Geological Report on the Mineralogy of the Sceptre 1 - 3 Claims

Emerald Lake, Yukon

Mayo Mining District

NTS No. 105 - 0/11

Lat. 63° 34'

Long. 131° 17'

Covering work performed August 2 - 15, 1996

Sceptre 1 - 3 Grant Numbers:

YB43172 - YB43174

Owner: Tysons' Fine Minerals Inc.

10549 133 St.

Edmonton, AB, T5N 2A4

by

John Gorham, B.Sc., P.Geol.

August 6, 1997

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 1500.00.

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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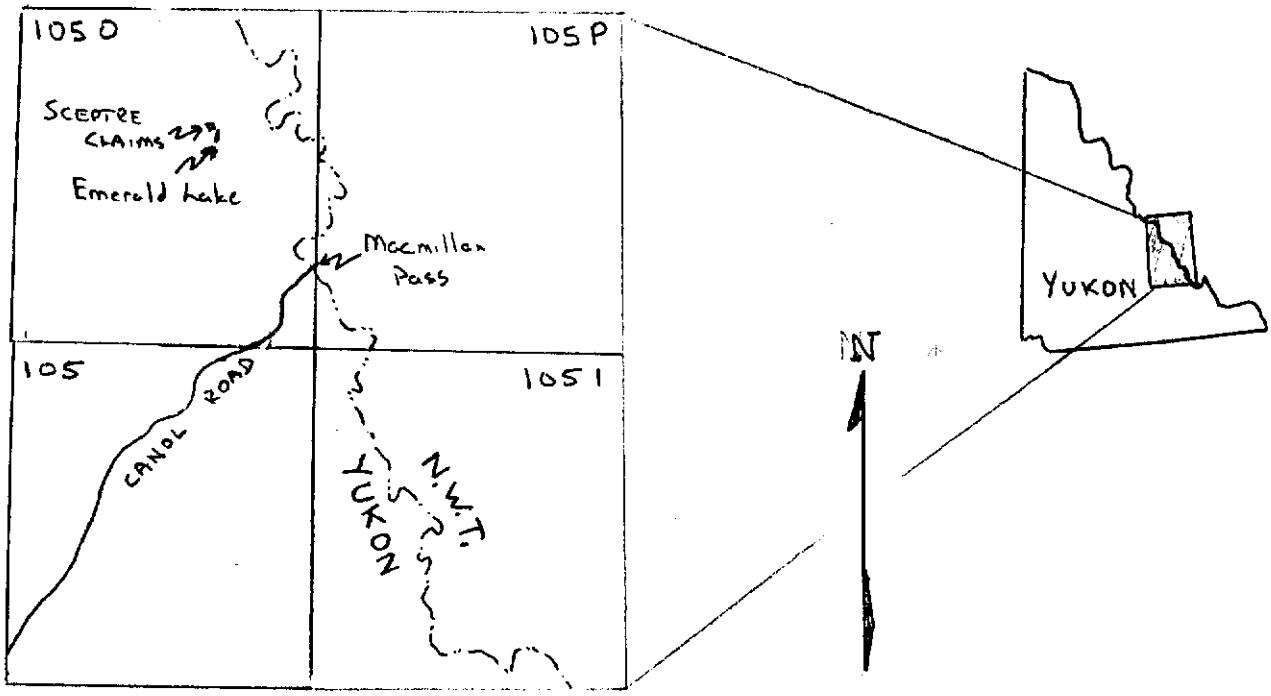


