



To: W.M. Johnson
Chief Analyst

Date: October 15, 1980

Our File:

Re: Sample E80-77

I am requesting separation of the coarse hornblendes from this sample, and age determination and analysis of the separate. A copy of my petrographic description is attached for your information.

Based on determination on zircons, Muller concluded that the Sicker volcanic rocks are pre-Devonian, which is incredibly old. Dick Armstrong of U.B.C. sampled the new cuts of the Island Highway and made preliminary Rb-Sr determinations on the hornblende. He failed to get consistent results, but concluded that the Sicker volcanics are not older than Mississippian, which is reasonable. In the hope of obtaining more consistent - and more convincing - results I went to a point on Mt. Richards where I could select un-sheared or lightly sheared rock containing fairly abundant coarse hornblendes. Since I have some doubt about the argon retentiveness I would opt for Rb-Sr determination.

I am curious as to why the hornblende is so pale, but more importantly a determination of its composition would give another indication of the course of magmatic evolution on Vancouver Island. I have previously requested a silicate analysis of a hornblende separate from shonkinite, which intrudes the Sicker rocks. And I have an analysis of a hornblendite segregation in the Island Intrusions, which intrude the shonkinite. In view of the impurities in the hornblende, analysis by atomic absorption will be adequate.

G.E.P. Eastwood
Project Geologist

GEPE/dlb

Encl.

cc: W.J. McMillan
Senior Geologist

CanPac Minerals Limited
INTERNAL CORRESPONDENCE

92B/13- East - Mt. Richards

June 24th, 1972



MEMORANDUM FOR MR. H.G. RUSHTON.

1. I have contacted the three concerned land owners in that area between the Richards Trail and the power line right of way. All persons were quite happy about the work I outlined and gave their permission. One thinks we need a mine on Mt. Richards.
2. Two days have been spent on the ground, and the work is slow because of lush vegetation. I will spend two more days to finish the task.
3. One of my lines coincides with a legal survey line, which I could follow, thus my work can be related to the previous Mt. Richards work. This has some good will value as two of the land owners had requested any information I could find as to boundaries. I will follow this up - show them the line and let them draw any conclusions they wish.
4. There are extensive outcrops. There is a lack of sheared volcanics. There is no lack of massive volcanic, with a little pyrite, and there appears to be a dyke rock which is dark in color. No copper minerals seen so far. The one old working so far seen was on a quartz vein, quite barren.
5. The I.W.A. is on strike. This could mean that access to areas near the Skarn could be difficult. When I am finished on Mt. Richards I will look into this.

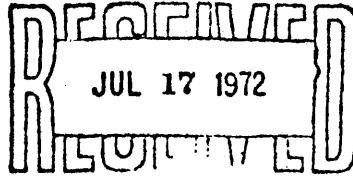
D.C. Douglas

D.C. Douglas
Exploration Engineer

*Spent
Mt Richards ✓*

CanPac Minerals Limited
INTERNAL CORRESPONDENCE

July 12th, 1972



MEMORANDUM FOR MR. H.G. RUSHTON.

CanPac Minerals
Limited

Further to our telephone conversation of this date:-

1). 92 F/2-West - Sproat Lake

Samples D-2660 to D-2769 have been plotted, two prints are mailed herewith. One shows all assays to date. The other is annotated in red to show where the new sampling was done. Some of this supersedes Gunnex work, particularly on Stirling Arm Road.

Three previous highs were re-sampled, ~~the~~ ^{these} are indicated, old above and new below, ie - $\frac{640}{330}$

The new work seems to confirm that there is copper somewhere. As road cuts present almost continuous outcrop - seemingly copper free - one suspects a deep source leaching to surface on the steep hill side.

I did not get back to St. Dennis Creek, which you were interested in. This area could be re visited as I sampled in deep snow and saw little on the upper end of 304.

There seems to be a case for resampling 202 and discarding the Gunnex work. You should look at the Gunnex geochemical sheet for this area. This has a pronounced high trend running due south of Fossell creek - does this veer west through our highs?

2). 92B/13-East - Mt. Richards.

Samples D-2770 to D-2815 were taken as per base plan, scale 1" = 400 ft.. This is our grid plan which shows sample numbers and assays for the new work. Please transfer this data to your geochemical plan and send me a copy.

Only two assays west of the ~~Rich~~ Richards Trail were interesting, that is in excess of 200 ppm. The higher samples east of Richards Trail are related to some old showings where pyrite was seen but no copper mineral. It is my opinion that the threshold of interest on Mt. Richards is about 1000 ppm. Thus there is no need for further work in this area. (west of Richards Trail).

3). 92F/1- West - Labor Day Lake and East.

Two days have been spent exploring road access. Snow is about 10 feet deep above 4000ft, but a great deal of work can be done lower down. I will start soil sampling Friday 14 July.

