94E/6E

REPORT ON THE GEOLOGY AND GEOCHEMISTRY

OF THE

MAC AND LAIR CLAIM GROUP

OMINECA MINING DIVISION

(MAC Group Pit 57 - 60, 160, 163 - 4, 167, 171 - 202

LAIR Group Pit 41 - 56, 77, 80, 82, 84 - 96, 159,

161 - 2, 165 - 6, 168 - 70)

Twelve Miles S.S.W. of Chukachida Lake

127° 10' W, 57° 27' N

By

T. RODGERS, P. ENG.

For

SUMAC MINES LIMITED

18th June, 1972 to 6th July, 1972

4064

REPORT ON THE GEOLOGY AND GEOCHEMISTRY

OF THE

MAC AND LAIR CLAIM GROUP

OMINECA MINING DIVISION

(MAC Group Pit 57 - 60, 160, 163 - 4, 167, 171 - 202

LAIR Group Pit 41 - 56, 77, 80, 82, 84 - 96, 159,

161 - 2, 165 - 6, 168 - 70)

Twelve Miles S.S.W. of Chukachida Lake

127° 10' W, 57° 27' N

By

T. RODGERS, P. ENG.

For

SUMAC MINES LIMITED

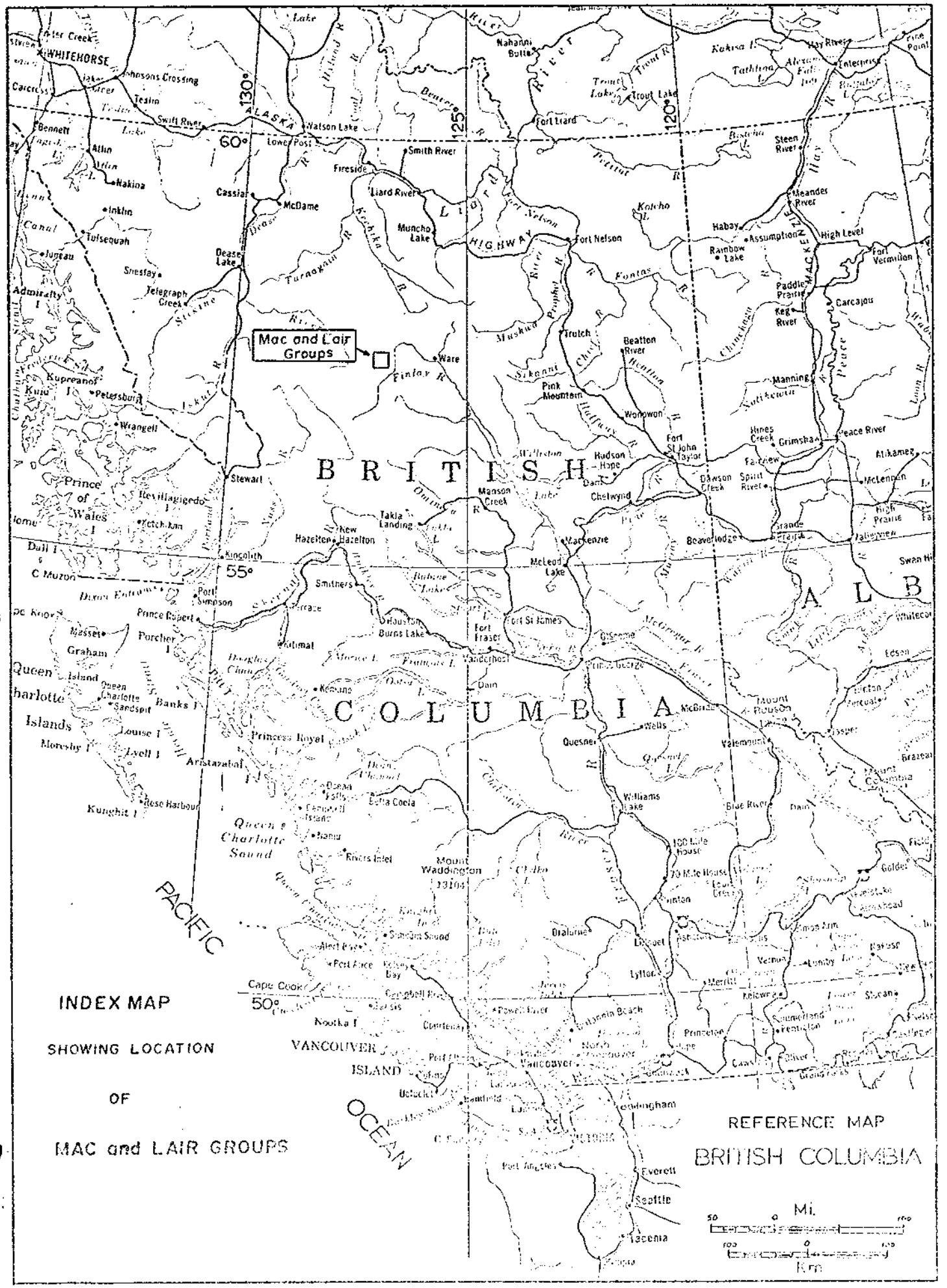
18th June, 1972 to 6th July, 1972

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

(in text)

(in pocket)


Mac and Lair Groups
INDEX MAP
SHOWING LOCATION
OF
MAC and LAIR GROUPS
REFERENCE MAP
BRITISH COLUMBIA
BRITISH
COLUMBIA
ALB
PACIFIC
OCEAN
Queen Charlotte Islands
Queen Charlotte Sound
VANCOUVER ISLAND
WHITEHORSE
ALASKA
Fort Nelson
Fort St John
Dawson Creek
Prince Rupert
Vancouver
Victoria
Seattle
Everett
Tacoma
Mi.
Km

Introduction

The Mac and Lair groups of claims were staked during 1971. The results of a geochemical survey made of a small area of the property that year were sufficiently encouraging to justify a larger program in 1972. This took the form of extended geochemical sampling coverage, geological mapping and geophysical surveying. The latter has been reported on separately; this report describes the geological and geochemical work done in 1972 and presents the data collected.

Location and Access

The claim groups are about fifteen miles to the east of Caribou Hide, on the upper Stikine River. They centre approximately on 127°09'W, 57°27'N.

The nearest water suitable for aircraft on floats is Metsantan Lake. Access from there is by helicopter.

