



32D04SE0205 2.5589 HEARST

010

REPORT HE-SK-2 ON
VLF-EM SURVEY
HEARST AND SKEAD TOWNSHIPS, ONTARIO
by
R.A. MacGregor, P. Eng.
April 15, 1983

RECEIVED
JUN 2 1983
MINING LANDS SECTION

REPORT ON VLE-EM SURVEY
HEARST AND SKEAD TOWNSHIPS, ONTARIO

I. INTRODUCTION

VLF-EM surveys were carried out over a group of claims in Hearst and Skead townships over previously cut lines. Part of the grid had previously been surveyed and this survey completes the VLF-EM coverage for this grid. Results are plotted on the enclosed maps with readings for this survey outlined to distinguish them from previous surveys.

II. LOCATION, ACCESS AND OWNERSHIP

The property is located in the south-east part of Hearst Township and extends to the south into Skead Township along the east side of Grace Lake. There are 13 claims numbered L523351 to 523352 inclusive, L531249, L531363 to 531366 inclusive, L531370, L532819 to 532820 inclusive, L532837, L545046 to L545047 inclusive. The claims are recorded in the name of Superior Northwest Inc., Box 1110, Sault Ste. Marie, Ontario and R.A. MacGregor, 134 Palace Drive, Sault Ste. Marie, Ontario.

Access to the property is obtained by travelling south from Larder Lake, Ontario about 6 miles on Highway 624, and then following geophysical lines east. The area may also be reached by an overgrown trail south along the east side of Sharp Creek from the bridge on the road to the old Martin-Bird mine. This road leaves Highway 624 about 4 miles south of Larder Lake.

III. PREVIOUS EXPLORATION

There has been considerable surface prospecting in the past as evidenced by a number of old pits and trenches.

Previous Exploration (Continued)

Old drill casing was seen during the survey and holes are marked as having been drilled on O.D.M. Map 1947-1. No records of drill logs or what if anything, was found in this previous work could be located.

V. GEOLOGY

The property is underlain by a volcanic-sedimentary sequence of rocks, cut by felsic to mafic intrusives. A large part of the claims are covered by extensive drift. Later Huronian sediments cover the older rocks in the central part of the claims.

VI. SURVEY PROCEDURE

A grid was laid out with the baseline running at about N 15° W east of Grace Lake. Crosslines were cut perpendicular to the baseline at 400-foot intervals.

A VLF-EM survey was carried out using a Phoenix VLF-2 instrument set to the signal from Cutler, Maine (17.6 KHz) and to Annapolis, Maryland (21.4 KHz). Readings were taken at ~~100 metre~~^{100 feet} intervals using the procedure outlined in Appendix I. Although an attempt was made to read both stations at the same time to avoid repeated traversing, due to one or the other of the stations being off the air on various days, or for periods of time during the day, this was often impossible. In practice about 50% of readings were taken using both stations at the same time, and 50% of readings were taken on separate traverses.

VII. DISCUSSION OF RESULTS

The two most northerly lines are in an area of swamp and give readings consistent with rock-overburden contacts.

Discussion of Results (Continued)

Most anomalies are continuations of those found in the previous survey and this survey rounds out the coverage of the area. The anomaly on claims L531364 and L532820 is in an area of overburden, but approximately follows the contact between fine grained and conglomeratic sediments.

The most consistent anomalies are on the Annapolis station map showing the north-south trend of the formations in this area.

VIII. CONCLUSIONS

The anomaly on claims L531364 and L532820 warrants some further checking either by soil sampling or diamond drilling.

Respectfully submitted



R.A. MacGregor, P. Eng.


April 15, 1983

C E R T I F I C A T E

I, Robert A. MacGregor, certify:

1. I am a Mining Engineer residing at 134 Palace Drive, Sault Ste. Marie, Ontario. I have worked as a mining engineer and geologist for the past 20 years.
2. I am a member of the Association of Professional Engineers of the Province of Ontario and a member of the Canadian Institute of Mining and Metallurgy.
3. I attended Queen's University for two years in the Mining-Geology course.
4. I personally supervised the field work covered by this report.