Fig. 1 - Location Map

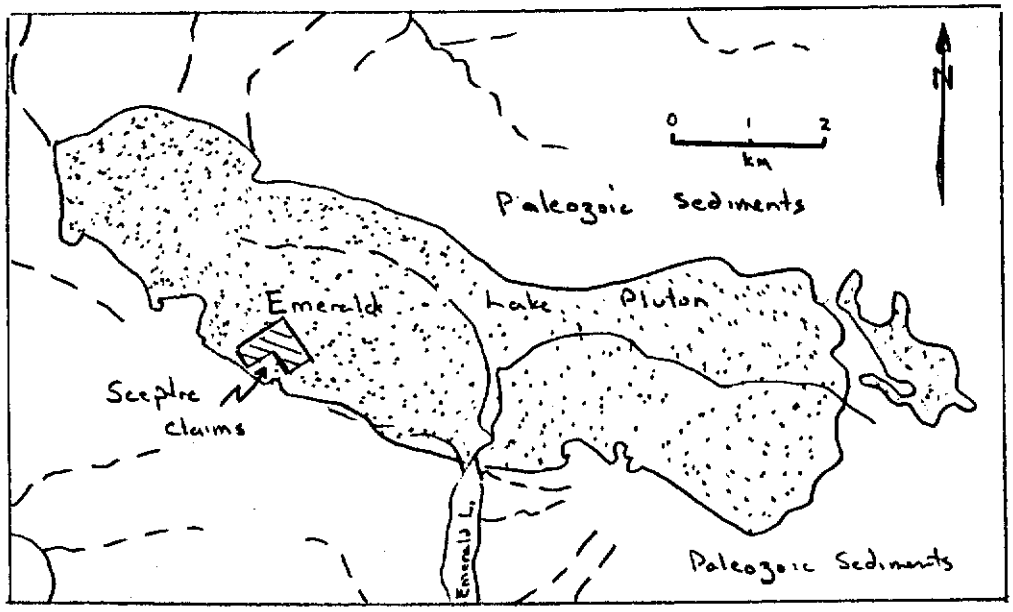


Fig. 2 - General Geology showing Emerald Lake Pluton and surrounding Paleozoic sediments. (after Smit)
Scale 1:100,000

INTRODUCTION

The Sceptre claims are located in the Hess Mountains about 3km north west of Emerald Lake, which is about 70km northwest of Macmillan Pass in the eastern Yukon (Arrowhead Lake 1:50,000 sheet 105 - 0/11). They cover part of the southern contact of the Emerald Lake pluton which underlies several rugged ridges and peaks with elevations to 2300m. Sheer cliffs, glaciers, and permanent snowfields necessitate the use of helicopter support and technical climbing gear.

HISTORY OF STUDY

The area was first mapped as part of Operation Stewart in the early 1970's (Blusson, 1974) and later remapped in greater detail (Cecile,1984). A more detailed study of the geology, chemistry and geochronology of the Emerald Lake pluton was conducted at that time (Smit, 1984, 1985).

The pluton was staked as part of the Fire, Ice and Sun claims by AGIP Canada Ltd. in 1979 on the strength of a radiometric anomaly. Field work from 1980 to 1983 discovered copper, molybdenum, gold and tungsten mineralization (Grapes, 1982). Large smoky quartz crystals were found in several miarolitic cavities.

PROPERTY

The claims referred to in this report are the Sceptre 1 - 3 claims.

Claim Name	Grant Number	Expiry Date
Sceptre 1	YB43172	Sept.6,1997
Sceptre 2	YB43173	Sept.6,1997
Sceptre 3	YB43174	Sept.6,1997

These claims were staked in August, 1994 and are held by Tysons'Fine Minerals Inc. of Edmonton, Alberta, for whom this report has been submitted. At the time of the field work described in this report, the Sceptre claims formed part of an agreement with APC Ventures Inc. of Vancouver,B.C., owners of the MY claims, also in the Emerald Lake area. The agreement provides for joint access for exploration and development.

CURRENT FIELD WORK

After some initial prospecting and staking of the Sceptre claims in 1994, a two-man crew spent 10 days in August, 1995 prospecting, hand-trenching and sampling. Results were sufficiently encouraging that a three-man crew including the author returned to the property August 2 - 15, 1996 to conduct a more detailed geological study of the claims and to explore other parts of the Emerald Lake pluton under the joint agreement.

The three-man crew flew to the property from Ross River by Cessna 206 via the Plata airstrip, then on by helicopter and returned by single Otter on floats directly from Emerald Lake. The crew stayed at APC's drill camp at the north end of Emerald Lake and used APC's 500D helicopter for setouts. Constant rain and wet snow at elevations above 1700m hampered field work and made climbing conditions dangerous. A total of 10 man-days was spent sampling and mapping the Sceptre 1 claim. Attempts to visit the interglacial ridge on Sceptre 2 and 3 were foiled by bad weather. The crew spent the rest of its time on the APC claims at lower elevations prospecting other parts of the pluton.

