010

REPORT ON THE MAGNETOMETER SURVEY

M.A.TREMBLAY

LEE LAKE PROPERTY

GREENLAW TOWNSHIP

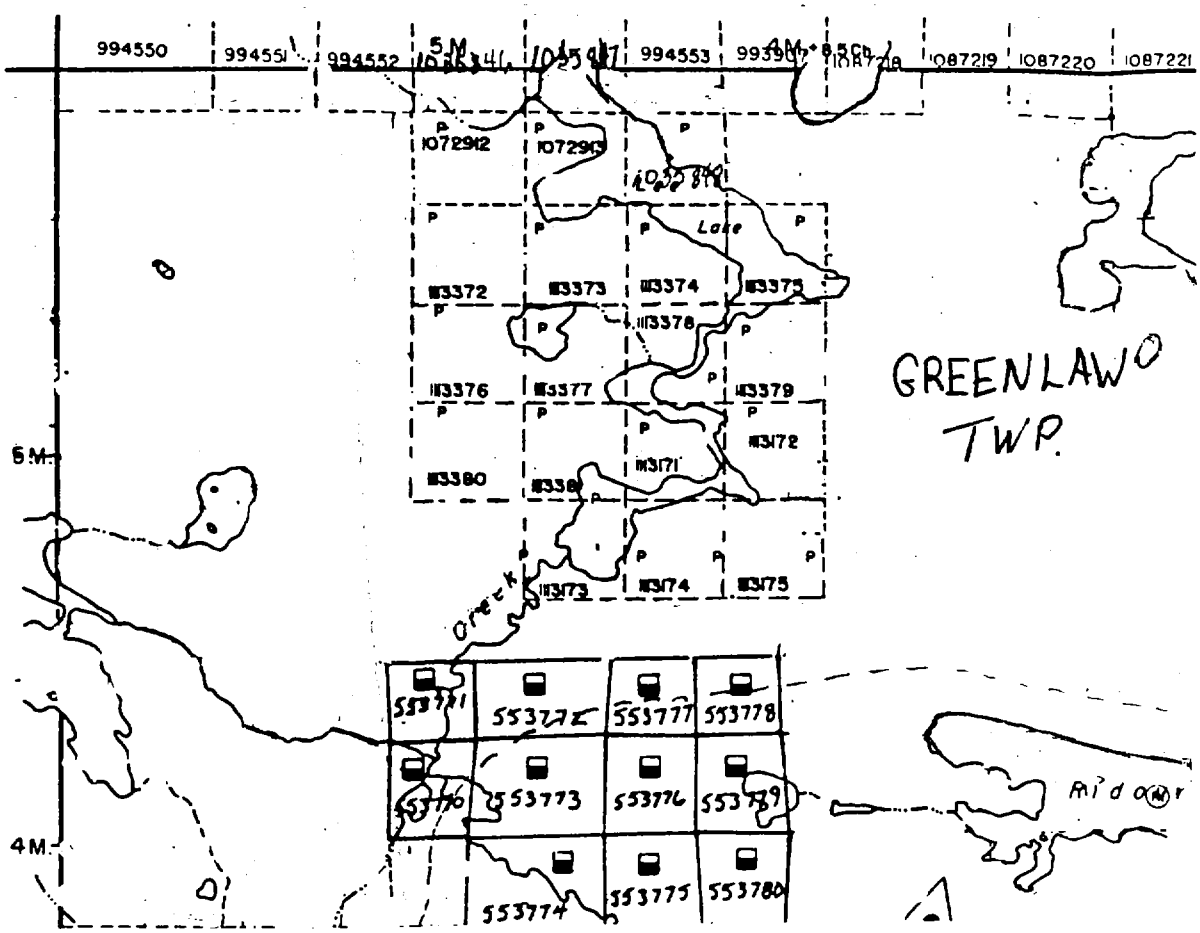
PORCUPINE MINING DIVISION

ONTARIO

Read this file

JUNE 2,1989
TIMMINS, ONTARIO

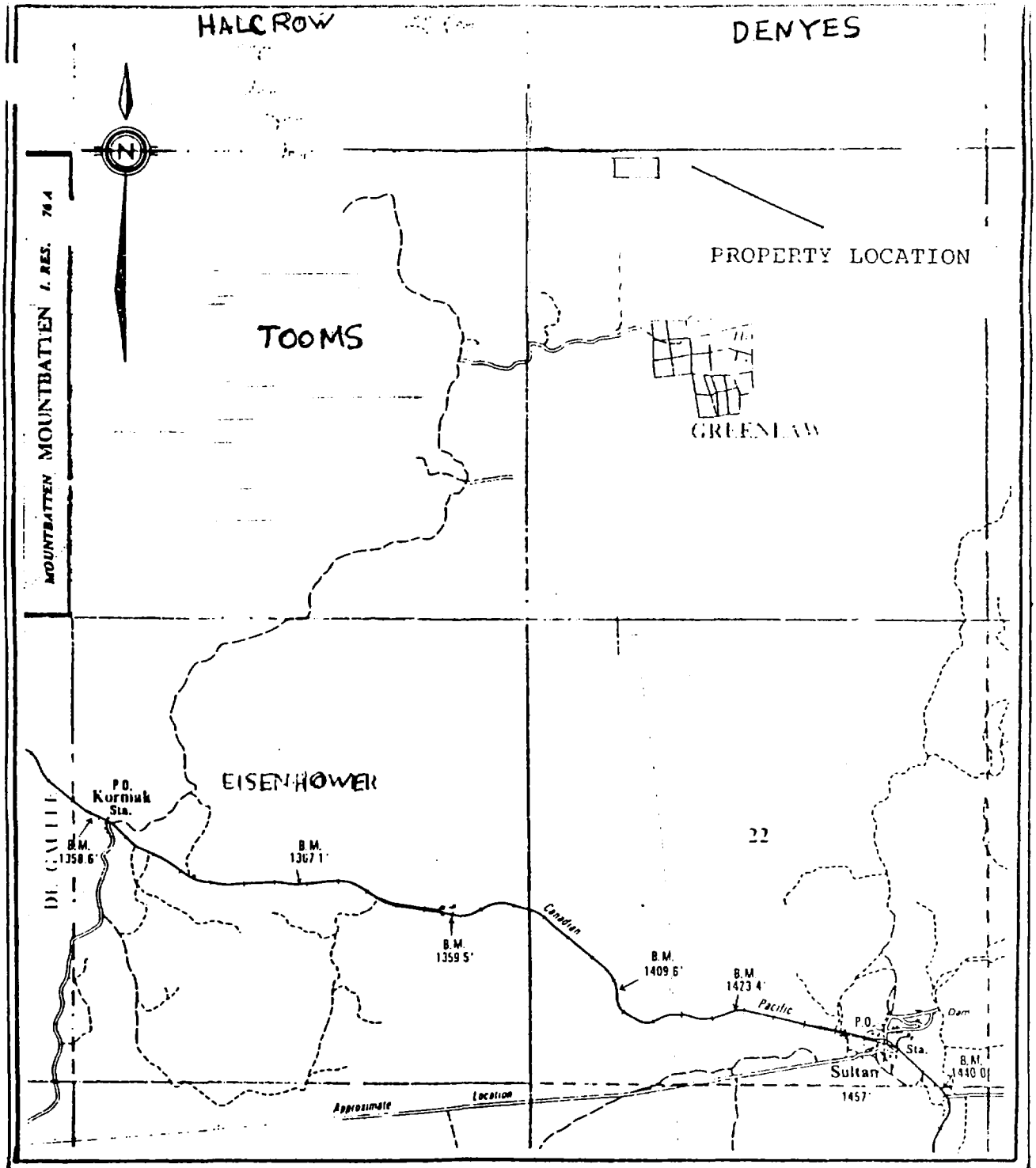
MICHAEL A. TREMBLAY
GEOLOGICAL ENGINEERING
TECHNICIAN



M.A. TREMBLAY

LEE LAKE PROPERTY

CLAIM MAP



M.A.TREMBLAY

LEE LAKE PROPERTY

ACCESS MAP

INTRODUCTION

A magnetometer survey has been carried out on the Lee Lake property held by M.A. Tremblay of Timmins, Ontario. The property consists of two contiguous claims in Greenlaw Township, Porcupine Mining Division, Ontario.

The survey was carried out in April, 1989, by the author. Approximately 3.0 miles of line were surveyed using a Gem Systems GSM-8 magnetometer.

LOCATION AND ACCESS

The claims are located on Lee Lake in Greenlaw Township, Ontario. The property lies approximately 140 km south-west of Timmins. Access to the claims is by float plane from Chapleau 40 km to the west, from Ivanhoe Lake 50 km to the north or from Five Mile Lake 35 km to the south.

Road access comes to within 3 km of the property to the south. The property is easily accessed from this point either on foot or by canoe via Sylvanite (Weasel Piss) Creek, which flows into the south end of Lee Lake. The road originates at Kormak, 20 km to the south. Kormak is connected by all weather road to Chapleau some 30 km to the west.

