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N.T.S. 93-F-6

GEOLOGICAL REPORT ON THE 'T', 'CAP', AND 'TUT' CLAIM GROUPS CAPOOSE LAKE, BRITISH COLUMBIA

R.S. Hewton, B.Sc. November 1970
H.W. Marsh, B.Sc., P. Eng. November 1970

Claims:

Names	Record No.
T-1 to T-88 (incl.)	82263 to 82350 (incl.)
T-89 to T-1042 (incl.), T-1043 Fr., T-1044 to T-1061 (incl.), T-1062 Fr., T-1063 to T-1123 (incl.), T-1124 Fr., T-1125 Fr., T-1126 Fr., T-1127 to T-1135 (incl.), T-1136 Fr., T-1137 Fr., T-1138 Fr., T-1139 to T-1142 (incl.), T-1143 Fr., T-1144 to T-1149 (incl.), T-1150 Fr., T-1151 to T-1159 (incl.), T-1160 Fr., T-1161 Fr., T-1162 to T-1166 (incl.), T-1167 Fr., T-1168 Fr., T-1169 Fr., T-1170, T-1171, T-1172 Fr., T-1173 Fr., T-1174 to T-1177 (incl.)	82445 to 83533, (incl.)
T-1179 to T-1196	Not available at this time

Claims:- cont'd.

Names	Record No.
Cap 1 to Cap 32 (incl.)	77677 to 77708 (incl.)
Cap 33 to Cap 58 (incl.)	78541 to 78566 (incl.)
Cap 59 to Cap 74 (incl.)	78904 to 78919 (incl.)
Cap 75 to Cap 100 (incl.)	78567 to 78592 (incl.)
Cap 101 to Cap 128 (incl.)	78920 to 78940 (incl.)
Cap 129 to Cap 138 (incl.)	80150 to 80159 (incl.)
Cap 139 to Cap 142 (incl.)	78948 to 78951 (incl.)
Cap 143 to Cap 148 (incl.)	80160 to 80165 (incl.)
Cap 149 to Cap 188	Not available at this time
Tut 1 to Tut 18 (incl.)	78805 to 78822 (incl.)
Tut 19 to Tut 28 (incl.)	78967 to 78976 (incl.)
Tut 29 to Tut 46	Not available at this time

Location:

An area surrounding Capoose Lake, 65 miles southwest of Burns Lake, British Columbia.

N.T.S. 93-F-6

124° 53° SW

Omineca Mining Division

Dates:

May 11 to September 4, 1970.

TABLE OF CONTENTS

TABLE OF CONTENTS:- cont'd.

LIST OF MAPS

GEOLOGICAL REPORT ON THE

'T', 'CAP', AND 'TUT' CLAIM GROUPS

CAPOOSE LAKE, BRITISH COLUMBIA

N.T.S. 93-F-6

SUMMARY:

The geological mapping outlined an intrusive body thirteen miles long and six miles wide bounded on the west, north, east and southeast by a sequence of volcanic and sedimentary rocks. The area to the south and southwest of the intrusion is almost completely till covered and because of this lack of outcrop the contact in this area is poorly defined.

Geological mapping was carried out by B.E. Abraham, G. Boggaram, R. Hewton and E. Nahring. Further work on alteration, mileralogy, and relationships in the country rock is being undertaken by E. Nahring for a Master's degree thesis at the University of Idaho.

RECOMMENDATIONS:

1. Because of the different lithology, the surrounding alteration, the geochemical soil anomalies, and the extensive pyrite mineralization, the Green Lake area should be given priority. Follow-up work should include induced polarization surveys.

2. The mineralization northeast of Capoose Lake and the geochemical anomaly south of Capoose Lake warrant more reconnaissance geophysical lines (IP) in these areas.

3. Unexplained geochemical anomalies south of Green Lake, near Crab Lake, and near Guppy Lake indicate more detailed work should be carried out.

Recommendations:- cont'd.

4. Because of the geochemical, geophysical, and geological coverage of the area a detailed study of the intrusive and its relationships with the country rock should be undertaken.

INTRODUCTION:

Location, Access and History:

The claim block is approximately 110 square miles in size and includes 1411 claims (made up of 1196 'T' claims, 165 'Cap' claims and 50 'Tut' claims) situated in area 53°125° or N.T.S. 93-F-6.

Access to Capoose Lake is by float plane from Burns Lake, a distance of about 65 miles, or from Prince George, a distance of about 115 miles. A helicopter was based at the camp for transportation over the claim block.

Very little geological work has been done in this area in the past. H.W. Tipper compiled a geological report with map for the work he did between 1949 and 1952.

Regional Geology:

H.W. Tipper in G.S.C. Memoir 324 gives a table of formations and complete lithological descriptions of the units. The specific ages and formation names can be obtained from these tables. Because of the relatively small area mapped during our programme, and the concentration on the batholith rather than the country rock, the units were not given an age or formation name but were mapped entirely on lithology.

Physiography, Climate and Vegetation:

The claim block lies within the Interior Plateau in central B.C. and is generally at elevations of 3300 to 4000 feet above sea level, rising to as high as 6,200 feet on the mountain ranges.

The entire area has been glaciated and the presence of a large granodiorite boulder sitting on the andesite near the top of Mount Swannel indicates thicknesses of ice exceeding 5,500 feet.

Crag and tail, till grooves and eskers, are common glacial features seen in the vicinity. In the Capoose Lake area the till grooves indicate a southwest-northeast direction at approximately 60°.

The climate in the Capoose area is apparently quite variable. During the summer of 1969 there was considerable rainfall while during 1970 precipitation was quite low. The temperatures were low at night (usually 40's and low 50's) and moderate during the day (60's or 70's).

Physiography, Climate and Vegetation:- cont'd.

The higher elevations remained cooler and there were a few small patches of snow present all summer.

The dominant vegetation in the area is Lodgepole Pine (Jackpine) with a large amount of Spruce (Yellow and Black). Balsam, Aspen and Alder are a few of the less common tree types. Grass is abundant in swamps in the low, flat areas and moss is the predominant vegetation of higher level swamps. Moss and a number of varieties of lichen thrived in the areas above the tree line.

Historical Geology:

According to Tipper the area was inundated by seas in Paleozoic time during which marine sedimentation and volcanism occurred. An unconformity exists between Permian and Upper Triassic strata and little is known of conditions in this time, but by Late Triassic time the area was covered with seas through which Permian land masses protruded, the erosion of which caused conglomerates along the shoreline. These seas remained through Early Jurassic time but uplift was beginning, possibly associated with the beginning of intrusion of the Topley granites. By mid Jurassic time a sedimentary basin was formed with the exposed Topley intrusions in the northeast and volcanic land masses in the southwest. The basin was still present during Late Jurassic time, and limey shales were deposited, but by Early Cretaceous time regional deformation, intrusion, uplift and erosion began. The sea was then removed from this area and by Late Cretaceous to Late Oligocene time mountain ranges and batholiths were established. Lava flows began to fill the valleys in Miocene time and possibly continued up to Pliocene time. Glaciers then covered the area during the Pleistocene and in recent times the area is undergoing erosion.

GENERAL GEOLOGY:

Introduction:

During the field season of 1970 the Capoose area was mapped on a scale of two inches equals one mile with some detailed mapping (1 inch equals 800 feet) done over the 'Cap' claims, the 'Tut' claims, and an area near Crab Lake.

Introduction:- cont'd.

Much of the claim block is till covered with only scattered outcrops, the best exposures being in creek or river cuts. A mountain ridge starts in the northeast of the claim block and extends along the eastern side. Exposure was excellent on this ridge and most of the information collected on the country rock was from the mountain tops.

Overburden:

Detailed geological mapping was hampered by the lack of outcrop. Excluding the mountain range on the eastern edge of the map area the percentage of outcrop would be on the order of 5% or less. The mountain range, although largely off the claim block had more exposure which increased the knowledge of the area considerably. However, even the mountains were not completely outcrop. Vegetation, swamps and overburden limited outcrop on all but the peaks of the mountains.

The extensive overburden consists of glacial material and ranges from depths unknown (possibly greater than 100 feet) to less than 10 feet on some of the mountain slopes. The constituents of the overburden are sand and pebbles with some clay material existing in the form of till, moraine and occasionally as eskers.

The pebble constituents are generally material noticed in the map area such as granodiorite or andesite but in the southwestern area of the claim block rock types peculiar to mapped areas are noticed. These probably represent rocks which outcrop further to the southwest or else are drift covered in the map area.

The southwestern and southern areas contain the most overburden and the least outcrops which mask the position of the intrusive-country rock contact and the nature or relations of the country rock.

Sediments:

The sediments encountered are quartzite, garnetiferous quartzite, siltstone, limestone, and conglomerate. Sediments are not abundant but do occur northwest of the claim block and along Fawnie Nose.

The quartzite is a very quartz-rich rock, in some cases completely crystalline quartz, which is apparently devoid of structure. Bedding was established in one area only and this gave readings with 20° to 40° dips to the southwest.

Sediments:- cont'd.

The garnetiferous quartzite was found in one area only, along Fawnie Nose south of Green Lake. It consists of subhedral to euhedral garnets 2.5 mm and less in size, occurring on fracture planes and as disseminations throughout a quartzite. The garnets, and the occasional coarse quartz crystal are not likely the result of contact metamorphism as temperatures associated with the intrusive body were not high enough to form garnets.

Limestone occurs just east of the garnetiferous quartzite. The limestone is interbedded with a siltstone. Readings on the beds indicate strikes at about 130° and shallow dips (20° - 40°) to the southwest which correspond well with the readings in the quartzite.

The limestone is a crypto-crystalline matrix of calcite cementing a few grains of quartz and feldspar. Unidentified fossils are present both in the limestone and in the siltstone. These fossils are now rings of fibrous calcite around a core of plates of calcite with some quartz impurities. The general elongated conical shape and circular cross sections indicates the fossils are probably cephalopods and could be belemnoids or early nautiloids.

