

REPORT OF ELECTROMAGNETIC SURVEY

PORTAGE



31M05NW0400 2.4672 COLEMAN

AGNICO-EAGLE

010

COLEMAN TOWNSHIP

ONTARIO

KIRKLAND LAKE, ONTARIO

BY: M. LEAHY

FEBRUARY, 1982

INTRODUCTION

**Location:** The property lies in the North-West corner of Coleman Township, Sudbury Mining Division, Ont. The nearest town is Latchford, five miles to the south. Portage Bay is part of the Montreal River which flows into Lake Timiskaming to the east.

**Access:** A skidoo trail leads up to the Montreal River from Latchford. Cottages on the east side of the bay are joined to Highway 11 by a private gravel road.

**History:** The property herein described consists of a 24 17<sup>S.H.T.</sup> claim group staked by Agnico-Eagle Mines Limited during the winter of 1981. The group was staked to cover a group of airborne electromagnetic anomalies discovered by an earlier survey. The claims are numbered as follows:

S - 599151	<del>S - 599229</del>
S - 599155	<del>S - 599230</del>
<del>S - 599156</del>	S - 599231
S - 599221	S - 599232
S - 599222	S - 599233
<del>S - 599223</del>	S - 599234
S - 599225	S - 599235
S - 599226	S - 599238
S - 599227	S - 599239
S - 599228	S - 599240
	S - 599241

GEOLOGY

The property is underlain by an undetermined thickness of flat lying Huronian sediments which in turn unconformably overlie Keewatin volcanics and Nipissing diabase. Silver mineralization has been known to occur in association with cherty graphitic interflow sediments in the Keewatin. These graphitic horizons were the target of the VLF survey.

GEOPHYSICAL PROGRAM

During February 1982 a grid was established over part of the group. A base line 12,000 feet long with a bearing of 300 degrees was set up between the South-East corner of claim S-599151 and the North-West corner of claim S-599221. Crosslines perpendicular to the base line were turned at 400 foot intervals and readings were taken every 100 feet. Picket lines totalled 10.5 miles. Instrument used was a Geonics EM - 16 VLF receiver with Annapolis Maryland as transmitter at 21.4 KHz. A total of 586 readings were taken. North dips were read as positive and the results were plotted on a map with a horizontal scale of 1 inch to 400 feet. Readings in percent were plotted with a vertical scale of 1 inch to 40 percent. The Fraser Filter formula was used to convert the profiles to contours which were plotted on a second map with a contour interval of 10 units and a horizontal scale of 1 inch to 400 feet.

RESULTS OF SURVEY

The airborne survey, flown in a North-South direction revealed a number of anomalies - all but one of which were located by the present survey.

The one airborne anomaly not located by the present survey was probably missed because of any one or all of the following possibilities: [a] wide line spacing of present survey

[b] difference in direction of survey lines

[c] strike of conductor not compatible with direction of VLF transmitter.

The location of the above-mentioned anomaly according to the airborne survey map is Line 36 West and 5 North.

The present survey also discovered a long, strong conductor not detected by the airborne survey. This conductor stretches from Line 8 West and 8 South to Line 44 West and 8 South.

CONCLUSIONS

Study of the Fraser contours reveal a strike generally parallel to the base line. Dip, as suggested by the dip angle profiles, is thought to be south. Depth is calculated to be approximately 800 feet. Medium to strong negative quadrature signals suggest the possibility of sulphides or graphite as the conductive material. In summary, the above conclusions appear to confirm quite closely with the geological model previously noted.

Kirkland Lake, Ontario  
February 15, 1982.

*Michael Leahy*

Michael Leahy.



31M05NW0400 2.4672 COLEMAN

900

1983 03 16

2.4672

Mining Recorder  
Ministry of Natural Resources  
199 Larch Street  
Sudbury, Ontario  
P3E 5P9

Dear Sir:

RE: Geophysical (Electromagnetic) Survey on  
Mining Claims S 599151 et al in the Township  
of Coleman.

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The Geophysical (Electromagnetic) Survey assessment work credits as listed with my Notice of Intent dated February 4, 1983 have been approved as of the above date.

