

GEOLOGICAL MAPPING REPORT

on the

GM MINERAL CLAIM GROUP

Cariboo Mining Division 93B/8W

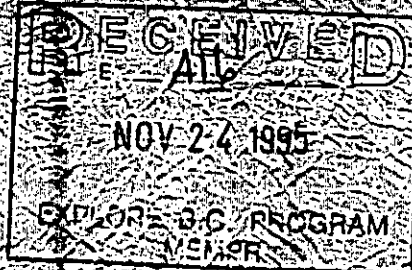
(Latitude 52°30', Longitude 122°14')

Owner/Operator: Gibraltar Mines Limited

McLeese Lake, B.C.

Authors: G.E. Barker / M. Rydman

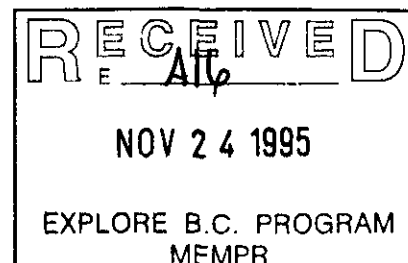
November 1995



25352
Part 1 of 3

November 21, 1995

Mr. V.A. Preto
Manager, Explore B.C.
Ministry of Energy Mines and Petroleum Resources
Fifth Floor, 1810 Blanshard Street
Victoria, B.C.
V8V 1X4



Dear Mr. Preto

Re: EXPLORE B.C. PROGRAM, GRANT ID NO. 95/96 A-16
APPLICATION FOR PAYMENT
GIBRALTAR MINES LIMITED -McLEESE LAKE PROPERTY

Enclosed please find our Explore B.C. "Application For Payment" along with technical reports covering exploration work done at Gibraltar's McLeese Lake Property during 1995.

For completeness, we have submitted reports covering all our 1995 exploration work. As you know, we had assumed (based on our experience with the Explore B.C. Program in 1994) that all exploration work performed after the date of application for funding might qualify as eligible expenditures, therefore, we have listed our total exploration expenditures on the "Application For Payment" for your evaluation and records.

In light of our phone conversations in July and November of this year regarding work done before and after receiving the "Agreement for Funding". We have also divided the 1995 exploration costs as follows.

Pre Agreement Costs

Diamond Drilling	\$162,715.21
Misc. Supplies (core boxes, bags etc.)	\$7,135.65
Rental Vehicle	\$3,319.67
Assaying	\$16,134.32
Temporary Personnel (wages)	\$20,683.00
Total	\$209,987.85



Post Agreement Costs

Misc. Supplies (flagging, topo string etc.)	\$451.44
Rental Vehicle	\$3,514.95
Assaying	\$7,523.69
Special Testing	\$2,095.00
Temporary Personnel (wages)	\$18,522.00
Report Preparation	\$1,614.25
Total	\$33,721.33

Yours truly,
GIBRALTAR MINES LIMITED

George E. Barker, P.Geo.
Senior Geologist



Province of
British Columbia
Ministry of
Energy, Mines and
Petroleum Resources



Grant No. 95/96 A-16

EXPLORE BC PROGRAM APPLICATION FOR PAYMENT FORM

- Please type or print
- Please submit completed form, two copies of the final technical report, and complete cost statement to:

Mailing address: *Manager, EXPLORE BC PROGRAM*
Ministry of Energy, Mines and Petroleum Resources
5th Floor, 1810 Blanshard Street
Victoria, B.C. V8V 1X4

Date of Application
Nov. 21, 1995

Applicant: GIBRALTAR MINES LIMITED

Address: P.O. Box 130

City: MCLEESE LAKE Province: B.C. Postal Code: V0L 1P0

Mailing Address (if different from above)

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

British Columbia Free Miner Certificate No. 109531

I/We, GIBRALTAR MINES LIMITED hereby
apply for payment of a grant under the EXPLORE BC Program and declare the information given
above to be true and accurate.

George E. Barker
Signature of Applicant or Signing Officer

GEORGE E. BARKER
Name (please print)

SENIOR GEOLOGIST
Title/Occupation (please print)

MCLEESE LAKE PROPERTY
Project Name (please print)

GIBRALTAR MINES LIMITED
Company (please print)

Nov. 21, 1995
Date

EXPENDITURES (N.B. Please provide actual all-inclusive costs, including salaries and wages, equipment and machinery rental, supplies, services, transportation and accommodation directly attributable to the field program.)

