



42C03SW0093 42C03SW0032B1 MISHIBISHU LAKE

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2.9202

Report
of
V.L.F. Electromagnetic Survey
on Property of
MacMillan Energy Corp. Ltd.
Mishibishu Lake Area, Ontario

RECEIVED
JUN 28 1965
MINING LANDS SECTION

Report
of
V.L.F. Electromagnetic Survey
on Property of
MacMillan Energy Corp. Ltd.
Mishibishu Lake Area, Ontario

Introduction

An exploration program was carried out on a portion of the property of MacMillan Energy Corp. Ltd. from October, 1985 through April, 1986. The program consisted of an extensive geochemical soil sampling program followed by diamond drilling and V.L.F. electromagnetic survey.

The geochemical soil sampling survey is described in our report dated December 30, 1985 following which a diamond drilling program was started. At the same time a V.L.F. electromagnetic survey was carried out in designated areas along reconnaissance lines. The areas surveyed covered some of the geochemical anomalies in an effort to obtain more information as a guide for the diamond drilling program.

The results of the electromagnetic survey are described in this report and are shown on the accompanying map.

Property

The MacMillan Energy property consists of 564 unpatented claims in the Mishibishu Lake area of Ontario. However, the present survey only covered 32 claims in the western portion of the property. The 32 claims covered in the survey are listed below and are shown on the accompanying map.

| | | | |
|------------|------------|------------|------------|
| SSM 601661 | SSM 601721 | SSM 601761 | SSM 601800 |
| 601662 | 601739 | 601778 | 601801 |
| 601680 | 601741 | 601779 | 601802 |
| 601681 | 601742 | 601780 | 601820 |
| 601702 | 601757 | 601781 | 601821 |
| 601703 | 601758 | 601782 | 601822 |
| 601718 | 601759 | 601798 | 601823 |
| 601720 | 601760 | 601799 | 601824 |

Geology

The rock types found on the MacMillan property and the adjacent property being explored by Westfield Minerals and Muscoche Exploration includes a sequence of intermediate to basic metavolcanics overlain by felsic metavolcanic rocks. These are often separated by interflow metasediments. The felsic metavolcanics are normally tuffaceous and preliminary thin section examination by the Ontario Geological Survey has established a tuffaceous origin for some of the felsic units.

The area covered by the electromagnetic survey is underlain by the above sequence of rocks. Some medium to coarse-grained massive "gabbroic" rocks have been noted in the area but whether these are coarse flows of similar composition to the metavolcanics or are gabbroic and dioritic intrusions, is uncertain.

The gold showings in the area appear to be localized within a large geologically complex zone referred to as the "Mishibishu Zone" which occurs between mafic volcanic rocks to the north, and elastic sedimentary rocks to the south.¹ The Mishibishu Zone is a strongly

deformed and altered volcano-sedimentary package which trends north-west and is believed to cross the MacMillan property with the area surveyed.

Survey Methods and Procedures

The V.L.F. Electromagnetic survey was carried out in designated areas to cover geochemical anomalies. It was conducted over the same network of lines as the geochemical soil sampling survey and the equipment used was a Geonics EM-16 system.

The V.L.F. method uses the radiation from powerful military radio transmitters at low frequencies (15 to 25 khz) as a primary signal as opposed to portable transmitters in the conventional EM methods. The instrument has two receiving coils built into it with one coil having a vertical axis while the other is horizontal. The mechanical tilt angle is a measure of the vertical real-component and the reading from the horizontal coil is a measure of the quadrature vertical signal.

The interpretation of the results uses the relative measurements of these two parameters making it possible to outline such poor conductors as shear zones, breccia zones and faults, as well as good sulphid conductors. Because V.L.F. anomalies are produced by a wide range of geological affects, profiles sometimes tend to show a complex "cluttered" pattern which may be difficult to interpret. As an add to the interpretation of the results, the Fraser method of filtering tilt angle profiles has been used in which the noisy non-contourable data is transformed into a less noisy, contourable data. The Fraser filter data are plotted and contoured on the accompanying map on a scale of 1:5000.

