KERR ADDISON MINES LIMITED

ELECTROMAGNETIC SURVEY OF BIGSTONE BAY PROJECT

DISTRICT OF KENORA

KENORA MINING DIVISION - ONTARIO

1. INTRODUCTION:

During the period March 28th, 1968 to July 5th, 1968, a ground electromagnetic survey was conducted over a group of 14 claims in the Bigstone Bay area, Ontario, in order to detect electrically conductive zones.

This group is underlain by Precambrian rocks, consisting mainly of metavolcanics with some diorite intrusives.

This report is concerned with the results of the geophysical survey as applied to the following claims:

K 42399
K 42697 - K 42700 inclusive
K 42820
K 42917 - K 42920 inclusive
K 43404 - K 43406 inclusive
K 43524

2. LOCATION AND ACCESSIBILITY:

This 14 claim group is located 13 miles southeast of Kenora, Ontario, on the east shore of Lake of the Woods and is accessible from Kenora by water or air.

3. THE ELECTROMAGNETIC METHOD:

(See attached sheet).

4. CONDUCT THE SURVEY:

In conducting the electromagnetic survey over the Bigstone Bay Project baselines were cut in a north-south direction. At 400-foot intervals, picket lines were cut and chained at right angles to the base-lines. With geophysical operators spaced 200 feet apart, electromagnetic traverses were carried out along the picket lines. Readings were taken at 100-foot intervals along these lines.

In anomalous areas, section lines were cut at 200-foot intervals along the baselines and where necessary, a new baseline was cut to more nearly parallel the indicated anomalies. The results of the survey are shown on the enclosed map.

Where conductors were located; readings were taken at 50-foot intervals, and the low frequency readings were also taken. Some vertical loop check work was done to check weak anomalous readings and to accurately pin-point the centre lines of definite conductors.

Crone readings were taken at 1,112 stations. The total number of readings (by claims) is indicated below:

Claim	Number of Readings (Crone Instrument)
K 42399	79
K 42697	118
K 42698	183
K 42699	127
K 42700	136
K 42820	99
K 42917	47
K 42918	52
K 42919	16
K 42920	39
K 43404	Nil
K 43405	45
K 43406	103
K 43524	68
14 Claims	1,112 Readings.

Total footage surveyed on the Bigstone Bay Project is 90,000 feet (17.1 miles).

5. INTERPRETATION OF THE ELECTROMAGNETIC METHOD:

As stated previously, the electromagnetic method is capable of detecting buried conductors. Conductors so located may be caused by a number of geological conditions, namely: 1) graphitic slate zones; 2) massive bands of metallic sulphides; 3) interlocking grains of oxides and sulphides; and 4) ionized, solution-filled fault zones. It is important, therefore, from an exploration standpoint, that as much be known about the geological environment as possible, if proper diagnosis is to be made from the results.

In the course of the electromagnetic survey of the Bigstone Bay Project, six definite conductors were located as shown on the accompanying map.

6. CONCLUSIONS AND RECOMMENDATIONS:

Diamond drilling is recommended to investigate the cause of the six conductors.

The writer is registered as a professional engineer in the Province of Manitoba; and personally supervised the geophysical survey of the Bigstone Bay Project.

R. O. MacTavish.

R. O. MacTavish, P.Eng.,
Senior Geologist - Exploration.

ROM:sw
Oct.9/68.

KERR ADDISON MINES LIMITED
THE ELECTROMAGNETIC METHOD
CRONE, DUAL FREQUENCY, WEDGE-TYPE
JUNIOR ELECTROMAGNETIC UNIT.

The method involves the transmission of an alternating electromagnetic wave of a given frequency which penetrates the ground in the vicinity of a transmitting coil. This wave or field induces an electric current in a conductor which sets up its own, or secondary, radiating electromagnetic field. These two fields form a resultant whose configuration depends on the following characteristics of the sub-surface conductors: 1) size; 2) shape; 3) electrical conductivity; 4) magnetic permeability; and 5) frequency of the transmitted wave. To a lesser extent, the resultant is also dependent on the material adjacent to the conductor, topography, and surface conductivity. The direction of the resultant vector is measured by a small receiving coil timed to the frequency of the transmitted wave.

The basic geophysical survey employs the Crone, dual-frequency, wedge-type, junior electromagnetic unit. This is a two-man unit; and each man has a transmitting and receiving unit. The men are usually spaced 200 feet apart, but where deep overburden is suspected the men are spaced 300 feet apart. Each man transmits and receives; and the dip angles are added together algebraically. Readings greater than 3 are considered significant unless working along the extension of a conductor, in which case lower readings may be of value.

If a conductor is present, both positive and negative dip angles are obtained. When both men are on one side of a conductor, the reading is minus; when they straddle the conductor the reading is plus. The coil giving the angle is the coil nearest the conductor. The distance between the cross-overs should be equal, approximately, to the interval between the two men. Positive angles are important as they frequently indicate vertical conductors near surface.

