REPORT ON
GEOLOGICAL SURVEY
CRYSTAL LAKE PROPERTY
LEBEL TOWNSHIP
LARDER LAKE MINING DIVISION
ONTARIO

by M. LEAHY
November, 1989

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INTRODUCTION

The property herein described consists of three contiguous unpatented mining claims located in east-central Lebel Township, Larder Lake Mining Division, Ontario. The three claims surveyed lie just northwest of Crystal Lake and are part of a ten claim group which covers most of Crystal Lake. The property is about two miles east of King Kirkland and five miles east of Kirkland Lake. The claims are numbered as follows: L-891743, L-891744 and L-891745.

ACCESS

A year round gravel road leads from Highway 66 just east of King Kirkland to the property.

HISTORY

The property covers parts of the old Moffat-Hall and Kirkland-Commodore properties which were worked in the 1930's and 1940's. The area covered by the present claims has been partly covered by a ground magnetic and vlf electromagnetic survey. Some old trenches were found in the northwest corner of the property. An airborne magnetic and electromagnetic survey funded by the O.G.S. (map P2264) covers all of Lebel Township. In 1988, an airborne magnetic and VLF electromagnetic survey was conducted over the property by H. Ferderber Geophysics Ltd.

GEOLOGY: REGIONAL

The most significant gold-associated feature in the area is the Larder Lake- Cadillac fault which traverses the township parallel to and south of Highway 66. The Algoman Lebel syenite stock lies south of the break while the area north of the break is occupied by a very complex assemblage of Timiskaming sediments, volcanics and Algoman Mafic to Felsic intrusives. North to Northeast trending faults host most of the gold showings and deposits in the township. Many of the rocks in the township are faulted, sheared and highly altered to chlorite and/or carbonate and/or sericite. Most rocks strike E-W and dips are near vertical. Two former gold producers, the Bidgood and Morris Kirkland, lie one half mile north of and one half mile southwest of the property.

GEOLOGY: CRYSTAL LAKE PROPERTY

The claims are underlain by Timiskaming graywacke, conglomerate and trachyte. A small plug of Algoman augite syenite intrudes the graywacke on claim # 891743. The topography of the group consists of a fifty foot high graywacke hill along the west boundary which slopes down to a sand filled valley bound on the east side by a hill of trachyte. North trending faults occupy the sand filled valley and the eastern boundary. Most of the graywacke is medium to fine grained with some conglomerate and varved sections. The trachyte is medium to fine grained and varies in texture from aphanitic to porphyritic. Alteration affecting all rock types appears to be zoned with the south half of the property subject to carbonatization and chloritization whereas nearer the north boundary carbonatization and sericitization predominate. The chlorite alteration has affected the matrix of both graywacke and trachyte which are both characterized by a black mafic matrix binding altered pink, purple or cream coloured feldspar phenocrysts. Along the north boundary both rock types are aphanitic, rusty brownish-green with some poorly formed, altered, creamy feldspar phenocrysts in porphyritic sections.

The augite syenite is black with mafic lath shaped phenocrysts most visible on a weathered surface. It is magnetite-rich and appears to be the cause of the 2000 gamma magnetic high defined by the magnetic survey.

All rocks but the syenite are mineralized with fine disseminated pyrite averaging about one per cent with some areas of two - five per cent.

GEOLOGICAL SURVEY

From September 26 - 29, 1989, the author assisted by A. Black, carried out a geological survey over the three northwest claims of the Crystal Lake Property. A previously established grid was used along with airphotographs to produce a base map with a scale of 1" = 200'. The area mapped covers about sixty acres of which about eight acres are outcrop. Pace and compass traverses were done between lines to tie in smaller outcrops.

The purpose of the survey was to help define any geological features that might host gold mineralization. On other properties in the area, gold deposition is associated with north and northeast trending faults in Timiskaming graywacke and trachyte. Since the two north trending faults on the property are overburden covered a thorough examination of all rocks in their proximity was done in order to define areas worthy of further work.