Results of the V.L.F. Electromagnetic Survey

The results of the survey are shown on a map accompanying this report. The conductors indicated are generally weak and are lettered A, B, C, etc. for reference purposes.

"A" Zone - is the strongest conductor indicated in the survey and is situated just south of the Muscocho property and in the vicinity of anomalous gold values indicated in the soil sampling. It is quite possible that it may represent a shear zone associated with the gold values.

"C" Zone is associated with some high gold values found in the soil sampling survey on line 260W. The gold values were found over a width of some 500 metres in the vicinity of a creek. However, following the surveys, two diamond drill holes were put down to test the area and they did not intersect anything of significance. It seems likely that the conductor is caused by the creek and it is possible that the gold values have been transported by the creek from some other area.

"E" Zone is a conductor that might be related to the projected extension of the Mishibishu zone. However, it is quite weak and does not appear to be significant on the MacMillan ground.

¹S15 - Gold Showings of the Mishibishu Lake Area, - K.B. Heather, Geologist, Mineral Deposits Section, Ontario Geological Survey.

- 3 -

"F" Zone strikes across the property discontinuously in a northwest direction. From the topography, it seems likely that the conductor represents a fault rather than a mineralized or shear zone.

Conclusions

The results of the V.L.F. electromagnetic survey did not provide much help in the diamond drilling program carried out to the west of the Muscocho holdings. It has been shown from the exploration work carried out on the MacMillan property and the adjacent Muscocho-West-field ground that soil geochemistry is the most successful tool in delineating favourable prospecting areas.

However, "A" Zone outlined in the V.L.F. survey has not yet been tested and combined with the soil sampling results warrants further investigation.

April 15, 1986

Respectfully submitted

PROSPECTING GEOPHYSICS LTD.


H.J. Bergmann, P. Eng.



42C03SW0093 42C03SW0032B1 MISHIBISHU LAKE

900



Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) V.L.F. Electromagnetic
Township or Area Mishibishu Lake Area
Claim Holder(s) MacMillan Energy Corp. Ltd.
Survey Company Prospecting Geophysics Ltd.
Author of Report H.J. Bergmann, P. Eng.
Address of Author 70 Chiswell Crescent, Willowdale, Ont.
Covering Dates of Survey Jan 12-Jan 28, 1986
March 2-April 13, 1986
(linecutting to office)
Total Miles of Line Cut _____

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

See attached list

SPECIAL PROVISIONS
CREDITS REQUESTED

DAYS
per claim

ENTER 40 days (includes
line cutting) for first
survey.

ENTER 20 days for each
additional survey using
same grid.

Geophysical
-Electromagnetic 20 12
-Magnetometer _____
-Radiometric _____
-Other _____
Geological _____
Geochemical _____

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

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

DATE: April 5, 1986 SIGNATURE: [Signature]
Author of Report or Agent

Res. Geol. _____ Qualifications 63.1061

Previous Surveys

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

TOTAL CLAIMS 32

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations 1336 Number of Readings 1279

Station interval 25m Line spacing 100m & 200m

Profile scale

Contour interval Fraser filter 20

MAGNETIC

Instrument

Accuracy - Scale constant

Diurnal correction method

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument Geonics EM-16

Coil configuration

Coil separation

Accuracy ± 1%

Method: Fixed transmitter Shoot back In line Parallel line

Frequency 24 khz - Cutler, Maine (specify V.L.F. station)

Parameters measured Vertical in-phase component Vertical out-of-phase component (quadrature)

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

RESISTIVITY

Instrument

Method Time Domain Frequency Domain

Parameters - On time Frequency

- Off time Range

- Delay time

- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

List of Claims

SSM

601661
601662
601680
601681
601702
601703
601718
601720
601721
601739
601741
601742
601757
601758
601759
601760