April 15/83
DATE

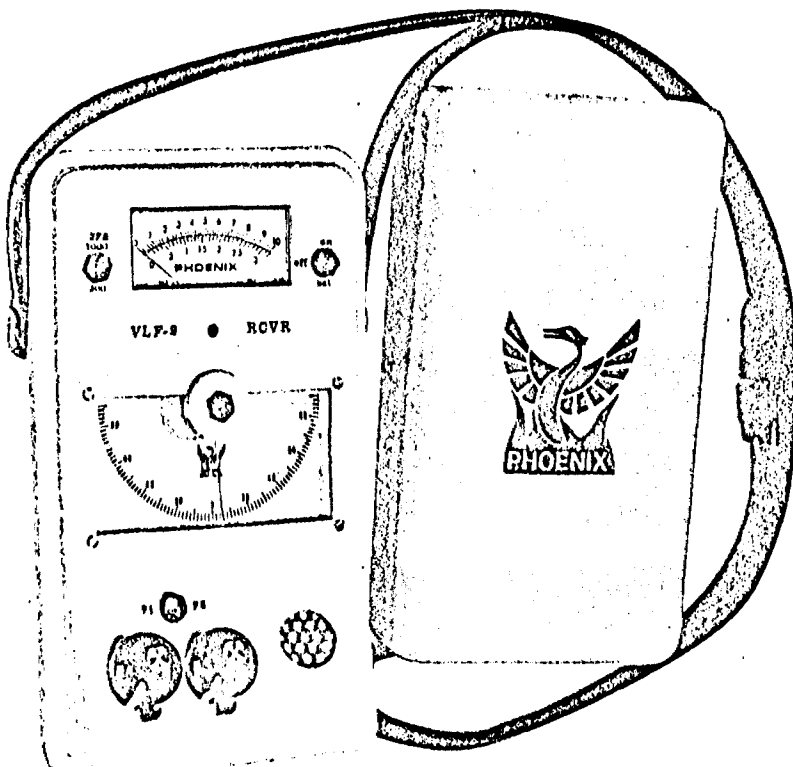
A circular seal for a Registered Professional Engineer in the Province of Ontario. The seal contains the text "REGISTERED PROFESSIONAL ENGINEER" around the top edge and "PROVINCE OF ONTARIO" around the bottom edge. In the center, it says "R. A. MacGREGOR". A handwritten signature is written across the seal.

R. A. MacGregor

VLF-2

Electromagnetic Unit

- Lightweight, low battery drain, rugged, simple to operate
- Two independent channels
- Each channel may select any station between 14.0 and 29.9 kHz
- Single crystal used for all frequencies
- Locking clinometer provides tilt-angle memory
- Superheterodyne detection and digital filtering provide extremely high selectivity and noise rejection



Military and time standard VLF transmitters are distributed over the world. These stations are used for geophysical EM surveying thus eliminating the need for a local transmitter and permitting one-man operation.

To ensure that a station excites the prospective conductor, two stations at approximately right angles are used during a survey (see data on back).

The choice of 160 frequencies in the range 14.0 to 29.9 kHz permits the use of a local EM transmitter when no suitable regular VLF station is available.



PHOENIX GEOPHYSICS LIMITED

Geophysical Consulting and Contracting, Instrument Manufacture, Sale and Lease.

Head Office: 200 Yorkland Blvd. Willowdale, Ont., Canada, M2J 1R6. Tel: (416) 493-6350
1424 - 355 Burrard St. Vancouver, B.C., Canada, V6C 2G8. Tel: (604) 684-2285
2430 N. Huachuca Dr., Tucson, Arizona, U.S.A. 85705. Tel: (602) 884-8542