The mainline of the Canadian Pacific Railway also passes through Kormak.

PROPERTY HISTORY

The Lee Lake property was discovered in 1931 by Martin Shunsby. Lee Lake Gold Mines acquired the property shortly thereafter and carried out major development between 1931 and 1934.

This work consisted of trenching and sampling followed by 2000 feet of diamond drilling and in 1934 major underground development. A 250 foot shaft was sunk with levels established at 125 and 250 feet. A total of approximately 1500 feet of lateral development was carried out.

Since the early 1970s a number of companies have worked in the vicinity including Broadscope Development, Granges, Greenlaw Development, UMEX, Mattagami Lake Mines, Dome Exploration and most recently Collingwood Energy Inc. All this work is documented at the Ministry of Northern Development and Mines.

The work carried out on behalf of Collingwood Energy consisted of aerial magnetometer and VLF-EM surveys, followed by ground geophysics, geological mapping, power stripping and more than 4000 feet of diamond drilling. A total of 11 holes were drilled on the present property. Three zones of anomalous gold mineralization were encountered. The best results came from DDH-541-84-12 which returned 2.8 feet grading 0.046 ounces per ton gold between 125.5 and 128.1 feet. A corresponding sludge sample taken from 116 to 126 feet assayed 0.138 ounces per ton gold.

All 11 holes in this program were drilled in the immediate vicinity of the old workings. They were unable, however, to confirm the results which led to the original development of the property.

The claims were allowed to lapse in April 1988. In June 1988 the property was staked by the present owner.

MINERALIZATION

Mineralization consists for the most part of quartz veins up to 7 feet wide containing chalcopyrite, molybdenum and massive pyrite assaying up to 0.64 ounces per ton gold.

Quartz veining occurs within highly silicified and altered, sheared sericite schist in close proximity to a quartz porphyry dyke. The south zone, discovered by Collingwood Energy, is associated with a dioritic body.

SURVEY INSTRUMENT AND PROCEDURE

A GEM SYSTEMS GSM-8 proton magnetometer was utilised to carry out the survey. Measurements were taken on fifty foot centers, to the nearest gamma and corrected for diurnal change with a series of closed loops.

DISCUSSION OF RESULTS

Background was set at 58500 gammas, with readings varying up to 1700 gammas above this figure.

Two anomalous features have been indicated on the map.

Anomaly A has an amplitude up to 1700 gammas above background and corresponds to a gabbroic intrusion noted in the field examination by Conquer in 1983.

Anomaly B is located in the immediate vicinity of the shaft and is believed to be caused by metallic objects left behind during the major development in the 1930s.

SUMMARY AND RECOMMENDATIONS

Of the two features noted in the survey only anomaly A is believed to be a legitimate bedrock feature.

In view of the fact that gold is associated with sulfide minerals such as pyrite and chalcopyrite in this area it is recommended that some type of electro-magnetic survey be conducted. This could be easily carried out with either a vLF or a horizontal loop and would serve to deliniate targets for ground follow up.

Respectfully submitted by

Michael A. Tremblay
Geological Engineering Technician

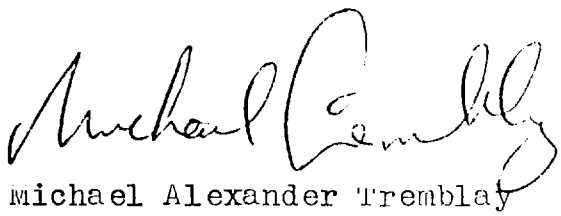
SCHEDULE 1

TOWNSHIP	CLAIM NUMBER
Greenlaw	P. 1072912
Greenlaw	P. 1072913

CERTIFICATE

I, Michael Alexander Tremblay, of the City of Timmins, Province of Ontario, do hereby certify that:

1. I am a geological engineering technician residing at 198 Kent Avenue, Timmins, Ontario.
2. I have a diploma from Sault College for the Geological Engineering Technician Program.
3. I have worked steadily in various capacities in mining exploration since graduating in 1983.
4. I hold a direct 100% interest in this property.
5. The statements made herein are based on the study of published reports and on the results of the survey that I carried out and have herein described.



Dated June 2, 1989
Timmins, Ontario

Michael Alexander Tremblay

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1. GENERAL INFORMATION

1.1 INTRODUCTION

The GSM-8 is a portable one gamma* proton precession magnetometer designed primarily for hand held and base station operations, but adaptable for other Earth's magnetic field measurements like airborne/marine surveys, pipeline and cable detection and tracking, treasure hunting and ground vehicle-borne surveys. It measures a total (scalar) value of ambient magnetic field displaying it in gammas (nanoteslas) on a five digit 1 cm high liquid crystal display(LCD), within only 1.85 sec. from the start of the measurement initiated by a pushbutton.

