

32D04SW0219 2.2164 MCELROY

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JUL 29 1976

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PROJECTS UNIT

V.L.F. CRONE RADEM ELECTROMAGNETIC SURVEY
CROXALL PROPERTY
GRASSY LAKE AREA, MCELROY TWP.

Submitted by J.E.CROXALL
Written JUNE 1, 1976.

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CRONE RADEM SURVEY - CROXALL PROPERTY.

LOCATION & ACCESS:

The property consists of 8 unpatented claims in the north-east corner of McElroy Township in the Mining District of Larder Lake. It is bounded on the west by Grassy Lake and on the north by the Misema River.

Access to the claim group can be gained from the west by boat from Yost's campsite on the west shore of Grassy Lake. The north-east corner of the property can be reached on foot via an old road which leaves Highway 66 about 1200 feet east of the Misema River bridge. A third access, by foot from the east, is available in the form of a wide, cleared right-of-way which extends southward from the east of the Gauthier-McVittie Township Line on Highway 66. This right-of-way is intercepted in Hearst Township by a trail which approximates the eastward extension of the property baseline.

The property is held by the writer, J.E. Croxall, 343 Craig Street, Timmins, Ontario. These survey results, plans and reports are submitted to partially satisfy assessment work requirements on the 8 claim group.

GEOLOGY & MINERAL OCCURRENCES:

The property appears to be traversed by an east-west Keewatin volcanics-Temiskaming sediments contact.

Pyrite and pyrrhotite are abundant along the contact in the south-east part of claim number 440995. Galena & sphalerite mineralization can be observed in the southern portion of a 15 foot wide, east-west, slaty, bedded formation which forms part of the contact. An old trench & pit were sunk on this showing (XL 10 + 4OE). The rocks in the south wall of the trench and the pit dump contain a variety of angular and rounded rock fragments.

To the east, in claims numbered 440994 and 440993 dioritic intrusions occur along the contact. Pyrite & pyrrhotite occur in a carbonate zone in an old pit 15 feet south of the baseline just a few feet off the eastern boundary of the claim group.

To the west, the contact has been intruded by a syenitic body, the siliceous margins of which contain considerable quantities of pyrite & pyrrhotite with rare specks of chalcopyrite. These are visible in an old trench at 6 + 60 S. on XL 0 + 00.

Dark, contorted bedding and pyrite, pyrrhotite mineralization occur at 2 + 75 S on XL 4 + 46E. Pyrite, pyrrhotite with sphalerite occur on XL 6 + 50E at 1 + 00S.

PREVIOUS EXPLORATION:

The bedded formation was cut by 5 diamond drill holes totalling 1750 feet in length on claim number 440995 by Big Jackpot Mines Ltd., in 1957. All encountered lead-zinc mineralization, but no assays were available.

Amex performed magnetometer, V.L.E.M., and geological surveys over a very large group of claims (approximately 54) between 1968 and 1972 of which these 8 claims were a part. Several anomalous, magnetic "pods" & E-M conductors were located on the 8 claims group. Generally higher magnetics trend across the property north of the baseline.

Numerous old pits & trenches on quartz veins in porphyritic dikes exist across the northern boundary of the group.

RADEM SURVEY:

PURPOSE:

The purpose of this radem survey was to establish a guide for possible further prospecting work by:

- 1) checking for and locating possible extensions of the mineralized, bedded, slaty formation to the east and west
- 2) accurately re-locating the Amax E-M anomalies
- 3) checking out areas not covered by the Amax E-M survey (southern edge of the entire property and some intermediate crosslines and claimlines).

SCOPE:

Portions of the Amax grid system had to be re-located and all these had to be re-cut in preparation for the radem survey. The grid lines were re-named to accurately reflect the distance between them at the baseline since the baseline was a north tie-line for the Amax grid.

Six of the eight claims were covered by the survey. These were claims numbered 440994, 440995, 441847, 442480, 442481, 442482.

The survey (including line cutting) was performed between August 9, 1975 and May 30, 1976.

In total, 32,306' (6.1 miles) of lines (baseline and crosslines) were cut on the 8 claim group. Of these, 25,591' were cut on the 6 claims surveyed. Stations were read at 100' intervals on crosslines and claim lines. In all, 308 readings were taken on the 6 claims.

INTRUMENTATION AND METHOD:

The EM survey was carried out with a Crone Radem V.L.F. unit using Cutler Maine as the transmitter station (17.8 KH₂). The receiver measures the dip angle of the direction of the resultant V.L.F. field (degrees from the horizontal).

To measure the dip angle, the Radem was first held with the instrument face horizontal and rotated until a null is obtained (visual minimum on the field strength meter and audio null). The radem was then held vertically and tilted from right to left until another null was obtained. In this position, the dip angle is read from the inclinometer.

