



41010NW0095 2.5190 HALCROW

010

HORIZONTAL LOOP ELECTROMAGNETIC

VLF AND MAGNETOMETER SURVEYS

HALCROW TOWNSHIP CLAIMS

Project 3381.1

RECEIVED

NOV 15 1982

CLAIMS P-565751 to P-565754
P-565775 to P-565779

MINING LANDS SECTION

Porcupine Mining Division
Ontario

N.T.S. 41-0-15

Halcrow Township

By: Konny Dai

July, 1982



41010NW0095 2.5190 HALCROW

010C

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INTRODUCTION

Nine claims were staked in May, 1980 to cover an old gold occurrence known as the Lyall-Beidelman showing located at the extreme western end of the Swayze Volcanic Belt.

The showing is noted as having significant gold values associated with disseminated pyrite, arsenopyrite and quartz veinlets in two E-W fracture zones within the red feldspar porphyry. It was reported that the gossans from these 2 zones panned gold very freely and some fine native gold was noted in one place. As such the Halcrow property is essentially a gold venture.

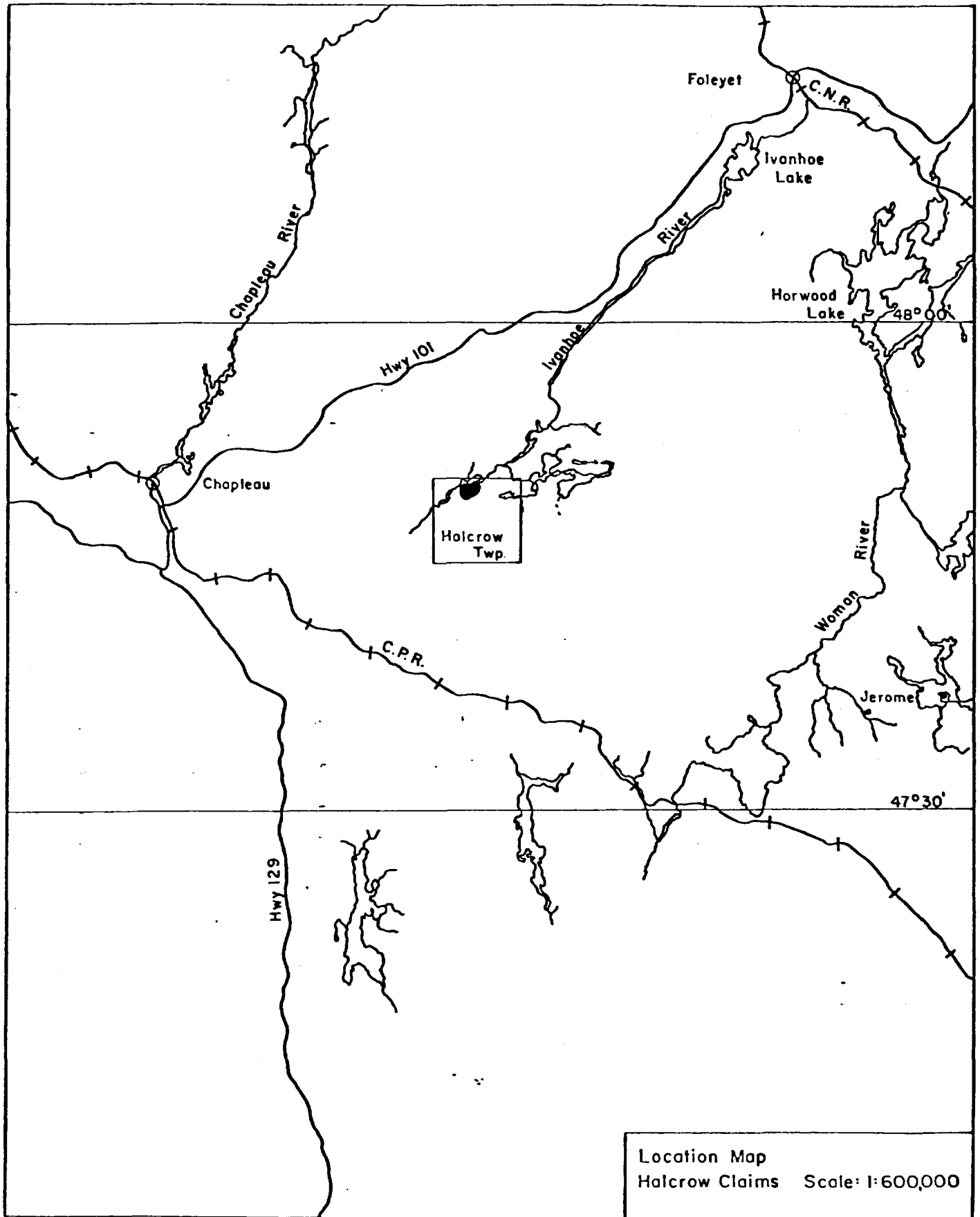
It was hoped that the VLF electromagnetic survey might outline the two mineralized fracture zones and any hidden fracture zones yet to be discovered. The disseminated sulfides within the red feldspar porphyry may form marginally conductive structures to be detected by VLF-electromagnetic survey. The Max-Min II horizontal Loop electromagnetic survey was used to clarify the VLF-Em responses and to outline more conductive structures. The magnetometer survey was conducted primarily to define lithologies and geologic structures.

LOCATION AND ACCESS

The claim group is located approximately 35 km due east of the town of Chapleau and 14 km southeast of Highway 101 in Halcrow Township, Sudbury District (Figure 1).

There is no access road that leads directly to the property. But it can be reached by boat via Ivanhoe River through a few portages or by float - plane from Chapleau or

FIGURE 1.



Foleyet.

PROPERTY DESCRIPTION

The claim group consists of nine, sixteen hectare claims as follows.

<u>CLAIM NUMBER</u>	<u>RECORDING DATE</u>
P-565751 to P-565754 inclusive	May 21, 1980
P-565775 to P-565779 inclusive	May 21, 1980

The above claims are held by Sulpetro Minerals Limited, 2161 Yonge Street, Suite 301, Toronto, Ontario, M4S 3A6.

The claims are in good standing and are presently held under extension until the 22nd of November, 1982.

GEOLOGIC REPORT

The northeast quarter of the property is underlain by conglomerate and other sediments of the Swayze series and mafic volcanics.

The southern half of the group is dominated by large bosses or dikes of red and grey feldspar porphyry which hosts the auriferous mineralizations (Diabase dykes are found cross cutting the older units).

The formational strikes in the immediate grid area appear to be more or less east-west. The property lies on the north limb of a major east-west trending tightly folded doubly-plunging synclinorium. The volcano-sedimentary piles are strongly deformed.

PREVIOUS WORK

Lyall-Beidelman showing on claim 565779 was originally staked for I.C. Beidelman and Associates of Montreal in 1934. Trenching, rock sampling, minor blasting and extensive outcrop stripping were carried out soon after.

In 1966, six short diamond drill holes totalling 400 feet were put down by Dalhousie Oil Company Limited under the supervision of L. Hobbs. However no significant assays were obtained from this exploration effort.

In 1981, line cutting and geologic mapping was carried out by Sulpetro Minerals Limited under the direction of A. W. Beecham. Rock sampling of the showing area has returned significant gold values of up to 4.35 gm/tonne gold in a grab sample of arsenopyrite - bearing quartz vein and bleached wall-rock.

SURVEY PROCEDURE

VLF Survey

Logistical details regarding the survey are listed below:

Survey Dates:	21 to 23 June and 27 June, 1982
Personnel:	K. Lai
Instrumentation:	Crone Radem
Transmitter Station:	Cutler, Maine, U.S.A.
Frequency:	17.8 kHz
Reading Interval:	12.5m
Parameter Read:	Dip angle of resultant field

The dip angle data are plotted in profile form on a grid map at a scale of 1:2000. The profile scale is 1 cm = 10'.

Furthermore, the data were processed by the Fraser filter method to transform the rather noisy, non contourable dip angles into less noisy, contourable data which enhances the values of VLF-EM Survey. The results were plotted on a grid map at a scale of 1:2000 and contoured on an interval of 10 units.

Details pertaining to the instrumentation specifications can be found in Appendix A.

