# REPORT ON COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC, AND VLF-EM SURVEY MISHI LAKE CLAIMS ONTARIO

RECEIVED

JUL 20 1983

MINING LANDS SECTION

for

MACMILLAN ENERGY CORPORATION

by

AERODAT LIMITED

FEBRUARY 1983

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# LIST OF MAPS

(Scale: 1/15,840)

| | |
|---|---|
| Map 1 | Interpreted Conductive Units |
| Map 2 | Airborne Electromagnetic Survey Profile Map (955 Hz. coaxial) |
| Map 3 | Total Field Magnetic Map |
| Map 4, 5 | VLF-EM Total Field Contours |

Data provided but not included in report:

1 - master map (2 colour) of coaxial and coplanar profiles with flight path

2 - anomaly list providing estimates of depth and conductivity thickness

3 - analogue records of data obtained in flight

# 1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of MacMillan Energy Corporation by Aerodat Limited. Equipment operated included a 3 frequency electromagnetic system, a VLF-EM system, and a magnetometer.

The survey was flown on February 20 to 26, 1983 from an operations base at Wawa Ontario. A total of 847 line miles were flown, at a nominal line spacing of 660 feet. Of the total flown, this report describes 598 line miles.

## 2. SURVEY AREA/CLAIM NUMBERS AND LOCATIONS

The mining claim numbers and locations covered by this survey are indicated on the map in the following pocket.

# 3. AIRCRAFT EQUIPMENT

## 3.1 Aircraft

The helicopter used for the survey was an Aerospatial Astar 350D owned and operated by North Star Helicopters. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a nominal altitude at 60 meters.

## 3.2 Equipment

### 3.2.1 Electromagnetic System

The electromagnetic system was an Aerodat/ Geonics 3 frequency system. Two vertical coaxial coil pairs were operated at 955 and 4130 Hz and a horizontal coplanar coil pair at 4500 Hz. The transmitter-receiver separation was 7 meters. In-phase and quadrature signals were measured simultaneously for the 3 frequencies with a time-constant of 0.1 seconds. The electromagnetic bird was towed 30 meters below the helicopter.

### 3.2.2 VLF-EM System

The VLF-EM System was a Herz 2A. This instrument measures the total field and vertical quadrature component of two selected frequencies. The sensor was towed in a bird 15 meters below the helicopter.

The sensor aligned with the flight direction is designated as "LINE", and the sensor perpendicular to the line direction as "ORTHO". The "LINE" station used was NAA, Cutler Maine, 17.8 KHz or NLK, Jim Creek Washington, 24.8 KHz. The "ORTHO" station was NSS, Annapolis Maryland, 21.4 KHz. The NSS transmitter was operating on a very limited schedule and was not available during a large part of the survey.

### 3.2.3 Magnetometer

The magnetometer was a Geometrics G-803 proton precession type. The sensitivity of the instrument was 1 gamma at a 1.0 second sample rate. The sensor was towed in a bird 15 meters below the helicopter.

### 3.2.4 Magnetic Base Station

An IFG proton precession type magnetometer was operated at the base of operations to record diurnal variations of the earths magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.5 Radar Altimeter

A Hoffman HRA-100 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

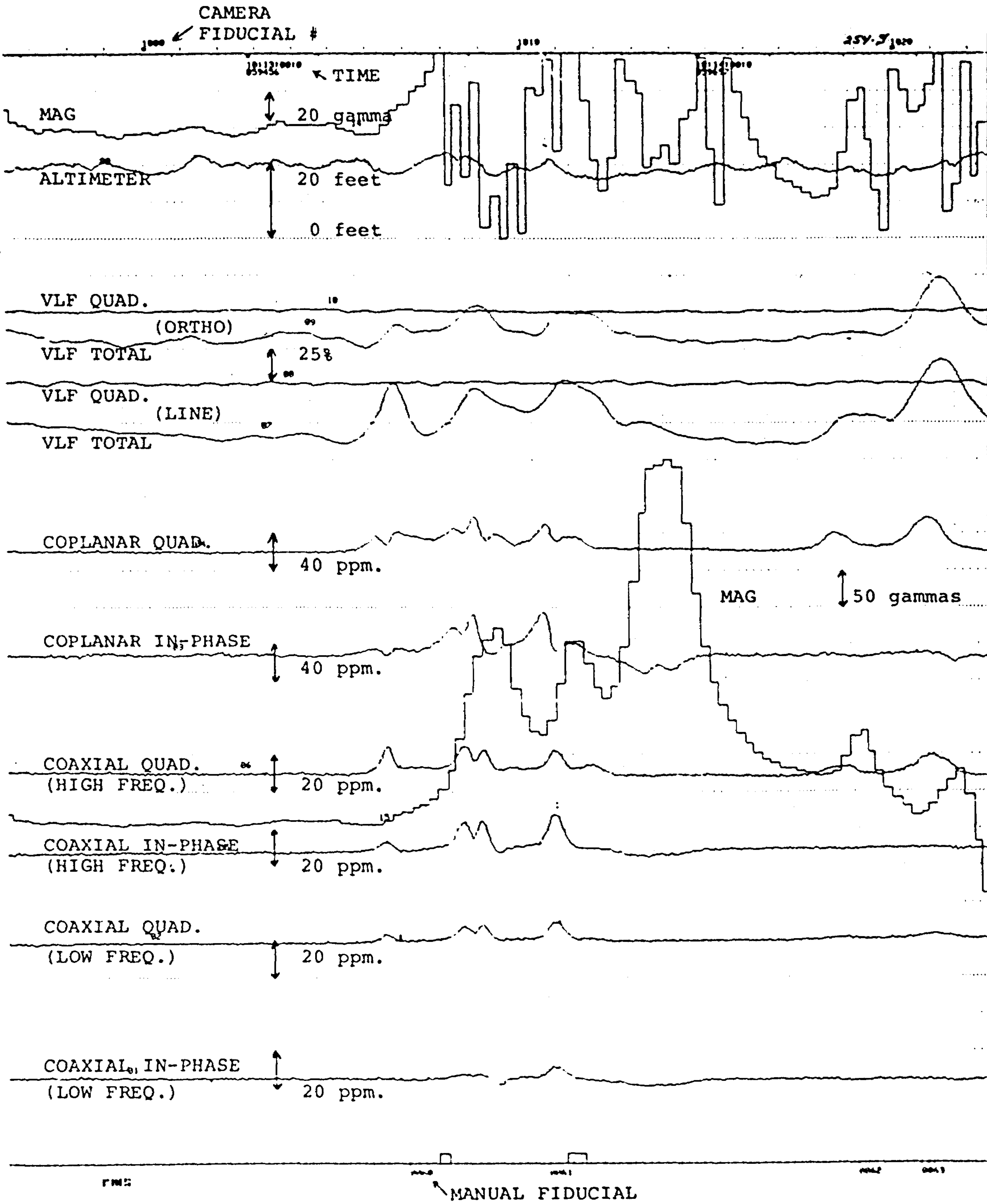
3.2.6 Tracking Camera

A Geocam tracking camera was used to record flight path on 35 mm film. The camera was operated in strip mode and the fiducial numbers for cross reference to the analog and digital data were imprinted on the margin of the film.

3.2.7 Analog Recorder

A RMS dot-matrix recorder was used to display the data during the survey. A sample record with channel identification and scales is presented on the following page.

## ANALOG CHART



### 3.2.8 Digital Recorder

A Perle DAC/NAV data system recorded the survey data on cassette magnetic tape. Information recorded was as follows:

| Equipment | Interval |
|---|---|
| EM | 0.1 second |
| VLF-EM | 0.5 second |
| magnetometer | 0.5 second |
| altimeter | 1.0 second |
| fiducial (time) | 1.0 second |
| fiducial (manual) | 0.2 second |

# 4. DATA PRESENTATION

## 4.1 Base Map and Flight Path Recovery

The base map photomosaic at a scale of 1/15,840 was constructed from available aerial photography. The flight path was plotted manually on this base and digitized for use in the computer compilation of the maps. The flight path is presented with fiducials for cross reference to both the analog and digital data.

## 4.2 Electromagnetic Profile Maps

The electromagnetic data was recorded digitally at a high sample rate of 10/second with a small time constant of 0.1 second. A two stage digital filtering process was carried out to reject major sferic events, and reduce system noise.

Local atmospheric activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with a geological phenomenon. To avoid this possibility, a computer algorithm searches out and rejects the major "sferic" events.

The signal to noise was further enhanced by the application of a low pass filter. The filter was applied digitally. It has zero phase shift which prevents any lag or peak displacement from occurring and it suppresses only variation with a wavelength less than about 0.25 seconds. This low effective time constant permits maximum profile shape resolution.

Following the filtering processes, a base level correction was made. The correction applied is a linear function of time that ensures that the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. This filtered and levelled data was then presented in profile map form.

The in-phase and quadrature responses of the coaxial 955 Hz configuration are plotted with the flight path and presented on the photomosaic base.

The in-phase and quadrature responses of the coaxial 4500 Hz and the coplanar 4130 Hz configuration are plotted with flight path and are available as a two colour overlay.

## 4.3 Magnetic Contour Maps

The aeromagnetic data was corrected for diurnal variations by subtraction of the digitally recorded base station magnetic profile. No correction for regional variation is applied.

The corrected profile data was interpolated onto a regular grid at a 2.5 mm interval using a cubic spline technique. The grid provided the basis for threading the presented contours at a 10 gamma interval.

## 4.4 VLF-EM Contour and Profile Maps

The VLF-EM "LINE" signal, was compiled in map form. The mean response level of the total field signal was removed and the data was gridded and contoured at an interval of 2%. When the "ORTHO" signal was available it was compiled in a similar fashion.

