



32D04NW0022 2.11229 ARNOLD

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Report on a VLF-ER  
Survey Conducted in  
Arnold Twp.

1988



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**RECEIVED**

MAY 25 1988

**MINING LANDS SECTION**

INTRODUCTION

In March of 1988 LAC Minerals Ltd. conducted a VLF-EM survey over 8 contiguous Mining Claims in Arnold Township, Larder Lake Mining Division. This report deals with the results of that survey.

PROPERTY DESCRIPTION

The 8 claims covered by this report are numbered as follows L-1014642, L-1014643, L-891926-891931 incl., LAC Minerals Ltd. is the recorded holder.

LOCATION AND ACCESS

The west boundary of the claims is situated along the west boundary of Arnold Township approximately 2 miles north of the Arnold and Gauthier Township boundary. The property is accessible from highway 66 and the Esker Park Road which passes through the northeast corner of claim 1014643.

TOPOGRAPHY

The property is generally flat and drift covered, a few outcrops are present. A 5 - 6 foot stream (Alphie Creek) passes through claim 1014643. Logging operations have been carried out on the western portion of the property leaving few mature trees.

FIG. 1

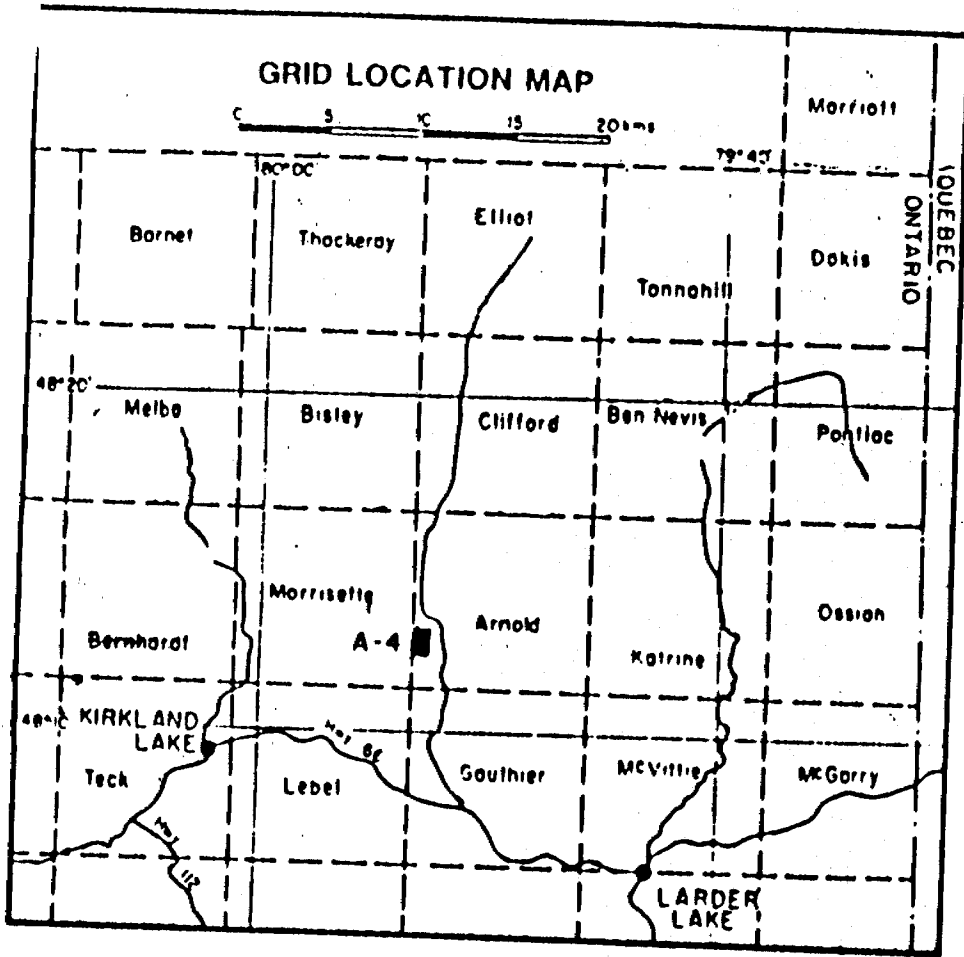
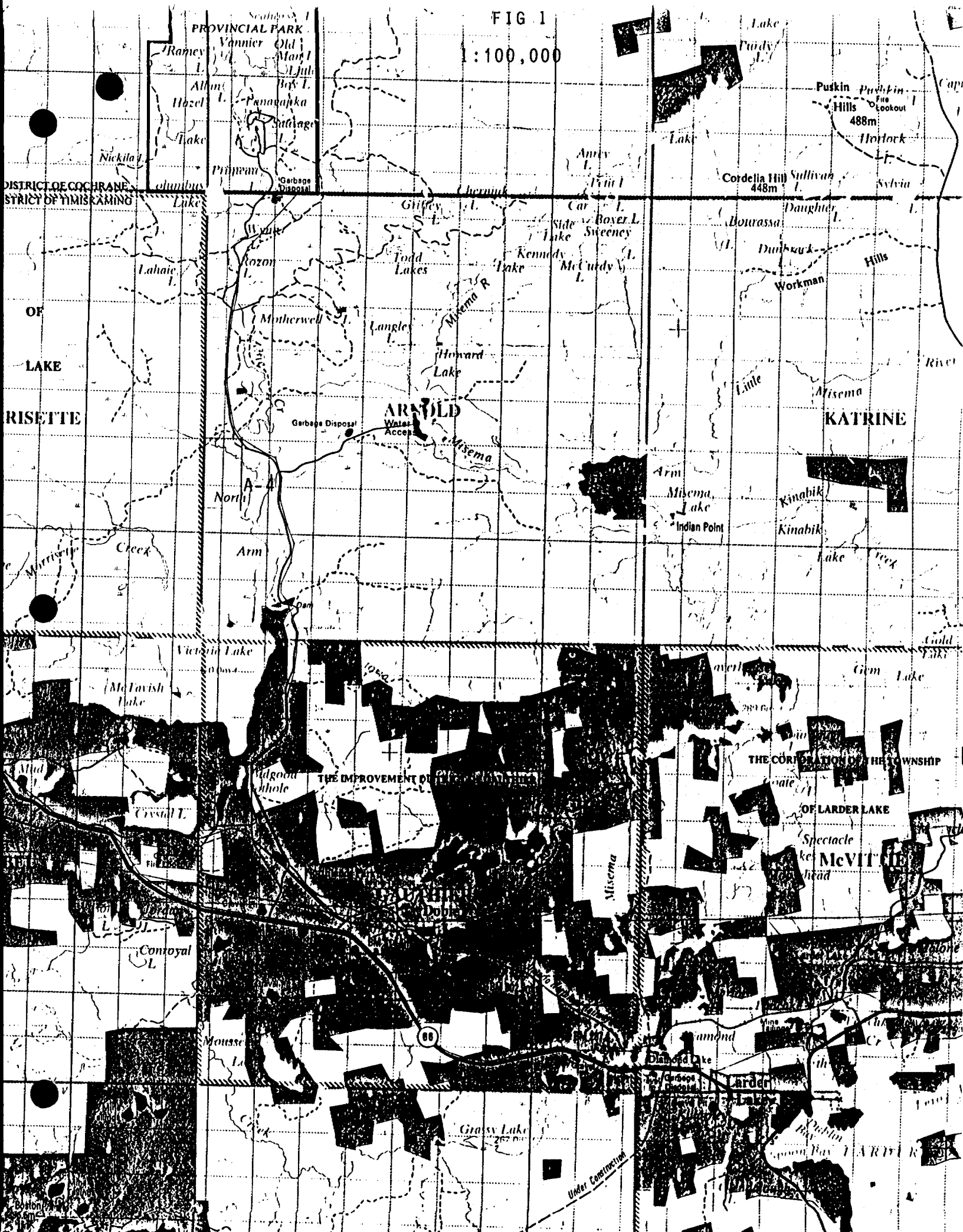


FIG 1  
1:100,000



PROVINCIAL PARK

Ramey L.  
Vannier Old  
Marl L.  
Alum L.  
Hazel Lake  
Nickita L.  
Panayakka  
Sallage  
Primam L.  
Garbage Disposal

DISTRICT OF COCHRANE  
STRICITY OF TIMISKAMING

OF  
LAKE  
RISETTE

ARNOLD

KATRINE

THE IMPROVEMENT OF THE TOWNSHIP

THE CORPORATION OF THE TOWNSHIP  
OF LARDER LAKE

Spectacle  
ke McVITIE  
head

86

Under Construction

### PREVIOUS WORK

Airborne Magnetic and Electromagnetic Survey by Rosario Resources covered this claim group. In 1980 Geox Ltd. conducted Ground magnetic and Electromagnetic Surveys for Falconbridge Ltd. In 1982 Aerodat conducted Airborne Magnetic and Electromagnetic Surveys over the north part of the group for Monopros Ltd. In 1986 and 1987 Walker Exploration conducted a Ground Magnetic Survey over this grid for LAC Minerals.

