



52J02NE0089 52J02NE0028B1 BECKINGTON LAKE

010

INTRODUCTION

A magnetic survey was completed on the Wellington Group property of Amex Exploration during the third week of April, 1970. An electromagnetic survey was scheduled for the property but was deferred because of poor ice conditions. Picket lines were established on the property during the period March 18th to 24th, 1970.

This survey is part of a project to investigate the Wellington Group for base metal mineralization.

PROPERTY LOCATION AND ACCESS

The property consists of 14 unpatented claims in the Patricia Mining Division designated 226337 to 226347 inclusive and 226350 to 226352 inclusive. Two claims, namely, 226347 and 226350 were not covered by the survey.

On Richan Lake, the property is situated nine miles southwest of Savant Lake, Ontario, which is on the intersection of highway No. 599 and the C.N. railway. Sioux Lookout, Ontario is 64 miles west of the property.

Float or ski-equipped aircraft to Richan Lake provide access to the Wellington Group.

PREVIOUS WORK

The writer is not aware of any previous work which has been reported on the property.

GEOLOGY

The geology of the property is shown on Map No. 2169 by the Ontario Department of Mines. This map indicates that the property is underlain by intrusive and volcanic rocks which strike

generally north. In the west half of the property a mafic intrusive is bounded by mafic volcanic rocks and metamorphosed derivatives. The mafic volcanics are in contact to the east with gneissic and massive felsic intrusive rocks.

The regional geology is presented on the Location Map and the following legend applies:

1. a Mafic metavolcanic rocks and derived schists and gneisses
b Metavolcanic rocks with some metasediments
2. a Felsic metavolcanic tuffs, agglomerates, and flows
3. a Metasedimentary rocks and derived schists
4. a Gabbroic, metagabbroic and metadioritic intrusive rocks
metadioritic
5. a Gneissic to schistose felsic intrusive rocks
b Massive felsic intrusive rocks
6. Syenitic intrusive rocks

MAGNETIC SURVEY RESULTS AND INTERPRETATION

The magnetic survey is shown on a plan at a scale of one inch to four hundred feet accompanying this report. The Appendix at the back of this report describes the survey method and instrumentation.

The isomagnetics on the property show a well defined trend of north 10° west, and the magnetic susceptibilities tend to reflect the geology as shown on Map 2169 by the O.D.M. On the magnetic plan three differing magnetic units are apparent which are described as follows:

Unit A1 - A2

Unit A1 covers most of claims 226340 and 226341. The most westerly sector of the property and unit A2 is located along the base

line in the east half of the property.

These units display similar magnetic characteristics. The magnetic background ranges from 200 to 500 gammas and lenticular magnetic highs and lows trend north 10° west. The most prominent magnetic high extends from Line 0 near the base line to Line 24S, where it continues south beyond the property boundary. This feature peaks at 2,985 gammas. Isolated magnetic lows are located adjacent to this feature, ranging downwards to -295 gammas. This magnetic linear is thought to represent a lean iron formation horizon. Other similar but less well defined anomalies may represent lenses of lean iron formation or magnetite rich phases of the mafic volcanics.

Unit B

This magnetic unit lies between units A1 and A2 and, therefore, occupies that area designated as a mafic intrusive on the O.D.M. map. Here the magnetic background ranges from 200 to 400 gammas. A few lenticular magnetic lows, poorly defined by their magnetic gradient, display a north trend.

Unit C

This unit, along the east boundary of the property is characterized by a magnetic background ranging from 250 to 500 gammas, a general northerly trend of the isomagnetics, and no prominent anomalous areas. This unit occupies an area designated granite on the O.D.M. plan.

CONCLUSIONS AND RECOMMENDATIONS

The magnetic survey reflects the geology of the Wellington Group as shown by Map No. 2169 by the Ontario Department of Mines.



52J02NE0089 52J02NE002881 BECKINGTON LAKE

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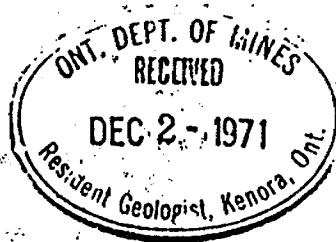
PROJECTS SECTION
TORONTO

R	E	C	I	V	E	D
DEC. 3 1970						
AM	7	8	9	10	11	12
	1	2	3	4	5	6
PM						

REPORT ON
AIRBORNE GEOPHYSICAL SURVEY
STURGEON LAKE AREA, ONTARIO
ON BEHALF OF
McCRAE MINING LIMITED

by

Jan Klein, M.S., P. Eng.,
Geophysicist



TORONTO, Ontario

April 1970

52J02NE0089 52J02NE0026B1 BECKINGTON LAKE

020C

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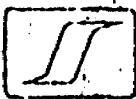
Figure 1 - Location Map
Figure 2 - Claim Map

Table 1 - Claim Numbers
Table 2 - Electromagnetic Anomalies

Plate 1 - Airborne Geophysical Survey,
Sturgeon Lake Area, Ontario,
Scale: 1" = 1320 ft.

Appendix 'A'

Reference: 70-9270-01



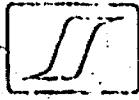
SUMMARY.

An airborne electromagnetic and magnetic survey was executed over a block of 54 claims in the Sturgeon Lake area, Ontario.

Forty-six line miles of survey cover the 3.3 square miles of claim block.

Three isolated conductors of up to 60 ppm in-phase were encountered.

Recommendations for ground investigation concerning the observed conductors have been made.



REPORT ON AIRBORNE GEOPHYSICAL SURVEY
STURGEON LAKE AREA, ONTARIO
ON BEHALF OF
McCRAE MINING LIMITED.

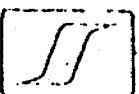
INTRODUCTION

During March 17th and 18th, 1970, airborne geophysical surveys were conducted over a block of claims in the Sturgeon Lake area, Patricia Mining Division, Ontario, by Seigel Associates Limited on behalf of McCrae Mining Limited. The survey of 46 line miles was conducted out of Sioux Lookout.