As the direction of magnetic field vector is disregarded, no leveling of a sensor is needed and fast surveys are possible.

Automatic cycling feature, pushbutton controlled enables direct application in base station and vehicle borne surveys on land and water. As cycling speeds faster than one reading per sec. are available optionally, airborne surveys are feasible too.

In hand held operation the sensor is either staff mounted or carried in a back pack for hands free operation. For back pack operation nonmagnetic batteries are recommended.

The standard complete consists of:

1 Console with NiCd batteries
1 Sensor with cable
1 Staff, collapsible, or sectional
1 Shoulder harness, belt harness
1 Charger, input 110/220V 50/60Hz, output 75mA constant current
1 Manual
1 Carrying case

There are many options available, including custom modifications.For full details cosult GEM Systems. Major options are:**

1. Analog output 0-99 or 0-999 gammas
2. Nonmagnetic rechargeable or disposable batteries
3. Shorter or longer cycling period, from 0.9 sec. to 24 hr
4. External battery package for full day of operating in cycling mode
5. Back-pack for freer movement of an operator during surveys.

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* One gamma is 10^{-5}Gauss or 10^{-9}Tesla
**Standard features are listed in Chapter 2. Specifications

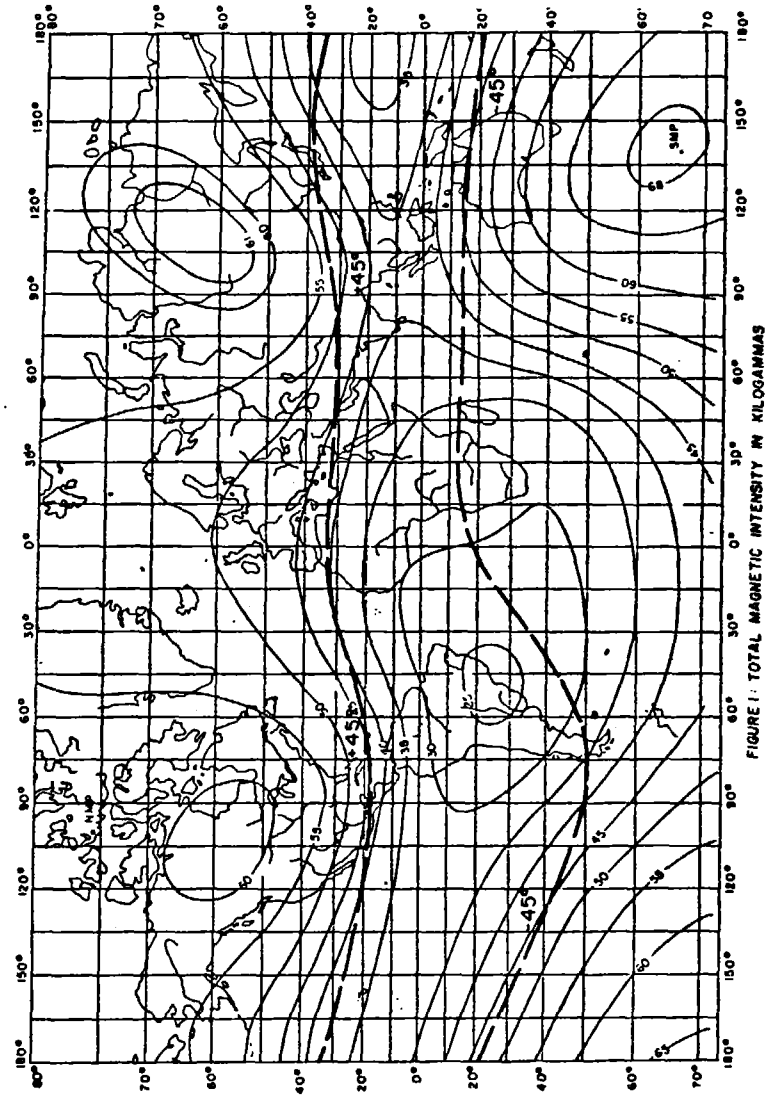


FIGURE I: TOTAL MAGNETIC INTENSITY IN KILOGAMMAS

1.2 EARTH'S MAGNETIC FIELD

Figure 1 shows nominal distribution of Earth's magnetic field in kilogammas, with dotted lines separating equatorial and polar regions. In polar regions an inclination of magnetic field vector is closer to vertical, while in equatorial regions it is nominally horizontal. To obtain the best precession signal and superior quality of operation, the sensor must be aligned accordingly. Orientation line at the side of the sensor should be oriented vertically in polar regions and horizontally in equatorial regions. Although maximum signals are achieved by aligning the sensor orientation line close to the actual direction of the magnetic field, it is generaly not necessary to go beyond horizontal/vertical orientation mentioned above.

