M.L

2.14001

REPORT ON THE KATRINE TOWNSHIP PROPERTY LARDER LAKE MINING DIVISION FOR LASSE RAITANEN

Stewart J. Carmichael B.Sc., FGAC
Kirkland Lake, Ontario

January 25, 1991
NTS 32 D/4, D/5
OPAP # OP90-278

2.14001

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SUMMARY

This report on the Katrine Township property has been prepared by S.J. Carmichael, B.Sc., FGAC at the request of Lasse Raitanen, 63 A-2nd Street, Kirkland Lake, Ontario, the registered owner of the claim group. It is intended to complete the OPAP reporting obligations, of which Mr. Raitanen has applied for, and been accepted for a total sum of $10,000.00 (ten thousand dollars) Mr. Raitanen's OPAP grant number is OP90-278. The grant was approved on May 22, 1990.

This report will also be submitted to the Ministry of Northern Development and Mines for assessment credits.

The original property is comprised of twenty-seven contiguous claims with seven additional claims having just recently been staked. This brings the total staked claims to thirty-~~seven~~ four (contiguous) with an area of 1360 acres. The claims are located in the north central portion of Katrine Township, District of Timiskaming, Larder Lake Mining Division, approximately seventeen miles northeast of Kirkland Lake.

Mining exploration in Katrine Township has been limited compared to other portions of the Abitibi belt proximal to Kirkland Lake. This is probably due to differences in the rock types commonly associated with gold mineralization in the Kirkland Lake camp resulting in relatively few gold showings. Work by Jenson (1985) shows that Katrine Township is underlain by volcanic sequences of the Blake River Group which may be correlated with those of the Noranda camp. Because of this (in part) recent exploration efforts have been directed towards base metal mineralization.

Based on the results of an airborne geophysical survey by Terraquest in January 1990, a program of limited horizontal loop survey and geochemical survey was completed by Raitanen during the fall of 1990. The results of these programs are encouraging and additional work is highly recommended. This should include additional line cutting, horizontal loop geophysics and diamond drilling. The cost of this program is estimated at $9,300.00.

Report on the Katrine Property
Larder Lake Mining Division
for
Lasse Raitanen

INTRODUCTION

This report on Lasse Raitanen's Katrine Township mining exploration property has been prepared by S.J. Carmichael at the request of Mr. Raitanen. It is a geological assessment of the property intended to fulfil both OPAP and assessment requirements. An appropriate exploration program and budget has been included for additional OPAP funding.

Information on the property is derived from the records of the Ministry of Northern Development and Mines and publications by the Ontario Geological Survey. Although the author was unable to visit the property, he is very familiar with the area having supervised many exploration programs in the Kirkland Lake area. All work on the claims was performed between July 23 and November 8, 1990.

PROPERTY LOCATION ACCESS AND FACILITIES

The Raitanen claim group is located in the north central portion of Katrine Township (NTS 32 D/4, D/5), District of Timiskaming and within the Larder Lake Mining Division approximately 17 miles northeast of Kirkland Lake. Access to the property is via the McVittie-Pontiac road which branches from the Larder Lake Station road. A trail suitable for all-terrain vehicles leads west to the claims from the McVittie-Pontiac road 1.5 miles south of the Katrine/Ben Nevis Township border.

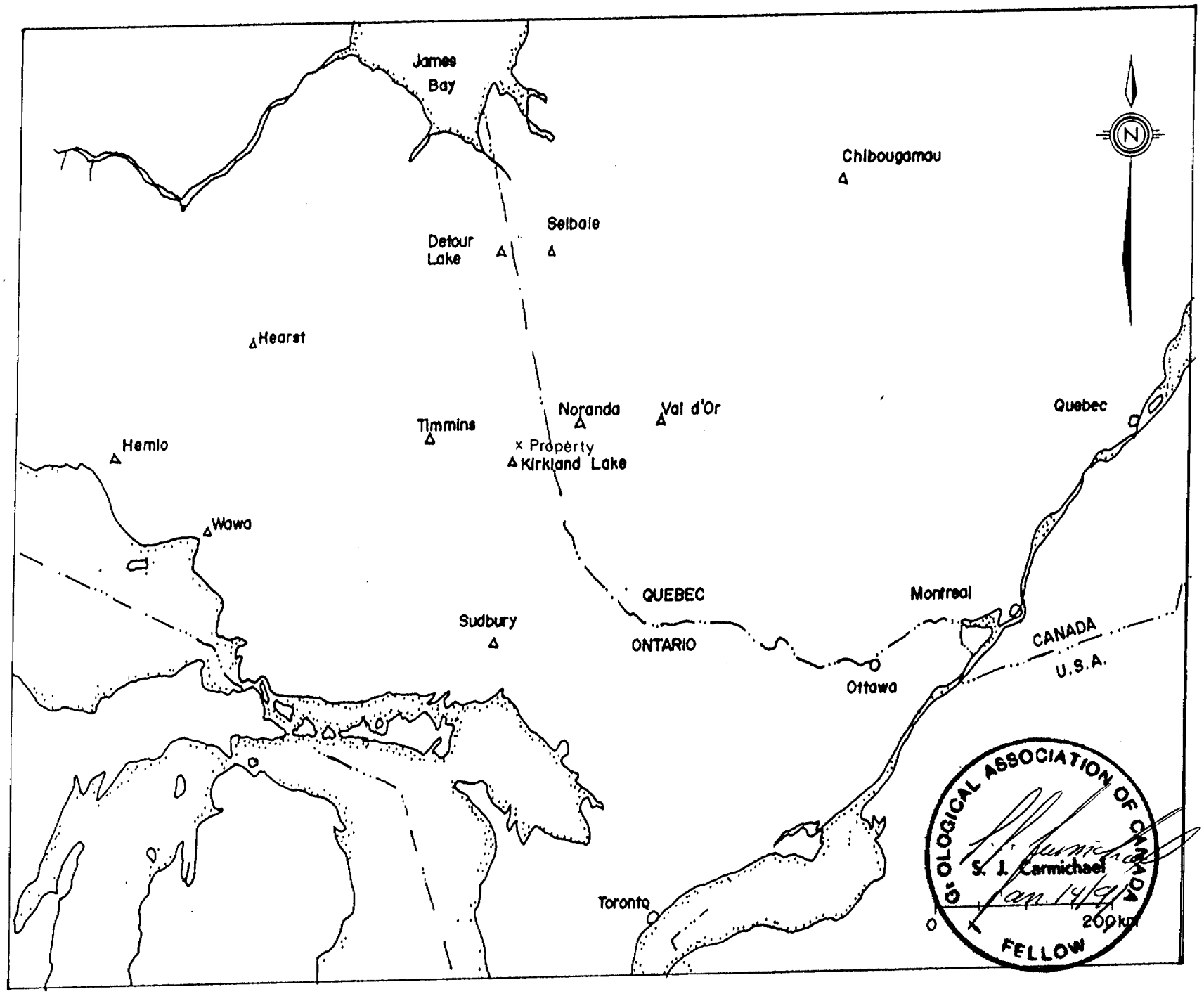


Figure 1 Property Location Plan

The claim group is bisected by the Little Misema River providing a water source for diamond drilling and stripping operations. Facilities capable of supporting a mining operation on the property are not present on the property but are available in Kirkland Lake.

TOPOGRAPHY

The ground is generally characterised by sandy glacial deposits separated by low ground occupied by swamp, particularly surrounding the Little Misema River. The north section of the property is fairly rugged as one approaches the Workman Hills. Mapping by Long Lac Minerals in 1980 over part of the property shows 30% bedrock exposure.

LAND TENURE AND OWNERSHIP

The Katrine property comprises 34 staked contiguous unsurveyed mining claims with a total area of approximately 1360 acres. The claim numbers, recorded dates and applied assessment credits are listed in the following table:

CLAIM NUMBER	RECORDED DATE	APPLIED CREDITS	
L-1014803	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014804	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014805	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014806	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014807	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014808	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014809	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014810	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014811	November 9, 1987	40 days	Under extension until November 8, 1991
L-1014812	November 9, 1987	40 days	Under extension until November 8, 1991
L-1015162	December 16, 1987	40 days	Under extension until November 8, 1991
L-1015163	December 16, 1987	40 days	Under extension until November 8, 1991
L-1015164	December 16, 1987	40 days	Under extension until November 8, 1991
L-1015165	December 16, 1987	40 days	Under extension until November 8, 1991
L-1015166	December 16, 1987	40 days	Under extension until November 8, 1991
L-1046597	June 27, 1988	40 days	
L-1046598	June 27, 1988	40 days	