The survey area is centred approximately $90^{\circ}35'W$ and $50^{\circ}10'N$ (see figure 1 on the scale of $1'' = 250,000$). The claims covered are shown on figure 2 on the scale of $1'' = 2640'$ and listed on Table 1. The 54 claims cover approximately 3.3 square miles. The outline of claim group is also marked on the plates showing the results of the survey.

The airborne surveys included electromagnetic and magnetic measurements. The geophysical equipment used for these measurements was respectively a Rio-Mullard type in-phase and out-of-phase electromagnetic system operating at 320 c.p.s., and a Gulf Mark III total field fluxgate magnetometer.

Appendix A attached gives full details of the airborne geophysical equipment and the ancillary equipment employed as well as the treatment of data resulting from these surveys. In the case of the present surveys, the De Havilland Otter aircraft (CF-IUZ), owned by Scintrex Limited, Toronto, was employed as the basic transport vehicle.



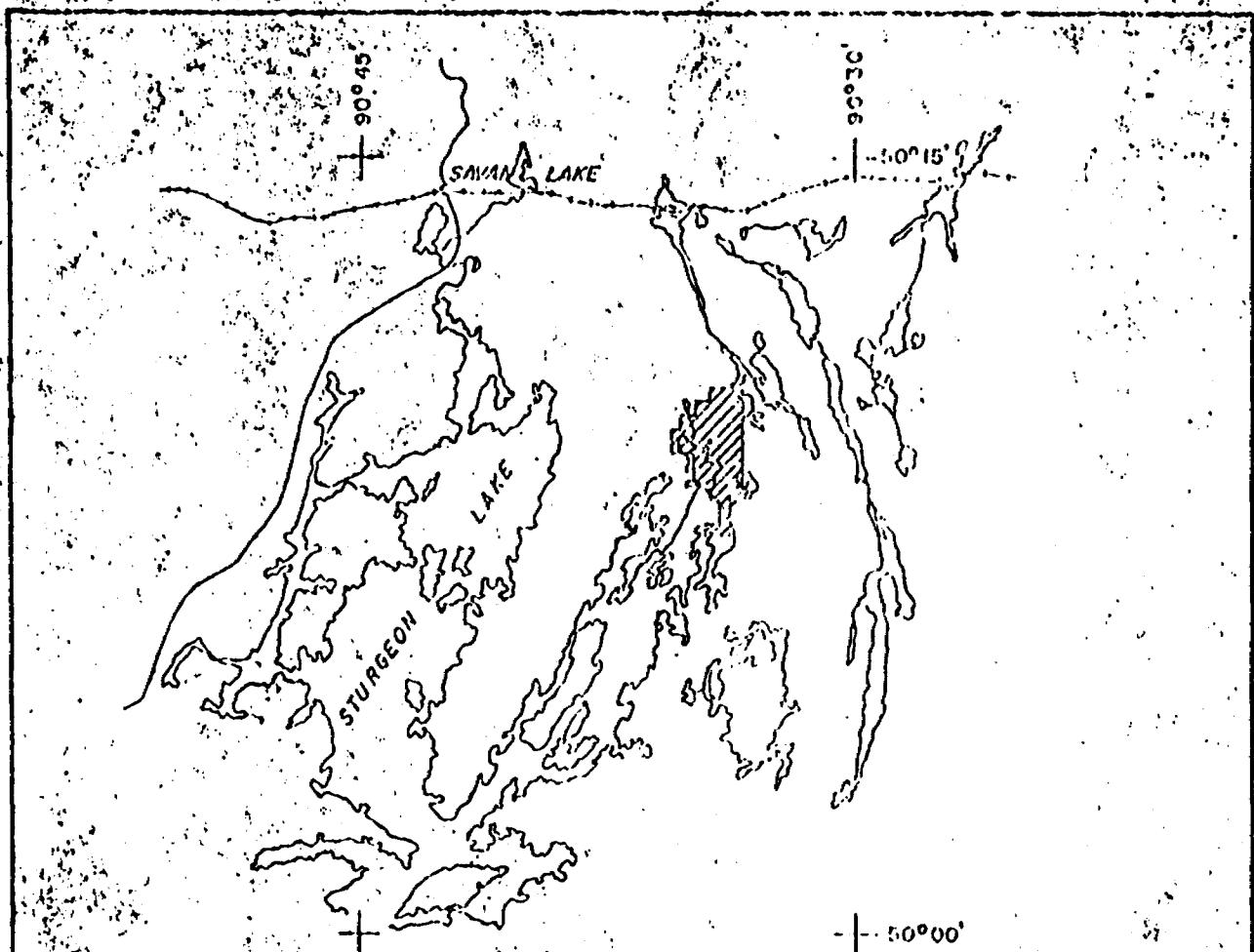


FIGURE 1

LOCATION MAP

MCCRAE MINING LIMITED

STURGEON LAKE AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

SCALE 1:250,000

10 km 10 mi

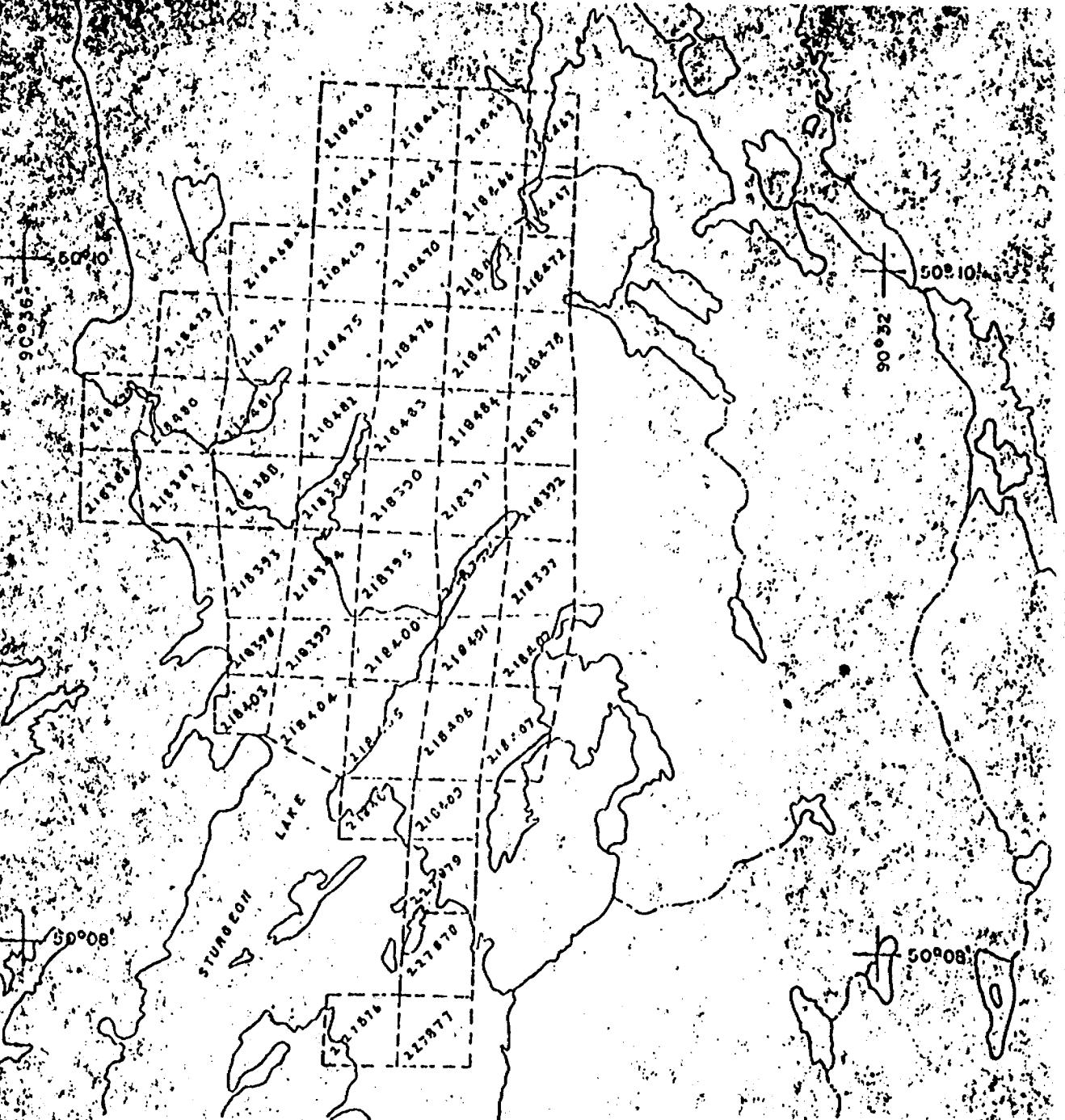


FIGURE : 2

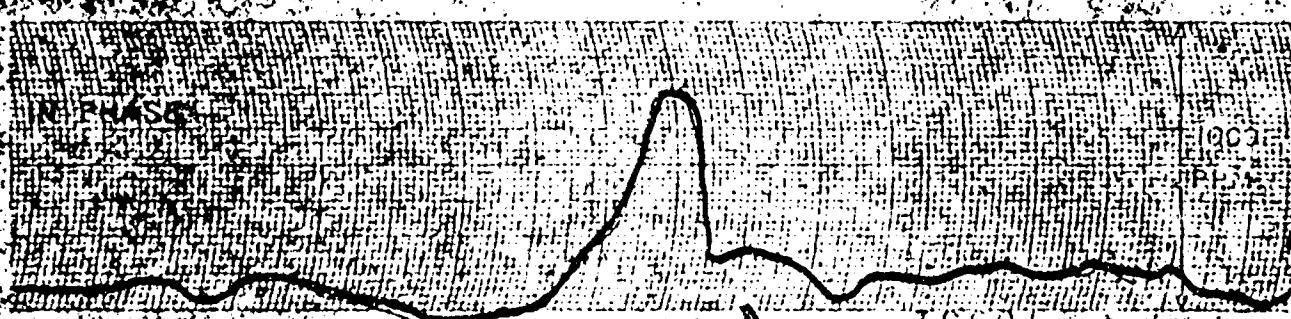
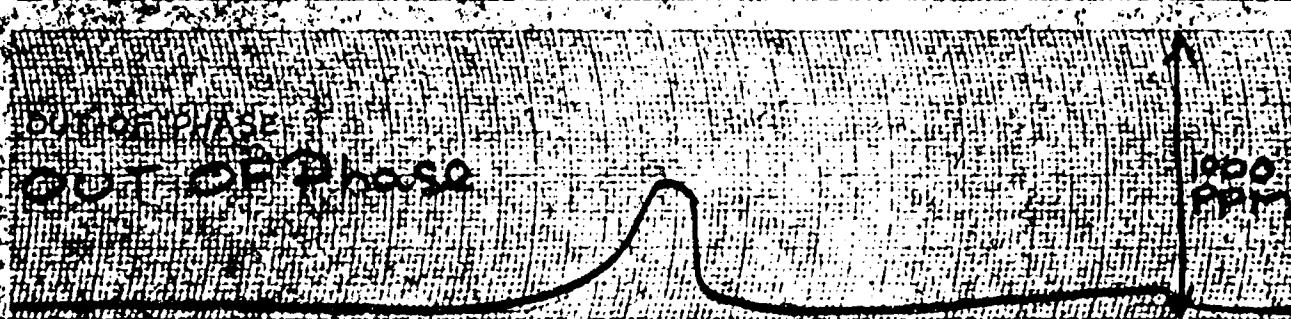
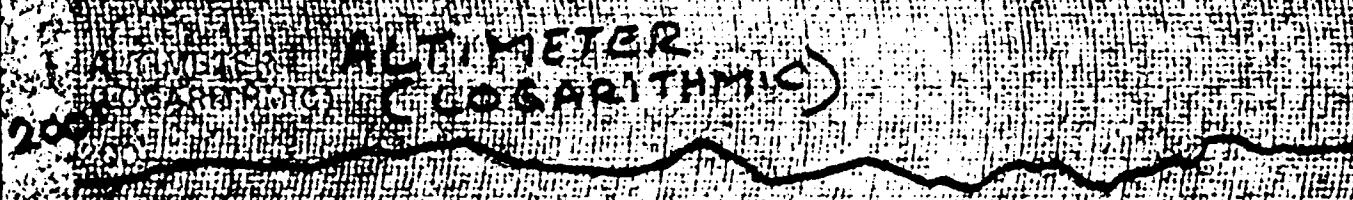
McCRAE MINING LIMITED

STURGEON LAKE AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

CLAIM MAP

SCALE: 1" = 2640'



The airborne geophysical survey lines were flown north-south at a 100' line interval. One control line was flown at approximately right angles to the main traverse direction. The survey was flown at a mean altitude of 150' and an average airspeed of 90 miles per hour. In-flight navigation and flight path recovery were based upon mozaics having a scale of $1'' = 1320'$.

