



42A06NW0130 2.5419 DELORO

010

REPORT ON  
VLF-EM SURVEY  
FOR

MINING CLAIMS P.591322 to 591324

P.591575 to 591580

DELORO TOWNSHIP

PORCUPINE MINING DIVISION

DISTRICT OF COCHRANE

ONTARIO

BY

PAMOUR PORCUPINE MINES LIMITED,  
EXPLORATION DEPARTMENT

JANUARY, 1983

**RECEIVED**  
MAR 11 1983  
MINING LANDS SECTION

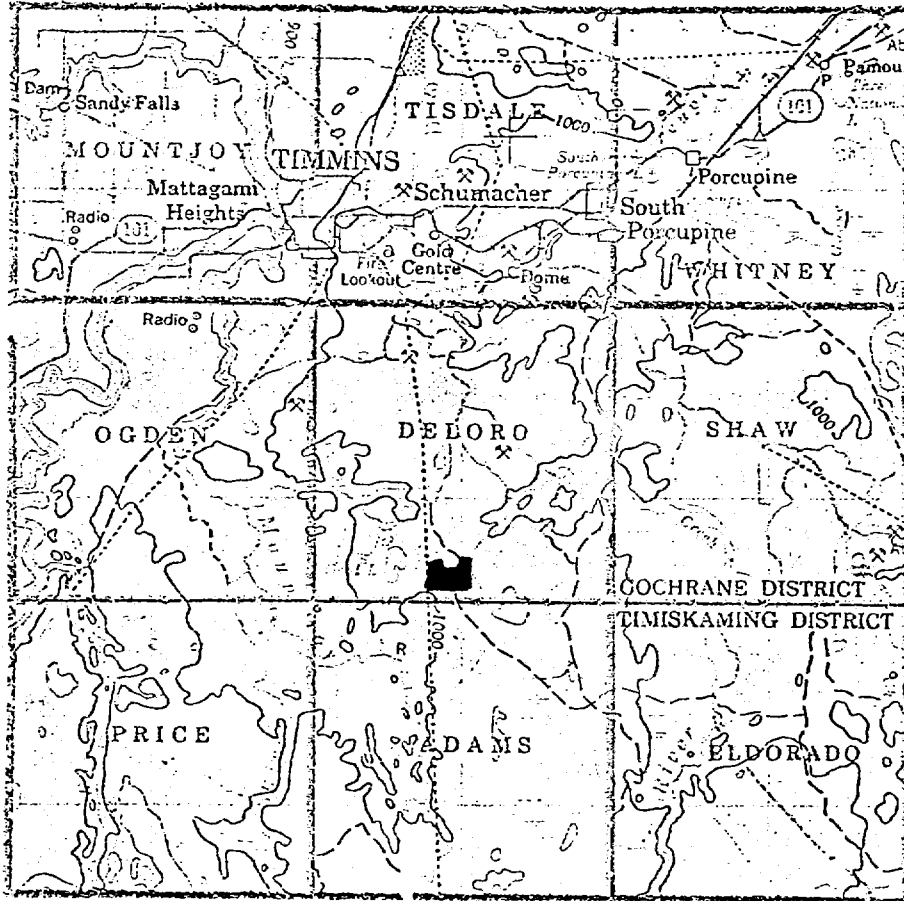


42A06NW0130 2.5419 DELORO

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LOCATION MAP

Scale: 1 inch = 4 miles

## INTRODUCTION

A VLF-EM survey was conducted on nine contiguous claims, approximately 6.5 miles south of the Buffalo Ankerite mine, in the southern part of Deloro Township, Ontario.

The purpose of the VLF-EM survey was to assist in defining the carbonate-magnesite zone and to locate faults and any iron formation which might be a host for gold mineralization.

The grid layout was done during the 1982 field season. The VLF-EM survey was conducted by Pamour Exploration personnel, Danny Pietracupa and Nick Bedard, from June 23 to 26, 1982 under the supervision of Kian Jensen, staff Geophysicist-Geologist. A summary of the survey statistics is found in Appendix A.

## LOCATION AND ACCESS

The mine claims are located in the southern portion of Deloro Township about one quarter to one mile north of the three mile post on the Deloro-Adams Township line.

Access to the claim group is from the Buffalo Ankerite mine. The road leads south for about 6½ miles to the open pit in claim P.591324. In places, the road has been flooded by beaver dams.

## PROPERTY

The property is owned 100% by:

Pamour Porcupine Mines Limited,  
P.O. Bag 2010,  
TIMMINS, Ontario.  
P4N 7X7

and consists of the following:

### Present Claim

P.591322  
P.591**223**  
P.591324  
P.591575

### Former Claim

P.21349  
P.21280  
P.25167  
P.21710

Present Claim

P.591576  
P.591577  
P.591578  
P.591579  
P.591580

Former Claim

P.25168  
HR 1203  
P.18693  
P.21279  
P.21325

PREVIOUS WORK

The nine claims is part of the former 59 patent claims of Porcupine Southgate Mine (option to Canadian Magnesite).