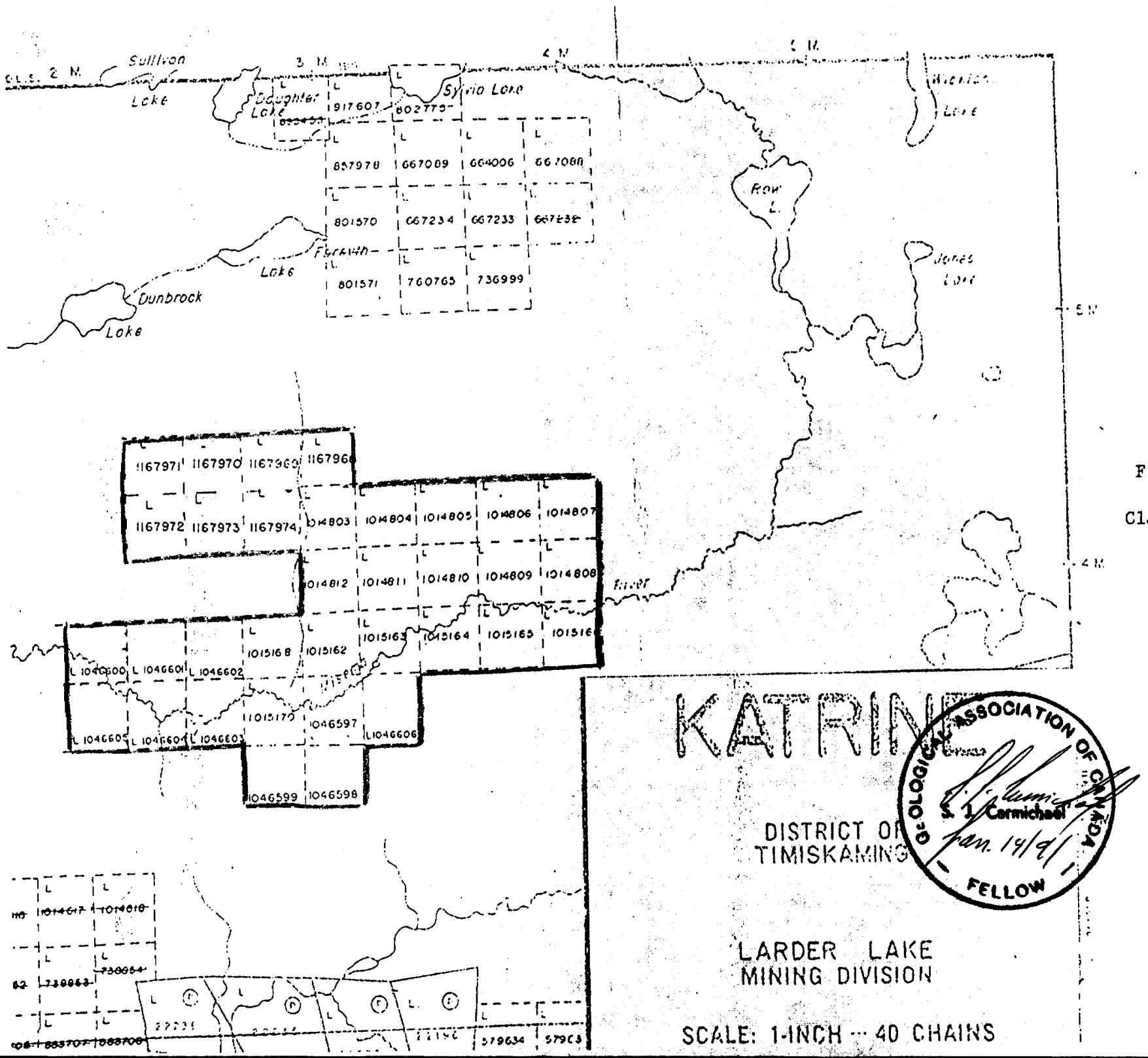


Figure 2

Claim Location Plan

OSSIAN TP. M.378

CLAIM NUMBER	RECORDED DATE	APPLIED CREDITS
L-1046600	December 14, 1900	0 days
L-1046601	December 14, 1990	0 days
L-1046602	December 14, 1990	0 days
L-1046603	December 14, 1990	0 days
L-1046604	December 14, 1990	0 days
L-1046605	December 14, 1990	0 days
L-1046606	December 14, 1990	0 days

All claims will be in good standing upon the application of the 1990 work program and the proposed program for 1991.

PROPERTY HISTORY

Reconnaissance mapping of the area was completed by C.W. Knight of the O.D.M. in 1920 at a scale of 1"= 1 mile. This was later revised in 1928 by T.L. Gledhill. In 1964 a geological map and report was published by W.A. Hogg of the O.D.M. and covered both Katrine and Arnold Townships.

The earliest documented work on the claims was by prospector Dave Lowe in the mid 1940's. Mr. Lowe uncovered a sulfide showing within tuffaceous agglomerate on the south bank of the Little Misema River on present claim L-1015168. Lowe optioned the property to Kennco Explorations in 1969 which completed a horizontal loop survey over the claims. Kennco completed two short pack-sack holes over the showing in June, 1969 and reported low values in copper and gold. Kennco dropped the option and allowed the claims to lapse.

In 1979, Long Lac Minerals stakes a group of 106 claims in Katrine and Arnold Townships and covered selected locations (covering showings) with a control grid. One of the areas covered

is the south-central portion of the Raitanen group. Long Lac Minerals completed geological mapping, magnetometer and VLF surveys at a scale of 1:2500 metric. This was followed by four diamond drill holes totalling 1,268 feet. The holes are listed in the following table:

HOLE NUMBER	DIP	AZIMUTH	LENGTH	APPROX. PRESENT LAT. AND LONG.	COMMENTS
PP-80-7	-50	360	272 ft.	5+30 S, 16+50 E	Extensive fragmentals and chert, Hole terminated due to caving
PP-80-9	-50	350	479 ft.	5+30 S, 18+60 E	Intersected syenite porphyry in felsic tuffs and agglomerate.
PP-80-10	-46	360	351 ft.	0+60 N, 2+30 E	Tuffaceous throughout.
PP-80-11	-45	360	166 ft.	0+20 N, 4+90 E	Massive andesite or throughout

No significant gold assays were reported in hole 80-9, no samples were taken from 80-7, 10 and 11. No sequences of significant sulfide mineralization were reported, however, hole 80-7 was terminated prior to its intended length. No further work was completed by Long Lac and the claims were allowed to lapse.

The property has remained inactive until the staking and subsequent airborne geophysical survey by Raitanen.

REGIONAL GEOLOGY

The Raitanen claims are underlain by Archean meta-volcanics and sediments of the Misema River Subgroup of the Blake River Group. This subgroup is slightly older than the Noranda Subgroup to the east and contain less of the felsic class of volcanics and more of the intermediate variety. G.A. Hogg (1964) indicates that the volcanics in Katrine Township have been folded to a sequence of broad anticlines and synclines. One major structure, the Misema Lake - Mist Lake Fault trends east northeast through both Katrine and Arnold Townships. Hogg also reports that the structure may

host gold and/or base metal mineralization.

PROPERTY GEOLOGY

Mapping by Long Lac Minerals in 1980 shows that part of the Raitenan ground is underlain by intermediate andesitic flows, fragmental tuffs and agglomerates with minor interflow cherts and immature sediments. Recent geochemical studies by Carmichael (this report) essentially supports the Long Lac mapping and indicates more felsic varieties including dacites and rhyolites of both calc alkaline and tholeiitic affinities are present.

As stated previously, the Misema Lake - Mist Lake fault bisects the claim group and the Lowe showing appears to be controlled by this structure. Drilling by both Kennco and Long Lac did not uncover significant mineralization associated with this fault, however the drilling was very limited and potential gold and or base metal mineralization may be related to this structure.

1990 EXPLORATION PROGRAM

A) Max Min II Survey

A total of 7 miles of Max Min II surveying was completed over the central portion of the claims. The survey was completed by T. Obradovich of Kirkland Lake using an Apex Max Min II instrument. Two frequencies were read (1777 Hz and 444 Hz). The results of which are plotted on maps 1 and 2. Three interesting anomalies were located. The first (A - A') is located two to three hundred feet south of the baseline between lines 4+00E and 12+00E. The anomaly becomes stronger towards line 12+00E where it appears to have been faulted 400 feet to the south. The offset anomaly then

continues from 13+00E to 20+00E as anomaly B - B'. The survey shows the anomaly to have a vertical dip, width of 30' and a depth of 120' to the top of the anomaly. This anomaly shows on both frequencies and is probably a bedrock response.

Anomaly C -C' is located on line 16+00E, 23+00N and is a weak one-line anomaly. It is very weak and may be an overburden response.