## 4.5 Electromagnetic Conductor Symbolization

The electromagnetic profile maps were used to identify those anomalies with characteristics typical of bedrock conductors. The in-phase and quadrature response amplitudes at 4130 Hz were digitally applied to a phasor diagram for the vertical half-plane model and estimates of conductance (conductivity thickness) were made. The conductance levels were divided into categories as indicated in the map legend; the higher the number, the higher the estimated conductivity thickness product.

As discussed in Appendix I the conductance should be used as a relative rather than absolute guide to conductor quality. A conductance value of less than 2 mhos is typical for conductive overburden material and electrolytic conductors in faults and shears. Values greater than 4 mhos generally indicate some electronic conduction by certain metallic sulphides and/or graphite. Gold, although highly conductive, is not expected to occur in sufficient concentration to directly produce an electromagnetic anomaly; however, accessory mineralization such as pyrite or graphite can produce a measurable response.

With the aid of the profile maps, responses of similar characteristics may be followed from line to line and conductor axes identified.

The distinction between conductive bedrock and over-burden anomalies is not always clear and some of the symbolized anomalies may not be of bedrock origin. It is also possible that a response may have been mistakenly attributed to overburden and therefore not included in the symbolization process. For this reason, as geological and other geophysical information becomes available, reassessment of the significance of the various conductors is recommended.

## 4.6 INTERPRETATION MAPS

The conductive trends are shown and discriminated for descriptive purposes.

These conductors are described below:

1 Short, isolated, mapped as volcanic rocks. Ideal geology.

2 A linear response at the mapped contact of volcanics and sediments.

3 A reasonable magnetic conductor 2600 feet long. Magnetometer results suggest southern end terminated by fault.

4 A linear response at a contact between sediments and volcanics.

5 A "formational" response with some wide magnetic coincidence. Sharp northern termination suggests a fault.

6 A linear response, probably the faulted extension of conductor 4.

7 An apparent bedrock conductor in an area mapped as granite.

8 A weak "formational" conductor.

9 A weak "formational" conductor.

10 "Formational" conductor in magnetic trough.

11 A strong magnetic conductor with sharp terminations

12 Moderate conductivity associated with an isolated magnetic high.

13 Linear contact trend, geophysically similar to 4, 6, and 9.

14, 15 Show variable conductivity along strike. Both flanking magnetic highs- may be folded equivalents of each other.

16 Weak conductor

17 Weak condcutor

18 Variable conductor flanking magnetic high

19 Multiple response near contact.

20 Crosscutting trend - may be overburden.

21 On south flank of magnetic high

22 Weak conductor

23 Weak conductor - at syenite contact.

24 Good, short, magnetic conductor

25 Weak conductivity at peak of magnetic feature

26 Multiple weak conductor on trend with gold occurrence.

27 Weak conductor close to Amichi gold occurrence.

28, 29, 30 Weak conductors on Magnacon mineralized trend.

31 Magnetic, multiple conductor near sediment-volanic contact

32 Moderate conductor, probably in volcanics.

33 Weak conductor, north flank of magnetic high.

Respectfully submitted,

June 7, 1983

Fenton Scott, P. Eng.

# APPENDIX I

## GENERAL INTERPRETIVE CONSIDERATIONS

### Electromagnetic

The Aerodat 3 frequency system utilizes 2 different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at 2 widely separated frequencies and the horizontal coplanar coil pair is operated at a frequency approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its conductivity and its size and shape; the "geometrical" property of the response is largely a function of the conductors shape and orientation with respect to the measuring transmitter and receiver.

### Electrical Considerations

For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large in-phase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for a vertical half-plane model on the accompanying phasor diagram. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in ppm as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth at selected anomalies. The results of this calculation are presented in table form in Appendix I and the conductance and in-phase amplitude are presented in symbolized form on the map presentation.

The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, its conductivity and thickness may vary with depth and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than the depth estimate but both should be considered a relative rather than absolute guide to the anomalies properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab like bodies is the product of electrical conductivity and thickness.

Most overburden will have an indicated conductance of less than 2 mhos; however, more conductive clays may have an apparent conductance of say 2 to 4 mhos. Also in the low conductance range will be electrolytic conductors in faults and shears.

The higher ranges of conductance, greater than 4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater are generally limited to sulphide or graphite bearing rocks.

Sulphide minerals with the exception of sphalerite, cinnabar and stibnite are good conductors; however, they may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously under rate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant concentration in association with minor conductive sulphides, and the electromagnetic response only relate to the minor associate mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive it would not be expected to exist in sufficient quantity to create a recognizable anomaly but minor accessory sulphide mineralization could provide a useful indirect indication.

In summary the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization; however, a moderate to low conductance value does not rule out the possibility of significant economic mineralization.

## Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes. As the dip of the conductor decreases from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.

As the thickness of the conductor increases, induced current flow across the thickness of the conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible. As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar/coaxial) of about 4/1.*

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial coil pair.

In summary a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor; a pronounced null indicates a relatively thin conductor. The dip of such a conductor can be infered from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8.*

Overburden anomalies often produce broad poorly defined anomaly profiles. In most cases the response of the coplanar coils closely follow that of the coaxial coils with a relative amplitude ratio of 4.*

Occasionally if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

## Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to a magnetic body. The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. Conductive and magnetic bodies in close association can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

## VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X. Y. Z. configuration to measure the total field and vertical quadrature component of the polarization ellipse.

The relatively high frequency of VLF 15-25 KHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground the depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field response is an indicator of the existence and position of a conductivity anomaly. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

The vertical quadrature component over steeply dipping sheet like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The amplitude of the quadrature response, as opposed to shape is function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by this altered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical cross-over shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

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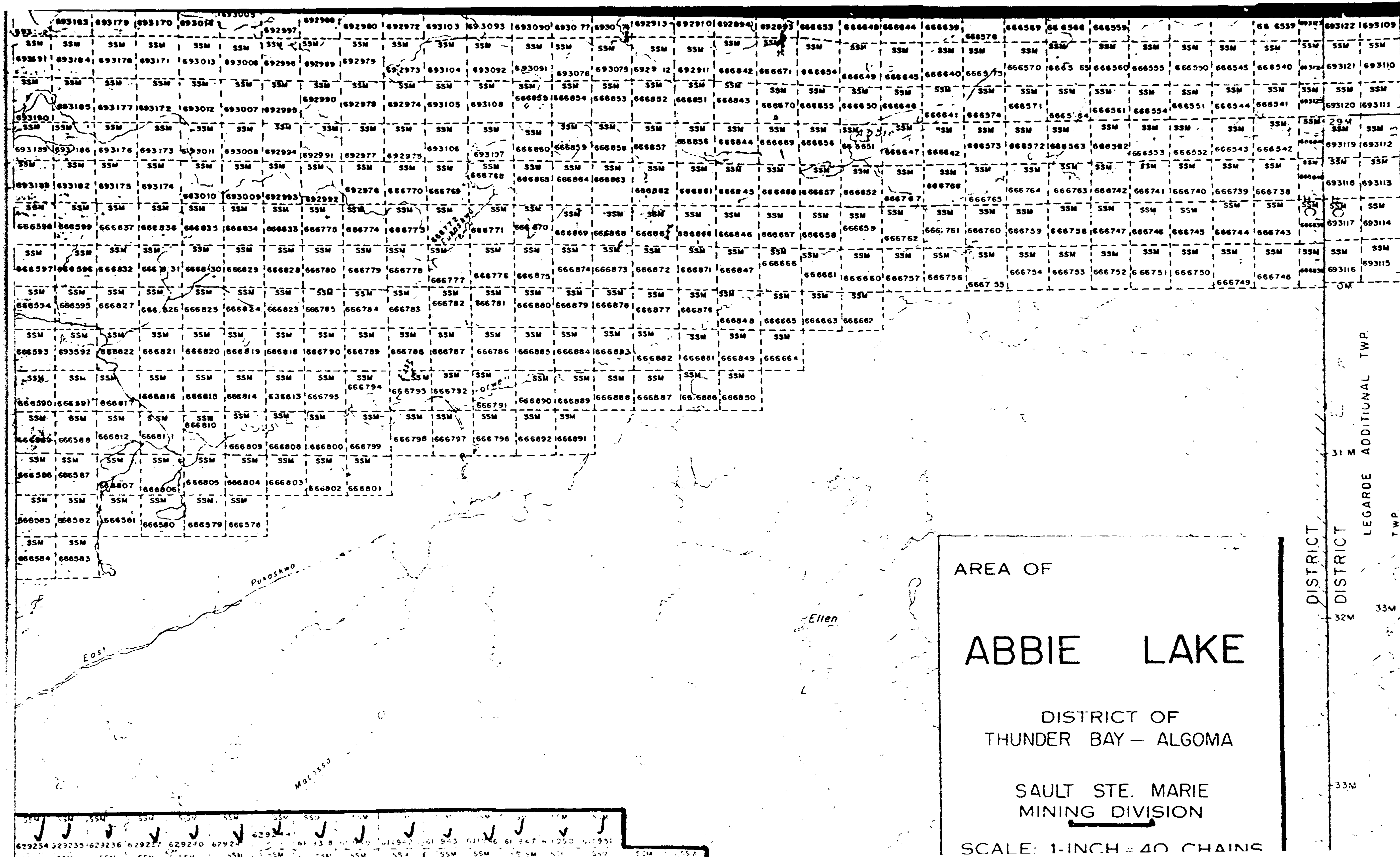