### PROPERTY GEOLOGY

This property is mainly drift covered (glacial outwash sand). A few outcrops of intermediate volcanics are present on the property. The claim group is northwest of the northeast trending Murdoch Creek Kennedy Lake Fault.

(from ODM geology map 2061 "Arnold and Katrine Townships")

### SURVEY PROCEDURE

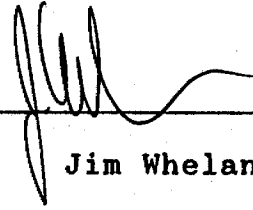
The VLF-EM Survey was conducted by the Author and G. Fitzgerald using the Geonics EM-16 VLF unit and the transmitter at Annapolis Maryland (21.4KHZ) in phase and Quadphase values were recorded at 25 meter intervals on East-west grid lines at a 125 meter line spacing. The operator was facing in an easterly direction. Survey results are presented as profiles of inphase and quadphase data on a plan located in the back pocket.

### SURVEY RESULTS

The VLF-EM survey located a number of weak to moderate anomalies that show some correlation to an earlier magnetic survey. The north and northeast trending anomalies on the west side of the grid are situated along the edge of a magnetic high and may be related to a contact between intermediate volcanics and mafic intrusives. The north and northeast trending anomalies present on the east side of the property are located in an area of magnetic lows and may be related to shearing parallel to the Murdoch Creek-Kennedy Lake Fault.

CONCLUSIONS

The VLF-EM Survey combined with Ground Magnetics should be of assistance in the geological interpretation and exploration of this property.



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Jim Whelan

JW/lep



REFERENCES

Ontario Department of Mines Geology Map 2061 "Arnold and Katrine Townships" Scale 1:31680

Walker, A.J.: Report on Magnetic Survey, Grid A-4 Arnold Twp.  
Ontario, Larder Lake Mining Division.

APPENDIX



GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 429 Number of Readings 429  
Station interval 25 meter Line spacing 125 meter  
Profile scale 1 cm. = 25%  
Contour interval \_\_\_\_\_

MAGNETIC

Instrument \_\_\_\_\_  
Accuracy - Scale constant \_\_\_\_\_  
Diurnal correction method \_\_\_\_\_  
Base Station check-in interval (hours) \_\_\_\_\_  
Base Station location and value \_\_\_\_\_

ELECTROMAGNETIC

Instrument Geonics FM-16  
Coil configuration not applicable  
Coil separation not applicable  
Accuracy ± 1%  
Method:  Fixed transmitter  Shoot back  In line  Parallel line  
Frequency Annapolis Maryland 21.4 KHZ  
(specify V.L.F. station)

Parameters measured in phase and quadphase components of vertical magnetic field as a percentage of horizontal primary field.

GRAVITY

Instrument \_\_\_\_\_  
Scale constant \_\_\_\_\_  
Corrections made \_\_\_\_\_  
Base station value and location \_\_\_\_\_  
Elevation accuracy \_\_\_\_\_

INDUCED POLARIZATION RESISTIVITY

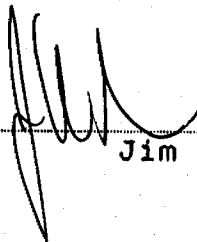
Instrument \_\_\_\_\_  
Method  Time Domain  Frequency Domain  
Parameters - On time \_\_\_\_\_ Frequency \_\_\_\_\_  
- Off time \_\_\_\_\_ Range \_\_\_\_\_  
- Delay time \_\_\_\_\_  
- Integration time \_\_\_\_\_  
Power \_\_\_\_\_  
Electrode array \_\_\_\_\_  
Electrode spacing \_\_\_\_\_  
Type of electrode \_\_\_\_\_

I Jim Whelan of 6 Baron Avenue Kirkland Lake Ontario Hereby certify:

That I am a Geotechnician employed by LAC Minerals Ltd.

That I have been practicing my profession for 6 years.

That I am qualified to write this report.



