

2J025E8667 2.10183 SQUAW LAKE

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#### REPORT

ON

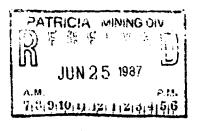
A MAGNETIC SURVEY

### RECEIVED

1997

MILLING LANDS SECTION

KURYLIW-STURGEON LAKE OZ ISLAND-KING BAY CLAIM GROUPS DISTRICT OF PATRICIA, ONTARIO



May 30, 1987

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Chester J. Kuryliw, M.Sc., P.Eng. Consulting Geologist



52,02588667 2.10183 SQUAW LAKE

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Title Page Property, Location and Access Introduction General Geology Table of Formations Structural Geology Local Geology Instrument, Unit and Method Results of Magnetic Survey Conclusions Recommendations Certificate

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#### THE PROPERTY

The Kuryliw claim blocks consists of two separate groups i mile apart. The claim groups are included in the claim plan of Squaw Lake, Plan No. M-1904, Patricia District of Norwestern Ontario.

East Claim Group

 Pa
 896057

 Pa
 896058

 Pa
 896059

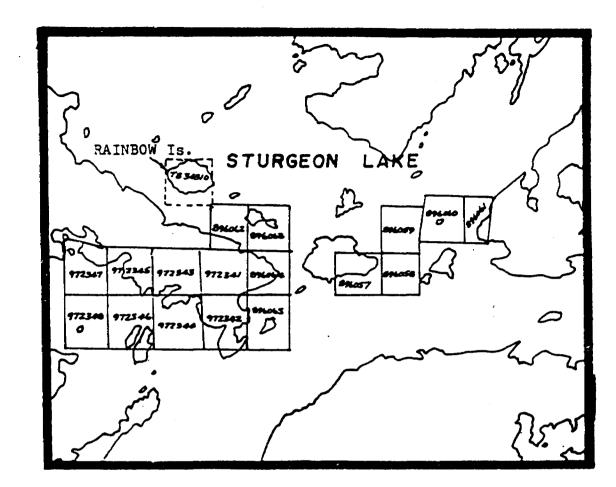
 Pa
 896060

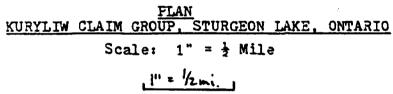
 Pa
 896061

West Claim Group Pa 896062 896063 Pa Pa 896064 Pa 896065 972341 Ρa Pa 972342 Pa 972343 972344 Pa Pa 972345 Pa 972346 972347 Pa Pa 972348

#### LOCATION AND ACCESS

The claim groups of the property are located abcut 70 miles north of Ignace. The town of Ignace is 150 miles west of Thunder Bay along the Trans Canada Highway. The property is accessible from Ignace by following Highway 599 northwards from the Trans Canada Highway to the Six Mile Lake gravelled logging road. A truck road branches eastwards to King Bay (the last two miles is essentially a tractor road). In winter the claim groups are accessible by tractor or snowmachine over the ice of King Bay and Sturgeon Lake, in summer the claim groups can be reached by boat.





#### GENERAL GEOLOGY

The general geology of the Sturgeon Lake area consists of a belt of Precambrian Volcanic and sedimentary rocks of Archean age that encircle the Lewis Lake and Lake of the Bays granite batholiths. In the area of the North and North-East arms of Sturgeon Lake the volcanic belt wraps around the southern and eastern edges of the Lewis Lake batholith. Embayments of the granite into the volcanics along the eastern edge of the batholith coincides with several gold occurrences of economic significance.

The volcanic belt has been resolved into two main sequences, the more southerly volcanic sequence that surrounds the lower area of Sturgeon Lake exhibits an abundance of sulphide occurrences. The area adjacent to and south of the lake hosts the 4,000 ton per day Mattabi Mine which produces Cu-Zn-Pb-Ag ore. The northerly sequence of volcanics up again..: the Lewis Lake batholith contains numerous gold occurrences which includes the St. Anthony mine, a past gold producer and the newly discovered Steep Rock gold deposit.