GEOLOGICAL SURVEY, Cont'd.

The highly altered nature of most of the rocks in the area made precise identification difficult in the field; so, twenty-one representative samples were taken for microscopic study. Thin sections were prepared from eight of these samples and six samples were submitted for assay (Au). Rocks were treated with dilute HCl for carbonate reaction and as well, were tested for magnetic susceptibility.

Sample numbers, descriptions, locations and assays are contained in Appendix A, attached. Sample locations were plotted on the base map using only the last two digits of the sample number.

CONCLUSIONS AND RECOMMENDATIONS

The geological survey and sampling failed to reveal any areas of significant gold enrichment exposed at surface. However, since the rock types and structures associated with gold deposition in the area are all present on the property, some further work is warranted in order to test overburden covered areas underlain by the north-trending faults. A soil geochemistry survey is recommended to try and define buried zones of gold mineralization. This survey should be restricted to areas of relatively shallow overburden near the north boundary. Two east-west traverses, 200' apart, with samples taken every fifty feet should be sufficient to test the effectiveness of this technique. Any geochemical gold anomalies found in this manner should be either trenched if overburden thickness allows, or diamond drilled.

Michael Leahy

CERTIFICATE

THIS IS TO CERTIFY THAT:

1. I am a graduate in Prospecting Techniques from the Northern College of Applied Arts and Technology, Haileybury campus, 1976. I have been active as a prospector and exploration contractor since 1974.
2. I am a member in good standing of the P.D.A., C.I.M.M., and I am president of the N.P.A. and a director of O.M.E.F. I reside and hold office at 139 Carter Ave., Kirkland Lake, Ontario.
3. I have a 50% interest in this property.
4. My report is based upon having personally conducted the survey, a review of published information on the property and upon my familiarity and experience as a prospector in the Kirkland Lake camp.

Kirkland Lake, Ontario
November, 1989

Signed
Micheal Leahy
Prospector

APPENDIX A

CRYSTAL-LEBEL SAMPLE DESCRIPTION

SAMPLE #	LOCATION	DESCRIPTION	ASSAY	THIN
8520	48W + 5N	Graywacke- gray, fine grained, sheared sericitized, 1% fine disseminated pyrite.		
8521	52W + 885N	Graywacke or Crystal tuff- highly altered, carbonatized, sericitized, rusty rind, dark matrix with light phenocrysts giving porphyritic appearance.		X
8522	5160W + 12N	Graywacke- fine grained, 1% fine disseminated pyrite.	0.010 0.009	
8522-A	"	Vein material- highly altered, chloritized wall rock with quartz, carbonate and fine disseminated pyrite, sericite.		
8523	45W + 15N	Graywacke- fine grained with 1% fine disseminated pyrite.		
8524	4650W + 1150N	Vein material- highly altered, chloritized wall rock with quartz, carbonate and 1% fine disseminated pyrite.		X
8525	50W + 6N	Graywacke- dark chloritic matrix with pink phenocrysts, highly carbonatized and sericitized.		
8526	5150W + 750N	Graywacke- green-gray matrix with cream-coloured phenocrysts, angular, altered inclusions, carbonatized, fine disseminated pyrite.		X
8527	4850W + 9N	Boulders- dark chloritic matrix with pink phenocrysts, highly altered.		
8528	49W + 12N	Graywacke- dark chloritized matrix with brown phenocrysts, sheared, sericitized, carbonatized, rusty - 2-5% fine pyrite.		X
8529	35W + 1850N	Graywacke- rusty brown-green, sheared, highly altered, carbonatized, sericitized.	NIL	X

