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REPORT ON THE
AIRBORNE GEOPHYSICAL SURVEY
ON THE PROPERTY OF
RARETECH MINERALS INC.
SWAYZE TOWNSHIP, ONTARIO

BY

H. FERDERBER GEOPHYSICS LTD.

RECEIVED

SEP 21 1987

MINING LANDS SECTION

August, 1987
Val d'Or, Quebec

G.N. Henriksen, B.Sc.
Geologist

Qual.
2.10/36

REPORT ON THE
AIRBORNE GEOPHYSICAL SURVEY
ON THE PROPERTY OF
RARETECH MINERALS INC.
SWAYZE TOWNSHIP, ONTARIO

INTRODUCTION

On July 26, 1987 an airborne geophysical survey was carried out on the property of Raretech Minerals Inc. in Swayze Township, Ontario.

Magnetic and VLF-electromagnetic data was collected by the airborne division of H. Ferderber Geophysics Ltd. The survey was flown from a base at Chapleau, Ontario. A total of 28.7 miles of data was collected.

The magnetic survey provides information which helps define underlying geological structures and identifies any potential economic concentrations from variations in accessory magnetic minerals. The VLF-electromagnetic survey outlines conductive zones which may represent shear zones and/or metallic sulphide deposits containing gold mineralization.

PROPERTY DESCRIPTION, LOCATION AND ACCESS

The Raretech Minerals Inc. property is comprised of 24 claims in Swayze Township, Porcupine Mining Division, Ontario. The claims cover approximately 384 hectares in the north central part of the township, registered with the Ontario Mining Recorder's office at Timmins and are listed in Appendix 1.

The property is located approximately 57 km (34 miles) east of the town of Chapleau, 50 km (30 miles) south-southeast of the town of Foleyet and 28 km (17 miles) north of the village of Sultan.

Access can be obtained by taking a float/ski plane from Chapleau to the northwest corner of Brett Lake, which lies along the southern boundary of the property.

GEOLOGY

The Ontario Department of Mines Geological Compilation Map 2116 Chapleau-Foleyet Cheet indicates the northwestern two thirds of the property is underlain by intermediate and basic volcanic rocks. About 60% of southeastern third is underlain by metasedimentary rocks of the greenschist facies. The metasedimentary rocks are situated in the south central part of the claim block and the west central part of the claim block.

A north-northwest trending sinistral fault traverses the property from the middle of the southern boundary to the northwest corner of the property. It shows a displacement of about 0.5 miles.

Two gold occurrences lie along strike of the fault approximately 2 miles and 3 miles north of the property. The Kenty gold prospect lies about 2.25 miles east of the northeastern part of the property, along strike of the geology. The prospect area is underlain by an east-striking belt of folded Early Precambrian mafic and felsic metavolcanics, with small interbedded lenticular bodies of clastic metasediments. The principal occurrences lie within massive andesite and schistose felsic metavolcanics close to a large body of feldspar porphyry.

The gold deposit consists of a series of parrallel fracture filling quartz-carbonate veins in an altered host rock which can be mafic or felsic lave, or felspar porphyry. The average strike of the veins is $N60^{\circ}E$, and dips range from $40-80^{\circ}SE$. The veins average 4 to 5 feet in width; the maximum width is 10 feet. Each consists of a main quartz leader with subsidiary parallel veinlets on either side. Mineralization consist of pyrite and minor galena, chalcopyrite, sphalerite, specularite, and graphite. Coarse visible gold occurs in fractures in the vein quartz. Development work indicated that the best values occur where the host rock is "greenstone". Two grab samples of mineralized vein material from a much pile near Shaft No. 1 assayed 0.16 and 0.19 ounce of Au per ton. Channel sampling on surface indicated that an ore shoot on suface indicated that an ore shoot on the No.1 Vein, measuring 6.3 feet in width and 50 feet in length, averaged 0.39 ounce of Au per ton. A second ore shoot, located to the east of the first and measuring 3.7 feet in width by 72 feet in length, averaged 0.67 ounce of Au per ton.

The McNeely-McCullogh gold prospect lies about 2.25 miles east along strike, of the central part of the west side of the property. The prospect area is underlain by an east-striking fold belt consisting of Early Precambrian mafic to felsic metavolcanics and small amounts of interbedded metasediments. The showings consist mainly of narrow quartz-carbonate veins and stringers. These occupy fracture zones along the north edge of a feldspar porphyry body which is considered to be phase of the felsic volcanic suite. Some of these showings reportedly gave moderately low gold values over narrow widths.