MAGNETOMETER SURVEY

Logistical details regarding the survey are listed below:

Survey Dates:	21 to 23 June and 27 June, 1982
Personnel:	A. Millholland
Instrumentation:	Barringer GM-122 Proton Magnetometer
Reading Interval:	25m
Parameter Read:	Total Magnetic Field

The field data were corrected for diurnal variations by taking tie-in readings and then subtracting the variations from the field data.

Details regarding the instrumentation specifications can be found in Appendix B.

HORIZONTAL LOOP ELECTROMAGNETIC SURVEY

The logistical details of the H.L.E.M. survey are as follows:

Survey Dates:	24 to 26 June, 1982
Personnel:	K. Lai, A. Millholland
Instrumentation:	Apex Parametrics Max-Min II
Frequency:	3555 Hz
Reading Interval:	25m
Parameters Read:	% In-phase and % out-phase

The % In-phase and % Quadrature results are plotted in profile form on a grid map at a scale of 1:2000. The profile scale is 1 cm = 10%.

Details regarding the Max-Min II system are to be found in Appendix C.

INTERPRETATION

VLF Survey

Except for three (3) VLF anomalies of possible bedrock origin, the rest are obvious swamp edge and/or overburden responses. The three anomalies are discussed below:

Zone A

L1E, 0+70N	L5E, 1+70N
L2E, 1+00N	L6E, 2+25N
L3E, 1+20N	L7E, 2+25N
L4E, 1+30N	L8E, 2+10N

This zone is likely to represent formational anomaly of marginal conductivity. This could possibly be a hidden mineralized shear zone within the porphyry. Geologic mapping has indicated the presence of red altered foliated porphyry. Geologic mapping has indicated the presence of red altered foliated porphyry containing specular hematite just 25m south of the anomaly on Line L3E. Part of this zone also corresponds to high magnetic response.

Zone B

L9E, 190S
L8E, 210S

This zone corresponds to a trend of magnetic high and may represent minor disseminated sulfide within a cross-cutting diabase dyke. But it is also possible that it represents

the mineralized portion of the shear zone observed around L5E, 0+60S.

ZONE C

L11E, 3+20S

L10E, 3+00S

At first glance, this anomaly seems to be a swamp edge response. However, the north edge of this anomaly happened to coincide with a 'magnetic low' similar to that of the Lyall-Biedelman showing. The said magnetic low occurs just north of the swamp on high ground.

MAGNETOMETER SURVEY

The magnetic relief over the property is very moderate. Background appears to be around 59400γ.

The southern half of the grid is dominated by a few strong magnetic highs which probably correspond to several cross-cutting diabase dykes. The dykes have different strikes but three general directions are noted, they are 070° (A-A'), 090° (B-B') and 130° (C-C').

Anomaly D-D'

L4E, 125N

L5E, 175N

L6E, 225N

The relatively weak anomaly corresponds to the Zone A, VLF anomaly and suggest possibly the presence of pyrrhotite within the Conductive zone.

From an exploration point of view, the most significant observation and of the greatest interest to us is that the auriferous mineralization in the red feldspar porphyry is interpreted to be associated with 'magnetic low'. Zone I is

the Lyall-Biedelman showing.

Using this simple association perhaps a bit oversimplified and, uncoventional, as the basis for selecting favorable targets for further follow-up work and drilling; five other magnetic low areas are identified.

ZONE II

L4E, 2+75S
L5E, 2+25S

Similar geologic setting as the Lyall-Biedelman showing across the other side of the lake. It is an island of magnetic low at a magnitude of about 200 γ below its immediate surroundings.

Zone III

L8E, 3+00S

This is an area of relatively shallow overburden and fine disseminated sulfide was observed in the feldspar porphyry during our VLF survey.

Zone IV

L11E, 3+00S

This zone is located at the flank of a VLF anomaly near a swamp. The zone may simply be a reflection of the overburden effect.

Zone V

L11E, 2+10S

This zone seems to be on the same trend as Zone III and is located on high ground.

Zone VI

L1E, 1+75S
L2E, 1+75S
L3E, 1+50S
L4E, 1+25S

This is a very interesting area as it is comprised of some sheared feldspar porphyry and should definitely be investigated.

Before any follow-up geophysical work commences, a brief geological examination is recommended for each zone in order to aid future interpretation and exploration effort.

H.L.E.M. Survey

The horizontal loop electromagnetic results on our Halcrow Township property is essentially featureless. With the exception of one response at the southwest corner which probably correspond to conductive overburden in the swamp.

Apart from this the disseminated sulfides in the vicinity of Lyall-Biedelman showing did not give any H.L.E.M. response.

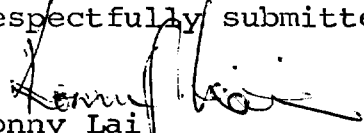
RECOMMENDATIONS

It is felt that the V.L.F. anomalies may represent zones of disseminated sulfides within the sheared feldspar porphyry that could possibly be associated with gold mineralizations.

Special attention should be put on the 'magnetic low' areas since it was observed that Lyall-Biedelman showing is associated with Zone I 'magnetic low'.

Induced polarization is strongly recommended as a further follow-up geophysical survey to detect any associated disseminated sulfides. I.P. survey should define and provide sufficient geophysical criteria for selecting favorable drilling targets in the future. Acquisition of additional ground toward the East and South-East Corner should be considered if I.P. survey returned favorable results.

Respectfully submitted,


Konny Lai
Geologist
Sulpetro Minerals Limited

REFERENCES

- Beecham, A.W. Geological Mapping, Halcrow Township Claims.
(1981) Assessment Report, Sulpetro Minerals Ltd.
- Donovan, J.F. Geology of Halcrow-Ridout Lakes Area.
(1968) Geol. Rep. 63, Ontario Dept. Mines.
- Rickably, H.C. Geology of Swayze Gold Area in 43rd Annual
(1934) Rep. Ontario Dept. Mines., Vol. XLIII Pt. III.
- Thurston, P.C. Geology of the Chapleau Area. District of
(1977) Algoma, Sudbury and Cochrane; Geoscience.

APPENDIX A

The RADEM receives any 7 of 17 VLF communication broadcast stations with selection by means of a switch. These stations are positioned throughout the world and broadcast steadily except for maintenance periods of usually of $\frac{1}{2}$ to $\frac{1}{3}$ days per week. The usable range of these stations varies widely with power and transmission conditions but is usually between 1000 and 5000 miles.

A station should be selected that is located in the same direction as the regional strike. In this survey stations at Cutler, Maine and Seattle, Washington were used.

In the field, three measurements could be made viz:

- (a) Dip-angle of resultant field
- (b) Out-of-phase measurement
- (c) Horizontal component of the field strength

In this survey only the dip-angle of resultant field was measured.

The dip-angle of resultant field is the angle of inclination, measured from the horizontal in degrees, of the direction of the resultant VLF field.

To measure the dip-angle the RADEM is first held with the instrument face horizontal and rotated until a null is obtained (visual minimum on the field strength meter and audio null). This aligns the RADEM with the direction of the VLF field. The RADEM is then held vertically and tilted from right to left until another null is obtained. The instrument is held steady in this null position and the dip-angle read from the inclinometer.

The VLF-EM method is capable of locating disseminated type bodies, small sulphide occurrences, fault and shear zones.