The geology to the northwest of King Bay up to the Lewis Lake batholith consists of a sequence of rock formations of volcanic origin. This sequence of formations was mapped by this writer over a length of 5 miles and a depth of 3 miles with some periferal reconnaissance geology. The "Kuryliw" sequence of rock formations going south from the Lewis Lake batholith is as follows:

### TABLE OF FORMATIONS

PRECAMBRIAN

QUARTZ VEINS ACID INTRUSIVES

- QUARTZ FELDSPAR PORPHYRY DYKES 7
- GRANITE, LEWIS LAKE BATHOLITH. 64
- SYENITIC GRANITE DYKES (WHITE FELDSPAR PORPHYRY) 6.8
- GRANODIORITE, INTRUSIVE 5
- GRANODIORITE, DYKES AND INFILLING OF BLOCK BRECCIA 5 B

BASIC INTRUSIVES

GABBRO 46

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- GABBRO (PORPHYRITIC ANORTHOSITE) AGP
- AMPHIBOLITE 1 A

VOLCANICS - 'KURYLIW SEQUENCE' (SOUTH FROM LEWIS L. BATHOLITH)

30: BASALTIC LAVA, PILLOWED, AMPHIBOLIZED. (1500')

ANDESITIC PILLOW LAVA, FELDSPAR PORPHYROBLASTS (500') 3 2

FELSIC VOLCANOGENIC SEDIMENT GROUP, FELD SPATHIC (1500-2000')

AGGLOMERATE

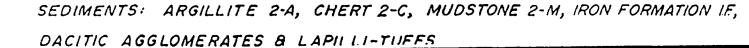
LAPILLI - AGGLOMERATES AND TUFFS

TUFFS

ANDESITE -BASALT LAVAS, PILLOWED (15 000')

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STURGEON LAKE - EAST BAY



#### General Geology cont'd

- (1) Basaltic Pillow Lava formation (1,500 feet thick)
- (2) Andesitic Pillow Lava formation (500 feet thick)
- (3) Felsic Volcanogenic Sediments formation (1500-2000 ft. thic
- (4) Andesite-Basalt Pillow Lava formation (15,000 feet thick)
- (5) Intrusives

The "Kuryliw" sequence of volcanic formations was extensively intruded by basic rocks, largely gabbro and some amphibolite. 10 to 25% of the area of the "Kuryliw" volcanic sequence is occupied by gabbroic intrusions. The majority of the intrusions are concentrated along and near the volcanogenic sediments. About 4 miles west of King Bay the "Kuryliw" sequence of formations has been intruded by granodiorite that occurs as a complex of dykes and dykelets that form a broad stockwork. These granodiorite dykes cut across all gabbros in the volcanics. Some narrow irregular intrusions of sericitic quartz porphyry dykes were located in the mapping.

#### (6) The Lewis Lake "Granite" Batholith

The mineral composition of the batholith near its southern and eastern edges consists mainly of coarse white plagioclase feldspar which is in part porphyritic. It also contains 5 - 107 quartz and up to 7% ferromagnesian. The batholith extends as a nose to the southeast into Sturgeon Lake just north of the junction of East Bay and King Bay. There is a gradual phase change in the composition of the batholith rock in the nose to the southeast. It becomes depleted in Quartz and ferromagnesians so that they

#### General Geology cont'd

become white syenitic rock composed almost completely of feldspar.

There is a progressive zoning of the nose of the batholith southeastwards. The zoning is arbitrarily delineated in the mapping as follows,

(A) Syenite

- (B) Syenite with 10 30% inclusions of volcanics and gabbro.
- (C) Volcanics with gabbro intruded by numerous dykes of syenite.

the known gold occurrences at the batholith nose intrusion consists of a gold bearing blue-grey quartz vein located at the contact of Syenite and a long inclusion of narrow lavas on Rainbow Island. On Rickaby point the gold bearing blue-grey quartz similarily occurs at the contact of a syenitic dyke and massive lava.

(7) Quartz-Porphyry Felsic Rock

South of King Bay on the Kerr Addison this rock trends eastwards towards East Bay and westwards across the Six Mile Road.

#### STRUCTURAL GEOLOGY

The "Kuryliw" sequence of volcanic formations occurs wrapped around the south and east side of the Lewis Lake batholith. The southern outline of the batholith curves southeastwards above King Bay. This causes folds and crenulations in the formations of the "Kuryliw" sequence for a length of three miles and it includes the west end of King Bay and the Steep Rock gold discovery.