INSTRUMENTATION AND SURVEY METHODS

The survey was completed using a Cessna 172, fixed wing aircraft (CF-AAV) owned and operated by H. Ferderber Geophysics Ltd. It was piloted by P. Jevremovic of Val d'Or. The navigator/operator was M. Caron, also from Val d'Or. Geophysical sensors were mounted in modified wing tips. GEM-GSM-9 BA Overhauser Proton Precession Magnetometer and Herz Totem 2AG VLF-electromagnetic systems were used. The magnetometer has a resolution of 0.5 gammas, recorded on analogue tape. The VLF-EM measures the change in total field and vertical quadrature field on two channels simultaneously, with an accuracy of 1%. The data is then transferred to a printer. The transmitting station at Cutler, Maine, NAA, frequency 24.0 kilohertz was used.

The survey was conducted at an aircraft altitude of 250 feet above ground level. The altitude was measured with a Bonzer Mark 10 radar altimeter. A survey speed of approximately 100 miles per hour was used. Navigation was visual with reference to air photo mosaics at a scale of one inch to 1,320 feet. Lines flown in north-south directions at spacings of 440 feet were recovered from the photo mosaics. Manual fiducials were recorded simultaneously on the geophysical tapes and solid state memory.

DATA PRESENTATION

Flight lines, fiducial points and geophysical responses were reproduced from the air photo mosaics on maps at a scale of 1:15,840 (one inch to 1,320 feet). The outline of the claim group and claim map are shown on each sheet.

The aeromagnetic data was corrected for diurnal variations by using base lines as reference. The data was then reduced to a base level of 58,500 gammas, contoured at 25,100 and 1000 gamma intervals and presented on map MG-1.

The VLF-EM data was transferred from the Totem 2AG memory to printed form. Base values were determined and the change in the total field strength as a percentage of the base values was calculated. These values were plotted on map EM-1. The positive values were contoured at intervals of 2%. The conductor axes were determined and numbered 1, 2, 3, etc. No priority was attached to the numbering system.

SURVEY RESULTS AND INTERPRETATION

Magnetic Survey Map MG-1

A prominent magnetic high anomalous zone in the north part of the claim block trends east-west and has magnetic values up to 1300 gammas above background. A similar magnetic high anomalous zone lies in the southwest corner of the property.

A magnetic low anomalous zone lies between the two high anomalous zones trends northwest, traversing the property from the central part of the southern boundary towards its northwestern corner. The magnetic high anomalous zones probably represent basic volcanic rocks and the magnetic low northwest trending anomalous zone coincides roughly with the assumed underlying fault. The magnetic low anomalous zone in the southeast corner and between the two prominent magnetic high anomalous zone may represent acid volcanic rocks and/or metasedimentary rocks. A saddle in the northern magnetic high anomalous zone on the eastern side of the property may outline the location of a north-south trending structural break.

VLF-Electromagnetic Survey Map EM-1

Conductive zone 1 is a discontinuous, east-west trending conductor located in the west central part of the property. It crosscuts magnetic contours and lies near a lineament defined by a chain of small lakes.

Conductive zone 2 is a long, continuous, northwest trending conductor on the west side of the property. It lies along the western side of a northwest trending magnetic low anomalous zone and the west side of a lineament defined by two lakes and a stream. It may represent a structural break, possibly a shear zone.

Conductive zone 3 is a long, continuous, northwest trending conductor located in the central part of the property. It is similar to conductor 2, lying along the eastern side of a northwest trending magnetic anomalous zone and may represent a structural break, possibly a shear zone.

Conductive zone 4 is a discontinuous conductor situated in the southwest corner of the claim block. It is located over in a zone of low magnetic anomalous values and coincides with part of a lake.

Conductor zone 5 is a long, continuous, east-west trending conductor in the central east part of the property. It lies along the southern shoulder of a magnetic high anomalous zone and may represent a geological contact.

Conductive zones 1 and 4 may represent conductors along geologic contacts however they may also be the result of electromagnetic gathering due to feature such as lakes, streams ridges etc.

CONCLUSIONS

The airborne VLF-electromagnetic and magnetic surveys were successful in outlining possible shear zones and helping define the underlying geology on the Raretech Minerals Inc. property in Swayze Township, Ontario.

Rocks of high magnetic susceptibility underlie the north part of the property, striking east-west. Rock of similar magnetic susceptibility underlie the southwest corner of the property. These rocks are thought to be basic volcanic rocks. The rocks of low magnetic susceptibility that underlie the southeast and central west part of the property may be acid volcanics and/or metasedimentary rocks.