Caribou Hide is on an old pack trail, now disused. A river boat has reached upstream this far.

Topography and Climate

The property is on the western flank of the Omineca-Cassiar Range in the transition area between it and the Spatzizi Plateau. Ice action has modified the topography resulting in ridges which are rounded on their southern and western flanks but precipitous elsewhere. The maximum elevation is just under 6000'. Most of the property is above tree-line.

The precipitation is moderate. Snow stays on the ground until June and re-appears by October.

Claims

The two groups, totalling eighty claims were staked in July and August 1971, and recorded in July, August and September of that year. They were later grouped as follows :-

Mac Group Pit 57 - 60, 160, 163 - 4, 167, 171 - 202.

Lair Group Pit 41 - 56, 77, 80, 82, 84 - 96, 159, 161 - 2, 165 - 6, 168 - 70.

Geology

The rocks underlying the McClair property are a series of intermediate flows and agglomerates, probably of Upper Triassic age. Except for some narrow andesite dykes there are no intrusive rocks in the area.

Two major sub-divisions in the flows have been recognised, and were mapped as separate units. Both are predominantly hornblende andesites, the distinction between them being one of colour and texture. The elder, a purple andesite is more compact and porphyritic than the younger, a green andesite which is often porous.

The purple andesite occasionally contains quartz phenocrysts while fine haemetite is ubiquitous causing the distinctive hue.

The green andesite contains an appreciable amount of magnetite and occasional crystals of biotite. Chloritisation of the mafic minerals is common, accounting for the colour of this unit.

Both units are conformable and dip gently (10^{o}- 15^{o}) to the east-north-east.

Thin discontinuous agglomerate layers are intercalated with both andesite units (particularly at 41E.8N in purple andesites, and at

54E.24N in green andesites). These agglomerates were tentatively identified last year as breccias.

