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NOLAN LAKE EXPLORATIONS INC.
V.L.F. ELECTROMAGNETIC SURVEY
DISTRICT OF KENORA, ONTARIO.

010

SUMMARY

A Crone Radem V.L.F. Electromagnetic Survey was run over that portion of the claims covering the main showing and the shafts during October, 1979.

The survey was run using the Seattle, Washington, transmitting station (18.6 KHz) to record dip angle, resultant field strength and out of phase measurements. Topography and geological features were recorded during the survey.

At least six anomalous zones were located by the survey, several of which are caused by wet overburden effects.

Anomaly 'A' is a strong anomaly running along the gabbro-metavolcanic contact. It is strongest between lines 12 W and 10 E, becoming considerably weaker as it extends beyond these lines.

Anomaly 'B' is a weak extension of Anomaly 'A' which becomes considerably stronger east of Line 36 E and running into Sullivan Bay.

Anomaly 'C' is a moderate to strong anomaly following the contours of the swamp areas and is probably located by water-conductive overburden.

Anomaly 'D' is a weak anomaly between lines 28 E and 34 E which is caused by low, swampy ground.

Anomaly 'E' is a weak anomaly which is a possible continuation of Anomaly 'A'. In several sections this anomaly follows the contours of low swampy ground, which is most likely responsible for its occurrance.

PROPERTY

The property consists of twenty contiguous mining claims in the District of Kenora, Northwestern Ontario. These claims are numbered K527548 to K527567 inclusive.

The property is low and swampy to the southeast to high and steeply undulating hills to the northwest and northeastern sections. Approximately forth percent of the property is covered by outcrop. The hills, generally covered by jack-pine, rise to a height of over one-hundred feet above lake level.

ACCESS

The claims lie between Rowan and Cameron Lakes. The main showing lies equidistantly between these two lakes and is joined by a bulldozed road from Sullivan Bay of Rowan Lake.

The property is approximately fifty air miles southeast of Kenora, forty-eight air miles north of Fort Frances and eighteen miles northeast of Nestor Falls. Float planes can be taken from any of these places.

A water route can be taken from Highway 71 across Kakagi (Crow) Lake to where a one-mile portage is taken across Cameron Lake. This is a skidoo-truck route in the winter months when conditions are suitable.

GENERAL

A base line was run across the main showing in a direction approximately North 71° East.

Cross lines were run every two-hundred feet in a North 49° West direction. The lines were chained with stations every one-hundred feet.

The Crone V.L.F. Electromagnetic Survey was run over the lines using Seattle, Washington, (18.6 KHz) as the transmitting station. Dip angle, field strength and out-of-phase measurements were taken and recorded. Topography and geological features were recorded as well during the survey.

The dip angles were plotted using a profile scale of 1 inch = 40 degrees. The field strength measurements were plotted at intervals of 25 percent above the background level.

The survey covered some 785 stations over 15.4 miles.

Numerous crossovers and anomalies were located during the survey, most of which followed a northeast to southwest trend parallel to the geological strike. Two of these and possibly a third are considered important and worth further investigation.

DESCRIPTION OF ANOMALIES

Anomaly 'A' can be followed across most of the survey grid. Between Lines 12 West and 10 East, the bield strength is moderate to high and crossovers are strong. To the east of 10 East, this anomaly becomes considerable weaker.

In sections this anomaly follows low swampy ground, but due to its location at the contact of a possible gold bearing horizon between the metavolcanics and the gabbros and its relative closeness to the gold bearing main showing, it is worth further investigation. This anomaly is followed across sections of higher ground, although it is found to be considerably weaker in these locations.

The two strongest sections of this anomaly, between Lines 6 West and 12 West and Lines 00 and 8 East, are six-hundred feet and eight-hundred feet in length. They have a width of fifty feet to one-hundred and fifty feet.

Anomaly 'B' is a possible extension of Anomaly 'A', which is generally weak except for high field strength values and strong crossovers east of Line 36 East going into Sullivan Bay.