Range position on a front panel of the instrument should initially be selected closest to a nominal value of magnetic field shown for particular region in fig.1. As local distributions of magnetic field could be considerably altered, a proper range position should be determined by first valid reading of the magnetometer (first two digits of the display show a real magnetic field value for the place of measurement). During a survey, the field value may change beyond initially used range and the Range switch position should be adjusted accordingly, although the GSM-8 will generally work correctly on several adjacent ranges.

Local ferromagnetic objects like screws, nuts, pocket knives, nickel coins, wristwatches, tools etc. may impair the quality of measurement by modifying the value of local magnetic field being measured or in drastic cases by even destroying the proton precession signal due to excessive gradients. For best results ferromagnetic objects should be kept away from the sensor. NiCd batteries, although slightly magnetic, do not produce visible effect on measurements if the sensor is installed on the staff and kept at arms length away from the operator and the console. For back-pack installation of the sensor a nonmagnetic set of batteries is recommended.

2. SPECIFICATIONS

RESOLUTION:	1 gamma, 0.5 gamma optional
ACCURACY:	±1 gamma over operating range
RANGE:	20,000-100,000 gamma in 23 overlapping steps
GRADIENT TOLERANCE:	Up to 5000 gamma/metre
OPERATING MODES:	MANUAL PUSHBUTTON, new reading every 1.85 sec., display active between readings
	CYCLING, pushbutton initiated, 1.85 sec. period
	SELFTEST, pushbutton controlled, 7 sec. period
OUTPUT:	VISUAL: 5 digit 1 cm (0.4") high Liquid Crystal Display, visible in any ambient light
	DIGITAL: Multiplied precession frequency and gating pulse
	ANALOG: Optional 0-99 or 0-999 gamma
EXTERNAL TRIGGER:	Permits externally triggered operation with periods longer than 1.85 sec. (optional minimum period 0.9 sec.)
POWER REQUIREMENTS:	12V 0.7A peak, 5mA standby
POWER SOURCE:	INTERNAL: 12V 0.75Ah NiCd rechargeable battery 3,000 readings per full charge
	EXTERNAL: 12-18V
BATTERY CHARGER:	Input: 110/220V 50/60Hz; output: 14V 75mA DC
OPERATING TEMPERATURE:	-35 to +55C
DIMENSIONS:	CONSOLE: 15x8x15cm (6x3¼x6")
	SENSOR: 14x7cm dia (5½x3" dia)
	STAFF: 175cm (70") extended, 53cm (21") collapsed, or 4 45cm (18") sections
WEIGHT:	2.7kg (6 lb) per standard complete with batteries