SSM

601761
601778
601779
601780
601781
601782
601798
601799
601800
601801
601802
601820
601821
601822
601823
601824

Assessment Work Breakdown

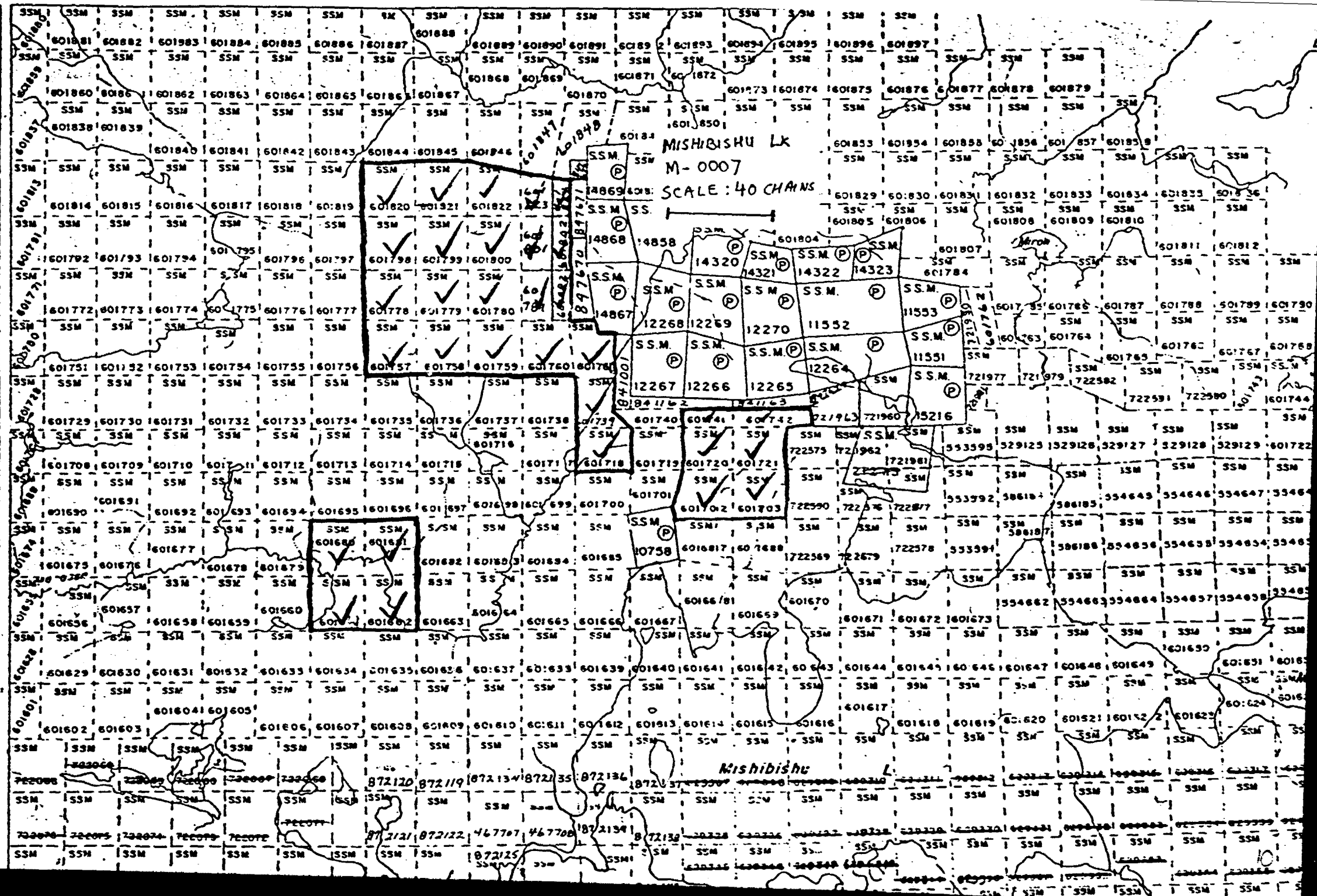
Man Days are based on eight (8) hour Technical or Line-cutting days. Technical days include work performed by consultants, draftsmen, etc..