(a) For the following, the full cost (100% of expenditures) are eligible: * please see enclosed covering Letter

Geological Surveys, Map and Report Preparation and Related Costs		\$
		1614.25
Geophysical Surveys (line-kilometres)		
Ground		
Magnetic	\$	
Electromagnetic	\$	
Induced Polarization	\$	
Radiometric	\$	
Seismic	\$	
Other	\$	
Airborne	\$	
		\$
Geochemical Surveys (No. of samples analysed <u>20</u>)		
Soil	\$	
Silt	\$	
Rock	\$ 445.00	
Other	\$	
		\$ 445.00
		\$ 445.00
Drilling		
Surface..... <u>4959.32</u> m @ \$ <u>32.81/m</u> =	\$ 162,715.21	
Underground..... m @ \$ _____ =	\$	
		\$ 162,715.21
		\$ 162,715.21
Related Technical Surveys		
Sampling/Assaying	\$ 23,658.01	
Petrographic	\$	
Mineralogic	\$	
Metallurgic	\$ 1,650.00	
		\$ 25,308.01
		\$ 25,308.01
Preparatory/Physical		
Line/Grid (kilometres)	\$	
Trenching (metres)	\$	
		\$
Other Exploration Costs (attach detailed schedules)*		
Temporary Personnel (wages)	\$ 39,205.00	
Rental Vehicle	\$ 6,834.62	
Misc. Supplies	\$ 7,587.09	
*please see detailed statements of cost in Tech. Reports		\$ 53,626.71
		\$ 53,626.71
Total Eligible Expenses		\$
		\$ 243,709.18

(b) For the following activities only 25% of total costs are eligible:

Tunneling, Drifting, Other Lateral Excavation, Shaft Sinking		
(25% of total expenses are eligible)		
..... m @ \$..... = x 25% =	\$	
..... m @ \$..... = x 25% =	\$	
		\$
		\$
(c) TOTAL ELIGIBLE EXPENDITURES:		\$
		243709.18

SUPPLEMENTARY INFORMATION: The following information is required in order to help us determine the contribution which mineral exploration activity makes to the economy, and relates to the utilization of B.C. vs outside labour and services. Only figures directly attributable to the funded program should be included (approximate figures acceptable, but please be as accurate as possible).

(a) Employment, wages and salaries

Type	No. Employed		No. Person-Days		Salaries/Wages Paid	
	B.C.	Outside	B.C.	Outside	B.C.	Outside
Prospectors						
Linecutters						
Technicians						
General Labourers	1		76		\$10,198.00	
Drillers/Helpers						
Equipment Operators						
Geologists	1		120		\$18,255.00	
Geophysicists						
Geochemists						
Engineers						
Supervisory						
Consulting						
Secretary						
Managerial						
Legal						
Accounting						
Geology Student Others (specify)	1		89		\$10,752.00	
Others (specify)						
Totals	3		285		\$39,205.00	

(b) Goods and Services

Description	Expenditure	
	B.C.	Outside
	\$	\$
Meals, Groceries, etc.		
Camping Supplies, Equipment, etc.		
Accommodation		
Transportation - Scheduled Air		
- Air Charter		
- Vehicle Rentals	6,834.62	
- Vehicle Operating and Maintenance		
- Other (specify)		
Equipment Rentals - Trenching, etc.		
- Geophysical, etc.		
- Other (specify)		
Drilling	162,715.21	
Consultant Services		
Assays and Analyses	25,753.01	
Communications		
Other (specify) <i>MISC. SUPPLIES</i>	7,587.09	
Totals	\$ 202,889.93	\$

Impact of Explore BC Grant

(a) Please indicate what level of expansion of your project was attributable to receiving an Explore BC grant.

\$ (40,000)* 17 %

87 Person-Days of employment

(b) Please indicate what you feel to be the main achievement of this Explore BC funded program.

* Our initial 1995 exploration budget was set with the anticipation that approximately \$40,000 might be obtained as a grant (This assumed that all expenditures occurring after the date of application might be eligible). No budget change occurred after the grant was awarded in July.

GEOLOGICAL MAPPING REPORT
on the
GM MINERAL CLAIM GROUP

Cariboo Mining Division

93B/8W and 9W

(Latitude 52°30', Longitude 122°16')



OWNER and OPERATOR

Gibraltar Mines Limited

GEOLOGICAL SURVEY BRANCH
McKeese Lake, B.C.
ASSESSMENT REPORT
VOL 110

25,352

Authors: G. E. Barker
M. Rydman

Submitted: November 1995

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1. INTRODUCTION

The GM Mineral Claim Group is located in the Cariboo Mining Division approximately ten kilometers northeast of McLeese Lake, B.C. (see Figure 1). The claim group, which covers a significant portion of Granite Mountain, lies approximately 450 m (1500 feet) to the east of the Pollyanna Pit that is owned and operated by Gibraltar Mines Limited.

Access is via the Gibraltar Mines paved access road and a series of private mine haul roads which terminate near the western edge of the GM 107 claim.

Gibraltar Mines Limited acquired the GM claims in the spring of 1994. The GUY 1 and GUY 2 claims, located to the southeast of the GM claims, were then grouped with the GM claims to constitute the GM Mineral Claim Group (see Figure 2). Earlier work carried out on the property by the Keevil Mining Group in the late 1960's is covered in the following reports:

- *Geochemical Survey of a Portion of the GM Claim Mineral Group*; Chapman, Wood, and Griswold, November, 1965.
- *Geophysical Report of the GM Claim Mineral Group*; Chapman, Wood, and Griswold, March, 1967.
- *Geological Survey of a Portion of the GM Claim Mineral Group*; Chapman, Wood, and Griswold, November, 1967.
- *Granite Mountain Report on Diamond Drilling*, November, 1967.

