TEXASGULF CANADA LTD.

REPORT ON GEOPHYSICAL SURVEYS

ON

KENOGAMING 54

NTS-41-A-4 PROJECT 83

Timmins, Ontario

D.E. Tremblay

INTRODUCTION;

In April 1978 a group of seven (7) claims was staked in Kenogaming Township to cover a relatively well known zinc-gold occurrence in the central part of the township, lying just to the south of a group of patented claims owned by Falconbridge Nickel Mines Limited.

Later in 1978 an eighth claim was staked to the west boundary of the existing group to cover another small nickel-copper occurrence.

Kenogaming 54 consists of eight claims numbered:

P-528640 to P-528646 (incl.)

P-528706

LOCATION AND ACCESS:

Kenogaming Township itself is about 40 miles southeast of Timmins. Highway 101 trends east-west across Sewell Township to the north, but a network of logging roads extending southward through Sewell and into Kenogaming Township give direct access onto the claim group after a drive of approximately ten miles.

The group is bounded by the Falconbridge patented claims to the north and Akwenka Lake to the east.

GENERAL GEOLOGY:

On a regional perspective, Kenogaming Township lies at the southeast end of a six to ten mile wide belt of folded metavolcanics and metasedimentary rocks which trend east-northeast through the Fukatush-Sewell Lake area.

While almost sixty percent of the area consists of mafic to intermediate metavolcanics, the Kenogaming 54 group lies within a large wedge-shaped area of felsic to intermediate metavolcanics.

Locally, the claims themselves cover a zone of sheared, silicified felsic metavolcanics, striking about N-E10^{O}-W through the property.

Numerous ultramafic masses also cut through the area and in general outcrop exposure is good on the entire claim block.

PREVIOUS WORK:

While the area has been quite active since the very early 1900's prospecting and interest has been sporatic, coinciding with the respective discoveries of the Radio Hill Iron, Reeves Asbestos and Joburke Gold.

In the past few years however, activity has been minimal.

The area of concern here however, has been examined extensively by numerous companies from 1947 to 1971, but reliable, systematic documentation of specific survey results is lacking.

Sufficient doubt, as to the quality of past evaluation of the area, coupled with recent exposure of new outcrop areas by logging operations, have warranted further examination of this prospect.

SURVEY METHODS:

Line Cutting:

A baseline (Az. 036°) was established through the claim block, with lines being turned off at right angles at 100m intervals.

These were picketed at 20 meter intervals and were extended to the claim boundaries.

Lines extend from 9W to 8E. A small area consisting of Akweska Lake, could not be covered due to unsafe ice conditions.

Magnetics:

A model G-816 Geometrics Proton Magnetometer was used in this survey and is designed for measurements of the earth's magnetic field.

It provides a $\frac{1}{2}$ gamma resolution over a complete range to a maximum of 100,000 gammas.

Readings are given as a digital readout and are independent of temperature, humidity and battery conditions.

Magnetic base stations were established at 100m intervals co-inciding with picket line origins; readings were corrected for diurnal drift using the closed loop method.

Readings were recorded at 20m intervals.

ELECTROMAGNETIC SURVEYS:

Horizontal loop -

The Apex Parametrics MaxMin II E.M. system was used in horizontal loop mode, at frequencies of 1777 and 444 Hz.

This E.M. method consists of a receiver and transmitter being maintained in the same plane at a constant separation. The choice of separation varies with a selection of six reference cables, ranging in length from 40m to 240m and each provides a theoretical depth penetration of half it's length.

The choice is also made in consideration of four available frequencies (1777Hz, 888Hz, 444Hz, 222Hz) of which one or any combination may be chosen to suit the conditions of overburden conductivity and depth.

The reference cable serves to "buck out" or "nullify" the transmitted primary field, which in turn allows for measurement of the In-Phase (I.P.) and Out-Of-Phase (O.P.) components of any resultant secondary field caused by any traversed conductive zones.

For this property, two different cable lengths were used to complete the one survey.

The central portion of the property was read using the 240m cable with readings taken at 40m intervals. The east and west portions of the grid were surveyed using the 120m cable with readings at 20m intervals.

The resultant data plotted in profile, provides a reliable source of information from which accurate quantitive and qualitative analysis of anomalies can be made.

V.L.F. E.M.:

This group was also surveyed using the Crone Radem V.L.F. E.M. receiver.

This unit utilizes the numerous V.L.F. communications broadcast stations as a transmitter source. The unit is capable of receiving seven of these and the selection of any one is determined by the station which is located in the same direction as the regional geologic strike; for this group, Cutler Maine was used.

While the RADEM can measure several components of the resultant field, only dip angle measurements were recorded.

This is the angle of inclination measured from the horizontal in degrees.

Readings were taken at 20m intervals.

SURVEY RESULTS AND CONCLUSIONS:

In order to facilitate interpretation and correlation of the various surveys, all three (H.E.M., Mag. V.L.F.) will be dealt with simultaneously in this section.