A strong east-west falt that dips 57° southwards at the north side of East Bay is shifted southwards to follow Kiug Bay by the wedging action of the southeasterly nose intrusion of syenite from the Lewis Lake batholith. The westward extension of the east-west faults follows the north side of King Bay and extends at least seven miles westwards beyond King Bay. About four miles west of King Bay the "Kuryliw" sequence of formations is cut by a series of north-south faults that progressively displace the rock formations  $\frac{1}{2}$  mile northwards over a one mile length. These north-south faults traced southwards are found to swing southwestwards as branches of the East Bay-King Bay fault.

There is a recognizable progression in the results of the tectonic dynamics of the area. The highest temperature and fluidity of the perifery of the Lewis Lake batholith occurs at its south-east nose where the formations of the "Kuryliw" sequence are truncated, also block stoping of the volcanics occurs and numerous dykes finger south-eastwards from the nose intrusion. To the north and northwest of King Bay the for-

#### Structural Geology cont'd

mations of the "Kuryliw" sequence accommodated the batholith intrusion by folding and crenulating when subjected to the stresses. About 4 miles to the west of King Bay the rocks of the "Kuryliw" formation were faulted and sheared when subjected to the stresses of the intrusion.

At the southeast nose of the batholith the formations of the "Kuryliw" sequence are truncated and only the largest southerly formation now occurs to the east and north of the nose. Mapping of the pillow lava trends indicate that the trend of the formation generally follows the outline of the batholith rim.

#### LOCAL GEOLOGY

These claim groups occur at the southern rim of the easterly nose of the intrusion of the Lewis Lake Batholith. This nose of the batholith is highly felspathic and approaches syenite in composition.

The contacts of the highly competent syenite and its dykes with the older less competent altered lavas and gabbros become the sites of shearing and fracturing during adjustments to tectonic stresses. Gold bearing mineralization was introduced to some of these sites of fractures and shearing at contacts as exemplified by the "Rainbow Island", "Rickaby Point" and "Oz Island" gold vein occurrences.

The gold bearing silicification consists of a dark greyish to black quartz that makes it distinctive to that area.

#### INSTRUMENT, UNIT AND METHOD

The West Block grids were surveyed using a portable Scintrex model MP-2 precession magnetometer.

The sensitivity of the instrument is (±) 1 gamma. The principle of operation is based upon the fact that a proton rich fluid such as kerosene when placed in a magnetic field will have its protons aligne along the magnetic field vector. The magnetic field is induced in the sensor upon depressing the instrument pushbutton, then this field is suddenly removed. Protons which behave as elementary gyroscopes will start to aligne with a precession frequency that 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 five digit number.

A base station was established on base line 00-N at 00-W. The base station reading was 59361 gammas. The main base station was read at the start and finish of each survey day to check for diurnal variations and the instrument operations.

To correct for diurnal changes all baseline stations on 00-N at the picket line crossings were established as secondary base stations. This was accomplished by checking in at the main base station then reading the baseline stations and checking back into the main base station within an hour. These secondary baseline stations were corrected and plotted and then these served as alternate base stations for check-ins during the surveys of picket lines. In this manner all picket

#### Instrument, Unit and Method cont'd

line stations which were read at 50 foot stations along picket lines were corrected for diurnal variations before plotting on the plans.

The plotting of the readings on the survey plans scale 1" = 200 feet were reduced by 59,000 gammas so that local magnetic variations could be magnified andthis reduced the numerical size of the readings plotted. For example the base station reading of 59361 was plotted 361 on the plans.

Contouring of the corrected and plotted magnetic readings was carried at 100 gamma intervals from the 0 - 1000 gamma range.

#### RESULTS OF MAGNETIC SURVEY

The contoured plan of the magnetic readings over the claim groups exhibits a remarkably flat magnetic relief with few significant anomalies. It appears that the syenitic granite, basaltic laves and gabbros exhibit similar low range magnetic relief.

On claim 896058 of the easterly group a magnetic anomaly traces the nose of a fold that is open eastwards.

A few slightly higher magnetic trends trace the nose of the folded volcanic rocks around the peninsula with the nose on claim 896064.