REGIONAL GEOLOGY

The Emerald Lake pluton is one of a number of Cretaceous granitoid

intrusions found on both sides of the Yukon - N.W.T. border. It intrudes Paleozoic sedimentary rocks of the Selwyn Basin. These range from Lower Cambrian to Devonian in age and consist of argellite, quartzite, chert and cherty shale. The pluton is typically a coarse-grained syenite, often megacrystic, with some quartz monzonite and granite phases observed. It is noteworthy for its unusually high potash content and has been found to be of mid-Cretaceous age (93 ± 1 Ma, Smit et al, 1985).

The pluton contains three distinct phases. The main phase, covering three quarters of the outcrop area, underlies the Sceptre group. It is characterized by pink to white orthoclase megacrysts, large hornblende crystals and finer grained plagioclase, orthoclase, quartz and minor biotite. A trachytic phase at the west end and to the east in the Horne Peak outlyer is bluish grey, finer grained than the main phase and contains the same mineral assemblage with little or no quartz. A biotite phase in the east central part of the pluton consists of fine to medium grained quartz monzonite with biotite replacing hornblende as the main mafic mineral.

Contacts are generally sharp with little metamorphism. A screen and several large inclusions of argillite and quartzite just southwest of the Sceptre 1 claim display some bleaching and silification. A few satellite dikes on the north side of the pluton extend up to 3km from the margin (Cecile, 1984) but those observed on the southwest margin extend at most for 100 to 200m where they are mainly sub-conformable to bedding.

Aplite dikes intrude all phases of the pluton, generally associated with strong joint sets. They are dominantly alkali feldspar - rich, with hornblende and schorl as mafic minerals, and some quartz. Pegmatite phases, usually lenses up to 1 to 2m by 30cm, are uncommon except in the border phase and usually contain very coarse alkali feldspar and schorl

sprays up to 10cm long.

Of major significance to the Sceptre claims are the large (up to 2m) miarolitic cavities which are mostly confined to a somewhat finer grained border phase from 100 to 200m wide. These are most evident as large vugs exposed on cliffs near the contact, especially along the southwest margin. Their size is frequently exaggerated by the collapse of surrounding easily weathered mica and K-feldspar zones and syenite.

GEOLOGY OF THE SCEPTRE CLAIMS

The Sceptre claims lie along the southwest margin of the Emerald Lake pluton, in the main megacrystic quartz syenite phase. Direct observation and sampling could only be carried out on Sceptre 1. The central ridge dividing two arms of the glacier on Sceptre 2 and 3 was observed through binoculars and appears to be underlain by the same border phase as Sceptre 1, with abundant miarolitic cavities and en echelon aplitic and pegmatite dikes.

MINERALOGY AND PETROGRAPHY

The pluton exposed on the Sceptre 1 claim is quartz monzonite or quartz syenite. It is grey weathered, grey to light grey fresh, and coarse grained except in the border phase which extends a maximum of 200m in from the contact. This phase is fine to medium grained and mineralogically similar, with white, subhedral feldspar megacrysts up to 2cm long. The coarse phase and groundmass of the megacrystic border phase consist of about 60% anhedral white alkali feldspar, 30 to 40% subhedral to anhedral black amphibole, 1 to 5% pale brown mica and up to 1% clear anhedral quartz. The texture is

granitic to slightly oriented where indistinct flow banding was observed, aligning the amphiboles.

Aplite dikes are very common, occurring en echelon at spacings of 1 to 5mm, paralleled by a strong joint set striking 90° to 100° and dipping 65° to 80° N. They are more abundant near the contact, typically 20 to 150cm apart. They are generally 2 to 10cm thick, rarely 20 to 30cm,and weather buff colored due to a minor pyrite. They contain about 60% K-feldspar and 40% quartz as subhedral grains to 1cm. Some dikes have small (50 to 100cm) knots or pods of pegmatite segregation containing coarse subhedral to echedral quartz, schorl tourmaline and K-feldspar.

Pegmatite dikes, with similar attitude to the aplite dikes, are found mainly within 200m of the contact. They are generally 2 to 30cm thick with local lenses to 150cm thick. These range from coarse to extremely coarse grained and contain subhedral to euhedral milky quartz and smoky quartz, black schorl tourmaline as acicular sprays of buff to white K-feldspar in roughly equal proportions, with 1 to 5% white mica and minor molybdenite, pyrite and arsenopyrite. Lenses are usually bordered by several aplite bands 5 to 10cm thick containing 1 to 10mm grains of quartz and feldspar (finer grained to the outside). These bands are frequently rusty and altered and being softer, they weather preferentially creating cavities upon collapse. The few pegmatites in the main body of the pluton are generally thicker and coarser grained (up to 1m thick with quartz, tourmaline and feldspar crystals to 30cm) but contain little or no free space or miarolitic cavities.