8530	38W + 19N	Graywacke- fine grained, highly carbonatized, 2% fine disseminated pyrite.	0.002	
8531	36W + 1850N	Graywacke- light brown, carbonatized, rusty, sericitized, 2-3% fine disseminated pyrite.	0.002	X
8532	36W + 1850N	Boulder- 50% pyrite, water worn to knobby surface.		
8533	35W + 19N	Trachyte- light, rusty-brown with dark hematized phenocrysts, sheared, carbonatized, sericitzed.	NIL	X
8534	38W + 19N	Trachyte- rusty, brown-green, carbonatized sericitized, rusty rind		
8535	35W + 18N	Graywacke- lightly carbonatized, sericitized, jasper fragments		
8536	3235W + 12N	Trachyte?- Black chloritic matrix with dark, hematized, purplish phenocrysts, highly carbonatized, contains some fine quartz veins.		X
8537	2450W + 12N	Trachyte- Green-brown, fine grained, highly altered, carbonatized, fine disseminated pyrite.	NIL	
8538	40W + 11N	Graywacke- fine grained, 1% fine disseminated pyrite.		
8539	48W + 12N	Graywacke- fine grained, 1% fine disseminated pyrite.		

December 7, 1989

Report of Expenditures - Crystal-Lebel Property

Claim #	Sample #	Work Done
L-891743	8521, 8524, 8526, 8528, 8522	Thin Section Assay
L-891744	8529, 8531, 8533, 8536, 9529, 8530, 8531, 8533	Thin Section Assays
L-891745	8537	Assay

Cost per assay = $11.75
Cost per thin section = $10.00

L-891743 --- 4 Thin sections @ $10. = $ 40.00
1 Assay @ $11.75 = $ 11.75
Total ..... $ 51.75

$51.75 / 15 = 3.45 days

L-891744 --- 4 Thin sections @ $10. = $ 40.00
4 Assays @ $11.75 = $ 47.00
Total ..... $ 87.00

$87.00 / 15 = 5.8 days

L-891745 --- 1 Assay @ $11.75 = $ 11.75
Total ..... $ 11.75

$11.75 / 15 = .78 days

Swastika Lab Assays --------- Certificate #'s: 76442 & 76486
Invoice #: 20845
Lakefield Research Thin Sections -- Invoice #: 29432

Crystal - Lebel

Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Established 1928

Certificate of Analysis

Certificate No. 76442 Date Oct. 11, 19889

Received Oct. 5, 1989 5 Rock Samples

Submitted by Mr. Mike Leahy, Kirkland Lake, Ontario.

SAMPLE NO.	GOLD Oz/ton
8529	Nil
8530	0.002
8531	0.002
8533	Nil
8537	Nil

Per G. Lebel - Manager /ns

P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 FAX (705) 642-3300

CTA Member Canadian Testing Association

Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Established 1928

Certificate of Analysis

Certificate No. 76486 Date Oct. 13, 1989

Received Oct. 11, 1989 1 Rock Sample

Submitted by Mr. Mike Leahy, Kirkland Lake, Ontario.

SAMPLE NO.	GOLD Oz/ton
8522	0.009/0.010

Per G. Lebel

G. Lebel - Manager /ns

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

Telephone (705) 642-3244. FAX (705) 642-3300

Crystal-Label #3

20845

SWASTIKA LABORATORIES LIMITED

P.O. BOX 10, SWASTIKA, ONTARIO P0K 1T0
TELEPHONE: (705) 642-3244 FAX (705) 642-3300

DATE			TRANSPORTEUR
16 DAY	Oct MONTH	1989 YEAR	SHIPPED VIA

VENDU À / SOLD TO

Mr. Mike Leahy
139 Carter Avenue
Kirkland Lake, Ontario
P2N 2A1

1.5% LATE CHARGE OVER 30 DAYS (ANNUAL RATE 18%)

NO. D'EXEMPT. DE TAXE FÉD. / FED. LICENCE NO.	NO. D'EXEMPT. DE TAXE PROV. / PROV. LICENCE NO.	VOTRE NO. DE COMMANDE / YOUR ORDER NO.	NOTRE NO DE COMMANDE / OUR ORDER NO.	CONDITIONS / TERMS	REP. DES VENTES / SALES REP.
				NET 30 DAYS	