There is no obvious magnetic correlation of magnetics with VLF conductor trends.

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#### CONCLUSIONS

Three weak VLF-EM conductors were located. The significance of these is speculative but they appear to trace the trend of some schistose rock such as a Tuff. Since these rocks may provide favourable hosts to mineralization each should be tested by a short drill hole.

The magnetic survey provides very little assistance in the evaluation of the EM conductors.

The contoured plan of the magnetic survey with its detailed contours at 100 ft. intervals was successful in tracing the folded trends of the volcanics.



Chester J. Kuryliw, M.Sc., P.Eng. Consulting Geologist

#### RECOMMENDATIONS

Each VLF conductor should be tested by a 250 foot drill hole spotted to cross the conductor and at least one 1(0 foot hole should be drilled under the Oz Island gold occurrence.

Total 850 feet of Diamond Drilling at a total cost of \$35/foot for a drilling contract, engineering and assaying

\$29,750.



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#### <u>C E R T I F I C A T E</u>

I, Chester J. Kuryliw of 46 Ingall Drive, Dryden, Ontario, do hereby certify that:

- (1) I am a Professional Engineer and I am currently employed as a Consulting Geologist for several mining companies.
- I am a graduate of: The University of Manitoba B.Sc. Degree, 1949 The University of Manitoba M.Sc. Degree, 1966
- (3) I am a registered Engineer of the Association of Professional Engineers of Ontario and also Manitoba. I am a fellow of the Geologic Association of Canada, also a member of the Canadian Institute of Mining and Metallurgy.
- (4) I have practiced my profession for over 40 years, most of those years at gold mines, during which time I often planned, supervised and directed underground exploration, development and production.
- (5) My report is based upon a study of the magnetic and electromagnetic survey results on the property which were carried out under my supervision and I plotted the results. I also carried out geologic mapping in the field over the property in 1984. My correlations and interpretations are incorporated in this report.



Chester J. Kuryliw, M.Sc., P.Eng.

REPORT



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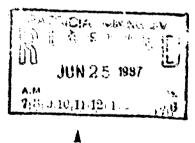
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#### A VLF ELECTROMAGNETIC SURVEY

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Results of Electromagnetic Survey

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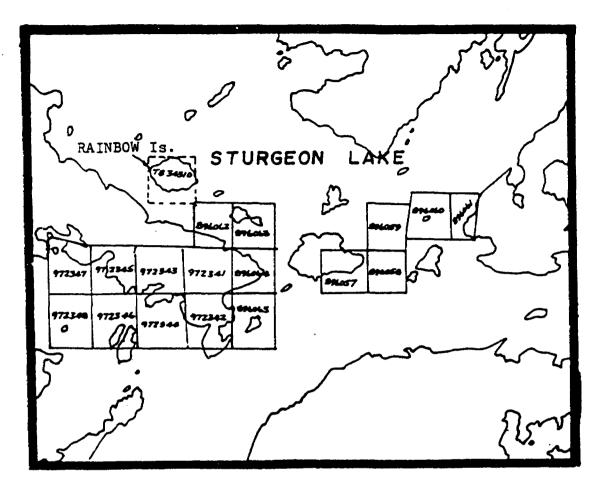
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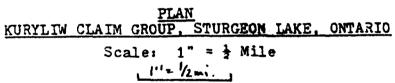
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Eas	t Claim (	Group	West	Claim	Group
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Pa	896059		Pa	896064	
Pa	896060		Pa	896065	
Pa	896061		Pa	972341	
			Pa	972342	
			Pa	972343	
			Pa	972344	
			Pa	972345	
			Pa	972346	
			Pa	972347	
			Pa	972348	

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AGGLOME RATE

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ANDESITE -BASALT LAVAS, PILLOWED (15 000')

<u>3-m</u> " " , MASSIVE STURGEON LAKE-EAST BAY

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SEDIMENTS: ARGILLITE 2-A, CHERT 2-C, MUDSTONE 2-M, IRON FORMATION LE, DACITIC AGGLOMERATES A I APILITIEES

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The gold bearing silicification consists of a dark greyish to black quartz that makes it distinctive to that area.

#### INSTRUMENT, UNIT AND METHOD

#### EM-16 Specifications

#### Measured Quantity:

In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field.