At the strongest point, this anomaly follows an old stream bed which in turn parallels another gold bearing horizon close to the contact between quartz-feldspar porphyry and metavolcanics.

Anomaly 'C' can be followed across swampy ground for at least two-thousand feet. It has a moderate to high field strength with weak to moderate crossovers. This anomaly follows the low reliefs between Lines 00 and 20 East and is most likely caused by wet-clay overburden.

Anomaly 'D' can be followed for four-hundred feet between Lines 28 East and 32 East. The field strength is weak and the crossovers are moderate to weak. It runs along lower ground between two jack-pine ridges.

Anomaly 'E' parallels and is possibly a continuation of Anomaly 'A'. It is located between Lines 16 East and 40 East, where it shows up as a weak field strength and a weak to moderate crossover. This anomaly follows low, poorly drained overburden, which could possibly be the reason for this anomaly.

Anomaly 'E' follows wet, poorly drained ground between Lines 20 East and 40 East. It is a weak anomaly which follows the swamp at the base of a steep cliff and is caused by wet-clay overburden.

DISCUSSION OF EQUIPMENT

The Crone V.L.F. - E.M. unit utilizes higher than normal electromagnetic frequencies and is capable of detecting small sulphide bodies and disseminated sulphide deposits. It accurately isolates banded conductors and operates through areas of high noise or interference levels.

This method is capable of deep penetration but due to the low frequency used, its penetration is limited in areas of clay and conductive overburden. The components of dip angle in degrees of the magnetic field component, field strength of the magnetic component of the V.L.F. field, and out-of-phase component of the magnetic field are measured at each station.

There are several channels or stations available, each with a different frequency. A channel to be used should be parallel to the general strike of the area. If this cannot be determined, then two orthogonal stations are used to define any possible conductors.

The dip angle measurement measures the angle of inclination from horizontal of the direction of the resultant V.L.F. or the amplitude of the major axis of the polarization ellipse. It is detected by a minimum on the field strength meter and is read from an inclinometer with a range of ± 90. A conductor is designated by a true crossover pattern of the readings.

The measurement is taken from an audio null when the instrument is held in a vertical position, after turning perpendicular to the direction in alignment with the V.L.F. field. The V.L.F. field is found by an audio null or minimum field strength measurement when the instrument is held in a horizontal position. The accuracy of the dip angle measurements is $\pm \frac{1}{2}^{o}$.

The field strength measurement defines the shape and the attitude of the conductor by the strength of the field in the horizontal plane or the amplitude of the major axis of the polarization ellipse. It is the maximum reading obtained from the field strength meter when the instrument is rotated in the horizontal plane, and is measured as a percent of normal field strength established at a base station. The field strength of the V.L.F. stations drifts with time, and must be adjusted with the base station every few hours. The field strength measurement has an accuracy of $\pm$ 2%.

The out-of-phase component of the magnetic field, as a percent of the normal primary field, is sensitive to a lower order of conductivity than the dip angle measurement and is used to locate conductors of a low order of magnitude. It is a measurement of the secondary field produced by a ground conductor which is in a different phase than the primary field. This is the minimum reading of the field strength meter obtained when measuring the dip angle. The measurement has an accuracy of $\pm$ 2%.

CONCLUSIONS AND RECOMMENDATIONS

Three anomalous zones have been located which all warrant investigation.

Several of the anomalous trends parallel those picked up by the V.L.F. - E.M. Survey run in August of 1973, but are better defined due to the smaller grid spacing used and the drier ground conditions encountered.

Anomaly 'A', between Lines 12 West and 6 West and between Lines 00 and 8 East, is the strongest anomaly on the property. This anomaly follows the gabbro-metavolcanic contact and is only one-hundred to two-hundred feet north of the main showing. It is bordered by carbonate-rusty zones paralleling the contact zone. It is also paralleled by a magnetic anomaly. Although the mineralization in the main showing was not picked up by the V.L.F. - E.M. Survey because it occurs in amounts too low to detect, Anomaly 'A' could possibly be associated with the gold bearing occurrence in the main showing. Since the strongest zones in Anomaly 'A' occur under overburden that is too wet and deep to be bulldozed, it should be probed by diamond drilling.