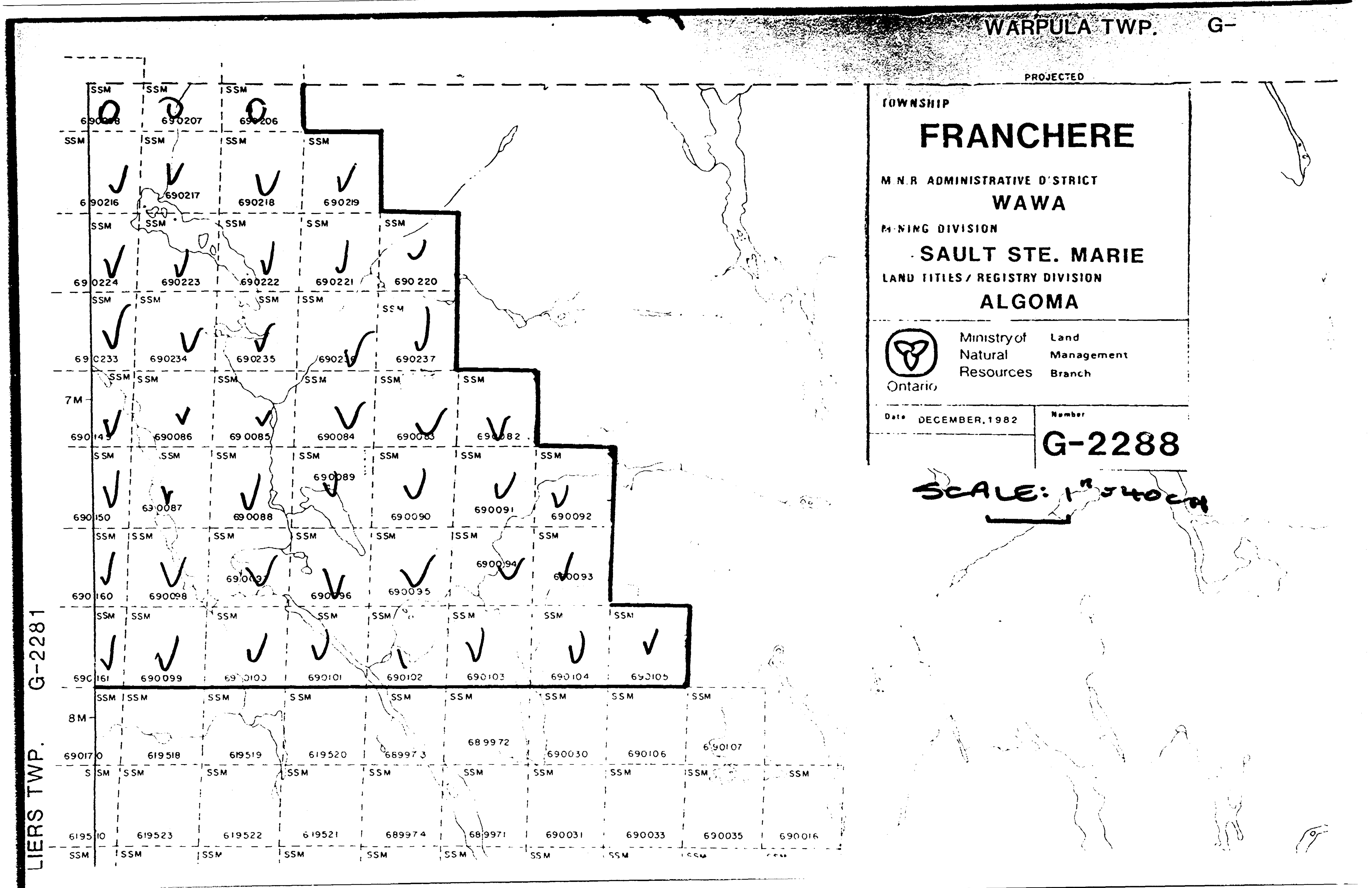
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M.N.R. ADMINISTRATIVE DISTRICT
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MINING DIVISION
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Land Management Branch
Ontario
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SCALE: 1" = 40 ch
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OSI 25 file 2.5709

Ontario — Ministry of Natural Resources

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

The Mining Act 2.5709

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 "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Airborne Electromagnetic, Magnetic, VLF-EM

Township or Area: Mishi Lake, St Germain etc.

Claim Holder(s): Rocco A. Schiralli, In Trust (for McMillan Energy)

Prospector's Licence No.: A39586

Address: Suite 420, 181 University Ave Toronto M5H 3M7

Survey Company: Aerodat Limited

Date of Survey (from & to): Day 10 Mo. 2 Yr. 83 – Day 15 Mo. 2 Yr. 83

Total Miles of line Cut: 589

Name and Address of Author (of Geo-Technical report): Fenton Scott, 17 Malabar Place, Don Mills, M3B 1A4

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 | |
| | - Magnetometer | |
| For each additional survey: using the same grid: Enter 20 days (for each) | - Radiometric | |
| | - Other | |
| | Geological | |
| | Geochemical | |

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

RECEIVED SEP 1 1983 MINING LANDS SECTION

| Airborne Credits | | Days per Claim |
|---|---|---|
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic | 23 |
| | Magnetometer | 23 |
| | Radiometric VLF | 23 |

Mining Claims Traversed (List in numerical sequence)

| Prefix | Number | Expend. Days Cr. | Prefix | Number | Expend. Days Cr. |
|---|---|---|---|---|---|
| SSM | see attached list | | | | |

SAULT STE. MARIE MINING DIV. RECEIVED AUG 26 1983 A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.

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: 1027

| For Office Use Only | | |
|---|---|---|
| Total Days Cr. Recorded: 10,863 | Date Recorded: Aug. 26/83 | Mining Recorder: [signature] |
| | Date Approved as Recorded: 83.09.12 | Branch Director: [signature] |

Date: Aug. 18, 1983

Recorded Holder or Agent (Signature): [signature] for CAS

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: Fenton Scott, 17 Malabar Place, Don Mills M3B 1A4

Date Certified: August 18/83

Certified by (Signature): [signature]

file on SSM 601601

1362 (81/9)

## List of Mining Claims

| | | | | | |
|---|---|---|---|---|---|
| CSM | 601601 | to | 601685 | incl. | 85 |
| | 601687 | to | 601782 | incl. | 96 |
| | 601784 | to | 601900 | incl. | 117 |
| | 611938 | to | 611954 | incl. | 17 |
| | 629234 | to | 629245 | incl. | 12 |
| | 629301 | to | 629400 | incl. | 100 |
| | 644498 | to | 644697 | incl. | 200 |
| | 661001 | to | 661100 | incl. | 100 |
| | 661301 | to | 661383 | incl. | 83 |
| | 661391 | to | 661396 | incl. | 6 |
| | 662150 | | | | 1 |
| | 662159 | to | 662162 | incl. | 4 |
| | 662171 | to | 662174 | incl. | 4 |
| | 662183 | to | 662184 | incl. | 2 |
| | 689868 | to | 689878 | incl | 11 |
| | 689886 | to | 689890 | incl. | 5 |
| | 689933 | to | 689957 | incl. | 25 |
| | 689998 | to | 690015 | incl. | 18 |
| | 690065 | to | 690105 | incl. | 41 |
| | 690119 | to | 690122 | incl. | 4 |
| | 690124 | to | 690165 | incl. | 42 |
| | 690174 | to | 690193 | incl. | 20 |
| | 690195 | to | 690198 | incl. | 4 |
| | 690201 | to | 690204 | incl. | 4 |
| | 690212 | to | 690237 | incl. | 26 |

Ministry of Natural Resources Ontario

# Geotechnical Report Approval

File 2.5709

Aug 18/83

Mining Lands Comments

Airborne Geophysical Certificate

- you wanted to see this file again

[redacted]

☑ To: Geophysics Mr. Roger Barlow

Comments

☐ Approved ☐ Wish to see again with corrections | Date Aug 30/83 | Signature [illegible]

☐ To: Geology - Expenditures

Comments

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

☐ To: Geochemistry

Comments

LD

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

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

1593 (81/10)

Ministry of Natural Resources
Ontario

# Geotechnical Report Approval

File 2.5709

Mining Lands Comments

Airborne Certificate (partial) [redacted] see letter.

☑ To: Geophysics Mr. Barlow.

Comments

please have company check Airborne VLF maps (legend section) ~~...~~ change to proper unit

☐ Approved ☑ Wish to see again with corrections | Date Aug 3/87 | Signature [signature]

☐ To: Geology - Expenditures

Comments

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

☐ To: Geochemistry

Comments

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

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

1593 (81/10)

File ____________

Ontario

# Ministry of Natural Resources

## GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

420-181 University Ave
T.O. M5H 3M7

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 Electromagnetic, Magnetic, VLF

Township or Area Mishi Lake et al.

Claim Holder(s) Rocco A. Achiralli in Trust
Gerald Couture, Gerald Falardeau

Survey Company Aerodat Limited

Author of Report Fenton Scott

Address of Author 17 Malabar Place, Don Mills, M3B1A4

Covering Dates of Survey February 10 to 15, 1983 (linecutting to office)

Total Miles of Line ~~Cut~~ - Flown 598

**MINING CLAIMS TRAVERSED**
List numerically

SSM (prefix) 601601 et al (number)
(see list attached)

If space insufficient, attach list

TOTAL CLAIMS 1040

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 | |
| –Magnetometer | |
| –Radiometric | |
| –Other | |
| Geological | |
| Geochemical | |

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

Magnetometer 23 Electromagnetic 23 ~~Radiometric~~ VLF. 23
(enter days per claim)

DATE: Aug 24/83 SIGNATURE: [signature]
Author of Report or Agent

OFFICE USE ONLY

Res. Geol. ____________ Qualifications ____________

Previous Surveys

| File No. | Type | Date | Claim Holder |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

837 (5/79)

## 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) Electromagnetic Magnetic VLF-EM

Instrument(s) Aerodat 3 freq. Geometrics 803 Totem 2A
(specify for each type of survey)

Accuracy 1 ppm 0.5 Gammas 1% ( 1mm)
(specify for each type of survey)

Aircraft used Aerospatiale A-Star Helicopter

Sensor altitude 100' 150 ' 150'

Navigation and flight path recovery method Visual Navigation, Manual and Automstic fiducials, On Board camera, mosaic laydown.