#### Sensitivity:

In-phase:  $\pm$  150% Quad-phase:  $\pm$  40%

#### Output:

Nulling by audio tone with a possible resolution of  $\pm$  1%. In-phase indication is read from a mechanical incoinometer. The quad-phase is measured from a graduated dial.

#### Operating Frequency:

17.8 kHz VLF radio band Cutler, Maine, N.A.A.

#### Instrument Method:

The VLF transmitting station creates a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground there will be secondary fields radiating from these bodies. This equipment measures the vertical components of these secondary fields.

The EM-16 is a sensitive receiver that measures the vertical field components. The receiver has two inputs, with two receiving coils built into the instrument. One coil has a vertical axis the other coil is horizontal.

The direction of the survey lines were oriented to cross

#### INSTRUMENT, UNIT AND METHOD cont'd

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the geologic formation and the lines are at right angles to the direction of the VLF station. Readings of both the In-phase and Quad-phase components were read at 100 foot stations along the lines with some 50 foot station intervals read at strongly anomalous locations. All readings were taken facing west.

The readings were plotted on the plans at the station locations and curves were drawn for the In-phase and Quad-phase components along the lines. Interpreted conductors were also indicated on the plans.

#### RESULTS OF VLF-EM SURVEY

Three weak VLF-EM conductors were located. The significance of these conductors can only be determined by diamond drilling from lake ice. They all appear to be schistose, slightly mineralized tracings of lithology.

#### Conductor "A"

This weak VLF conductor is about' inle in length and crosses line 32-W - 44-W, underwater near the north shore of King Bay.

#### Conductor "B"

This weak VLF conductor is about 1,000 ft. long and cuts across lines 00-W - 9-W. It occurs underwater between Oz Island and the North shore of the peninsula.

#### Conductor "C"

This is a weak { mile long conductor that crosses lines 3-W - 16-W just south of the peninsula.

#### CONCLUSIONS

Three weak VLF-EM conductors were located. The significance of these is speculative but they appear to trace the trend of some schistose rock such as a Tuff. Since these rocks may provide favourable hosts to mineralization each should be tested by a short drill hole.

The magnetic survey provides very little assistance in the evaluation of the EM conductors.

The contoured plan of the magnetic survey with its detailed contours at 100 ft. intervals was successful in tracing the folded trends of the volcanics.



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#### RECOMMENDATIONS

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Total 850 feet of Diamond Drilling at a total cost of \$35/foot for a drilling contract, engineering and assaying

\$29,750.



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CHESTER J. KURYLIW, M.Sc., P.Eng. Consulting Geologist

#### CERTIFICATE

I, Chester J. Kuryliw of 46 Ingall Drive, Dryden, Ontario, do hereby certify that:

- (1) I am a Professional Engineer and I am currently employed as a Consulting Geologist for several mining companies.
- (2) I am a graduate of: The University of Manitoba B.Sc. Degree, 1949 The University of Manitoba M.Sc. Degree, 1966
- (3) I am a registered Engineer of the Association of Professional Engineers of Ontario and also Manitoba. I am a fellow of the Geologic Association of Canada, also a member of the Canadian Institute of Mining and Metallurgy.
- (4) I have practiced my profession for over 40 years, most of those years at gold mines, during which time I often planned, supervised and directed underground exploration, development and production.
- (5) My report is based upon a study of the magnetic and electromagnetic survey results on the property which were carried out under my supervision and I plotted the results. I also carried out geologic mapping in the field over the property in 1984. My correlations and interpretations are incorporated in this report.



Chester J. Kuryliw, M.Sc., P.Eng.



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Ontario

#### itural Resources

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GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

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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.