The purpose of the electromagnetic surveys was to map the distribution of the subsurface conductors in the area covered. The purpose of the magnetometer survey was to obtain information concerning the structure and distribution of different rock types in general and to correlate with the conductors.

GEOLOGY

The geology of the area is shown on O.D.M. Geological Compilation Series Map 2169, Sioux Lookout - Armstrong Sheet (scale: 1" = 4 miles).

The area is underlain by mafic and felsic metavolcanics. Some gabbros and granitic rocks are exposed as well. A "gold-showing" is mapped in the neighbourhood of claims 28041, 218405, and 218406.

PRESENTATION OF DATA

Electromagnetic results and the magnetic contours are presented on Plate 1 on the scale of $1'' = 1320'$, together with the flight lines and boundary of the survey area. The magnetic contour interval is 2.5 gammas.

The peak location of the electromagnetic anomalies is shown by a circle in the appropriate location. (In the case of broad conductors or closely spaced multiple conductor zones there may be more than one peak, in which event, all major peaks are shown.) The conductor half width is indicated on



the plan by an open bar, it is the distance between the points of half the maximum conductor disturbance. This half width in the event the conductor is a steeply dipping body, is a measure of the depth to the top of the conductor underneath the surface. The in-phase and out-of-phase amplitudes are scaled from the original traces and noted in parts per million opposite the peak location. Conductor intersections are graded in electrical Categories 1, 2 and 3, based on the in-phase amplitude but taking into consideration the terrain clearance.

Category 1	IP/OP > 2	IP > 300 ppm
Category 2	IP/OP > 1	IP > 100 ppm
Category 3	IP/OP < 1	IP < 100 ppm

The respective peak circles are shaded to reflect their category, with category 1 fully shaded, category 2 half shaded and category 3 unshaded. The ratio of peak in-phase over peak out-of-phase amplitudes is indicative of a conductivity-size factor for the conductor. Generally, high conducting bodies such as massive sulphides or graphite and sea-water, etc., have high ratios. Moderate conductivity-size bodies (e.g. most overburden and some sulphide and graphitic zones) will have lower ratios. In areas where there is a clear differentiation in conductivity between targets of potential economic interest and other possible conductors, the ratio is a diagnostic feature. In some areas, however, there is an overlap of conductivity ranges and then the ratio cannot be too rigidly relied upon.

A conductor peak with apparently direct magnetic correlation will be indicated by a double concentric circle. Although a conducting body which is appreciably magnetic is more likely to be a sulphide body than one which is non-magnetic, there are many very important base metal ore bodies which are quite non-magnetic.



The original geophysical traces are on the following scale:

Edin Recorder (from top to bottom of chart)

1st channel		
2nd channel		
3rd channel	Magnetometer	30 gammas,
4th channel	Noise Indicator	
5th channel	Altimeter channel	Logarithmic
6th channel	Electromagnetic out-of-phase	25 ppm/mm
7th channel	Electromagnetic in-phase	25 ppm/mm
8th channel	Accelerometer channel	
9th channel	Fiducial marker	

Moseley Recorder

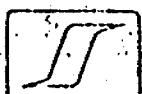
1" = 200 gammas

Fiducial markers at the bottom of the chart.

DESCRIPTION OF RESULTS AND RECOMMENDATIONS

The magnetic results show a north-northwest trending dyke-like high (marked A on Plate 1) of up to 400 gammas, which coincides with the granitic-intrusive as shown on the geological map. To the northeast of this dyke a magnetic pattern of low relief occurs. To the west of the dyke a definite northwest to north-northwesterly trend in the magnetic pattern occurs.

Three conductor intersections are revealed; all three are third category, two of these occur directly outside the survey boundary. Table 2 gives all relevant information on these conductors. The conductors revealed are all of low amplitude (less than 60 ppm IP). Test flights with the Rio-Mullard system over the recently discovered Mattagami Lake-Abitibi ore body, occurring only several miles away from the survey area, revealed amplitudes up to 600 ppm IP (see figure 3). In general weak anomalies as revealed during this survey are not found to be of great significance when checked on the ground.



If it is decided however, to examine the conductors on the ground, a combination of survey techniques of small grids comprising magnetic and electromagnetic (dip angle) measurement is recommended.

Respectfully submitted,

Jan Klein, M.Sc., P.Eng.
Geophysicist

SEIGEL ASSOCIATES LIMITED

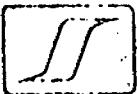


TABLE 1 - CLAIM NUMBERS

218460	218390
218461	218391
218462	218392
218463	218393
218464	218394
218465	218395
218466	218396
218467	218397
218468	218398
218469	218399
218470	218400
218471	218401
218472	218402
218473	218403
218474	218404
218475	218405
218476	218406
218477	218407
218478	218408
218479	218409
218480	227879
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218488	
218489	

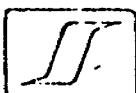


TABLE 2 - AIRBORNE ELECTROMAGNETIC ANOMALIES

<u>Location</u>	<u>Amplitude</u>	<u>Category</u>	<u>Remarks</u>
A172	40/20	3	In lake near shore, outside the boundary.
A177	60/20	3	In lake near shore, outside the boundary.
A136	50/20	3	Near contact between metavolcanic and granitic intrusion.