Since 1967, minimal work has been applied by Teck Corporation to keep the claims in good standing.

This report covers a geological mapping program conducted between August 1 and September 26, 1995. General topography was mapped and rock samples were collected for rock type identification and whole rock analysis.

2. MINERAL CLAIMS

The mineral claims of the GM Mineral Claim Group are shown in Figure 2. All of these claims belong to Gibraltar Mines Limited.

3. TOPOGRAPHY AND GEOLOGY

The GM Mineral Claim Group covers the northern and eastern flank of Granite Mountain. Relief is relatively gentle, with elevations ranging from 1250 m to 1370 m above sea level. Forest cover is generally moderate and outcrop exposure is moderate to excellent. The area also has a good network of drainage systems.

The claim group is underlain mainly by the Upper Triassic Granite Mountain Batholith. The Granite Mountain Batholith is a zoned, peraluminous, subalkaline body and can be subdivided into at least four phases. These phases are:

1. *Border Phase Diorite*

This phase consists of a broad zone of assimilated and recrystallized rock formed between the mafic rich Cache Creek Group and the intrusive batholith. This hybrid zone incorporates a baffling array of intermediate rock types and rapid textural variations which closely reflect the country rock composition at its outer edge and that of the parent magma at its inner edge. Typical Border Phase Diorite consists of saussuritized plagioclase (45-50%), chloritized hornblende (35%) and fine grained quartz ($\leq 15\%$). Textures are variable, with grain sizes of 1 to 5 mm. Mafic rich quartz diorites are also present and these are most prevalent near contacts with the Mine Phase Tonalite.

2. *Mine Phase Tonalite*

Mine Phase Tonalite is the major host rock for the Gibraltar ore deposits. It has a relatively uniform mineralogical composition of saussuritized andesine plagioclase (50%), chlorite (20%) and quartz (30%). The chlorite appears to be derived from biotite and minor hornblende. Accessory minerals may include magnetite and rutile. Plagioclase is variously altered to albite-epidote-zoisite and muscovite. The rock is generally equigranular with a grain size of 2 to 4 mm. Rock fabrics range from isotropic to intensely schistose. In most cases the unmineralized rock is only weakly foliated and the degree of penetrative deformation increases proportionally with alteration.

3. *Granite Mountain Phase Trondhjemite*

The trondhjemite consists of saussuritized plagioclase (45%), chloritized biotite (10%) and quartz ($\geq 45\%$). Grain size is about 2 to 4 mm near contacts with the Mine Phase Tonalite but reaches 8 to 10 mm away from the contacts. The quartz commonly occurs as large grains or grain aggregates set in a finer grained, inequigranular matrix of quartz, plagioclase and minor chlorite. Foliation throughout the trondhjemite body tends to be weak or absent except along contacts with the Mine Phase or Leucocratic Phase.

4. *Leucocratic Phase*

Associated with all ore grade mineralization are minor zones of fine grained rock classified as Leucocratic Phase due to a prevailing quartz-plagioclase composition and general lack of mafic minerals. The term is used to describe leucocratic, porphyritic quartz diorite as well as quartz porphyry and quartz plagioclase porphyry. In thin section, the quartz plagioclase porphyry has a fresh appearance with coarse quartz phenocrysts up to 8 mm in diameter and oligoclase phenocrysts up to 5 mm in diameter. The phenocrysts, which make up 50 to 60% of the rock

are set in a fine grained quartz-plagioclase-sericite groundmass with a felsophyric texture that shows little sign of recrystallization.

4. GEOLOGICAL MAPPING PROGRAM

4.1 Objective

The purpose of the geological mapping program was to determine the potential for copper mineralization in the area covered by the GM Mineral Claim Group.

4.2 Discussion

IP anomalies and several BQ diamond drill holes, drilled by Keevil in 1967, suggested that copper mineralization may exist in this area. A 3.35 km (11,000 feet) base line with an azimuth of 315° was established with line stations every 152.4 m (500 feet). A total of twenty-two lines (L3 to L24) were set up at right angles to the base line. These ranged from 243.8 m (800 feet) to 1005.8 m (3300 feet) in length (see Figure 3). The outcrop exposure controlled the location of rock samples. In general, there is moderate to excellent outcrop exposure in the GM Mineral Claim Group.

Whole rock analysis on the collected samples determined rock type and the ratio between Na_2O and K_2O . The rock type is a good indicator for potential copper mineralization. Tonalite is known to be the host rock for Gibraltar ore deposits and trondhjemite is typically barren. The ratio between Na_2O and K_2O is used to outline areas of potential ore grade mineralization. Ore assemblages are characterized by low Na_2O and high K_2O and waste material shows an inverse relationship.