Specifications

- Parameters Measured** : Orientation and magnitude of the major and minor axes of the ellipse of polarization.
- Frequency Selection, Front Panel** : Dual channel, front panel selectable (F1 or F2) each with independent precision 10-turn dial gain control.
- Frequency Selection, Internal** : F1 and F2 can be selected by internal switches within the range 14.0 to 29.9 kHz in 100 Hz increments.
- Detection And Filtering** : Superheterodyne detection and digital filtering provide a much narrower bandwidth and thus greater rejection of interfering stations and 60 cycle noise than conventional receivers.
- Meter Display** : 2 ranges: 0 to 300 or 0 to 1000. Background is typically set at 100. Meter is also used as dip angle null indicator and battery test.
- Audio** : Crystal speaker, 2500 Hz used as null indicator.
- Clinometer** : $\pm 90^\circ$, $+0.5^\circ$ resolution. Normal locking, push button release.
- Battery** : One standard 9v transistor radio battery. Average life expectancy - 1 to 3 months (battery drain is 3 mA)
- Temperature Range** : -40° to $+60^\circ$ C.
- Dimensions** : 8 x 22 x 14 cm (3 x 9 x 6 inches).
- Weight** : 850 grams (1.9 pounds).

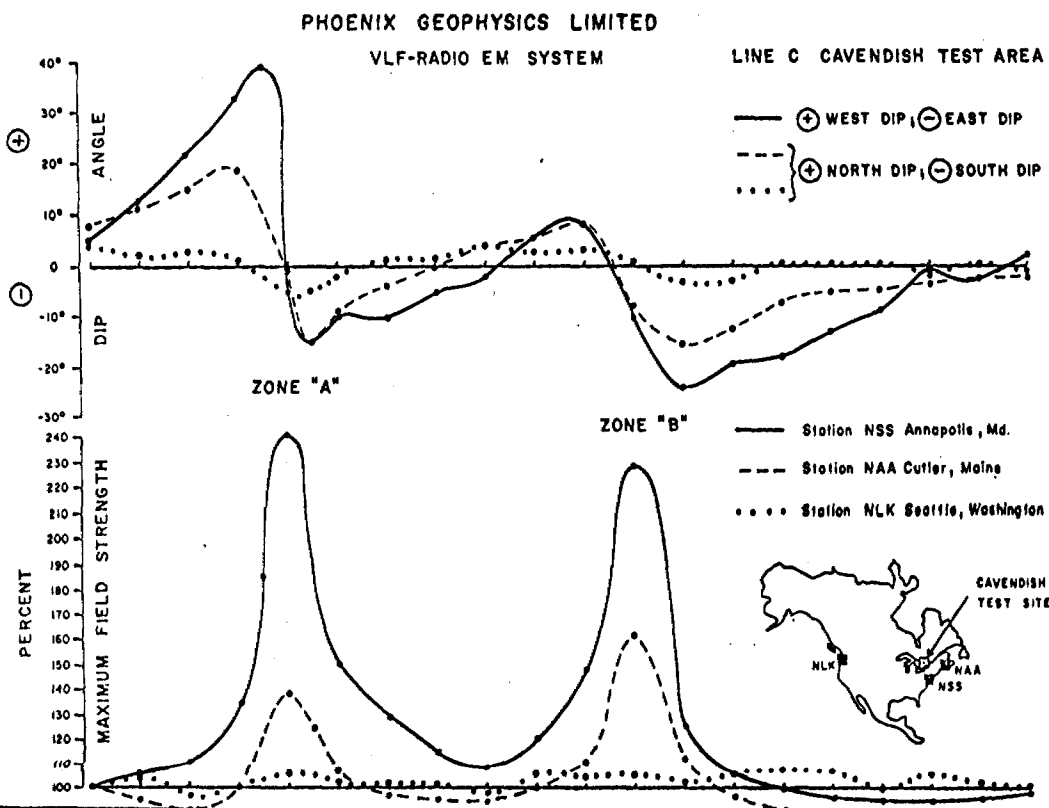
All of the established stations may be selected, or alternatively, a local VLF transmitter may be used which transmits at any frequency in the range 14.0 to 29.9 kHz.