---

Jim Whelan



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*Lands Management* The Mi

Type of Survey(s) **VLF - EM** *WPR of 136* **Arnold**

Claim Holder(s) **Lac Minerals Ltd.** **2.11229** Prospector's Licence No. **T-664**

Address **91 Duncan Avenue, KIRKLAND LAKE, Ontario P2N 1Y2**

Survey Company **Lac Minerals Ltd.** Date of Survey (from & to) **28 03 88** | **28 03 88** Total Miles of line Cut **6.5**

Name and Address of Author (of Geo-Technical report) **Jim Whelan, 6 Baron Avenue, KIRKLAND LAKE, Ontario P2N 2Y2**

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	20
For each additional survey: using the same grid: Enter 20 days (for each)	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
<b>ONTARIO GEOLOGICAL SURVEY</b>	- Magnetometer	
<b>ASSESSMENT FILES</b>	- Radiometric	
<b>OFFICE</b>	- Other	
<b>JUN 2 1988</b>	Geological	
<b>RECEIVED</b>	Geochemical	
Airborne Credits	Electromagnetic	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
L	1104642				
	1014642				
	1814643				
	1104645				
	891926				
	891927				
	891928				
	891929				
	891930				
	891931				

**RECEIVED**  
**APR 12 1988**  
**MINING LANDS SECTION**

**LARDER LAKE MINING DIV.**  
**RECEIVED**  
**MAR 3 1988**  
AM 9:55 PM 7 8 9 10 11 12 1 2 3 4 5 6

**RECORDED**  
**MAR 31 1988**  
Receipt # \_\_\_\_\_

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.

Total number of mining claims covered by this report of work. **8**

Date **March 30, 1988** Recorder Holder or Agent (Signature) *[Signature]*

For Office Use Only

Total Days Cr. Recorded **160** Date Recorded **Mar 31/88** Mining Recorder *[Signature]*

Date Approved as Recorded **30 May 88** Branch Director *[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 **Jim Whelan, 6 Baron Avenue, KIRKLAND LAKE, Ontario P2N 2Y2**

Date Certified **March 30, 1988** Certified by (Signature) *[Signature]*

Clifford Twp. (M.338)

THE TOWNSHIP  
OF

# ARNOLD

DISTRICT C  
TIMISKAMIN

LARDER LA  
MINING DIVISION

SCALE: 1-INCH = 4CHAINS

### LEGEND

- PATENTED LAND (P)
- CROWN LAND SALE (C.S.)
- LEASES (L)
- LOCATED LAND (Loc.)
- LICENSE OF OCCUPATION (L.O.)
- MINING RIGHTS ONLY (M.R.O.)
- SURFACE RIGHTS ONLY (S.R.O.)
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES
- CANCELLED
- PATENT SURFACE RIGHTS ON (Barrick Power Line)

### NOTES

40' surface rights reservation for the lakes and rivers.

Areas withdrawn from staking Section 43 of the Mining Act (R.S.O.)

Order No.	File	Date	Position
(P)	163497	APRIL 17/70	S.R.O.
(P)	NR W. 32/79 172213	MAY 4/79	S.R.O.

- (---) PROPOSED CROWN SUBDIVISION
- (---) PROPOSED POWER LINE RIGHT-OF-WAY-CONTRACTORS OF KIRKLAND LAKE

### NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE TIMISKAMIN MANAGEMENT UNIT AND MAY BE SUBJECT TO FOREST OPERATIONS. THE MNR UNIT FORESTER FOR TREASURY CAN BE CONTACTED AT: P.O. BOX 129, SWASTIKA, ONT. R0K 1T0, 705-642-3222