4.3 Results

A total of 172 rock samples were acquired during this mapping program. There were several areas noted with surface copper mineralization. At present, there have been twenty samples tested with whole rock analysis (see Table 1).

4.4 Interpretation

The information obtained from the whole rock analysis on the twenty samples was used to determine rock type and the proximity to any ore zones. The plots of wt% MgO vs. wt% SiO_2 and wt% MgO vs. wt% TiO_2 have been used to show the sequence of fractionation to be from Mine Phase Tonalite to Granite Mountain Phase Trondhjemite to the Leucocratic Phase. The results obtained from Graphs 1 and 2 indicate that the majority of the samples tested are trondhjemite. There are three samples which are possibly transitions between trondhjemite and tonalite. The graph obtained from plotting the relationship between Na_2O and K_2O shows there are three samples "proximal" to the ore zone (see Graph 3).

Sample Number	Al ₂ O ₃ %	Ba %	CaO %	Fe ₂ O ₃ %	K ₂ O %	MgO %	MnO %	Na ₂ O %	P ₂ O ₅ %	SiO ₂ %	Sr %	TiO ₂ %	LOI %	<u>Na₂O</u> K ₂ O
L3+400	14.14	0.060	4.72	2.76	1.09	0.89	0.06	3.81	0.01	69.61	0.035	0.27	1.50	3.50
L3+1570	14.22	0.065	4.41	2.78	1.21	0.96	0.11	3.93	0.01	69.06	0.030	0.26	1.90	3.25
L5+65	14.86	0.090	2.69	2.39	1.61	0.95	0.19	3.09	0.01	70.98	0.030	0.27	2.20	1.92
L5+1310	14.11	0.090	3.82	3.15	1.52	1.10	0.12	3.76	0.01	67.92	0.025	0.31	3.10	2.47
L5+2200	15.13	0.080	1.90	3.26	1.42	1.20	0.16	4.50	0.01	69.28	0.025	0.31	1.80	3.17
L8+840	14.57	0.060	4.77	2.96	0.95	1.03	0.08	3.78	0.01	69.25	0.035	0.29	1.50	3.98
L8+2000	14.60	0.065	4.58	2.65	1.14	0.93	0.07	4.07	0.01	69.49	0.035	0.27	1.20	3.57
L11+200	14.90	0.035	3.87	3.65	0.90	1.47	0.23	3.21	0.01	68.39	0.035	0.37	1.90	3.57
L11+1165	14.54	0.070	4.30	2.89	1.27	0.83	0.07	3.83	0.01	69.52	0.035	0.27	1.50	3.02
L15+280	14.22	0.060	4.31	3.22	0.97	1.11	0.09	3.99	0.01	69.05	0.035	0.29	1.80	4.11
L15+1520	13.37	0.065	3.67	2.63	1.33	0.88	0.05	3.50	0.01	71.46	0.025	0.28	1.70	2.63
L18+70	12.91	0.090	3.30	2.06	1.16	0.68	0.02	3.99	0.01	73.93	0.025	0.20	0.80	3.44
L18+450	14.41	0.045	4.54	2.00	0.85	1.41	0.04	3.55	0.01	70.11	0.035	0.28	1.70	4.18
L18+1040	14.30	0.035	3.19	2.37	1.03	0.92	0.04	4.07	0.01	71.47	0.030	0.28	1.60	3.95
L19+940	12.50	0.045	3.43	1.89	0.76	0.83	0.02	3.48	0.01	73.95	0.025	0.25	1.80	4.58
L19+1390	14.12	0.045	1.88	3.16	1.18	0.96	0.08	3.80	0.01	71.35	0.025	0.30	2.10	3.22
L22-700	15.03	0.050	5.52	3.47	0.70	1.29	0.06	3.82	0.01	67.17	0.035	0.33	1.90	5.46
L22-135	13.26	0.060	3.06	2.18	0.98	0.71	0.03	4.28	0.01	72.73	0.030	0.21	1.60	4.37
L22+670	13.38	0.090	3.90	2.22	1.22	0.74	0.02	3.82	0.01	72.01	0.025	0.21	1.70	3.13
L22+1530	13.10	0.050	4.24	2.55	0.88	0.97	0.04	4.10	0.01	71.37	0.030	0.27	1.50	4.66