Mineralisation

Numerous pyritic shear zones cut across the property, striking west, north-west, and north-north-west. Some are capped by prominent gossans containing quartz-carbonate stringers and most have strongly silicified walls.

Base metal and silver sulphides associated with quartz stringers were identified in pits near 45E.11N and 28E.3N. At 28E.23N there are carbonate veins containing galena, sphalerite and chalcopyrite. Except for grabs samples, the mineralisation is sub-economic, certainly across mining widths. However, outcrop is sparse despite the thin (3'- 4') cover of residual soil and more mineralisation will be uncovered by future trenching.

It may be significant that all the mineralisation discovered to date occurs in the green andesite. The less compact, more porous, nature of this unit noted earlier may control the development of dilatant areas in shear zones crossing the property. Such a stratigraphic control, if valid, reduces the economic potential of the property, because it limits the depth to which mineralisation may be inferred.

Geochemistry

In 1971 two 100' grids of soil samples partly outlined a zone geochemically anomalous in lead, zinc, silver and gold. The 1972 grid was basically laid out on lines 400' apart with samples being taken at 200' intervals. Its intention was to extend and delineate the known anomalies.

Soil samples weighing at least 200 gm. were normally taken from the B1 horizon using a stainless steel trowel in a hole dug by mattock. After collection the samples were packaged in standard high wet-strength kraft bags and sent to Chemex Labs Ltd. in North Vancouver for analysis. Lead, zinc, silver and gold were routinely determined. One hundred and ninety two samples were so treated. Some were additionally analysed for copper. Rock samples were also analysed geochemically.

Geochemical Results

(i) Lead Background values for lead have a mean of 56 p.p.m. with a threshold value of 160 p.p.m. Areas containing soils with more than 500 p.p.m. should express sulphide mineralisation in the sub-outcrop.

(ii) Zinc Background for zinc is 180 p.p.m. with a threshold of 500 p.p.m. Values in excess of 1000 p.p.m. should reflect sub-surface mineralisation.

(iii) Silver The background value for silver is 0.7 p.p.m. Its distribution curve is very skewed with the result that the theoretical threshold value is 9.5 p.p.m.

(iv) Gold The background value of gold is inferred to be of the order of 10 p.p.b. It could not be calculated because more than 50% of the samples contained less than 30 p.p.b., the analytical limit of detection. Using Lepeltier's* method of analysis an upper threshold of 2300 p.p.b. is indicated. This probably shows the existence of a high sub-population within the overall anomaly.

* Simplified Statistical Treatment of Geochemical Data by Graphical Representation by C. Lepeltier. Econ. Geol. Vol 64 No 5.

Combined, the results of the survey indicate a zone some 2000'x 300' containing discontinuous anomalous areas for lead, zinc, silver and gold.

T. Rogers
29.XI.72

DECLARATION OF EXPENSES

Geochemical Survey, 1972

Mac and Lair Group

Men Employed on Survey

D. Hopper	18 June - 6 July	16 @ $30.00	$ 480.00
M. Ramalingaswamy	18 June - 6 July	16 @ 21.66	346.56
R. Britten	18 June - 6 July	13 @ 22.50	292.50
C. Stannus	18 June - 6 July	1 @ 15.00	15.00
B. Cheney	18 June - 6 July	13 @ 22.50	292.50
W. Kirkpatrick	18 June - 6 July	19 @ 22.50	427.50
		78 man-days	

Direct Field Expenditures

(see Schedule 'A') 78 man-days @ $82.00 — 6,396.00 - 6160. = 236

Geochemical Analysis

200 Soil and Rock Samples — 1,048.65

Grid Construction

41,600 line feet - 10 man-days (time and wages included in the above list of men employed) — -

Drafting, reproduction, typing, etc. — 100.00

$ 9,398.71 - 236 = 9162

I. Rattler
29.XI.72

Schedule A

SUMAC 210 PROJECTS

Allocable costs - 1972		$
Camp equipment & supplies		6,825
Equipment rental		977
Fuel		1,739
Commissariat		4,415
Communications		594
Transportation		10,462
Helicopter charter (pro-rated)		14,838
	Total	39,850