A northwest trending linear magnetic low anomalous zone on the western half of the property is located near a presumed fault.

A saddle in the northern magnetic high anomalous zone may represent a north-south trending structural break.

Five conductive zone were outlined on the property. Of the conductive zones, zones 2, 3, and 5 appear to represent bedrock conductors. Conductive zones 2 and 3 may represent structural breaks, possibly shears.

Conductive zones may represent a conductor along a geologic contact.

RECOMMENDATIONS

Further work is warranted on the property especially in the areas of the above mentioned conductors and the presumed fault. An exploration program of ground geophysics and geological mapping should be undertaken. A combined vertical gradient/total magnetic survey and horizontal loop-electromagnetic survey should be performed, followed by an induced polarization survey over selected conductors and the presumed fault.

Potentially interesting geological targets and geophysical anomalies should then be tested by diamond drilling.

Respectfully submitted,

H. FERDERBER GEOPHYSICS LTD.

Boston
M.
Henriksen

G.N. Henriksen, B.Sc.
Geologist

APPENDIX I

Claim List

P 894561
894562
894563
894564
894565
894566
894567
894568
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894586



File _____

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) Airborne Magnetic and VLF-Electromagnetic

Township or Area Swayze Twp.

Claim Holder(s) Raretech Minerals Inc.

Survey Company H. Ferderber Geophysics LTD.

Author of Report G.N. Henriksen

Address of Author 169 Perreault Ave. Val D'OR, Qué.

Covering Dates of Survey July 26, 1987
(linecutting to office)

Total Miles of Line Flown 128.3

MINING CLAIMS TRAVERSED
List numerically

P 894561 et al.
(prefix) (number)
see attached appendix

<u>SPECIAL PROVISIONS CREDITS REQUESTED</u>	Geophysical	DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	-Electromagnetic	_____
	-Magnetometer	_____
	-Radiometric	_____
	-Other	_____
ENTER 20 days for each additional survey using same grid.	Geological	_____
	Geochemical	_____

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

Magnetometer 35 Electromagnetic 35 Radiometric _____
(enter days per claim)

DATE: Sept. 2, 1987 SIGNATURE: [Signature]
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

RECEIVED
SEP 8 1987
MINING LANDS SECTION

TOTAL CLAIMS 24

OFFICE USE ONLY

If space insufficient, attach list

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) _____ VLF-EM and Magnetometer

Instrument(s) _____ Herz Totem 2AG and GEM GSM-9BA

Accuracy _____ 1% and 0.5 gammas
(specify for each type of survey)

Aircraft used _____ Cessna 172
(specify for each type of survey)

Sensor altitude _____ 250 Feet

Navigation and flight path recovery method _____ Visual navigation on airphoto-mosaic
manual fiducial points

Aircraft altitude _____ 250 Feet _____ Line Spacing _____ 440 Feet

Miles flown over total area _____ 128.3 _____ Over claims only _____ 21.1

APPENDIX I

Claim List

P 894561
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Ministry of
Natural
Resources

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



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The Mit.

Do not use shaded areas below.

Type of Survey(s) Airborne VLF and Magnetics		Township or Area Swayze Twp.
Claim Holder(s) Raretech Minerals Inc.		Prospector's Licence No. T-3614
Address 106 Fielding Road, Lively, Ontario, POM 2E0		
Survey Company H. Ferderber Geophysics Ltd.	Date of Survey (from & to) 26 07 87 26 07 87 Day Mo. Yr. Day Mo. Yr.	Total Miles of line Cut _____
Name and Address of Author (or Geo-Technical report) R. Campbell, 169 Perreault Ave., Val d'Or, Quebec		

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
G.N. Henriksen For first survey: Enter 40 days. (This includes line cutting) For each additional survey: using the same grid: Enter 20 days (for each)	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	30
	Magnetometer	30
	Radiometric	—

Mining Claim			Mining Claim		
Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
P-	894561		P	894586	
	894562				
	894563				
	894564				
	894565				
	894566				
	894567				
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	894584				
	894585				

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AUG 17 1987
MINING LANDS SECTION
RECORDED
JUL 29 1987

Expenditures (excludes power striping)

Type of Survey: **VLF and MAG**

Performed on Claim(s): **JUL 29 1987**

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: **July 28/87**
Recorded Holder or Agent (Signature): *[Signature]*