B) WHOLE ROCK GEOCHEMISTRY

A total of 73 samples were taken from various grid locations on the property. Of the 73 samples, 20 were described, cleaned and submitted to Swastika Laboratories for whole rock analysis. The results were then tabulated (see appendix A) and plotted on a Jenson Cation ternary diagram (figures 3 & 4) and on the property compilation map (#3). The results are tabulated in the following table:

Calc Alkaline - 11 samples or 55%
Tholeiitic - 9 samples or 45%

Calc Alkaline	Tholeiitic
Andesite - 6 samples or 30%	Dacite - 5 samples or 25%
Basalt - 3 samples or 15%	Rhyolite - 3 samples or 15%
Dacite - 2 samples or 10%	Andesite - 1 sample or 5%

The high proportion of tholeiitic volcanics indicate that the property probably represents the oldest phase of the Blake River Group, close to the Kinojevis (tholeiitic) Blake River (calc alkalic) contact. This is further substantiated by the lack of calc alkalic felsic volcanics and relatively high amount of tholeiitic felsic volcanics. It is interesting to note that the tholeiitic volcanics are confined to a wedge over the southwest

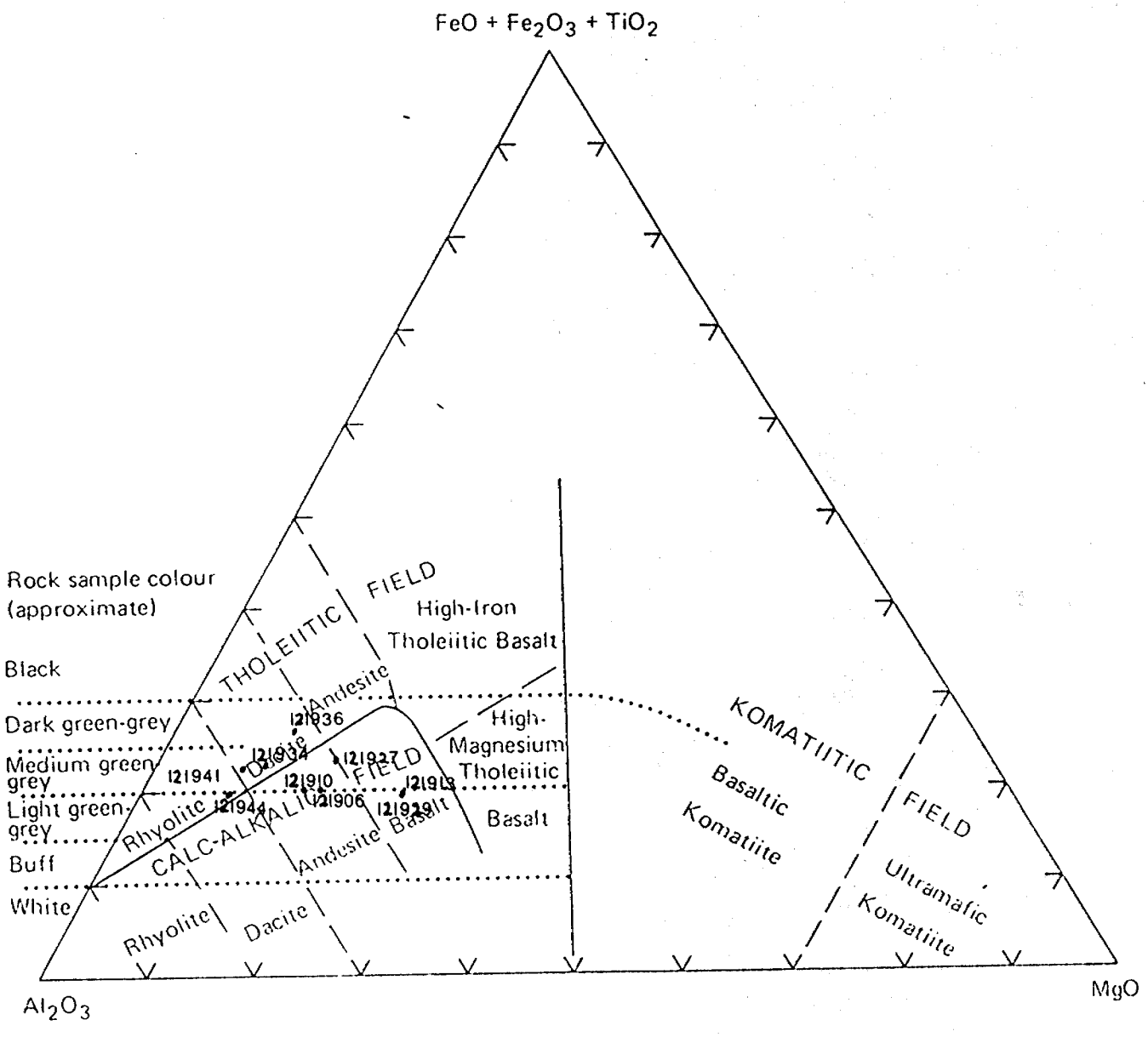


Figure 1 — Jensen Cation Plot involving the cation percentages of Al_2O_3, FeO + Fe_2O_3 + TiO_2, and MgO.

Figure 3 Katrine Township Samples

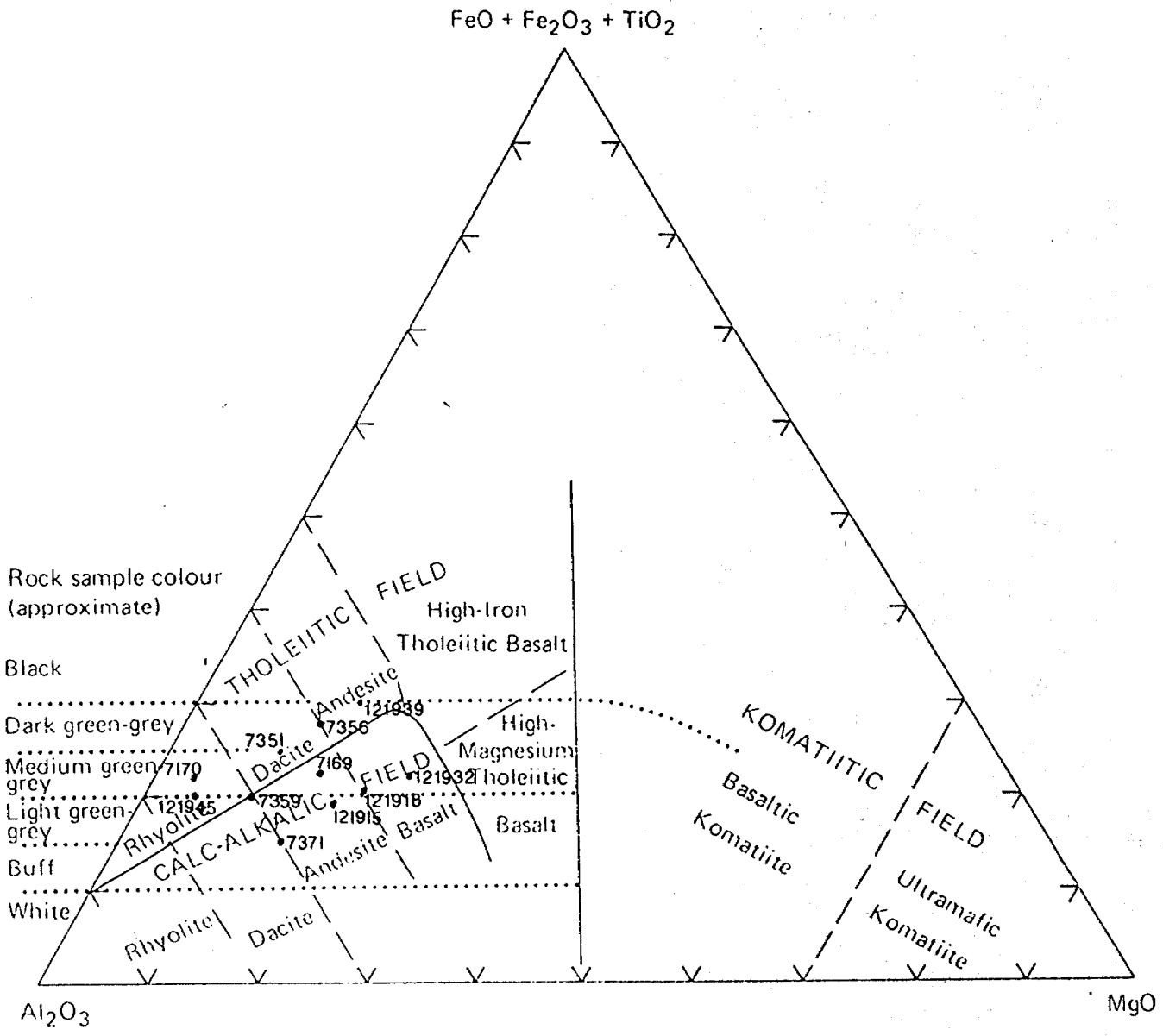


Figure 1 - Jensen Cation Plot involving the cation percentages of Al_2O_3, FeO + Fe_2O_3 + TiO_2, and MgO.

Figure 4 Katrine Township Samples

portion of the property.

SUMMARY AND CONCLUSIONS

The recently completed Max Min II survey has delineated three weak EM anomalies, two of which are probably a faulted single continuous anomaly. It is recommended that this anomaly be diamond drilled on section 12+00E.

Because of the irregular claim outline, the airborne survey covered ground outside of the original staked ground. One of the strongest anomalies found was adjacent to the northwest corner of the original block and additional 7 claims were staked to cover this anomaly. It is therefore recommended that a small control grid be cut over the location of the airborne anomaly and that the grid be surveyed by Max Min II. One drill hole is recommended to test this anomaly.