Aircraft altitude 200' Line Spacing 660'

Miles flown over total area 626.5 Over claims only 598

## List of Mining Claims

| | | | | |
|---|---|---|---|---|
| SSM | 601601 | to | 601685 | incl. |
| | 601687 | to | 601782 | incl. |
| | 601784 | to | 601900 | incl. |
| | 611938 | to | 611954 | incl. |
| | 629234 | to | 629245 | incl. |
| | 629301 | to | 629400 | incl. |
| | 644498 | to | 644697 | incl. |
| | 661001 | to | 661100 | incl. |
| | 661301 | to | 661383 | incl. |
| | 661391 | to | 661396 | incl. |
| | 662150 | | | |
| | 662159 | to | 662162 | incl. |
| | 662171 | to | 662174 | incl. |
| | 662183 | to | 662184 | incl. |
| | 689868 | to | 689878 | incl |
| | 689886 | to | 689890 | incl. |
| | 689933 | to | 689957 | incl. |
| | 689998 | to | 690015 | incl. |
| | 690065 | to | 690105 | incl. |
| | 690119 | to | 690122 | incl. |
| | 690124 | to | 690165 | incl. |
| | 690174 | to | 690193 | incl. |
| | 690195 | to | 690198 | incl. |
| | 690201 | to | 690204 | incl. |
| | 690212 | to | 690237 | incl. |
| SSM | 689879 | to | 689885 | incl. |
| SSM | 690206 | to | 690211 | incl. |

Fenton Scott Management Inc.
17 Malabar Place, Don Mills, Ontario M3B 1A4
416-444-1717

July 22, 1983

Mining Lands Management Division,
Minisytry of Natural Resources,
Queens Park
Toronto, Ontario.

Gentlemen:

On behalf of MacMillan Energy Corporation, I would like to apply for an Airborne Geophysical Certificate on the Following claims in Groseilleurs Township, Sault Ste. Marie Mining Division:

| | | |
|---|---|---|
| SSM 708642 | SSM 708688 | SSM 709153 |
| 43 | 708692 | 54 |
| SSM 708653 | 708694 | 55 |
| 708659 | 95 | 709159 |
| 708670 | 96 | 60 |
| 71 | 97 | 61 |
| 72 | 98 | 62 |
| 708686 | 99 | 63 |
| 87 | 700 | |

On the maps submitted with the attached Technical Report, these claims are separately shown and numbered.

Cordially yours,

Fenton Scott
Fenton Scott.

RECEIVED
JUL 25 1983
MINING LANDS SECTION

RECEIVED
Land Management Branch
CIRCULATE
COMMENTS PLEASE BY
JUL 25 1983
E. F. ANDERSON
J. R. MORTON
J. C. SMITH
G. SHERMAN

1983 07 27 2.5709

Mrs. M.V. St. Jules
Mining Recorder
875 Queen Street East
P.O. Box 669
Sault Ste. Marie, Ontario
P6A 5N2

Dear Madam:

We have received reports and maps for an Airborne Geophysical (Electromagnetic and Magnetometer) and Airborne Certificate Survey submitted on Mining Claims SSM 601601 et al in the Township of Groseilliers and Mishi Lake Area.

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

We do not have a copy of the report of work which is normally filed with you prior to the submission of this technical data. Please forward a copy as soon as possible.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3

A. Barr:mc

cc: Mr. Recco A. Schiralli
Suite 420
181 University Avenue
Toronto, Ontario M5H 3M7

cc: Fenton Scott
17 Malabar Place
Don Mills, Ontario
M3B 1A4

August 5, 1983 2.5709

Rocco A. Schiralli
Suite 420
181 University Avenue
Toronto, Ontario
M5H 3M7

Dear Sir:

RE: Airborne Geophysical (VLF-EM) and Airborne Geophysical Certificate Surveys submitted on Mining Claims [redacted] 601601 et al in the Township of Croseilliers and Mishi Lake Area

---

Enclosed are the plans, in duplicate, for the above-mentioned survey. Please change the legend on these plans to the proper units.

For further information, please contact Mr. F.W. Matthews at (416)965-1380.

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

R. Pichette:mc

Encl.

cc: Mining Recorder
Sault Ste. Marie, Ontario

cc: Fenton Scott Management Inc
17 Malabar Place
Don Mills, Ontario
M3B 1A4

August 18, 1983

Mrs. M.V. St. Jules, Mining Recorder,
Ministry of Natural Resources,
875 Queen Street, East,
Box 669,
Sault Ste. Marie, Ontario.

Dear Mrs. St. Jules;

I enclose revised Report of Work forms for 1040 mining claims numbered SSM 601601 et la in the Missi Lake area, Groseilleurs Township and adjacent areas.

Most of these claims are held by Rocco A. Schiralli in Trust, with two small blocks still in the name of the original stakers, Gerald Falardeau and Gerald Couture. For each of these owners I have prepared a separate report.

I am also submitting a revised list of claims for attachment to the Technical Data Report submitted to the Land Management Branch.

I must apologize for this mix up, which was caused by my fallacious reliance on a list supplied by the owner's consulting engineer.

Cordially yours,

Fenton Scott.

August 18, 1983

Mrs. M. V. St. Jules, Mining Recorder,
Ministry of Natural Resources,
875 Queen Street, East,
Box 669.
Sault Ste. Marie, Ontario.

Dear Mrs. St. Jules;

I enclode revised Report of Work forms for 1040 mining claims numbered SSM 601601 et al in the Mishi Lake area, Groseilleurs Township and adjacent areas.

Most of these claims are held by Rocco A. Schiralli in Trust, with two small blocks still in the name of the original stakers, Gerald Falardeau and Gerald Couture. For each of these owners I have prepared a separate report.

I am also submitting a revised list of claims for attachment to the Technical Data Report submitted to the Land Management Branch.

I must apologize for this mix up, which was caused by my fallacious reliance on a list supplied by the owner"s consulting engineer.

Cordially yours,

Fenton Scott.

Ontario

Ministry of
Natural
Resources

Your file:

Our file: 2.5709

1983 09 08

Mrs. M.V. St. Jules
Mining Recorder
Ministry of Natural Resources
875 Queen Street East
P.O. Box 669
Sault Ste. Marie, Ontario
P6A 5N2

Dear Madam:

RE: Airborne Geophysical Certificate on Mining Claims SSM 708642 et al in the Township of Groseilliers

Enclosed is an Airborne Geophysical Certificate issued under Section 78 of the Mining Act R.S.O. 1980.

Please indicate on your records that the time for performing the first and all subsequent periods of work for claims listed shall fall due one year later than the times prescribed in Subsection 1 of Section 76.

Yours very truly,

E. E. Anderson
Director
Land Management Branch

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

R. Pichette:sc

cc: Fenton Scott Management Inc
17 Malabar Place
Don Mills, Ontario
M3B 1A4 Attn: Fenton Scott.

cc: Mr. Rocco A. Schiralli
Suite 420
181 University Ave
Toronto, Ontario M5H 3M7

cc: ✓Resident Geologist
Sault Ste. Marie, Ontario

Ministry of Natural Resources
Ontario

# Airborne Geophysical Certificate

The Mining Act

This is to certify that Rocco A. Schiralli has met the requirements of Section 78 of The Mining Act, with respect to the following mining claims in the Township (or Area) of Groseilliers.

Mining Claims (Please list)

SSM 708642-43
708653
708659
708670 to 72 incl
708686 to 88 incl
708692
708694 to 700 incl
709153 to 55 incl
709159 to 63 incl

| Date | Signature of Branch Director |
|---|---|
| 83.09.09 | [signature] |

1332 (12/80)

November 23, 1983

REGISTERED

Gerald Falardeau
c/o Prospecting Geophysics
169 Perreault Avenue
Val D'Or, Quebec
J9P 2H1

Dear Sir:

Enclosed is a copy of a Report of Work for Airborne Magnetometer and Electromagnetic assessment work credits that was recorded on August 26, 1983 on Mining Claims SSM 689879 to 85 inclusive in the Area of Mishi Lake.

We have no record that you provided the full reports and maps to the Minister within the sixty day period provided by Section 77 of the Mining Act.

Unless you can provide evidence by December 2, 1983 that the reports and maps were submitted as required, the mining recorder will be directed to cancel the work credits recorded on August 26, 1983.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

A. Barr:sc

Encls:

cc: Mr. Fenton Scott
17 Malabar Place
Don Mills, Ontario
M3B 1A4

cc: Mining Recorder
Sault Ste. Marie, Ontario

2.5701

1983 11 23

REGISTERED

Gerald Couture
c/o Prospecting Geophysics
169 Perreault Avenue
Val D'Or, Quebec
V9P 2H1

Dear Sir:

Enclosed is a copy of a Report of Work for Airborne Magnetometer and Electromagnetic assessment work credits that was recorded by the recorder on August 26, 1983 on Mining Claims SSM 690206 to 11 inclusive in the Area of Mishi Lake.

We have no record that you provided the full reports and maps to the Minister within the sixty day period provided by Section 77 of the Mining Act.

