MAX MIN II EM SURVEY
of

Grid A, B and C
Murphy and Hoyle Townships
Porcupine Mining Division
District of Cochrane
Ontario
by
R.S. Middleton

ROSARIO RESOURCES CANADA LTD.

410-55 Yonge St.
TORONTO, Ontario

November 23, 1979

RCCEIVED
DEC 20 197:
mining Lands secti:

A Max Min II horizontal loop EM survey was carried out over 3 grids in 1978 and 1979 in Murphy and Hoyle Townships for the purpose of mapping graphitic stratigraphic markers.

Location and Access

Grid A as shown on the location map at the back of this report, is mainly confined to Murphy Twp. in parts of Con. I and II, lots $1,2,3$ and 4 as well as the $S^{\frac{1}{2}}$ of lots 11 and 12 in Con. II, Hoyle Twp. Grid B is situated in Hoyle Twp. in parts of Con. II, lots 6, 7 and 8 and Grid C strattles the Murphy-Hoyle boundary in lots 11 and 12 of Hoyle and lots 1 and 2 of Murphy in Con, III.

The property is in the Town of TIMMINS and is roughly 6 miles northeast of the downtown core of TIMMINS. Access is from a gravel road that joins the TGS (655) Highway with the remains of the Broulan Reef mine and Hallnor mine. Muskeg tractor can be used to get to the property from the gravel road via the WhitneyTisdale Twp. line or by a road 2 miles west of the Whitney-Tisdale 1 ine. Central Hoyle can be reached by boat via the Porcupine River and by a muskeg road that joins the above mentioned gravel road 1 mile west of Porcupine River at the NONG pipeline station. The ONR rail line joining the TG mine with the TG smelterconcentrator also passes through Grid B.

## Property

The claims on grid A and C are held directly by Rosario Resources Canada Ltd. whereas the claims on Grid B and the $S \frac{1}{2}$ of lots 11 and 12 , Con. II of Grid A are held by an option by ROSARIO from Ralph Allerston of Timmins.

The claim numbers are given on the following lists:

MURPHY-HOYLE EM SURVEY

Grid A

| Claim No. | Days Credit |
| ---: | ---: |
| P. 515775 | 20 days |
| 776 | 20 days |
| 777 | 20 days |
| 778 | 20 days |
| 779 | 20 days |


| 780 | 20 days |  |
| :---: | :---: | :---: |
| 781 | 20 days |  |
| 782 | 20 days |  |
| P. 515785 | 20 days |  |
| 786 | 20 days |  |
| 787 | 20 days |  |
| 788 | 20 days |  |
| 789 | 20 days |  |
| 790 | 20 days |  |
| 791 | 20 days |  |
| 792 | 20 days |  |
| 793 | 20 days | Total $=34$ claims |
| 794 | 20 days |  |
| P. 516152 | 20 days |  |
| 153 | 20 days |  |
| 154 | 20 days |  |
| 155 | 20 days |  |
| 156 | 20 days |  |
| 157 | 20 days |  |
| 158 | 20 days |  |
| 159 | 20 days |  |
| P. 516309 | 20 days |  |
| 310 | 20 days |  |
| 311 | 20 days |  |
| 312 | 20 days |  |
| 312 | 20 days |  |
| 314 | 20 days |  |
| 315 | 20 days |  |
| 316 | 20 days |  |

Grid B

Claim No.
P. 508687

688
689
690
691

Days Credit
20 days
20 days
20 days
20 days
20 days

| 692 | 20 days |
| ---: | ---: |
| P. 515647 | 20 days |
| 648 | 20 days |
| 649 | 20 days |
| 650 | 20 days |
| P. 516160 | 20 days |
| 161 | 20 days |
| 162 | 20 days |
| 163 | 20 days |
| 164 | 20 days |
| 165 | 20 days |
| 166 | 20 days |
| 167 | 20 days |