APPENDIX B

SPECIFICATIONS

Range:	20,000 to 99,999 In 12 ranges
Accuracy:	$\pm 1 \gamma$ through operating temperature range
Sensitivity:	1 γ
Gradient Tolerance:	600 γ /ft.
Power:	12 "D" cells
Power Consumption:	< 50 Joules (Wsec) per reading
Polarizing Power:	0.8 A @ 13.5 V for 1.5 sec. (3 second cycle) 0.8 A @ 13.5 V for 3 sec. (6 second cycle)
Number of Readings with 1 Battery Set:	2,000 - 10,000 depending on type of batteries
Frequency of Readings:	1 every 3 seconds 1 every 6 seconds
Controls:	Pushbutton switch Range Selection switch - Slide switch for 3 and 6 sec. located on P/C Board
Output:	5 digit incandescent filament readout
Indicators:	LED point Lock Indicator - last three digits of the display blanked off when phaselock not achieved Segment Function Indicator - all segments light up to permit visual inspection of the display function :
<u>Mechanical:</u>	
Instrument:	Dimensions - 7" X 3.5" X 11" (18 cm X 9 cm X 28 cm)
	Weight - 8 lbs (3.6 kg) including batteries
Sensor:	Omnidirectional noise cancelling toroidal sensing head
	Dimensions - 4 7/8" (12 cm) diameter - 4 3/8" (11 cm) height
	Weight - 3 lbs (1.4 kg)
Ambient Conditions:	Operating Temperature Range - -40°F to 131°F (-40°C to 55°C) Relative Humidity - 0 to 100%
Environmental:	Instrument and sensor case made of high impact plastic

(ii) Magnetometer Instrument Data

General Description, Principle of Operation

If a proton rich fluid such as Kerosene, jet fuel, heptane, etc. is placed into a magnetic field the protons will align along the magnetic field vector. The magnetic field is induced in the sensor upon depressing the push-button. Then this field is suddenly removed. Protons which behave as elementary gyroscopes will start precessing around the remaining magnetic field that of the earth. The precession frequency is directly proportional to the magnetic field of the earth. The magnetometer counts this frequency, divides it by the appropriate constant to obtain a reading in gammas and displays the reading in the form of a 5 digit number.

APPENDIX C

The Maxmin II is a two-man continuously portable EM system. It is designed to measure both the vertical and horizontal in-phase (IP) and quadrature (QP) components of the anomalous field from electrically conductive zones.

The plane of the transmitter (Tx) is kept parallel to the mean slope between the transmitter and receiver (Rx) at all times. The Maxmin II is a horizontal loop (HL) system when the receiver measures anomalous components perpendicular to the mean slope between the coils. It is a minimum coupled (Min C) system when the receiver measures anomalous components parallel to the mean slope between the coils.

APEX MAXMIN II EM SYSTEM SPECIFICATIONS

- OPERATING FREQUENCIES: 222, 444, 888, 1777 and 3555Hz.
- MODES OF OPERATION:
- a) Transmitter coil plane and receiver coil plane horizontal (Max-coupled; Horizontal loop mode). Used with reference cable.
 - b) Transmitter coil plane horizontal and receiver coil plane vertical (Min-coupled mode). Used with reference cable.
 - c) Transmitter coil plane vertical and receiver coil plane horizontal, tilted for null in the receiver output. (Vertical loop mode). Used without reference cable, in parallel lines.
- COIL SEPARATIONS: 25, 50, 100, 150, 200 and 250mm (MM II) or 100, 200, 300, 400, 600 and 800 ft. (MM II F). Coil separations in mode c) not restricted to fixed values.
- PARAMETERS MEASURED:
- a) In-Phase and Quadrature components of the secondary field in modes a) and b).
 - b) Tilt-angle of the total field in mode c).

READOUTS:

- a) Automatic, direct readout on 90mm (3 1/2") edgewise meters in modes a) and b). nulling or compensation necessary.
- b) Tilt-angle and null on 90mm (3 1/2") edgewise meters in mode c).

SCALE RANGES:

In-phase: $\pm 20\%$ normal, $\pm 100\%$ by switch
Quadrature: $\pm 20\%$ normal, $\pm 100\%$ by switch
Tilt: $\pm 75\%$ slope
Null: Null sensitivity adjustable by separation switch.

READING REPEATABILITY:

$\pm 1\%$ to $\pm 2\%$ normally, depending on conditions, frequency and coil separation used.

TRANSMITTER DIPOLE MOMENT:

150 Atm^2 @ 222Hz, 150 Atm^2 @ 444Hz, 90 Atm^2 @ 888Hz, 40 Atm^2 @ 1777 Hz and 30 Atm^2 @ 3555 Hz.

RECEIVER BATTERIES:

9V transistor radio type, 4 batteries
Life: approx. 35 hrs. continuous duty (alkaline; .5Ah), less in cold weather.

TRANSMITTER BATTERIES:

- a) 12V7.5Ah Gel-Cell rechargeable batteries (2 x 6V in series)
- b) 18V21Ah alkaline lantern batteries (3 x 6V in series). Transmitter current drain 0.5A to 2.2A depending on operating frequency.

REFERENCE CABLE:

Light weight, special teflon cable for minimum friction. Unshielded. All reference cables option at extra cost. Please specify.

Built-in intercom system for voice communication between receiver and transmitter operators.

INDICATOR LIGHTS:

Built-in signal and reference warning lights to indicate erroneous readings.

OPERATING TEMPERATURE:

-40°C to $+60^{\circ}\text{C}$ (-40°F to $+140^{\circ}\text{F}$)

WEIGHT OF RECEIVER UNIT:

6kg (13 lbs.)

WEIGHT OF TRANSMITTER UNIT:

Typically 65 kg (143 lbs.), depending on quantities of reference cable and batteries included. Shipped in two shipping/field cases.

VOICE LINK:

Built-in intercom system for voice communication between receiver and transmitter operators.

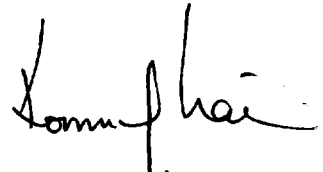
APPENDIX D

DECLARATION

This is to state that I, Konny K. Lai hold a Bachelor of Science Degree, Honours in geological Sciences (1980) from McGill University in Montreal. And that I have no personal or financial interest in the property covered by this report.

I am currently employ by Sulpetro Minerals Ltd.

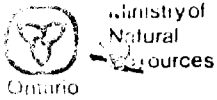
I personally carried out and supervised part of the work outlined in this report.

A handwritten signature in cursive script, appearing to read 'Konny Lai', written in dark ink.

Konny Lai
Geologist

Haileybury, Ontario.

21 July 1982.



Report of Work
(Geophysical, Geological,
Geochemical and Expenditures)

11-146 K-10751

2,5190

93700

The Mining



41010NW0095 2.5190 HALCROW

900

Type of Survey(s) Geophysical Surveys | Halcrow Township
 Claim Holder(s) Sulpetro Minerals Ltd. | Prospector's Licence No. T-501
 Address Box 1207 Hailybury, Ont. P2J1K0 or 2161 Yonge St. Suite 301 Toronto, Ont. M4S3A6
 Survey Company Sulpetro Minerals Ltd. | Date of Survey (from & to) 21 06 82 to 27 06 82 | Total Miles of line Cut
 Name and Address of Author (of Geo-Technical report) Kenny Lai 137 Silver Springs Blvd., Scarborough, Ont. M1V 1M8.

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

Mining Claim			Mining Claim		
Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
P	565751	60			
	565752	60			
	565753	60			
	565754	60			
	565775	60			
	565776	60			
	565777	60			
	565778	60			
	565779	60			

RECEIVED

NOV - 8 1982

MINING LANDS SECTION

RECORDED
NOV 4 1982
Receipt No.

Total number of mining claims covered by this report of work. 9

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures \$ ÷ = 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.

For Office Use Only

Total Days Cr. Recorded 540 | Date Recorded Nov 4/82 | Mining Recorder [Signature]
 Date Approved as Recorded 03:06:27 | Branch Inspector [Signature]

Date 2 Nov. 1982 | Recorded Holder or Agent (Signature) [Signature]

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 Kenny Lai 137 Silver Springs Blvd., Scarborough, Ontario M1V 1M8.

Date Certified 23rd July, 1982. | Certified by (Signature) [Signature]



Jan 27/83

Mining Lands Comments

To: Geophysics *Mr Barlow*

Comments

<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date <i>Feb 8/83</i>	Signature <i>Ry Barlow</i>
--	---	----------------------	----------------------------

To: Geology - Expenditures

Comments

<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature
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To: Geochemistry

Comments
<i>L.D.</i>

<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature
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410

1982 11 19

2.5190

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic and Magnetometer) Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims P 565751 et al in the Township of Halcrow.

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

Yours very truly

E.P. Anderson
Director
Land Management Branch

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

DW:sc

cc: Sulpetro Minerals Limited
Haileybury, Ontario

cc: Kommy Lai
Scarborough, Ontario



SULPETRO MINERALS LIMITED

Suite 301, 2161 Yonge Street
Toronto, Ontario M4S 3A6
Telephone: (416) 482-5422 Telex 06-23794

P.O. Box 1207 Haileybury,
Ontario.

/2 November 1982.