Unless you can provide evidence by December 2, 1983 that the reports and maps were submitted as required, the mining recorder will be directed to cancel the work credits recorded on August 26, 1983.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

A. Barr:sc

cc: Fenton Scott
17 Malabar Place
Don Mills, Ontario
M3B 1A4

cc: Mining Recorder,
Sault Ste. Marie, Ontario

Encls:

"Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

# The Mining Act

**Type of Survey(s):** Airborne Electromagnetic, Magnetic, V.L.F.

**Township or Area:** Mishi Lake

**Claim Holder(s):** Gerald Couture

**Prospector's Licence No.:** K 19803

**Address:** c/o Prospecting Geophysics, 169 Perreault Ave Val D'Or Quebec J9P 2H1

**Survey Company:** Aerodat Limited

**Date of Survey (from & to):** 10 2 83 (Day Mo. Yr.) – 15 2 83 (Day Mo. Yr.)

**Total Miles of line Cut:** 4

**Name and Address of Author (of Geo-Technical report):** Fenton Scott, 17 Malabar PLace, Don Mills, M3B 1A4

## 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 | |
| | - Magnetometer | |
| For each additional survey: using the same grid: Enter 20 days (for each) | - Radiometric | |
| | - Other | |
| | Geological | |
| | Geochemical | |

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

| Airborne Credits | | Days per Claim |
|---|---|---|
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic | 23 |
| | Magnetometer | 23 |
| | VLF | 23 |

RECEIVED

## Expenditures (excludes power stripping)

Type of Work Performed: JUN 2 9 1983

Performed on: MINING LANDS SECTION

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)

| Prefix | Number | Expend. Days Cr. | Prefix | Number | Expend. Days Cr. |
|---|---|---|---|---|---|
| ssm | 690206 | | | | |
| | 07 | | | | |
| | 08 | | | | |
| | 09 | | | | |
| | 10 | | | | |
| | 11 | | | | |

SAULT STE. MARIE MINING DIV.
RECEIVED
AUG 26 1983
A.M. 7,8,9,10,11,12,1,2,3,4,5,6 P.M.

Pulled from Library.

Total number of mining claims covered by this report of work: 6

Mining Recorder: 83 [signature]

414

Date Approved as Recorded: 83.11.29

Branch Director: [signature]

Date: Aug 12/83

Recorded Holder or Agent (Signature): P. Feuduter [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: Fenton Scott, 17 Malabar PLace, Don Mills M3B 1A4

Date Certified: Aug 12/83

Certified by (Signature): Fenton Scott

Rec'd on ... [illegible]

1362 (81/9)

in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

The Mining Act

| Type of Survey(s) | Township or Area |
|---|---|
| Airborne Electromagnetic, Magnetic, VLF | Mishi Lake |

| Claim Holder(s) | Prospector's Licence No. |
|---|---|
| Gerald Falardeau | K19804 |

Address: c/o Prospecting Geophysics 169 Perreault Ave. ValDor Quebec J9P 2H1

| Survey Company | Date of Survey (from & to) | Total Miles of line Cut |
|---|---|---|
| Aerodat Limited | Day 10 Mo. 2 Yr. 83 – Day 15 Mo. 2 Yr. 83 | 5 |

Name and Address of Author (of Geo-Technical report): Fenton Scott, 17 Malabar Place, Don Mills, Ontario. M3B 1A4

**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 | |
| | - Magnetometer | |
| For each additional survey: using the same grid: Enter 20 days (for each) | - Radiometric | |
| | - Other | |
| | Geological | |
| | Geochemical | |

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

RECEIVED
AUG 29 1983
MINING LANDS SECTION

| Airborne Credits | | Days per Claim |
|---|---|---|
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic | 23 |
| | Magnetometer | 23 |
| | Radiometric | 23 |

**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)**

| Prefix | Number | Expend. Days Cr. |
|---|---|---|
| SSM | 689879 | |
| | 80 | |
| | 81 | |
| | 82 | |
| | 83 | |
| | 84 | |
| | 85 | |

SAULT STE. MARIE MINING DIV.
RECEIVED
AUG 26 1983
A.M. 7,8,9,10,11,12,1,2,3,4,5,6 P.M.

Total number of mining claims covered by this report of work: 7

For Office Use Only

| Total Days Cr. Recorded | Date Recorded | Mining Recorder |
|---|---|---|
| 483 | Aug 26/83 | [signature] |
| | Date Approved as Recorded: 83.11.29 | Branch Director: [signature] |

| Date | Recorded Holder or Agent (Signature) |
|---|---|
| Aug. 18, '83 | P. Falardeau [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: Fenton Scott, 17 Malabar Place, Don Mills, Ontario. M3B 1A4

| Date Certified | Certified by (Signature) |
|---|---|
| AUGUST 18/83 | [signature] |

1362 (81/9)

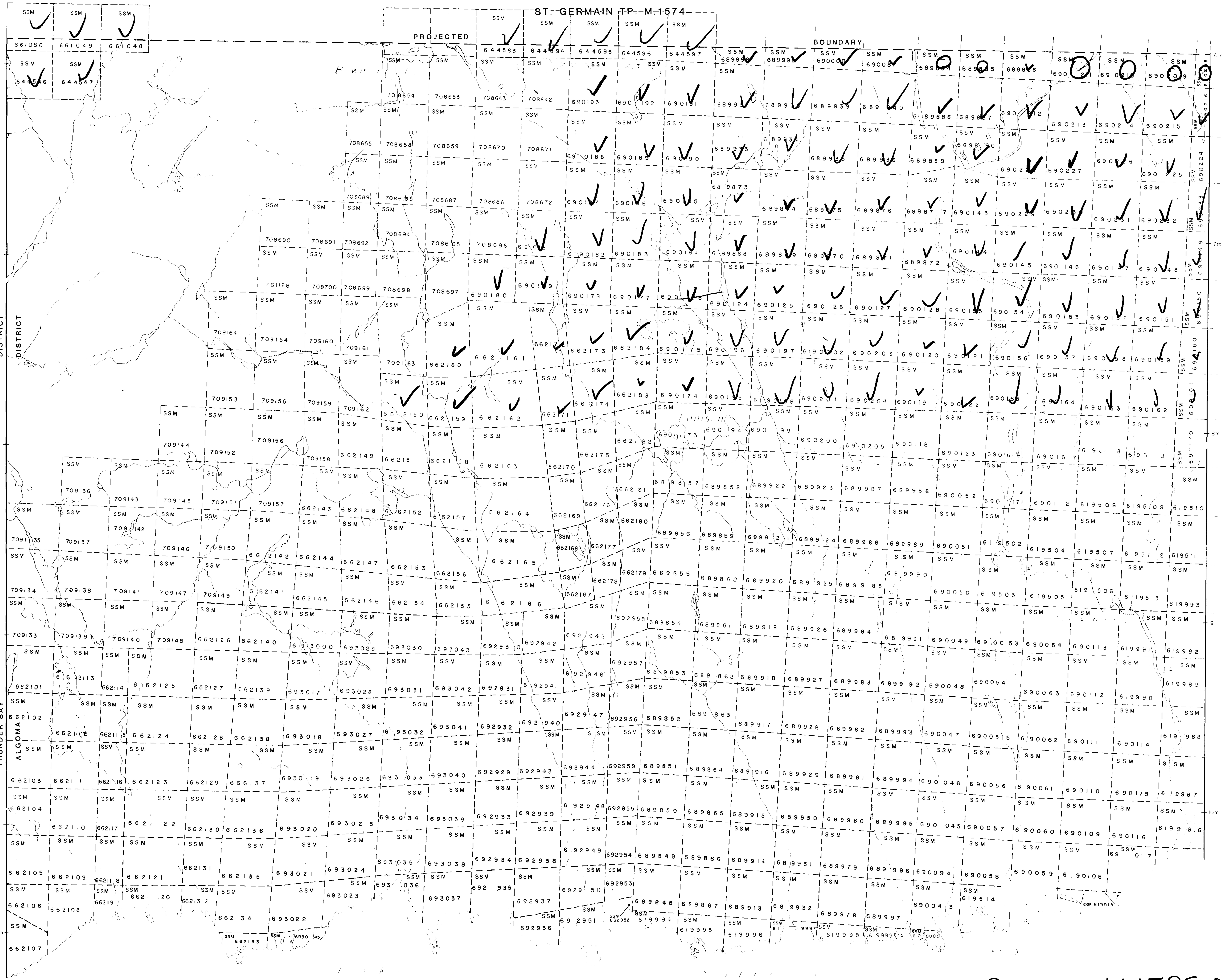
*fil. on SSM 689879*

FOR ADDITIONAL

INFORMATION

SEE MAPS:

GROSEILLIERS - 0015 # 1-14




REFERENCES

Land under Lake Superior withdrawn from staking by Order in Council dated April 30, 1912.

This township lies in Pukaskwa Wilderness Area, under Ont. Reg. 251/63.