Previous work by other companies had indicated that the particular zone of interest exhibited such poor conductivity it was suspected that there might be little or no response to a conventional Horizontal Loop survey.

Despite this, it was decided to conduct the survey, but using the maximum cable length possible, in order to test for any possible sulphide conductivity at deeper levels.

The choice of cable lengths however, was restricted by the length of survey lines so two cable lengths were used. Lines 9W to 5W and 4E to 8E were read using a 120 metre reference cable, lines 6W to 3E were read using a 240 metre cable.

NOTE: Both cable lengths were plotted on one map with separate maps for the High (1777Hz) and Low (444Hz) frequencies.

No anomalous responses were detected in the course of the survey.

While the V.L.F.E.M. survey yielded no significant anomalies, a number of weaker responses do exist. Viewed in relation to the Magnetic survey, local geologic and topographic features, many of these could be explained.

However, since mapping of the group has yet to be done, it would be merely speculation to try and determine specific causes for the anomalies, and it must also be emphasized that these responses are weak ones and their relative importance should not be categorized at this time. After geological mapping, their locations and possible causes should be examined in the field.

Similarily, the magnetics are difficult to interpret at this time without geologic support, but using previous work and available preliminary maps, a reasonable determination can be made.

Only two anomalous magnetic areas of any significance stand out on the survey grid. The first, originates in the extreme west end of the grid and strikes approximately east-southeast through the group, but terminates on Line 0. This anomaly is probably due to two ultramafic bodies, the first extending from Line 0 to Line 300W just south of the baseline. The second and larger body extends roughly parallel and lies just to the west of this.

The second anomalous area lies to the extreme east side of the group, striking in a north-northwesterly direction. Again, there appears to be at least two parallel but linear features, probably diabase, at least in the northern end of the grid. Along strike in the baseline area however, they appear to encounter a larger mass, possibly ultramatic in nature.

The remainder of the claim group is assumed to be underlain by felsic to intermediate meta-volcanics.

The original mineralized shear which was the motivating area of interest has yielded little or no expression in either magnetic or V.L.F. surveys.

CONCLUSIONS AND RECOMMENDATIONS:

While none of the surveys have done anything to enhance the original zone of interest, it should not minimize the importance of the area.

Since we appear to be dealing with poorly conductive intermittent concentrations of disseminated pyrite and sphalerite, it appears as though an induced polarization survey would be much more conclusive in outlining

areas of sulphide concentrations.

This survey, coupled with geological mapping should be completed before any further consideration is given to this property.

May 27, 1980
Timmins, Ontario

Don E Tremblay
Donald E. Tremblay

Ontario

Ministry of N

GEOPHYSICAL – GEOL
TECHNICAL D

42A04NW0144 2.3324 KENOGAMING

900

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. EM, Horizontal Loop, Magnetometer
Township or Area Kenogaming
Claim Holder(s) Texasgulf Canada Ltd.
P.O. Box 175, Suite 5000, Commerce Court, Toronto
Survey Company Texasgulf Inc. (Exploration)
Author of Report Don E Tremblay
Address of Author Box 1140, 571 Moneta, Timmins.
Covering Dates of Survey Dec./79 – May/80 (linecutting to office)
Total Miles of Line Cut 14.4 Km

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	40
–Magnetometer	20
–Radiometric	
–Other (V.L.F)	20
Geological	
Geochemical	

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

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

DATE: May 29/80 SIGNATURE: Don E Tremblay
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

L.D.

OFFICE USE ONLY

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P	528640
P	528641
P	528642
P	528643
P	528644
P	528645
P	528646
P	528706

If space insufficient, attach list

TOTAL CLAIMS 8

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 751 Number of Readings Mag 751 HEM 429 VLF 751

Station interval VLF Mag 20M HEM - 20M x 40M Line spacing 100 M

Profile scale HEM - 1CM = 20% VLF - 1CM = 10°

Contour interval 1000 gamma basic

MAGNETIC

Instrument G 816 Geometrics Total Field Mag

Accuracy – Scale constant ± 1

Diurnal correction method - closed loop

Base Station check-in interval (hours) 1 hr.

Base Station location and value 00 BL. , L 0 , 59273

ELECTROMAGNETIC

	HEM	VLF
Instrument	Apex Parametrics, Max-Min II	Crone Radem V.L.F.E.M.
Coil configuration	Horizontal	
Coil separation	120 M x 240 M	
Accuracy	± 1 %	± 1°

Method: ☐ Fixed transmitter ☐ Shoot back ☒ In line ☐ Parallel line

Frequency HEM - 1777 Hz, 444Hz. VLF - Cutler, Maine
(specify V.L.F. station)

Parameters measured HEM - Inphase and out-of-Phase
VLF - Dip Angle

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION 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

Sewell Twp. M.1102

Penhorwood Twp. M.1055

Pharand Twp. M. 306

Crothers Twp. M. 742

Regan Twp. M.1075

THE TOWNSHIP OF KENOGAMING

2.3324

DISTRICT OF SUDBURY

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	● or (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	
CANCELLED	C.
PATENTED S.R.O.	

