Report on Magnetic and Electromagnetic (VLF) Survey

on Claim P 591264,

Northwest Deloro Township,

Porcupine Mining Division, Ontario

July 20, 1982

Timmins, Ontario

D.R. Pyke, Ph.D.

D R Pyke

Table of Contents

Location

The property is located in northwest Deloro Township, District of Cochrane, Porcupine Mining Division. The property consists of one claim , number P 591264.

Access

The claim is readily accessible, being only four miles south of the Timmins City Centre. A logging road extends across the southern part of the claim, and intersects Pine Street south, 1.25 miles to the west, which forms the Deloro - Ogden Township boundary.

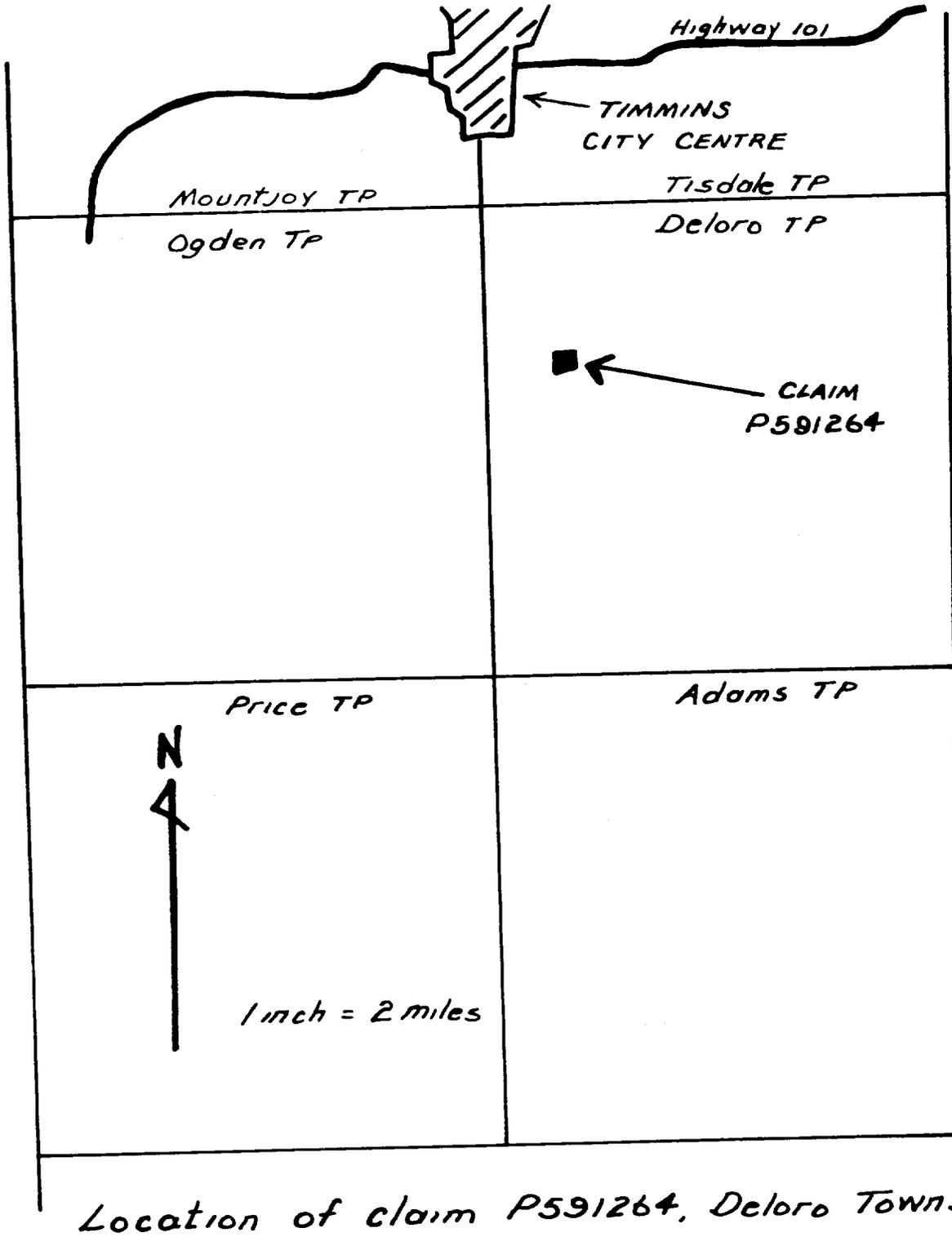
Previous Work

No assessment work has been reported for the claim comprising the property.