Miarolitic cavities are abundant within 100m of the contact, less so within 200m and uncommon in the main body of the pluton. They range from a few cm to a metre or more, some appearing much larger because of the

collapse of altered aplitic border zones. The cavities occur typically at 1 to 10m spacings along the aplite and pegmatite dikes. They contain principally quartz, K-feldspar, schorl tourmaline and biotite, but may also contain apatite, flourite, scheelite, axinite, calcite, and siderite, as well as minor pyrite, arsenopyrite, chalcopyrite, malachite, kobellite, molybdenite, bismuthite, rutile, anatase and beryl. Minor free gold was noted in arsenopyrite in one cavity.

The cavities, especially larger ones are commonly surrounded by aplite bands similar to the pegmatite lenses. Within these is a 1 to 5cm thick layer of fine to medium grained biotite providing a detachment zone for crystal groups. Lining the cavity inside the mica layer is a pourous layer of fine reticulate quartz often grey or smoky, commonly exhibiting Japan law and "faden" twinning. In some cavities the base of the pocket has a layer of very coarse milky to smoky quartz pinacoids above the porous quartz. Within the body of the pocket are coarse K-feldspar crystals, frequently exhibiting Baveno or Manebach twinning. These are mostly decomposed to a fine sand within which are found large, sometimes sceptred or castellated smoky quartz crystals and large acicular sprays of schorl tourmaline. Of the other minerals found most have indeterminate relationships, but tourmaline is found penetrating quartz as was apatite in one cavity (A - 2). Apatite was found growing in the reticulate quartz layer in another cavity (A - 1). Kobellite inclusions were found in quartz in several cavities. Rutile was found in quartz, but anatase only on quartz or tourmaline.

STRUCTURE

The contact between the pluton and surrounding sediments is approximately vertical where it crosses the Sceptre claims. To the southwest the sediments strike generally south and dip variably to the west due to small to medium scale folding. Several screens of sediment up to 30m thick are present as well as smaller inclusions of country rock, mostly along bedding, one feeding a sub-conformable sill at least 300m long.

A strong jointing set striking 90° to 100° and dipping 65° to 80° N parallels the aplite - pegmatite dike system. One major fault and several minor faults cut across the dike system at a shallow angle - striking 100° to 110° and dipping 75° to 80° N. Minor pyrite - arsenopyrite mineralization occurs along these faults but there is very little precession or alteration.

MINERAL EVALUATION

Several miarolitic cavities, mostly collapsed were excavated and sampled. (Appendix 1). The focus of this program was the large smoky quartz crystals which showed some potential for cutting and carving. It was hoped that with the abundance of tourmaline, other peraluminous minerals such as beryl and topaz might be present. Only two tiny (1cm x 2mm) clear beryl crystals were recovered. The ubiquitous schorl is uniformly black to a very dark brown at the tips and because of the acicular habit, unsuited to cutting. A few facetable sections of apatite and scheelite yielded cut stones of up to 2 carats but these species are not considered commercial nor does there appear to be any abundance in the pegmatite sampled.

Smoky quartz makes up one third of the cavity's contents in those observed; the other two thirds being roughly divided between decomposed feldspar and schorl. Crystals vary from narrow prisms 2 to 10cm long, to

overgrown, zoned, complex castellated and sceptred crystals up to .5m long. Many have been broken in pocket collapse and recrystallized, yielding unusual flattened and twisted crystals. Fluid inclusions are common particularly in the sceptred quartz; in some cases rendering the crystals so porous that they fall apart upon slicing. Fluid inclusions are also the locus of frost shattering and occasional explosive breakage upon exposure to the sun. Frost shattering mars or renders useless about half of those crystals sampled, especially smaller ones. Late stage corrosion in some pockets (T - 1,A - 2) or in other cases late stage deposition of a quartz layer over limonite (T - 3, F - 4, A - 1) makes field evaluation of cutting quality very difficult. Only one cavity (T - 2) was relatively free of rust and secondary corrosion or recrystallization but it unfortunately contained only small reticulate clusters of quartz too small to cut.