QUANTITÉ / QUANTITY	DESCRIPTION	PRIX UNITAIRE / UNIT PRICE	MONTANT / AMOUNT
5	Au assays	$ 8.75	$ 43.75
5	Sample Handling	3.00	15.00
	Cert.#76442 Oct. 11, 1989		
1	Au assay	8.75	8.75
1	Sample Handling	3.00	3.00
	Cert.#76486 Oct. 13, 1989		
	Pd ck # 189 Oct 27/89		
	#189	TOTAL	$ 70.50

FACTURE/INVOICE

ANALYTICAL CHEMISTS • ASSAYERS • CONSULTANTS
ESTABLISHED 1928

TM ©

INVOICE #4 Crystal-Label

LAKEFIELD RESEARCH
A DIVISION OF FALCONBRIDGE LIMITED
P.O. Box 430, 185 Concession St., Lakefield, Ontario K0L 2H0
Phone: (705) 652-3341 Telex No. 06 962842
Fax No. (705) 652-6365

No.: 29432

DATE October 17 19 89

TO: MICHAEL LEAHY
133 CARTER AVENUE
KIRKLAND LAKE, ONTARIO
P2N 2A1
ATTN :MR. MICHAEL LEAHY

SENT TO:

Our Project L.R. 8900 -190		
RE: THIN SECTION ON 8 SAMPLES		
CHARGES AS PER AGREEMENT :		80.00
		$ 80.00
EIGHT POLISHED THINS @ $ 10.00		

Pd oct 25/89
cq # 184
Re-Crystal-Label projects

PLEASE PAY BY INVOICE — Terms: Net 30 days. 2% service charge per month on overdue accounts.

M.L.

DOCUMENT NO. W8908.406

Ministry of Northern Development and Mines

Ontario

Report of Work 2.1305

Mining Act (Expenditures, Subsection 77(19))

32D04NW0179 2.13052 LEBEL

900

Type of Work Performed	Mining Division	Township or Area
ASSAYS - Thin Sections	Larder Lake	LEBEL TWP

Recorded Holder	Prospector's Licence No.
Michael LEAHY Ann Black	K 18263
Address	**Telephone No.**
139 CARTER Ave. Kirkland Lake, Ont P2N 2A1	705-567-4696
Work Performed By	
M. Leahy + A. BLACK	
Name and Address of Author (of Submission)	**Date When Work was Performed** From: 26 09 89 To: 29 09 89 (Day / Mo. / Yr.)
M. LEAHY	

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-891743	3.45	L-891744	5.80	L-891745	.78						

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 $ 150.50 ÷ 15 = Total Days Credits 10.03

Total Number of Mining Claims Covered by this Report of Work 3

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

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	891743	3.34									
L	891744	3.34									
L	891745	3.34									

RECEIVED
DEC 15 1989
MINING LANDS SECTION

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES
OFFICE
APR 2 1990
RECEIVED
Dec 7, 1989

Total Number of Days Performed	Total Number of Days Claimed	Total Number of Days to be Claimed at a Future Date
10.03	10.03	0

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: Dec 7, 1989 Recorded Holder or Agent (Signature): Michael Leahy

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: Michael LEAHY - 139 Carter Ave. Kirkland Lake Ont.