The siltstone interbedded with the limestone contains many fossils also, all of them cephalopods. One brachiopod was noticed in a loose boulder of the same material but none were seen in outcrop.

Conglomerate is common in small abundances in many places, but the largest occurrence is southeast of the claim block. In all cases pebbles or boulders of volcanic or sedimentary rock are present in a matrix usually of a cherty material. In no case was there granodiorite pebbles in the conglomerate indicating the conglomerates are older than the granodiorite.

In some creek beds running off the mountains near the gossan zone surrounding Green Lake there is a conglomerate made up of a limonitic matrix and pebbles of the altered sediments or volcanics. This conglomerate is recent as it is presently being consolidated by the stream.

Volcanics:

Volcanic flows make up the greatest percentage of the country rock. Included in these rocks are andesites, basalts, dacites, and rhyolites of various ages and types.

Volcanics:- cont'd.

The andesite is the most abundant rock type and occurs in many forms. To simplify mapping andesite breccias, tuffs and often porphyry were included in the andesite category. The breccia and tuff are relatively uncommon and are apparently local variations. The andesite porphyry although fairly common does not have distinct traceable contacts with the andesite and therefore has been included with the andesite. Andesite porphyry is distinguishable as a separate mappable unit on Swannel and here appears to overlie the andesite.

The andesite is quite variable, ranging in colour from light green to black and in grain size from aphanitic to medium grained. Thin section studies show the andesite has been altered causing a fine grained matrix of broken minerals. Relic grains of feldspar and pyroxene can be seen but these have nearly been replaced by matrix material. The biotite and hornblende are being altered to chlorite.

In some areas near the contact with the intrusion the andesite has been altered to a hornfels. The hornfels unit is traceable over short distances along Tutiai and Fawnie Nose. Biotite has apparently been reconcentrated near the contact giving a biotite-rich country rock. In many areas the country rock is gradational from an andesite to a spotted andesite to a spotted hornfels to a hornfels. The maximum width noted for the hornfels is about 1,000 feet, but it is usually much less.

As mentioned above the andesite present is of different ages. This is demonstrated by the various relationships of the andesite with other rock types such as andesite overlying the sediments on Fawnie, and south of Fawnie the sediments overlying an older phase of andesite. In addition,there are areas of very fresh (green, medium grained) andesite within older more altered (grey to grey-green, aphanitic) andesite.

Basalt is present as Tertiary volcanics in the northeast and south-west edges of the map area. Here there is amygdaloidal basalt with fine grained altered matrices and amygdules filled with asicular crystals (unidentified) radiating from the outside edge of the amygdule towards the centre. Basalt was also thought to be present in the older rocks but positive identification was difficult and when made the contacts could not be followed. For this reason the older basalt was included with the andesite.

Volcanics:- cont'd.

Dacite was identified in outcrop in the southern edge of the map area. It was recognized by an increase in the percentage of quartz but its relationship to the surrounding andesite is not known due to lack of outcrop. For this reason the dacite has been incorporated into the andesite unit.

Rhyolite was not common and was found in the Tertiary volcanics, north of the map area, and possibly as material within the intrusive. No other rhyolite was identified positively within the map area. One section on Fawnie, originally mapped as rhyolite, was later seen to be entirely quartz, and a second area, along the intrusive contact on Fawnie, is now thought to be an altered part of the intrusive itself rather than rhyolite.

A geochemical soil anomaly for Pb exists in the volcanic rocks south of Green Lake. A few narrow stringers of galena have been observed in outcrop and some crystals of galena have been found in boulders, but no major Pb mineralization has been found to date.

Pyrrhotite mineralization was seen disseminated through a basalt south of Fawnie Nose. The mineralization is not extensive (1% over short distances) and the mineralized outcrops do not cover much area as they are surrounded by sediments.

Intrusive:

The intrusive body is outlined on Map G-8103. It consists of a matrix of plagioclase, alkalai feldspar, quartz, biotite, and hornblende in various abundances, with phenocrysts of plagioclase, alkalai feldspar, and occasionally biotite. The plagioclase and hornblende occur in subhedral grains, the alkalai feldspar and quartz grains are anhedral and interstitial, and the biotite exists as euhedral hexagons. Thin sections and stained sections were examined for grain size and composition.

The batholith was originally mapped as porphyritic granodiorite, but subsequent thin section studies and staining for alkalai feldspar indicate that actually a porphyritic granodiorite and a porphyritic quartz monzonite are present with the relationships shown on map G-8106. A description of the granodiorite and quartz monzonite is given in thin sections PT2 and PT 13 respectively. However, the distinction between the quartz monzonite and granodiorite may be artificial. Classification was made according to the chart of Russel B. Travis in the Quarterly of the Colorado School of Mines which

Intrusive:- cont'd.

sets the division between quartz monzonite and granodiorite at two-third's plagioclase. That is, if one-third to two-third's of the total feldspar is plagioclase (along with some other characteristics) the rock is a quartz monzonite, but if greater than two-third's of the total feldspar is plagioclase (with other conditions) the rock is a granodiorite. Many of the thin sections observed, and many of the stained sections contained abundances of plagioclase close to two-third's of the total feldspar, that is, on the borderline. Therefore, two possibilities exist: 1) there are two distinct phases, or 2) there is only one phase which falls on the borderline giving a false impression of two phases. More sections will have to be examined, and more accurate counting will have to be done before either possibility can be substantiated.

The areas of quartz monzonite and granodiorite can be seen on Map G-8106 along with the areas of different grain size. The two grain size divisions are simply fine grained, with matrix less than 2 mm. in size and phenocrysts usually less than 6 mm. and coarse grained, with matrix greater than 3 mm. and phenocrysts up to 15 mm. in size. Comparing the grain size with rock type on Map G-8106 there are four distinct areas. These are:

1) a coarse grained granodiorite

2) a coarse grained quartz monzonite

3) a fine grained granodiorite

4) a fine grained quartz monzonite

Assuming the definite existence of two rock types, there are then four phases to the intrusion. However, not included in these phases is an area between Tutiai and Fawnie Nose west of Green Lake mapped as altered granodiorite (4b) on Map G-8103. Very little outcrop was found in this area, but on the mountain slopes a few showings of fine grained, quartzitic, relatively mafic free, granodiorite were present. Some sections did contain small percentages of pyrite and/or magnetite but this was the only mineralization noted. The area is not well understood geologically, but does correspond to a widespread intense Cu, Mo, and Pb soil anomaly. It was within this area that boulders with sericite and boulders of stope breccia material were found. A fault cutting through Green Lake as mapped by E. Nahring (Map G-8095) transects this area.

Intrusive:- cont'd.

The contact between the batholith and country rock was observed in outcrop on the slopes of Mount Swannel. The contact was distinct and traceable across the outcrop. Thin sections taken across the contact show an increase in mafics towards the contact (in the intrusive) and more specifically there is a general increase in the percentage of hornblende (40% in one small area). There is a drastic change in grain size across the contact, as can be seen in thin section 17137C. Measurements taken on the contact in the field indicate it dips at about 45° into the country rock.

Also noticed near the contacts are dykes of intrusive material cutting into the country rock. These dykes are from a couple of inches to a couple of feet wide and can be traced laterally for distances up to 20 feet. They are of the same or of similar composition as the intrusive body and radiate outward from it. They are not abundant as only a few were seen.

The sharp contact, and general lack of alteration along the contact suggests the batholith was at rather low temperatures when intruded. An increase in quartz as well as local increases in biotite, in the country rock is noticed along the contact.

The intrusive body appears to be quite fresh in appearance with only minor saussurization of the alkalai feldspar, minor chloritization of the biotite and more prominent chloritization of the hornblende. Aplite veins and quartz veins are present, but not prevalent. Secondary biotite occurs on some fracture planes giving these surfaces a black, or light brown if leached, appearance. The secondary biotite was only noticed coincident with sulphide mineralization.

The sulphide mineralization appears to be of the hydrothermal type since in the trench areas and the area along Capoose Creek the mineralization occurs on various fracture planes. Also, two miles south of Capoose Lake, molybdenite occurs in quartz veins cutting the intrusive.

The minerals present are pyrite, chalcopyrite, molybdenite, covellite, bornite (trace) and malachite in the pits and Capoose Creek showing and molybdenite south of Capoose Lake. Assays for the pit areas are in Table II and additional values are in Table I. Magnetite was presumably disseminated throughout the intrusive as all samples were magnetic.

Intrusive:- cont'd.

TABLE I

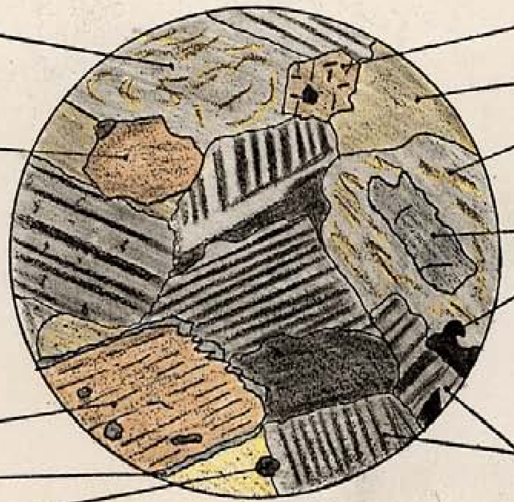
Some assays from an area 2 miles south of Capoose Lake.