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

Yours very truly,

E.F. Anderson  
Director  
Land Management Branch

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

A. Barr:sc

cc: Agnico Eagle Mines Limited  
Cobalt, Ontario

cc: Mr. M. Leahy  
Kirkland Lake, Ontario

cc: Resident Geologist  
Sudbury, Ontario



Ministry of  
Natural  
Resources

Ontario

FEB 25, 1983

1983 02 04

Your file:

Our file: 2.4672

Mining Recorder  
Ministry of Natural Resources  
199 Larch Street  
Sudbury, Ontario  
P3E 5P9

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

Yours very truly,

**For further information, if required,  
please contact Mr. F.W. Matthews at  
416/965-1380.**

E.F. Anderson  
Director  
Lands Administration Branch  
Whitney Block, Room 6450  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: 416/965-1316

**A. Barr:sc**

**Encls:**

**cc: Agnico Eagle Mines Limited  
Cobalt, Ontario**

**cc: Mr. M. Leahy  
Kirkland Lake, Ontario**

**cc: Mr. G.H. Ferguson  
Mining & Lands Commissioner  
Toronto, Ontario**



Ministry of  
Natural  
Resources

Ontario

Notice of Intent  
for Technical Reports

1983 02 04

2.4672

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Lands Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

Recorded Holder <b>AGNICO EAGLE MINES LIMITED</b>
Township or Area <b>COLEMAN</b>

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
<b>Geophysical</b> Electromagnetic <u>32</u> days Magnetometer _____ days Radiometric _____ days Induced polarization _____ days Section 86 (18) _____ days Geological _____ days Geochemical _____ days Man days <input type="checkbox"/> Airborne <input type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/> <input checked="" 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.	<b>S 599151            599155            599221-22            599225 to 28 incl.            599231 to 35 incl.            599238 to 41 incl.</b>

**Special credits under section 86 (15a) for the following mining claims**

**No credits have been allowed for the following mining claims**

not sufficiently covered by the survey       Insufficient technical data filed

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 — 40; Section 86(18)-60:



The Mining Act

5/19/82  
 Only days credits calculated in the "Expend. Days Cr." columns. Do not use shaded areas below.

Type of Survey(s) **Geophysical (Electro-magnetic V.L.F.)** Township or Area **Coleman (Pl. 454)**  
 Claim Holder(s) **Agnico-Eagle Mines Limited** Prospector's Licence No. **A-37886**  
 Address **P. O. Box 140, Cobalt, Ontario POJ 1C0.** of \_\_\_\_\_  
 Survey Company **M. Leahy,** Date of Survey (from & to) **Day 2 Mo. 82 Day 6 Mo. Yr. 82** Total Miles of line Gaspickets **11.5 miles**  
 Name and Address of Author (of Geo-Technical report) **M. Leahy, 24 Dixon Ave., Kirkland Lake, Ontario**

Credits Requested per Each Claim in Columns at right Mining Claims Traversed (List in numerical sequence)

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

Mining Claim			Mining Claim		
Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
S	599151	31			
	599155	31			
	599221	31			
	599222	31			
	599225	31			
	599226	31			
	599227	31			
	599228	31			
	599231	31			
	599232	31			
	599233	31			
	599234	31			
	599235	31			
	599238	31			
	599239	31			
	599240	31			
	599241	31			

**RECEIVED**  
**SEP 16 1982**  
**MINING LANDS SECTION**

*Report of 4 days already received at Toronto.  
 File 2.4672*

Expenditures (excludes power stripping)  
 Type of Work Performed **Electromagnetic V.L.F.**  
 Performed on Claim(s) **as listed**  
 Calculation of Expenditure Days Credits  
 Total Expenditures \$  ÷  =  Total Days Credits  
 Instructions  
 Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work. **17**

For Office Use Only  
 Total Days Cr. Recorded **527** Date Recorded **Sept. 15/82** Mining Recorder **V.C. Miller**  
 Date Approved as Recorded \_\_\_\_\_ Branch Director \_\_\_\_\_

Date **20 Aug. 82** Recorded Holder or Agent (Signature) **B.H. Thorniley**  
 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 Postal Address of Person Certifying **B. H. Thorniley, 777 Latchford St., Haileybury, Ont. POJ 1K0.**  
 Date Certified **20 Aug. 82** Certified by (Signature) **B.H. Thorniley**

EXPLANATION CREDIT DAYS

Since 40 readings are required per claim to qualify for 40 days credit --  
subsection (1) of Sect. 86, sub-section (d) of the Mining Act - therefore  
1 reading = 1 credit day