Type of Survey(s) GEOFHYSICAL MALNETR. VILE EM	
Township or Area SQUAN LAKE ARED M-1904	
Claim Holder(s) CHESTER J. KURYLIW, M.SC., P.ENG.	MINING CLAIMS TRAVERSED List numerically
CONSULTING GEOLOGIST	
Survey Company ONTARIO	Pa. 346057
Author of Report P8N 387	(prefix) (number)
Address of Author	<u> </u>
	846.059
Covering Dates of Survey VAN 28 1987 - MAY 30 1987 [linecutting to office]	896.060
Total Miles of Line Cut 19.5. MILES.	896 061
SPECIAL PROVISIONS DAYS CREDITS REQUESTED OF Claim	846 062
Geophysical	896 063
ENTER 40 days (includes –Electromagnetic 40	
line cutting) for first Magnetometer20	896 064
survey. –Radiometric	596.065
ENTER 20 days for each -Other	972 341
additional survey using Geological	-
Geochemical	972 342
AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)	972 343
Magnetometer Electromagnetic Radiometric	972.344
$\rho = \rho =$	
DATE: JULE 33, 1987 SIGNATURE Author of Report of Agent	972 345
	972 346
	972 347
Res. Geol Qualifications 63.1789	······································
Previous Surveys	972 348
File No. Type Date Claim Holder	
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PATRICIA MINING UN I	
JUN 25 193/	
A.M. -7,3,9,10,11,12,1,2,3,4,5,5	
	TOTAL CLAIMS

### **GEOPHYSICAL TECHNICAL DATA**

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G	ROUND SURVEYS - If more than one sur	rvey, specify da	
N	WLF. ELECTED MADRETIC	995 1990	Number of Readings <u>DIAFUEIC - 1990</u>
St	ation interval MALNETIC @ D"T. E.	ma 100 T.	Line spacing 300 FT AND 4-00 1-7.
	ofile scale		
C	ontour interval ON MOGNETR	100 6 A MM	2/11
MAGNETIC	Accuracy – Scale constant $(\pm)$ Grad Diurnal correction method <u>Kenp Brase</u> Base Station check-in interval (hours) $\Delta T$ Base Station location and value $DN$	STATICA TH DAG HUNG	
ELECTROMAGNETIC	Coil separation <u>BUILT INTO INS</u> Accuracy <u>IN PLASE I ISO'</u> Method: EFixed transm Frequency <u>IT-B KHZ VLF</u> Parameters measured <u>IN PHASE</u>	VERTICAL TRUMENT C Qu itter RADIN BA (specify AND QUA	THE OTHER COUL IS HORIZONTAL
	Instrument		
	Scale constant		
	Corrections made		
GRAV			
	Elevation accuracy		
	Instrument		
	Method 🛛 🗂 Time Domain		Frequency Domain
	Parameters – On time		Frequency
×	– Off time		Range
K	– Delay time		
H	- Integration time		
RESISTIVITY	0		
2	Electrode array		
	•		
	Type of clectrode		