During 1945 to 1947, Porcupine Southgate Mines and Balmoral Porcupine Mines drilled extensively for gold mineralization, a total of 42,603 feet.

In 1959, Nicolet Asbestos Mines held the option and conducted geological mapping and limited diamond drilling.

During the early 1960's to 1981, Canadian Magnesite held the above mentioned 59 patent claims and an additional 10 unpatented claims in Adams Township. This company conducted geological mapping, bulk sampling and metallurgical testing.

Pamour Porcupine Mines, Limited acquired the claims on June 1 and June 6, 1982.

GEOLOGY

The geology consists of medium to coarse grained carbonate zone (magnesite) in claims 591322 and 591324 flanked on the north by mafic to intermediate volcanics and chlorite schists which was intruded by an east-west diabase. To the west of this zone, the majority of the outcrop consists of volcanics, schist and ultrabasic intrusives, while the southern part is predominately volcanics intruded by ultrabasic units.

In the assessment reports, iron formation is present on the northern boundary of former claim HR 1203 (TRS 1590) now P.591577.

## GEOPHYSICAL SURVEY

The purpose of the VLF-EM survey was to define the lithological contacts with emphasis on the carbonate (magnesite) zone and the iron formation, and to locate any structural features.

The grid was cut at a line separation of 400 feet with stations every 100 feet. The baseline and tie line were also observed every 100 feet. A total of  $7\frac{1}{4}$  miles were surveyed to establish 316 stations utilizing Cutler, Maine (17.8 KHz) as a radio transmitter source.

## INSTRUMENT SPECIFICATIONS

The specifications for the Phoenix VLF-2 is in Appendix B.

## PROCEDURES

A calibration station was established at 6+00N on Line 0. Both VLF-EM instruments were calibrated to a Horizontal Field Strength (HFS) of 100%, using Cutler, Maine (17.8 KHz) as the radio transmitter source.

Once the calibration was completed, north-south traverse lines were surveyed. The data collected using the Crone conversion. At each 100 foot station, the operator faced southwards ( $90^\circ$  to the right from the direction of Cutler), and recorded the HFS. When the operator faced Cutler, the dip of the EM field was recorded utilizing the bottom of the instrument to indicate the direction of dip.

Several duplicate stations were recorded and the accuracy and correlation was  $\pm 5\%$  HFS and  $\pm 2^\circ$  dip.

## DATA PRESENTATION

The profiles for the dip value are plotted on a 1 inch to 200 feet base map, and both the dip and HFS values are recorded at each station.

The conductors are indicated by a thick dashed line and lettered from 'A' to 'H'.

### INTERPRETATION

To assist in the interpretation, the dip values were Fraser Filtered using the Crone Convension. The following are the conductors located during the VLF-EM survey.

Anomaly A - This is probably related to a sub parallel fault and the contact between the ultramafic and intermediate volcanics.

Anomaly B & B' - These anomalies are probably due to the Magnesite-intermediate volcanics. Also these may be a faulted extension of Anomaly A.

Anomaly C - This is probably the contact between a suspect ultramafic and a NW fault zone.

Anomaly D - This weak zone may represent a shear zone in the magnesite ore body.

Anomalies E, F, F' and H - These four anomalies are related to suspected porphyry bodies, which possibly have shear zones.

Anomaly F appears to be the strongest and is probably influenced by the NE trending fault.

### CONCLUSIONS AND RECOMMENDATIONS

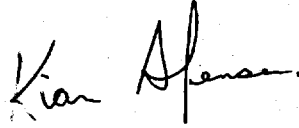
The VLF-EM survey did not detect the iron formation. One possibility exists, the iron formation is too small and the station spacing too large to detect this unit.

Only part of the NW fault was detected, while the NE fault lacked detection. For the accurate detection of the faults, small lines will be needed at 90° to the suspect faults. From Line 0 to Line - 12E, the lines should be orientated Northwest, while from Line 8W to Line - 24W the lines should have a bearing of Northeast.

The following anomlies appear to warrant further work to accurately assess the cause of them; B, B', f', F and H.

Future work should consist of geological mapping and possibly trenching. Upon the completion of this work, re-interpretation of the magnetic and VLF-EM data may be required.

I hereby submit that this report and accompanying map are accurate and true to the best of my knowledge and that they were completed by myself this 10th day of January, 1983

A handwritten signature in cursive script that reads "Kian A. Jensen".

KAJ/kg

Kian A. Jensen, B.Sc.  
Geophysicist/Geologist



## CURRICULUM VITAE

NAME: JENSEN, Kian A.  
ADDRESS: 374 Patricia Boulevard, Timmins, Ontario P4N 6Y6  
TELEPHONE: (705) 264-5748  
BIRTHDATE: September 24, 1951  
SEX: Male  
STATUS: Married  
EDUCATION: University of Waterloo, 1971 - 1975, B.Sc. Honour Earth  
Science, Geology Major

## RELATED EXPERIENCE

March 2 to Present PAMOUR PORCUPINE MINES LIMITED, PAMOUR NO. 1  
Employed as a geologist/geophysicist in the Exploration Department, Pamour No. 1. Responsible for conducting ground geophysical surveys, interpretation and reports. Other duties include geological mapping, drill core logging, ore calculations, and property evaluation.