S 599151	28
599155	39
599221	40
599222	38
599225	6
599226	37
599227	40
599228	40
599231	23
599232	32
599233	40
599234	26
599235	Nil
599238	31
599239	40
599240	39
599241	24
<hr/>	
Total	523

$523 \text{ days} \div 17 \text{ claims} = 30.76 \text{ days/claim}$

RECEIVED  
SEP 03 1972  
COMMERCIAL DISTRICT

Mining Lands Comments


To: Geophysics *Mr Barber*

Comments


<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date <i>Oct 29/82</i>	Signature <i>Ryan P. W.</i>
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To: Geology - Expenditures

Comments


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

Comments

*LD*


<input type="checkbox"/> Approved	<input type="checkbox"/> Wish to see again with corrections	Date	Signature
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To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1360)

1982 04 13

2.4672

Mining Recorder  
Ministry of Natural Resources  
199 Larch Street  
Sudbury, Ontario  
P3E 5P9

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic) survey submitted under Special Provisions (credit for Performance and Coverage) on mining claims S 599151 et al in the Township of Coleman.

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

Yours very truly,

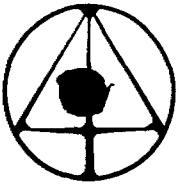
E.F. Anderson  
Director  
Land Management Branch

Whitney Block, Room 6450  
Queen's Park  
Toronto, Ontario  
M7A 1W3  
Phone: 416/965-1316

J. Skura/amc

cc: Agnico Eagle Mines Limited  
Cobalt, Ontario

cc: M. Leahy  
Kirkland Lake, Ontario



# AGNICO EAGLE MINES LIMITED

(NO PERSONAL LIABILITY)  
SILVER DIVISION  
COBALT, ONTARIO

March 23, 1982.

Attention: Mr. F. Matthews,  
Ministry of Natural Resources,  
Mining & Land Section,  
Whitney Block,  
Queen's Park,  
Toronto, Ontario.

Dear Sir:

Herewith I submit the following data as evidence of assessment work completed on the Portage Bay Claim Group of 24 contiguous claims in Coleman Township, Ontario.

1. Diamond Drill Logs in duplicate.
2. Diamond Drill report in duplicate.
3. Diamond Drill locality plan in duplicate.
4. Form, 837(5/79) and 768(8/77)
5. Diamond Drill billing statements in duplicate.
6. <sup>Geophysical</sup> Geological Survey Plans in duplicate.
7. Geophysical Report in duplicate.

I trust you will find them in order.

**RECEIVED**

MAR 31 1982

MINING LANDS SECTION

Yours very truly,

AGNICO-EAGLE MINES LIMITED,  
Silver Division,

B. H. Thorniley,  
Geologist,

BHT/hj

Enc.



GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT  
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT  
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) ELECTROMAGNETIC (ULF)  
Township or Area COLEMAN Twp.  
Claim Holder(s) Agnico - Eagle Mines Ltd.  
Lic. # A-37886  
Survey Company M. LEAHY  
Author of Report M. LEAHY  
Address of Author 24 Dixon Ave. Kirkland Lake Ont.  
Covering Dates of Survey Feb 1-6, 1982  
(linecutting to office)  
Total Miles of Line Cut 12.8

MINING CLAIMS TRAVERSED	
List numerically	
S-	599151
(prefix)	(number)
	599155
	<del>599156</del>
	599221
	599222
	<del>599223</del>
	599225
	599226
	599227
	599228
	<del>599229</del>
	<del>599230</del>
	599231
	599232
	599233
	599234
	599235
	599238
	599239
	599240
	599241
TOTAL CLAIMS <del>21</del> 17	

If space insufficient, attach list

**SPECIAL PROVISIONS**

**CREDITS REQUESTED**

**MAR 31 1982**

ENTER 40 days (includes linecutting) for first survey.