Station No.		% Cu	% Mo
17120	Disseminated Mo in quartz monzonite	0.01	0.03
17121	Barren quartz monzonite	0.007	<0.001
17122	Barren quartz monzonite	0.005	<0.001
17128	Mo in quartz vein	0.005	0.02
17128.2	Quartz vein without Mo	0.005	0.002
17129	Mo in quartz vein	0.007	0.07

In the northwestern end of the batholith various other rock types were mapped which appeared to be inclusions or roof pendants of older basic and acidic volcanic material or dykes of younger material. Because of the limited exposure these features could not be traced, therefore their exact relationship is not known.

Float of basic volcanic material was found in the center of the intrusive and near the eastern margin and appears to mark out dykes as it has a limited width (10 ft.) and can be traced laterally for a hundred or more feet.

THIN SECTIONS



PT 2
X Nicols
Diameter 4 mm

Abundances

Plagioclase (oligoclase)	40%	Chlorite	3%
Alkalai Feldspar	20%	Opaques	2%
Quartz	15%	Apatite	1%
Biotite	10%	Alteration Minerals	1%
Hornblende	8%		

The plagioclase was identified by twinning on the albite law. The twins are generally indistinct but a few readings on the extinction angles show the feldspar to be oligoclase. The plagioclase occurs as subhedral grains up to 4 mm. in size in the matrix and up to 6 mm. in size as phenocrysts. Little alteration is present on the grains.

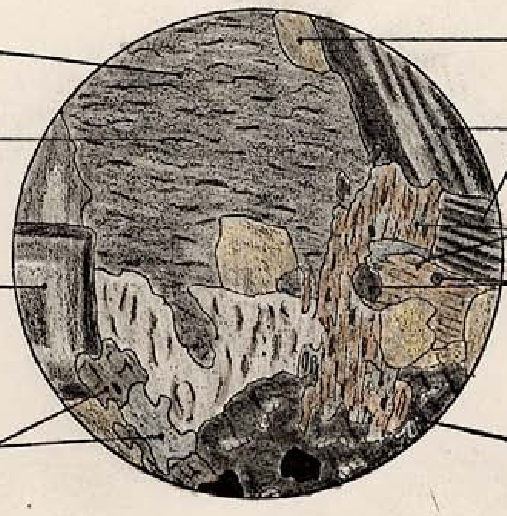
The alkalai feldspar has a low birefringence and occurs as anhedral masses up to 5 mm. in size in the matrix and up to 7 mm. in size as phenocrysts. Alteration has begun as blotches as some alteration minerals can be seen on the feldspar grains.

Quartz is present as interstitial filling up to 4 mm. in size and shows no alteration.

Pit 2:- cont'd.

The mafic constituents are made up of biotite, hornblende, chlorite and opaques. The biotite varies in size from 2 to 8 mm. and shows some alteration to chlorite. The hornblende is up to 5 mm. in size and is about 30 to 40% altered to chlorite. Only one or two grains of pure chlorite are visible and they are presumably the result of alteration of hornblende. The opaque minerals are most likely magnetite but may also be some of the sulphides noticed in the pit.

The intrusive is bordering between a granodiorite and a quartz monzonite. The rock apparently contains variations in the ratio of plagioclase to total feldspar but it usually is greater than two-thirds. It is definitely porphyritic and has undergone very little alteration.



PT 13
X Nicols
Diameter 4 mm

Abundances

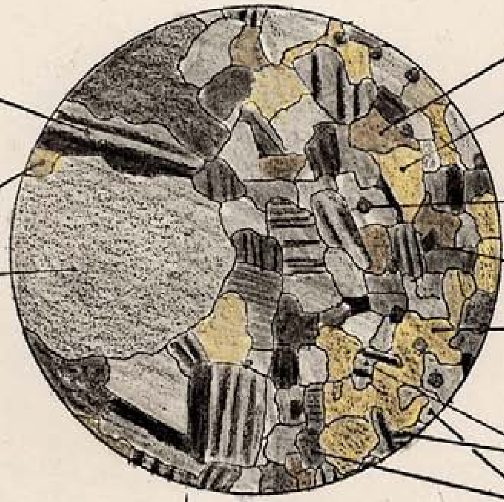
Plagioclase (andesine and oligoclase)	50%
Alkalai Feldspar	38%
Quartz	10%
Biotite	6%
Hornblende	3%
Chlorite	2%
Apatite	< 1%
Opaques	< 1%

Identification of the minerals was made by the characteristics stated for Pit 2. The plagioclase here is both oligoclase (abundant) and andesine (less common). The matrix material varies from 2 to 5 mm. and phenocrysts up to 12 mm. in size were noticed. Alteration is a bit more prominent than in Pit 2 as the biotite and hornblende are more altered to chlorite and the alkalai feldspar is more altered to clay minerals.

The rock type is a quartz monzonite by the fact the ratio plagioclase/ total feldspar is less than two-thirds. There is still abundant plagioclase however, and the ratio is just under two-thirds. The intrusive was possibly fairly homogeneous and the granodiorite-

Pit 13:- cont'd.

quartz monzonite areas are formed because of local partial differentiation of the melt during cooling, giving the slight variations in the feldspar ratios. That is, the granodiorite areas were the first to completely cool removing Ca from the melt and causing the slower cooling areas to be relatively Ca poor and form quartz monzonite. There was probably no influx of new magma nor any relative movement prior to complete cooling as both the granodiorite and quartz monzonite are very similar except for their feldspar ratio differences.



X Nicols

Diameter 4 mm

Abundances

Intrusive

Plagioclase	25%
Alkalai Feldspar	45%
Quartz	25%
Biotite	5%

Country Rock

Plagioclase (andesine)	40%
Alkalai Feldspar	10%
Quartz	5%
Biotite	25%
Hornblende	16%
Apatite	1%
Pyroxene	1%
Chlorite	1%
Opaque	1%

This section has been cut across the actual quartz monzonite (as the intrusive is in this particular area) and andesite contact. Thin sections of the quartz monzonite leading up to the contact show an increase in the percentage of mafics from 10% biotite, 8% hornblende to 20% biotite, 25% hornblende. The large percentage of mafics near the contact is not consistent but varies from 5% biotite as shown in the diagram to 40% hornblende.

17137C:- cont'd.

The andesite on the other hand has a decrease in mafics and an increase in quartz as the contact is approached. There also appears to be a clustering of the mafics (pyroxene at least) near the contact.

At the contact the grain size varies from 2 to 3 mm. to 10ths of mm. within a very short distance (4 mm.). The change in grain size is quite drastic and gives a very distinct contact suggesting the quartz monzonite was intruded at quite low temperatures. The temperatures were just high enough to cause a slight recrystallization of the quartz near the contact in the andesite.

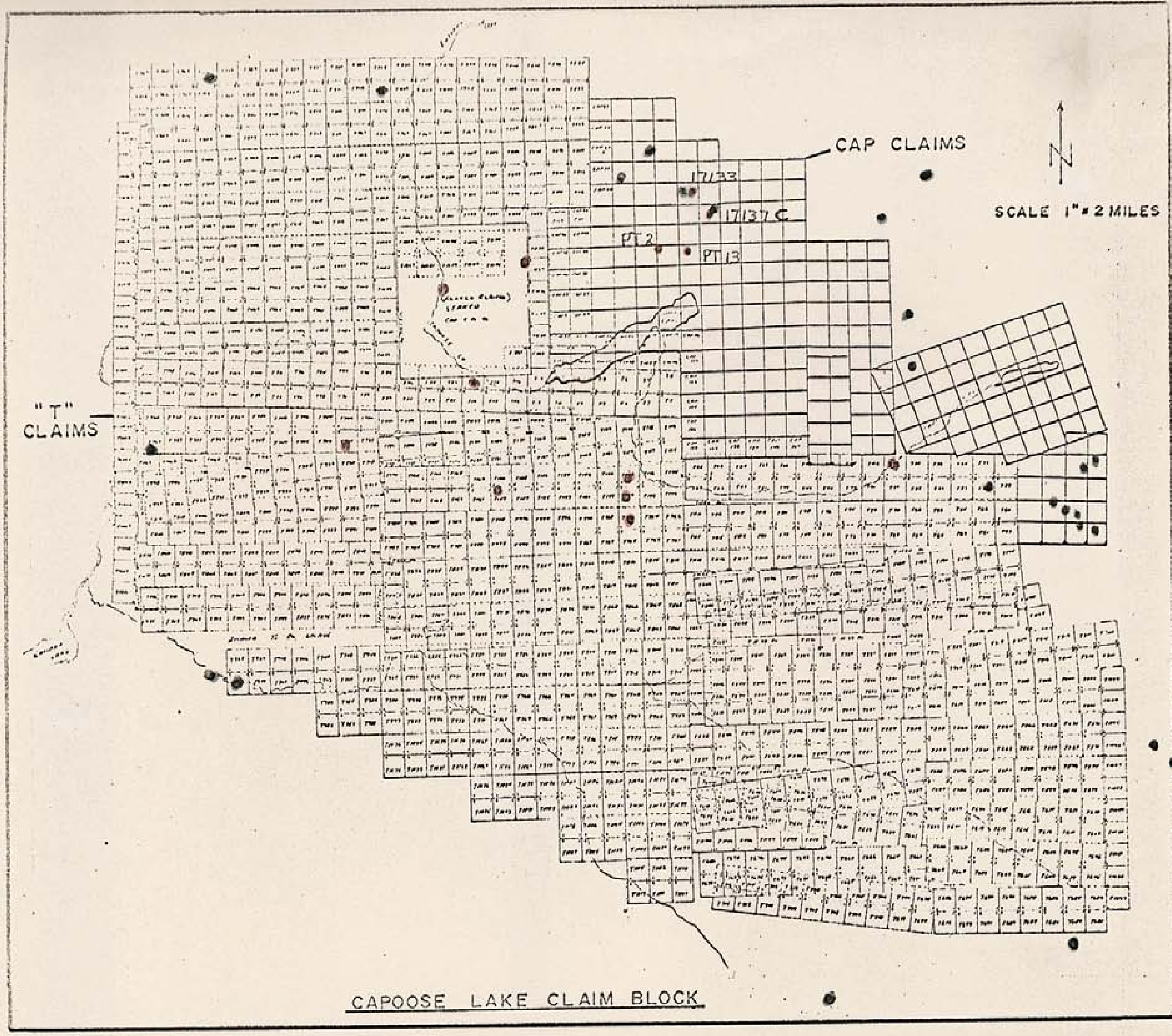


FIGURE 2

Thin Section Locations

• - Intrusive
• - Volcanics

Section Nos.