September 1978 to February 1981 GEOTERREX LIMITED, 2060 Walkley Road, Ottawa  
Employed as a geophysicist/party chief conducting various types of ground geophysical surveys. Other responsibilities included training personnel, logistic reports, job proposals, billings, data reduction and interpretation. Clients and types of surveys involved in are as follows:

- Amoco Oil Limited - gravity survey
- Ontario Hydro - seismic survey
- Urangeschellshaft Canada Limited - Max-Min and horizontal PEM surveys
- Energy, Mines and Resources, Earth Physics Branch - inertial gravity survey
- Geoterrex Limited, Calibogie test site - CEM, Max-Min, Proton magnetic and horizontal PEM surveys
- Newmont Exploration of Canada Limited - drillhole PEM survey
- Newmont Exploration of Canada Limited - EMP survey
- E & B Exploration of Canada Limited - gravity survey

Energy, Mines and Resources, Earth Physics Branch -  
inertial gravity survey

Geoterrex Limited, Calibogie test site - Elfast turam,  
IP and DEEPEM surveys

Abitibi-Price Inc. - interpretation of drillhole PEM  
survey

May to  
September 1978

RAYROCK RESOURCES LIMITED (MINES), 1011-2200 Yonge Street,  
Toronto

Employed as a field geologist conducting a reconnaissance  
geochemical survey for uranium in central North West  
Territories. Other responsibilities included rock sampling,  
reconnaissance mapping, claim work, and assisted in  
compiling airborne radiometric results.

September 1974  
to  
April 1975

B.Sc. Thesis, "A Geophysical Investigation for Buried  
Bedrock Valleys in the Belwood Lake Area".

This involved data acquisition, computer modelling, and  
interpretation of gravity and resistivity surveys.

September 1974  
to  
April 1975

UNIVERSITY OF WATERLOO, Waterloo, Ontario

Employed to sort and catalogue rock suites and set up  
museum displays of ore suites from Canadian mines.

May to  
September 1974

CANADIAN OCCIDENTAL PETROLEUM LIMITED, 311-215 Carlingview  
Drive, Rexdale, Ontario

Employed as a field geologist conducting reconnaissance  
and detail geochemical surveys for base metals in south-  
central British Columbia. Other responsibilities included  
claim work, rock sampling, and the preparation of geochemical  
anomaly maps.

October to  
December 1973

UNIVERSITY OF WATERLOO, Waterloo, Ontario

Employed as a geophysical assistant conducting gravity,  
resistivity, and seismic surveys.

#### OTHER EMPLOYMENT

October 1977  
to May 1978      GOLDEN TRIANGLE SECURITIES AND INVESTIGATIONS, 52A Francis  
Street, Kitchener, Ontario

Employed as a security guard at Pirelli Cables in  
Guelph, Ontario.

June 1975 to  
September 1977      TOWERS DEPARTMENT STORES, 1013 Ontario Street,  
Stratford, Ontario

Employed as a department manager responsible for staff  
schedules, ordering, inventory, and sales.