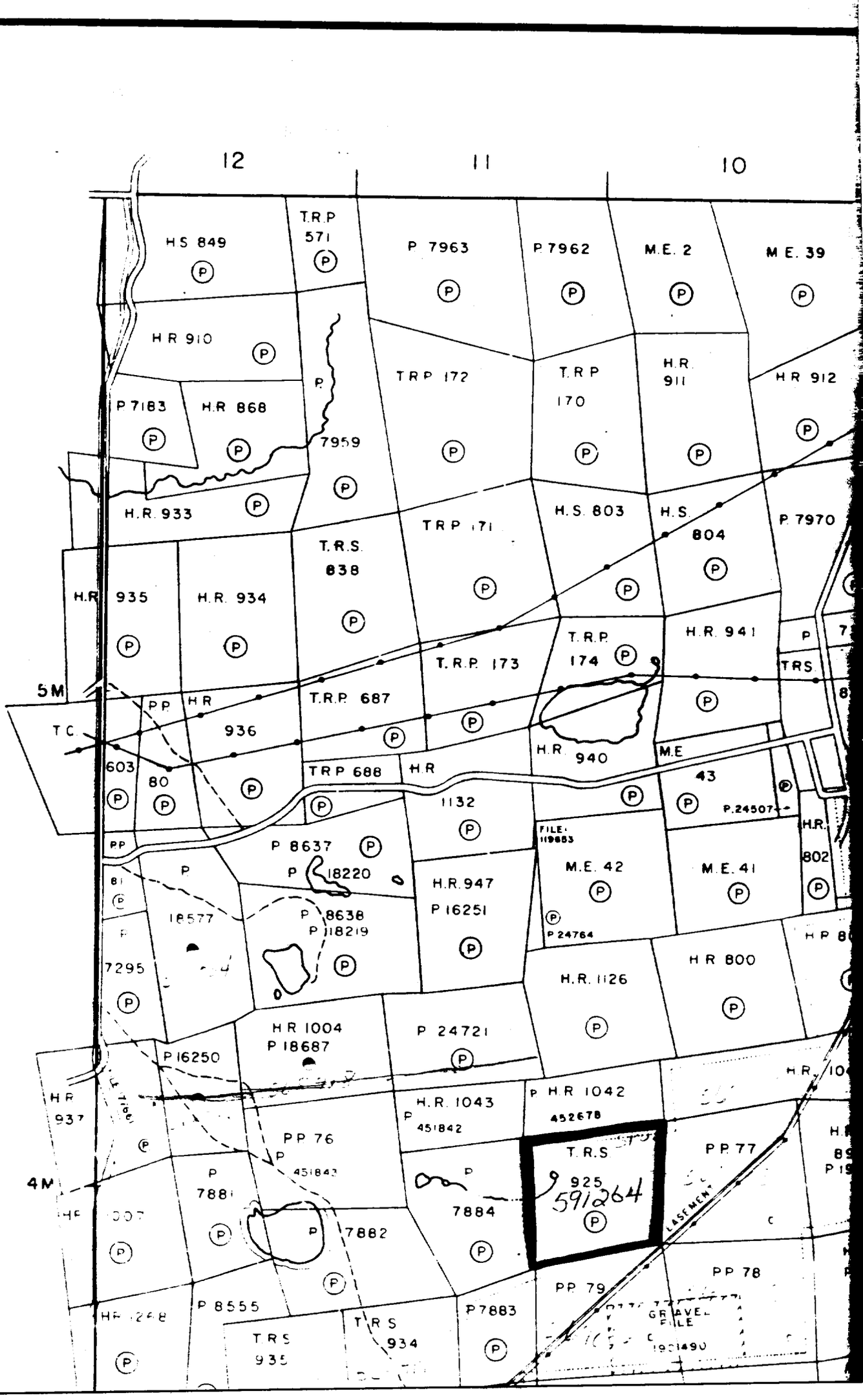
The geology of the claim and surrounding area has been mapped by Burrows (1924), Hurst (1939), and later by Carlson (1967).

Property Geology

The claim is very close to the Destor-Porcupine fault, which in this portion of the Timmins area separates the Deloro and Tisdale Group volcanic rocks (Pyke, 1982). Lack of outcrop precludes the exact



Location of claim P591264, Deloro Township.


12
11
10
H S 849
T.R.P 571
P 7963
P 7962
M.E. 2
M E. 39
H R 910
T R P 172
T.R.P 170
H.R. 911
H R 912
P 7183
H.R 868
7959
H.R. 933
H.S. 803
H.S. 804
P 7970
T.R.S. 838
T R P 171
H.R 935
H.R. 934
T.R.P. 173
T.R.P 174
H.R. 941
TRS
5M
T.C
PP
H R
936
T.R.P. 687
603
80
TRP 688
H.R
1132
H.R 940
M.E
43
P.24507
FILE: 119883
P 8637
P 18220
M.E. 42
M.E. 41
802
18577
8638
P 118219
H.R.947
P 16251
P 24764
7295
H.R. 1126
H R 800
H R 1004
P 18687
P 24721
P16250
H R 937
H.R. 1043
P 451842
P H R 1042
452678
PP 76
451843
4M
7881
7884
T.R.S
925
591264
PP 77
7882
PP 78
PP 79
P 8555
P7883
T R S
935
T R S
934
GRAVEL FILE
190490

positioning of the fault, which could be within the northern confines of the property. Only one outcrop occurs on the property, and consists of a massive, medium grey volcanic flow near the northwest corner of the claim.