Because of the difficulty of evaluating quality in the field, several hundred pounds of quartz crystals from different cavities were sampled for evaluation in the author's lab. Processing consisted of an initial water wash to remove loose dirt; soaking in 20 Baume´ hydrochloric acid for 1 to 3 months to remove limonite coatings; neutralizing in saturated sodium bicarbonate solution for two weeks; and a final water wash. Any crystals not cleaned were retuned to the acid bath. The clean crystals were evaluated under a high power lamp for clear areas and then trimmed of flawed material (veils, opacity, inclusions) using 18" through 6" diamond saws. The gross yield of trimmed material was about 2% although that from the T - 1 cavity approached 10%.

The trimmed quartz was finished into a variety of sizes of sheres and

eggs as well as free-form pieces. Several faceted stones were also finished. These were of good quality, equal to or better than the Brazilian smoky quartz commonly available. A few very dark crystals were heat treated and did become lighter but fluid inclusions caused much crazing.

SUMMARY AND CONCLUSIONS

The Sceptre claims lie on the southwest border of the Emerald Lake pluton, a met aluminous alkaline quartz syenite intrusion. They cover an area of aplite and pegmatite dikes characterized by centimetre- to occasionally metre-sized miarolitic cavities, containing a variety of pegmatite minerals including smoky quartz, alkali feldspar, schorl, apatite, scheelite, flourite, axinite, calcite, siderite, pyrite, arseno-pyrite, kobellite, bismuthite, molybdenite, chalcopyrite, rutile, anatase, and beryl. Other than their potential as mineral specimens, only the smoky quartz is abundant enough to be of economic potential for cutting purposes. Because of the remote nature of the property and the requirement for both float plane and helicopter support; difficulty of evaluating rough in the field; and the relatively low proportion of quartz of cutting quality, it is unlikely that this property could stand on its own as an economic venture.