#### MEMBERSHIPS

Society of Exploration Geophysicists (1981) - Associate Member

Prospector's Licence (Individual) - A44525

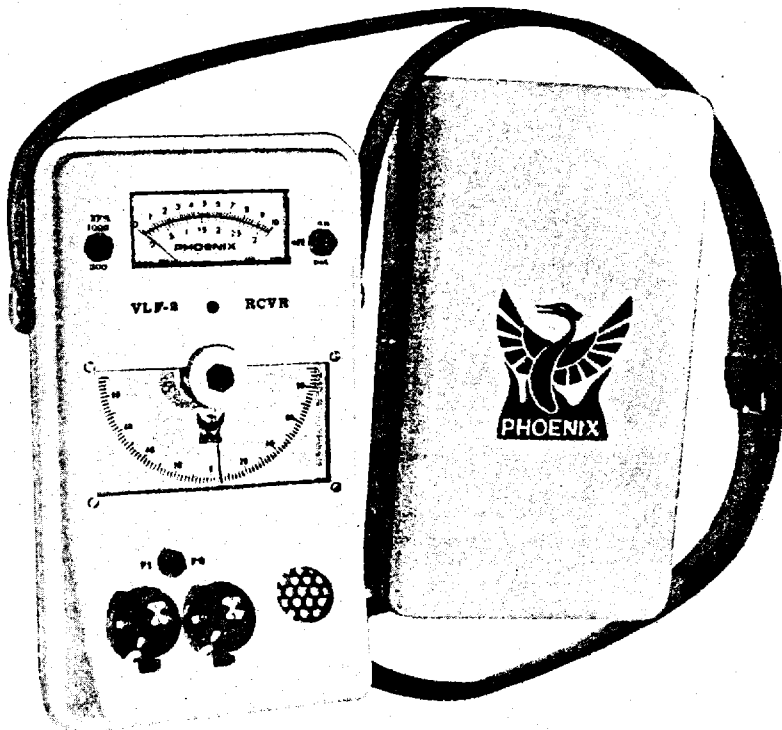
APPENDIX A

DATE	PERSONNEL	FUNCTION
June 23, 1982	Danny Pietracupa Nick Bedard	Data Aquistion Data Aquistion
June 24, 1982	Danny Pietracupa Nick Bedard	Data Aquistion Data Aquistion
June 26, 1982 ( $\frac{1}{2}$ day)	Danny Pietracupa Nick Bedard	Data Aquistion Data Aquistion
June 28, 1982	Danny Pietracupa	Data Reduction
June 29, 1982	Kian Jensen	Compilation and Interpretation
January 10, 1983	Kian Jensen	Report

# VLF-2

## Electromagnetic Unit

- Lightweight, low battery drain, rugged, simple to operate
- Two independent channels
- Each channel may select any station between 14.0 and 29.9 kHz
- Single crystal used for all frequencies
- Locking clinometer provides tilt-angle memory
- Superheterodyne detection and digital filtering provide extremely high selectivity and noise rejection



Military and time standard VLF transmitters are distributed over the world. These stations are used for geophysical EM surveying thus eliminating the need for a local transmitter and permitting one-man operation.

To ensure that a station excites the prospective conductor, two stations at approximately right angles are used during a survey (see data on back).

The choice of 160 frequencies in the range 14.0 to 29.9 kHz permits the use of a local EM transmitter when no suitable regular VLF station is available.



## PHOENIX GEOPHYSICS LIMITED

Geophysical Consulting and Contracting, Instrument Manufacture, Sale and Lease.

Head Office: 200 Yorkland Blvd. Willowdale, Ont., Canada M2J 1R5. Tel: (416) 493-6350  
310 - 885 Dunsmuir St. Vancouver, B.C., Canada V6C 1N5. Tel: (604) 684-2285  
4690 Ironton St. Denver, Colorado, U.S.A. 80239. Tel: (303) 373-0332

# Specifications

- Parameters Measured** : Orientation and magnitude of the major and minor axes of the ellipse of polarization.
- Frequency Selection, Front Panel** : Dual channel, front panel selectable (F1 or F2) each with independent precision 10-turn dial gain control.
- Frequency Selection, Internal** : F1 and F2 can be selected by internal switches within the range 14.0 to 29.9 kHz in 100 Hz increments.
- Detection And Filtering** : Superheterodyne detection and digital filtering provide a much narrower bandwidth and thus greater rejection of interfering stations and 60 cycle noise than conventional receivers.
- Meter Display** : 2 ranges; 0 to 300 or 0 to 1000. Background is typically set at 100. Meter is also used as dip angle null indicator and battery test.
- Audio** : Crystal speaker. 2500 Hz used as null indicator.
- Clinometer** :  $\pm 90^\circ$ ,  $+0.5^\circ$  resolution. Normal locking, push button release.
- Battery** : One standard 9v transistor radio battery. Average life expectancy - 1 to 3 months (battery drain is 3 mA)
- Temperature Range** :  $-40^\circ$  to  $+60^\circ$  C.
- Dimensions** : 8 x 22 x 14 cm (3 x 9 x 6 inches).
- Weight** : 850 grams (1.9 pounds).

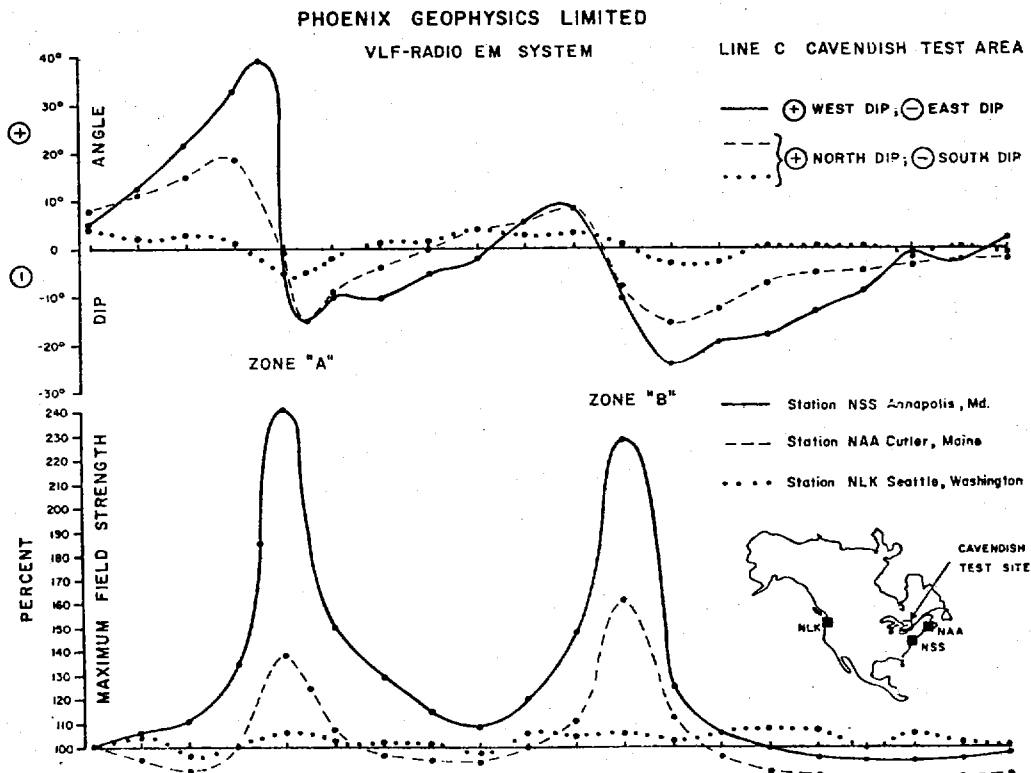
All of the established stations may be selected, or alternatively, a local VLF transmitter may be used which transmits at any frequency in the range 14.0 to 29.9 kHz.