Mr. E.F. Anderson
Mining Lands Section
Ministry of Natural Resources
6450 Whitney Block
Queen's Park
TORONTO, Ontario

M7A 1W3

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NOV 15 1982

MINING LANDS SECTION

Dear Sir:

Please find enclosed two copies of a report describing Horizontal Loop EM, VLF and Magnetometer surveys on our Halcrow Township claims, Porcupine Mining Division, claims

P-565,751 -- P-565754

P-565,775 -- P-565779.

This work is being reported ^{separately} to the Porcupine Mining Recorder.

Sincerely,



A.W. Beecham
Senior Geologist

Copy: J.E. Cattell



**GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL
TECHNICAL DATA STATEMENT**

**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) Magnetics ; VLF-EM and HLEM
Township or Area Halcrow Township
Claim Holder(s) Sulpetro Minerals Ltd.
2161 Yonge St. , Suite 301, Toronto
Survey Company Same
Author of Report Konny K. Lai
Address of Author 137 Silver Springs Blvd. Scarboro.
Covering Dates of Survey 21 June 1982 to 27 June 1982
(linecutting to office)
Total Miles of Line Cut _____

**MINING CLAIMS TRAVERSED
List numerically**

P-565751
(prefix) (number)
P-565752
P-565753
P-565754
P-565775
P-565776
P-565777
P-565778
P-565779

**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	
Geological	
Geochemical	

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

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

DATE: 27 july 1982 SIGNATURE: Konny K. Lai
Author of Report or Agent

Res. Geol. _____ Qualifications 2.4407

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 9

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

VLF-1180

VLF-1180

Number of Stations Magnetics-610, HLEM-553 Number of Readings Mag.-610 HLEM-553

Station interval Mag.-25m, HLEM - 25m, VLF-12.5m Line spacing 100m

Profile scale Magnetics-N/A, VLF and HLEM- 1cm=10⁰

Contour interval VLF-10units, Magnetics-200

MAGNETIC

Instrument Barringer GM-122 Magnetometer

Accuracy – Scale constant + 1%

Diurnal correction method Regular Tie-in Readings

Base Station check-in interval (hours) _____

Base Station location and value L 2E; S+25N, 591788

ELECTROMAGNETIC

Instrument Crone Radem, Apex Parametrics, Max-Min II HLEM- Co-Planar

Coil configuration Transmitter-Dipolar Antenna, Receiver- Dip Angle. HLEM- Horizontal Loop

Coil separation VLF-N/A HLEM-100m

Accuracy + 1⁰ HLEM- ± 1 %

Method: VLF - Fixed transmitter Shoot back HLEM In line Parallel line

Frequency VLF 17.8 kHz -Cutler, Maine, USA HLEM- 3555 Hz

Parameters measured Dip-angle. HLEM- in-phase & out-of-phase component of secondary EM field in percentages.

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 _____

2.5190

	HLEM	VLF	Mag.	
P-565751	✓	✓	✓	
52	✓	✓	✓	
53	✓	✓	✓	
54	✓	✓	✓	
565775	✓	✓	✓	
76	✓	✓	✓	
77	✓ ^{1/2}	✓ ^{1/4}	✓ ^{1/4}	-appr. rec.
78	✓	✓	✓	
565779	✓	✓	✓	

D.K.

Crockett Twp. - M.740

THE TOWNSHIP
OF
HALCROW

DISTRICT OF
SUDBURY

PORCUPINE
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	—
KING'S HIGHWAYS	—
RAILWAYS	—
POWER LINES	—
MARSH OR MUSKEG	—
MINES	⚡
CANCELLED	C.

NOTES

400' Surface Rights Reservation around
all lakes and rivers.

DATE OF ISSUE

JUN 24 1983

Ministry of Natural Resources
TORONTO

PLAN NO.