**MINING LANDS SECTION**

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
-Electromagnetic	<u>40 on part</u>
-Magnetometer	_____
-Radiometric	_____
-Other	_____
Geological	_____
Geochemical	_____

**AIRBORNE CREDITS** (Special provision credits do not apply to airborne surveys)  
Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: Feb 15 /82 SIGNATURE: Michael Leahy  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications 2689

**Previous Surveys**

File No.	Type	Date	Claim Holder

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 586 Number of Readings 586
Station interval 100' Line spacing 400'
Profile scale 1" = 40'
Contour interval 10 units

MAGNETIC

Instrument GEONICS EM-16
Accuracy - Scale constant 1%
Diurnal correction method
Base Station check-in interval (hours)
Base Station location and value

ELECTROMAGNETIC

Instrument GEONICS EM-16
Coil configuration
Coil separation
Accuracy 1%
Method: [X] Fixed transmitter [ ] Shoot back [ ] In line [ ] Parallel line
Frequency 21.4 KHz Annapolis, Maryland (specify V.E.F. station)
Parameters measured Dip angle, Quadrature

GRAVITY

Instrument
Scale constant
Corrections made
Base station value and location
Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument
Method [ ] Time Domain [ ] Frequency Domain
Parameters - On time Frequency
- Off time Range
- Delay time
- Integration time
Power
Electrode array
Electrode spacing
Type of electrode

**SELF POTENTIAL**

Instrument \_\_\_\_\_ Range \_\_\_\_\_

Survey Method \_\_\_\_\_

Corrections made \_\_\_\_\_

**RADIOMETRIC**

Instrument \_\_\_\_\_

Values measured \_\_\_\_\_

Energy windows (levels) \_\_\_\_\_

Height of instrument \_\_\_\_\_ Background Count \_\_\_\_\_

Size of detector \_\_\_\_\_

Overburden \_\_\_\_\_

(type, depth – include outcrop map)

**OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)**

Type of survey \_\_\_\_\_

Instrument \_\_\_\_\_

Accuracy \_\_\_\_\_

Parameters measured \_\_\_\_\_

Additional information (for understanding results) \_\_\_\_\_

**AIRBORNE SURVEYS**

Type of survey(s) \_\_\_\_\_

Instrument(s) \_\_\_\_\_

(specify for each type of survey)

Accuracy \_\_\_\_\_

(specify for each type of survey)

Aircraft used \_\_\_\_\_

Sensor altitude \_\_\_\_\_

Navigation and flight path recovery method \_\_\_\_\_

Aircraft altitude \_\_\_\_\_ Line Spacing \_\_\_\_\_

Miles flown over total area \_\_\_\_\_ Over claims only \_\_\_\_\_



GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken \_\_\_\_\_

Total Number of Samples \_\_\_\_\_

Type of Sample \_\_\_\_\_  
(Nature of Material)

Average Sample Weight \_\_\_\_\_

Method of Collection \_\_\_\_\_

Soil Horizon Sampled \_\_\_\_\_

Horizon Development \_\_\_\_\_

Sample Depth \_\_\_\_\_

Terrain \_\_\_\_\_

Drainage Development \_\_\_\_\_

Estimated Range of Overburden Thickness \_\_\_\_\_

**SAMPLE PREPARATION**

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis \_\_\_\_\_

General \_\_\_\_\_

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\_\_\_\_\_  
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\_\_\_\_\_

**ANALYTICAL METHODS**

Values expressed in: per cent   
p. p. m.   
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, (circle)

Others \_\_\_\_\_

Field Analysis (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Field Laboratory Analysis

No. (\_\_\_\_\_ tests)

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

Commercial Laboratory (\_\_\_\_\_ tests)

Name of Laboratory \_\_\_\_\_

Extraction Method \_\_\_\_\_

Analytical Method \_\_\_\_\_

Reagents Used \_\_\_\_\_

General \_\_\_\_\_

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THE TOWNSHIP OF  
**COLEMAN**  
DISTRICT OF  
TIMISKAMING  
MINING DIVISION  
SCALE: 1-INCH=20 CHAINS