APPENDIX A

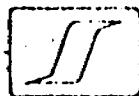
SURVEY EQUIPMENT AND PROCEDURES

Aircraft:

The aircraft used in the present survey is a De Havilland Otter DHC-5 with Canadian registration CF-JUZ. This aircraft is a single engine, slow speed high performance type with a gross weight of 8000 lbs. It may be equipped with wheels, skis or floats as required.

The aircrew consists of pilot, navigator and equipment operator. The aircraft is flown along the proposed lines at an altitude of 150-200 feet using mosaics for navigation.

The operator records in the flight log, the line numbers, direction of flight, duration of flight and starting and finishing fiducial numbers.



Electromagnetic System - Rio-Millard Type

The Rio-Millard Electromagnetic System measures in-phase and out-of-phase components of the secondary field at a frequency of 320 Hz.

A transmitter generates a closely controlled sine wave of 320 Hz which is amplified and fed to a transmitting coil mounted on the starboard wing-tip. This coil is iron cored, has vertical windings and is mounted with its axis in the direction of flight. The circulating coil power is 7500 volt-amperes.

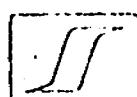
A receiving coil is mounted on the port wing, coplanar with, and 62 feet from, the transmitting coil. The voltage developed in the receiver coil due to the transmitted field is 100 millivolts. In the absence of external conductors, this voltage is cancelled by a reference voltage derived directly from the transmitter voltage.

When the aircraft comes within the range of a conductor, the normal (or primary) field is changed by a secondary field and the resultant voltage at the receiver coil is amplified and passed on to the EM receiver in the aircraft. This signal is filtered and split into one component in-phase and one component out-of-phase with reference to the transmitter voltage. The signals are then passed through phase-sensitive detectors where their amplitudes may be read on meters, or recorded on a chart. A system of calibration is included so that the amplitude of responses (anomalies) may be determined in "parts per million" of the primary receiver coil voltage prior to cancellation. The noise level of the system due to movement of the metal aircraft within the EM field is normally 50 parts per million or less. Significant conductors depending on distance and size will produce anomalies of more than 50 parts per million.

Calibration marks are shown on the eight-channel chart (see below) and are generally of the order of 1 cm for 300 parts per million.

Any anomalies noted are listed in the report, indicating their position, amplitudes, magnetic correlation, if any, relative anomaly rating, and comments which may be of significance.

The anomalies are then plotted on a base map in coded form, according to a legend shown on the base map. Anomaly groups which reflect probable ground conductors are circled and numbered. These are described and discussed in the report in the context of their geophysical and where possible, geological significance.



GULF TYPE MARK III SATURABLE CORE MAGNETOMETER

Type: Fluxgate, saturable core, measuring total magnetic intensity

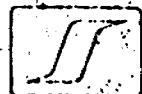
Installation: Tail Stinger

Recorder: Dual channel Mosley rectilinear recorder with a 10" chart width.

Sensitivity: Possible recorder settings of 300, 600, 1200 and 2400 gammas for 10 inch deflection.

Response: Maximum speed of response varies with sensitivity, averaging better than .8 seconds for 10 inch deflection.

Operating Specifications: The record shall be readable at one gamma and the noise envelope shall not exceed four gammas, except for interference from magnetic fields which we cannot reasonably prevent from approaching the detector.



Altimeter:

The altitude of the aircraft is monitored to an accuracy of ± 10 feet using a Bonzer Model TRN-70 radio altimeter at 1600 MHz. The altimeter results are recorded permanently on one channel of the eight channel recorder.

Camera:

The path recovery camera is an Automax 35 mm unit with a special wide angle lens. Its operation is controlled by an intervalometer whereby one frame is triggered for each fiducial number. The camera is thus synchronized with the Edin and Moseley recorders.

Intervalometer:

The intervalometer is a Scintrex Model IV-1 Solid State unit with variable time interval from 0.5 to 2 seconds. It operates the marker pens on the two recorders, the frame camera, and a rotary counter. The repetition rate is set so that the camera frames produce only slight overlap. This is approximately once per second.

Recorders:

The Edin recorder is an eight-channel ink recorder type 8001. The galvanometer sensitivities are 12 volts full scale into 1350 ohms. The scale on each channel is four centimetres in width and the normal recording speed is 2 millimetres per second. The horizontal scale on the chart is thus roughly 4 $\frac{1}{2}$ per mile of traverse.

The Moseley recorder is a single channel ink recorder type 680. This recorder is used to register the magnetic information.



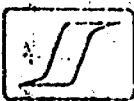
Reduction of Data:

Upon completion of a flight, the film is developed and the actual path of the aircraft is plotted on a base map. This is accomplished by comparing film points with the base map planimetry. For any given point, the appropriate fiducial number is placed on the base map (or photo laydown). The actual flight path is produced by joining the fiducial points.

Where field results are desired, anomalies are chosen and are assigned appropriate fiducial numbers. The anomalies are then transferred to their correct position on the base map.

Flight lines and fiducial numbers are finally presented on a greyscale which is made using the photo mosaic as a base.

In the case of EM or radiometric results the anomalies are plotted on the greyscale as boxes with symbols representing anomaly grade or amplitude (as noted on the legend accompanying each map). Anomaly "systems" are then outlined at which stage a geophysical interpretation can be made.