M.906

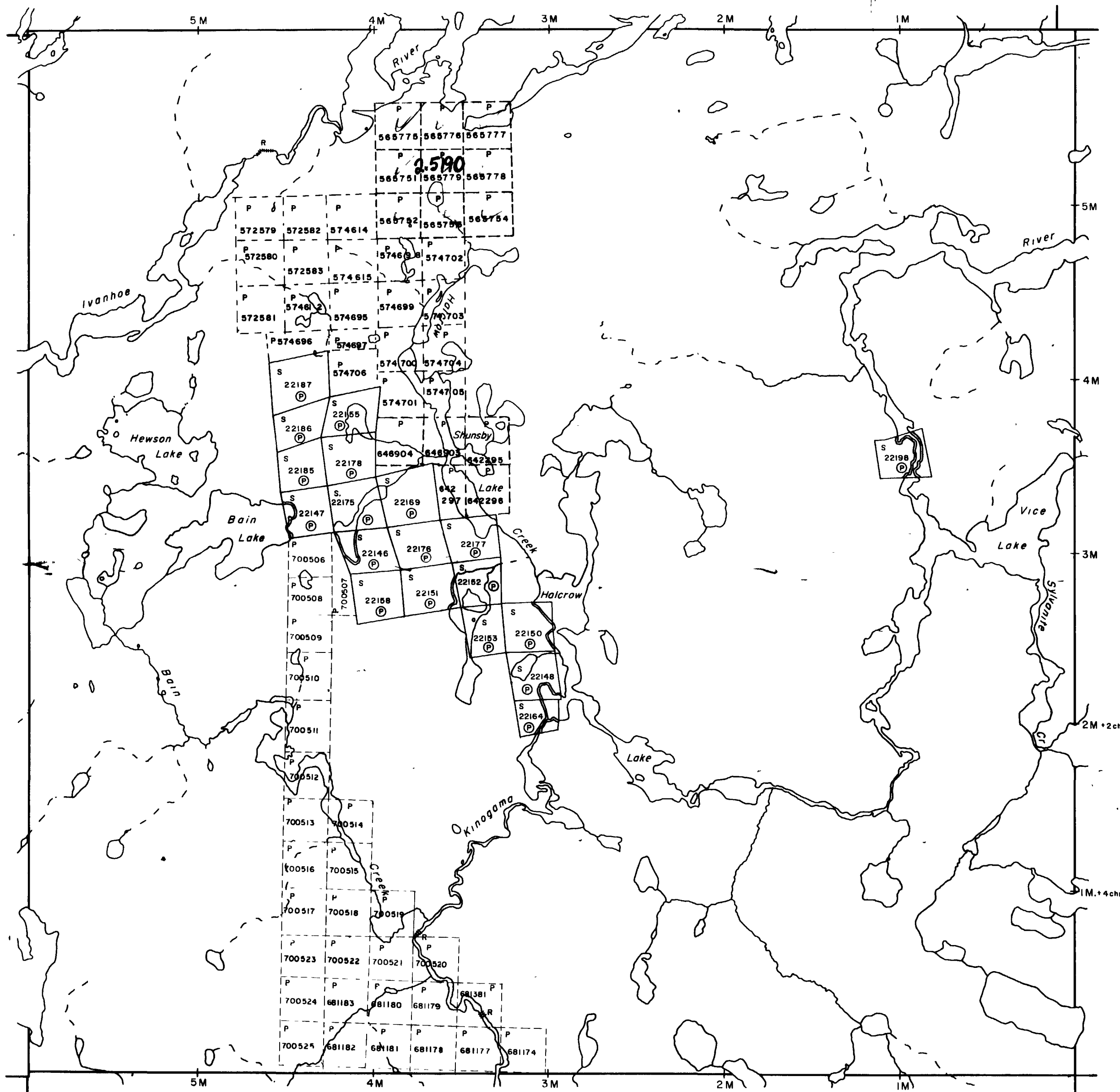
ONTARIO

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

Lackner Twp. - M.975

Denyes Twp. - M.758



Tooms Twp. - M.1159

Crockett Twp. - M.740

THE TOWNSHIP
OF
HALCROW

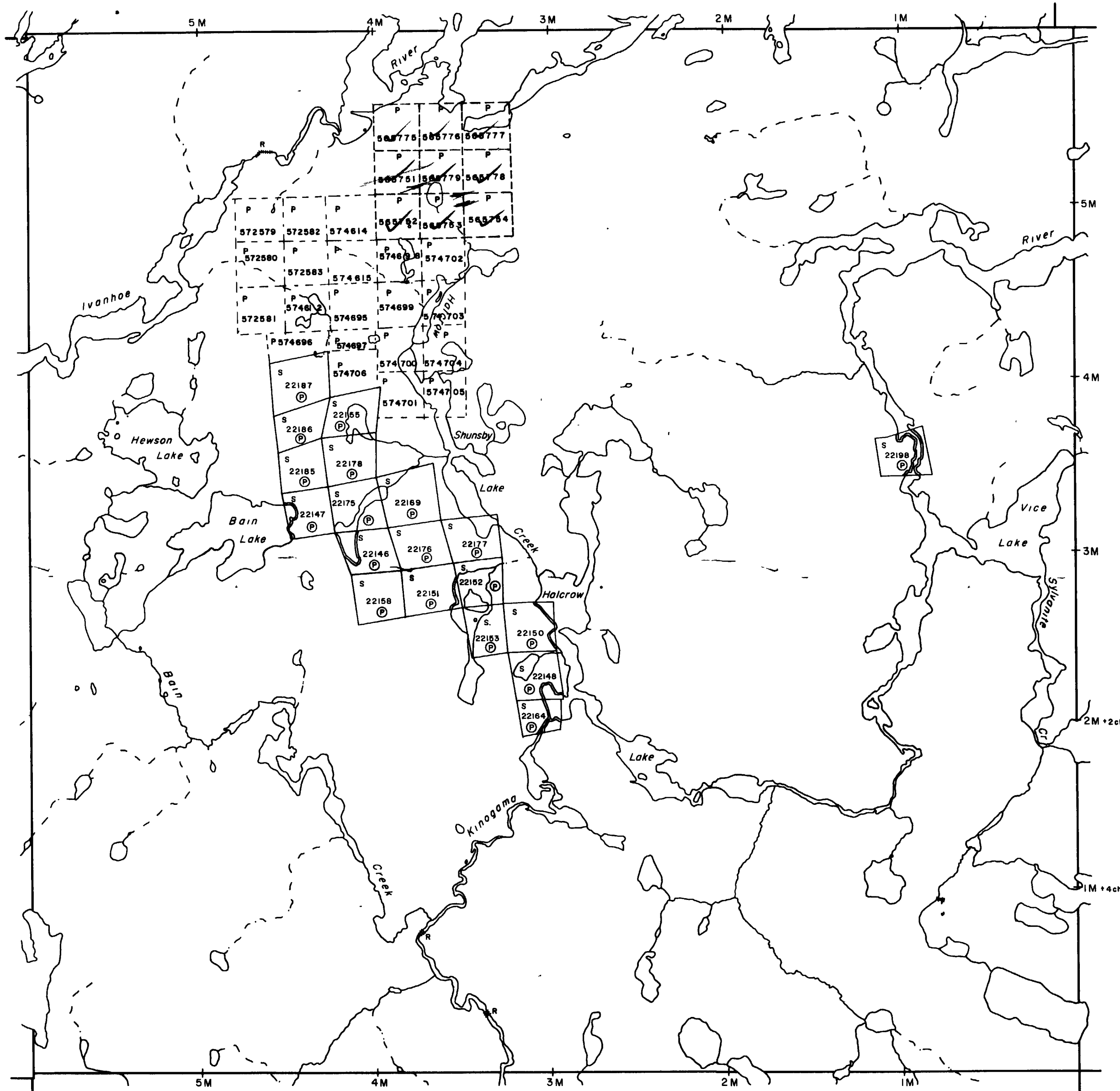
DISTRICT OF
SUDBURY

PORCUPINE
MINING DIVISION

SCALE: 1-INCH 40 CHAINS

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MINES	—
CANCELLED	—

NOTES

400' Surface Rights Reservation around
all lakes and rivers

"MAP 2"

DATE OF ISSUE
MAR - 1 1982
Ministry of Natural Resources
TORONTO

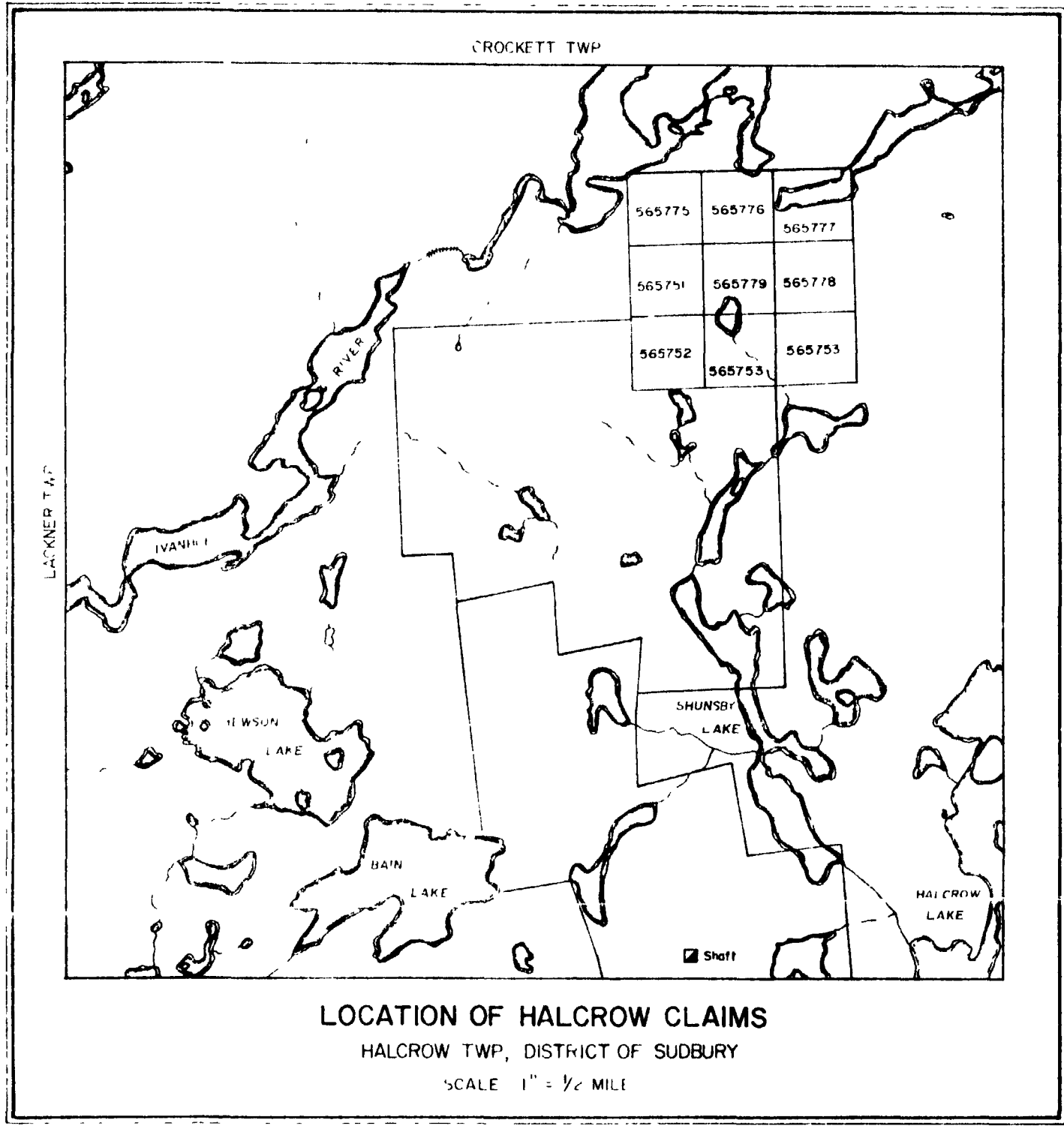
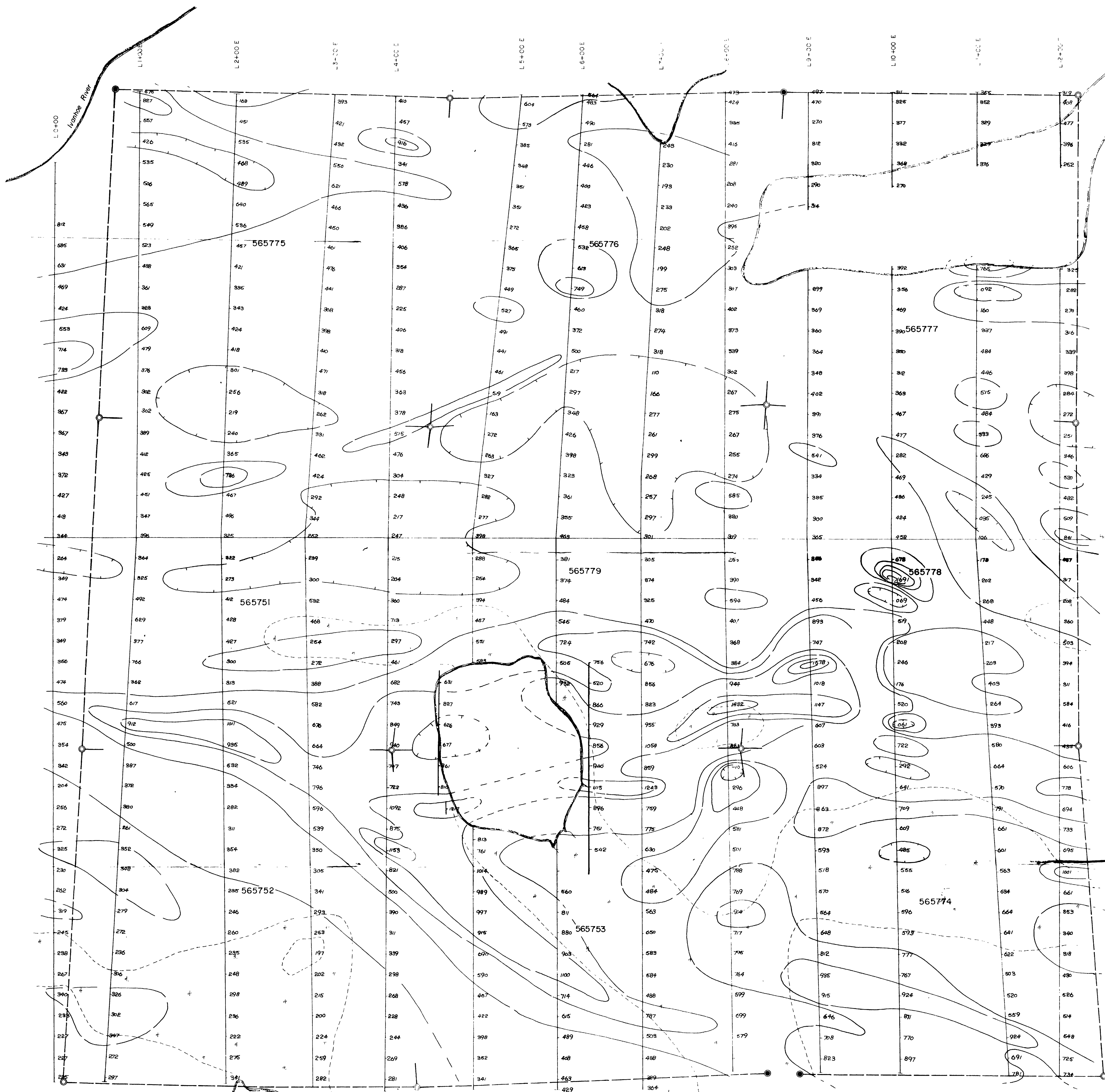
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PLAN NO. **M.906**