It is also suggested that the Long Lac Minerals diamond drill holes be accurately located to insure that the Max Min anomalies A - A' and B - B' have not been drilled.

Stripping over the projected EM anomalies and the Misema Lake - Mist Lake Fault is also recommended, overburden depth permitting.

The cost of the above outlined program is estimated at $9,300.00 (nine thousand three hundred).

Respectfully Submitted

S.J. Carmichael

S.J. Carmichael, B.Sc., FGAC

Qualification. 2.7032

GEOLOGICAL ASSOCIATION OF CANADA
S. J. Carmichael
FELLOW

PROPOSED EVALUATION PROGRAM FOR 1991

Line Cutting - 2 miles @ $400.00/mile	$800.00
Max Min II Survey - 1 mile @ $300.00/mile	300.00
Diamond Drilling*	6,000.00
Assaying	200.00
Power Stripping - 20 hrs @ $50.00/hr	1,000.00
Supervision and Consulting Fees	1,000.00
TOTAL	$9,300.00

* Mr. Raitanen owns and operates his own drill, thus the drilling cost are speculative. It is estimated that a 500 ft. drill would cost approximately $3,000.00.

Appendix A

CERTIFICATE OF QUALIFICATIONS

I, Stewart J. Carmichael, of the Town of Kirkland Lake, in the District of Timiskaming, in the Province of Ontario, Canada, do hereby certify that:

1) *I am a consulting geologist with address P.O. Box 271, Swastika, Ontario, P0K 1T0.*

2) *I am a graduate of McMaster University, Hamilton, Ontario, having received the degree of Bachelor of Science, Geology from the Faculty of Science in 1982. I have since practised in the field of mineral exploration continuously since graduation.*

3) *I am a Fellow of the Geological Association of Canada.*

4) *I have no direct interest, nor do I expect to receive any interest in the Raitanen claims.*

5) *In addition to my personal knowledge of the area, I have made use of the records of the Ministry of Natural Resources of Ontario, and of Mr. Raitanen's records in the preparation of this report.*

Dated this 14 day of January, 1991

Stewart J. Carmichael

Stewart J. Carmichael, B.Sc., FGAC

APPENDIX B

Sample Locations, Descriptions and Geochemistry

Sample #	Lat.	Long.	% Al2O3	% MgO	% Fe2O3+TiO2+FeO
7169	5+25S	20+00E	62	16	22

Description:
Jenson Plot: Calc Alkaline Andesite

7170	5+25S	20+00E	74	3	23

Description:
Jenson Plot: Tholeiitic Rhyolite

7351	5+00S	12+00E	65	10	25

Description: Massive diabasic andesite/basalt.
Jenson Plot: Tholeiitic Dacite

7356	12+00S	16+00E	60	12	18

Description: Fragmental (hyaloclastite) andesitic flow.
Jenson Plot: Tholeiitic Dacite/Andesite

7359	5+00S	20+00E	69	11	20

Description: Fine-grained andesite, locally porphyryitic, phenocrysts up to 2mm in size.
Jenson Plot: Calc Alkaline Dacite/Andesite

7371	8+00S	28+00E	70	13	17

Description: Grey-green porphyritic intermediate rock. Possible intrusive or porphyryitic andesite. 2% dark quartz/chlorite eyes.
Jenson Plot: Calc Alkaline Dacite/Andesite

121906	30+00N	28+00E	64	16	20

Description: Diabasic andesite.
Jenson Plot: Calc Alkaline Andesite

121910	10+00N	20+00E	63	17	20

Description: Dark green diabasic andesite/basalt. 10% splotches of light green feldspar or alteration.
Jenson Plot: Calc Alkaline Andesite

121913	29+00N	11+50E	66	15	19

Description: Light grey glassy volcanic. Very hard. Possible felsic-dacite.
Jenson Plot: Calc Alkaline Andesite

121915	24+00N	11+00E	64	17	19

Description: Medium green colored fine-grained glassy andesite. Possible crystal tuff or fragmental flow.
Jenson Plot: Calc Alkaline Andesite

121918	12+00N	3+00W	58	20	22

Description: Fine-grained andesitic volcanics. 2-5% black amygdules. Glassy.
Jenson Plot: Calc Alkaline Basalt

121927 11+00N 15+50W 59 19 22
Description: Amygdaloidal dacite. 20% quartz +- calcite +- quartz/chlorite amygdules or phenocrysts.
Jenson Plot: Calc Alkaline Andesite/Basalt

121929 10+00N 12+00W 55 25 20
Description: Fine-grained glassy grey andesite. 10% dark green feldspar throughout.
Jenson Plot: Calc Alkaline Basalt

121932 15+30N 12+00W 55 22 23
Description: Dark green very fine-grained andesite or basalt. Splotches or sections of glassy phases with quartz eyes.
Jenson Plot: Calc Alkaline Basalt

121934 10+00S 8+00W 66 10 24
Description: Dark grey fine grained massive andesite.
Jenson Plot: Tholeiitic Dacite

121936 7+00S 0+25E 62 11 27
Description: Light grey very fine-grained andesite. Almost dacitic to rhyolitic in places.
Jenson Plot: Tholeiitic Dacite

121939 10+00S 0+25W 54 16 30
Description: Light grey/green foliated andesite/basalt. Fine grained foliated sections may be crystal tuff.
Jenson Plot: Tholeiitic Andesite

121941 14+00S 4+00E 69 8 23
Description: Light grey very fine-grained and glassy andesite, possible dacite.
Jenson Plot: Tholeiitic Dacite

121944 6+00S 4+25E 71 9 20
Description: Fine-grained glassy andesite with chloritic matrix. Possible flow top breccia.
Jenson Plot: Tholeiitic Rhyolite

121945 5+00S 4+00E 74 6 20
Description: Glassy flow top material, andesitic and vesicular.
Jenson Plot: Tholeiitic Rhyolite

APPENDIX C

WHOLE ROCK ANALYSIS CERTIFICATES

TECHNICAL SERVICE LABORATORIES

DIVISION OF BURGENER TECHNICAL ENTERPRISES LIMITED

1301 FEWSTER DRIVE
MISSISSAUGA, ONTARIO
L4W 1A2
(416) 625-1544 FAX: (416) 625-8368

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM: Swastika Laboratories
P.O. Box 10
Swastika, Ontario
P0K 1T0

L. Raitenen

REPORT No. M8517

SAMPLE(S) OF: Pulp

INVOICE #:
P.O.:

Re: OW-1814-RG1

	FeO %
7169	5.7
7170	3.3
7351	5.8
7536	6.6
7359	4.0
7371	4.8
121906	4.7
121910	4.7
121913	4.3
121915	4.7
121918	4.3
121927	6.1
121929	5.7
121932	7.2
121934	5.7
121936	5.7
121939	8.7
121941	5.4
121944	4.4
121945	3.3

COPIES TO:
INVOICE TO: Swastika

Dec 12/90

SIGNED

CTA

For enquiries on this report, please contact Customer Service Department.
Samples, Pulps and Rejects discarded two months from the date of this report.

SWASTIKA LABORATORIES

P.O. BOX 10, SWASTIKA, ONTARIO

TELEPHONE #: (705) - 642 - 3244

FAX #: (705) - 642 - 3300

I.C.A.P. WHOLE ROCK ANALYSIS

Lithium MetaBorate Fusion

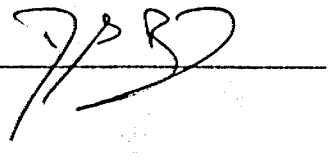
SWASTIKA LABS L. Raitanen

T.S.L. REPORT No. : M - 8517 - 1
T.S.L. File No. : NO28RC
T.S.L. Invoice No. :