Table 1
Whole Rock Analysis

5. STATEMENT OF COSTS

1995 Geological Mapping on the GM Mineral Claim Group

SUPPLIES

Flagging tape, sample bags, topo thread, etc. \$ 451.44

RENTAL VEHICAL

One ton 4x4 truck \$2,343.30

SPECIAL TESTING

Whole rock analysis \$ 445.00

TEMPORARY PERSONNEL

Wages

Dick Poon – field assistant \$3400.00

Andrew Stewart – field assistant 2688.00

Total \$6088.00 \$6,088.00

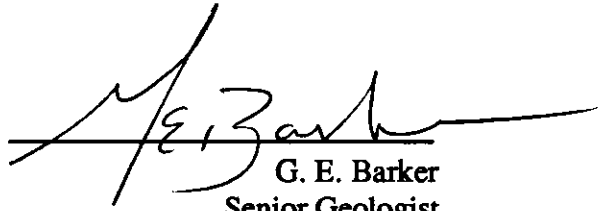
TOTAL COSTS


\$9,327.74

6. CONCLUSION

The geological mapping program conducted during August and September, 1995, helped determine the potential for copper mineralization in the area covered by the GM Mineral Claim Group. Surface copper mineralization was discovered at several locations and the whole rock analysis gave some interesting results. More samples will be tested with whole rock analysis to further define the rock types and to outline areas of potential ore grade mineralization.