For Office Use Only

Total Days Cr. Recorded: **1544** Date Recorded: **July 29/87** Mining Recorder: *[Signature]*

Date Approved as Recorded: **1987-10-08** 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
David W. Constable-Constable Consultants Inc., 10 Kingston Court, Sudbury, Ontario, P3A 1C9

Date Certified: **July 28/87** Certified by (Signature): *[Signature]*

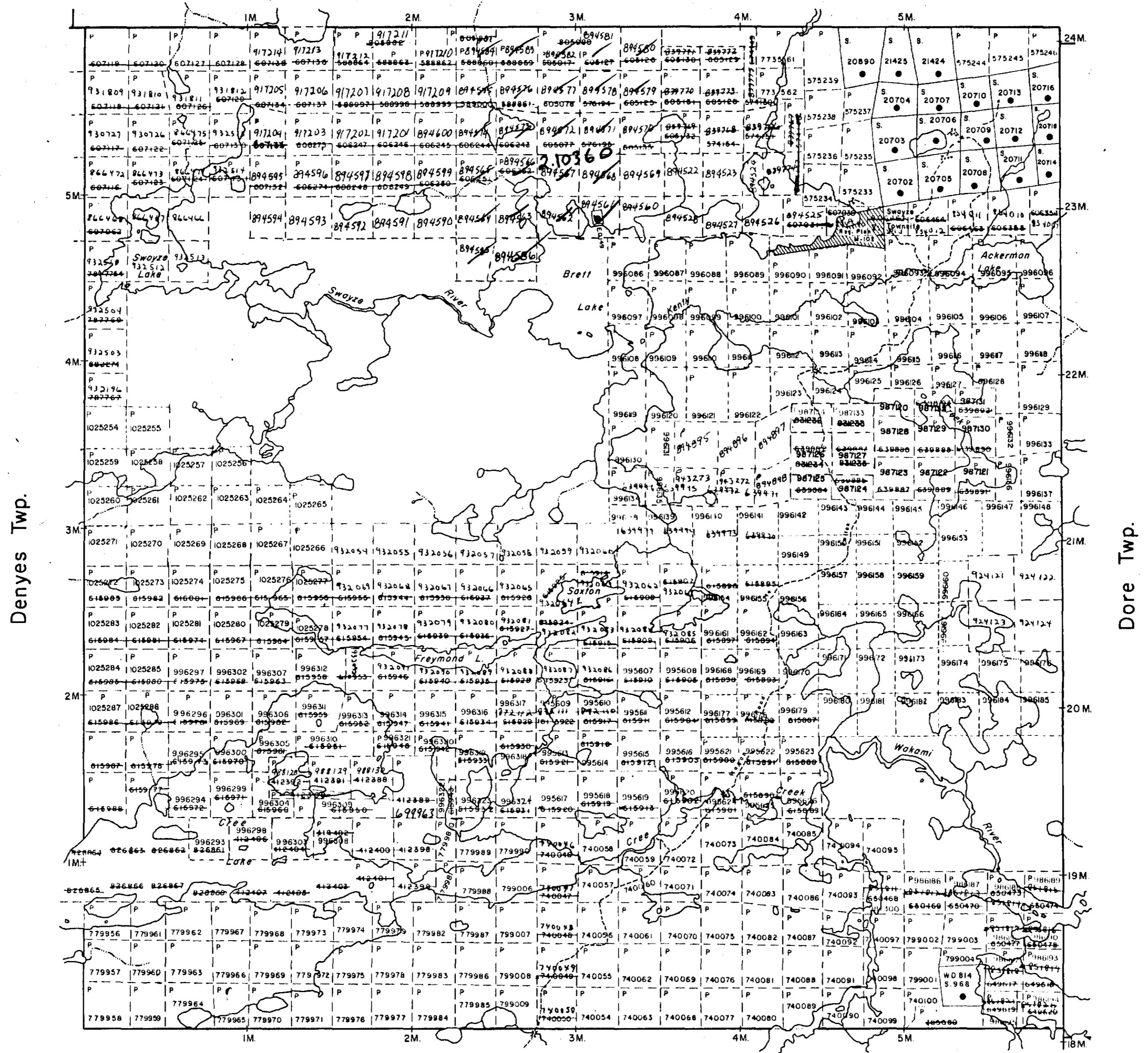
REFERENCES

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

Rollo Twp.