YOUR REFERENCE - OW-1814-RG1

SAMPLE #	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	TiO2 %	MnO %	P2O5 %	LOI %	TOTAL %
7169	54.45	16.89	8.52	3.42	3.35	6.72	0.46	0.74	0.14	0.12	2.81	97.61
7170	72.83	8.38	3.79	3.58	0.27	0.30	6.34	0.22	0.10	0.06	2.35	98.21
7351	62.92	14.33	7.43	3.41	1.74	3.84	1.44	0.95	0.12	0.34	1.71	98.21
7536	62.52	12.35	8.32	3.91	1.90	2.39	1.36	0.80	0.22	0.34	4.30	98.42
7359	60.56	15.90	5.98	5.87	2.03	6.06	0.28	1.04	0.10	0.10	2.87	100.78
7371	59.06	18.84	6.21	1.99	2.77	8.25	0.34	1.08	0.09	0.14	1.80	100.57
121906	60.56	15.83	6.97	5.50	3.02	3.68	0.94	0.68	0.08	0.10	2.62	99.98
121910	60.38	15.80	7.27	5.84	3.33	3.52	0.96	0.66	0.08	0.10	2.67	100.61
121913	62.29	15.35	6.02	5.86	2.80	2.80	1.06	0.64	0.13	0.10	2.53	99.58
121915	54.99	17.18	7.13	6.51	3.57	2.53	1.58	0.73	0.10	0.12	3.54	97.97
121918	64.42	11.14	6.04	7.63	3.16	1.23	0.14	0.65	0.08	0.10	3.02	97.62
121927	52.35	18.08	9.09	4.47	4.56	4.88	0.88	1.21	0.16	0.18	3.58	99.43
121929	62.09	13.89	7.36	3.75	4.90	4.24	0.10	0.81	0.10	0.22	2.92	100.39
121932	48.84	16.70	10.20	8.62	5.18	1.79	0.64	1.01	0.17	0.24	4.69	98.09
121934	64.97	14.17	7.13	1.79	1.74	1.98	1.96	1.00	0.13	0.38	2.60	97.87
121936	65.51	12.18	7.04	3.51	1.76	3.07	0.90	0.97	0.13	0.42	2.85	98.33
121939	59.25	14.43	11.43	2.53	3.33	2.07	0.88	1.41	0.16	0.18	3.58	99.26
121941	61.91	14.95	6.70	3.26	1.40	5.28	0.84	1.09	0.16	0.38	2.76	98.74
121944	61.30	16.12	6.03	3.53	1.69	2.97	3.12	1.08	0.15	0.40	3.80	100.18
121945	67.69	13.30	4.67	3.60	0.83	3.88	2.04	0.95	0.10	0.30	2.76	100.11

DATE : NOV-29-1990

SIGNED : 

SWASTIKA LABORATORIES

P.O. BOX 10, SWASTIKA, ONTARIO
TELEPHONE #: (705) - 642 - 3244
FAX #: (705) - 642 - 3300

I.C.A.P. WHOLE ROCK

LITHIUM METABORATE FUSION

SWASTIKA LABS

T.S.L. REPORT No. : M - 8517 - 1
T.S.L. File No. : N028RC
T.S.L. Invoice No. :

YOUR REFERENCE - OW-1814-RG1

ALL RESULTS PPM

SAMPLE #	Ba ppm	Sr ppm	Zr ppm	Y ppm	Sc ppm
7169	90	96	149	24	14
7170	915	41	126	30	5
7351	306	162	169	40	13
7536	348	76	136	36	11
7359	119	239	98	17	17
7371	75	139	155	25	14
121906	212	162	116	16	13
121910	184	175	109	16	14
121913	318	217	119	16	12
121915	294	208	124	17	15
121918	52	49	70	19	13
121927	221	212	105	24	29
121929	62	166	140	25	16
121932	183	212	97	22	25
121934	437	107	157	35	13
121936	308	144	120	35	12
121939	284	137	133	28	19
121941	224	130	177	38	13
121944	809	69	204	46	14
121945	513	135	161	34	12

DATE : NOV-29-1990

SIGNED : D-RJ

SWASTIKA LABORATORIES

P.O. BOX 10, SWASTIKA, ONTARIO
TELEPHONE #: (705) - 642 - 3244
FAX #: (705) - 642 - 3300

I.C.A.P. PLASMA SCAN

Aqua-Regia Digestion

SWASTIKA

T.S.L. REPORT No. : M - 8516 - I
T.S.L. File No. : NO26MA
T.S.L. Invoice No. :

YOUR REFERENCE - DW-1B14-RG1

ALL RESULTS PPM

ELEMENT		7169
Aluminum	[Al]	17000
Iron	[Fe]	41000
Calcium	[Ca]	15000
Magnesium	[Mg]	7900
Sodium	[Na]	440
Potassium	[K]	190
Titanium	[Ti]	1700
Manganese	[Mn]	650
Phosphorus	[P]	270
Barium	[Ba]	7
Chromium	[Cr]	42
Zirconium	[Zr]	13
Copper	[Cu]	36
Nickel	[Ni]	48
Lead	[Pb]	54
Zinc	[Zn]	58
Vanadium	[V]	74
Strontium	[Sr]	10
Cobalt	[Co]	11
Molybdenum	[Mo]	< 2
Silver	[Ag]	< 1
Cadmium	[Cd]	< 1
Beryllium	[Be]	< 1
Boron	[B]	< 10
Antimony	[Sb]	10
Yttrium	[Y]	3
Scandium	[Sc]	4
Tungsten	[W]	< 10
Niobium	[Nb]	< 10
Thorium	[Th]	50
Arsenic	[As]	25
Bismuth	[Bi]	< 5
Tin	[Sn]	< 10
Lithium	[Li]	10
Holmium	[Ho]	< 10

Some elements are partial decomposition only

DATE : NOV-26-1990

SIGNED : D. R. B.

APPENDIX D

ASSAY INVOICES

Swastika Laboratories
P.O. Box 10
Swastika, Ontario
P0K 1T0

INVOICE

NO: 23950

DATE: 12-18-90

PAGE: 1 of 1

SOLD TO:

L.Raitanen
63A Second St
Kirkland Lake, Ontario
P2N 1R6

SHIP TO:

Same

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	F	P	UNIT PRICE	AMOUNT
R014	20	1	Whole Rock Analysis			25.000	500.00
	20	1	FeO			15.000	300.00
	20	1	Sample Handling			3.000	60.00
			Cert#0W-1814-RG1				

COMMENTS:

Net 30 Days

TOTAL 860.00

Swastika Laboratories
P. O. Box 10
Swastika, Ontario
P0K 1T0

INVOICE

NO.: 23985

DATE: 01-02-91

PAGE: 1 of 1

GST Registration Number: R 100294743

SOLD TO:

L.Raitanen
63A Second St
Kirkland Lake, Ontario
P2N 1R6

SHIP TO:

Same

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	F	P	UNIT PRICE	AMOUNT
	1	1	Total ID package Cert#0W-1814--RG1	3		20.000	20.00
			3-GST @ 7 %, Excluded				1.40

COMMENTS:

Net 30 Days

TOTAL 21.40

Swastika Laboratories
P.O. Box 10
Swastika, Ontario
P0K 1T0

INVOICE

NO: 23761

DATE: 11-22-90

PAGE: 1 of 1

SOLD TO:

L.Raitanen
63A Second St
Kirkland Lake, Ontario
P2N 1R6

SHIP TO:

Same

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	F	P	UNIT PRICE	AMOUNT
	1	1	Au Assay			8.750	8.75
	1	1	Sample Handling			3.000	3.00
			Cert#0W-1814-RG1				

COMMENTS:

Net 30 Days

TOTAL 11.75

Swastika Laboratories
P.O. Box 10
Swastika, Ontario
P0K 1T0

INVOICE

NO.: 23541

DATE: 10-31-90

PAGE: 1 of 1

SOLD TO:

L.Raitanen
63A Second St
Kirkland Lake, Ontario
P2N 1R6

SHIP TO:

Same

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	F	P	UNIT PRICE	AMOUNT
	1	1	Au Assay			8.750	8.75
	1	1	Sample Handling			3.000	3.00
			Cert#OW-1661-RG1				

COMMENTS:

Net 30 Days

TOTAL 11.75

Kirkland Lake Ont
May. 5/91

Land Branch
Sudbury. Ont.
Fax. 705-670-7262
Attention Mr. C. Stevenson

Please find copies of 2 cheques issued to Swastika Lab. to amount of $904.90

Yours truly,
L. Raitanen
OP 90-278

L. RAITANEN — 29001-1 — Dec. 6 1990
NAME — ACCOUNT NO. — CHEQUE NO.
ADDRESS
CITY, PROVINCE, POSTAL CODE

PAY TO THE ORDER OF — Swastika Laboratories — $23.50
Twenty-Three — 50/100 DOLLARS

TIMISKAMING CREDIT UNION LTD.
22 PROSPECT AVENUE
KIRKLAND LAKE, ONTARIO P2N 3L1

L. Raitanen

⑈10662⑈8281⑈ ⑆000002350⑈

MAY- 6-91 MON 11:44 CARL'S OFFICE SUPPLY LTD P.02 2-2

DEPOSIT TO THE CREDIT OF
SWASTIKA LABORATORIES
TR. #19282-004 ACC. #0613-0876806

DE '90 10
TORONTO DOMINION BANK
TORONTO DATA CENTRE
TORONTO, ONTARIO

C.C.C.S. TORONTO,ONT
C.U.C.O. DATA CENTRE
50002-828 12/10/90 3-5
10244216

NAME: L. RAITANEN
ACCOUNT NO.: 39002
CHEQUE NO.
ADDRESS
CITY, PROVINCE, POSTAL CODE

March 8 1991

PAY TO THE ORDER OF: Swastika Laboratories $ 881.40

— Eight Hundred Eighty-One — 40/100 DOLLARS

TIMISKAMING CREDIT UNION LTD.
22 PROSPECT AVENUE
KIRKLAND LAKE, ONTARIO P2N 3L1

⑆10662⑉828⑆ ⑈0000088140⑈

DEPOSIT TO THE CREDIT OF
SWASTIKA LABORATORIES
TR. #19282-004 ACC. #0613-0876806

Mar 11/91

KIRKLAND LAKE ONT
27442-003

TORONTO DOMINION
BANK
TORONTO, ONTARIO
0267-146

MR '91 11
TORONTO DOMINION BANK
TORONTO DATA CENTRE
TORONTO, ONTARIO

C.C.C.S. TORONTO,ONT
C.U.C.O. DATA CENTRE
50002-828 03/11/91
10239432

APPENDIX E
BIBLIOGRAPHY

1. Hogg, W.A. (1964) Arnold and Katrine Townships, O.D.M. Geological Report No. 29, Map No. 2061

2. Jenson, L.S., and Langford, F.F.
1985: Geology and Petrogenesis of the Archean Abitibi Belt in the Kirkland Lake Area, Ontario; Ontario Geological Survey, Miscellaneous Paper 123, 130p.