| | | | | | | | | | | | | |
|------------------------|---|---|---|------------------------|---|-------------------|---|---------------|---|---------------|---|----------------|
| Type of Survey | | | | | | | | | | | | |
| Electromagnetic | | | | | | | | | | | | |
| Technical Days | × | 7 | = | Technical Days Credits | + | Line-cutting Days | = | Total Credits | + | No. of Claims | = | Days per Claim |
| 55 | | | | 385 | | | | 385 | | 32 | | 12 |

| | | | | | | | | | | | | |
|----------------|---|---|---|------------------------|---|-------------------|---|---------------|---|---------------|---|----------------|
| Type of Survey | | | | | | | | | | | | |
| Technical Days | × | 7 | = | Technical Days Credits | + | Line-cutting Days | = | Total Credits | + | No. of Claims | = | Days per Claim |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|----------------|---|---|---|------------------------|---|-------------------|---|---------------|---|---------------|---|----------------|
| Type of Survey | | | | | | | | | | | | |
| Technical Days | × | 7 | = | Technical Days Credits | + | Line-cutting Days | = | Total Credits | + | No. of Claims | = | Days per Claim |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|----------------|---|---|---|------------------------|---|-------------------|---|---------------|---|---------------|---|----------------|
| Type of Survey | | | | | | | | | | | | |
| Technical Days | × | 7 | = | Technical Days Credits | + | Line-cutting Days | = | Total Credits | + | No. of Claims | = | Days per Claim |
| | | | | | | | | | | | | |



MISHIBISHU LK
 M-0007
 SCALE: 40 CHAINS

601680
 601681
 601682
 601683
 601684
 601685
 601686
 601687
 601688
 601689
 601690
 601691
 601692
 601693
 601694
 601695
 601696
 601697
 601698
 601699
 601700

Mishibishu

872120 872119 872134 872135 872136
 872121 872122 467707 467708 872134 872135
 872125



Ministry of
Northern Affairs
and Mines
Ontario

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

#58-86
2.9.202

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.

Mining Act

| | |
|--|---|
| Type of Survey(s) V.L.F. Electromagnetic | Township or Area Mishibishu Lake |
| Claim Holder(s) MacMillan Energy Corp. Ltd. | Prospector's Licence No. T1706 |
| Address Suite 810-625 Howe Street, Vancouver, B.C. V6C 2T6 | |
| Survey Company Prospecting Geophysics Ltd. | Date of Survey (from & to) Day Mo. Yr. Dp. Mo. Yr. |
| Name and Address of Author (of Geo-Technical report) H.J. Bergmann, 70 Chiswell Crescent, Willowdale, Ont. M2N 6E1 | |

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

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

| Mining Claim | | | Mining Claim | | |
|--------------|--------|------------------|--------------|--------|------------------|
| Prefix | Number | Expend. Days Cr. | Prefix | Number | Expend. Days Cr. |
| SSM | 601661 | | SSM | 601799 | |
| | 601662 | | | 601800 | |
| | 601680 | | | 601801 | |
| | 601681 | | | 601802 | |
| | 601702 | | | 601820 | |
| | 601703 | | | 601821 | |
| | 601718 | | | 601822 | |
| | 601720 | | | 601823 | |
| | 601721 | | | 601824 | |
| | 601739 | | | | |
| | 601741 | | | | |
| | 601742 | | | | |
| | 601757 | | | | |
| | 601758 | | | | |
| | 601759 | | | | |
| | 601760 | | | | |
| | 601761 | | | | |
| | 601778 | | | | |
| | 601779 | | | | |
| | 601780 | | | | |
| | 601781 | | | | |
| | 601782 | | | | |
| | 601798 | | | | |

| Man Days | Geophysical | Days per Claim |
|---|-------------------|----------------|
| Complete reverse side and enter total(s) here | - Electromagnetic | 12 |
| | - Magnetometer | |

*Can only apply
11 days credit
per claim as
69 days already
approved.*

SAULT STE. MARIE
MINING DIV.
RECEIVED
JUN 23 1986
A.T.L.
3:30 P.M.