VLF Station	Frequency (kHz)
Bordeaux, France	15.1
Odessa (Black Sea)	15.6
Rugby, U.K.	16.0
Moscow, U.S.S.R.	17.1
Yosamal, Japan	17.4
Hegaland, Norway	17.6
Cutler, Maine	17.8
Seattle, Washington	18.6
Malabar, Java	19.0
Oxford, U.K.	19.6
Paris, France	20.7
Annapolis, Maryland	21.4
Northwest Cape, Australia	22.3
Laulualei, Hawaii	23.4
Buenos Aires, Argentina	23.6
Rome, Italy	27.2

Field Data

The results below illustrate the need for using two orthogonal stations when the strike of the prospective conductor is not well-known. The dip angle and amplitude data measured using station NLK in Seattle, Washington, show only a very weak anomaly associated with the two conductive sulphide zones at Cavendish, Ontario.

The results obtained using Cutler, Maine reveal a more prominent anomaly, but the best response was obtained using Annapolis, Maryland since the station lies almost due south and the transmitted electromagnetic field is thus maximum-coupled with the North-South trending conductors.





**Action
Memo**

Time

Date

18 | 04 | 83

To **Fred Matthews**

From (Name and City)

G. Koleszar

I.C.N. No	Area Code	Telephone No	Ext	Message Taken By
	/	/		
<input type="checkbox"/> Phoned On	<input type="checkbox"/> Please Call Returned	<input type="checkbox"/> Will Call Back	<input type="checkbox"/> Waiting in Person	<input type="checkbox"/> Will Return
<input type="checkbox"/> Hold	<input type="checkbox"/> Your Call	<input type="checkbox"/> Wishes Appointment	<input type="checkbox"/> Was Here	

- File
- Draft Reply For My Signature
- Provide More Details
- For Your Information
- Type Draft
- For Your Approval and Signature
- Keep Me Informed
- Per Discussion
- Type Final
- Circulate, Initial and Return
- Take Appropriate Action
- Per Your Request
- Make Copies
- Return With Comments
- Note and See Me
- Returned With Thanks
- Please Answer
- Investigate and Report
- Note and Return
-

Comments: **Work credit distribution used as shown because most of the claims would have over maximum Geophysical work recorded if 40 days were put on each claim.**



32064SE0205 2.5589 HEARST

900

L52319Y W8308-103

The Min

Type of Survey(s) VLF-EM Cutler and Annapolis		Township or Area Skead and Hearst	
Claim Holder(s) Superior Northwest Inc. R. A. MacGregor		Prospector's Licence No. T-626 K-15070	
Address Box 1110, Sault Ste. Marie, Ont.			
Survey Company Colex Explorations Inc.		Date of Survey (from & to) Day Mo 83 Day Mo. Yr.	
Name and Address of Author (of Geo-Technical report) R.A. MacGregor, 134 Palace Dr., Sault Ste. Marie, Ontario			

Credits Requested per Each Claim in Columns at right Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	20, 20
	- Magnetometer	
	- Radiometric	
	- Other	
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	Days per Claim
	Magnetometer	
	Radiometric	

Mining Claim		Work credit distribution	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
L	523351	✓			
	523352	✓			
	531363	✓			
	531364	✓			
	531365	✓			
	531366	✓			
	531370	✓			
	532819	✓			
	532820	✓			
	532837	✓			
	531349	✓			
	545046	✓			
	545047	✓			

RECEIVED
MAY - 3 1983
MINING LANDS SECTION

see reverse statement

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures \$ + 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work. **13**

Date **Mar. 31/83** Recorded Holder or Agent (Signature) *[Signature]*

For Office Use Only

Total Days Cr. Recorded **367.0** Date Recorded **APR 18 1983** Mining Recorder *[Signature]*

Date Approved as Recorded **Mar. 31/83** Branch Director *[Signature]*

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
R.A. MacGregor, 134 Palace Dr. S. S. Marie, Ont.