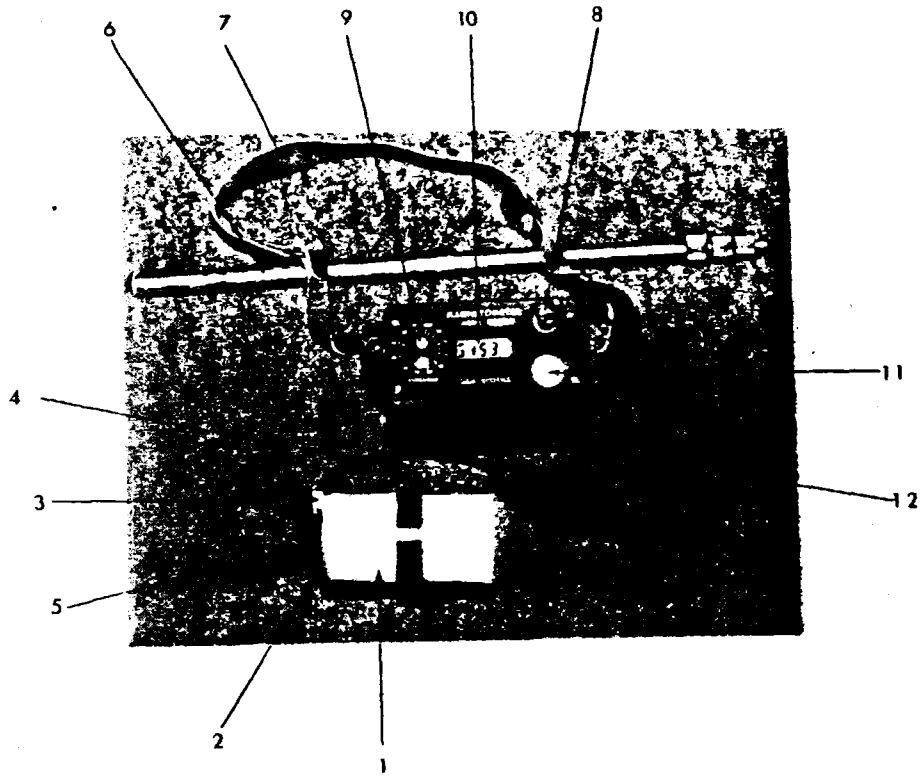


Figure 3.1

3. OPERATING INSTRUCTIONS

3.1 INSTRUMENT DESCRIPTION

Major parts of the magnetometer are shown in fig. 3.1

(1) SENSOR, optimized for high sensitivity and gradient tolerance

(2) FILLING PLUG, to fill the sensor with proton rich liquid (kerosene or similar)

(3) CABLE CONNECTOR

(4) CABLE

(5) ORIENTATION LINE

(6) STAFF

(7) SHOULDER STRAP

(8) SENSOR CABLE CONNECTOR/ON-OFF SWITCH

(9) RANGE SWITCH

(10) DISPLAY WINDOW

(11) PUSHBUTTON, to initiate a desired mode of operation

(12) CHARGER/INTERFACE CONNECTOR for digital/analog output and external trigger, charger or external batteries

3.2 SET-UP AND OPERATING PROCEDURES

GSM-8 is shipped with fully charged internal batteries, ready for field operation. To set-up the instrument, the sensor should be attached to the staff with correct direction of the orientation line and the staff extended. Connecting the cable to the front panel sets the instrument in standby state. The display may or may not light at this point.
The Range switch should now be switched to position closest to the local total magnetic field intensity as shown in fig. 1.1
Operation of the GSM-8 is internally monitored and incorrect readings (due to external interference, excessive gradient or internal breakdown) are marked by two decimal points appearing after third and fourth digit of the display. Readings marked by decimal points should be disregarded.
For best results the Range switch should always be set to the position closest to the first two digits of the displayed value of magnetic field. During surveys this may need occasional correction.

There are three modes of operation of GSM-8:

a) Short depressing of the pushbutton will initiate a SINGLE READING. Initiation is marked by a colon after second digit of the display. The colon stays lighted only during polarization interval. The value of measured magnetic field appears on the display in gammas after about 1.85 sec. and stays displayed until the next reading is taken or the instrument switched off. Incorrect readings are marked by decimal points, which stay displayed with the reading.

b) In SELFTEST MODE the pushbutton is pressed permanently. This mode consists of one normal reading of magnetic field, display test (displaying 88888) and battery test. Battery voltage is shown in m although accurate only about 5%. This cycle is being repeated as long as the pushbutton is depressed.

c) In CYCLING MODE the pushbutton is depressed during polarizing interv until a new reading appears on the display and then released. Afte display and battery tests, the instrument will start cycling automatically at the rate of one reading in about 1.85 sec. A short depression of the pushbutton at any time will stop cycling (after completing the cycle under way).
Cycling mode is very convenient for base station and vehicle borne operations or for a quick check-up of instruments consistency. However, as it results in a large number of readings and relatively fast draining of the batteries, the cycling mode can optionally be disabled to prevent accidental initiations in a field.

Before starting a survey the batteries and the display should be checke Battery voltage for fully charged batteries must be above 12,500 on the display. No survey should be started with battery voltage being below 11,000 mV as shown on the display.

3.3 EXTERNAL BATTERIES

While internal batteries satisfy any requirements for normal hand held (portable) operation even in cold weather, use of external batteries ma be necessary for base station or vehicle borne operation where automatic cycling is needed. For this purpose any 12V car battery will be satisfactory, although lightweight external battery packages with sufficient capacity for 6-8hr of cycling operation may be ordered from the manufacturer.
Leads of the car battery can be connected directly to pins D (positive) and E (negative) of the Charger/Interface connector at the side of the console. Use of higher voltage batteries (up to 18V) requires that internal NiCd batteries be disconnected by opening an internal two pin connector. Alternatively the batteries can be removed from the console by removing the instrument out of the case and then removing two screws at the range switch side of the larger PC board, pivoting the board for 90 degrees and undoing four screws holding the battery pack. Use of batteries of more than 18V may damage the instrument.
External battery packs for disposable C or D size batteries, special Alcaline or Mercury flat pack batteries are available from manufacturer

4. MAINTENANCE AND REPAIR

GSM-8 is generaly maintenance free except for occasional cleaning and visual inspection of mechanical conditions of the cable, sensor and display window. Due to possibilities of gathering magnetic dust, the sensor, cable and staff should be periodicaly washed with soap or detergent and water. Beyond that a normal "common sense care" should ensure lasting use in rough field conditions.