DATE OF ISSUE
SEP - 1 1983
Ministry of Natural Resources
TORONTO

## 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 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1

SCALE: 1 INCH = 20 CHAINS

TOWNSHIP

# GROSEILLIERS

M.N.R. ADMINISTRATIVE DISTRICT
WAWA

MINING DIVISION
SAULT STE. MARIE

LAND TITLES / REGISTRY DIVISION
ALGOMA

Ministry of Natural Resources — Land Management Branch
Ontario

Date: November, 1982

Number: G-2281

GROSEILLIERS-0015,
#1

42C03SE0013 0015 GROSEILLIERS

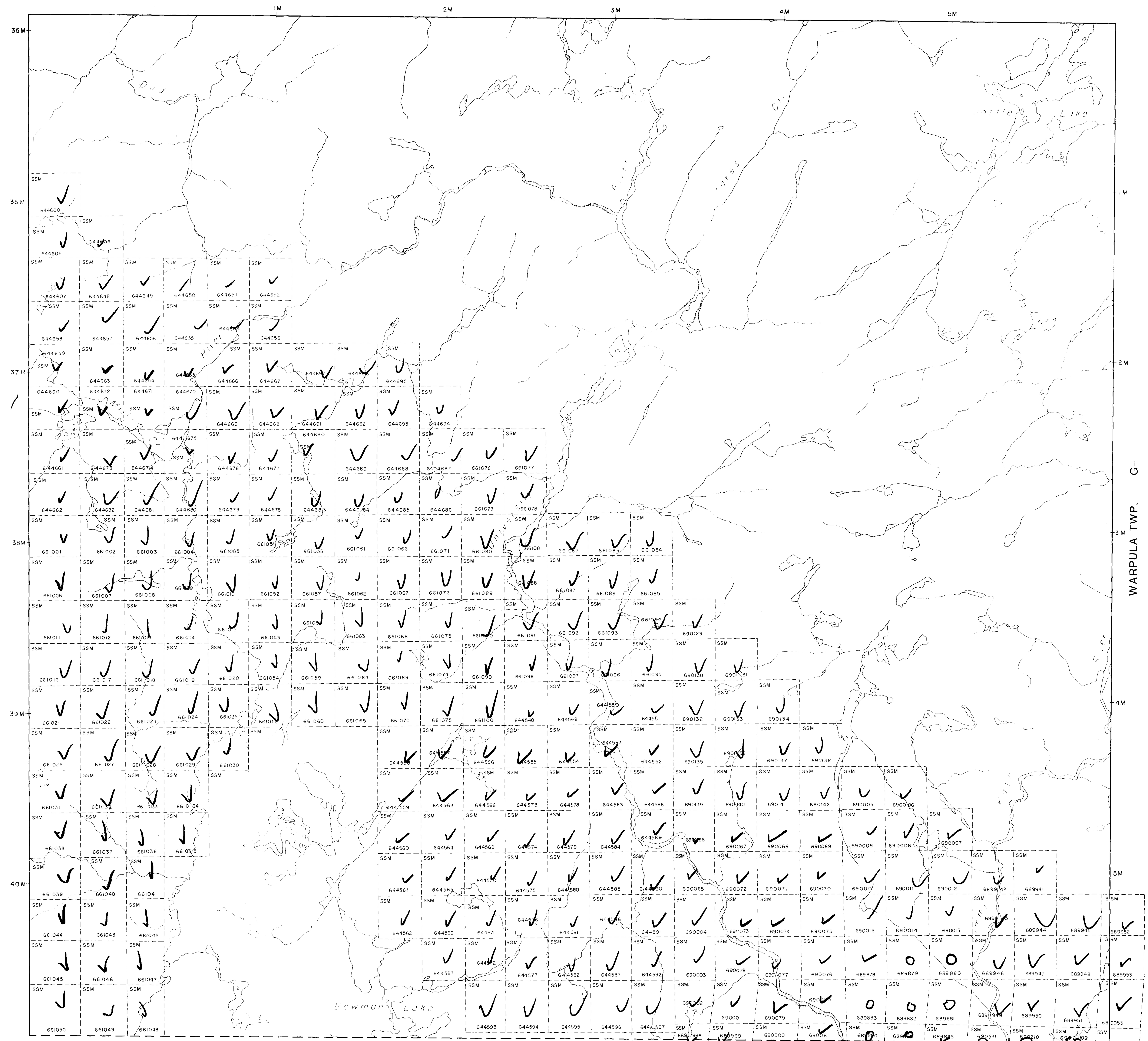
200

REFERENCE

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 |
|---|---|---|---|---|




GROSEILLIERS-0015, #2.

REFERENCE

DATE OF ISSUE
SEP - 1 1983
Ministry of Natural Resources
TORONTO

## 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 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1

SCALE: 1 INCH = 20 CHAINS

TOWNSHIP

# ST. GERMAIN

M.N.R. ADMINISTRATIVE DISTRICT
WAWA

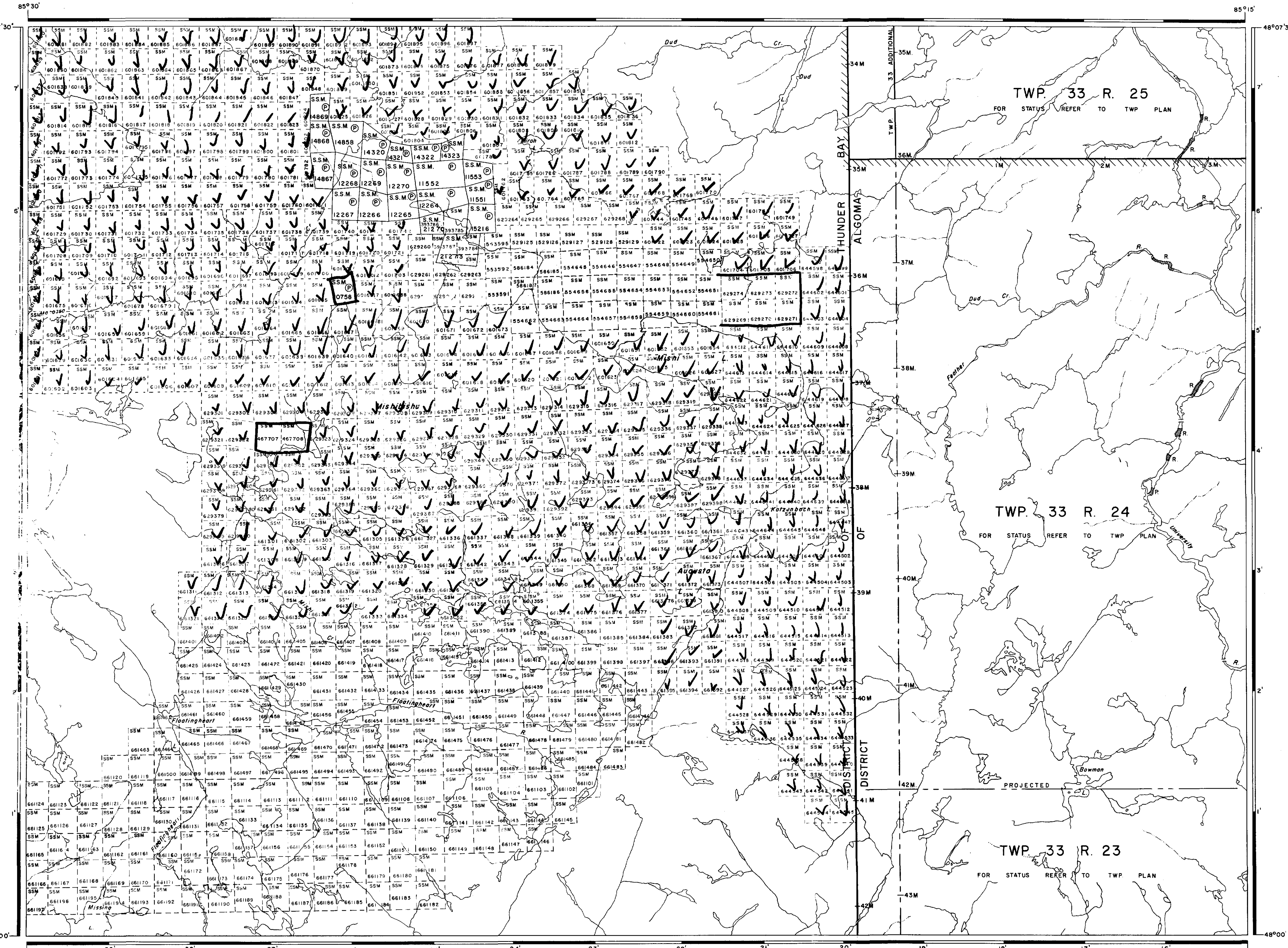
MINING DIVISION
SAULT STE. MARIE

LAND TITLES / REGISTRY DIVISION
ALGOMA

Ontario
Ministry of Natural Resources
Land Management Branch

Date DECEMBER, 1982
Number
G-2290

42C03SE0013 0015 GROSEILLIERS
210




AREA OF

# MISHIBISHU LAKE

DISTRICT OF
THUNDER BAY — ALGOMA

SAULT STE. MARIE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

## 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

## NOT.

400' Surface Rights Reservatio... rivers.

For status of Twp 33 R.25 ... A.C. & H.B. Ry Sault Ste. ...

DATE OF ISSUE
SEP - 1 1983
Ministry of Natural Resources
TORONTO

NATIONAL TOPOGRAPHIC SERIES 42 C3

PLAN NO. M-7

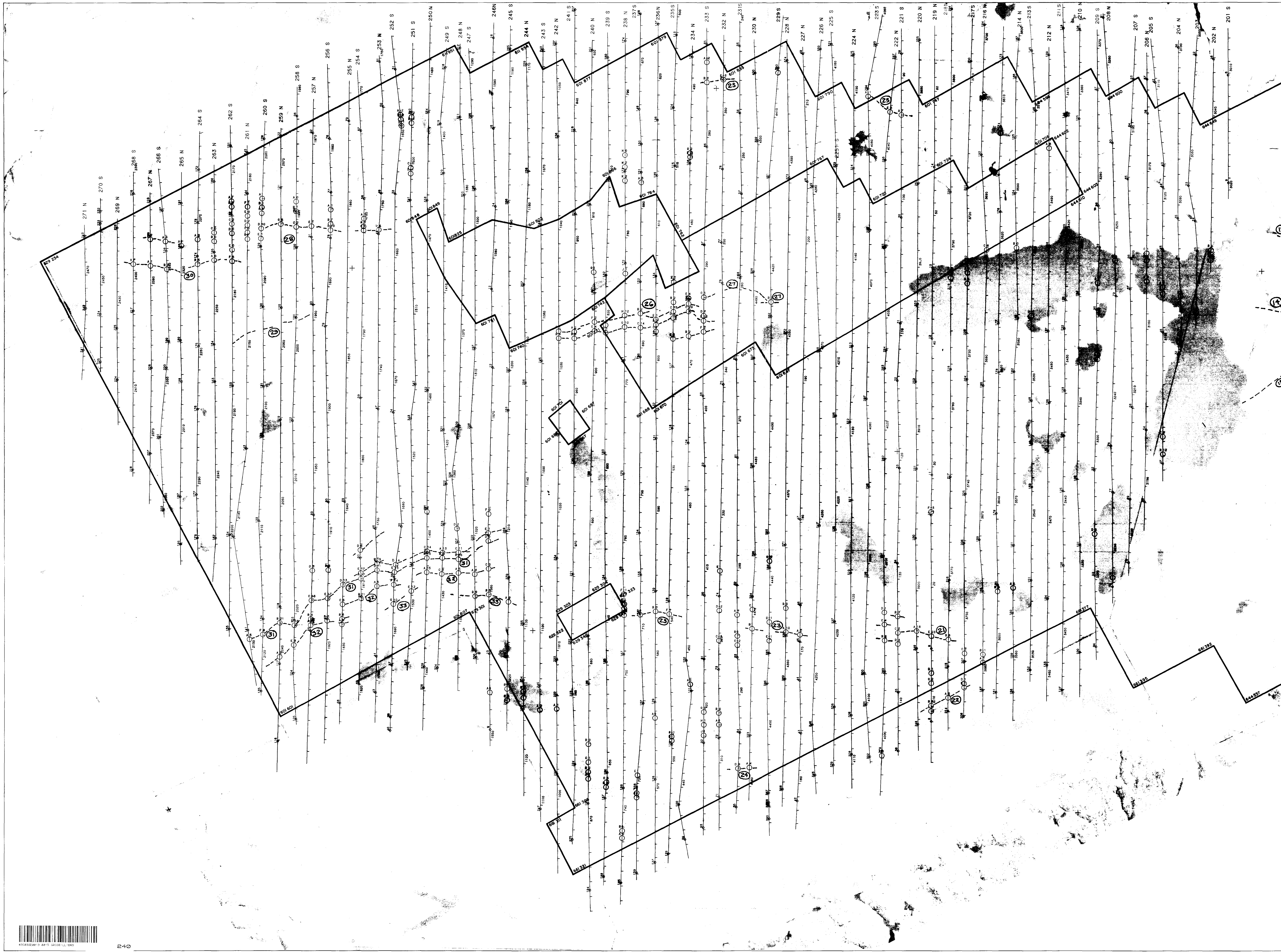
ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