An anomaly is represented as a "cross-over" when positive (+) readings (shown on the west side of the grid lines) change to negative (-) readings (shown on the east side of the grid lines).

INTERPRETATION OF RESULTS:

An anomalous trend is observed to exist across the claim group surveyed. This trend is illustrated in the attached geophysical plans.

An anomalous curve, concave to the baseline and a few hundred feet north of it best describes any continuous conductor which may lie in claims 440993 and 440994. The strongest anomalies in this group occur on XL's 14 + 40E and 18+ 45E. These coincide closely with "possible VLEM conductor" axes located by Amax.

A second anomalous curve, again generally concave to the baseline, but south of it, extends across claims 440995 and 441847. The central part of this curve appears to be off-set (between XL 0 + 00 and XL 6 + 50E) a few hundred feet to the north. Double conductors on XL 0 + 00 & 6 + 50E may indicate a broader zone of mineralization. By comparison, most of the "cross-overs" forming this second curve, are stronger than those of the first curve—the strongest coinciding with Amax's "VLEM conductor axes" on XL 9 + 40W at 2+ 00S.

The major off-set near claim line 12 + 60E could represent a fault with relative southward displacement of the west side of about 600 feet or two different conductors may exist east and west of this line.

The east-southeast trend of anomalies across claim number 440994 and near the baseline may continue (by inference) across claim number 440993 and tie-in to mineralization (and a reconnaissance cross-over) noted in the pit just east of the property.

The 400 foot offset observed on XL 0 + 00, again with west side shifted south relative to the east side, could also be a result of faulting. The contorted bedding on XL 4 + 46E at 2 + 75 S may be evidence of such a fault.

Their similar appearance suggests that these contorted beds may represent the westward extension of the beds observed in the pit and trench to the south-east. However, the lack of response near the contorted beds and the presence of a good response in the pit-trench area may indicate separate formations or a mineralizing source separate from the bedding and its origin - i.e. a vein formation along weak bedding planes.

In either case, the cross-overs trending across claim 440995 (central offset of western curve) and 441847 to the lake probably represent a westward continuation of the pit formation.

The anomalies in claim 441847 could also be connected to possibly remobilized sulphides around the border of the intrusion of which the trench showing on XL 0 + 00 may be typical.

Only one of four responses along the western curve was noted in the Amax survey.

Most of the magnetic "pods" observed by Amax did not respond to the radem - especially those north of the baseline. The generally higher magnetics to the north probably coincide with basic volcanic rocks north of the contact and the pods with localized concentrations of ferro-magnesian minerals in them. The magnetic pods at the pit and trench showings did respond to the radem.

CONCLUSIONS:

- 1) This radem survey has indicated a possible extension of the bedded formation across the entire claim group.

2) It is felt that the three conductors located by Amax have been pin-pointed in the field by the radem survey. These occur on XL's 9 + 40W, 14 + 40E, and 18+45E. These are among the strongest of the radem anomalies.

3) Only one interesting response was found along the previously un-surveyed extreme, south edge of the group. This occurred between 13+00S and 14+00S (claim line) on XL 6+50E.

The radem survey has thus served its three main objectives and some guides for further prospecting have been established.

The anomalies across claim 441847 should be checked as these occur on high ground south of the creek and the depth of overburden is probably not great.

The creek bottom should be explored. A 200' grid should be established on 440995 and 441847. A geo-chemical soil sampling program and a radem survey should be performed. These may help to point out the more interesting sections of this trend.

Since the anomalies strengthen toward the west, a few lake claims will be added to the group.

J. E. Croxall
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J. E. Croxall, P. Eng.
B. Sc. Mining Engineering.
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Dated, June 1, 1976.
1976.

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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.

MAR 3 - 1977

MINING LANDS SECTION

Type of Survey(s) ELECTROMAGNETIC

Township or Area M^CELROY TWP.

Claim Holder(s) J. E. CROXALL

343 CRAIG ST., TIMMINS

Survey Company N/A

Author of Report J. E. CROXALL

Address of Author 343 CRAIG ST., TIMMINS

Covering Dates of Survey AUG. 9/75 to MAY 30/76
(linecutting to office)

Total Miles of Line Cut 6.1 MILES (32,306')

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
✓	440994
✓	440995
✓	441847
1/2 ✓	442480
1/4 ✓	442481
✓	442482

L 442480 1/2 covered
∴ 20 days credits

If space insufficient, attach 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 40

-Magnetometer _____

-Radiometric _____

-Other _____

Geological _____

Geochemical _____

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

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

DATE: MAY 30/76 SIGNATURE: J. E. Croxall
Author of Report or Agent

Res. Geol. L. D. Qualifications on this file

Previous Surveys

File No.	Type	Date	Claim Holder

RECEIVED

MAR 3 1977

PROJECTS UNIT

TOTAL CLAIMS 6

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 308 Number of Readings 308
Station interval 100' Line spacing 400' (MAX.)
Profile scale 1 INCH = 20'
Contour interval N/A