Calculation of Expenditure Days Credits

Total Expenditures \$ + 15 = Total Days Credits

Total number of mining claims covered by this report of work. **32**

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.

For Office Use Only

| | | |
|-------------------------|---------------|--------------------|
| Total Days Cr. Recorded | Date Recorded | Mining Recorder |
| 352 | JUN 23/86 | <i>[Signature]</i> |
| | Date Approved | |
| | JUN 26 77 | |

Date **June 12/86** Recorded Holder or Agent (Signature) *[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
H.J. Bergmann - 70 Chiswell Crescent, Willowdale, Ont. M2N 6E1

Date Certified **June 12/86** Certified by (Signature) *[Signature]*

1382 (85/9)

file on SSM 601661

RECEIVED
JUN 23 1986
MINING LANDS SECTION

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

Instructions: Please type or print.
If number of mining claims traversed
exceeds space on this form, attach a list.
Note: Only days credits calculated in the
"Expenditures" section may be entered
in the "Expend. Days Cr." columns.
Do not use shaded areas below.

Mining Act

V.L.F. Electromagnetic

Township or Area
Mishibishu Lake

McMillan Energy Corp. Ltd.

Process or Licence No.

T1706

810-625 Howe Street, Vancouver, B.C. V6C 2T6

Date of Survey (from & to)

Total Miles of line Cut

Prospecting Geophysics Ltd.

Day | Mo. | Yr. | Day | Mo. | Yr.

Address of Author (of Geo-Technical report)

Bergmann, 70 Chiswell Crescent, Willowdale, Ont. M2N 6E1

Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

| Geophysical | Days per Claim |
|-------------------|----------------|
| - Electromagnetic | |
| - Magnetometer | |
| - Radiometric | |
| - Other | |
| Geological | |
| Geochemical | |
| Geophysical | Days per Claim |
| - Electromagnetic | 12 |
| - Magnetometer | |
| - Radiometric | |
| - Other | |
| Geological | |
| Geochemical | |
| Electromagnetic | |
| Magnetometer | |
| Radiometric | |

| Mining Claim | | Expend. Days Cr. | Mining Claim | | Expend. Days Cr. |
|--------------|--------|------------------|--------------|--------|------------------|
| Prefix | Number | | Prefix | Number | |
| SSM | 601661 | ✓ | SSM | 601799 | ✓ |
| | 601662 | ✓ | | 601800 | ✓ |
| | 601680 | ✓ | | 601801 | ✓ |
| | 601681 | ✓ | | 601802 | ✓ |
| | 601702 | ✓ | | 601820 | ✓ |
| | 601703 | ✓ | | 601821 | ✓ |
| | 601718 | ✓ | | 601822 | ✓ |
| | 601720 | ✓ | | 601823 | ✓ |
| | 601721 | ✓ | | 601824 | ✓ |
| | 601739 | ✓ | | | |
| | 601741 | ✓ | | | |
| | 601742 | ✓ | | | |
| | 601757 | ✓ | | | |
| | 601758 | ✓ | | | |
| | 601759 | ✓ | | | |
| | 601760 | ✓ | | | |
| | 601761 | ✓ | | | |
| | 601778 | ✓ | | | |
| | 601779 | ✓ | | | |
| | 601780 | ✓ | | | |
| | 601781 | ✓ | | | |
| | 601782 | ✓ | | | |
| | 601793 | ✓ | | | |