Certified by (Signature) *[Signature]* Date **Mar. 31/83**

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 376 Number of Readings 752
Station interval 100 feet Line spacing 400 feet
Profile scale
Contour interval

MAGNETIC

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

ELECTROMAGNETIC

Instrument Phoenix VLF-2
Coil configuration N/A
Coil separation N/A
Accuracy +/- 1/2 degree
Method: [x] Fixed transmitter [] Shoot back [] In line [] Parallel line
Frequency Cutler Maine (17.6 KHz) Annapolis, Maryland (21.4 KHz)
Parameters measured Dip angle of the resultant 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

2.5589

103

1983 11 09

2.5589

Mr. George J. Koleszar
Mining Recorder
Ministry of Natural Resources
4 Government Road East
P.O. Box 984
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

RE: Geophysical (Electromagnetic) survey on mining claims
L 523351 et al in the Townships of Skead and Hearst

The Geophysical (Electromagnetic) survey assessment work
credits as listed with my Notice of Intent dated October 13,
1983 have been approved as of the above date.

Please inform the recorded holder of these mining claims
and so indicate on your records.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416) 965-1380

R. Pichette:mc

cc: Superior Northwest Inc
Box 1110
Sault Ste. Marie, Ontario
P6A 5N7
Attention: Mr. R.A. MacGregor

cc: Resident Geologist
Kirkland Lake, Ontario



Ontario

Ministry of
Natural
Resources

Technical Assessment Work Credits

File
2.5589

Date
1983 10 13

Mining Recorder's Report of
Work No. 103

Recorded Holder
SUPERIOR NORTHWEST INCORPORATED

Township or Area
SKEAD & HEARST

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical Electromagnetic <u>7</u> days Magnetometer _____ days Radiometric _____ days Induced polarization _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column Geological _____ days Geochemical _____ days Man days <input type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	L 523351-52 531363 to 66 incl. 531370 532819-20 532837 531349 545046-47

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

not sufficiently covered by the survey Insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical — 80; Geological — 40; Geochemical — 40; Section 77 (19)—60;



Ministry of
Natural
Resources

Nov 4, 1983

Your file: 103

1983 10 13

Our file: 2.5589

Mining Recorder
Ministry of Natural Resources
4 Government Road East
P.O. Box 984
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. F.W. Matthews at 416/965-1380.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316

Encls:

for
R. Pichette:sc

cc: Superior Northwest Inc
Box 1110
Sault Ste. Marie, Ontario
P6A 5N7
Attention: Mr. R.A. MacGregor

cc: Mr. G.H. Ferguson
845 Mining & Lands Commissioner
Toronto, Ontario

FILE



Ministry of
Natural
Resources

Notice of Intent
for Technical Reports

1983 10 13

2.5589

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Lands Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.



Ontario

Ministry of Natural Resources

Technical Assessment Work Credits

File	2 5589
Date	1983 10 13
Mining Recorder's Report of Work No.	103

Recorded Holder	SUPERIOR NORTHWEST INCORPORATED
Township or Area	SKEAD & HEARST

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical Electromagnetic _____ 14 _____ days Magnetometer _____ days Radiometric _____ days Induced polarization _____ days Other _____ days Section 77 (19) See "Mining Claims Assessed" column Geological _____ days Geochemical _____ days Man days <input type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	L 523351-52 531363 to 66 incl 531370 532819-20 532837 531349 545046-47

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

not sufficiently covered by the survey Insufficient technical data filed



June 30/83.

Mining Lands Comments

- reduction of one survey by 1/2 because readings taken from different VLF Transmitters at same time but only for 50% of area covered.

- the other 50% required re-surveys
∴ reduction from 20 to 10 days.
(see report)

To: Geophysics *Mr. Barlow.*

Comments

Approved

Wish to see again with corrections

Date
Sept 1/83

Signature
Ryan Barlow

To: Geology - Expenditures

Comments

Approved

Wish to see again with corrections

Date

Signature

To: Geochemistry

Comments

(Handwritten mark)

Approved

Wish to see again with corrections

Date

Signature

To: Mining Lands Section, Room 6462, Whitney Block.