VLF Station	Frequency (kHz)
Bordeaux, France	15.1
Odessa (Black Sea)	15.6
Rugby, U.K.	16.0
Moscow, U.S.S.R.	17.1
Yosamai, Japan	17.4
Hegaland, Norway	17.6
Cutler, Maine	17.8
Seattle, Washington	18.6
Malabar, Java	19.0
Oxford, U.K.	19.6
Paris, France	20.7
Annapolis, Maryland	21.4
Northwest Cape, Australia	22.3
Laulualei, Hawaii	23.4
Buenos Aires, Argentina	23.6
Rome, Italy	27.2

## Field Data

The results below illustrate the need for using two orthogonal stations when the strike of the prospective conductor is not well-known. The dip angle and amplitude data measured using station NLK in Seattle, Washington, show only a very weak anomaly associated with the two conductive sulphide zones at Cavendish, Ontario.

The results obtained using Cutler, Maine reveal a more prominent anomaly, but the best response was obtained using Annapolis, Maryland since the station lies almost due south and the transmitted electromagnetic field is thus maximum-coupled with the North-South trending conductors.





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

Instructions: - Please type or print.  
- If number of mining claims traversed exceeds space on this form, attach a list.

The Mining



42A06NW0130 2.5419 DELORO

900

Type of Survey(s)  
**VLF-EM SURVEY**

Claim Holder(s)  
**PAMOUR PORCUPINE MINES LTD.**

Survey Company  
**PAMOUR EXPLORATION**

Survey Dates (linecutting to office)  
**23 06 82 16 01 83**

Total Miles of line Cut  
**7 1/4**

Name and Address of Author (of Geo-Technical report)  
**KIAN A. JENSEN % PAMOUR MINES, P.O. BAG 2010, TIMMINS, ONTARIO**

Special Provisions Credits Requested

Instructions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	20
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Mining Claims Traversed (List in numerical sequence)

Prefix	Mining Claim		Expend. Days Cr.	Prefix	Mining Claim		Expend. Days Cr.
	Number	Number			Number	Number	
P	591322						
	591323						
	591324						
	591575						
	591576						
	591577						
	591578						
	591579						
	591580						

**RECEIVED**  
FEB 15 1983

MINING LANDS SECTION

**RECORDED**  
FEB 11 1983

Man Days

Instructions	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits

Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

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.

Report Completed

Date of Report: **Jan 10 / 83**

Recorded Holder or Agent (Signature): **Kian Jensen**

For Office Use Only

Total Days Cr. Recorded: **180**

Date Recorded: **Feb. 11 / 83**

Date Approved as Recorded: **83:08:10**

Mineral Recorder: **[Signature]**

Regional/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  
**KIAN A. JENSEN, 374 PATRICIA BLVD, TIMMINS, ONTARIO, P4N 6Y6**

Date Certified: **Jan 10 / 83**

Certified by (Signature): **[Signature]**



May 24/83

File 2.5419

Mining Lands Comments


To: Geophysics *Mr. Barlow.*

Comments

<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date <i>July 26/83</i>	Signature <i>Douglas H. Pritch</i>
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To: Geology - Expenditures

Comments

<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature
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To: Geochemistry

Comments

*L.D.*

<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature
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To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)



1983 03 21

2.5419

Mining Recorder  
Ministry of Natural Resources  
60 Wilson Avenue  
Timmins, Ontario  
P4N 2S7

Dear Sir:

We have received reports and maps for a Geophysical  
(Electromagnetic) survey submitted under Special  
Provisions (credit for Performance and Coverage) on  
Mining Claims P 591322 et al in the Township of Deloro.

This material will be examined and assessed and a  
statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson  
Director  
Land Management Branch

Whitney Block, Room 6450  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: 416/965-1380

A. Barr:sc

cc: Pamour Porcupine Mines Ltd  
P.O. Bag 2010  
Timmins, Ontario  
Attn: Mr. Kian A. Jensen.

