

MAGNETIC

Instrument

Accuracy – Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument GEONICS EM16 UNIT

Coil configuration VERTICAL AND HORIZONTAL

Coil separation INFINITY

Accuracy ± 1%

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

Frequency ANNAPOLIS, MARYLAND 21.4 KHz (specify V.L.F. station)

Parameters measured INPHASE 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 _____

_____

_____

_____

_____

_____

_____

_____

_____

PERRONS

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

May 2, 1986

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

Dear Mr. Barr:

RE: Revised Geophysical Survey Report
Catharine Township
Larder Lake Mining Division

Enclosed herewith please find a duplicate copy of the following:

- Report dated May 2, 1986, by Mary Greer entitled:

  Revised Geophysical Survey Report on the
  Misema Eight Grid
  Catharine 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

Mary Greer
Geophysical Technician
MG/p
Encls.

Mining Lands Section

File No 2.9137

Control Sheet

TYPE OF SURVEY ✓ GEOPHYSICAL

____ GEOLOGICAL

____ GEOCHEMICAL

____ EXPENDITURE

MINING LANDS COMMENTS:

J. Hurst

Signature of Assessor

May 27/86

Date

Township Line

McELROY TOWNSHIP

CATHARINE TOWNSHIP

L 36·00 W

L 32·00 W

L 28·00 W

L 24·00 W

L 20·00 W

L 16·00 W

L 12·00 W

L 8·00 W

L 4·00 W

L 4·00 E

L 8·00 E

L 12·00 E

L 16·00 E

L 20·00 E

L 24·00 E

L 28·00 E

L 32·00 E

CON. VI

L 664066

L 664063

L 664064

L 664065

L 642535

L 642536

L 642538

L 642537

Lot 9

Lot 8

200

N

SYMBOLS

In-phase

Quadrature

Claim post

Claim line

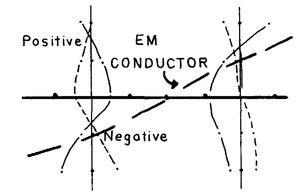
Bush road

INSTRUMENTATION

GEONICS VLF - EM16

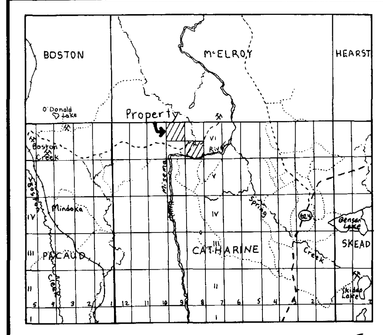
Annapolis, Maryland 21.4 kHz

Vertical scale: 1 inch = ±40%



KEY MAP

(Scale: 1 inch to 2 miles)



MISEMA EIGHT GRID

GROUND VLF-EM SURVEY

CON. VI LOTS 8 & 9

CATHARINE TOWNSHIP

LARDER LAKE MINING DIVISION

DISTRICT OF TIMISKAMING, ONTARIO

200 0 200 400 feet

1 inch to 200 feet

PERRONS' 83 LIMITED

KIRKLAND LAKE CANADA

Drawn by: Mary Greer | Drawing No.: 86-8-1a | Date: May 1986

J.9137