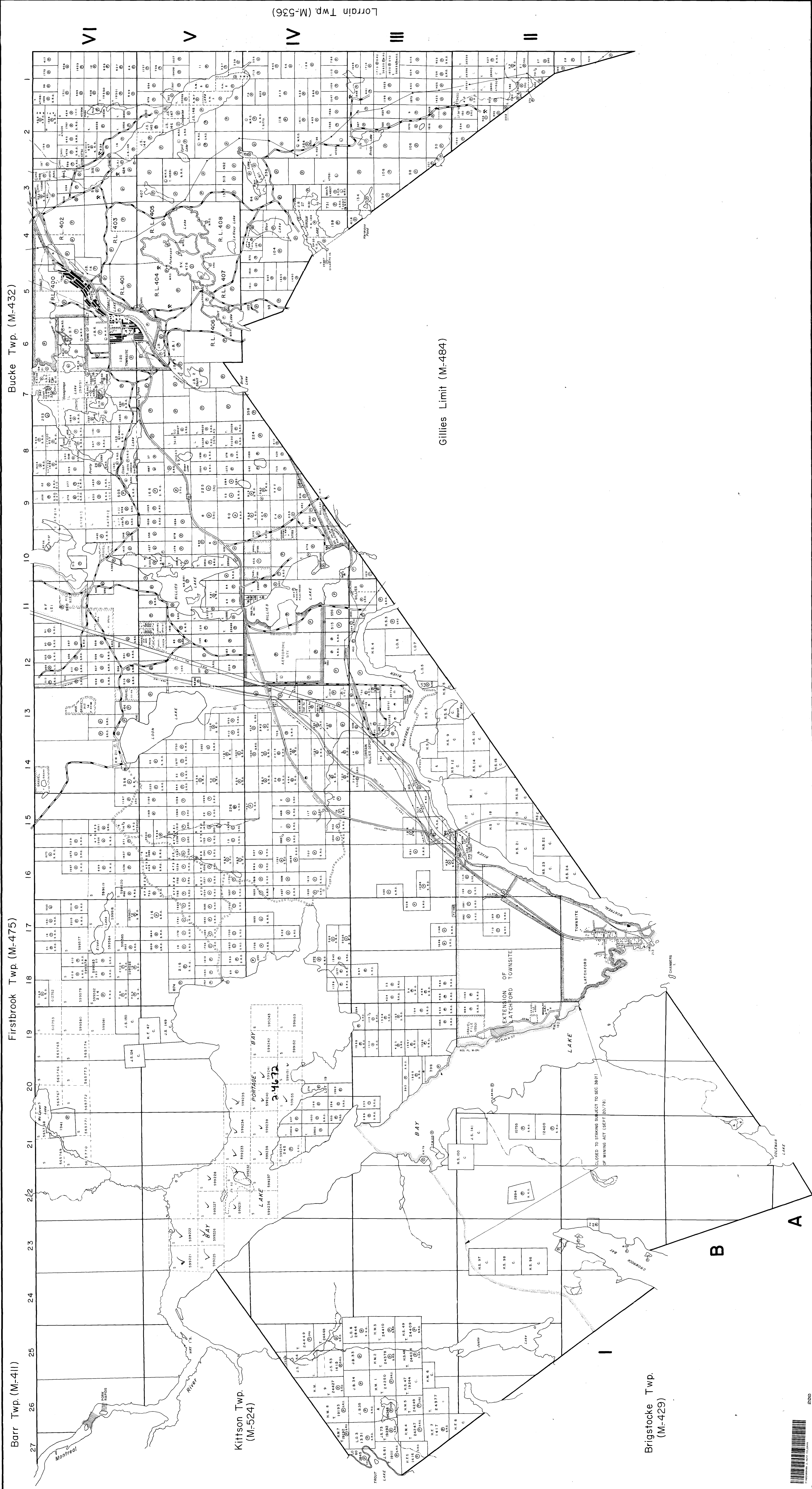
**LEGEND**

PATENTED LAND  
 CLAIMS AND BILLS  
 LOCATED AND  
 MINING RIGHTS ONLY  
 SURFACE RIGHTS ONLY  
 IMPROVED ROADS  
 KING'S HIGHWAYS  
 POWER LINES  
 MARSH OR MUCKES  
 MINES  
 CANCELLED S.R.O.

**NOTES**

400' surface rights, including  
 the share of oil, gas and water.  
 L.O. 7131 Covers Flooding Rights on  
 Mining, R.R. to N.E.E.C.  
 Mining Claims, Claims and  
 Bills from the Clerk of the  
 Town of Cobalt, Statutes of Ontario  
 1977, Chapter 67

DATE OF ISSUE  
DEC. 1, 1982  
Ministry of Natural Resources



Bucke Twp. (M-432)

Firstbrook Twp. (M-475)

Barr Twp. (M-411)

Kittson Twp.  
(M-524)

Brigstocke Twp.  
(M-429)

Lorain Twp. (M-536)

Gillies Limit (M-484)