Man-days

Property	Period	Max. No. of Men	Man-days
Alberts Hump	June 1 - Aug. 1	7	99
McLair	June 18 - July 6	8	152
Moosehorn	July 7 - Aug. 10	8	166
A.D.W.	Aug. 11 - Aug. 22	4	44
Moosehorn	Aug. 23 - Aug. 28	4	24
		Total	485

Cost per man-day

$$= \frac{39,850}{485} = \$82.00$$

I. Rodger 29.XI.72

Schedule B

CHEMEX LABS LTD.

212 Brooksbank Avenue, North Vancouver, B.C.

Description of preparatory and analytical procedures.

PREPARATION PROCEDURE FOR ROCK GEOCHEM SAMPLES - Weighing less than 450 gms.

(1) Samples are sorted, recorded and dried @ approx. 120°F.

(2) Dried samples are processed to -1/8" through geochem crusher only.

(3) The entire crushed sample is pulverized to -100 mesh using rotary pulverizer.

(4) Pulverized sample is rolled 100 times to produce a homogeneous pulp.

(5) 0.5 grams of pulp is weighed into test tube for $HClO_4$-HNO_3 digestion and final analyses of ppm Cu, Mo, Pb, Zn, Ag etc. A 5 gram sample is digested to dryness with aqua-regia for the ppb gold analyses.

The Pulverizer and crusher are thoroughly cleaned between samples to reduce contamination problems.

PROCEDURE FOR THE ANALYSIS OF TRACE GOLD IN SOIL AND SILT MATERIALS.

Step 1. The sample is dried at 110°F, sieved to -80 mesh and stored in a coin envelope.

Step 2. A 2 gm sample is weighed into a 100 ml beaker.

Step 3. 15 ml of aqua regia (3 parts HCl to 1 part HNO_3) is added to the pulp.

Step 4. After sitting for 15 minutes, the sample is heated to dryness.

Step 5. More aqua regia is added and the sample is again evaporated to dryness.

Step 6. The soluble salts are dissolved in 25% HCl and mixed.

Step 7. The gold is extracted as the bromide in 5 ml. of methyl isobutyl ketone.

Step 8. The organic layer is then analysed on the Atomic Absorption Spectrophotometer against prepared standards.

GEOCHEMICAL LABORATORY PROCEDURE FOR THE HANDLING AND ANALYSES OF SOIL AND SILT MATERIALS CONTAINING TRACES OF Cu, Mo, Pb, Zn, Ni, Co and Ag.

Step 1. Samples are dried @ 110°F and then sieved to -80 mesh consistency through a nylon and stainless steel sieve. Presieved materials are processed starting at Step 2.

Step 2. 0.50 grams of the dry pulp is weighed into a calibrated test tube.

Step 3. 3 mls. of perchloric acid and 1 ml. of nitric acid is added to sample.

Step 4. Samples are digested at low heat initially and then the temperature is raised to 203°C. Digestion time 2 to 3 hours.

Step 5. Digested samples are cooled, made up to 25 ml. volume with distilled water and solutions are thoroughly mixed.

Step 6. Analyses for Cu, Mo, Pb, Zn, Ni, Co and Ag by Atomic Absorption procedures. Detection limits as per our brochure.

Bruce W. Brown,
Manager Laboratory Division.

SUMAC MINES LIMITED

1022 - 510 West Hastings Street

Vancouver 2, B.C.

JAN 24 '73 AM

REFERRED TO	DATE	INITIAL
D. M.		
C.G.C.	✓	
C.C.		
D.C.G.C.		
D.C.C.		
ACCTS.		
C.M.B.		
C.I.		
C.A.		
R. T.		
C.P.E.		

January 19, 1973

Mr. E. J. Bowles,
Chief Gold Commissioner,
Department of Mines & Petroleum Resources,
Victoria, B.C.