16031	17025	17120	17139	17644
16512	17034 (2)	17128	17140	17758
16548	17032	17133 (7)	17503	18014
16563	17010	17136	17514	LST 1
16543	17041	17132	17532	CBP 1
16541	17056	17134	17534	PT 13
16132	17073	17137 (6)	17550	PT 2
16530	17082	17137C(7)	17573	
16565	17093	17127	17570	

Pits - General:

A total of fifteen pits are located in the area north of Capoose Lake (see Map G-8110). Construction of the pits was carried out by drilling four foot holes in the rock with a Cobra drill and placing dynamite in the holes. The rock was then shovelled out or thrown out by hand. A total of about 88 man days was required for the fifteen trenches.

Pits 0, 1, 2, 4, 9 and 10 are over the geochemical soil anomaly and the geophysical chargeability anomaly; pits 3, 5 and 6 are over the geochemical anomaly, pit 12 is over the geophysical anomaly and pits 7, 8, 11, 13 and 14 are out of both anomalies. Most of the pits are shallow and were used mainly to discover any lithological or structural changes across the anomalies. Pits 1, 2 and 13 were extended to greater depths to distinguish the mineralogy.

The pits show that joint patterns are constant across the geophysical anomaly but the intensity of the fracturing decreases off the anomaly. In pits 0 to 10 the granodiorite is very similar with minor local variations, the significant deviation being the increase in hornblende in pits 7 and 8. The granodiorite encountered in the pits was a fairly coarse grained porphyritic granodiorite with orthoclase and plagioclase phenocrysts.

Pits 11, 13 and 14 occur in a quartz monzonite which was identified by staining for alkalai feldspar.

The assays for chip samples taken one foot apart down one side of each pit is given in Table II. Table III gives assay values for some soil samples taken just above the bedrock at the top of some of the pits. Pit 12 was entirely in overburden so samples were taken one foot apart down the depth of the pit.

TABLE II

Assays of Soil Samples from Pits[1]

Pit Number	ppm Cu**	ppm Mo***
2	980	120
3	465	19
4	305	20
7	70	3
* 12-0 (Top)	5	1
* 12-1 (1 foot depth)	15	3
* 12-3 (3 foot depth)	23	3
* 12-4	24	3
* 12-5	24	2
* 12-6 (6 foot depth-bottom)	19	3
* 13	570	7
* 11	211	7

* OFF the geochemical Cu soil anomaly.

** Background is 45

*** Background is 5

1 Assays from Rio Tinto Canadian Exploration Limited Laboratory

TABLE III

Assays for Chip Samples from Pits[1]

Pit Number	% Cu	% MoS_2
0	0.01	0.002
1	0.02	0.002
2	0.03	0.001
2A (selected sample)	0.56	0.007
3	0.01	0.002
3A (aplite vein)	0.01	0.002
4	0.01	0.002
5	TR	0.001
6	TR	0.002
* 7	0.01	0.002
* 8	TR	0.002
9	0.02	0.002
10	0.01	0.003
* 11	0.01	0.003
* 13	0.04	0.002
* 13A (selected sample)	0.14	0.006
* 14	0.03	0.002

* Not over the geochemical Cu soil anomaly

1 Assays from Bondar-Clegg & Co. Ltd.

Pits - Detail:

Pit 0:

Length 6'
Width 5'
Depth 2'

Pit 0, located near the center of the geochemical soil anomaly, contains more pyrite than the following pits. The pyrite occurs as fracture fillings (with minor chalcopyrite) and as disseminations. The mineralized fractures strike at 115° and dip 75°S.

Biotite and hornblende constitute about 20% of the porphyritic granodiorite with quartz, plagioclase and orthoclase making up the other 80%.

Pit 1:

Length 6'
Width 5'
Depth 4'

Pit 1 occurs in a somewhat fresh porphyritic granodiorite containing 20% mafic constituents. The granodiorite has been fractured and weathered giving the rock a broken, rusty appearance even at a depth of 4 ft. The minerals noted are malachite, chalcopyrite, molybdenite and pyrite which occur on three fracture planes - 115° 70°S, 020° 65°E, and 095° 65°S. Only very tight fractures are mineralized while the open fractures appear to be leached. Although there is a high intensity of fracturing, the interval between mineralized fractures is great (in the range of 2 to 4 feet).

Secondary biotite occurs on many fracture planes and in the more open fractures is bleached. Some clay mineral alteration was noted.

Pit 2:

Length 9.5'
Width 6'
Depth 7'

Chalcopyrite, malachite, molybdenite and pyrite are found in greater quantities than in any of the other pits. The mineralized fractures

Pit 2:- cont'd.

occur at 140° 72°, 105° 65°S and 045° 66°N. Covellite staining is present on some chalcopyrite and a few specks of bornite are thought to have been detected.

The granodiorite is very similar to that in pit 1, although it is possibly a bit more weathered. Sections of the pit are quite sheared.

Pit 3:	Pit 4:	Pit 5:	Pit 6:
Length 10'	Length 8'	Length 5'	Length 8'
Width 7'	Width 6'	Width 4½'	Width 6'
Depth 7'	Depth 2½'	Depth 2'	Depth 4'

These pits are very similar in structure and lithology. They are shallow pits used to test structural control and to identify any change in the character of the granodiorite. Little or no mineralization is present.

Pit 3 has an aplite vein striking at 90° and dipping 55°S. The vein contains minor amounts of disseminated pyrite.

Pit 7:	Pit 8:
Length 6'	Length 5'
Width 5'	Width 4'
Depth 3½'	Depth 2'

Both pits are off the IP and geochem soil anomaly. These shallow pits do not contain any sulphides and the granodiorite is less weathered than in the other pits. The jointing pattern is similar although not as intense as the previous pits. (One significant feature is the greater abundance of amphibole in Pit 8. The biotite to amphibole ratio in this pit is less than one, while previously it was greater than one.

Pit 9:

Length 5'
Width 4'
Depth 2'

No mineralization was noticed in this pit. The fracturing intensity is lower than Pits 1 or 2 which are nearby. The granodiorite is quite weathered and sheared. There is minor kaolinization here.

Pit 10:		Pit 11:	
Length	8'	Length	6½'
Width	4'	Width	6'
Depth	3½'	Depth	3'

The granodiorite in these pits is characterized by an increase in the percentage of plagioclase phenocrysts, many of which are quite dark in colour. Some chalcopyrite was noticed in Pit 10 but only pyrite was seen in Pit 11. Pit 10 is a granodiorite and pit 11 is a medium grained quartz monzonite.

Pit 12:

Length 8'
Width 3½'
Depth 6'

Bedrock was not reached here. The pit was in a sandy moraine with many granodiorite pebbles and cobbles.

Pit 13:		Pit 14:	
Length	8'	Length	6'
Width	7½'	Width	5'
Depth	4½'	Depth	6'

Both pits occur in a coarse grained porphyritic quartz monzonite with the occasional orthoclase phenocryst over 2 cm long although generally they are about 1 cm long. Disseminated chalcopyrite and malachite can be found in the rock at estimated abundances of 0.2% (visual estimation). Chalcopyrite is occasionally found on fracture planes.

Alteration:

Chloritization is the most common alteration process and occurs in almost all rock types as the mafic minerals are being altered to chlorite. It is present both in the country rock and the intrusive.

Silicification is almost as widespread as chloritization and quartz veins were noticed in the country rock and the batholith. Apparently there has been silicification of the country rock in the form of interstitial quartz, as the country rocks, even some of the fresher looking andesites, are hard and contain quartz.

Epidotization of the country rock was common and exists in the highest degree in the northeast and southeast of the map area. In large areas here, epidote is dispersed throughout the rock or is present in stringers and veins in nearly random orientation sometimes generally radiating out from the intrusion.

Calcification is uncommon but present northeast of the claim block where calcite is present on some fractures and amygdules in an amygdaloidal andesite are filled with calcite.

Garnets are present on Fawnie Nose and are quite extensive throughout a quartzite unit. An occasional garnet was noticed in the volcanic sequence here but the mineral was generally restricted to the sediment.

Sericitization occurs in one limited area on the southern slope of Tutiai Mountain leading down to Green Lake. No sericitization was noticed elsewhere.

Tremolite occurs on Tutiai and Fawnie Nose although it is not common. An occasional fracture with tremolite in the center and epidote along the edges was found.

Saussuritization of the feldspars is in very early stages and has just commenced on the alkalai feldspars.

Pyritization of the country rock is prevalent in the rocks north and south of Green Lake and causes an extensive gossan zone in this area. Pyrite in varying percentages to as high as 25% can be found here. Due to the varying percentages within one rock unit and the fact all rock units are pyritized it is assumed the pyrite is secondary. Pyrite occurs in almost all the country rocks but it has relatively consistent abundances around 1% outside of the Green Lake area.

Alteration:- cont'd.

The alteration-mineralization zones are difficult to outline. In the pit area north of Capoose Lake a quartz-biotite-pyrite-chalcopyrite-molybdenite assemblage exists which could be an indication of potassic alteration, although secondary K-feldspar is not common. The quartz-sericite-pyrite assemblage northwest of Green Lake is indicative of phyllic alteration and the chlorite-epidote-calcite (although minor) assemblage typical throughout the country rock is common in propylitic alteration. The complete assemblages for any of these alteration types were not noticed so identification of alteration is difficult. The mineralization was apparently emplaced by hydrothermal activity shown by the molybdenite bearing quartz veins two miles south of Capoose Lake and by the various different mineralized fracture planes in the pits north of Capoose Lake.