Additional provisions do not apply to Airborne Surveys.
(Excludes power line crossing)

15

Total number of mining claims covered in report of work: 32

Reported number of days credits

Reported number of days credits

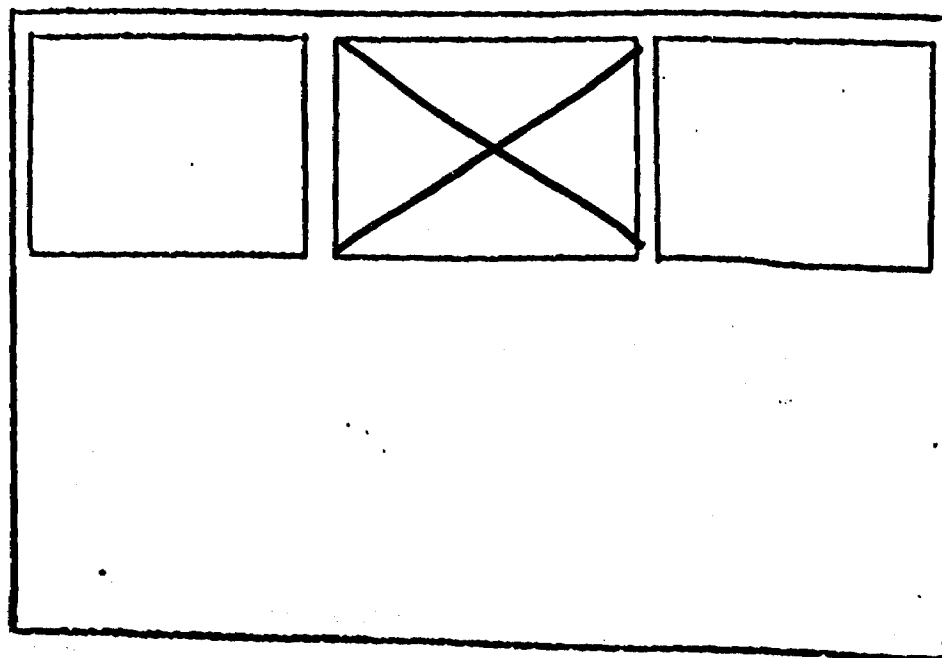
Report of Work

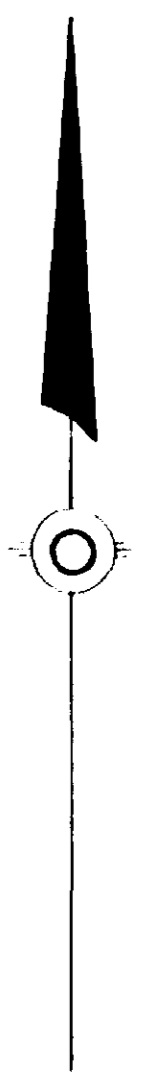
Report of Work

SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

42C/03 SW-0032-B1 #1

LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
SEQUENCE (X)





42C/03 SW - 0032 - B1 #1

29202

- LEGEND
- - - Measurement stations along picket lines
 - - - Fraser reduction method used (notes calc. S-N)
 - Contour interval: + 20
 - - - Electrical conductor
 - Instrument used: Geonics EM 16
 - ✳ Swamp
 - ✳ Fault
 - ✳ Outcrop
 - Drill-hole

MACMILLAN ENERGY CORPORATION

MISHIBISHU LAKE AREA

SAULT STE MARIE MINING DIVISION

Very Low Frequency

ELECTROMAGNETIC SURVEY

Note: Cutler, Maine (NAA, 24.0 kHz) station used. Readings taken facing north.

Survey by: PROSPECTING GEOPHYSICS LTD. Drawn by: [Signature] Date: JANUARY 1986 Rev. Mgt. 86

Scale: 1:5 000