DEPT. OF MINES AND PETROLEUM RESOURCES

978

Dear Sir,

Re.: Moosehorn Group,
Mac and Lair Groups,
Met, San and Tan Groups

File No. 166 - Omineca
- Liard

Thank you for your letter of December 14th concerning assessment work reports on these groups. I apologise for not answering sooner but I have been overseas for almost a month and had left before your letter arrived in this office. However, my colleague Mr. C.T. Scott saw Dr. Eastwood and answered some of your questions. I understand from him that the major point of contention was the format of the cost statements. I will therefore expand on the way these figures were arrived at.

You will have noted that the claim groups are in the same area. Because of this we were able to use a single field crew which moved from property to property and which also did some work of a follow-up nature on two areas where we had not staked claims. It therefore seemed most rational to pro-rate the costs of maintaining that crew in the field by the number of man-days spent on each property or work area.

To accede to your request for more detail I enclose a revised schedule of expenses, itemising the amounts paid to each supplier or contractor. I have then distributed these amounts to each project as you desired. I trust this is satisfactory.

Our transportation costs were high, but this is due to the remoteness of the area. No one regrets this fact more than I, but that's the way it is.

There is no duplication of charges in the headings mentioned.

Geological mapping on the Met, San and Tan groups was done by Mohan Ramalingaswamy B.Sc. under my direction. He graduated in 1969 and at present engaged in post-graduate work at the University of Washington.