Magnetic Survey

The magnetic survey was conducted on September 6, 1981. The survey is tied into the government station M-71-56 at the Kenilworth mine, having a value of 59875 gammas. Diurnal control was maintained by tying into base line readings which in turn were tied into the government station.

Magnetic readings were taken with a Geometrics portable proton magnetometer model G-816. The instrument measures the total magnetic field directly in gammas (see enclosed specifications). Readings were taken every 50 feet along lines spaced at 200 foot intervals; a total of 170 readings were taken. Background magnetics are in the order of 60,000 gammas.

Results and Conclusions

The property is relatively flat magnetically, generally being within the range of 200 gammas. The margin of one anomalously high zone extends into the southeast portion of the property, and probably reflects

the presence of nearby iron formation. This would suggest that at least a portion of the southern half of the claim is within the Deloro Group; the Upper formation of the Deloro Group being characterized by abundant iron formation.

Electromagnetic Survey

The electromagnetic survey was conducted on September 7, 1981. The instrument used was a Scopas VLF electomagnetic unit, model SE-80, manufactured by Scintrex. Specifications of the unit are attached. The transmitter station used for the present survey was Cutter Maine, which uses a frequency of 17.8 kHz, with a radiated power of 1000 kW.

Electomagnetic readings were taken at 50 foot intervals along lines spaced at 200 foot intervals, for a total of 161 readings.

The VLF data is presented in contoured form, following the method outlined by Fraser (1969). The Fraser filter value enhances the in-phase cross-overs recorded from the normal dip angle measurements and allows the data to be contoured (ie. it is a method of changing from profile data to contour data).

Results and Conclusions

An easterly trending moderate to weak electromagnetic conductor extends part way across the northern portion of the claim. Conceivably, this could in part

reflect the presence of the Destor-Porcupine fault.

Two relatively spurious conductors occur near the south boundary of the claim, and are difficult to meaningfully interpret within the confines of one claim.

Recommendations

Geochemical sampling of the humus (A^{o}) horizon in the northern half of the claim on the assumption that this portion of the claim is north of the Destor-Porcupine fault and that there is a favorable potential for gold mineralization.

References

Burrows, A.G.

1924: The Porcupine Gold Area, Fourth Report; Ontario Dept. Mines, Vol. 33, pt. 2, 112 p. Accompanied by map 33a, scale 1 inch to 2000 feet.

Carlson, H.D.

1967: Geology of Ogden, Deloro and Shaw Townships; Ontario Dept. Mines, Open File Rept. 5012, 117 p., Accompanied by maps P. 341, P. 342, P. 343, scale 1 inch to ¼ mile

Fraser, D.R.

1969: Contouring of VLF-EM Data; Geophysics, vol. 34, No. 6, p. 958 - 967

Hurst, M.E.

1939: Porcupine area, District of Cochrane, Ontario; Ontario Dept. Mines, Map 47a, scale 1 inch to 2000 feet.

Pyke, D.R.

1982: Geology of the Timmins Area, District of Cochrane; Ontario Geol. Survey, Rept. 219, 141p.

Certificate

I, D.R. Pyke, submit this document to certify that the following statements are, to the best of my knowledge, true and correct.

1. That I supervised the geophysical surveys conducted on claim P. 591264, northwest Deloro Township, conducted September 6 - September 7, 1981.

2. That I am the author of the corresponding assessment report entitled " Report on Magnetic and Electromagnetic (VLF) Survey on Claim P 591264, Northwest Deloro Township, Porcupine Mining Division, Ontario".

3. That I have received the following university degrees in geology:

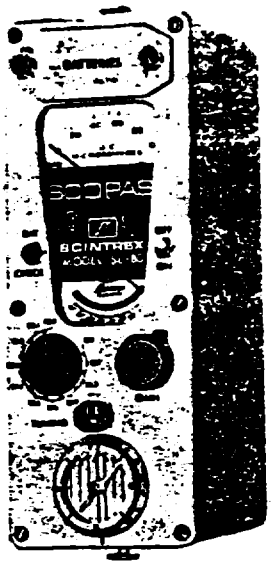
B.Sc.	University of Saskatchewan	1959
M.Sc.	University of Saskatchewan	1961
Ph.D.	McGill University, Quebec	1967

4. That I have been working as a geologist in the general Timmins area for 15 years, and I am familiar with the Geology of the area under consideration.

Respectfully,

D.R. Pyke

SE-81 SCOPAS II same overall specifications as SE-80 but with newly revised electronics for increased useable gain for remote stations.