Pamour Porcupine Mines, Limited  
Administration Building  
P.O. Bag 2010  
Timmins, Ontario, Canada P4N 7X7

**pamour**

March 8, 1983

Lands Administration Branch,  
Mining Lands Section,  
Ministry of Natural Resources,  
Room 6450, Whitney Block,  
Queen's Park,  
TORONTO, Ontario.  
M7A 1W3

**RECEIVED**

**MAR 11 1983**

**MINING LANDS SECTION**

Dear Mr. Matthews:

Please find enclosed two copies of each of the following reports:

Report on VLF-EM Survey for Mining Claims  
P.591322 to 591324  
P.591575 to 591580  
in Deloro Township.

Report on VLF-EM Survey for Mining Claims  
P.554627 to P.554644  
in Shaw Township.

Submitted by Pamour Porcupine Mines Limited, Exploration Department.

Sincerely,



Diane McKinnon,  
Pamour Exploration Department.

DM/kg

THE TOWNSHIP OF DELORO

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 20 CHAINS

LEGEND

- PATENTED LAND (P)
- CROWN LAND SALE (CS)
- 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 MUSKOG
- MINES
- CANCELLED
- PATENTED S.R.O.

NOTES

400' Surface Rights reservation along the shores of all lakes and rivers.

For status of fraction situated between Mg. Claims: HR.1132; H.R.947 & M.E.42 see File No. 119653

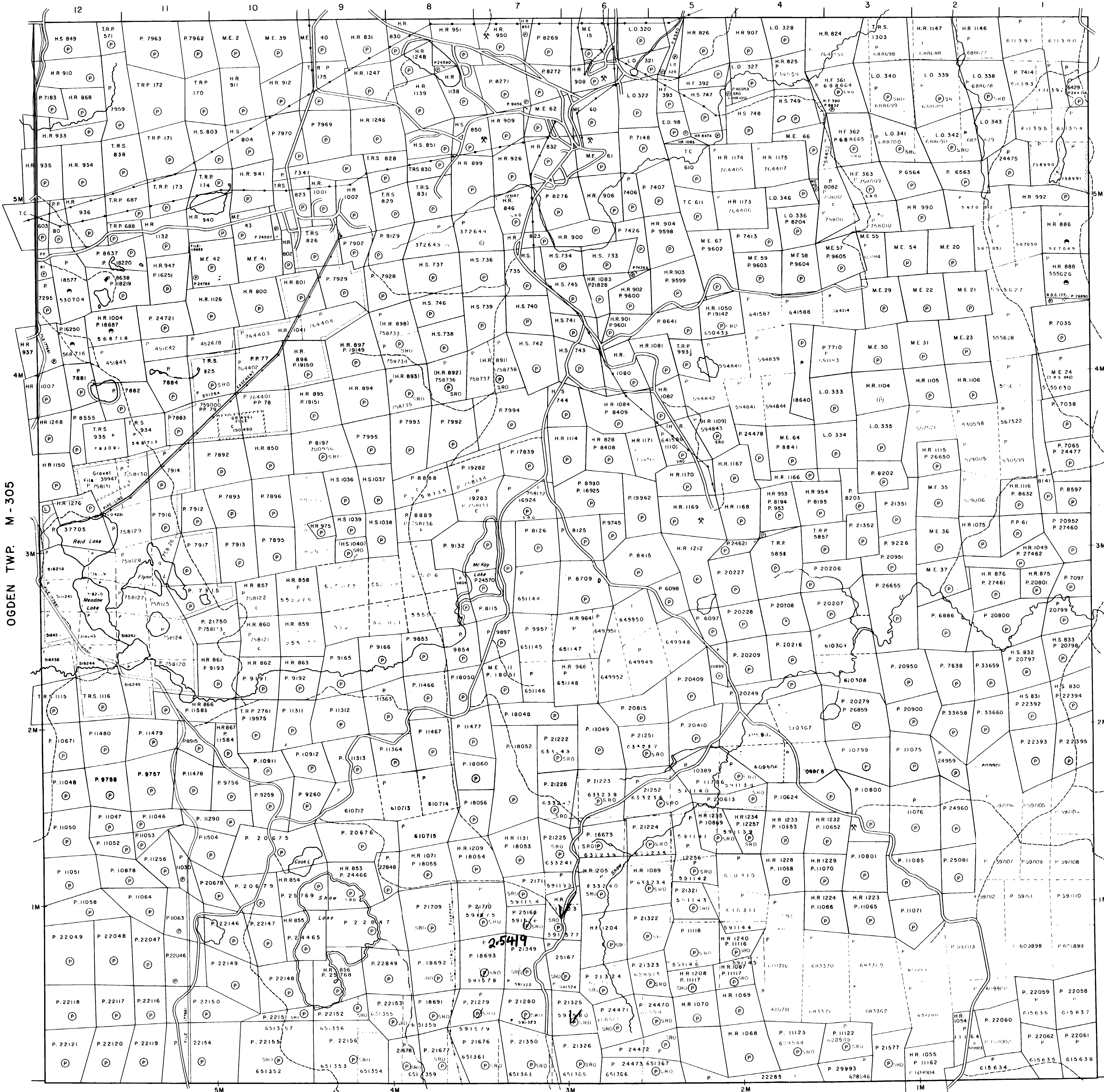
Mining claims within the area shown thus are subject to rights & privileges granted under an Easement Order dated May 19, 1937 to Deinite Mines Ltd.