Structure:

Joints:

Joint readings were taken at all stations possible and have been plotted up on Map G-8106. General directions can be obtained from the map but trends are difficult to establish. On a local scale a 0° -10° trend exists near Crab Lake. Jointing also parallels faulting on the two faults passing Capoose Lake as well as the suspected fault along the Entiako River. Conjugate joints are also present, especially in the Capoose Lake area.

Rose diagrams for joints were developed by plotting the frequency of joints within 10 degree intervals on an equal area stereo net.

Rose diagrams show the joint patterns obtained in the intrusive rock and in the country rock. Certain trends can be identified for both categories as shown in Table IV.

Joints:- cont'd.

TABLE IV

Joint Trends as Identified from the Rose Diagrams

	Intrusive	Country Rock
Trends (in Degrees)	0 - 10 50 - 60 80 - 90 110 -120) 170 -180)	0 - 10 50 - 60 70 - 90 160 -170

The 0° -10°, 50° - 60°, and 70° - 90° trends are seen to coincide quite well in both sections which probably indicates post-intrusive jointing and therefore affected both the intrusive body and the country rock. The 160° -170° trend noticed in the country rock but not in the intrusive rock could be an indication of a structure caused by the intrusive or else one already existing before the intrusive was introduced. The 110° -120° and 170° -180° trends are present in the batholith only which could imply a cooling origin for these structures.

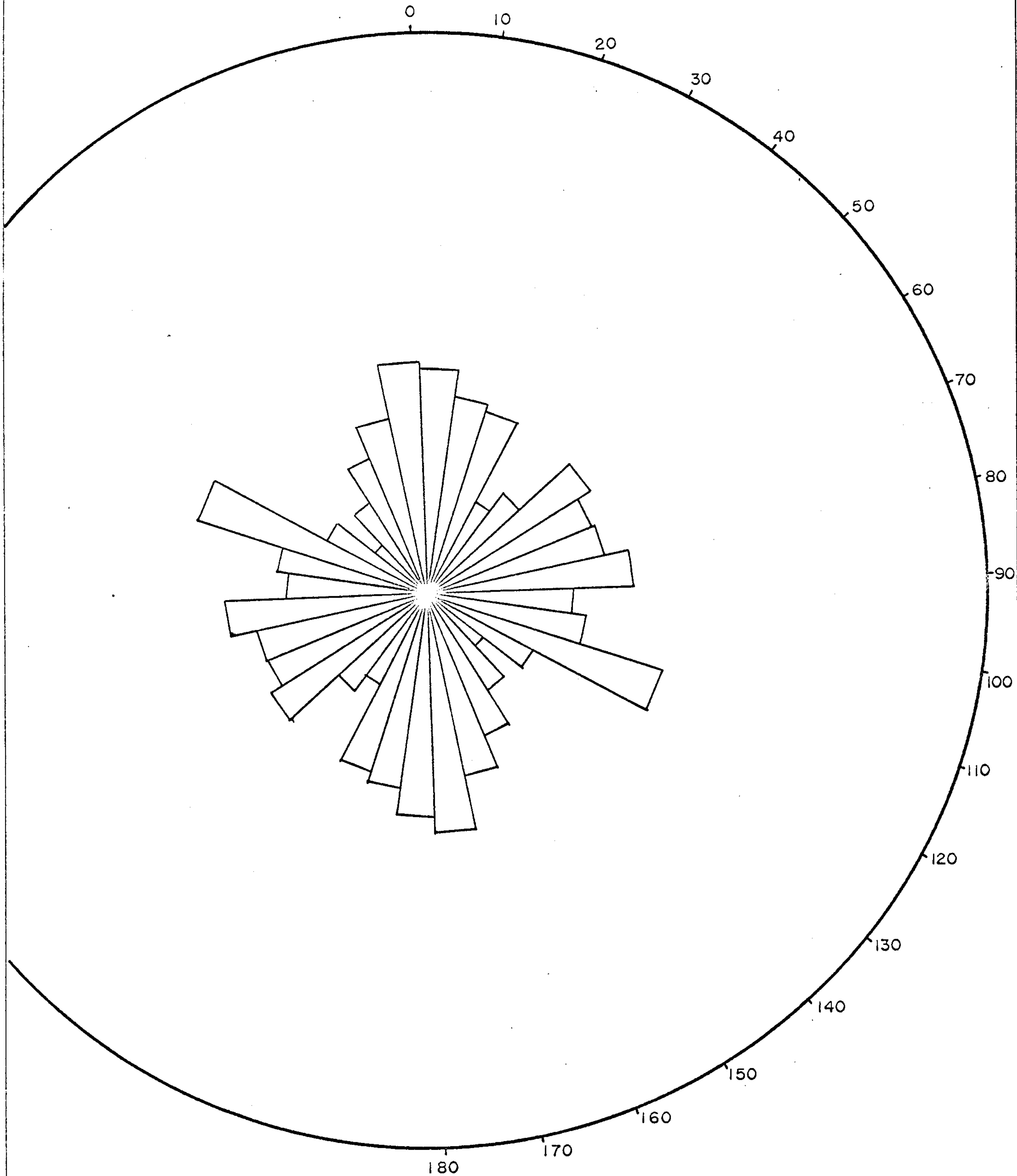
That is as the body cooled, fracture planes formed which were perpendicular to the cooling surface and which would not be demonstrated in the country rock.

It was noticed that in the pits mineralization occurred on various joint plane intervals, these being:

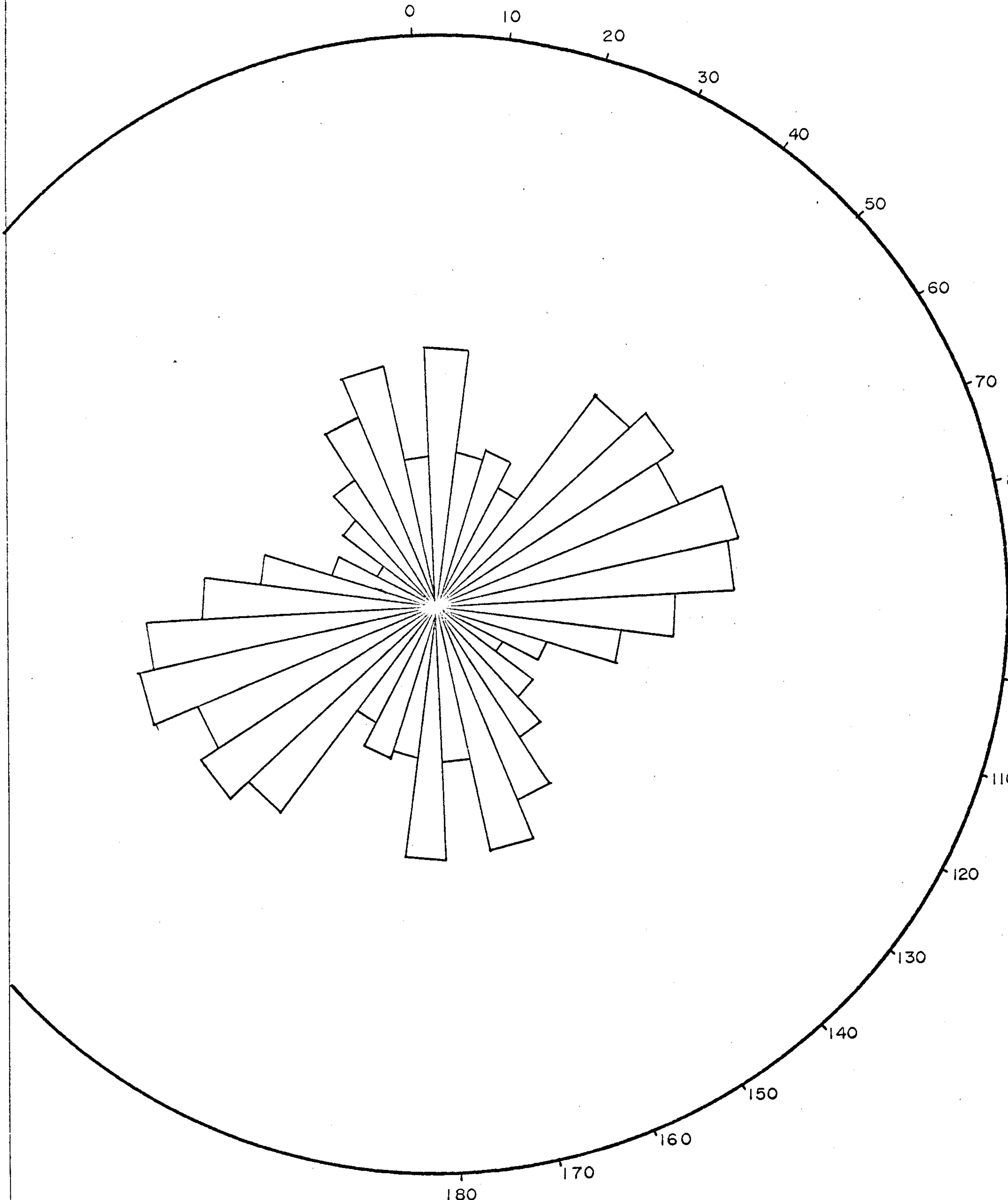
1) 10° - 20°
2) 40° - 50°
3) 90° -100°
4) 100° -105°
5) 110° -120°
6) 130° -140°

The presence of mineralization on all these planes, including the trend peculiar to the intrusive body indicates mineralization occurred after or coincident with the last stage of jointing.