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

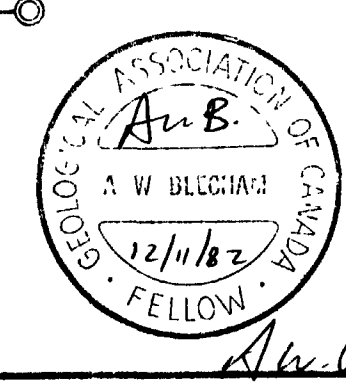
Tooms Twp. - M.1159





Instrumentation: Barringer GM-122
 Base Station Location: L2E, S22SW
 Base Station Value: 59784
 Datum subtracted: 59,000 ft
 Station interval: 25m.
 Personnel: A. Millholland
 Survey date: 21, 25, 27 June 1982.

- EXPLANATION**
- Lake edge
 - Swamp
 - Claim post, located
 - Claim post, unlocated



SULPETRO MINERALS LIMITED

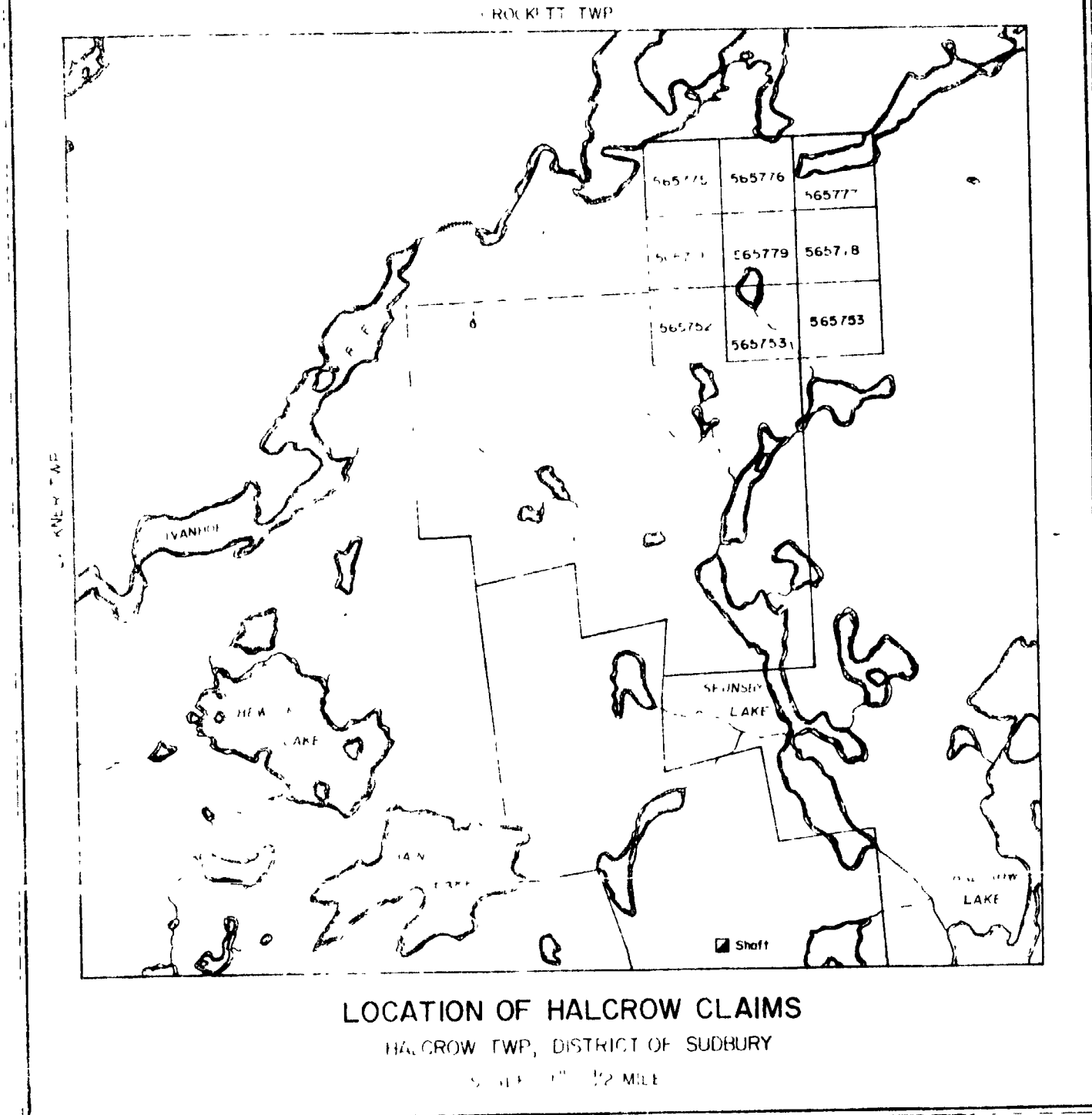
HALCROW CLAIMS Halcrow Twp, Northern Ontario

MAGNETOMETER SURVEY

12,000

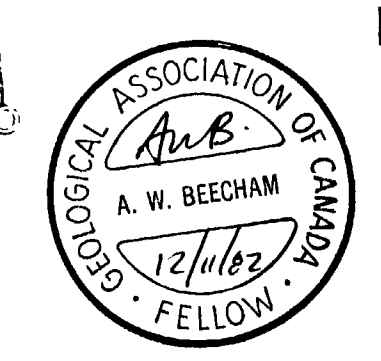
53911	
	41 0/15





Instrumentation: Crone Radem
 Transmitter Station: Cutler, Maine, U.S.A.
 Frequency: 17.8 Hz
 Station Interval: 12.5m
 Contour Interval: 10 units
 Personnel: K. Lai
 Survey Dates: 21, 23, 27 June 1982.