Yours sincerely,

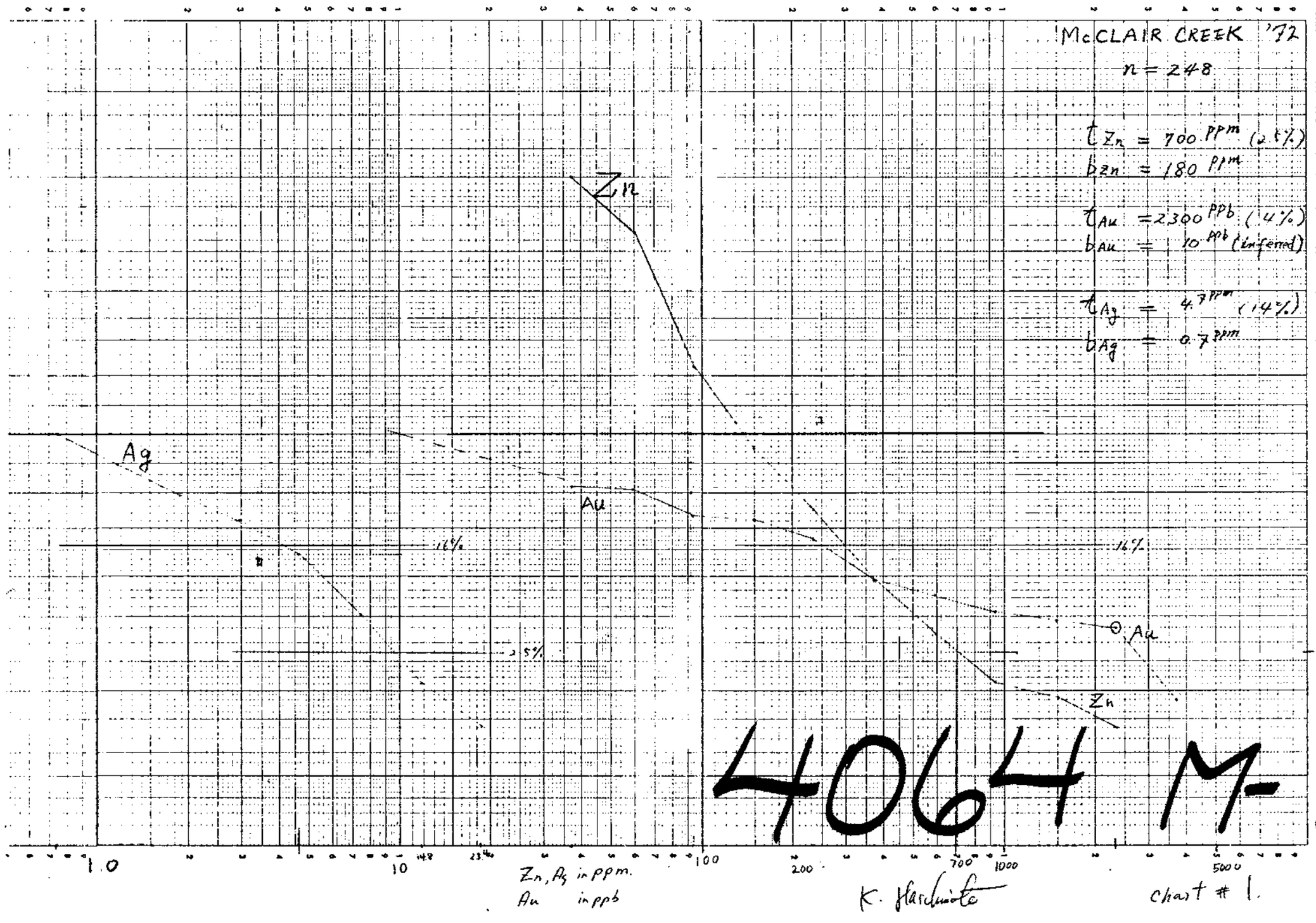
T. Rodgers

T. Rodgers, P. Eng.

Encl.
TR:aa

To accompany "Report on the Geology & Geochemistry of the MAC and I-AIR Claim Groups"

by T. Rodgers, P. Eng.