3. Jenson, L.S.
1976: A New Cation Plot for Classifying Subalkalic Volcanic Rocks; Ontario Div. Mines, MP 66, 22p.

ML

Ministry of Northern Development and Mines

DOCUMENT No. W9108. 00107

32D04NE0033 2.14001 KATRINE

900

Mining Act

Report of Work
(Expenditures, Subsection 77(1

Type of Work Performed	Mining Division	Township or Area
Whole Rock Geochemistry	Larder Lake	Katrine Twp.

Recorded Holder: Lasse Raitanen — 2.14001 — Prospector's Licence No.: K 19354

Address: 63 A 2nd Av., Kirkland Lake, Ont. P2N 1R6 — Telephone No.: 705 567-3772

Work Performed By: Lasse Raitanen, Swastika Laboratories

Name and Address of Author (of Submission): Stewart Carmichael, P.O Box 271, Swastika, Ont. P0K 1T0

Date When Work was Performed — From: 12 Day, 2 Mo., 90 Yr. — To: 5 Day, 6 Mo., 90 Yr.

All the work was performed on Mining Claim(s): Indicate no. of days performed on each claim. *See Note No. 1 on reverse side

Mining Claim	No. of Days	Mining Claim	No. of Days	Mining Claim	No. of Days	Mining Claim	No. of Days	Mining Claim	No. of Days	Mining Claim	No. of Days
L-1046606	3	L-1046597	13	L-1015170	9	L-1096603	3				
L-1046602	3	L-1015162	3								

Instructions
Total days credits may be distributed at claim holder's choice. Enter number of days credits per claim in the expenditure days credit column (below).

Calculation of Expenditure Days Credits: Total Expenditures $ 516.00 ÷ 15 = Total Days Credits 34

Total Number of Mining Claims Covered by this Report of Work: 6

Mining Claims (List in numerical sequence). If space is insufficient, attach schedules with required information — Town

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	1646603	3									
L	1646602	3									
L	1015162	3									
L	1015170	9									
L	1046606	3									
L	1046597	13									

RECEIVED
MAR 18 1991
MINING LANDS SECTION

Total Number of Days Performed	Total Number of Days Claimed	Total Number of Days to be Claimed on Future Date
34	34	

Certification of Beneficial Interest *See Note No. 2 on reverse side

I hereby certify that, at the time the work was performed, the claims covered in this report of work were recorded in the current recorded holder's name or held under a beneficial interest by the current recorded holder. Date: March 11/91 — Recorded Holder or Agent (Signature): L. Raitanen

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 Address of Person Certifying: Stewart Carmichael P.O. Box 271, Swastika, ONT P0K 1T0

Telephone No.	Date	Certified By (Signature)
705 567-2286	March 11/91	S. Carmichael

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
34	March 12/91	
	Date Approved as Recorded	Provincial Manager, Mining Lands
	May 06 1991	

Received Stamp: LARDER LAKE MINING DIVISION 91 MAR 12 PM 2 56 RECEIVED

0378 (89/06) Report of Work Prepaid Rec'd + sent to Kirkland Lake

***Note No. 1**

Where work e.g. overburden drilling crosses a claim boundary, indicate the number of assessment days performed on each claim.

Where the work performed is greater than the work applied to contiguous claims, specify the claim(s) that the work assignment should be calculated on.

***Note No. 2**

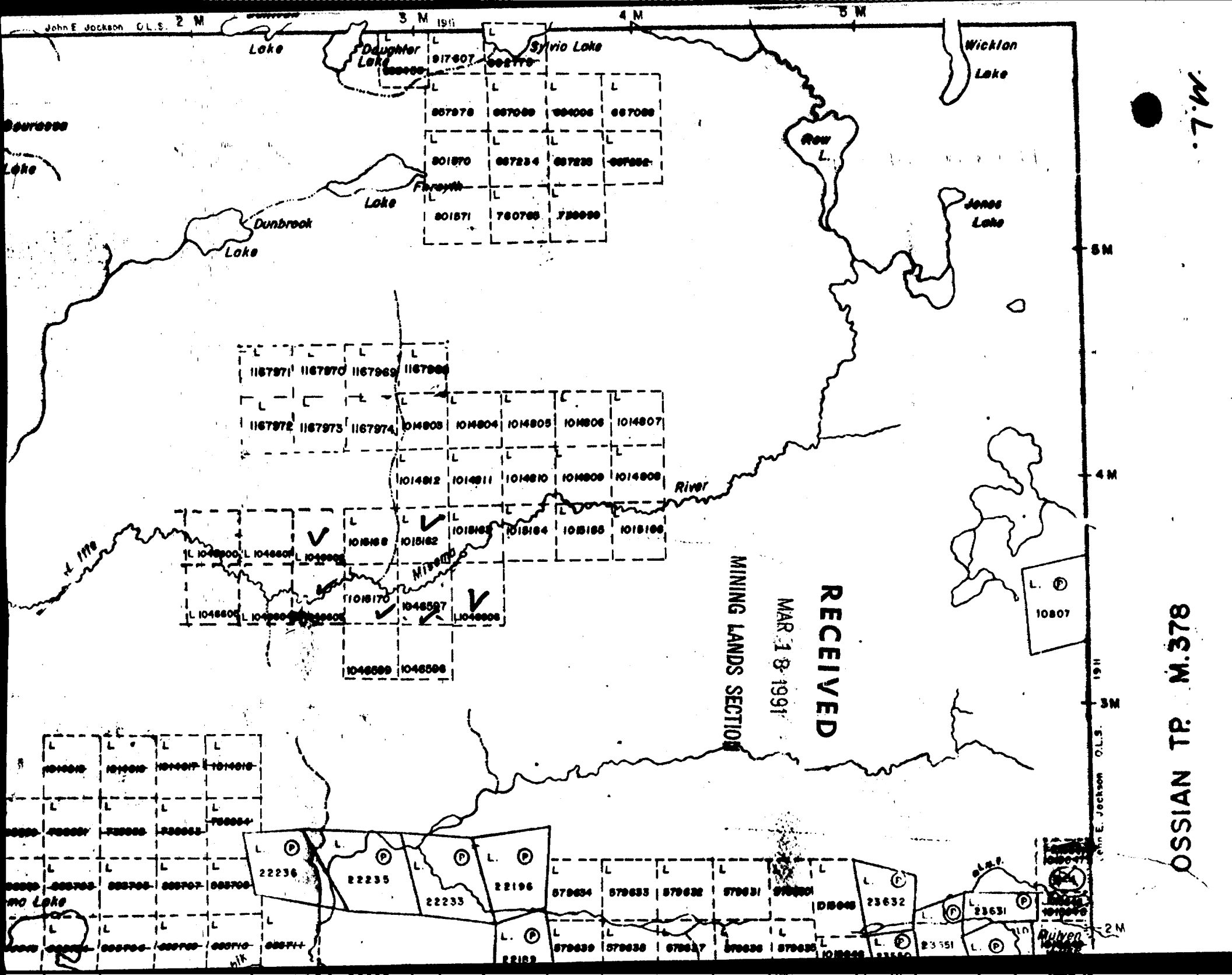
Examples of **beneficial interest** are unrecorded transfers, option agreements, memorandum of agreements, etc. with respect to the mining claims.

A total of 20 samples were taken for a total expenditure of 860.00. Some of these were taken outside of the area covered by this report, thus 12 samples are included ~~in~~ for assessment. The locations are included in this report.