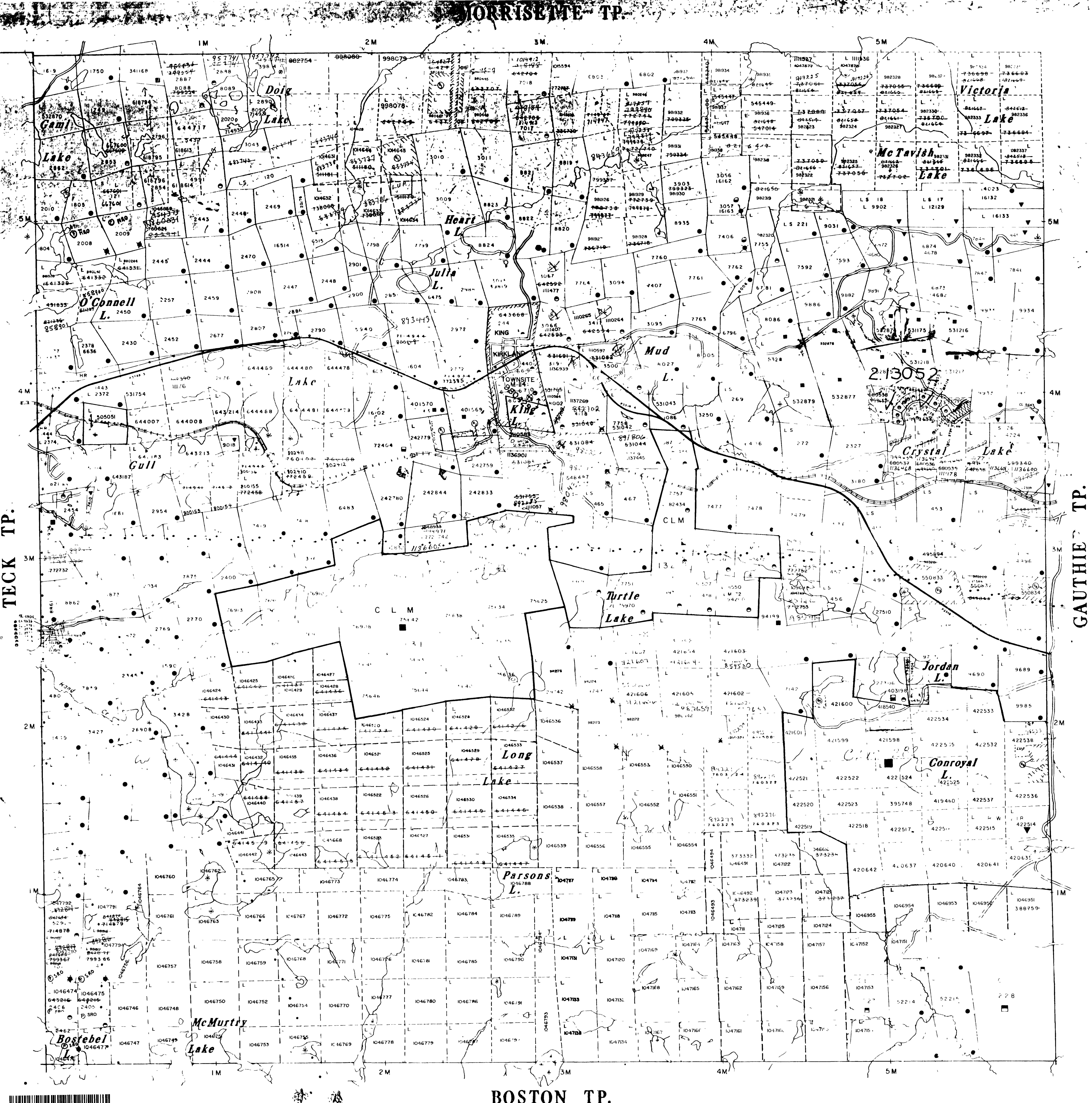
Telephone No.	Date	Certified By (Signature)
705-567-4696	Dec 7, 1989	Michael Leahy

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
10.02	Dec 8/89	
	Date Approved as Recorded	**Provincial Manager, Mining Lands**
	29 March 90	

Received Stamp: LARDER LAKE MINING DIV. RECEIVED DEC 8 1989 AM PM

0378 (89/06)



TOPOGRAPHY

LAKES AND RIVERS ETC, FROM FOREST RES… INVENTORY SHEETS 481794, 481801, 482794, …

SURVEYS

FIELD NOTE BOOKS, 2430, 2665, 3341, 3529
PLANS, M14-13, M15-13, M15-30, M30-15, N12-4, … S4-10, X41-23, Y41-2, Y43-41, Y59-…

HIGHWAYS

HIGHWAYS THROUGH CROWN LANDS FROM MIN… TRANSPORTATION AND COMMUNICATIONS SU… AS NOTED.