PLAN NO. M.337

ONTARIO  
MINISTRY OF NATURAL SOURCES  
SURVEYS AND MAPPING NCH

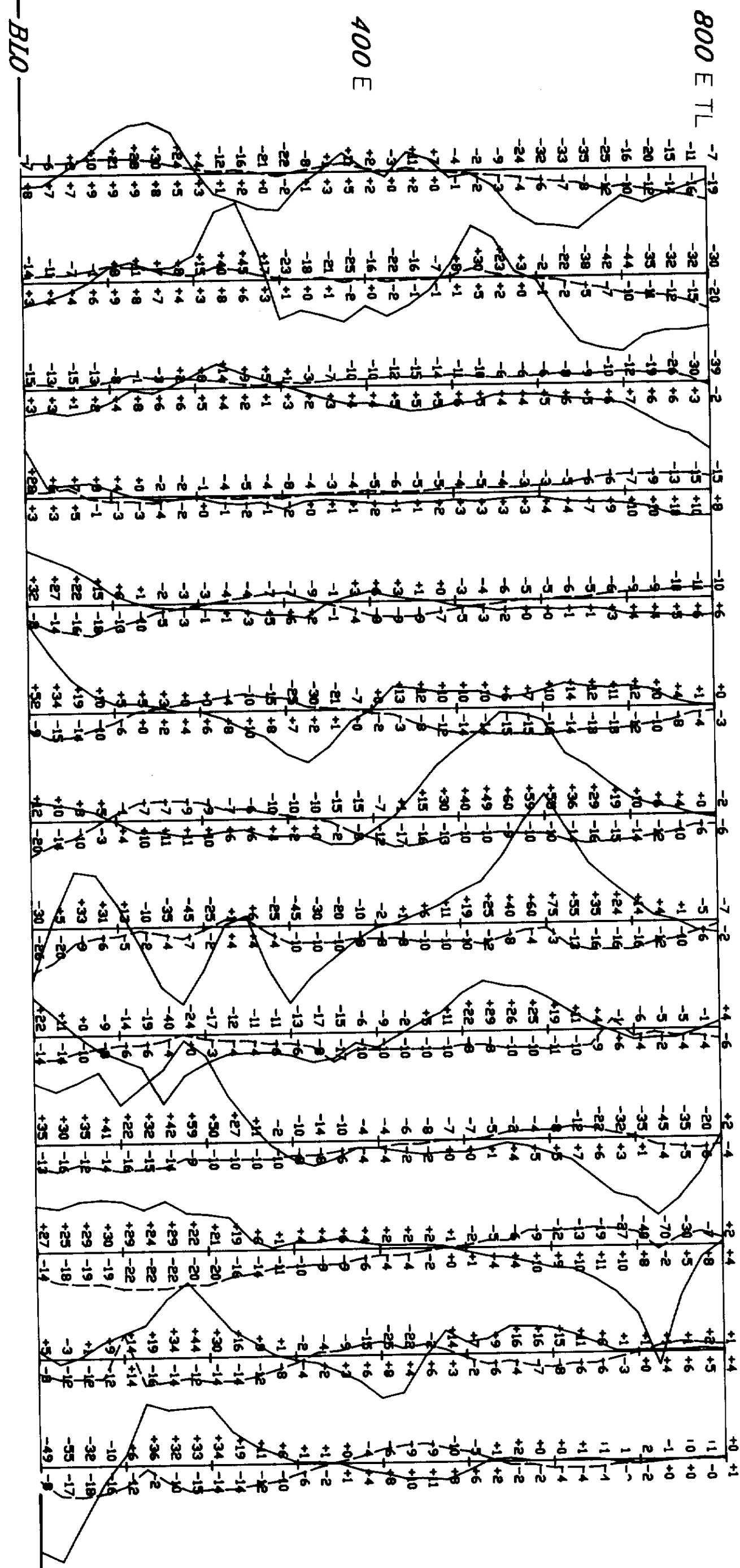
Morrisette Twp. (M.374)

Katrine Twp. (M.357)

Gauthier Twp. (M.350)



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L1500N

L1375N

L1250N

L1125N

L1000N

L875N

L750N

L625N

L500N

L375N

L250N

L125N

L0N

2.1129

ARNOLD TWP.  
MORRISETTE TWP.

INSTRUMENT: GEONICS EM-16  
Tx: AT ANNAPOLIS MARYLAND 21.4 KHZ  
INPHASE -----  
QUADPHASE -----  
VERTICAL SCALE 1cm = 25%

OPERATOR



LAC

LAC Minerals d.  
EXPLORATION DIVISION  
Kirkland Lake, Ontario

DRAWN BY Peter Hofman  
CHECKED BY \_\_\_\_\_  
APPROVED BY \_\_\_\_\_  
REVISED BY \_\_\_\_\_  
DRAWING N<sup>o</sup> \_\_\_\_\_