RECEIVED

MAR 1 8 1991

MINING LANDS SECTION

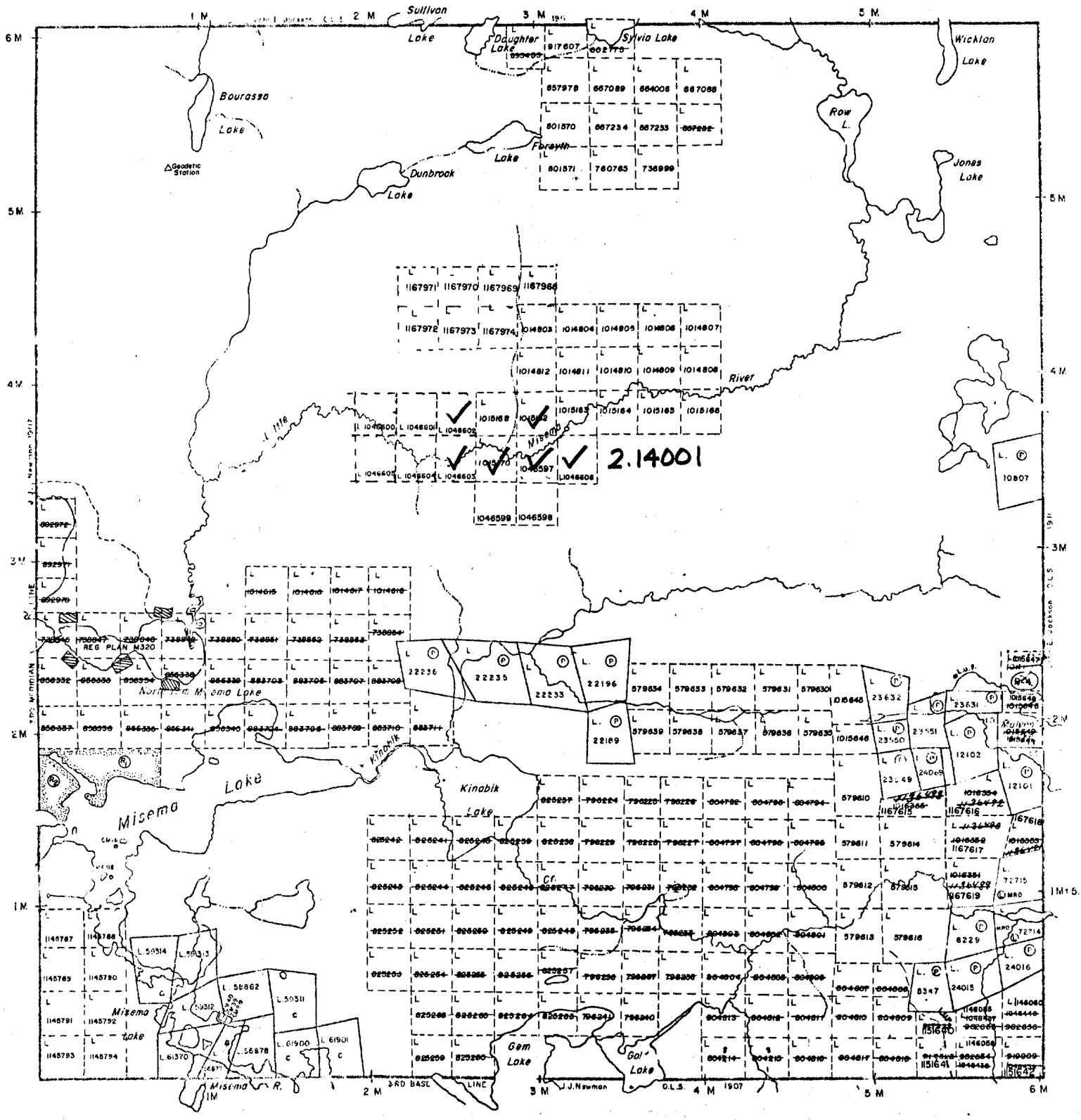

John E Jackson O.L.S.
2 M
3 M
1911
4 M
5 M
Lake
Daughter Lake
Sylvio Lake
Wicklon Lake
Lake
Row L.
Lake
Forsyth
Lake
Dunbrook
Lake
Jones Lake
5M
4M
River
3M
2M
10807
22236
22235
22233
22196
23632
23631
23551
Ruben
MINING LANDS SECTION
RECEIVED
MAR 18 1991
OSSIAN TP. M.378
M.T.

BEN NEVIS TP. M.325

ARNOLD TP. M.321

OSSIAN TP. M.378

McVITTIE TP. M.370



THE TOWNSHIP
OF

KATRINE

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH -- 40 CHAINS

LEGEND

PATENTED LAND	P or (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	X
CANCELLED	C.
PATENTED S.R.O.	(P)

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Areas withdrawn from staking under Section 43 of the Mining Act

Order no.	File	Date	Disposition
R1 NR W 83/80	115462	16/4/80	S.R. + M.R.
R2 NR W 88/80	115462	16/4/80	S.R.O.
~~R3 Dec 35/80 W-9/86~~	~~115462~~	~~20/4/86~~	~~S + M~~

PT of W-8/86 and W-50/86 (M+S Rights) Opened, Order no O-103/87 NR Dec 2/87

PT of W-9/86 (S.R. + M.R.) Opened by Order No. O-104/87 NR Dec. 3/87.