When not used for longer periods the instrument should be returned to the carrying case, with sensor disconnected from the console.

Batteries should be kept charged when storing the instrument. As NiCd batteries have a memory , cycles of partial charging and discharging may result in reduced capacity. This can be cured by few cycles of full discharging and charging. Relatively fast discharge can be achieved by setting the instrument into cycling. Normal charging will take 14-16hr, while fast charging using special charger (available from the manufacturer) can be completed within 3-4hr Spare NiCd batteries are readily available from the manufacturer.

Sensor cable might occasionaly get damaged or broken in heavy use. When repairing be careful to connect centre wire to positive terminal of the sensor and pin A of input connector. All other wires and a shield are connected to negative terminal of the sensor and pin B of input connector. Pins C and D of the input connector must be shorted; the short acts as the main switch.

Use of improper external battery or short circuit in the sensor-cable assembly may blow a fuse (instrument appears completely dead). Spare fuses are found on the smaller of the two boards. The fuse must be soldered in, but it is highly recommended that the cause of malfunction be previously determined and removed. If sensor failure is suspected, an ohm-meter can be used to measure a resistance between pins A and B of the input connector. It must be within 15-20 Ohm.

5. WARRANTY

The GSM-8 is warranted against defects in materials and workmanship for a period of 15 months from the date of shipping.

Any defects resulting from normal use in this warranty period will be repaired free of charge by GEM Systems or its authorized representatives.

Instruments will be accepted for repair only if shipped prepaid, and will be returned to the customer C.O.D.

This warranty does not cover damage due to misuse or accident and will be void if the instrument is opened or tempered with by any person not authorized by GEM Systems.

Ministry of Northern Development and Mines
Ontario

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

DOCUMENT No. W 8906.315

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the [illegible] sections.

41015SW0110 2.12657 GREENLAW

900

Type of Survey(s): Magnetic 2.

Claim Holder(s): Michael Tremblay

Address: P.O. Box 183 Timmins, Ont. P4N-7C9

Survey Company: M.A. Tremblay

Date of Survey (from & to): Day 9 Mo. 4 Yr. 89 / Day 12 Mo. 4 Yr. 89

Total Miles of line Cut: 3.02

Name and Address of Author (of Geo-Technical report): M.A. Tremblay Box 183 Timmins

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	
	- Magnetometer	40
	- 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	

ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES OFFICE
SEP 07 1989
RECEIVED

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P	1072912	
	1072913	

RECEIVED
JUN 29 1989
MINING LANDS SECTION

RECORDED
JUN - 2 1989

PORCUPINE MINING DIVISION
RECEIVED
JUN 2 1989
@ 3:15 pm

Total number of mining claims covered by this report of work: 2

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.

Date: June 2/89

Recorded Holder or Agent (Signature): [signature]

For Office Use Only

Total Days Cr. Recorded: 80

Date Recorded: JUNE 2/89

Date Approved as Recorded: 5 Sept 89 RM

Mining Recorder: S. White

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: M.A. Tremblay P.O. Box 183 Timmins, Ont

Date Certified: June 2/89

Certified by (Signature): [signature]

1362 (85/12)