(Tel: 5-1380)

103-L523194

2.5589

June 6, 1983

Mr. George J. Koleszar
Mining Recorder
Ministry of Natural Resources
4 Government Road East
P.O. Box 984
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic) survey submitted under Special Provisions (credit for Performance and Coverage) on mining claims L.523351 et al in the Townships of Skead and Hearst.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

cc: Superior Northwest Inc.
Box 1110
Sault Ste. Marie, Ontario
P6A 5N7

Attn: Mr. R.A. MacGregor

A.Barr:eib

EMA
Culter

File no.
2-5589

L523351

1/2

352

1/4

531.363

✓

364

✓

365

✓

366

✓

370

3/4

532 819

1/2

820

1/4

837

3/4

531 349

3/4

545 046

3/4

545 047

3/4

21
5.25

(14)

Culter: ←

(7)

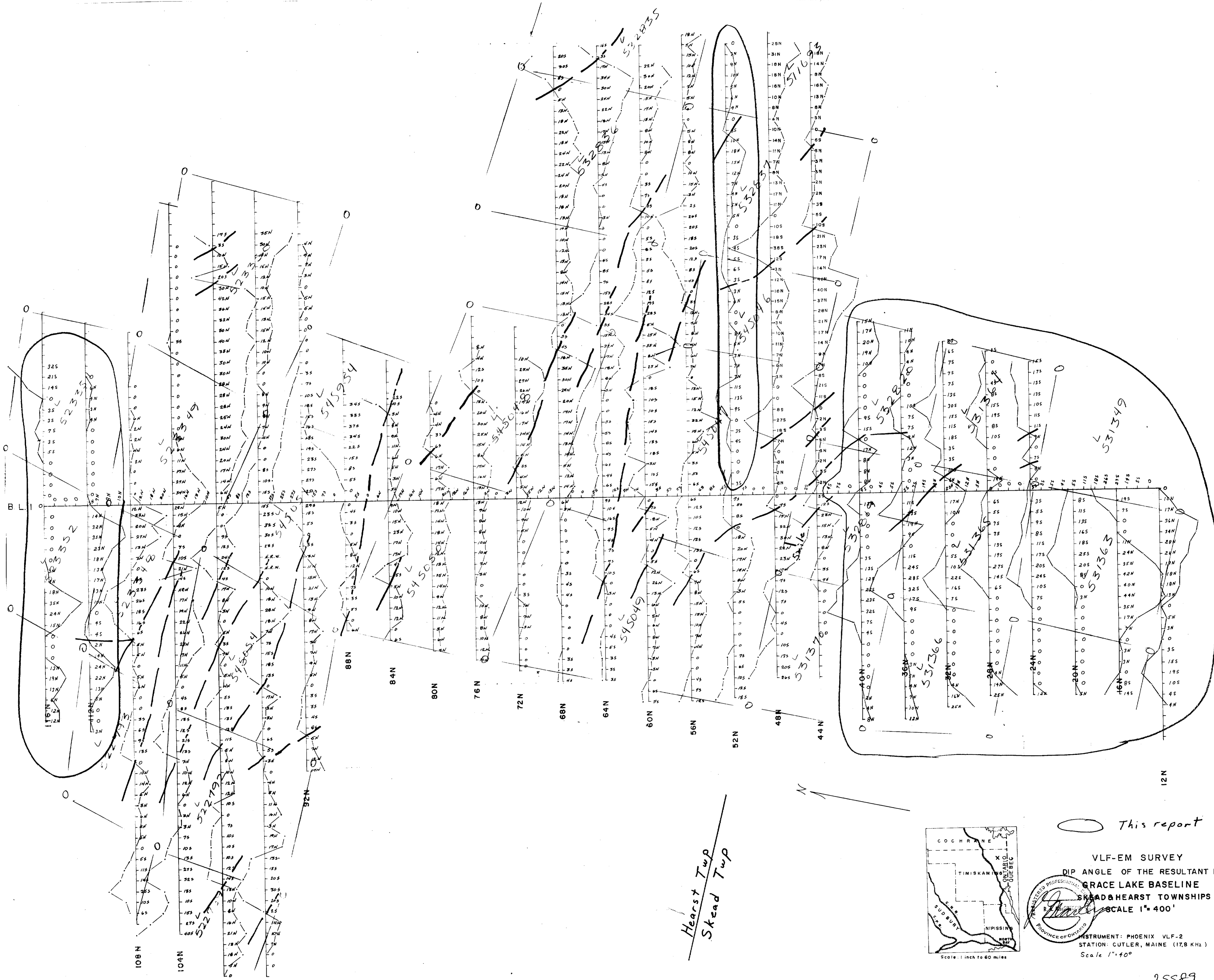
13x20

18.25

Annapolis

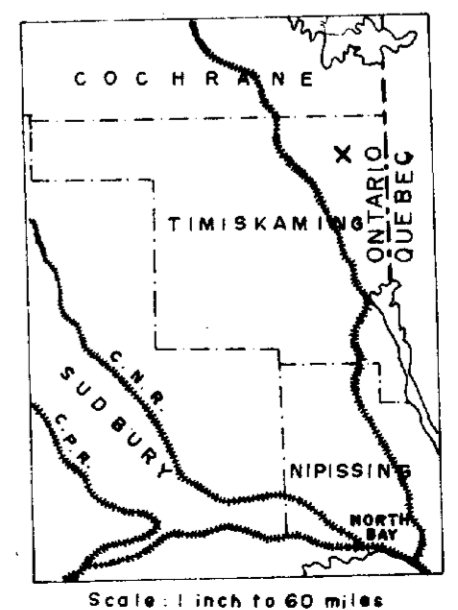
13 x 10

18.25



This report

VLF-EM SURVEY
 DIP ANGLE OF THE RESULTANT FIELD
 GRACE LAKE BASELINE
 SKEAD & HEARST TOWNSHIPS
 SCALE 1" = 400'

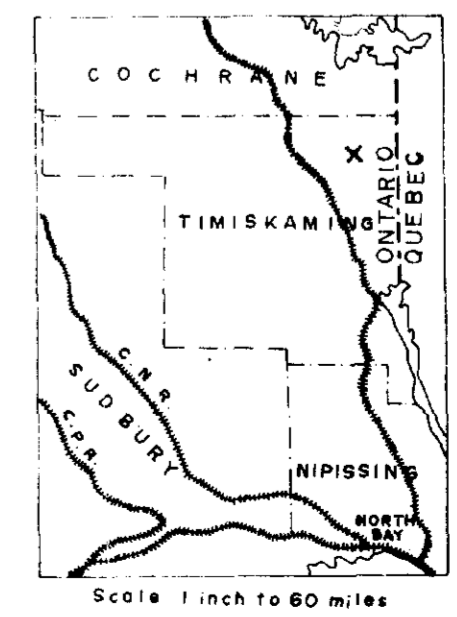


INSTRUMENT: PHOENIX VLF-2
 STATION: CUTLER, MAINE (17.8 KHz)
 Scale 1" = 400'

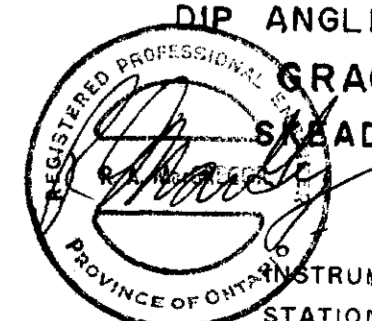
Hearst Twp
 Skead Twp



2.5589



This report
 VLF-EM SURVEY
 DIP ANGLE OF THE RESULTANT FIELD
 GRACE LAKE BASELINE
 SKAD & HEARST TOWNSHIPS
 SCALE 1" = 400'
 INSTRUMENT: PHOENIX VLF-2
 STATION: ANNAPOLIS, MARYLAND (21.4 KHz)
 Scale 1" = 40'



210
 100N
 96N

2.5589