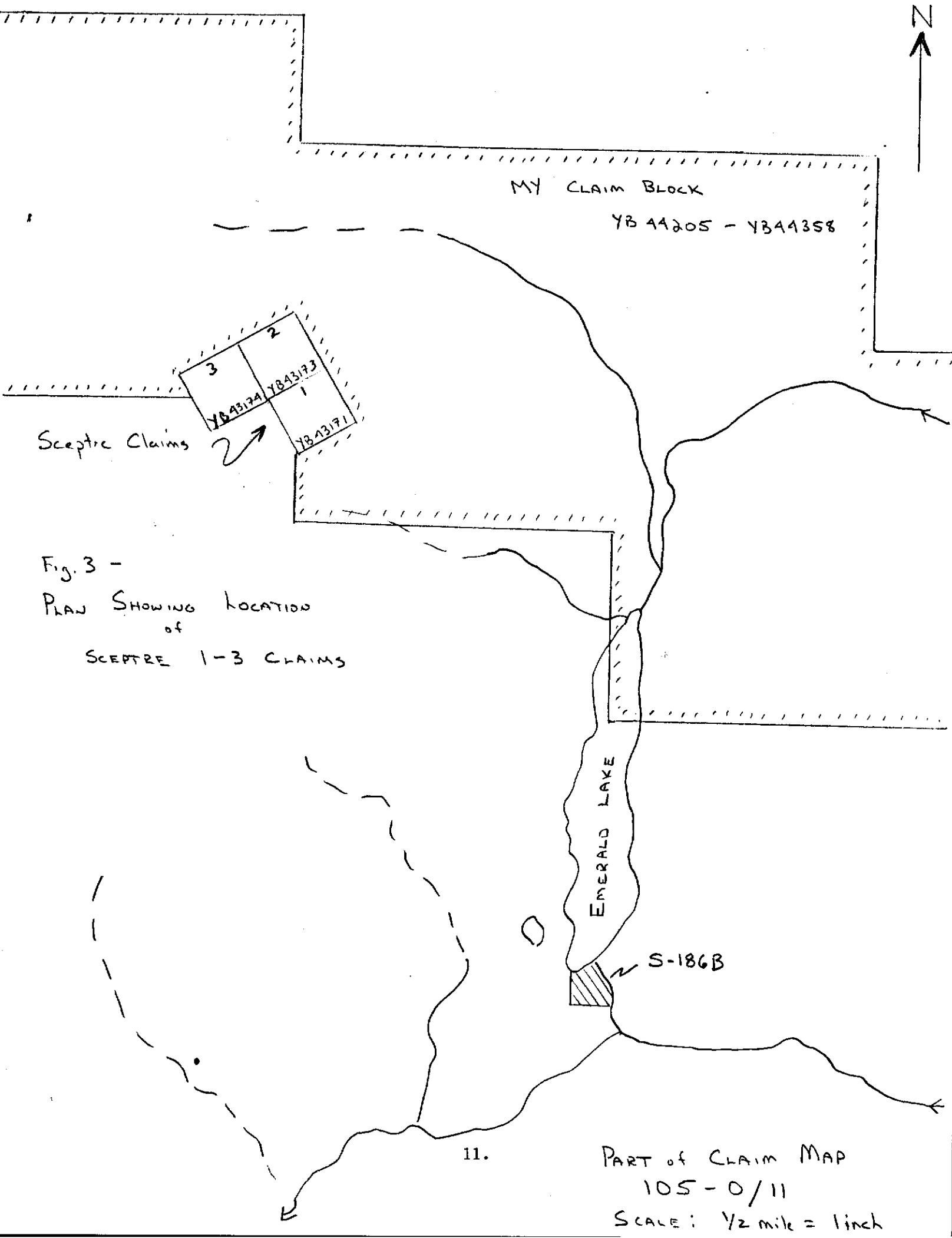


Fig. 3 -
PLAN SHOWING LOCATION
of
SCEPTRE 1-3 CLAIMS

PART of CLAIM MAP
105 - 0/11
SCALE: 1/2 mile = 1 inch

APPENDIX 1 Sample Locations and Mineralogy (See Figure 4)

T-1 - smoky quartz - a few crystals to 0.5m, some sceptered

- K-feldspar - mostly decomposed

-schorl - minor acicular sprays to 10cm

T-2 - smoky quartz - reticulate, twinned, maximum 2cm

- pale biotite

- schorl

- K-feldspar - all decomposed

T-3 - smoky quartz - some sceptered

- schorl - small sprays

- K-feldspar

- scheelite - dark orangey-brown - rare

T-4 - smoky quartz - both reticulate and small prisms

- K-feldspar - decomposed

- schorl - some small sprays

T-5 - smoky quartz - large, castellated

-K-feldspar - mostly decomposed

- bismuthite - minor, masses to 200gm

APPENDIX 1 Continued

A-1 - quartz - large milky crystals, and grey reticulate

- smoky quartz - a few large prisms, almost black
- K-feldspar - mostly decomposed
- apatite - small apple-green prisms to 2cm

A-2 - smoky quartz - small, frost-shattered prisms

- K-feldspar - mostly decomposed
- apatite - small apple-green prisms - blockier than A-1, to 2cm

A-3 - smoky quartz - small, very dark prisms

- K-feldspar - decomposed
- siderite - botryoidal masses
- arsenopyrite - fine-grained masses to 500g - trace of free gold