GROSEILLIERS, 0015, #3

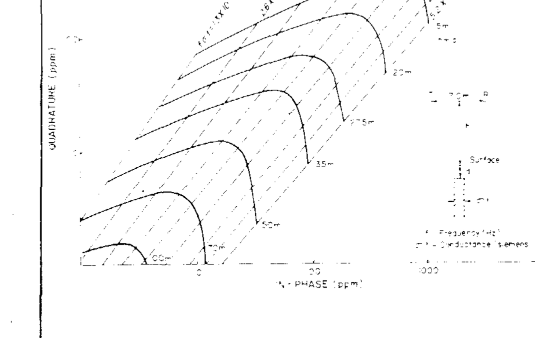
42C03SE0013 0015 GROSEILLIERS

220


GROSEILLIERS-0015, #4




Horizontal control ......... based on photo laydown
Average bird height ........ 30 metres
Line spacing ............. 660 feet




**EM RESPONSE**

Conductivity thickness in mhos

| | |
|---|---|
| ⑨ | > 500 |
| ⑧ | 250 – 500 |
| ⑦ | 125 – 250 |
| ⑥ | 60 – 125 |
| ⑤ | 30 – 60 |
| ④ | 15 – 30 |
| ③ | 8 – 15 |
| ② | 4 – 8 |
| ① | 2 – 4 |
| ○ | < 2 |
| 25 | Inphase response |

GROSEILLIERS-0015, #5

PROSPECTING GEOPHYSICS LTD.

# AIRBORNE ELECTROMAGNETIC SURVEY

## MACMILLAN ENERGY CORPORATION

MISHI LAKE CLAIMS
ONTARIO

SCALE 1/15,840

1/2 0 1/2 Mile

1 0 1 Kilometre

**▼ AERODAT LIMITED**

DATE: February, March 1983
N.T.S. No: 41N, 42C
MAP No: 1

240

PROSPECTING GEOPHYSICS LTD.

**AIRBORNE ELECTROMAGNETIC SURVEY**

MACMILLAN ENERGY CORPORATION

MISHI LAKE CLAIMS

ONTARIO

SCALE 1/15,840

1/2 0 1/2 Mile

1 0 1 Kilometre

▼ **AERODAT LIMITED**

| | |
|---|---|
| DATE | February, March 1983 |
| N.T.S. No. | 41N, 42C |
| MAP No. | 1 |

Horizontal control ......... based on photo laydown

Average bird height ......... 30 metres

Line spacing ............ 660 feet

AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF - PLANE

**EM RESPONSE**

Conductivity thickness in mhos

| | |
|---|---|
| ⑨ | > 500 |
| ⑧ | 250 – 500 |
| ⑦ | 125 – 250 |
| ⑥ | 60 – 125 |
| ⑤ | 30 – 60 |
| ④ | 15 – 30 |
| ③ | 8 – 15 |
| ② | 4 – 8 |
| ① | 2 – 4 |
| ○ | < 2 |
| 25 | Inphase response |

GROSEILLIERS-0015#6

N

250


PROSPECTING GEOPHYSICS LTD.

**AIRBORNE ELECTROMAGNETIC SURVEY**
**PROFILES**

MACMILLAN ENERGY CORPORATION
MISHI LAKE CLAIMS
ONTARIO

SCALE 1:15,840

DATE February, March 1983
N.T.S. No. 41N, 42C
MAP No. 2

▼ AERODAT LIMITED

260

PROSPECTING GEOPHYSICS LTD.

**AIRBORNE ELECTROMAGNETIC SURVEY**
**PROFILES**

MACMILLAN ENERGY CORPORATION

MISHI LAKE CLAIMS
ONTARIO

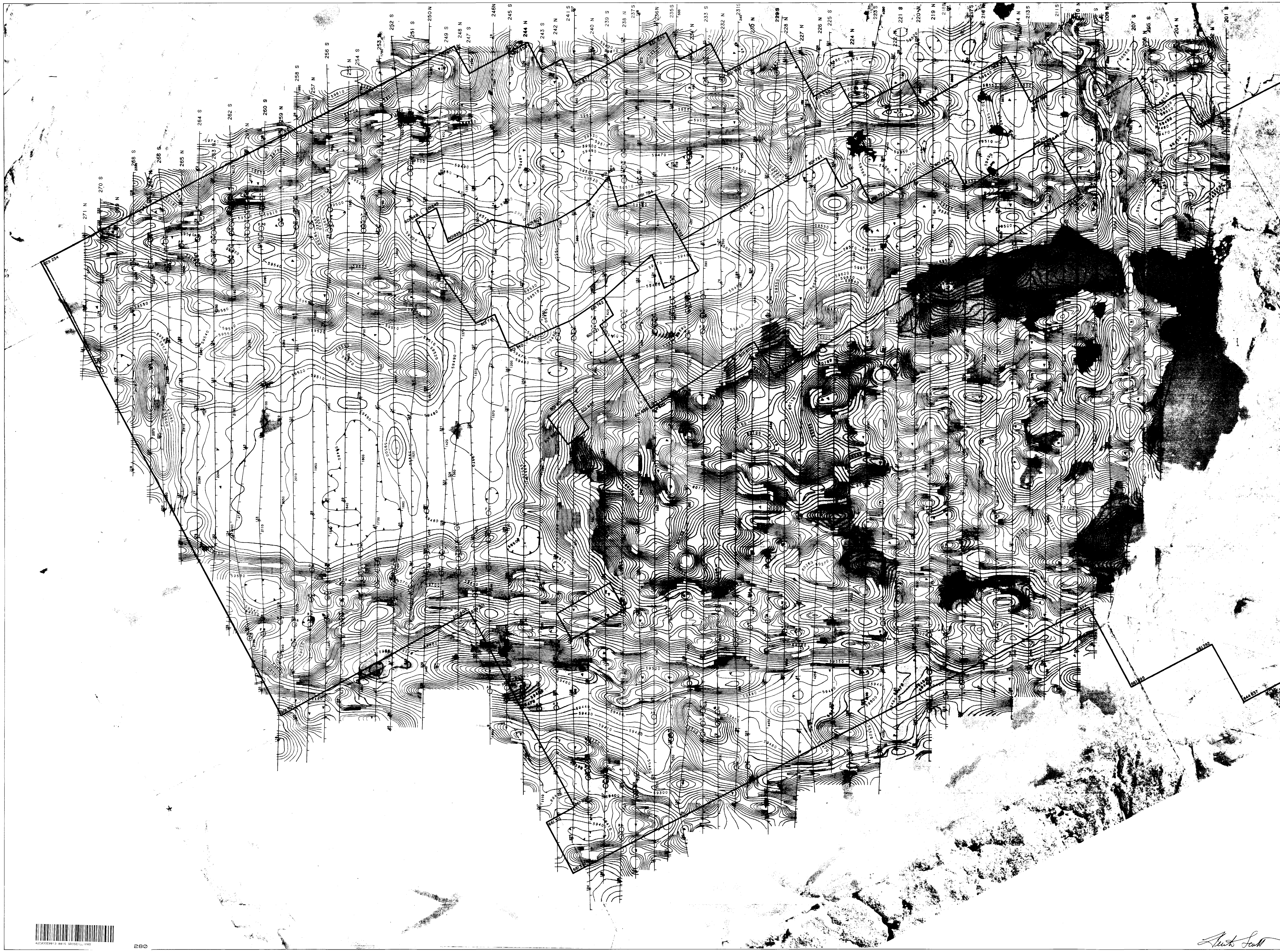
SCALE 1/15,840

1/2 Mile

1 Kilometre

**AERODAT LIMITED**

| | |
|---|---|
| DATE | February, March 1983 |
| N.T.S. No. | 41N, 42C |
| MAP No. | 2 |





LEGEND

100 gammas
50 gammas
10 gammas

PROSPECTING GEOPHYSICS LTD.

**TOTAL FIELD MAGNETIC MAP**

MACMILLAN ENERGY CORPORATION

MISHI LAKE CLAIMS

ONTARIO

SCALE 1:15,840

▼ **AERODAT LIMITED**

DATE: February, March 1983

N.T.S. No.: 41N, 42C

MAP No.: 3

280

PROSPECTING GEOPHYSICS LTD.