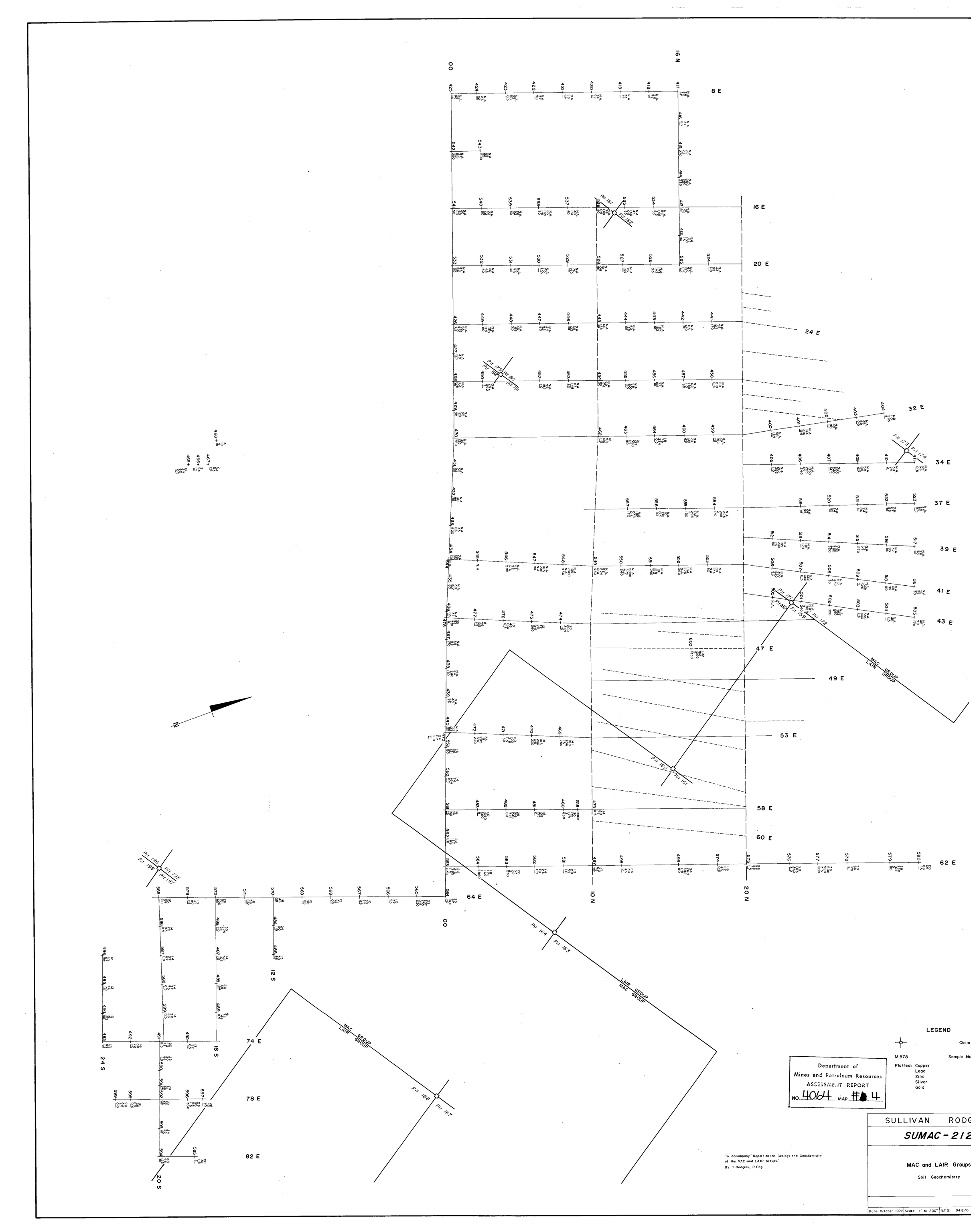


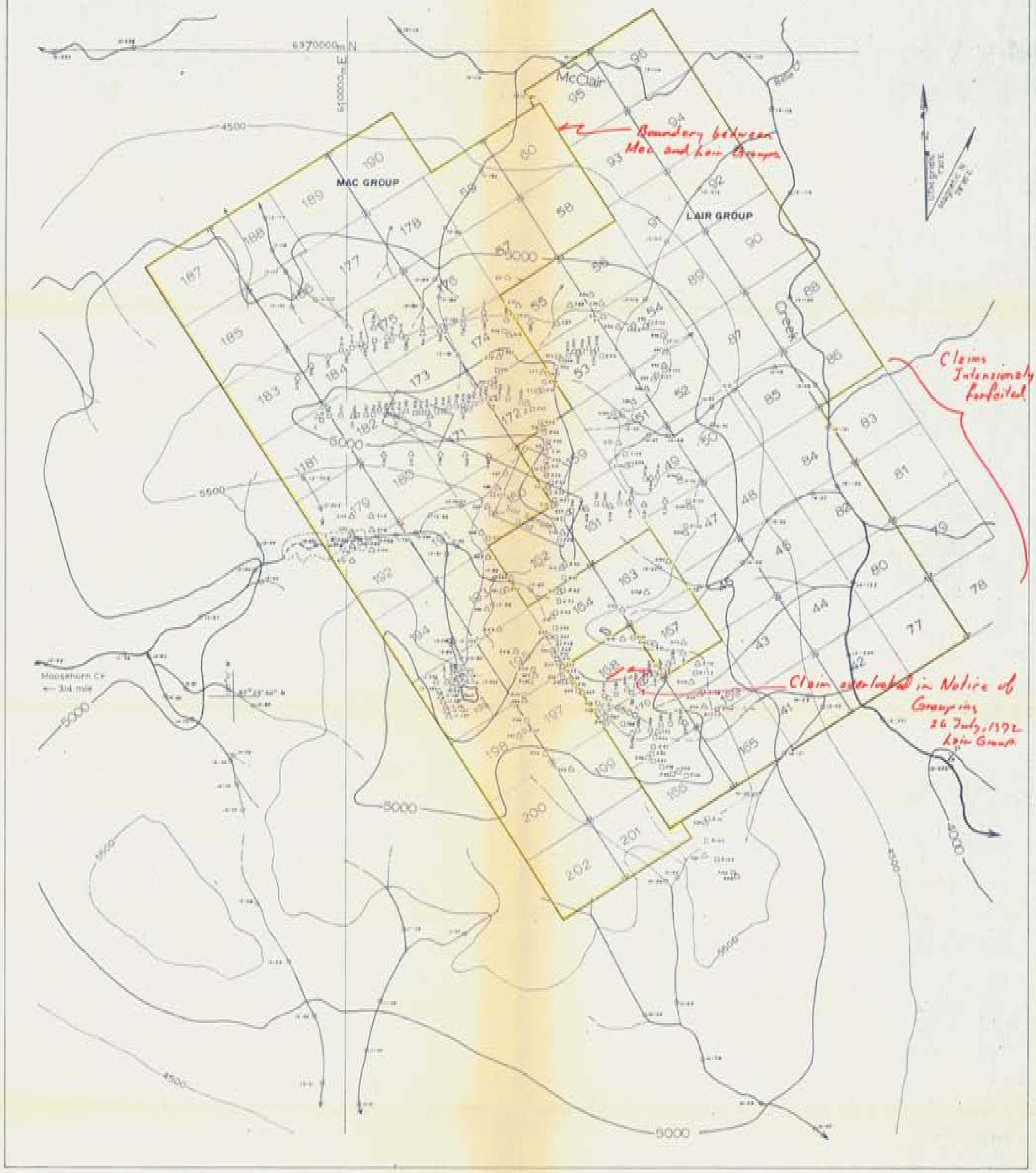
4064 M-2

K. Hardwicke

30.XI.72

Chart # 1.


16 N
00
8 E
16 E
20 E
24 E
32 E
34 E
37 E
39 E
41 E
43 E
47 E
49 E
53 E
58 E
60 E
62 E
64 E
10 N
20 N
12 S
16 S
20 S
24 S
74 E
78 E
82 E
Pit 18
Pit 182
Pit 179
Pit 180
Pit 181
Pit 173
Pit 174
Pit 171
Pit 160
Pit 159
Pit 172
Pit 162
Pit 161
Pit 196
Pit 198
Pit 195
Pit 197
Pit 164
Pit 163
Pit 168
Pit 167
MAC GROUP
LAIR GROUP
MAC GROUP
LAIR GROUP
MAC GROUP
LAIR GROUP
N
LEGEND
Claim Post
M 578
Sample Number
Plotted: Copper
Lead
Zinc
Silver
Gold
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4064 MAP #4
SULLIVAN RODGERS
SUMAC - 212
MAC and LAIR Groups
Soil Geochemistry
Date: October 1972
Scale: 1" to 200'
N.T.S. 94E/6
Map No. 212- C-1
To accompany "Report on the Geology and Geochemistry of the MAC and LAIR Groups."
By T. Rodgers, P. Eng.



SYMBOLS

Placer Deposit, Abandon	⊗ P
Legal Post, Initial / final	╋ 103
Claims "Pit"	
UTM 10,000m Grid Coordinates	637000m N
Geochemical Sample Locations:	