~~(R3) W L1/89 NR MR AND SR JAN 30/89~~

W L1/89 OPENED ORDER O-L8/89 NR APRIL 4/89

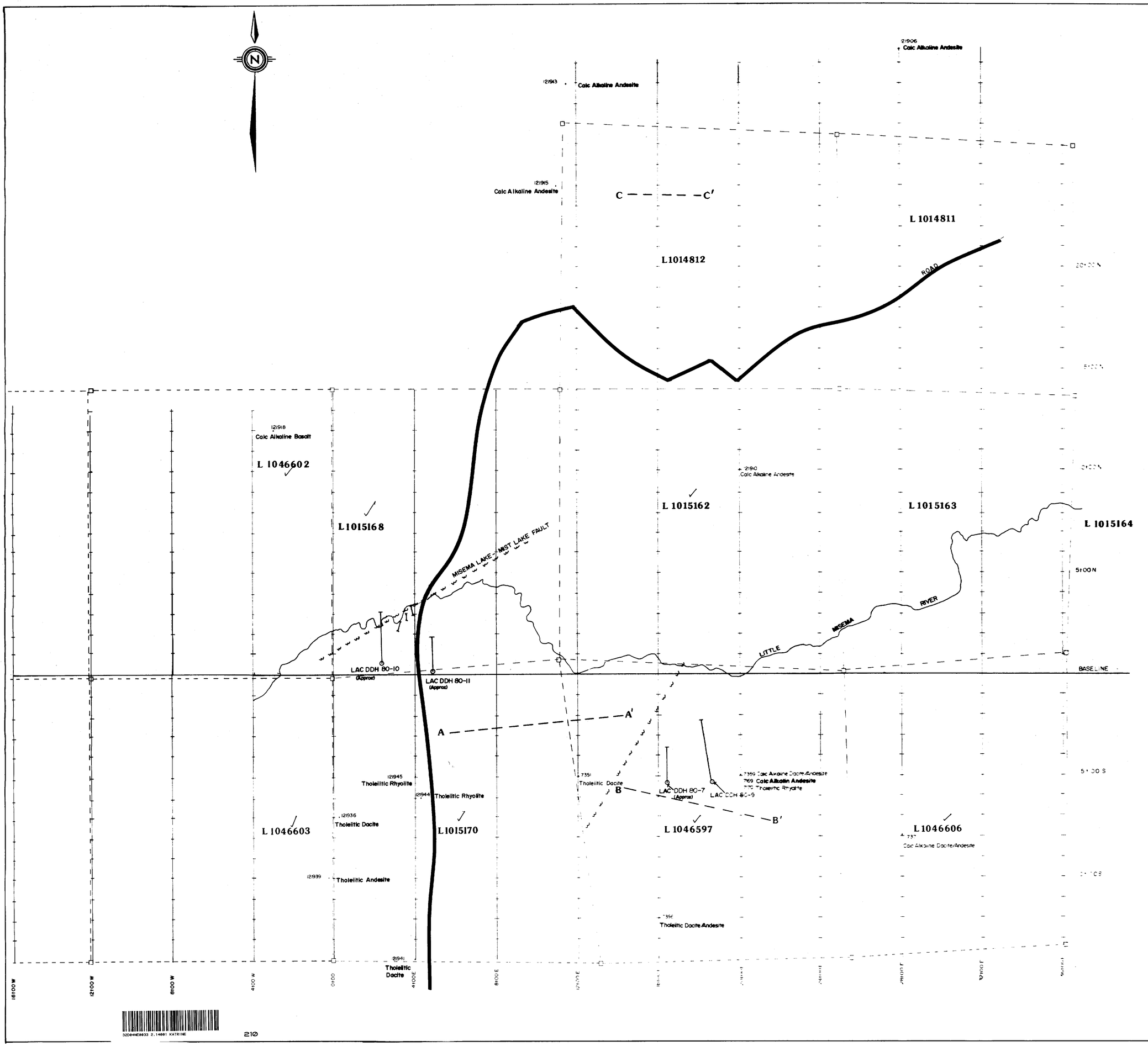
DATE OF ISSUE
DEC 17 1990
LARDER LAKE
MINING RECORDER'S OFFICE

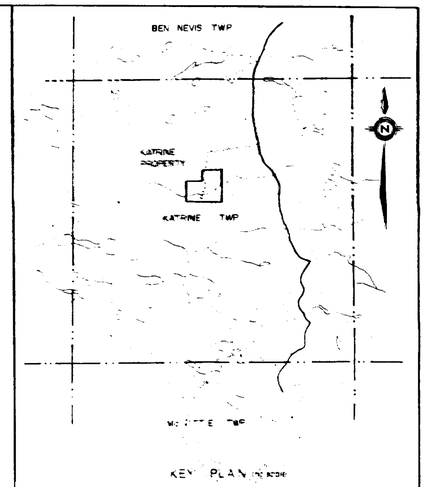
CIRCULATED MARCH 29, 1988

PLAN NO. M. 357

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON





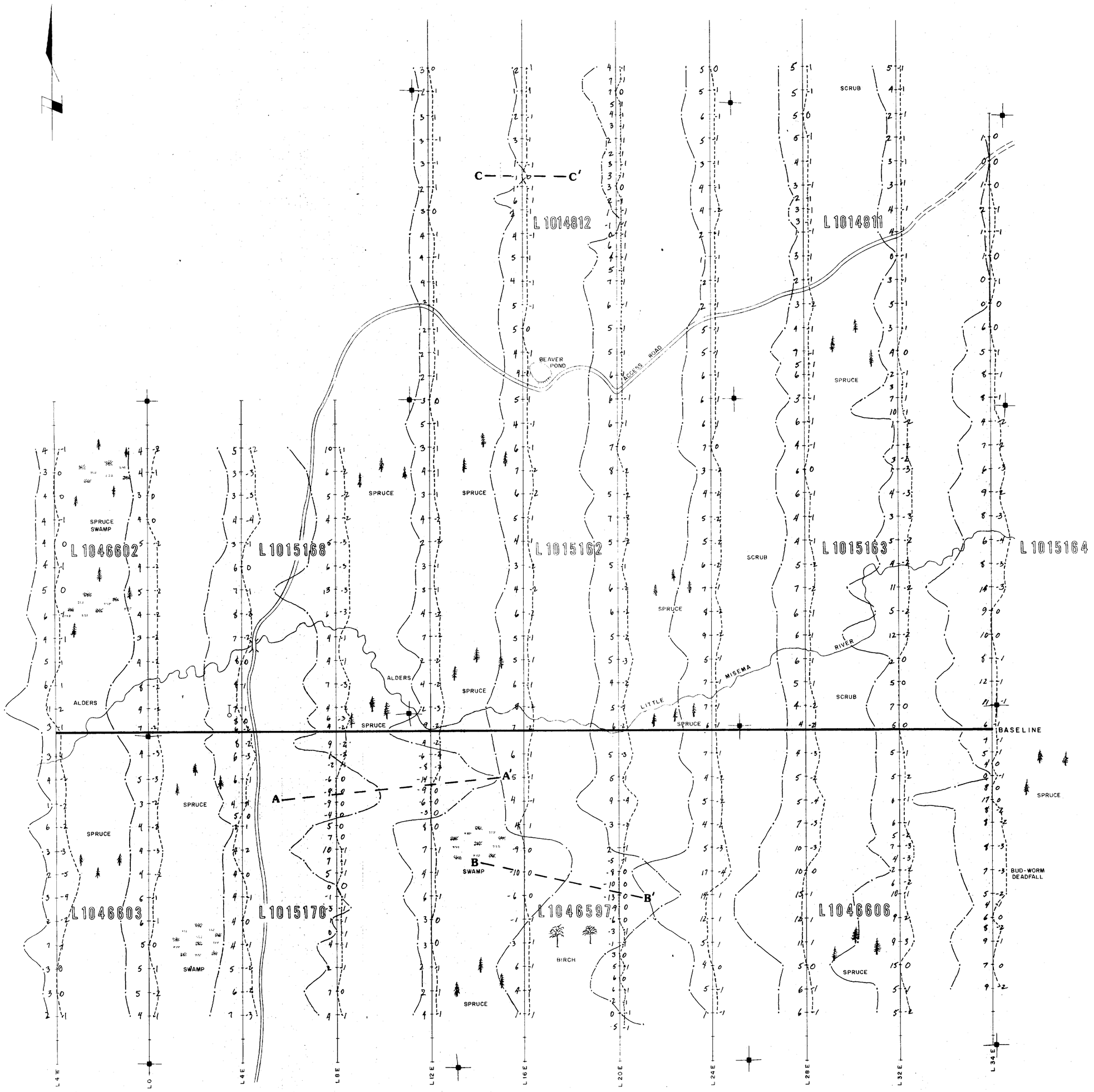
LEGEND

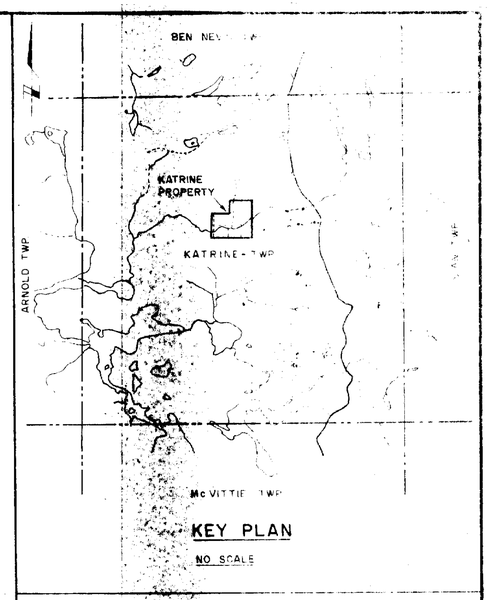
121906 Whole Rock Analysis Sample Location
Trench
Diamond Drill Hole
B — — — B' Max-Min Conductor Axis

2.14001

KATRINE PROPERTY
KATRINE TOWNSHIP
LARDER LAKE MINING DIVISION
COMPILATION MAP

PROJECT NO. 8416 DATE BY S.J.C.
DRAWING NO. 5 DRAWN BY S.J.C.
SCALE 1:2500 DATE JAN. 5 1990
0 100 200 400 600
FEET





GEOLOGICAL ASSOCIATION OF CANADA
Jan 14/91
FELLOW

A — — — — — — A'
Conductor Axis

LEGEND
out of phase
in phase
1" = 10%

2.14001

KATRINE PROPERTY

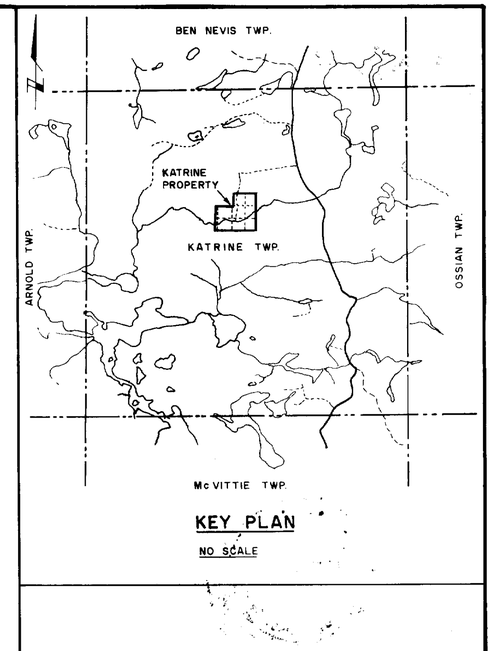
KATRINE TOWNSHIP

LARDER LAKE MINING DISTRICT

MAX-MIN II SURVEY
FREQUENCY: 444 Hz

PROJECT No.:	DATA BY: T. Obradovich
	DRAWN BY: T. Obradovich
DRAWING No.: 2	DATE: DEC. 20, 1990

SCALE: 1 inch = 200 ft.
FEET 0 100 200 300 400



KEY PLAN

NO SCALE

C— —C′ — — —C′

L 1014812

L 1014811

BEAVER POND

ACCESS ROAD

SCRUB

SPRUCE

SPRUCE SWAMP

L 1046602

L 1015168

L 1015162

L 1015163

L 1015164

ALDERS

MISEMA RIVER

LITTLE

BASELINE

A— — — — — —A′

B— — — — — —B′

L 1046603

L 1015170

SWAMP

L 1046597

BIRCH

L 1046606

BUD-WORM DEADFALL

L 4 W

L 0

L 4 E

L 8 E

L 12 E

L 16 E

L 20 E

L 24 E

L 28 E

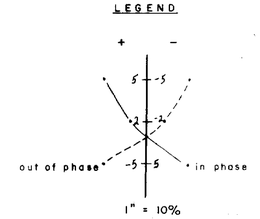
L 32 E

L 34 E

A— — — — — —A′

Conductor Axis

LEGEND



1" = 10%

GEOLOGICAL ASSOCIATION OF CANADA
S. B. Campbell
Jan 14/91
FELLOW

2.14001

KATRINE PROPERTY

KATRINE TOWNSHIP

LARDER LAKE MINING DISTRICT

MAX-MIN II SURVEY

FREQUENCY: 1777 Hz

PROJECT No.:	DATA BY: T. Chadwick
	DRAWN BY: T. Chadwick
DRAWING No.: 1	DATE: DEC. 20, 1990

SCALE: 1 inch = 200 ft.

0 100 200 300 400

FEET

32D04NE0033 2.14001 KATRINE