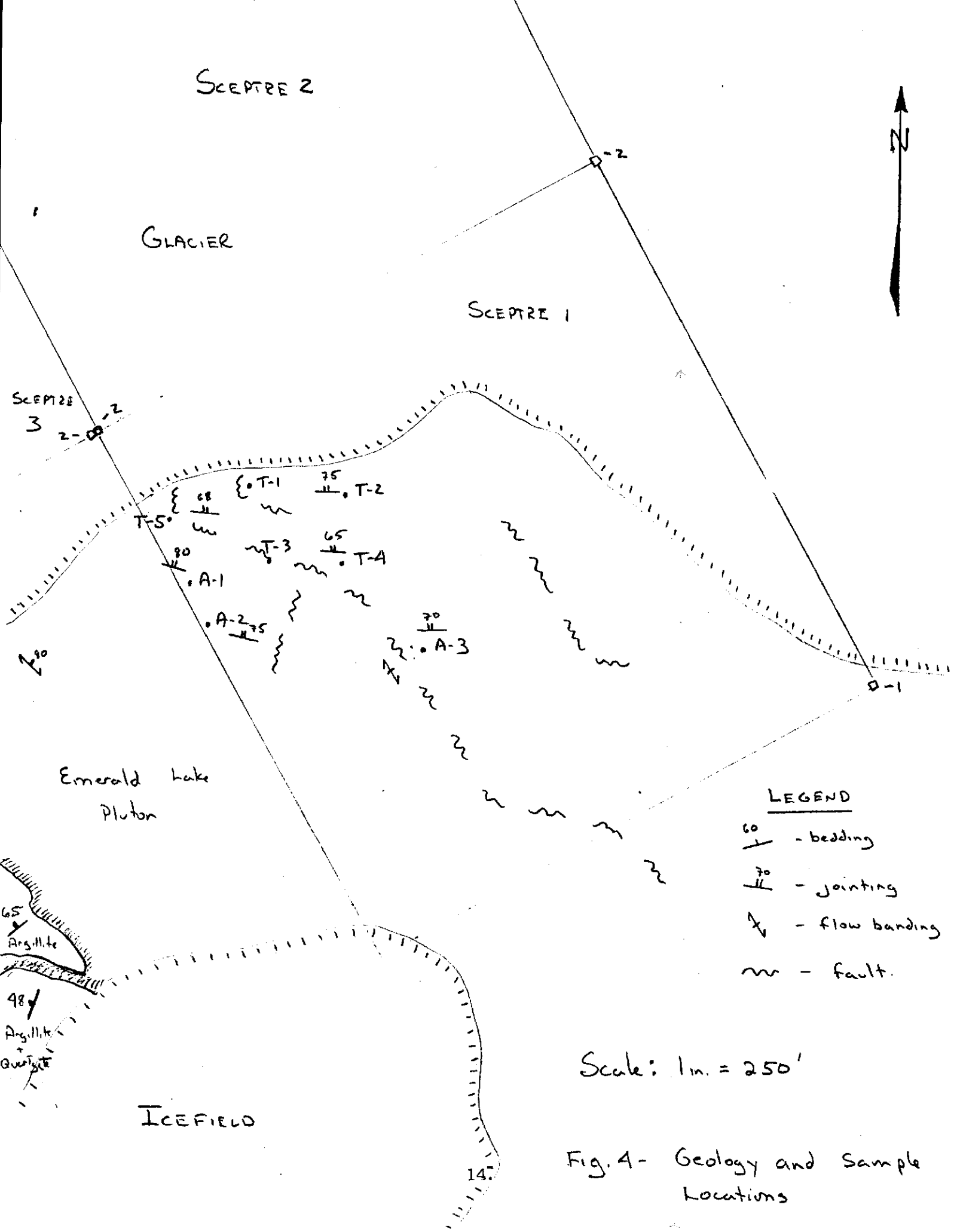


Fig. 4- Geology and Sample Locations

APPENDIX 2 Statement of Expenses

For field work on Sceptre claims between August 2 and 15, 1996.

Three men spent a total of 42 man days mapping and sampling the area.

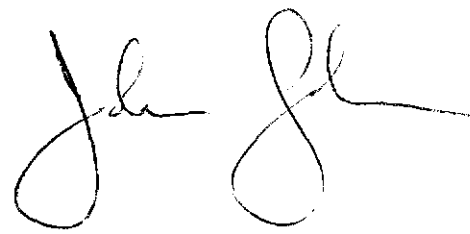
Ten man days were spent specifically on the Sceptre claims.

Costs:

Labour: Geologist - 3 days @ $250.00/day	$ 750.00	
Assistant - 3 days @ $160.00/day	480.00	
Assistant - 4 days @ $100.00/day	400.00	
	1630.00	1630.00
Float plane charter: Ross River to Emerald Lake and return - total $3240.00		
Portion attributable to Sceptre claims 10/42 x 3240.00		771.43
Sample preparation: 8 man days @ $100.00/day		800.00
Report preparation: 2 man days @ $160.00/day		320.00
	Total	$3521.43

APPENDIX 3 Author's Qualifications

John Gorham obtained a B.Sc. (with distinction) in Geology from the University of Calgary in 1976, specializing in mineralogy and petrology. He has been a member of the Alberta Association of Professional Engineers Geologists and Geophysicists since 1987, practising as a Professional Geologist. He has spent over 25 years in the mineral exploration industry. For the past ten years he has specialized in rare minerals and semi-precious gem deposits throughout Canada.



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