This township lies within the Municipality of CITY of TIMMINS.

AREAS WITHDRAWN FROM DISPOSITION

- M.R.O. - MINING RIGHTS ONLY
- S.R.O. - SURFACE RIGHTS ONLY
- M.+S. - MINING AND SURFACE RIGHTS

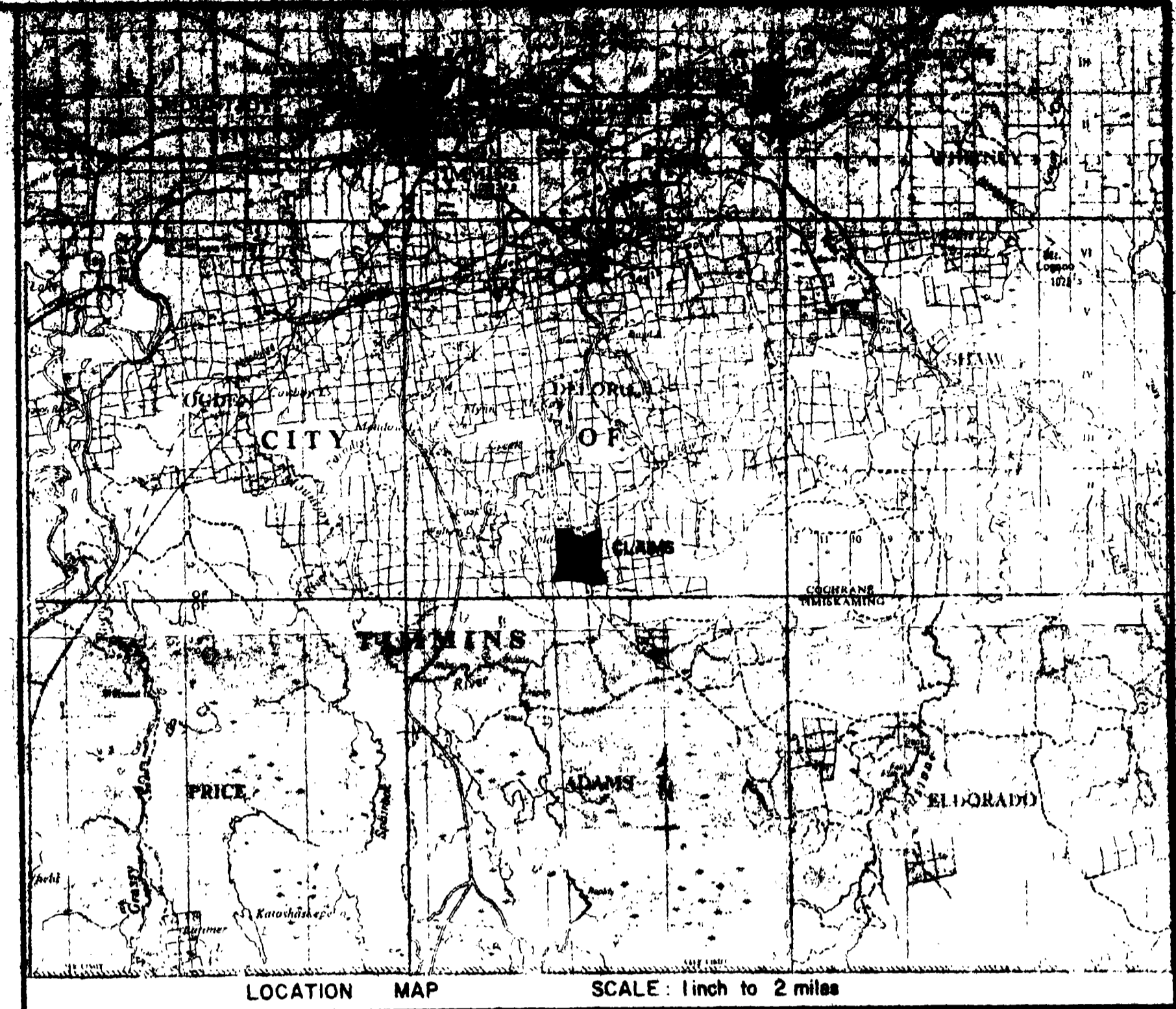
Description	Order No.	Date	Disposition	File
SEC 16/RD	W 16/83	2/3/83	S.R.O.	18843