**TOTAL FIELD MAGNETIC MAP**

MACMILLAN ENERGY CORPORATION

MISHI LAKE CLAIMS

ONTARIO

SCALE 1:15,840

▼ AERODAT LIMITED

| | |
|---|---|
| DATE | February, March 1983 |
| N.T.S. No. | 41N, 42C |
| MAP No. | 3 |

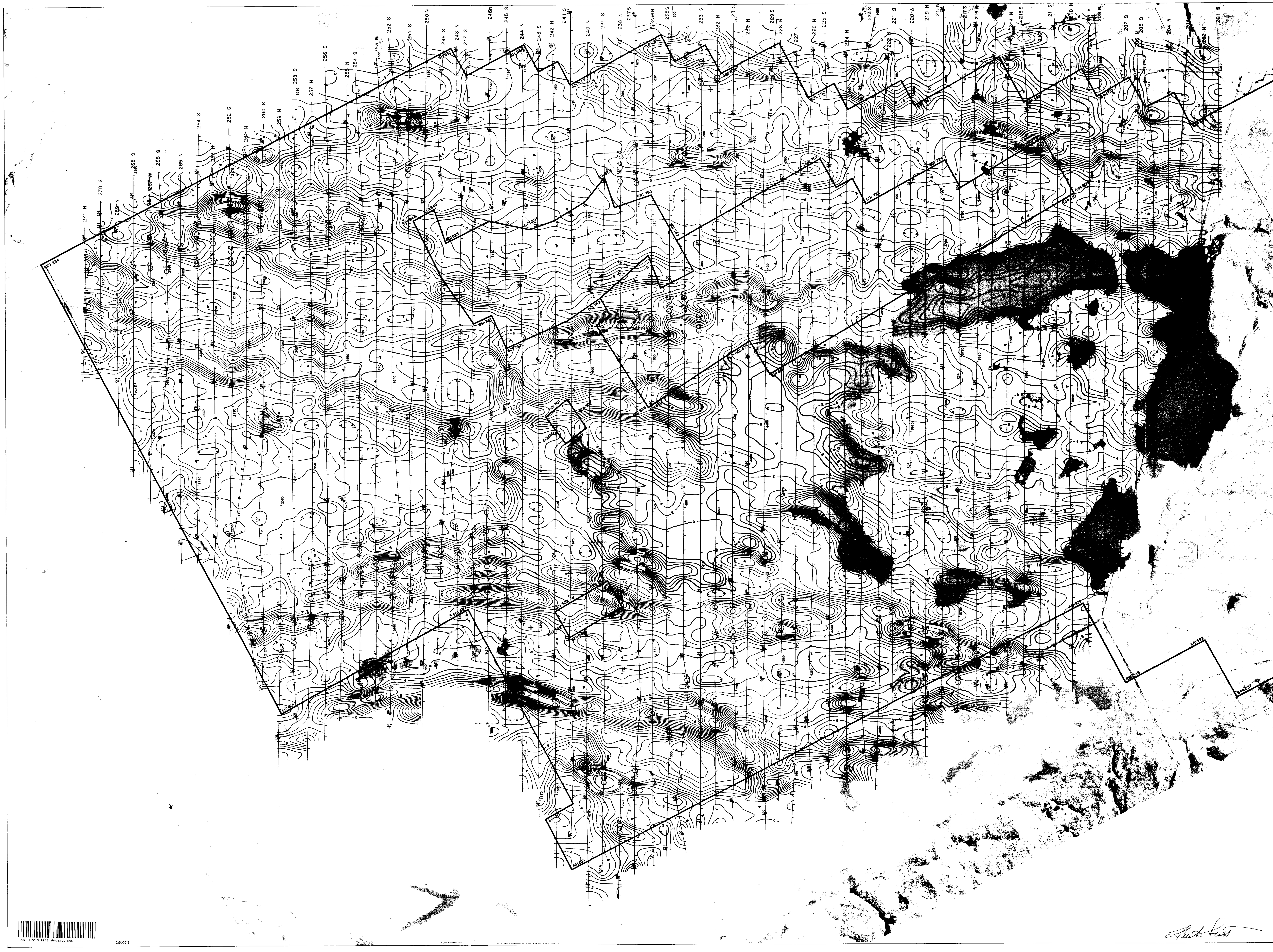
LEGEND

100 gammas

50 gammas

10 gammas


290



GRISEILLIERS-0015 #11

CONTOUR INTERVAL 2%

PROSPECTING GEOPHYSICS LTD.

VLF-EM
"LINE" NAA (MAINE) 17.8 KHz.

MACMILLAN ENERGY CORPORATION
MISHI LAKE CLAIMS
ONTARIO

SCALE 1:5,840

▼ AERODAT LIMITED

DATE: February, March 1983
NTS No: 41N, 42C
MAP No: 4

300

PROSPECTING GEOPHYSICS LTD.

VLF-EM
"LINE" NAA (MAINE) 17.8 KHz.

MACMILLAN ENERGY CORPORATION
MISHI LAKE CLAIMS
ONTARIO

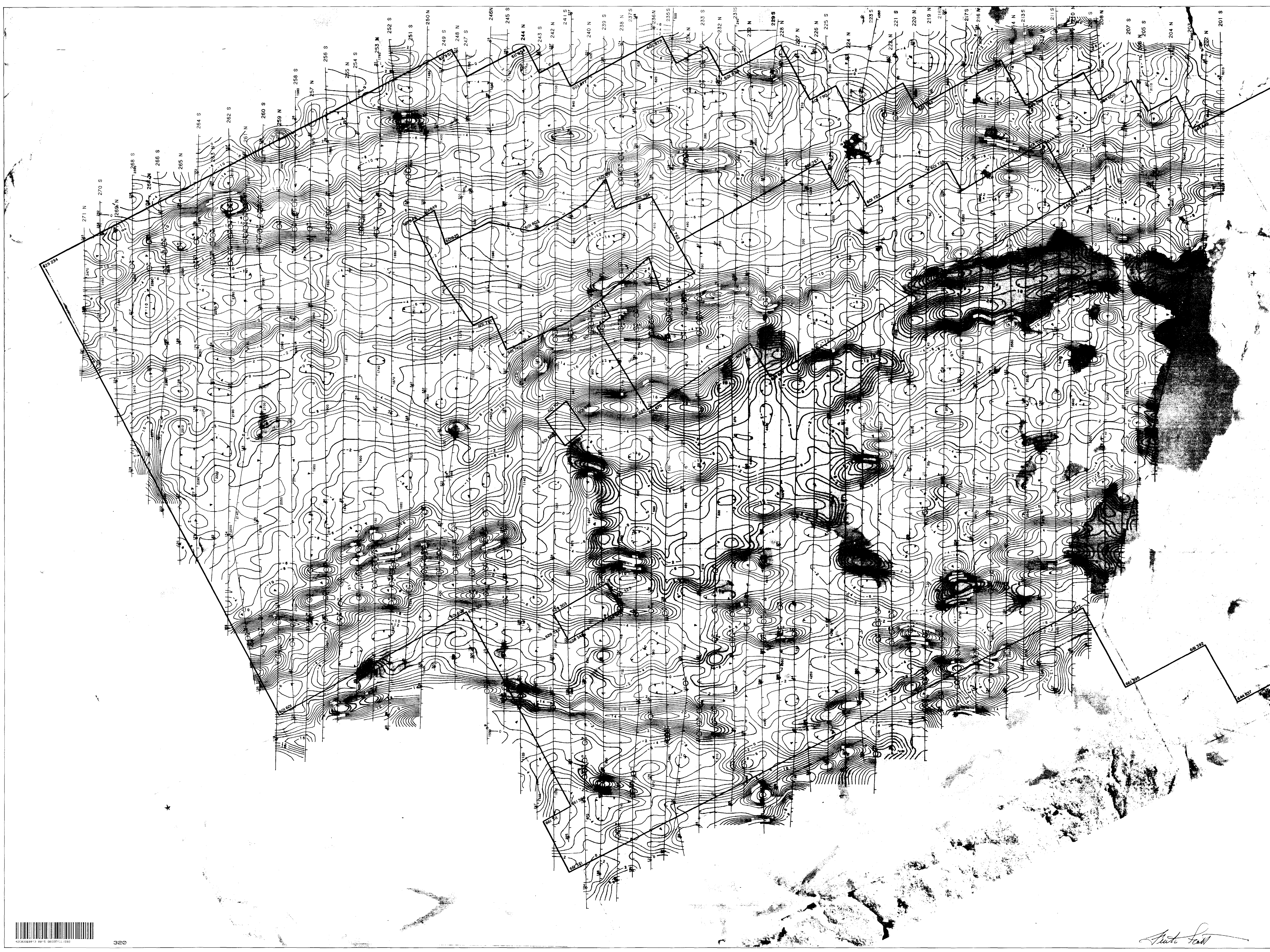
SCALE 1:15,840

▼ AERODAT LIMITED

| | |
|---|---|
| DATE | February, March 1983 |
| N.T.S. No. | 41N, 42C |
| MAP No. | 4 |

CONTOUR INTERVAL 2%


310



GROSEILLIERS - C.C.15 #13

CONTOUR INTERVAL — 2%

PROSPECTING GEOPHYSICS LTD

VLF-EM
"ORTHO" NLK (ANNAPOLIS) 2 .4 KHz

MACMILLAN ENERGY CORPORATION
MISH LAKE CLAIMS
ONTARIO

▼ AERODAT LIMITED

February, March 1983

5

320

PROSPECTING GEOPHYSICS LTD.

VLF-EM
"ORTHO" NLK (ANNAPOLIS) 21.4 KHz.

MACMILLAN ENERGY CORPORATION
MISHI LAKE CLAIMS
ONTARIO

▼ AERODAT LIMITED

| | |
|---|---|
| DATE | February, March 1983 |
| | 41N, 42C |
| MAP No. | 5 |

CONTOUR INTERVAL 2%

330