MAGNETIC

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

ELECTROMAGNETIC

Instrument CRONE RADEM
Coil configuration VERTICAL LOOP
Coil separation 600 MILES OR INFINITY
Accuracy +/- 1/2 DEGREE
Method: [X] Fixed transmitter [] Shoot back [] In line [] Parallel line
Frequency CUTLER, MAINE 17.8 kHz (specify V.L.F. station)
Parameters measured DIP ANGLE (in degrees) of RESULTANT V.L.F. - E.M. FIELD

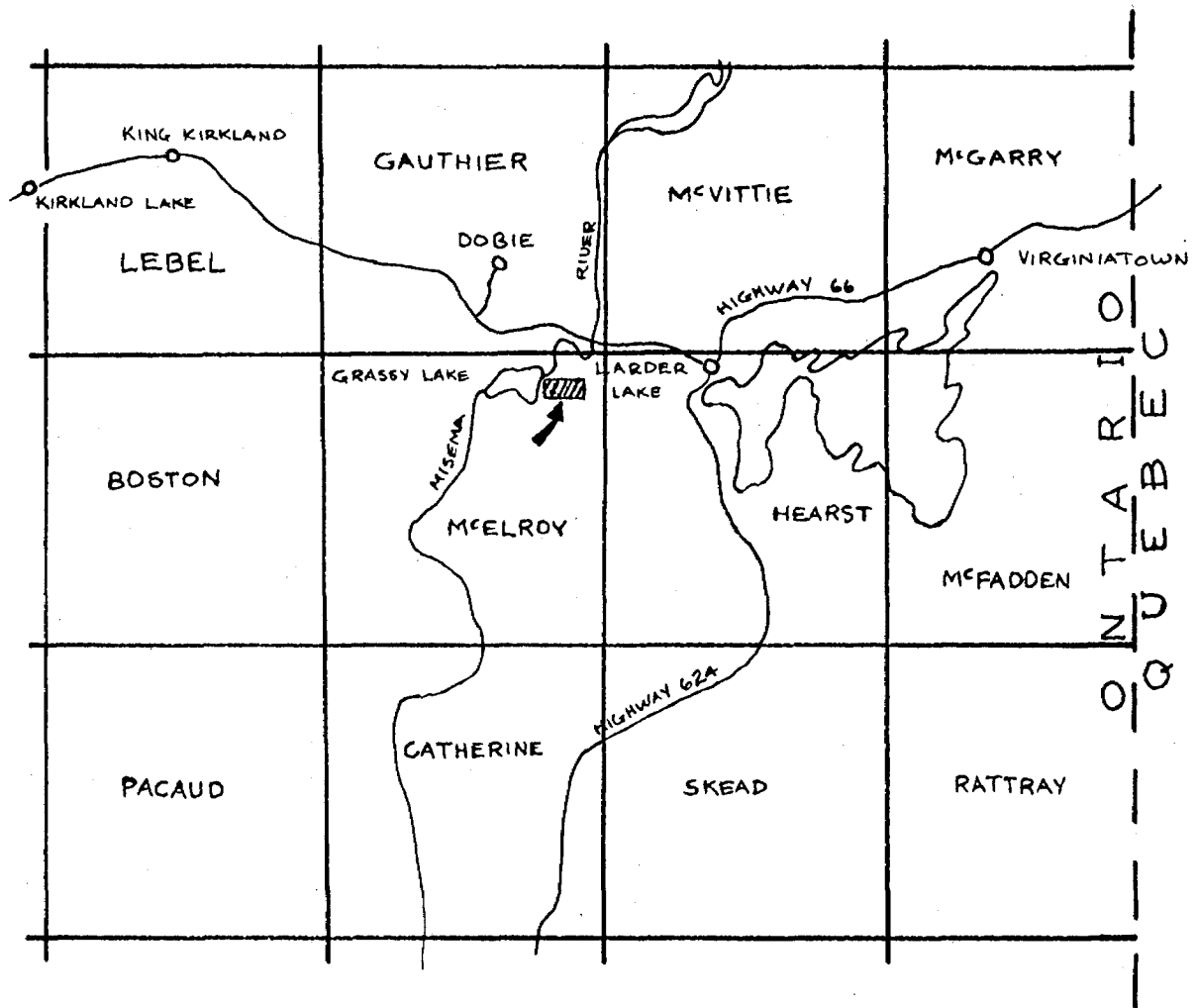
GRAVITY

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

KEY MAP



GAUTHIER Tp. M-350

THE TOWNSHIP OF 2.2164

Mc ELROY

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

- PATENTED LAND ● or ⊕
- CROWN LAND SALE C.S.
- LEASES ⊙
- 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 FOR SURFACE RIGHTS ONLY ⊖

NOTES

400' Surface rights reservation along the shores of all lakes & rivers

Areas withdrawn from staking under Section 43 of the Mining Act. (R.S.O. 1970).