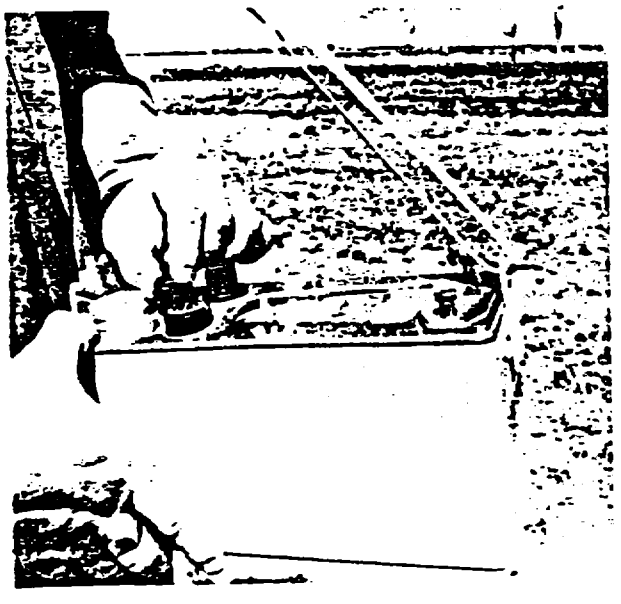


SCINTREX

SCOPAS VLF ELECTROMAGNETIC UNIT MODEL SE-80

The SCOPAS* VLF System employs V.L.F. Radio Stations in the 15 to 25 kHz Range as primary field sources. The undisturbed field from these remote sources is essentially horizontal and of relatively constant strength. When conductors are present, the geometry and amplitude of the field are locally distorted and polarization of the field may occur.

With the versatile SCOPAS* unit, all amplitudes and geometric parameters as well as the characteristics of the polarization ellipse can be measured. For fast reconnaissance surveys dip-angle and field directions can be rapidly determined. For detailed surveys, amplitude relations and the elliptical polarization in the horizontal and vertical planes can be determined as well. Thus, the operator can select the parameters most useful for his search problem.



*Can Pat 878765

SPECIFICATIONS OF SCOPAS VLF ELECTROMAGNETIC UNIT MODEL SE-80

Primary Field:	From any selected VLF transmitting station in frequency range between 15.4 kHz to 25 kHz.
Station Selection:	By means of an eight step switch and variable control covering full range.
Measured Values:	a) The azimuth of horizontal field. b) The dip of the axis of the coil at the minimum field, measured from the vertical. c) The amplitude of the horizontal field strength in any direction. d) The amplitude of the vertical field strength. The phase angle between the maximum horizontal and vertical field can be calculated from measured values.
Normal Reading Accuracy:	Amplitude ±2%. Azimuth ±2°. Dip ±1°.—Dependent on signal strength.
Batteries:	Two 9 volt dry cells.
Dimensions:	9.66"x 3.68"x 5.80" 24.5 cm x 9.4 cm x 14.7 cm
Weight:	3 lbs. (1.35 kg)
Accessories:	Carrying strap.

SCINTREX LIMITED
222 Snidercroft Road · Concord, Ontario, Canada

geoMetrics

Instrument Division

PORTABLE PROTON MAGNETOMETER
MODEL G-816 826

Data Sheet
August 1974

- ★ 1 gamma sensitivity and repeatability
- ★ Very small size and weight: less than 12 lbs complete with batteries and sensor
- ★ Over 10,000 readings per set of alkaline "D" cell (flashlight) batteries
- ★ Provision to attach sensor to carrying harness for use without staff
- ★ Pushbutton operation—numeric display directly in gammas
- ★ Total field measurements—independent of orientation—no calibration—no leveling

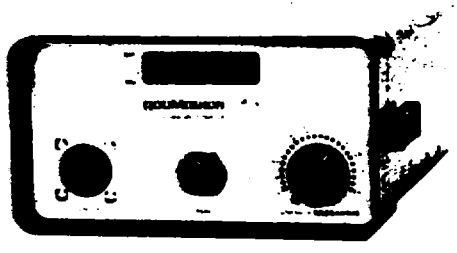
The Model G-816 is a complete portable magnetometer for all man-carry field applications. As an accurate yet simple to operate instrument, it features an outstanding combination of one gamma sensitivity and repeatability, compact size and weight, operation on standard universally available flashlight batteries, ruggedized packaging and very low price.

The G-816 magnetometer allows precise mapping of very small or large amplitude anomalies for ground geophysical surveys, or for detail follow-up to aeromagnetic reconnaissance surveys. It is a rugged, lightweight, and versatile instrument, equally well suited for field studies in geophysics, research programs or other magnetic mapping application where low cost, dependable operation and accurate measurements are required.

For marine, airborne or ground recording systems consider GeoMetrics Models G-801, G-803, and G-826.

"Hands-free" Back Pack Sensor

Based upon the principle of nuclear precession (proton) the G-816 offers absolute drift-free measurements of the total field directly in gammas. (The proton precession method is the officially recognized standard for measurement of the earth's magnetic field.) Operation is worldwide with one gamma sensitivity and repeatability maintained throughout the range. There is no temperature drift, no set-up or leveling required, and no adjustment for orientation, field polarity, or arbitrary reference levels. Operation is very simple with no prior training required. Only 6 seconds are required to obtain a measurement which is always correct to one gamma, regardless of operator experience. Only the Proton Magnetometer offers such repeatability—an important consideration even for 10 gamma survey resolution.



Complete Field Portable System

The Model G-816 comes complete, ready for portable field operation and consists of:

1. Electronics console with internally mounted and easily replaced "D" cell battery pack.
2. Proton sensor and signal cable for attachment to carrying harness or staff.
3. Adjustable carrying harness.
4. 8 foot collapsible aluminum staff.
5. Instruction manual, complete set of spare batteries, applications manual, and rugged field suitcase.