INDUCED POLARIZATION

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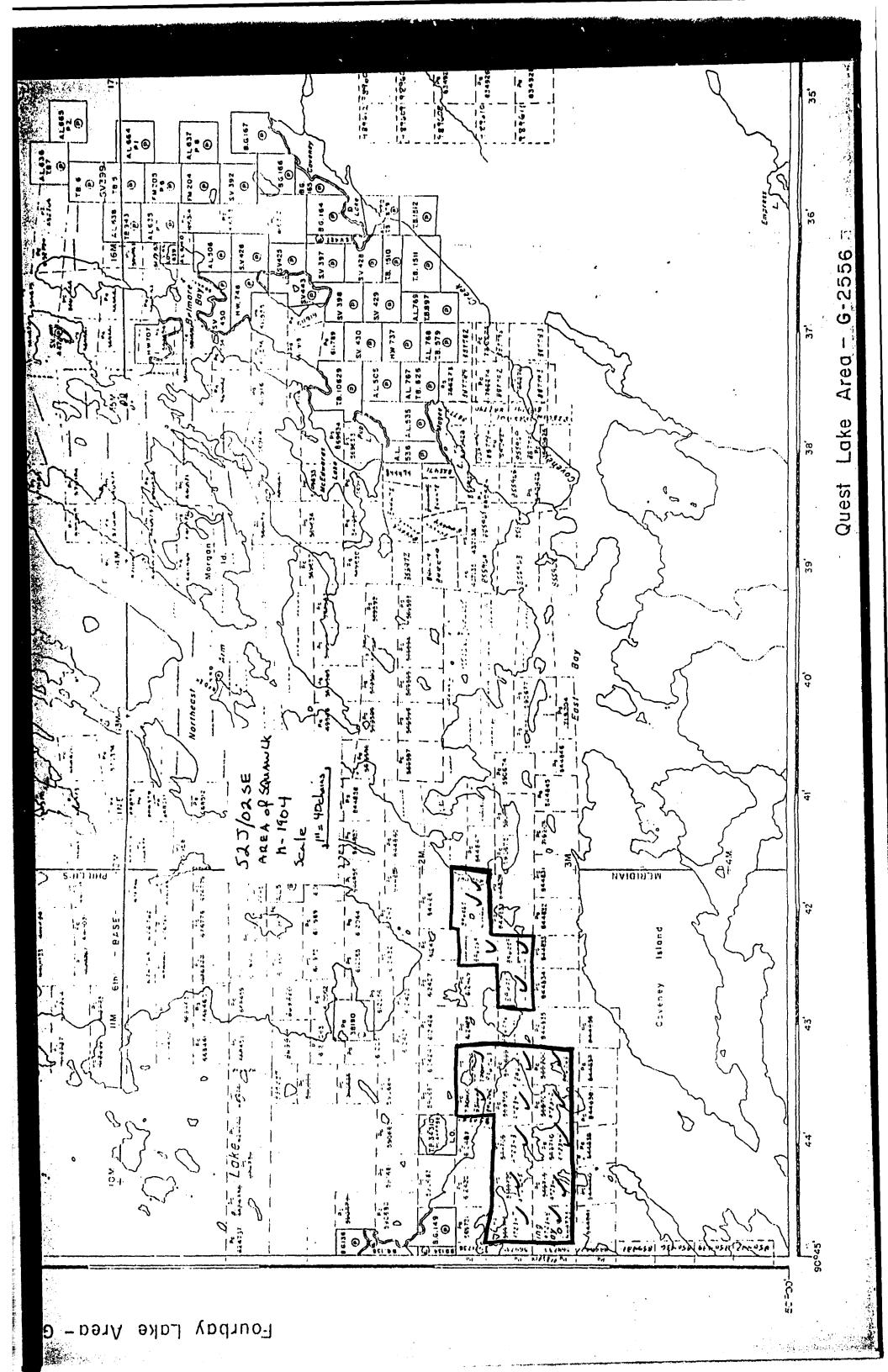
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THE R. MICHAELER



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Ministry of Northern Development and Mines August 12, 1987

Your File:117 Our File:2.10183

Mining Recorder Ministry of Northern Development and Mines Ccurt House P.O. Box 3000 Sioux Lookout, Ontario POV 2TO

Dear Sir:

RE: Notice of Intent dated July 23, 1987 Geophysical (Electromagnetic & Magnetometer) Surveys on Mining Claims FA 896058, et al, in the Squaw Lake Area

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

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

Yours sincerely,

r

R.M. Charnesky (Mrs.) Acting Manager Mining Lands Section Mineral Development and Lands Branch Mines and Minerals Division

Whitney Block, Room 6610 Queen's Park Toronto, Ontario M7A 1W3

Telephone: (416) 965-4888

AB/mc

cc: Chester J. Kuryliw 46 Ingall Drive Dryden, Ontario P8N 3B7 Mr. G.H. Ferguson Mining & Lands Commissioner Toronto, Ontario

Resident Geologist Sioux Lookout, Ontario

Encl.

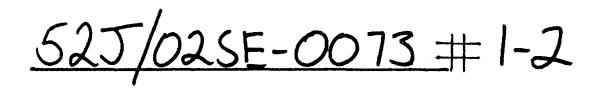
Ortario	Ministry of Northern Development
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Technical Assessment Work Credits

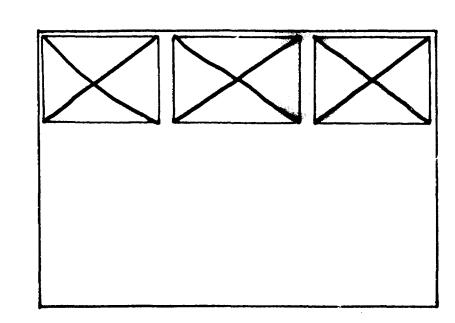
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Dete	Mining Recorder's Report of Work No.
July ?3, 1987	117