OGDEN TWP. M-305

SHAW TWP. M-309

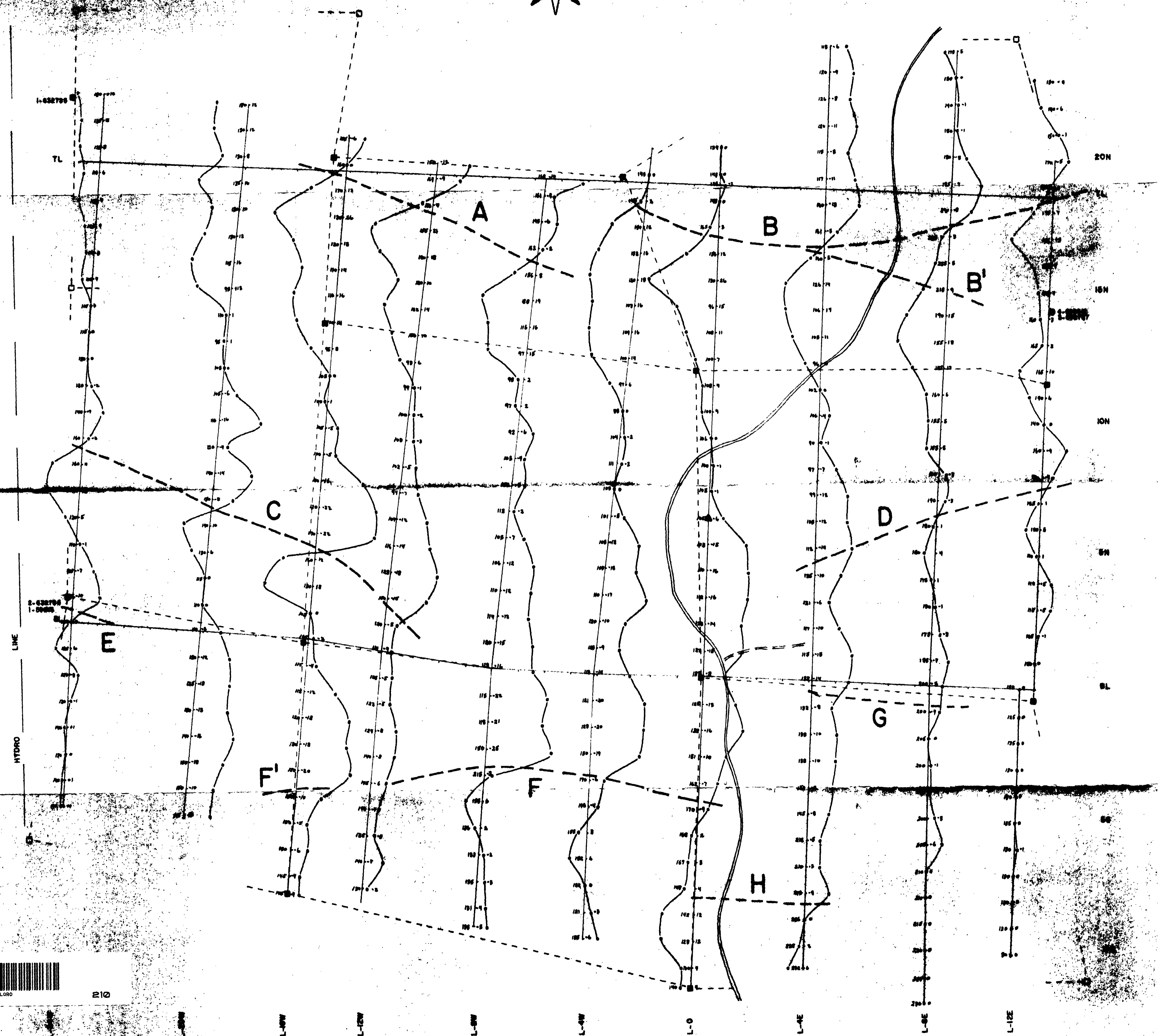
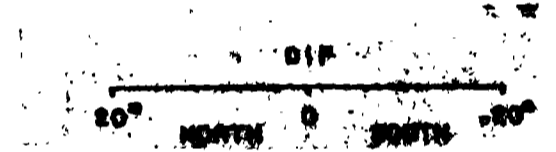




INSTRUMENT: PHOENIX VLF-2  
CUTLER, MAINE  
FREQUENCY: 17.8 kHz

—●—●— DIP  
- - - - - H.F.S.  
- - - - - H.F.S./DIP

SCALES: DIP 1" = 20'  
H.F.S. 1" = 100'



PAMOUR PORCUPINE MINES LIMITED  
**PAMOUR EXPLORATION**  
 MAGNESITE PROJECT

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DELORO TOWNSHIP, ONTARIO  
 PORCUPINE MINING DIVISION  
**VLF-EM SURVEY**

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CLAIM NUMBERS: P-591322 to 591324, P-591575 to 591580

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Drawn by: K. A. JENSEN      Scale: 1 inch = 200 feet  
 Date: May 20, 1982      Approved by: *Ryan Jensen*  
*January 10/83*