Price and lease rates on the G-816 magnetometer are available upon request.

SPECIFICATIONS

Sensitivity: ±1 gamma throughout range

Range: 20,000 to 90,000 gammas (worldwide)

Tuning: Multi-position switch with signal amplitude indicator light on display

Gradient Tolerance: Exceeds 300 gammas/ft (increased gradient tolerance to 800 gammas/ft upon request)

Sampling Rate: Manual push-button, one reading each 6 seconds

Output: 5 digit numeric display with readout directly in gammas

Power Requirements: Twelve self-contained 1.5 volt "D" cell, universally available flashlight-type batteries. Charge state or replacement signified by flashing indicator light on display.

Battery Type	Number of Readings
Alkaline	over 10,000
Premium Carbon Zinc	over 4,000
Standard Flashlight	over 1,500

NOTE: Battery life decreases with low temperature operation.

Temperature Range: Console and sensor: -40° to +85°C

Battery Pack: 0° to +50°C (limited use to -15°C; lower temperature battery belt operation—optional)

Accuracy (Total Field): ±1 gamma through 0° to +50°C temperature range

Sensor: High signal, noise cancelling, interchangeably mounted on separate staff or attached to carrying harness

Size: Console: 3.5 x 7 x 10.5 inches (9 x 18 x 27 cm)
Sensor: 4.5 x 6 inches (11 x 15 cm)
Staff: 1 inch diameter x 8 ft lenght (3 cm x 2.44 m)

Weight:

	Lbs.	Kgs.
Console (w/batteries):	5.5	2.4
Sensor & signal cable:	4	1.8
Aluminum staff:	2	0.9
Total:	11.5	5.1

All magnetometers and parts are covered by a one year warranty beginning with the date of receipt but not to exceed fifteen months from the shipping date.

geoMetrics 365 JAVA DRIVE SUNNYVALE, CA. 94086 U.S.A (408) 734-4616 CABLE: "GEOMETRICS" SUNNYVALE TELEX NO: 357-438

GEOMETRICS INTERNATIONAL CORP 80 ALFRED ST., MILSON'S POINT SYDNEY NSW 2061 PHONE: 929-8842

Exploranium 436 LIMESTONE CRESCENT, DOWNSVIEW (TORONTO), ONTARIO, CANADA TELEPHONE: (416) 661-1666 TELEX NO: 06-22894

WORLD-WIDE AGENTS: EUROPE • SCANDINAVIA • AUSTRALIA • UNITED KINGDOM • JAPAN • SO. AFRICA • SO. AMERICA

Ministry of Natural Resources
Ontario

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

#189 Deloro Twp. The

42A06NW0134 2.4974 DELORO

900

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...use shaded areas below.

Type of Survey(s): GEOPHYSICAL Mag + EM 12N-200FT	Township or Area: DELORO 42A/6NW
Claim Holder(s): D.R. Pyke	Prospector's Licence No.: K19126
Survey Company: WOLLEY EXPLORATION	Survey Dates (linecutting to office): 6 9 81 (Day Mo. Yr.) 23 5 82 (Day Mo. Yr.)
Name and Address of Author (of Geo-Technical report): D R PYKE 157 BORBANK DRIVE, WILLOWDALE Ont.	Total Miles of line Cut:

Special Provisions Credits Requested

Instructions: For first survey: Enter 40 days. (This includes line cutting). For each additional survey: using the same grid: Enter 20 days (for each)

Geophysical	Days per Claim
- Electromagnetic	20
- Magnetometer	20
- Radiometric	
- Other	
Geological	
Geochemical	

Man Days

Instructions: Complete reverse side and enter total(s) here

Geophysical	Days per Claim
- Electromagnetic	
- Magnetometer	
- Radiometric	
- Other	
Geological	
Geochemical	

RECORDED
MAY 25 1982
Receipt No.

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.

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P	591264	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
	4 [illegible]	
	[illegible]	

RECEIVED
MAY 31 1982
MINING LANDS SECTION

Total number of mining claims covered by this report of work: 1

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
40	May 25/82	
	Date Approved as Recorded: 82.06.14	Regional/Branch Director: Regional Mining Recorder

Report Completed

Date of Report	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

Date Certified

Certified by (Signature)

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.4974

Mining Lands Comments

Dec. 2 '82

report not required

☑ To: Geophysics Mr. Barlow

Comments

☑ Approved ☐ Wish to see again with corrections | Date May 11/83 | Signature R Barlow

☐ To: Geology - Expenditures

Comments

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Geochemistry

Comments

CD

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1593 (81/10)

1982 09 16

2.4974

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 and Magnetometer) Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claim P 591264 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: 416/965-1316

J. Skura:sc

cc: D.R. Pyke
Willowdale, Ontario

D.R. Pyke and Associates Inc.