NOTES

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

DATE OF ISSUE
JUN 10 1980
SURVEYS AND MAPPING BRANCH

PLAN NO.- M.967

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A04NW0144 2.3324 KENOGAMING

200


LEGEND
INSTRUMENT : GEOMETRICS G816
TYPE : PROTON PRECESSION, TOTAL FIELD
READINGS IN GAMMAS
▲ MAGNETIC BASE STATION
METRES (1:2000)
TEXASGULF CANADA LTD.
MAGNETIC SURVEY
KENOGAMING CLAIMS
NTS:42-A-4
PROJ.#83
DATE
1980
KEY MAP SCALE : 1" = 8 miles
AKWESKA L.
Open all year round
528641
528642
528643
528644
528645
528646
528640
528706
LINE 900 W
LINE 800 W
LINE 700 W
LINE 600 W
LINE 500 W
LINE 400 W
LINE 300 W
LINE 200 W
LINE 100 W
LINE 0
LINE 100 E
LINE 200 E
LINE 300 E
LINE 400 E
LINE 500 E
LINE 600 E
LINE 700 E
LINE 800 E
210


LINE 900 W
LINE 800 W
LINE 700 W
LINE 600 W
LINE 500 W
LINE 400 W
LINE 300 W
LINE 200 W
LINE 100 W
LINE 0
LINE 100 E
LINE 200 E
LINE 300 E
LINE 400 E
LINE 500 E
LINE 600 E
LINE 700 E
LINE 800 E
6 N
4 N
2 N
0
2 S
4 S
6 S
528706
528640
528646
528641
528642
528645
528643
528644
AKWESKA L.
Open all year round
KEY MAP SCALE : 1" = 8 miles
Property
KENOGAMING
Camp Kenogaming
Camp Ketchini
Camp Kendo
N
ASTRO
COIL SPACING : L 9W - 5W : 120 m cable
L 4E - 8E : 120 m cable
L 6W - 3E : 240 m cable
LEGEND
444 Hz
IN-PHASE READINGS
QUADRATURE READINGS
INSTRUMENT : APEX PARAMETRICS MAXMIN II
FREQUENCY : 444 Hz
COIL SPACING :
PROFILE SCALE : 1 CM= 20%
+ READINGS
- READINGS
0 40 80 120 160 200
METRES (1:2000)
TEXASGULF CANADA LTD.
HORIZONTAL LOOP SURVEY
KENOGAMING 54
WORK BY
DATE
1980
220


LINE 900 W
LINE 800 W
LINE 700 W
LINE 600 W
LINE 500 W
LINE 400 W
LINE 300 W
LINE 200 W
LINE 100 W
LINE 0
LINE 100 E
LINE 200 E
LINE 300 E
LINE 400 E
LINE 500 E
LINE 600 E
LINE 700 E
LINE 800 E
6 N
4 N
2 N
0
2 S
4 S
6 S
528706
528640
528646
528641
528642
528645
528643
528644
AKWESKA L.
Open all year round
KEY MAP SCALE : 1" = 8 miles
Property
COIL SPACING : L 9W - 5W : 120 m cable
L 4E - 8E : 120 m cable
L 6W - 3E : 240 m cable
LEGEND
1777 Hz
IN-PHASE READINGS
QUADRATURE READINGS
INSTRUMENT : APEX PARAMETRICS MAXMIN II
FREQUENCY : 1777 Hz
COIL SPACING :
PROFILE SCALE : 1 CM= 20%
+ READINGS
– READINGS
0 40 80 120 160 200
METRES (1:2000)
TEXASGULF CANADA LTD.
HORIZONTAL LOOP SURVEY
KENOGAMING 54
WORK BY
DATE
1980
230


KEY MAP SCALE : 1" = 8 miles
Property
KENOGAMING
Camp Kenogaming
Stockpool
Camp Katchin
Camp Kendo
LINE 900 W
LINE 800 W
LINE 700 W
LINE 600 W
LINE 500 W
LINE 400 W
LINE 300 W
LINE 200 W
LINE 100 W
LINE 0
LINE 100 E
LINE 200 E
LINE 300 E
LINE 400 E
LINE 500 E
LINE 600 E
LINE 700 E
LINE 800 E
6 N
4 N
2 N
0
2 S
4 S
6 S
528641
528642
528643
528644
528645
528646
528640
528706
spurious anomaly
AKWESKA L.
Open all year round
ASTRO
LEGEND
DIP ANGLE (DEGREES)
INSTRUMENT : CRONE RADEM
STATION : CUTLER, MAINE
PROFILE SCALE : DIP ANGLE 1 CM= 10°
—o— WEAK CONDUCTOR AXIS
S DIPS
N DIPS
0 40 80 120 160 200
METRES (1:2000)
TEXASGULF CANADA LTD.
V L F SURVEY
KENOGAMING 54
NTS:42-A-4
PROJ.#83
WORK BY
DATE
1980
Don E Lemlly

240