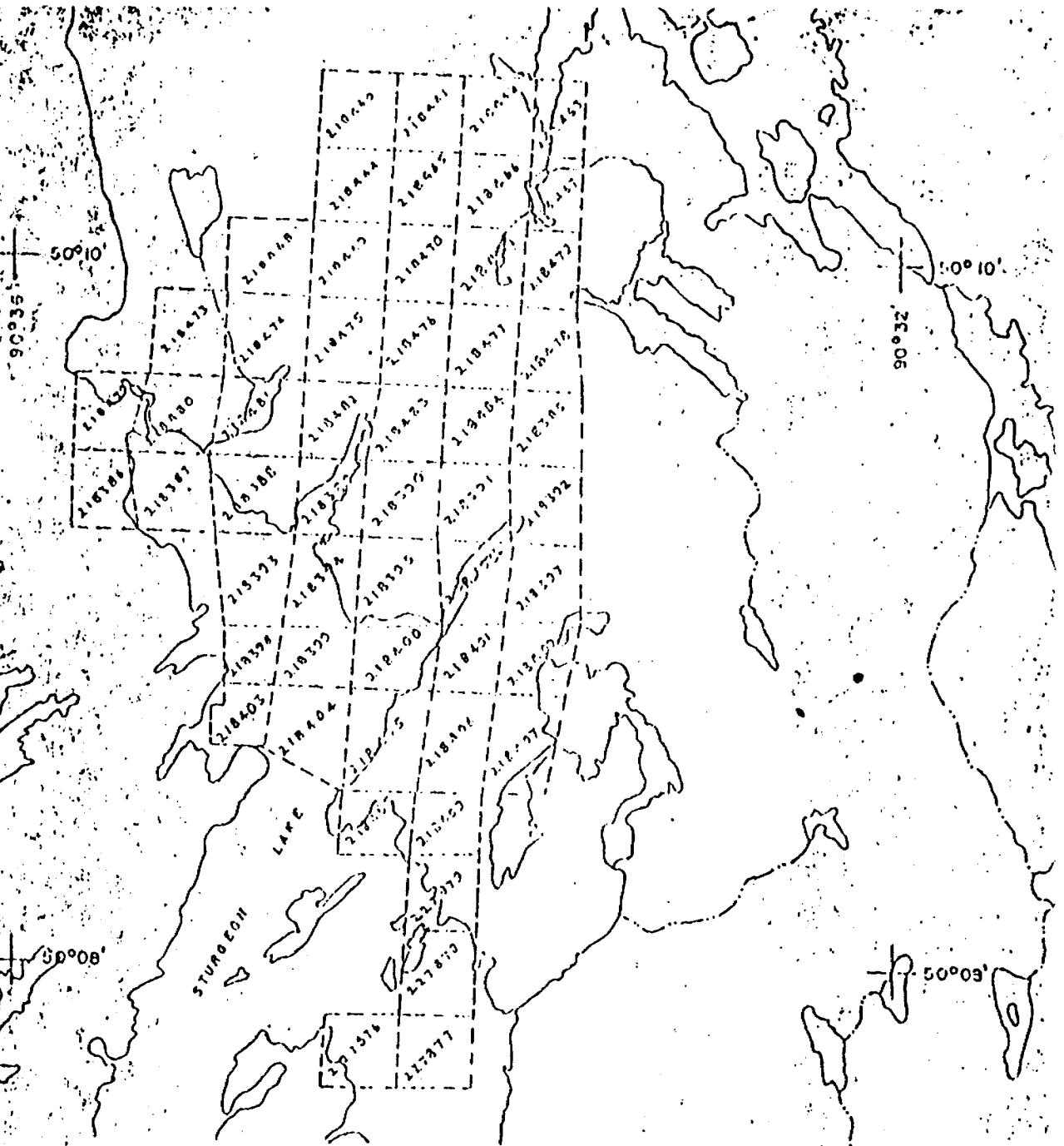


FIGURE 2

McCRAE MINING LIMITED

STURGEON LAKE AREA, ONTARIO

AIRBORNE GEOPHYSICAL SURVEY

CLAIM MAP

SCALE: 1"=2640'



52J02NE0089 52J02NE0028B1 BECKINGTON LAKE

900



PROJECTS SECTION

DEPARTMENT OF MINES AND NORTHERN AFFAIRS

FILE: 2.253

TECHNICAL ASSESSMENT WORK CREDITS

Recorder Holder .. McRae Mining Corporation Limited

Surveyor's Area .. Beckington Lake

Type of Survey and number of Assessment Days Credits per claim	Mining Claims
GEOPHYSICAL	
Magnetometer 33	PA. 218385 to 409 inclusive
Electromagnetic 33	218460 to 84 "
Radioactive days	227876 to 79 "
.....
GEOLOGICAL.....days
GEOCHEMICALdays	
Man days <input type="checkbox"/>	Ground <input type="checkbox"/>
Special Provision <input type="checkbox"/>	Airborne <input checked="" type="checkbox"/>
NOTICE OF INTENT TO BE ISSUED	
<input 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.	
<input type="checkbox"/> NO CREDITS have been allowed for the following mining claims as they were not sufficiently covered by the survey:	
<hr/> <hr/> <hr/> <hr/>	

NOTE: -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 - 10;

ASSESSMENT WORK BREAKDOWN

1. FIELD WORK

Type of Work

Name & Address

Dates Worked

Number of
8 hour days

Auborne Survey Seigel Assoc. Ltd. March 17 & 18/70

2. CONSULTANTS

Name & Address

Dates Worked (specify in field or office)

Number of
8 hour days

DRAUGHTSMAN, TYPING, OTHERS (specify)

Name & Address

Type of Work

Dates Worked

Number of
8 hour days

TOTAL 8 HOUR TECHNICAL DAYS

4. LINE-CUTTING

Name _____

Address

Dates Worked

Number of
8 hour days

TOTAL 8 HOUR LINE-CUTTING DAYS

DAY TIMER

time Saver

LETTER

IN REFERENCE TO

AIRMAIL FIRST CLASS MAIL INTER-OFFICE

FOR

John G. Matthews

Minerals Section Ontario Dept of M.N.R.

Queens Park Toronto

HOW TO USE THIS

DAY TIMER
time Saver LETTER TO SAVE TIME.

Type or write your reply in the space below. Then mail the white copy to us and keep the pink copy for your files. You'll save time and effort, and we'll have your answer much faster! Thank you.

MESSAGE

DATE:

Nov 1 1971

from File 2.223

Sorry for the delay - I have not
been able to get Mc Rae Mining to cut
the file to get Mc Rae Mining to cut
no one signing off. We suggest you suggested
so I am signing the maps as you suggested.

SIGNED:

John Stoddard

REPLY

DATE:

DEC 5 1971

Minerals Section
Ontario Dept of Mines

T. R. C. L. C.
Queens Park

Projects Section (?)