TITLE  
A-Grid  
VLFM SURVEY  
Scale 1:5000



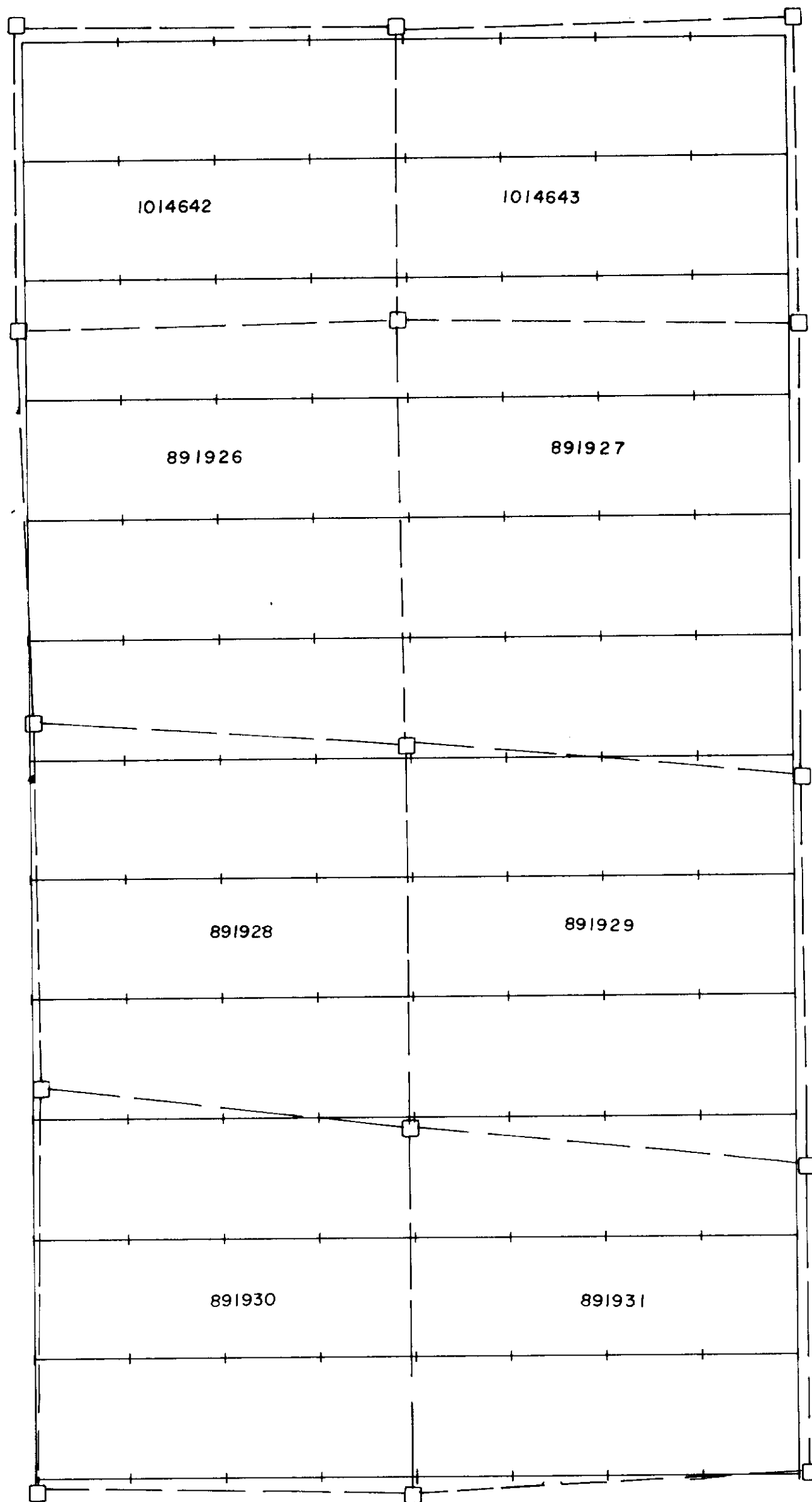
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B10

400 E

800 E



L1500 N

L1375 N

L1250 N

L1125 N

L1000 N

L875 N

L750 N

L625 N

L500 N

L375 N

L250 N

L125 N

L0 N



**2. 1129**



LAC

LAC Minerals Ltd.  
EXPLORATION DIVISION  
Kirkland Lake, Ontario

DRAWN BY Peter Hofman  
CHECKED BY \_\_\_\_\_  
APPROVED BY [Signature]  
REVISED BY \_\_\_\_\_

TITLE  
A-Grid  
Grids

DRAWING N<sup>o</sup>

Scale 1:5000



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