Anomaly 'B', which could be a continuation of Anomaly 'A', passes within one-hundred and two-hundred feet of Shafts 1 and 2 respectively. A section of Anomaly 'B', with high crossovers and strong field strengths between Lines 38 East and 40 East, occurs within one-hundred feet of an area with several trenches and quartz vein systems.

Sections of Anomaly 'B' around Shafts 1 and 2 and between Lines 38 East and 40 East should be bulldozed and diamond drilled. This anomaly should be followed in the winter over Sullivan Bay to see if it increases in strength.

Respectfully submitted,

F. T. Archibald

Toronto, Ontario
November 27, 1979

F. T. Archibald, B.Sc.
Geologist

ATIKWA LAKE (GRAPNEL BAY) M.2629

DOGPAW LAKE M.2585

LAWRENCE LAKE M.2579

BROOKS LAKE M.2473

93°45' 93°30' 49°22'30" 49°15'

AREA OF 2.3138

ROWAN LAKE

DISTRICT OF KENORA

KENORA MINING DIVISION

SCALE: 1-INCH · 40 CHAINS

LEGEND

PATENTED LAND	● or (P)
CROWN LAND SALE	CS
LEASES	(L)
LOCATED LAND	Loc
LICENSE OF OCCUPATION	LO
MINING RIGHTS ONLY	MRO
SURFACE RIGHTS ONLY	SRO
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C
PATENTED SRO	

NOTES

400' Surface Rights Reservation along the shores of all lakes and rivers

DATE OF ISSUE
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SURVEYS AND MAPPING BRANCH

NATIONAL TOPOGRAPHIC SERIES 52F5

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MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

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52F05SE0116 2.3138 ROWAN LAKE

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Legend

- SWAMP
- CLIFF
- SLOPE (DOWN)
- PEAK
- CREEK
- PITS / TRENCH
- RUSTY/CARBONATE
- QUARTZ VEIN
- PORPHYRY (QTZ/FELDSPAR
- ANDESITE / TUFF
- MAFIC INTRUSIVE

MAG. 6°

KNUTSON LAKE

ROWAN LAKE

CAMERON LAKE

JACK PINE RIDGE

BASE LINE

CAMP

BOULDER

MAIN SHOWING

OPEN

527548 527556 527566 527557 527555 527567 527563 527564 527562 527553 527559 527558 527554 527550 527549 527565 527561 527560 527552

Nolan Lake Explorations Inc.

Topography & Geology

District of Kenora, Ont.

0 200 400 600 800 feet

P. S. Archibald

LEGEND

CROSSOVER / ANOMALY **G**

18.6 KHz SEATTLE, WASHINGTON

PROFILE 1" = 40°

MAG. 6°

ROWAN LAKE

KNUTSON LAKE

CAMERON LAKE

BASE LINE

527556 527548 527566 527557 527555 527567 527563 527558 527550 527564 527562 527553 527551 527565 527561 527560 527552

F B A E D C

28E 32E 36E 40E 24E 20E 16E 12E 8E 4E 00 4W 8W 12W 16W

V.L.F. Electromagnetic Survey

Nolan Lake Explorations Inc.

Dip Angle

District of Kenora, Ont.

0 200 400 600 800 feet

S2F05SE0118 2.3138 ROWAN LAKE

D. T. Archibald

Legend

- 125 – 150
- 150 – 175
- 175 – 200
- 200 – 225
- › 225

MAG 6°

N

KNUTSON LAKE

ROWAN LAKE

CAMERON LAKE

BASE LINE

527548 527556 527557 527555 527549 527567 527563 527562 527564 527565 527561 527560 527552 527551

A B D E F

28E 32E 36E 40E 24E 20E 16E 12E 8E 4E 00 4W 8W 12W 16W

V.L.F. Electromagnetic Survey

Nolan Lake Explorations Inc.

Resultant Field Strength

District of Kenora, Ont.

0 200 400 600 800 feet