157 Burbank Drive
Willowdale, Ontario
M2K 1N9
Telephone (416) 221-6210

July 22/82

LAND MANAGEMENT BRANCH
MINISTRY NATURAL RESOURCES
ROOM 6450
WHITNEY Block
QUEENS PARK
TORONTO M7A 1W3

RE Assessment Reports for Mountjoy, DELORO AND CAIRO Townships

Enclosed are duplicate copies of 5 assessmen reports.

- Three overburden drill reports for Mountjoy Township; claim groups 2, 3, & 4 2.4975 2.4976 2.4977
- One geophysical report Deloro Township 2.4974
- One geochemical (humus sompling) report, Cairo Township 2.4973

Sincerely.
D. R. Pyke.

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

Township or Area DELORO

Claim Holder(s) D. R. Pyke.

Survey Company WOLLEX EXPLORATION

Author of Report D. R. Pyke

Address of Author 157 BURBANK DR. WILLOWDALE ONT

Covering Dates of Survey _____ (linecutting to office)

Total Miles of Line Cut _____

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: MAY 23 SIGNATURE: D R Pyke (Author of Report or Agent)

Res. Geol. _____ Qualifications 23899

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

P 591264
(prefix) (number)

If space insufficient, attach list

TOTAL CLAIMS 1

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 170(MAG) 161(VLF) Number of Readings 170(MAG) 161(VLF)

Station interval 50 Feet Line spacing 200 Feet

Profile scale

Contour interval 100 GAMMA

MAGNETIC

Instrument Geometrics proton magnetometer, model G-816

Accuracy – Scale constant 1 gamma

Diurnal correction method Base stn. established on grid.

Base Station check-in interval (hours) 1 hour

Base Station location and value BASE STN. TIED TO Government Stn M-71-56; 59917 GAMMAS.

ELECTROMAGNETIC

Instrument SCOPAS VLF MODEL SE-80

Coil configuration (uses a single coil phase)

Coil separation

Accuracy Amplitude ±2%, Asmith ±2°, Dip ±1°

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

Frequency 17.8 KHz, Cutler MAINE. (specify V.L.F. station)

Parameters measured Vertical Component of the secondary fields.