ownship or Area	CHESTER J. KURYLIW	
5	SOUAW LAKE AREA	
Type of survey and number Assessment days credit per ci		Mining Claims Assessed
Geophysical		<u> </u>
	10 days	
Magnetometer		PA 896058 to 65 inclusive 972341 to 48 inclusive
Radiometric		
Induced polarization	••••••••••••••••••••••••••••••••••••••	
	Geys	
Section 77 (19) See "Mining Claims As		
Geological		
Geochemical	days	
Man days 🔲	Airborne	
Special provision X	Ground 🗶	
Credits have been reduced because coverage of cleims.	of partial	
Credits have been reduced because		
to work dates and figures of application	ant.	
	<u> </u>	
pecial credits under section 77 (16) f	or the following mining claims	
o credits have been allowed for the f	ollowing mining claims	
and sufficiently covered by the sun	/ev insufficient	technical data filed
	20 DAYS ELECTROMAGNE	TIC
	10 DAYS MAGNETOMETER	
	DA 006067	
	LA RADG21	
		technical data filed <u>TIC</u> the total number of approved assessment days recorded on each claim does The total number of approved assessment days recorded on each claim does

# SEE ACCOMPANYING MAP(S) IDENTIFIED AS



# LOCATED IN THE MAP CHANNEL IN THE FOLLOWING SEQUENCE



**(X)** 

# FOR ADDITIONAL

# INFORMATION

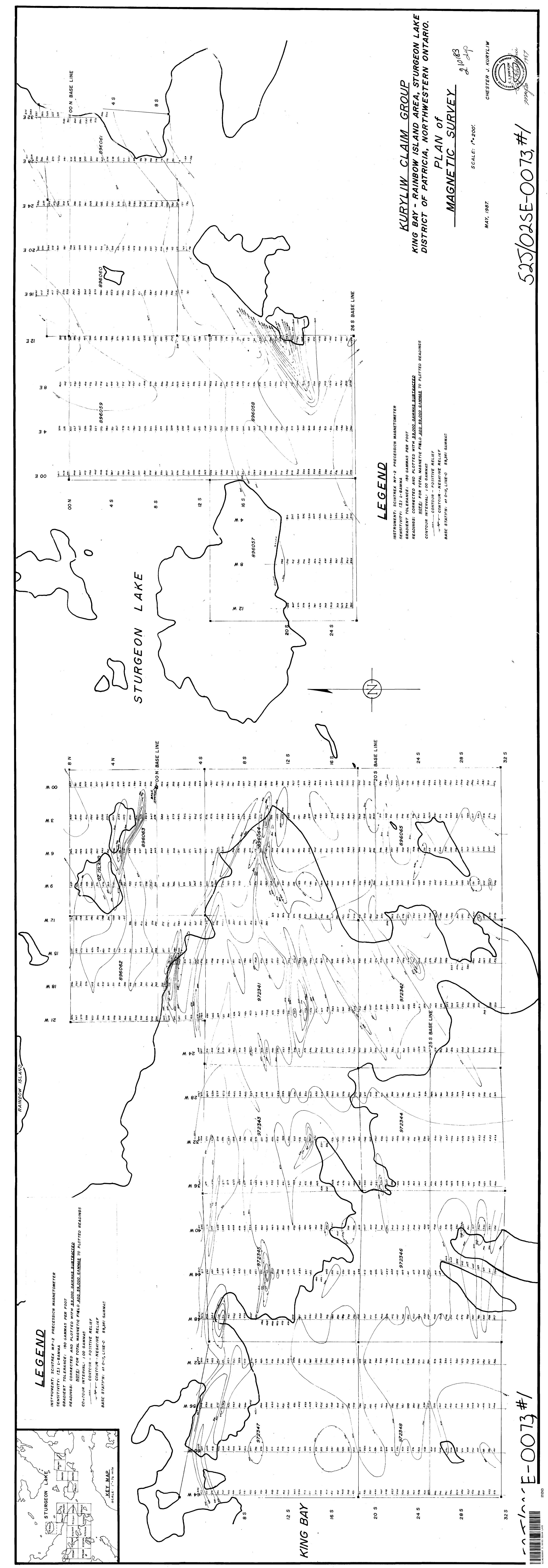
## SEE MAPS:

525/02SE-0073 #2

525/02NE-0020-AI

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