AREAS WITHDRAWN FROM DISPO…

S.R. – SURFACE RIGHTS M.R. – MININ…

Description	Order No.	Date	Disposition
R1		20/1/69	S.R.
R2 NRO-6/82 M.R.O OPENS W106/82	W106/82	6/1/82	M.R.O
R3 CROWN RES			

SAND AND GRAVEL

- G1 GRAVEL FILE 38581
- G2 GRAVEL FILE 8816
- G3 MTC. GRAVEL PIT No.513
- G4 GRAVEL FILE 29795
- G5 GRAVEL FILE 42354
- G6 GRAVEL FILE 10511

R4 SURFACE RIGHTS WITHDRAWN FROM STAKING SECT 36/80 ORDER NO W-17/83

R5 MINING and SURFACE RIGHTS WITHDRAWN FROM STAKING ORDERS W-9/86 and W-50/86 (except L 548447)
Reopened by Orders: 0-64/86 NR, 0-39/87 NR, 0-18/88 L

R6 MINING and SURFACE RIGHTS WITHDRAWN FROM … ORDER W-22/86
Reopened by Order 0-14/89

LEGEND

HIGHWAY AND ROUTE No.
OTHER ROADS
TRAILS
SURVEYED LINES
TOWNSHIPS BASE LINES ETC
LOTS MINING CLAIMS PARCELS ETC
UNSURVEYED LINES
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES
TRAVERSE MONUMENT

DISPOSITION OF CROWN LA…

TYPE OF DOCUMENT
PATENT SURFACE & MINING RIGHTS
SURFACE RIGHTS ONLY
MINING RIGHTS ONLY
LEASE SURFACE & MINING RIGHTS
SURFACE RIGHTS ONLY
MINING RIGHTS ONLY
LICENCE OF OCCUPATION
ORDER IN COUNCIL
RESERVATION
CANCELLED
SAND & GRAVEL