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

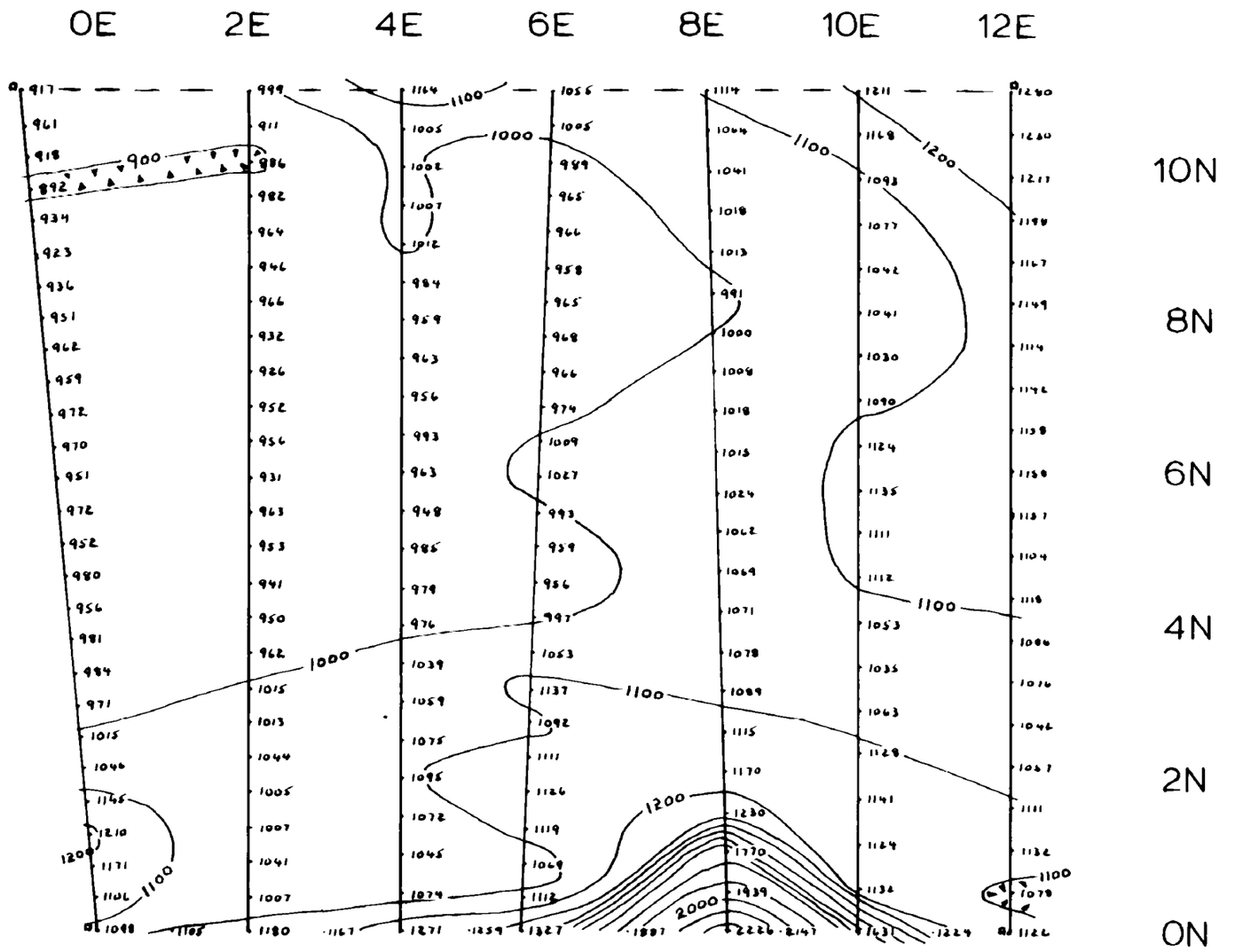
– Integration time

Power

Electrode array

Electrode spacing

Type of electrode



LEGEND

(59)917 TOTAL MAGNETIC FIELD IN GAMMAS

MAGNETIC CONTOUR-INTERVAL 100 gammas

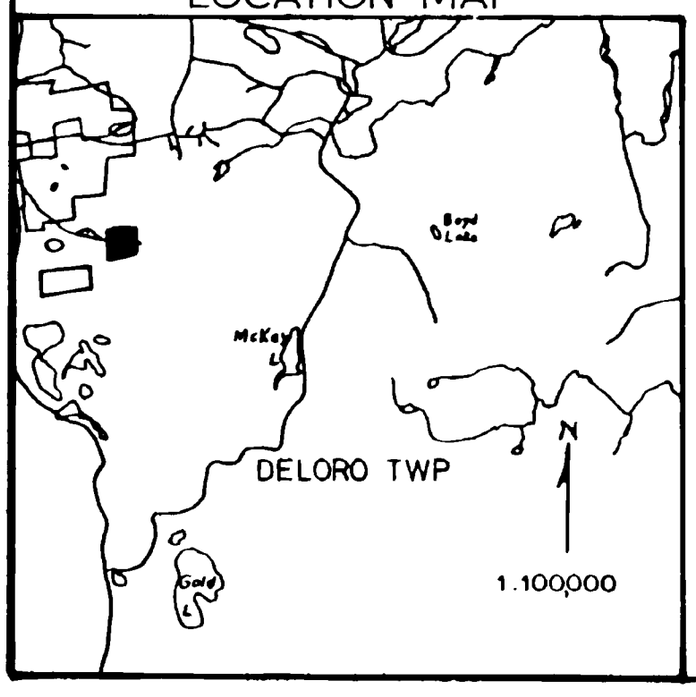
MAGNETIC LOW

CLAIM LINE CLAIM POST

INSTRUMENT: GEOMETRICS G 816 PROTON MAGNETOMETER

TIED TO MAGNETIC STATION M-71-56

LOCATION MAP



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SURVEY CONDUCTED FOR

COMSTATE RESOURCES LTD

SURVEY TYPE

MAGNETIC

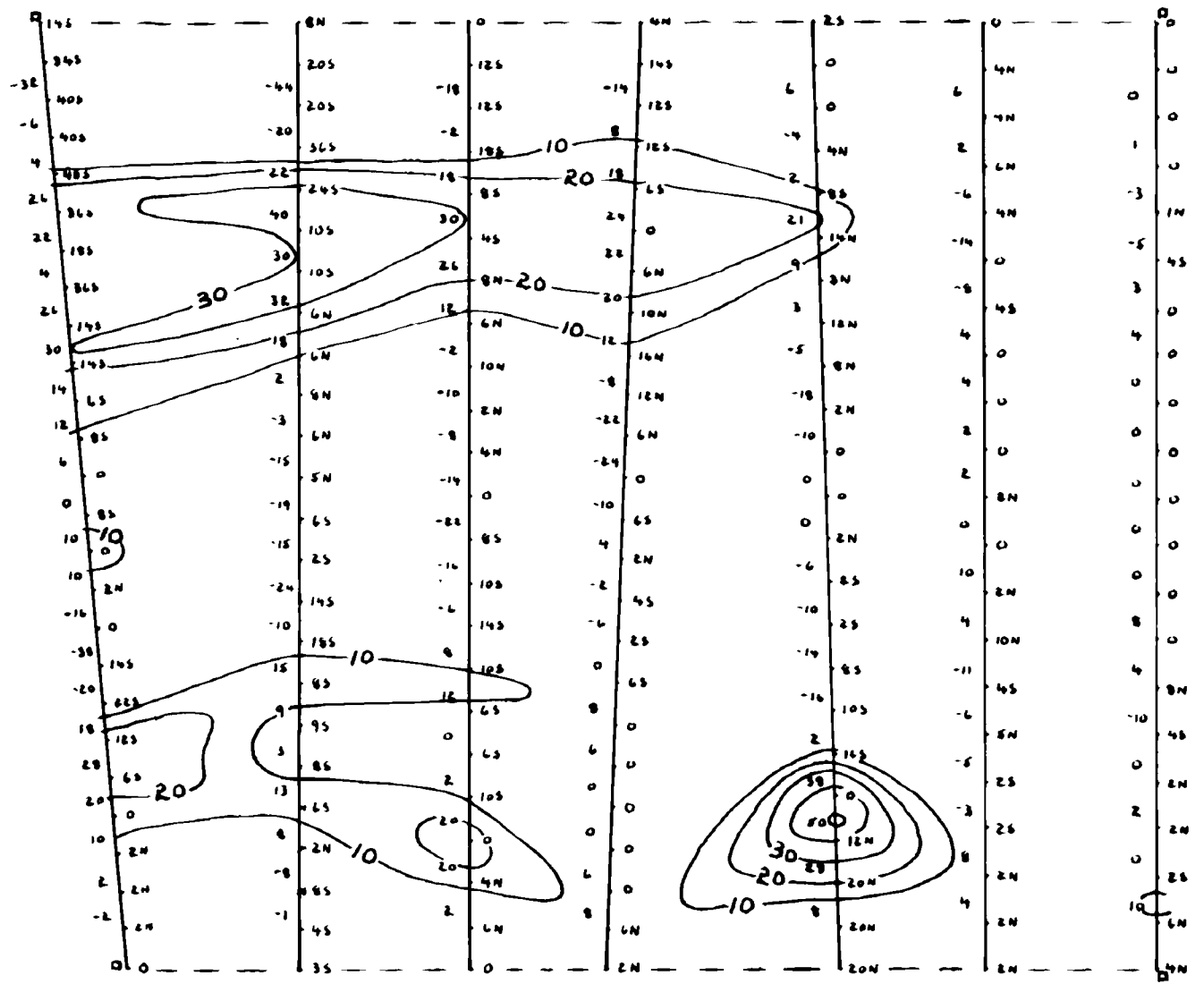
LOCATION		AREA REFERENCE
TIMMINS, ONTARIO		DELORO TWP
PROPERTY		DATE
591264		SEPTEMBER, 1981
PROJECT NO	MAP SHEET	MAP NO
6-126	1 OF 1	