## Total $=18$ claims

Grid C

Claim No.
P. 516562

563
564
565
P. 516572

573
574
575
P. 525270

271
272
273
274
275
276
277
P. 525303

304
305
306

Days Credit
40 days
40 days
40 days
40 days
40 days
40 days
40 days
40 days
40 days
40 days
40 days
Total $=20$ claims

40 days
40 days
40 days
40 days
40 days
40 days
40 days
40 days
40 days

The survey was completed using a Max Min II horizontal loop EM unit. A 400 foot coil separation was maintained for the whole survey and readings were taken at 100 foot intervals on lines spaced $200^{\prime}$ and 400 ' apart. One exception to this is a detailed grid on part of Grid B where the lines were spaced 100 feet apart in order to trace a flexture in a conductive horizon.

Two frequencies, 1777 Hz and 444 Hz were used throughout the survey and both the inphase and out-of-phase (quadrature) readings were taken.

Survey Statistics and Dates

A total of 32.93 miles were cut on Grid A, 16.51 miles on Grid B and miles on Grid C for a total of 17.75 miles.

The number stations read were 1614 on Grid A, 755 on Grid B and 748 on Grid C. The survey was done in stages. Grids $A$ and $B$ were surveyed in July and parts of September 1978 by Bruce Durham and flooded areas were covered in January 1979. Grid C was read in January and part of February 1979 by J. Ward. GEOLOGY

The southern part of Grid $A$ is underlain by a tholeific basalt sequence with minor ultramafics. The northern part of Grid A has graphitic sediments as indicated by a drill hole by Inco. There is no outcrop on Grid C but the geology is inferred to be argillites, and graphite zones with intermixed mafic volcanics.

Grid B does not have any outcrop but the northern half of the property appears to be argillite as indicated by drilling while the southern part of claims P. 508688 and P. 508687 are basalt. Two graphite zones also occur on the Grid $B$ property, one within the argillite sequence and one along the argillite basalt volcanic contact.

## PREVIOUS WORK

Part of Grid A has been investigated in 1964 and 1967 by Glencona Mines Ltd. 1

[^0]A vertical loop (SE 200) survey and magnetic survey was done which outlined the conductor now located on claims P. 516152 and P. 516316. Seven drill holes were put down to test this conductor in 1967 and it was found to be graphite and pyrite-pyrrhotite,

Inco drilled on hole to test a conductor on what is now claim P. 516158. ${ }^{2}$ The location of this Inco hole is not certain since it was not located in the field relative to the now outlined conductor. The portion of Grid A in Hoyle Twp. (lots 11 and 12, $\mathrm{S}_{\frac{1}{2}}$, Con. II) were surveyed by magnetometer and SE 200 EM for Copper Reef Mines Ltd. ${ }^{3}$

Grid B has been previously surveyed with vertical loop and magnetometer for L.P. Industries and 4 diamond drill holes were completed to test the two conductors. ${ }^{4}$

## INTERPRETATION

Grid A

A long linear conductor extends from line 12 W to 80 W at roughly 13 S to 17 S respectively. Drill holes have shown this conductor to be mainly graphite with part of the western section containing pyrite-pyrrhotite. Another conductor on claim P. 516158 extending from Line 80 W - Line 68 W at 34 N to 28 N respectively is also a graphite zone as shown by the Inco hole and the depth to the top of the conductor is $83-87$.

In the northeast corner of lot 11, Con. II, Hoyle Twp. on lines 52E-44E, a conductor has been indicated which was previously outlined by the SE 200 EM survey. This conductor has been tested by one hole and is found to be graphite within basalt-andesite. The depth to the top of the conductor is in the order of 45 - 55 feet.
2. Inco Ltd. Ontario Dept. of Mines Assessment File Diamond Drilling
3. Copper Reef Mines Ltd., File 63.1325
4. L.P. Industries Ltd., Assessment File 2.1853, 2.1702 .