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

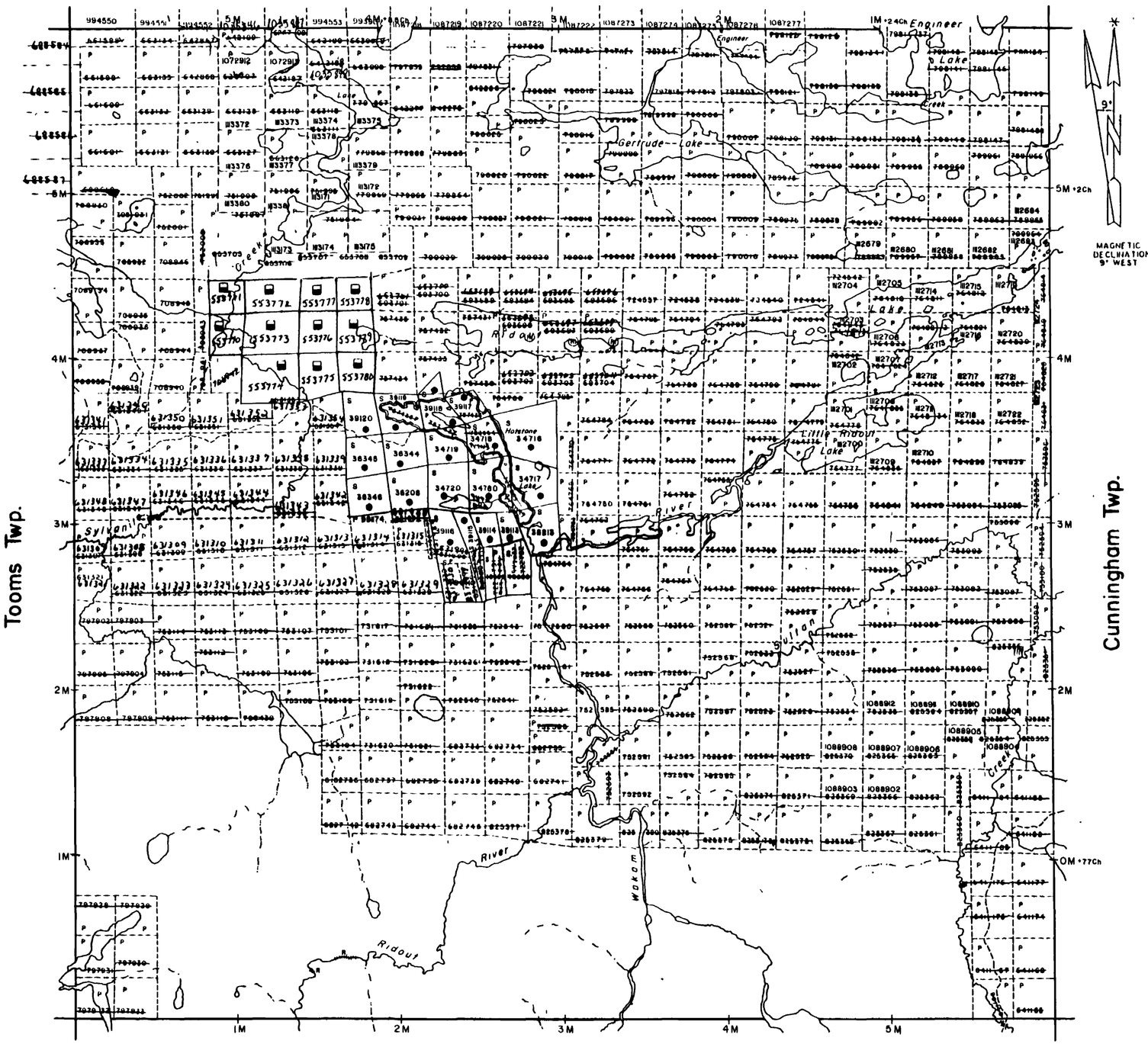
M.R.O. – MINING RIGHTS ONLY

S.R.O. – SURFACE RIGHTS ONLY

M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
~~(R) – CLAIMS WITHDRAWN UNDER SECTION 35 R.S.O. 1980 ORDER #49/86, MAY 21,1986.~~				
CLAIMS REOPENED BY REOPENING ORDER O-P 1189 NR FEB 1, 1989				

Denyes Twp.



LEGEND

- HIGHWAY AND ROUTE No
- OTHER ROADS
- TRAILS
- SURVEYED LINES
  - TOWNSHIPS, BASE LINES, ETC
  - LOTS, MINING CLAIMS, PARCELS, ETC
- UNSURVEYED LINES.
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◨
" , MINING RIGHTS ONLY	◨
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	(R)
CANCELLED	(C)
SAND & GRAVEL	(S)

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP 380, SEC 63, SUBSEC 1

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 500 1000 (1 KM) 2000

TOWNSHIP

GREENLAW

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ontario Ministry of Natural Resources — Land Management Branch

Date MARCH, 1985

Number G-3235

LEE
LAKE

OLD CABIN

CORE RACK

TENT CAMP

CABIN

B

12+00N
10+00N
8+00N
6+00N
4+00N
2+00N
0+00N

12+00W
10+00W
8+00W
6+00W
4+00W
2+00W
0+00
2+00E
4+00E
6+00E
8+00E
10+00E
12+00E
13+00E

2.12657

MAGNETOMETER SURVEY

M.A. TREMBLAY
Lee Lake Property

- 1600 Magnetic contour with value over background
- Magnetic Depression
- Shoreline
- Shaft
- Claim Post (located)
- Trench
- Road

Scale: 1"=100'ft