G. E. Barker
Senior Geologist
GIBRALTAR MINES LIMITED


M. Rydman
Exploration Geologist
GIBRALTAR MINES LIMITED

7. LIST OF FIGURES AND GRAPHS

Figure 1 - Location Map

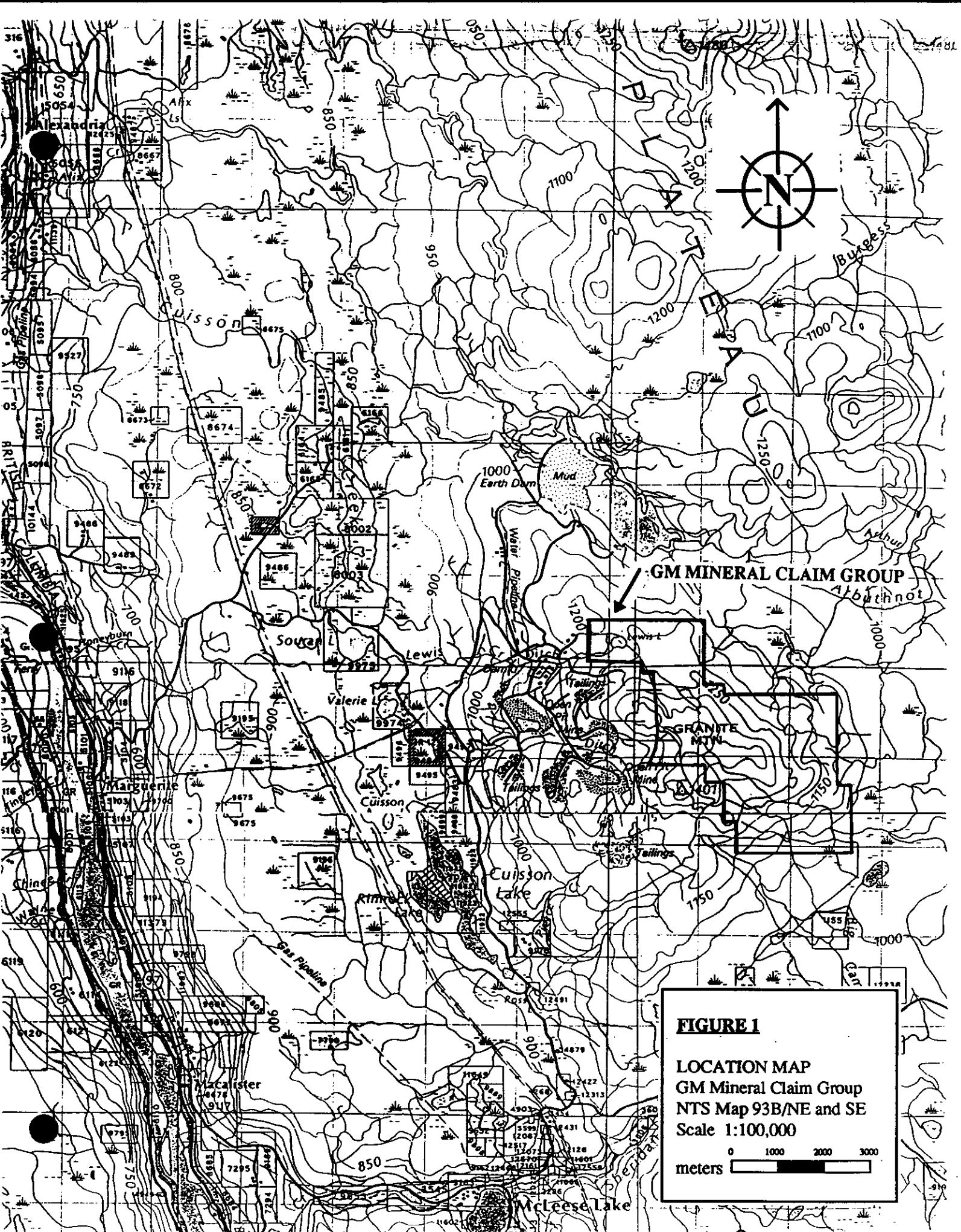
Figure 2 - Claim Map