Two conductors have been outlined which are sub-parallel to each other and trend northwesterly to westerly. The northern conductor has been tested by drilling and was found to be a graphitic zone hosted in argillite. The depth of the conductor is roughly $90-120$ feet. The southern conductor is also caused by graphite at the contact of volcanics to the south and argillites to the north.

## Grid C

A conductor of unknown depth or width occurs along the 52 N base line between line 8 W and 20 W . This horizon is also interpreted to be caused by graphite and may be related to or parallel to the north conductor described in the paragraphs on Grid A.

## CONCLUSIONS

The southern conductor is Murphy Twp, on Grid A should be examined further for gold mineralization since a significant amount of sulphides are occurring with the graphite. An overburden drilling program has been executed to follow-up the other conductors and further overburden drilling and diamond drilling will be required to test for possible gold mineralization associated with these conductive horizons.

Respectfully submitted,


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

Township or Area Murphy and Hoyle
Claim Holders) ROSARIO RESOURCES CANADA $410-55$ Yonge $5 t$. TORONTO Survey Company _ ROSARCO RESOURCES CANADA Author of Report _R.S. Mided let on Address of Author 410-55 Youngest. ToRONTO Covering Dates of Survey_Juluy $1978-\frac{F a b 19>9}{(\text { line cutting to office })}$
Total Miles of Line Cut $\qquad$ SPECIAL PROVISIONS
CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.
ENTER 20 days for each additional survey using same grid.


AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)
 DATE: November 3 / 79 SIGNATURE:


Res. Geol. Qualifications $\qquad$
Previous Surveys


## MINING CLAIMS TRAVERSED List numerically





## GEOPHYSICAL TECHNICAL DATA

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


Contour interval $\qquad$

Instrument $\qquad$
Accuracy - Scale constant
Diurnal correction method $\qquad$
Base Station check-in interval (hours)
Base Station location and value $\qquad$

을 Instrument
Instrument MAX MIN II EM
HORIZONTAL LOOP
Coil separation 400 feet
Accuracy
$\pm 1 / 2 \%$
Method:
Fixed transmitter
Shoot back
$\square$ In line
Parallel line
Frequency $1777 \mathrm{H}_{2}-444 \mathrm{H}$
(specify V.L.F. station)
Parameters measured
Fnphave -Ont of Phase
Instrument $\qquad$
Scale constant $\qquad$
Corrections made $\qquad$

Base station value and location $\qquad$

Elevation accuracy

Instrument $\qquad$
Method $\square$ Time Domain
Frequency Domain
Frequency

- Off time ___ Range $\qquad$
- Delay time $\qquad$
- Integration time $\qquad$
Power
Electrode array
Electrode spacing
Type of electrode
$\qquad$
$\qquad$
$\qquad$


## GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL

 TECHNICAL DATA STATEMENT
## TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT

 FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORTTECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETD $C 201979$
Type of Survey (s) $\qquad$ Township or Area HO YLE TwP. Claim Holder (s) ROSARIO RESOVRCES CANADA 410-55 Y onge St. TORONTO Survey Company ROSAR10 RESOVRCES CANADA Author of Report $R$. $S$. Mid let on Address of Author $410-55$ Yange St. TORONTO Covering Dates of Survey_ Sept $19>8$ - Jan $19>9$
Total Miles of Line Cut $\qquad$

## SPECIAL PROVISIONS CREDITS REQUESTED

| Geophysical | DAYs <br> per claim |
| :--- | :---: |
| -Electromagnetic | 20 |
| -Magnetometer__ |  |
| -Radiometric_- |  |
|  |  |
| -Other |  |
| Geological__ |  |

ENTER 40 days (includes
line cutting) for first survey.
ENTER 20 days for each additional survey using same grid.