SIGNED:

REORDER FORM NO. 7012N, DAYTIMERS OF CANADA, LTD., 109 VANDERHOOF AVE., TORONTO 17, ONTARIO

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DEPARTMENT OF MINES AND NORTHERN AFFAIRS
MINING LANDS BRANCH

2.253

WHITNEY BLOCK
QUEEN'S PARK
TORONTO 1R2 ONT

November 29, 1971

Mr. W. A. Buchan,
Mining Recorder,
Court House,
Sioux Lookout, Ontario.

Dear Sir:

Re: Mining Claims Pa. 218385 et al,
Beckington Lake Area, File 2.253

The Airborne Geophysical (Magnetometer and Electromagnetic) assessment work credits as shown on the attached list have been approved as of the date above. Please inform the recorded holder and so indicate on your records.

Yours very truly,

Fred W. Matthews,
Supervisor
Projects Section

encl.

oj/mw

cc: Mr. Tom Gledhill,
21 Sandalwood Place,
Don Mills, Ontario.

cc: McRae Mining Corporation Ltd.,
c/o Campbell, Godfrey & Lewtas,
P.O. Box 36,
Toronto-Dominion Tower,
Toronto, Ontario.

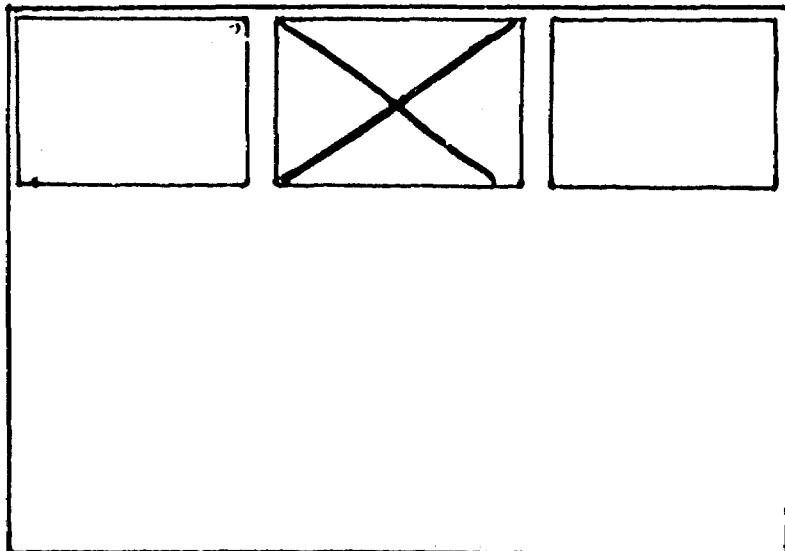
cc: Resident Geologist, ✓
Kenora, Ontario.

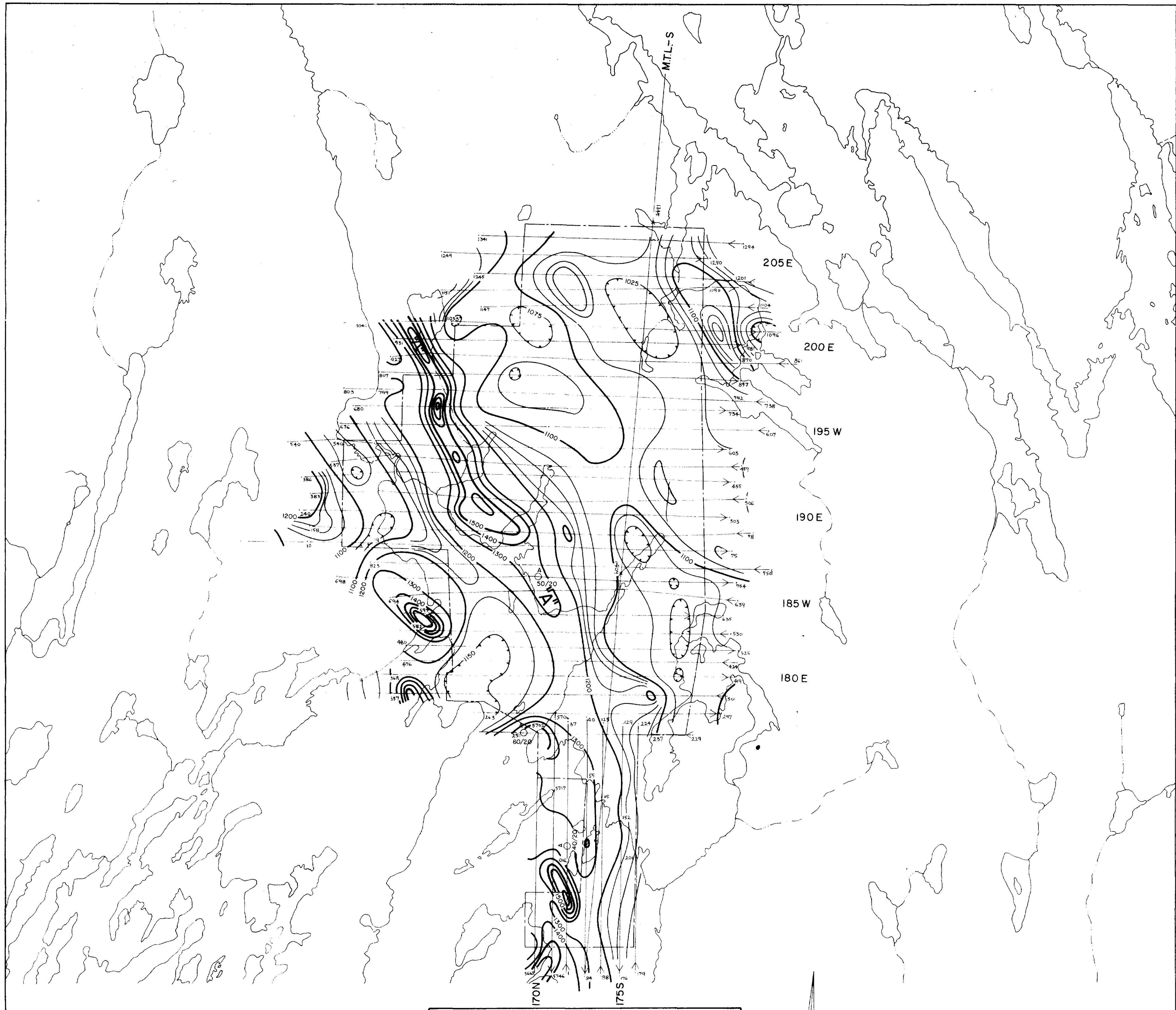
**SEE ACCOMPANYING
MAP(S) IDENTIFIED AS**

525/02 NE-0028-B1 # 1

**LOCATED IN THE MAP
CHANNEL IN THE
FOLLOWING SEQUENCE**

(X)





ELECTROMAGNETIC ANOMALY PLAN

LEGEND.