Figure 3 - Sample Location Map

Graph 1 - wt% MgO vs. wt% SiO₂

Graph 2 - wt% MgO vs. wt% TiO₂

Graph 3 - Na₂O and K₂O vs. Na₂O/K₂O



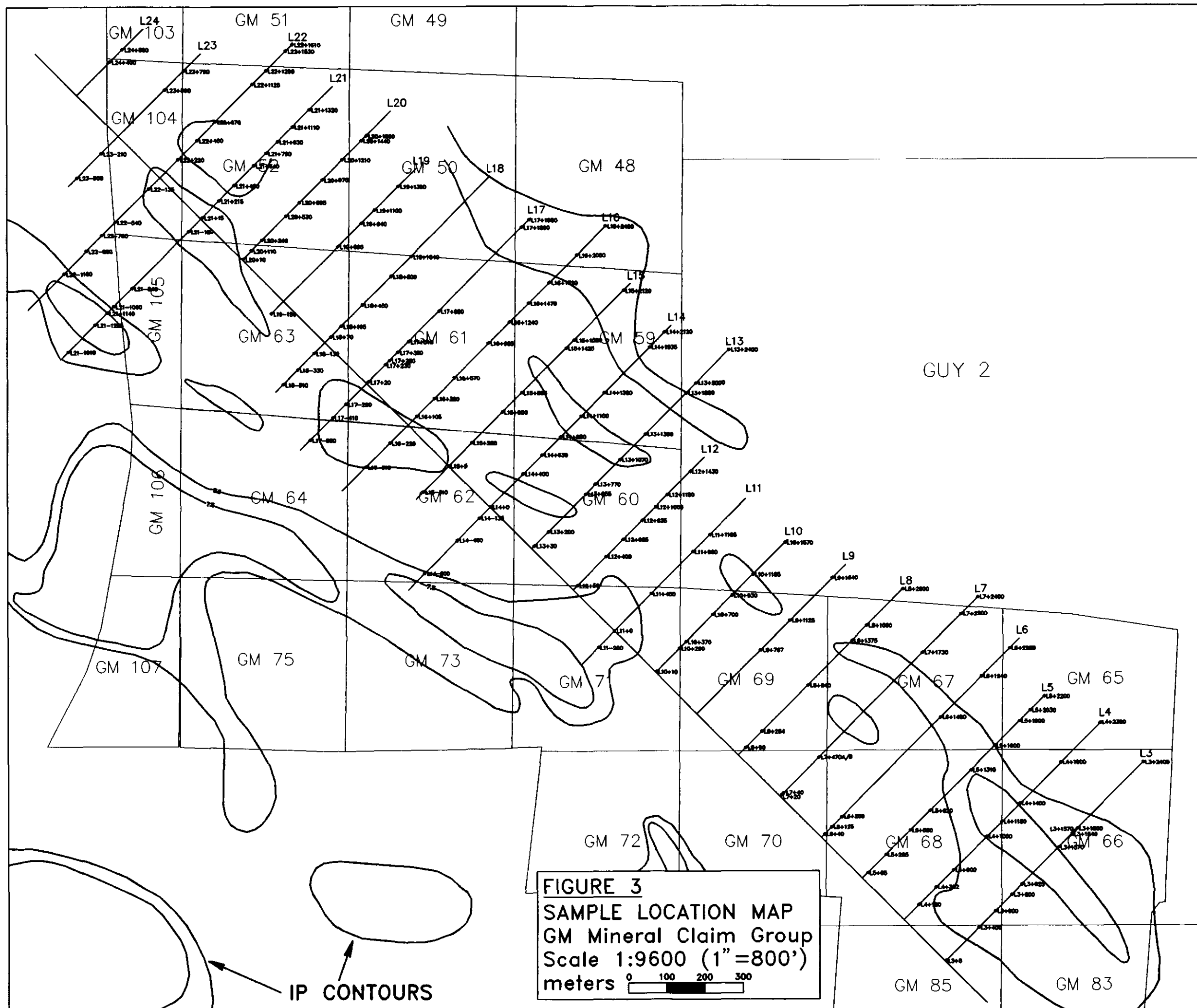
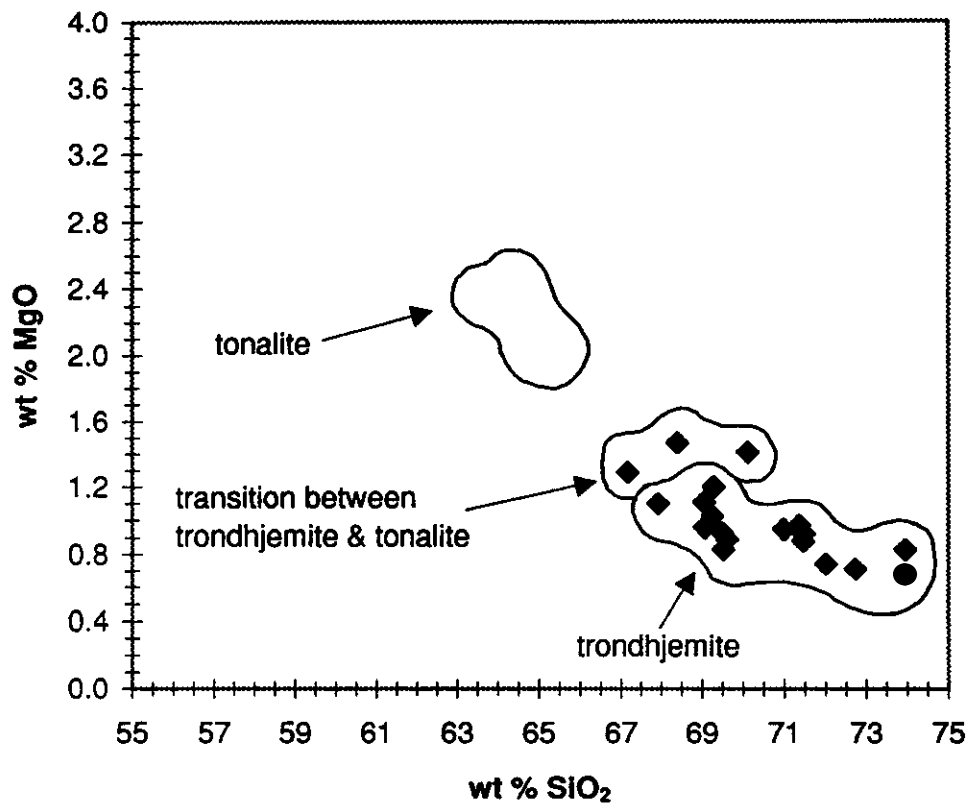