The purpose of the "shoot-back" method is to eliminate elevation effects. The main advantages of the method are:

1. The men traverse perpendicular to strike.
2. It is sensitive to vertical and horizontal conductors.
3. It has good penetration.

The magnitude of the angles depends on the conductivity of the body. The shape of the curve depends on the shape of the conductor. Note that as the conductor becomes wider and deeper; the positive angles decrease or become non-existent. With banded, multiple conductors, the negative readings from one conductor may interfere with the positive readings from another, making interpretation difficult.

Noisy readings are most common over broad, clay conductors (e.g. on lake bottom). However, they may occur, in certain locations, with the best of sulphide conductors.

Bigstone Bay (M.1815)

Wiley Bay (M.2337)

Aulneau Peninsula (M.2640)

AREA OF WHITEFISH BAY & MANROSS TWP. (LAKE OF THE WOODS)

DISTRICT OF KENORA

KENORA 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	
KINGS HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
TRAILS	

NOTES

400' Surface Rights Reservation Around All Lakes & Rivers

Reserve Flooding Rights Up To 1064' Above Mean Sea Level On All Lands Bordering On Lake Of The Woods File 4922 Vol. 1

Pipestone Provincial Park Shown Thus — Withdrawn From Staking.

Islands In The Lake Of The Woods Thereto Do Not Form Part Of Manross Twp.

Boundary Of Manross Twp Shown Thus: S

1969

ONT. DEPT. OF MINES MINING LANDS BR. THIS MAP FOR CHECKING PURPOSES ONLY – MUST NOT BE SOLD.

PLAN NO.- M.2338

DEPARTMENT OF MINES –ONTARIO–

200

THE TOWNSHIP OF KIRKUP

DISTRICT OF KENORA

KENORA MINING DIVISION

SCALE: 1-INCH 40 CHAINS

JAFFRAY TWP. (M.1992)

HAYCOCK TWP. (M.1987)

LE MAY TWP. (M.1841)

MANROSS TWP. (M.2338)

Lake of the Woods

Bigstone Bay

Pine Portage Bay

Longbow Lake

Storm Bay

Route Bay

Blindfold Lake

Hollow Lake

Island Lake

Oblong Lake

Bishop Pt.

RUSHING RIVER PROVINCIAL PARK File 163064 OC 2033/57 1 June 1957

Res for Public Use File 163473

Sand & Gravel Res. to Dept of L. & F File 163473 Vol. 2

Pit No 116 Gravel Reserve

Reserved for Public Park MH 5

Reserved for Public Use

LBF Reserve

KM-76

PROJECTED LINE

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	
CANCELLED	C

NOTES

400' surface rights reservation around all lakes and rivers

Reserve flooding rights up to 1064 above mean sea level on all lands bordering on Lake of the Woods File 4922 Vol I

For status of summer resorts shown thus

refer to Dept. of Lands and Forests

DATE OF ISSUE JAN 6 1969

ONT. DEPT. OF MINES MINING LANDS BR. THIS MAP FOR CHECKING PURPOSES ONLY – MUST NOT BE SOLD.

PLAN NO.- M.2809

DEPARTMENT OF MINES – ONTARIO –

52E09NW0036 63.2386 KIRKUP

210


86 S
72 S
76 S
80 S
84 S
88 S
92 S
96 S
100 S
104 S
108 S
112 S
116 S
120 S
K-42918
K-42919
K-42917
K-42920
K-42697
K-42698
K-42399
K-43524
K-42700
K-42699
K-42820
K-43404
K-43405
K-43406
BL 55 E
BL 15 E
BL 65 E
BL 00 "A"
BL 00 "B"
BL 25 E
O.BLONG LAKE
LAKE
MAGNET LAKE
LODESTONE LAKE
LOCATION MAP
1" = 1/2 MILE
NOTE: HIGH FREQUENCY 1800 C.P.S. ABOVE LINE (or RIGHT SIDE OF LINE)
LOW FREQUE 400 C.P.S BELOW LINE (or LEFT SIDE OF LINE)
COIL SEPARATION 200 FEET
DETAIL AREA 1 (BL 00 "B") 1800 C P S RIGHT SIDE OF LINE
400 C P S LEFT " " "
" " 2 (BL 65 E) FREQUENCY & COIL SEPARATION AS ENTIRE MAP
DETAIL AREA 3 (BL 00 "A") 1800 C P S RIGHT SIDE OF LINE
400 C P S LEFT SIDE OF LINE
300 FEET COIL SEPARATION
" " 4 (BL 55 E) 1800 C P S ABOVE LINE
400 C P S BELOW LINE
200 FEET COIL SEPARATION
PROVINCE OF MANITOBA
REGISTERED ENGINEER
R.O.

KERR ADDISON MINES LIMITED	DRAWN BY STr.	ENGINEERING / GEOLOGY	DATE OCT 1st 1968	SCALE 1" = 200'	REFERENCE: FROM FIELD MAP	REVISION NUMBER & DATE	TITLE- BIGSTONE BAY PROJECT — J. E. M. SURVEY	FILE No D	DRAWING No. 2146
	CHECKED BY		APPROVED						