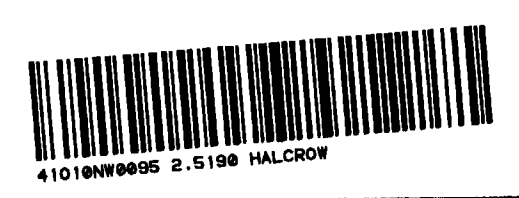
EXPLANATION
 Lake edge
 Swamp
 Claim post, located
 Claim post, unlocated

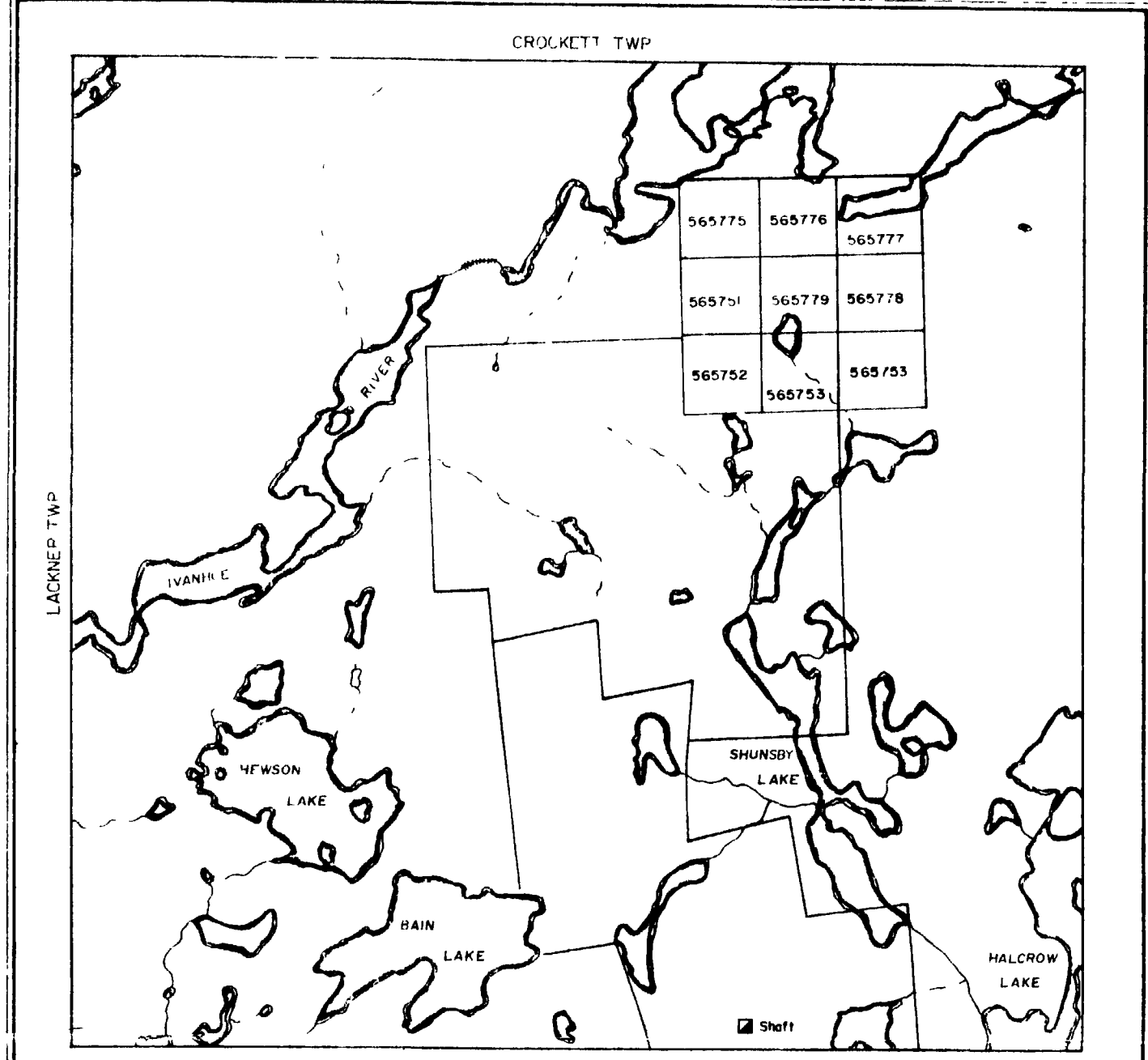


SULPETRO MINERALS LIMITED	
HALCROW CLAIMS Halcrow Twp Northern Ontario	
VLF FRASER PLOT	
1:2,000	55811
	41 12/15

A.W. Beecham

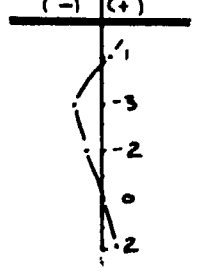
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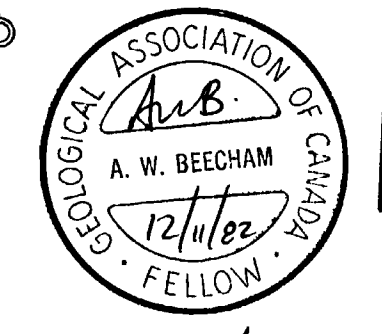


LOCATION OF HALCROW CLAIMS
 HALCROW TWP., DISTRICT OF SUDBURY
 SCALE 1" = 1/2 MILE

Instrumentation: Crone Radem
 Transmitter Station: Cutler, Maine, U.S.A.
 Frequency: 17.8 kHz.
 Line Interval: 100 m.
 Station Interval: 12.5 m. and 25 m.
 Profile Scale: 1 cm. = 10 %
 Personnel: K.Lai
 Survey Dates: June 21-24/27, 1982



- EXPLANATION**
- Lake edge
 - Swamp
 - Claim post, located
 - Claim post, unlocated