ROSE DIAGRAM FOR JOINTS
IN THE GRANODIORITE



ROSE DIAGRAM FOR JOINTS IN THE COUNTRY ROCK



Faults:

Again the lack of outcrop makes positive identification of faults difficult. Many trends can be seen on the air photographs and on the aeromag map but these could not be proved in the field. On map G-8103 the faults marked are proved by lineations visible on the air photographs, on aeromag maps, in the field, and mainly by large sheared areas of broken rock. The faults with question marks do not contain the sheared broken rock (because of lack of outcrop) but are strongly suspected faults.

The two most obvious faults are the two faults trending almost north-south, one each side of Capoose Lake. They are within the $0^{o} - 10^{o}$ interval and could explain the large number of joints in this interval. A third major fault runs through Green Lake and is evidenced by the discontinuity of mappable units across the lake. Major suspected faults follow the Entiako River and a lineament from Entiako Lake up through Capoose Lake. Small faults were noticed transecting the mountain ridge in the east.

Movement could not be detected on any of the faults. Most of the faults were within one rock type and were identified by large shear zones, and the faults cutting more than one rock type did not give any indications of movement. A unit traced to a fault could not be found on the other side and therefore movement could not be determined.

Folding:

On a large scale, folding was quite gentle. Readings on beddings in a quartzite, on interbedded limestones and siltstones, and on various andesite tuffs all indicate gently dipping beds ($20^{o} - 40^{o}$) to the southwest. There has apparently only been gentle large scale folding operative.

On a minor scale some of the laminae in tuffs are contorted and in one case an overturned fold in bedding was noticed, but these are local features possibly caused by faulting or other local structural events.

Relationships:

Geology to Aeromag:

A comparison of the airborne magnetometer survey map (No. G-8109) with the geology map (No. G-8103) shows the intrusive body corresponds to a relative mag high.

In greater detail the large mag low within the intrusive coincides with division 4, the fine-grained quartz monzonite as shown on map G-8106. Also the area of interest around Green Lake between Tutiai and Fawnie Nose overlies a relative mag low.

The peaks in mag highs represent rock types mapped as andesite so the geological mapping correlates well with the aeromag survey carried out by the government.

Geology to Geochem:

A number of geochemical soil anomalies were found for copper and/or molybdenum. The anomaly north of Capoose Lake was over copper-molybdenum mineralization on fracture planes, and the molybdenum soil anomaly two miles south of Capoose Lake was adjacent to a molybdenite showing in outcrop. Geophysics was carried out over both areas and anomalies were detected.

Geochemical anomalies were also located at Crab Lake, Guppy Lake, east of Capoose Lake, and south of Capoose Lake but an extreme lack of outcrop in these areas make their explanation impossible.

An additional geochemical soil anomaly for copper, molybdenum and lead has been found west and south of Green Lake. Although there is an absence of outcrop in the anomalous area, indications in surrounding outcrops such as the presence of sericite in boulders, the existence of stope breccia boulders, and the fact the whole area appears to be an altered part of the intrusive, suggest this area is most promising for future work.

Geology to Geophysics:

All the geophysical anomalies are over the intrusive body. The largest to date is north of Capoose Lake and extends across the granodiorite-quartz-monzonite boundary. The pits are in this area and mineralogically the anomaly is explained by the presence of pyrite, chalcopyrite and molybdenite mineralization. Indications

Geology to Geophysics:- cont'd.

are, however, that mineralization extends to the east past where geophysical work has been carried out.

Other geophysical anomalies exist in the Crab Lake and Guppy Lake areas but both have very little outcrop, in fact, none around Guppy Lake. Because of this, little is known of the geology and no mineralization has been found.

Induced polarization surveys were also conducted over the molybdenite showing two miles south of Capoose Lake, but the results were negative.

CONCLUSIONS:

1) The intrusive body consists of five different regions or possibly phases.

2) The batholith was of a very low temperature when intruded as shown by its relatively sharp contact and the very low grade of alteration surrounding it.

3) Mineralization found is of the hydrothermal type shown by the many fracture planes mineralized and the molybdenite associated with quartz veins in the intrusive.

4) Regional folding has been comparatively gentle as the beds are shallow dipping.

5) A good correlation exists between mineralization, geochemistry, and geophysics north of Capoose Lake and between geochemistry and geophysics elsewhere.

6) Geologically speaking the Green Lake area appears to be the most interesting area for future work although the area north and east of the present geophysical I.P. lines north of Capoose Lake, and the area just south of Capoose Lake should also be considered.

7) The area has gone through structural deformation after intrusion causing jointing and faulting traceable through the intrusive and the country rock.

Conclusions:- cont'd.

8) The grade of metamorphism reached in the country rock seems to be in the albite-epidote-hornfels facies of contact metamorphism as evidenced by the presence of chlorite, biotite, epidote and tremolite.

9) Although garnets are present on top of Fawnie Nose the degree of contact metamorphism is considered too low for their development thereby indicating another process such as an earlier metamorphism on the Green Lake fault or a skarn type of deposit for their formation.

Robert Hewton

R. Hewton, B.Sc.

H W Marsh

H.W. Marsh, B.Sc., P. Eng.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
H. W. MARSH

APPENDIX A

THE GEOLOGY OF TUTIAI MOUNTAIN AND FAWNIE NOSE, B.C.

BY E. NAHRING

Introduction:

The geology of Tutiai Mountain and Fawnie Nose, which borders and includes a portion of the east central section of the Capoose claim block, was mapped in detail during the latter part of the 1970 field season. A preliminary geologic map was compiled on the basis of field observation and hand specimen examination (see Map G-8095).

Since the area is immediately adjacent to the granodiorite intrusive, the alteration within the area is of specific interest.

General Geology:

According to Tipper the area consists of the Takla Group, made up of andesitic and basaltic flows, tuffs and breccias, interbedded argillites and minor limestone of Upper Triassic age. The Fawnie Nose contains the Takla Group plus the Hazelton Group, consisting of andesite, related tuffs and breccias, chert pebble conglomerate, shale and sandstone of middle to lower Jurassic age.

A general glacial trend at 60 degrees is expressed in rock grooves and striations. It appears that the immediate topography is a direct result of the glaciation.

Detailed Geology:

An explanation of the mapped units is as follows:

Sedimentary:

It consists of individual units of quartzite, thin to medium bedded argillite, greywacke, shale, conglomerate and limestone. Fossils of undetermined type and age are found in the central portion of the limestone and greywacke units. The general strike of bedding is at 130 degrees with a dip of 25-35 degrees to the southwest.

Detailed Geology:- cont'd.

Garnetiferous Quartzite:

The unit consists of a quartzite matrix, garnet and glass phenocrysts and a very small amount of unknown mafics. The garnets occur as euhedral crystals from one to three m.m. in diameter and make up approximately 1 to 10 percent of the rock. They occur on joint planes and disseminated in the rock. The quartz phenocrysts occur as anhedral, 1 to 3 mm in diameter, disseminated crystals and make up from one to six percent of the rock. The unit is most likely sedimentary in origin with the garnets forming as a result of a metamorphic event.

Altered:

This unit, which makes up a portion of Tutiai Mountain and a small portion of Fawnie slopes, appears to be a highly bleached, leached or altered andesite. Small sections on Tutiai closely resemble fresh volcanics of Fawnie Nose. The highly altered unit on the west slope of Fawnie Nose contains from 10 to 80 percent clay and has a "honey comb" texture throughout portions of the unit. Since this unit is above and below the contact hornfels, the granodiorite could be the source of alteration.

Granitics:

The unit outcrops at lower elevations and consists of a medium to fine-grained igneous intrusive with fluctuating amounts of feldspars, micas (mostly chloritized) and very fine-grained sulphides. Dykes of from three feet to thirty-five feet wide are exposed at several locations in the area. It is presently assumed this unit is a phase or secondary intrusion which is related to the large granodiorite intrusive to the west of Fawnie and Tutiai.

Hornfels:

The unit consists of andesites which have been metamorphosed, causing biotite and chlorite to be added.

The amount of mica varies from a few percent to approximately 90 percent, with the latter having a schistose to spotty appearance. Implacement of the large granodiorite intrusive appears to be the

Detailed Geology:- cont'd.

Hornfels:- cont'd.

origin of metamorphism, with local mica percentage changes being due to original andesite compositions.

Quaternary Breccia:

This unit is made up of random rock fragments cemented by an iron oxide matrix. It is found in previously occupied stream beds and is currently forming in active stream beds which flow through pyrite zones. The unit has an average thickness of three feet.

Sheared and Leached:

These areas consist of from four feet to thirty feet wide zones of sheared and highly leached, bleached or altered rock. The zones generally trend at 180 degrees and extend about 3,000 - 4,500 feet along strike. Heavy yellow to red-brown staining and the presence of clays possibly indicate these zones to be hydrothermal in origin.

Mineralization:

Pyrite is the most common sulphide in all units except the sediments. The largest amount of pyrite is found within the volcanic and occurs as fracture fillings and as disseminated crystals throughout the rock, representing approximately 15 percent of total composition. The pyrite occurring within the andesites and granitics is disseminated and fracture filled in form.

Small amounts of galena is found replacing garnet or pyrite within the garnetiferous quartzite. The galena is restricted to the south portion of the map, but was noted as float in the Green Lake area.

Specularite was noted in joint planes of the andesites to the north of Green Lake. Small amounts of tourmaline was also noted in the same general area.

Chalcopyrite was also reported to exist on fracture planes of the granitics. Since it was in very small amounts a definite identification was not made.

Recommendations:

Since the area contains probable evidence for hydrothermal alteration further petrographic studies should be done. The studies should attempt to establish relationships between alteration products and mineralization on one hand, and the granodiorite intrusive, andesite flows and contact metamorphism on the other. Only with such a study will the geology, alteration products and geochemical anomalies within the area be understood, thereby possibly establishing important geologic criteria which may be used in future porphyry exploration.