Geochemical

## MINING CLAIMS TRAVERSED List numerically

See attached List (prefix)


Res. Geol. Qualifications 2.706 Previous Surveys

$\qquad$ 8

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


Instrument $\qquad$
Accuracy - Scale constant
Diurnal correction method
Base Station check-in interval (hours)
Base Station location and value $\qquad$


Accuracy
Method: $\square$ Fixed transmitter $\quad \square$ Shoot back $\quad \square$ In line Parallel line
Frequency $\qquad$ $1777 \quad \stackrel{1 / 2}{\text { (specify V.L.F. station) }}$ HA 4 $1 / 2$

Parameters measured $\qquad$ plate coutiof Place

Instrument $\qquad$
Scale constant
Corrections made $\qquad$

Base station value and location $\qquad$

Elevation accuracy

Instrument $\qquad$
Method $\square$ Time Domain
Frequency Domain
Parameters - On time Frequency $\qquad$

- Off time $\qquad$ Range
- Delay time
- Integration time $\qquad$
Power
Electrode array
Electrode spacing
Type of electrode

Ministry of Natural Resources
File $\qquad$

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT
$\qquad$
urvey Company author of Report $\qquad$
 $\qquad$ dares of Author $\qquad$
oral Miles of Line Cut $\qquad$

## SPECIAL PROVISIONS

 CREDITS REQUESTEDENTER 40 days (includes line cutting) for first survey.
ENTER 20 days for each additional survey using same grid.

(RBORNE CREDITS (Special provision credits do not apply to airborne surveys) magnetometer $\qquad$ Electromagnetic $\qquad$ Radiometric $\qquad$ (enter days per claim)

ATE $\qquad$ SIGNATURE:

s. Geol. $\qquad$ Qualifications
2.106
devious Surveys


## GEOPHYSICAL TECHNICAL DATA

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


Profile scale $1^{\prime \prime}=20 \%$

Contour interval

Instrument
Accuracy - Scale constant
Diurnal correction method
Base Station check-in interval (hours)
Base Station location and value $\qquad$



GOWAN TWP. (M.285)


THE TOWNSHIP

## HOYLE

dISTRICT OE COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1 IINCH 40 CHAINS

## LEGEND

patented land
crown land sale
CROWN
LEASES
Leases
LOCATED LAND
LICENSE OF OCCUPATION
LICENSE OF OCCUPATION
MINING RIGHTS ONLI
SURFACE RIGHTS ONIY
ROADS
ROADS
IMPROVED ROADS
kING'S HIGHWAYS
railways
Railwars
POWER LINES
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED

## NOTES

$400^{\prime}$ Surface Rights Reservation along the shores of all lakes and rivers.
This township lies within the Municipality
of CITY of TIMMINS.
$\overline{\text { Ont Not miond }} \overline{\text { Fwy spur line }} \overline{\text { R/W patented }} \overline{\text { File }: 177607}$

DATE OFI ISUE
OEC 201979
SURYEYS AND MAPPING

## plan no. M. 287

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

WARK TWP. - M. 317
JESSOP TWP. - M. 289

TISDALE TWP - M. 315

MURPHY

## DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1 IINCH 40 CHAINS

## LEGEND

| Patented land | (D) |
| :---: | :---: |
| crown land salf | 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 | - |
| Rallways |  |
| POWER LINES |  |
| MARSH OR MUSKEG | \{** |
| MINES | 8 |
| cancelled | c. |
| patented s.r.o. |  |
| NOTES |  |
| $400^{\prime}$ surface rights reservation shores of all lakes and rivers. | along the |
| This township lies within the M CITY of TIMMINS. | icipality of |
| Ont. Northlond Rwy. spur line R/W for s. soe tile 177607 |  |
| RESERVATIONS |  |
| Reserved for recreational purposes under | 3 P.L. |


| DATE OF ISSUE |
| :---: |
| DEC 201979 |
| SURVEYS AND MAPPING |
| BRA:MCH |

PLAN NO.
M. 303























[^0]:    1. Glencona Mines Ltd. Ontario Dept. of Mines Assessment File, 63.1466