Order No.	File	Date	Disposition

DATE OF ISSUE
JUL 30 1976
SURVEYS AND MAPPING
BRANCH

PLAN NO. M-366

(ONTARIO)
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

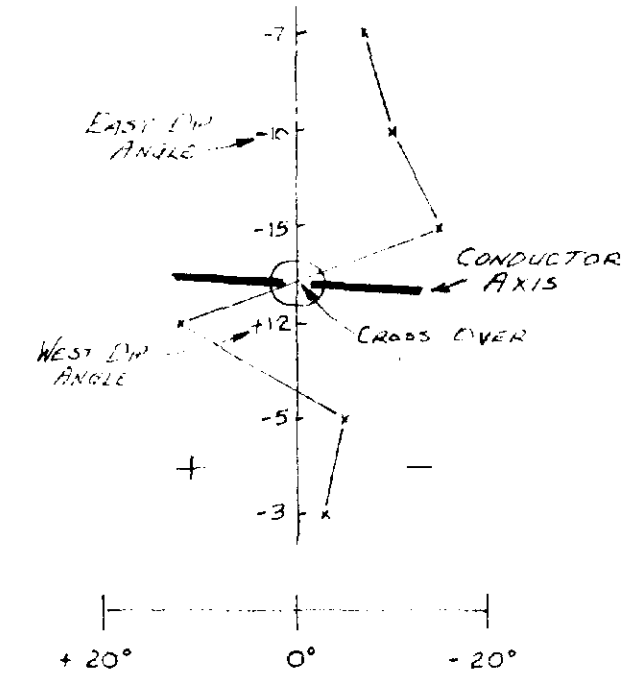
BOSTON Tp. M-332

HEARST Tp. M-354

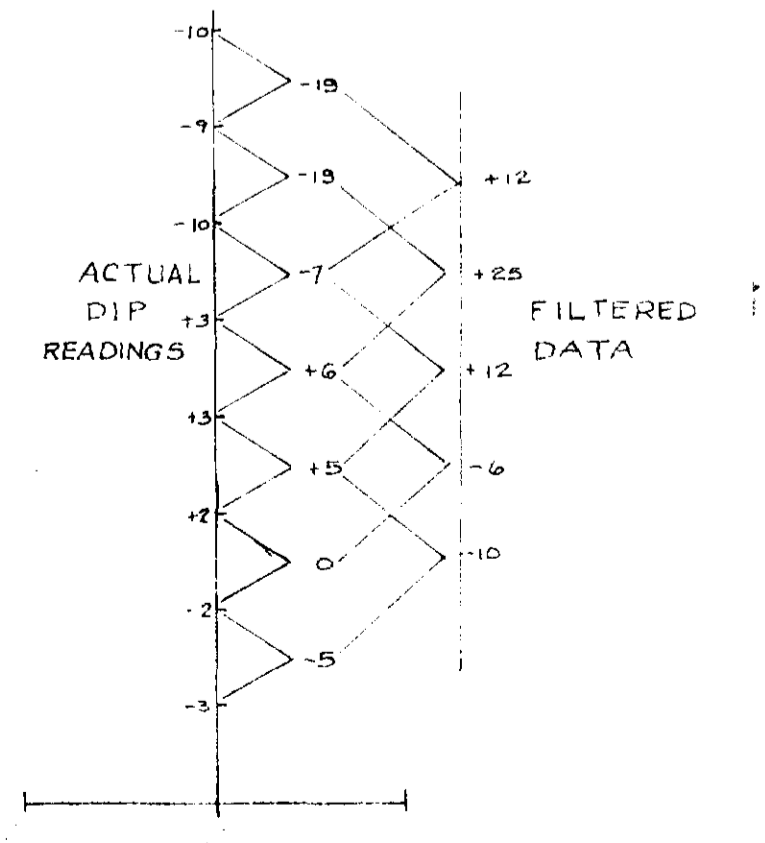
CATHARINE Tp. M-336



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RADEM SURVEY
 J.E.CROXALL PROPERTY
 SCALE 1" = 200'
 SURVEY DATE - AUG 9/75 TO MAY 30/76 J.E. Croxall



CONTOUR PLAN of FILTERED DATA
 FROM RADEM SURVEY
 CROXALL PROPERTY
 CONTOUR INTERVAL = 10' (POSITIVES ONLY)
 J. E. Croxall