silt	○ 13-53
soil	△ 14-1, RG553
rock	□ RG4106
Rock Sample Locations:	
chip	⊢ 15-28
channel	
grab	

LEGEND

Zn in ppm	
230 – 484	□
485 – 1469	□
1470+	□

SULLIVAN RODGERS

— SUMAC —

PITMAN — 'Pit Group'
(McCLAIR PROPERTY)
Reconnaissance Geochemistry
Grid Location
Claims Locations 1 Pit 168

MAP No. 71-4c		
Date: Sept., 1971	Scale: 1" = 1320'	N.T.S. 94E

16 Oct., 1972

168,000 N

166,000 N

164,000 N

162,000 N

160,000 N

158,000 N

156,000 N

154,000 N

168,000 E

170,000 E

172,000 E

174,000 E

176,000 E

178,000 E

Green andesite, hornblend - plagioclase andesite - mainly porphyritic.

Purple andesite, hornblend - plagioclase andesite - amygdaloidal, porous. plagioclase: anhedral ~ subhedral.

Δ Float.

To accompany report on the geology and geochemistry of the MAC and LAIR Groups.
By T. Rodgers, P.Eng.

M-3

4064

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4064 MAP #3

T. Rodgers

SULLIVAN RODGERS

SUMAC - 212

MAC and LAIR Groups

Geology

Date: Nov. 1972	Scale: 1" to 400'	N.T.S. 92 E/6	Map No. 212-G-1