APPENDIX B

LIST OF 'T' CLAIMS WITH OUTCROP

Names	Record Nos.	Names	Record Nos.
T- 3	82265	T-171	82527
T- 4	82266	T-172	82528
T- 6	82268	T-179	82535
T-17	82279	T-186	82542
T-18	82280	T-209	82565
T-20 to 22(inc.)	82282 to 82284	T-246	82602
T-29	82291 (incl.)	T-247	82503
T-30	82292	T-251	82507
T-32	82294	T-268 to 270	82624 to 82626
		(incl.)	(incl.)
T-39	82301	T-305 to 308	82660 to 82664
		(incl.)	(incl.)
T-59	82321	T-311	82667
T-60	82322	T-313	82669
T-80	82342	T-357	82713
T-82	82344	T-359	82715
T-84	82346	T-369	82725
T-86	82348	T-371	82727
T-88	82350	T-392	82748
T-90	82446	T-394	82750
T-91	82447	T-395	82751
T-93 to 99	82449 to 82455	T-399	82755
(incl.)	(incl.)		
T-101	82457	T-401	82757
T-109	82465	T-413 to 417	82769 to 82773
		(incl.)	(incl.)
T-110	82466	T-437	82793
T-146	82502	T-443	82799
T-147	82503	T-446	82802
T-148	82504	T-447	82803
T-157 to 160	82513 to 82516	T-451	82807
(incl.)	(incl.)		
T-473 to 475	82829 to 82831	T-1012	83368
(incl.)	(incl.)		
T-481	82837	T-1022	83378
T-495 to 498	82851 to 82854	T-1023	83379
(incl.)	(incl.)		

Appendix B:- cont'd.

Names	Record Nos.	Names	Record Nos.
T-500	82856	T-1026	83382
T-559 to 561 (incl.)	82915 to 82917 (incl.)	T-1027	83383
T-563	82919	T-1031	83387
T-564	82920	T-1032	83388
T-581	82937	T-1037	83393
T-583	82839	T-1040	83396
T-585	82941	T-1045	83401
T-611	82967	T-1049	83405
T-613	82969	T-1051	83407
T-614	82970	T-1056 to 1058 (incl.)	83412 to 83414 (incl.)
T-645	83001	T-1123	83479
T-646	83002	T-1154 to 1156 (incl.)	83510 to 83512 (incl.)
T-683	83039	T-1160 Fr.	83516
T-742	83098	T-1162	83518
T-743	83099	T-1168 Fr.	83523
T-746	83102	T-1179 to 1188 (incl.)	Not available
T-748	83104	T-1189	at this
T-757 to 759 (incl.)	83113 to 83115 (incl.)	T-1191 to 1196 (incl.)	time
T-763 to 766 (incl.)	83119 to 83122 (incl.)		
T-777	83133		
T-778	83134		
T-943	83299		
T-951	83307		
T-1001	83357		
T-1011	83367		

APPENDIX C

LIST OF 'TUT' CLAIMS WITH OUTCROP

Names	Record Nos.	Names	Record Nos.
Tut- 3	78807	Tut- 7 to 9 (incl.)	78811 to 78813 (incl.)
Tut-11	78815	Tut-23 to 28 (incl.)	78971 to 78976 (incl.)
Tut-29 to 36 (incl.)	Not available	Tut-38	Not available
Tut-40	at this	Tut-44	at this
Tut-46		Tut-47 Fr.	
Tut-48	time		time

APPENDIX D

LIST OF 'CAP' CLAIMS WITH OUTCROP

Names	Record Nos.	Names	Record Nos.
Cap- 1 to 6 (incl.)	77677 to 77682 (incl.)	Cap-14 to 16 (incl.)	77690 to 77692 (incl.)
Cap-18	77694	Cap-20	77696
Cap-22	77698	Cap-24	77700
Cap-33	78541	Cap-34	78542
Cap-36	78544	Cap-38	78546
Cap-41	78549	Cap-43	78551
Cap-48 to 56 (incl.)	78556 to 78564 (incl.)	Cap-58 to 64 (incl.)	78566, 78904 to 78909 (incl.)
Cap-69 to 74 (incl.)	78914 to 78919 (incl.)	Cap-76 to 78 (incl.)	78568 to 78570 (incl.)
Cap-80 to 83 (incl.)	78572 to 78575 (incl.)	Cap-88 to 92 (incl.)	78580 to 78584 (incl.)
Cap-109	78928	Cap-113	78932
Cap-117	78936	Cap-129	80150
Cap-130	80151	Cap-133	80154
Cap-134	80155	Cap-139	78948
Cap-148 Fr.	80165	Cap-150	Not
Cap-159	Not	Cap-161	available
Cap-163 to 165 (incl.)	available	Cap-169	at
Cap-175 to 180 (incl.)	at	Cap-182 to 186 (incl.)	this time
Cap-188	this time		

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QUALIFICATIONS OF GEOLOGICAL STAFF MEMBERS

OF RIO TINTO CANADIAN EXPLORATION LIMITED

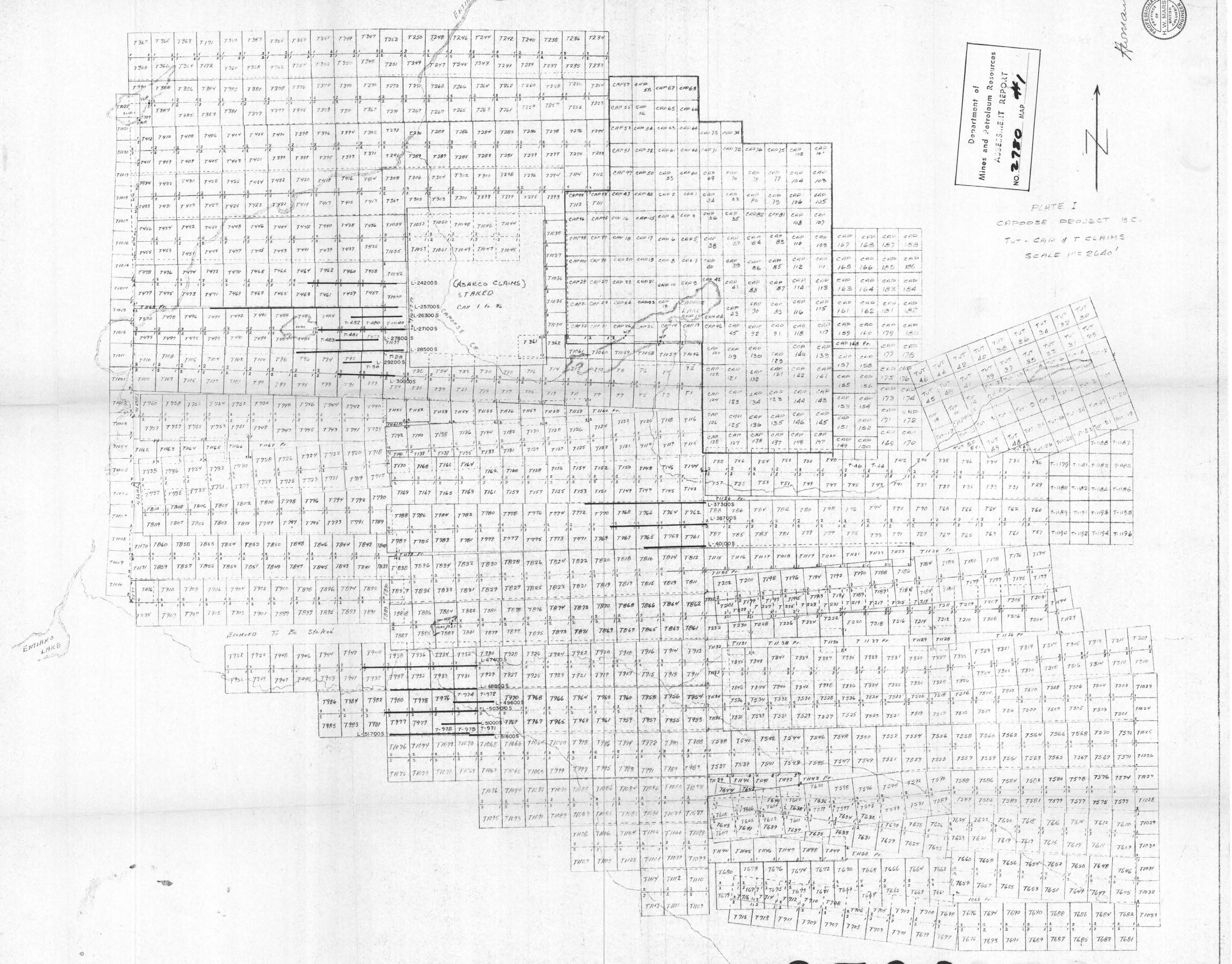
R.S. HEWTON:

In 1969 I graduated from McMaster University, Hamilton, with a B.Sc. in Geology and I have worked for Rio Tinto Canadian Exploration Limited since then.

My past experience includes geological mapping with the Ontario Government in northern Ontario, mapping with the McMaster Geology department in Maryland, and mapping with Rio Tinto Canadian Exploration Limited in northern Ontario and central British Columbia. My work with Rio Tinto has also introduced me to geochemical and geophysical techniques and to diamond drilling.

Robert Hewton

R.S. Hewton, B.Sc.


Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2780 MAP #1
PLATE I
CAPOOSE PROJECT B.C.
TUT - CAP & T CLAIMS
SCALE 1"=2640'
(ASARCO CLAIMS)
STAKED
CAP 1 to 86
ENTIAKO RIVER
ENTIAKO LAKE
Believed To Be Staked
W. MARSH

2780 M-1


RIO TINTO CANADIAN EXPLORATION LIMITED
CAPOOSE PROJECT B.C.
GEOLOGICAL MAP
JULY, 70
RH / rwr
DWG. G-8103
N.T.S
93- F - 3,6
SCALE
2640'
0'
2640'
5280'
7920'
10,560'
One Inch =2640 Feet
Legend
1 Rhyolite
2a Sediment
2b Garnetiferous quartzite
3a Andesite (minor tuff, breccia & basalt included)
3b Andesite porphyry
3c Dacite
3d Maffic & banded volcanics
4a Granodiorite (& quartz monzonite)
4b Altered granodiorite
5a Altered sediments or volcanics
5b Hornfels
6a Quartz porphyry
6b Diabase
7 Tertiary volcanics
8 Till, gravel, clay & sand
Outcrop
Small outcrop
Swamp
Fault
Probable contact
Definite contact
Pit
Float
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2780 MAP #2
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
H. W. MARSH
53° 15'
125° 20'
LAIDMAN LAKE
STUDENT LAKE
TIM LAKE
EUCHU LAKE
ENTIAKO RIVER
CAPOOSE LAKE
CAPOOSE CREEK
GREEN LAKE
GUPPY LAKE
CRAB L.
CRAB LAKE I.P. LINES
GUPPY LAKE I.P. LINES
SOUTH CAPOOSE LAKE I.P. LINES

Legend:

1	Coarse grained granodiorite
2	" " quartz monzonite
3	Fine grained granodiorite
4	" " quartz monzonite

N.T.S
93- F- 3,6

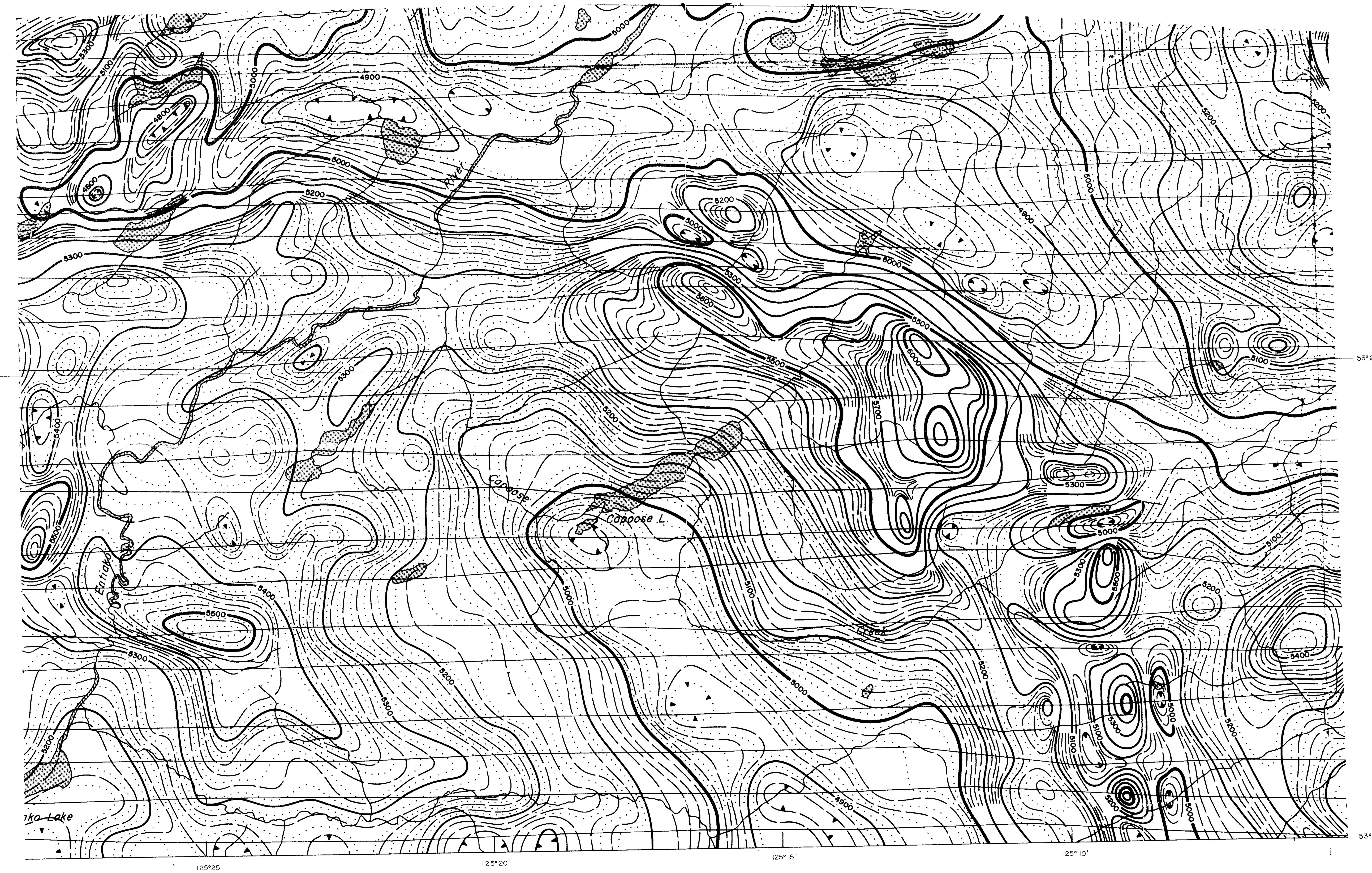
SCALE

2640' 0' 2640' 5280' 7920' 10,560'

One Inch = 2640 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED		
CAPOOSE PROJECT B.C.		
DIVISION MAP		
NOV., 70	RH / rwr	DWG. G-8106

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA H. W. MARSH



Department of
Mines and Petroleum Resources
ASSESS...ENT REPORT
NO. 2789 MAP #4

Contour interval 25 Gammas

After government airborne magnetic map 5288

NTS.
93-F-6

SCALE

2640' 0' 2640' 5280' 7920' 10,560'

One Inch = 2640 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

CAPOOSE PROJECT B.C.

AIRBORNE MAGNETOMETER SURVEY

NOV. 70	rwr	DWG. M-8109

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA H. W. MARSH

CAPOOSE LAKE
BASE LINE
L-56 W
L-49 W
L-42 W
L-35 W
L-28 W
L-21 W
L-14 W
L-7 E
L-14 E
L-21 E
L-28 E
L-35 E
L-42 E
L-49 E
L-56 E
L-63 E
L-70 E
L-84 E
L-98 E
L-112 E
L-126 E
L-140 E
L-154 E
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2780 MAP #5
Legend:
1 Granodiorite (a, fine grained)
2 Andesite
3 Hornfels
4 Quartzite
5 Aplite
△ Float station
Contact
• Trench
NTS
93-F-6
Note, the name CAP should be added to the front of each claim number.
SCALE
800' 0' 800' 1600' 2400' 3200'
One Inch = 800 Feet
RIO TINTO CANADIAN EXPLORATION LIMITED
CAPOOSE PROJECT BC
CAP CLAIMS
DETAIL GEOLOGY MAP
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA H. W. MARSH
NOV. 70
B.A./rwr
DWG. G-8107

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2780 MAP #6

RIO TINTO CANADIAN EXPLORATION LIMITED

CAPOOSE PROJECT B.C.

T-CLAIMS
CRAB LAKE AREA
DETAIL GEOLOGY MAP

MAY-70	G.B. / r.w.r.	DWG. G-8108

PROFESSIONAL ENGINEER H. W. MARSH PROVINCE OF BRITISH COLUMBIA

Legend:

- Joint vertical
- Joint inclined

N.T.S
93- F- 3,6

SCALE

2640' 0' 2640' 5280' 7920' 10,560'

One Inch = 2640 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

CAPOOSE PROJECT B.C.

JOINT MAP

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA H. W. MARSH

NOV., 70	RH / rwr	DWG. G -8105

Legend.

ANDS. HRFL.	Andesite - hornfells
GRNC.	Fine to medium grained GRANITIC intrusion
S.&L.	Sheared & Leached zones

BOARDER ZONE OF GRANODIORITE

ANDS.	ANDESITE, porphyritic andesites, breccia flows, vesicular
VLCC.	VOLCANIC tuffs
G.Q.	GARNETIFEROUS QUARTZITE (sedimentary or igneous ?)
SEDS.	SEDIMENTS, limestone, argillaceous limestone, graywacke, shales & quartzitic sediments
X	Xenoliths of sediments in andesite flows

- Pyrite zone
- Contact defined, approximate
- Strike & dip of bedding
- Strike of banding
- Fault

N.T.S
93 - F - 6

SCALE
800' 0' 800' 1600' 2400' 3200'
One Inch = 800 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED		
CAPOOSE PROJECT B.C.		
TUT CLAIMS GEOLOGICAL MAP		
SEPT, 70	EN / rwr	DWG. G - 8095

CAPOOSE
LAKE
BASE LINE
L-56 W
L-49 W
L-42 W
L-35 W
L-28 W
L-21 W
L-14 W
L-7 E
L-14 E
L-21 E
L-28 E
L-35 E
L-42 E
L-49 E
L-56 E
L-63 E
L-70 E
L-84 E
L-98 E
L-112 E
L-126 E
L-140 E
L-154 E
Legend:
Pit location
Geochemical anomaly (greater than 50 P.P.M. Cu)
Geophysical anomaly (greater than 8 Milliseconds)
NTS
93-F-6
SCALE
800' 0' 800' 1600' 2400' 3200'
One Inch = 800 Feet
RIO TINTO CANADIAN EXPLORATION LIMITED
CAPOOSE PROJECT B.C.
CAP CLAIMS
PIT LOCATIONS IN RELATION TO GEOPHYSICAL & GEOCHEMICAL ANOMALIES
NOV. 70
R.H. /rwr
DWG. G-8110
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2780 MAP #9