SULPETRO MINERALS LIMITED
 A COMPANY OF CANADA

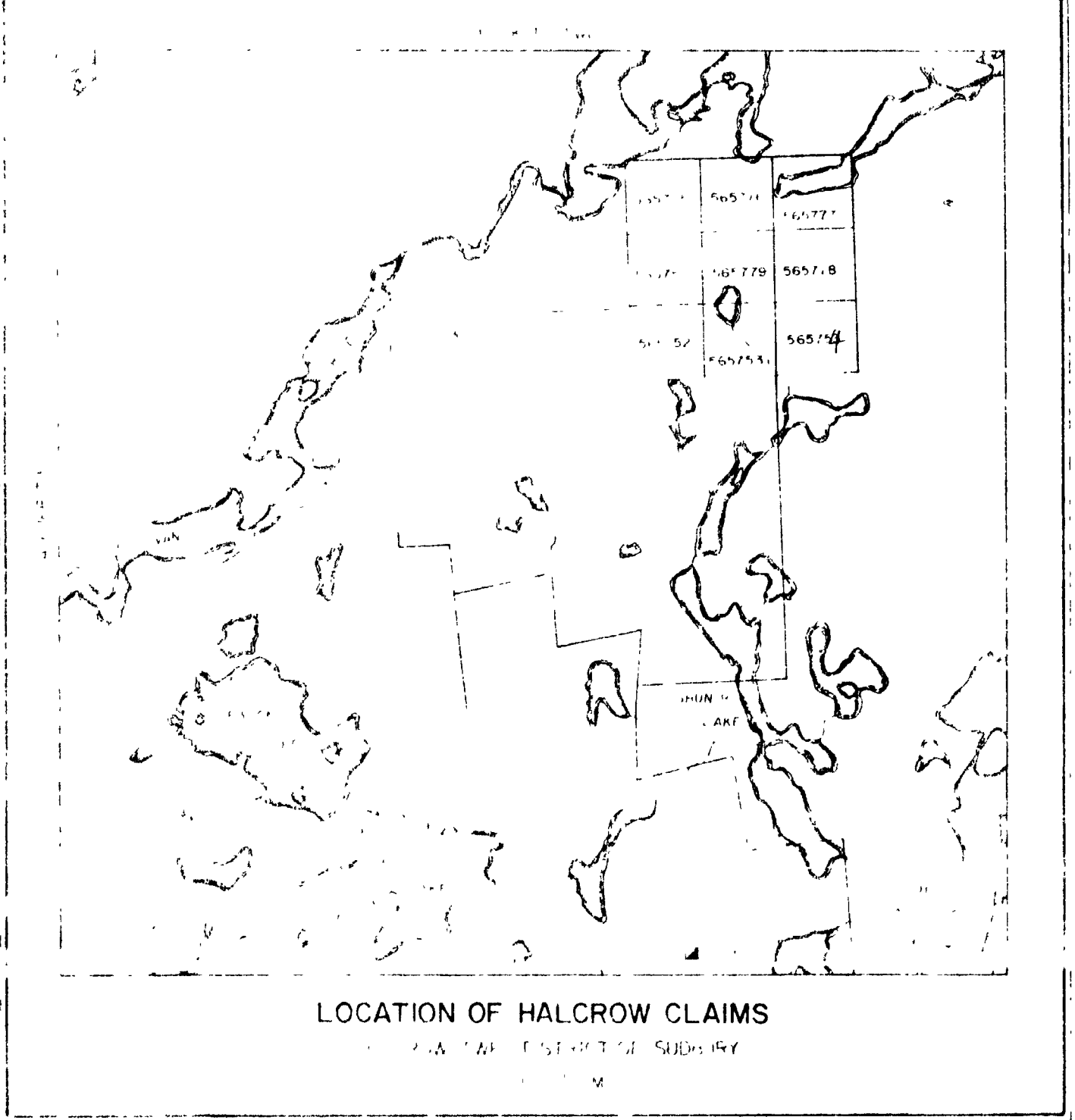
HALCROW CLAIMS Halcrow Twp.
 Northern Ontario

V.L.F. SURVEY - DIP ANGLE

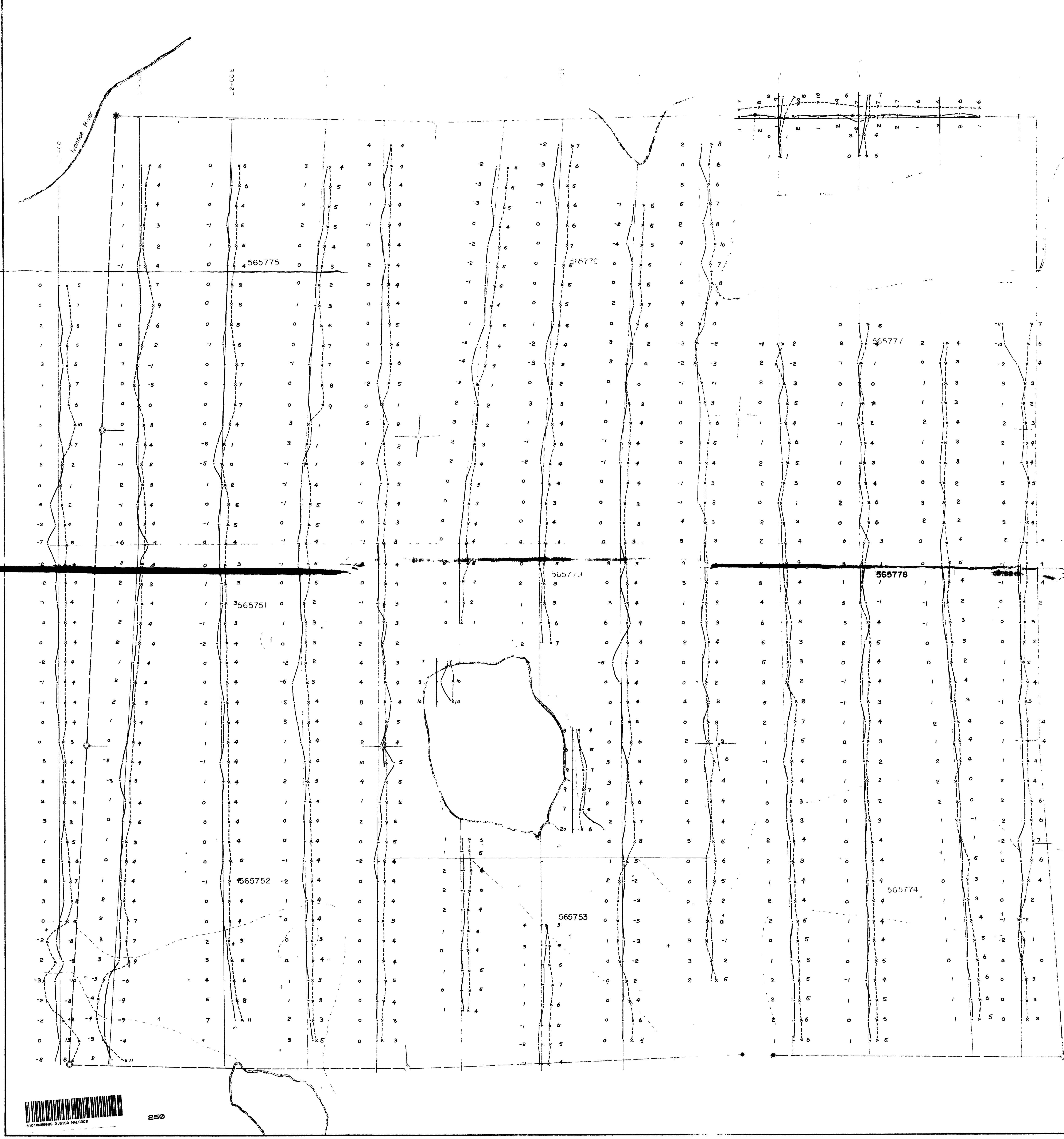
Scale: 1:2,000

APPROVED BY: [Signature]	PROJECT NO. 3381	SHEET NO. 14
DRAWN BY: [Signature]	DATE: [Date]	REVISED BY: [Date]
ENCLAVE	REVISED BY: [Date]	N.S. 41 0/15

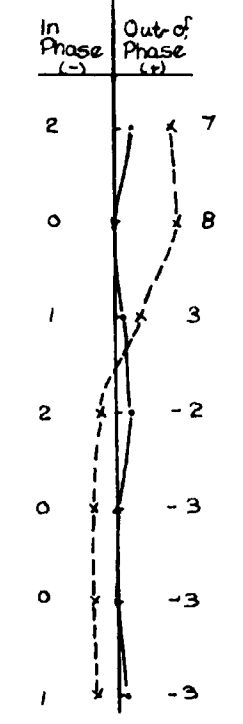
A.W. Beecham



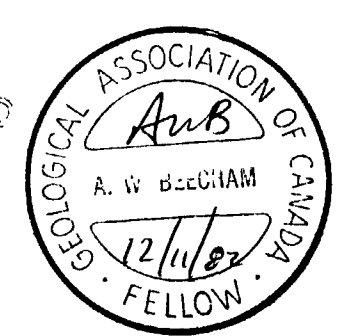
LOCATION OF HALCROW CLAIMS
IN THE TOWNSHIP OF SUDBURY
COUNTY OF HALCROW
PROVINCE OF ONTARIO



Instrumentation: Apex Parametrics Max-Min II
 Frequency: 3555 Hz.
 Coil Separation: 100 m
 Station Interval: 25 m.
 Line Spacing: 100 m.
 Profile Scale: 1cm = 10%
 I.P. _____
 O.P. _____
 Personnel: K.Lai, A.Miholland
 Survey Dates: June 24-26, 1982.



EXPLANATION
 Lake edge
 Swamp
 Claim post, located
 Claim post, unlocated



SULPETRO MINERALS LIMITED

HALCROW CLAIMS Halcrow Twp.
Northern Ontario

H.L.E.M. SURVEY - 3555 Hz.

1:2,000

35611	
41 0/15	

A.W. Barker