SCALE

200 0 100 200 feet

SURVEY CONDUCTED BY

WOLLEX EXPLORATION



LEGEND

145 DIP ANGLE IN DEGREES

18 FRASER FILTER VALUE

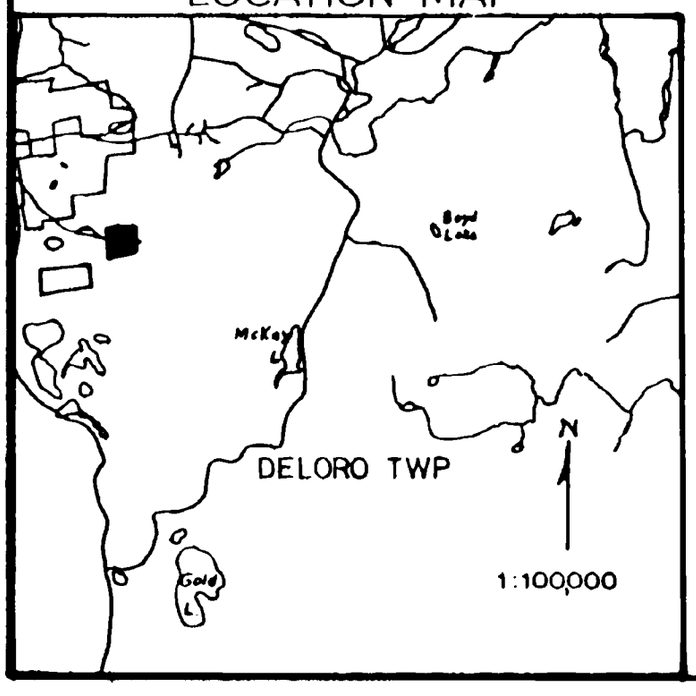
FRASER FILTER CONTOUR-INTERVAL 10

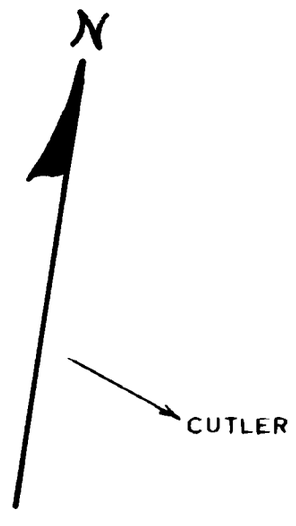
CLAIM LINE CLAIM POST

INSTRUMENT: SCINTREX SCOPAS SE-80 VLF RECEIVER

TRANSMITTER: CUTLER, MAINE (17.8 KHz)

LOCATION MAP





SURVEY CONDUCTED FOR	COMSTATE RESOURCES LTD
SURVEY TYPE	VLF-EM
LOCATION: TIMMINS, ONTARIO	AREA REFERENCE: DELORO TWP
PROPERTY: 591264	DATE: SEPTEMBER, 1981
PROJECT NO: 6-126 / MAP SHEET: 1 OF 1	MAP NO
SCALE: 200 0 100 200 feet	
SURVEY CONDUCTED BY: WOLLEX EXPLORATION	