34W < 4 FLIGHT LINE NUMBER DIRECTION AND NUMBERED CONTROL POINT
● 1ST CATEGORY ANOMALY
● 2ND CATEGORY ANOMALY
○ 3RD CATEGORY ANOMALY
AEM ANOMALY WITH MAGNETIC CORRELATION
72PPM 12PPM Magnetic Correlation
72/12/100 IN PHASE / OUT OF PHASE / AMPLITUDE IN GAMMAS
C (2) ANOMALY EXTENT (HALF-WIDTH) AND PEAK LOCATION

MAGNETOMETER CONTOUR PLAN

LEGEND

34 W ← 60
FLIGHT LINE NUMBER, DIRECTION AND NUMBERED CONTROL POINT
 500 GAMMA ISOMAGNETIC CONTOUR INTERVAL.
 100 GAMMA ISOMAGNETIC CONTOUR INTERVAL.
 25 GAMMA ISOMAGNETIC CONTOUR INTERVAL.
 MAGNETIC LOW
BASE VALUE 59,000 GAMMAS

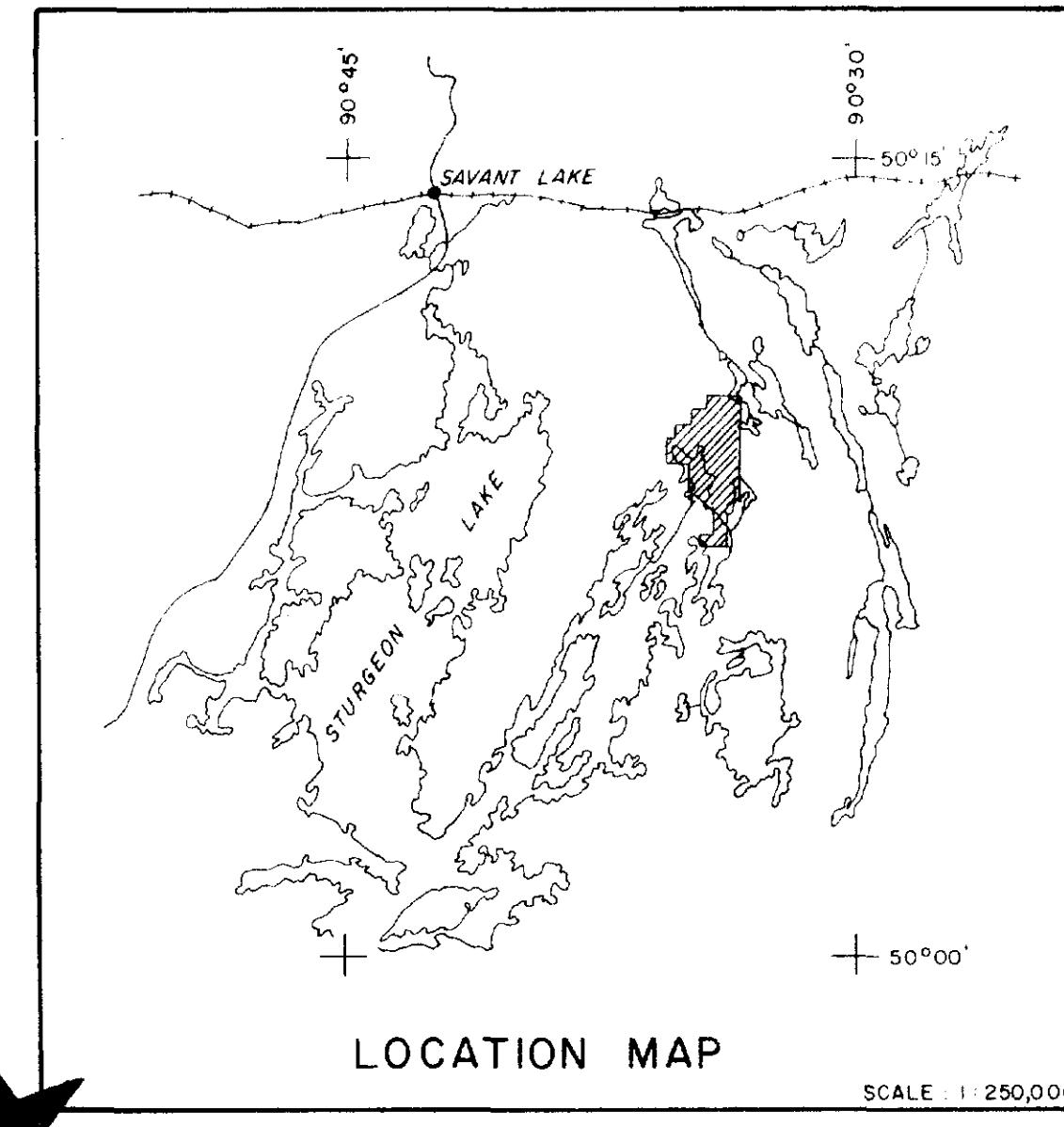


PLATE I

McCRAE MINING LIMITED

STURGEON LAKE AREA, ONTARIO.

AIRBORNE GEOPHYSICAL SURVEY

SCALE : 1" \approx 1320'

SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED MARCH - APRIL 1970

FLIGHT ALTITUDE \approx 150'
FLIGHT LINE SPACING \approx 400'