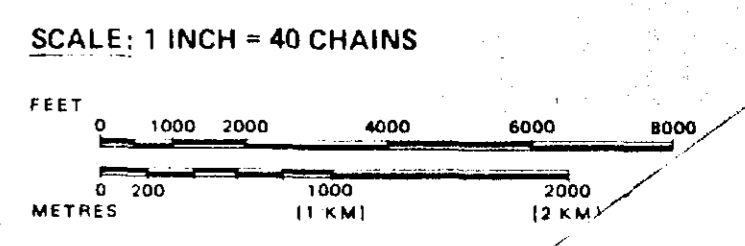
LEGEND

- 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	⊙
CANCELLED	⊗
SAND & GRAVEL	⊕

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 8, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

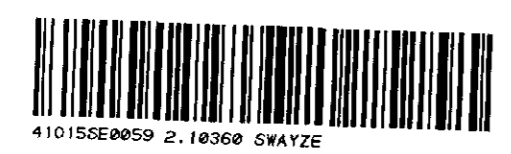


2.10360

TOWNSHIP
SWAYZE TWP.

Ontario

Date MARCH, 1985



Cunningham Twp.

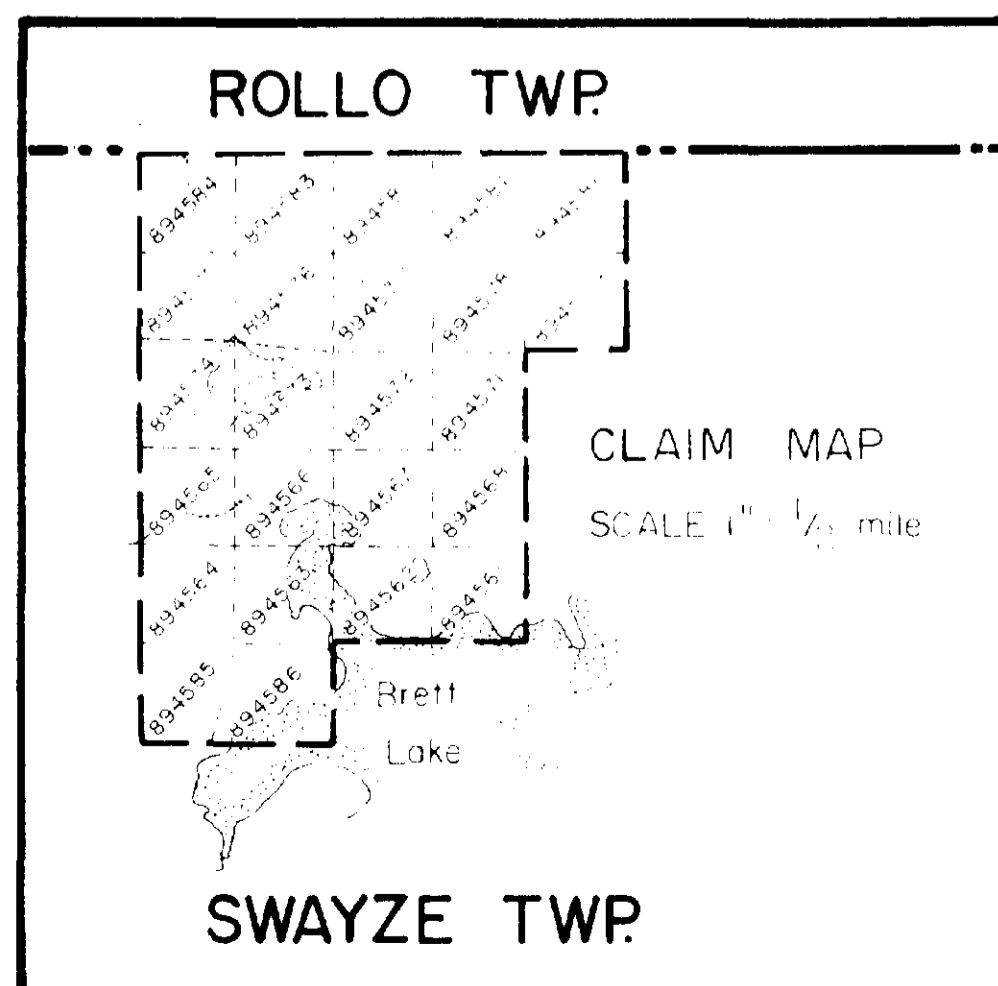


LEGEND

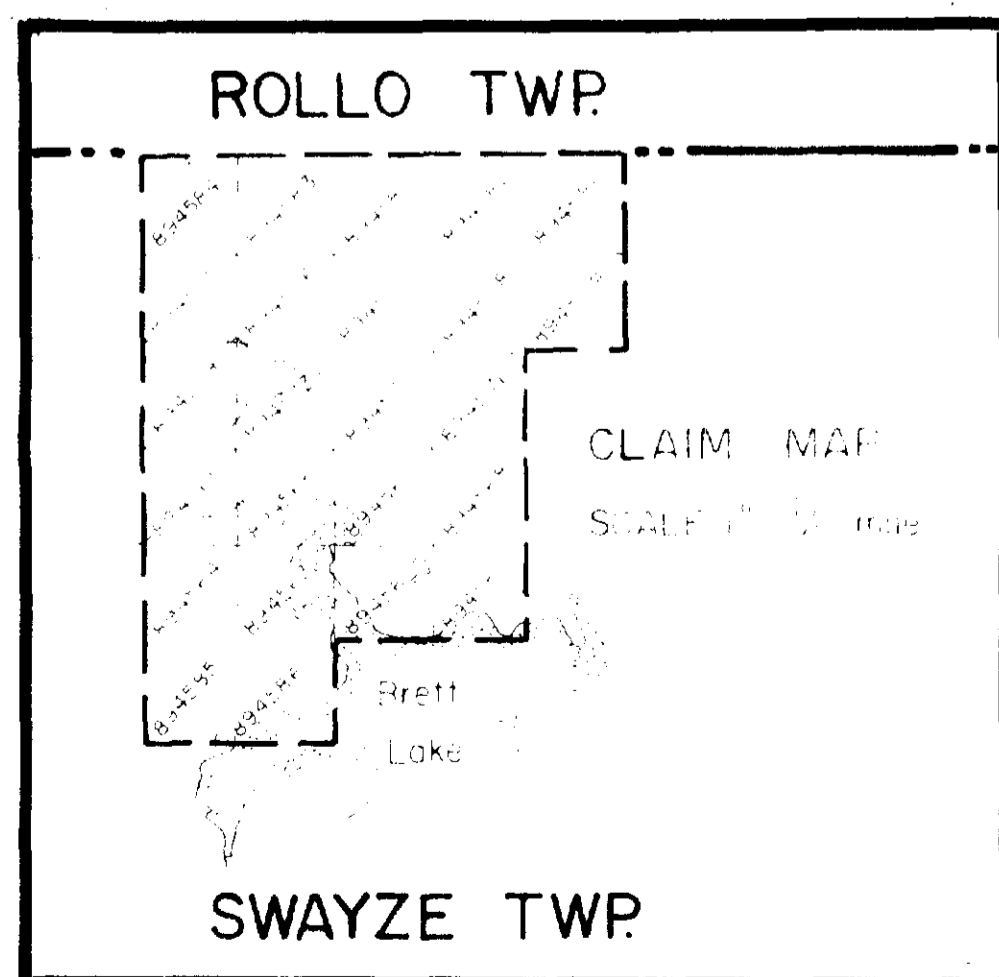
- TOTAL FIELD CONTOUR INTERVAL 2 %
- CONDUCTOR AXIS
- FIDUCIAL POINT
- LINE DIRECTION
- STATION USED: CUTLER, MAINE, USA. (N.A.A. 24.0 kHz.)
- LESS THAN ZERO
- 10%, 20%, 30%
- 2%
- 0%



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TYPE OF WORK		AIRBORNE V.L.F-EM SURVEY	
CLIENT		RARETECH MINERALS INC.	
PROJECT		AREA	2,103.60
		SWAYZE TWP. ONT.	
H. Ferderber Geophysics Ltd.		SCALE 1" = 1/4 mile	DATE AUGUST 1987
DRAWN BY J.M.		MAP OR SHEET NO. EM-1	



LEGEND

- TOTAL FIELD CONTOUR INTERVAL 25 GAMMAS
- FIDUCIAL POINT
- ∨ LINE DIRECTION
- BASE VALUE 58500 GAMMAS
- ⊖ MAGNETIC LOW
- 1000 GAMMAS
- 100 GAMMAS
- 25 GAMMAS

TYPE OF WORK		AIRBORNE MAGNETIC SURVEY	
CLIENT		RARETECH MINERALS INC.	
PROJECT		AREA	2,10360
		SWAYZE TWP ONT.	
DRAWN BY <i>Borden M. Hewitt</i> H. Ferderber Geophysics Ltd.		SCALE	DATE
		1" = 1/4 mile	AUGUST 1957
		DRAWN BY	MAP OR SHEET NO.
		<i>B.M.</i>	MG-1