FIGURE 3
SAMPLE LOCATION MAP
 GM Mineral Claim Group
 Scale 1:9600 (1"=800')
 meters 0 100 200 300

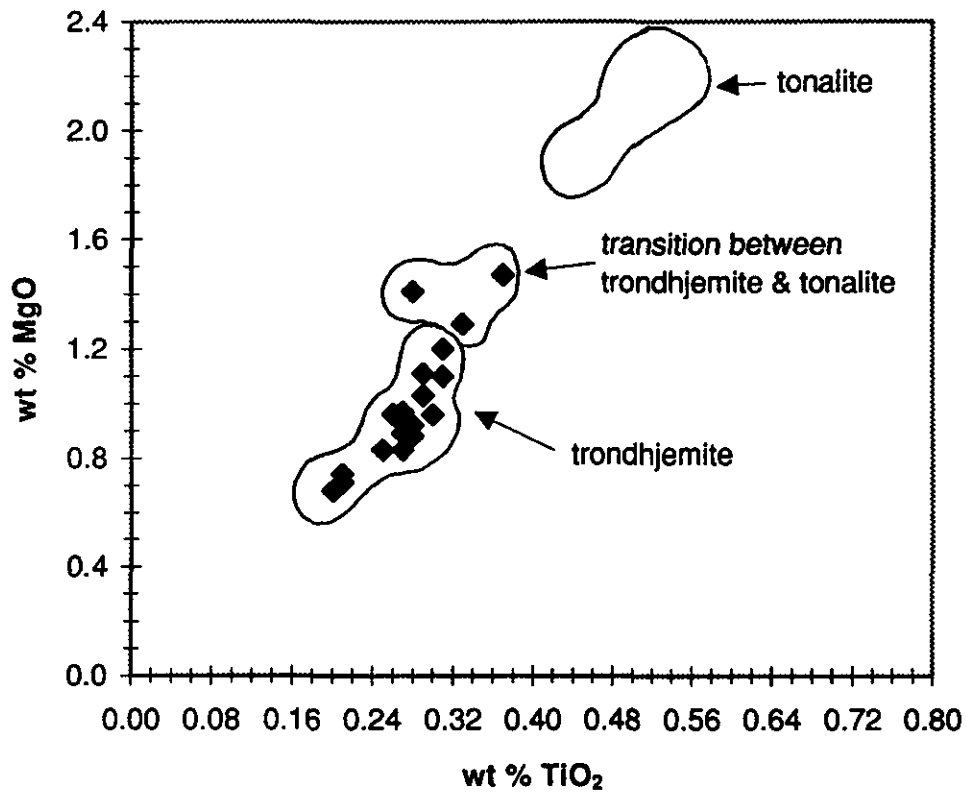
IP CONTOURS

GM Claims - Whole Rock Analysis
MgO vs. SiO₂

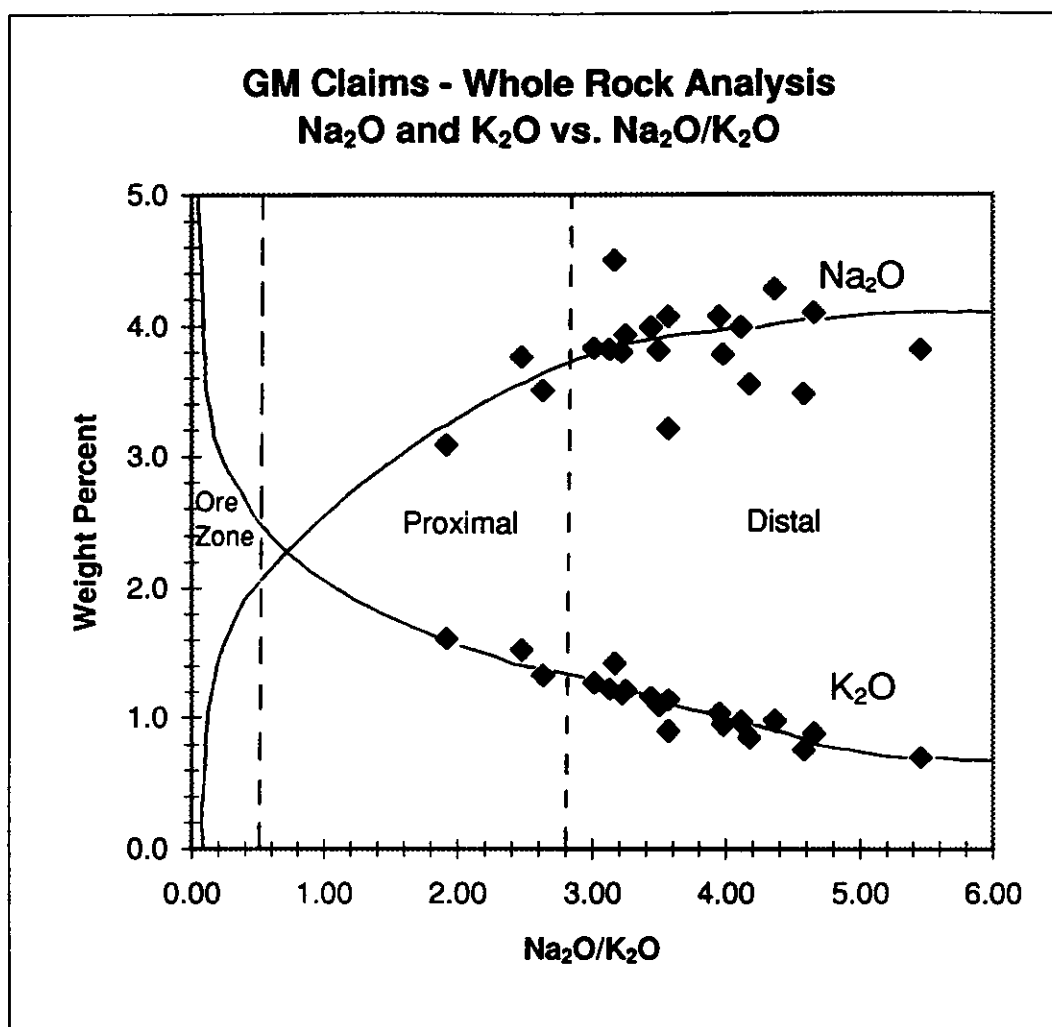


Graph 1
wt% MgO vs. wt% SiO₂

**GM Claims - Whole Rock Analysis
MgO vs. TiO_2**



Graph 2
wt% MgO vs. wt% TiO_2



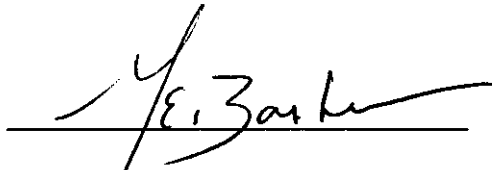
Graph 3
Na₂O and K₂O vs. Na₂O/K₂O

APPENDIX A : QUALIFICATION STATEMENTS

STATEMENT OF QUALIFICATIONS - George E. Barker

I, George E. Barker, of Gibraltar Mines Limited, McLeese Lake, British Columbia, do certify that:

- I am a Professional Geoscientist.
- I am a registered member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia, registration number 19697.
- From 1978 to the present I have been engaged in mining and exploration geology in British Columbia.
- I personally supervised the exploration program, interpreted the results, and co-authored the report.


George E. Barker, P.Geol.



STATEMENT OF QUALIFICATIONS - Murray Rydman

I, Murray Rydman, of Gibraltar Mines Limited, McLeese Lake, British Columbia, do certify that:

- I am a geologist.
- I am a graduate of the University of Alberta, with a Bachelor of Science with Specialization in Geology, dated 1992.
- From 1992 to the present I have been engaged in mining and exploration geology in British Columbia.
- I personally participated in the field work and aided in the interpretation of the results.

Murray Rydman

Murray Rydman, B.Sc.

APPENDIX B : ASSAY CERTIFICATES