DATE OF ISSUE
JAN 30 1990
LARDER LAKE

NOTE MINING RIGHTS IN PARCELS PATENTED PRIOR … 1913 VESTED IN ORIGINAL PATENTEE BY … LANDS ACT RSO 1970 CHAP 380 SEC 63

SCALE: 1 inch 20 ch…

TOWNSHIP

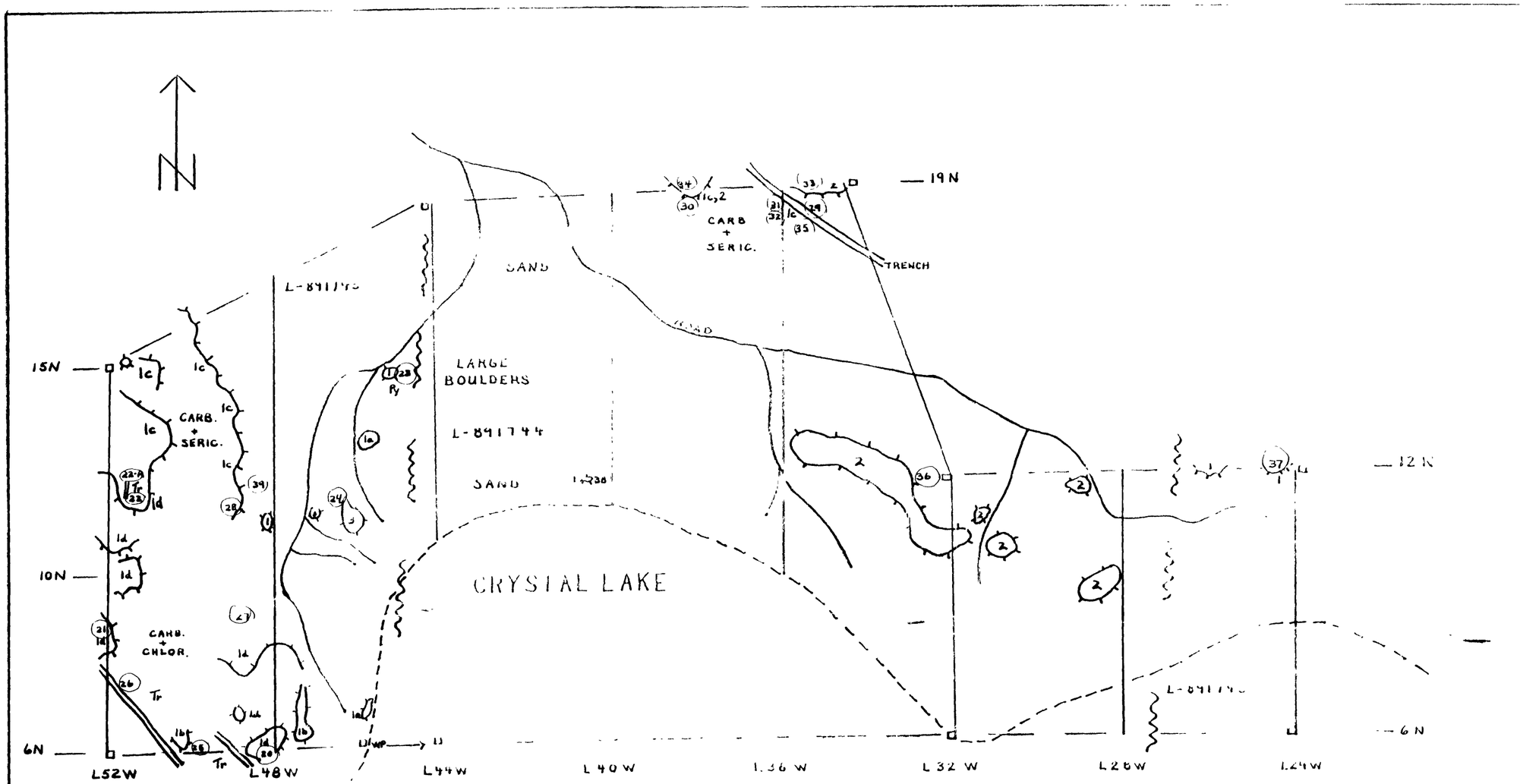
LEBEL

M N R ADMINISTRATIVE DISTRICT
KIRKLAND LAKE
MINING DIVISION
LARDER LAKE
LAND TITLES / REGISTRY DIVISION
TIMISKAMING

Ontario Ministry of Natural Resources — Land Management Branch

Date MARCH 1982 Number G-6…

32D04NW8179 2.13052 LEBEL 200



LEGEND

- OUTCROP AREA
- TRENCH (Tr)
- CLAIM POST
- FAULT
- LAKE SHORE
- Sample number
- GRAYWACKE: MED. TO FINE GR - 1
  - VARVED - 1a
  - CONGLOMERATE - 1b
  - INTERBROWN - 1c
  - SYENITIC - 1d
- TRACHYTE - 2
- AUGITE SYENITE - 3

2·13052

GEOLOGICAL SURVEY

CRYSTAL LAKE PROPERTY

LEBEL TOWNSHIP, ONTARIO

1" = 200'

Michael Lasky

KEY MAP 1" = 6 MILES

BERNHARDT TWP	MORRISETTE TWP	ARNOLD TWP
TECK TWP	LEBEL TWP (PROPERTY, KIRKLAND LAKE, HIGHWAY 66)	GAUTHIER TWP
OTTO TWP	BOSTON TWP	McELROY TWP