PETROGRAPHIC DESCRIPTION OF E80-77

By G.E.P.E.
Oct./80

The rock is a member of the Sicker Group characterized by medium to coarse hornblende grains in a finer matrix. In thin section it appears almost certainly to be a porphyritic lava. The principal constituents and their estimated percentages are:

Hornblende	30
Plagioclase, An 12	25
Epidote	15
Groundmass amphibole	25

The hornblende occurs as coarse and medium subhedral crystals and crystal aggregates, and the plagioclase mostly as medium-sized single crystals. A small amount of plagioclase is associated with prismatic amphibole in a relatively fine-grained groundmass. The plagioclase and prismatic amphibole tend to be fluidally aligned, deflected around the hornblende grains. The amphibole is also deflected around the plagioclase and coarser epidote crystals. Some of the epidote is shot through with amphibole needles. It would seem that the coarser epidote is primary and that the groundmass may have been devitrified.

The hornblende contains impurities, estimated to be no more than 5% in most grains, but as much as 10% in a few. The main impurities are poikilitically-enclosed epidote and less plagioclase. There is minor incipient alteration to epidote. The hornblendes also contain traces of clinopyroxene, fibrous amphibole, biotite, quartz, calcite, and siderite. There is no chlorite within the hornblende, but an estimated 5% occurs along the margins of some grains and as pockets in the groundmass. The slight alteration of the hornblende should not reduce its retentiveness appreciably. However, it is finely cleaved and may not be retentive of argon.

The hornblende is abnormally pale in colour, whereas the prismatic amphibole is normally coloured. It may be an uncommon variety, but this cannot be determined optically.

The Sicker Group is host to the Lenora-iyee Au-Ag-Cu-Pb-Zn-Cd orebodies on Big Sicker Mountain and to the orebodies of Western Mines near Buttle Lake. The latter orebodies appear to be controlled stratigraphically as well as structurally, therefore detailed mapping was begun to determine the stratigraphic sequence near the type area. On Big Sicker Mountain the nature and relationships of the rocks are obscured by intense shearing, but in the Richards group intense shearing is largely confined to the most northerly ridge.

In the north part of the Richards group there is a north-south progression of rock types in the Sicker Group which appears, from comparison with the sequence in the Cowichan Lake area, to be in order of increasing age. Poor graded bedding in a few places is consistent with this interpretation. Along the crest and south face of Mt. Richards ridge the Sicker rocks are more or less coarsely fragmental and include at least two bands characterized by medium to coarse hornblende grains in a fine-grained matrix. These grains may be phenocrysts but are more likely pyroclastic. It is uncertain whether the sequence is homoclinal or whether the hornblendic layer has been repeated by folding.

The Sicker rocks have been successively intruded by mainly small bodies of quartz-feldspar porphyry and medium to large bodies of shonkinite. The shonkinite resembles gabbro in texture and the abundance of dark minerals, but the feldspar is albite-oligoclase.

The older rocks are overlapped on the north by poorly-exposed clastic sediments of the Nanaimo Group, and are probably in fault contact with them to the south. Post-Nanaimo faulting has produced a Sicker inlier along the Chemainus River.

Pyrite is common to abundant, particularly in the Sicker upper division, but contains only traces of gold and silver. Small amounts of chalcopryrite and malachite occur in several small shear zones and quartz veins.

June 13/79

Geology of Crofton Ridge Belt

Crofton Ridge is the most NEly ridge of the mts. Richards complex, & is so named because open areas on the crest & NE side overlook the pulp mill & town of Crofton. The summit is a bit over 800' elev., & lies E of the cut Range 8/9 line in Chemung Dist. From it the ridge descends sharply to Shasta St. along the Range 9/10 line, & more gently to the HTTL branch leading to the Crofton substation, where it becomes indistinct.

The core of the ridge is a large gabbro dyke, which is fairly uniform, ^{massive} & generally $\frac{1}{2}$ across most of its width SE of the Range 8/9 line. A narrow band toward the NE margin is f/g & somewhat radiolar. Toward both ends the gabbro grows f/g & rough than uniformly f/g, somewhat sheared, & alt'd. Chilling against the country rock is obvious, foll'd by some (resumed?) mov't & hydrothermal activity. NW of the Range line the centre of the dyke is not well exp., & at the HTTL the central part is a complex tongue of gabbro & roofing by country rock. Outcrops above Bonsall Rd show a similar intertonguing. It would seem that the dyke is tonguing out as it disappears under cov. at the pipeline.

The country rock of the belt is quartzoid & dense to f/g. Oval pitaceous "eyes" occur in abt $\frac{1}{2}$ the expo., & their significance is debatable. Black slate & schist are interfoliated at the gully just W of the 3rd crossing of Nimmo Rd., I suggest that much of the sequence may be sedimentary. Shearing ranges from pervasive to close-spaced slipping to finely anastomosing. The country rock in the middle of the dyke appears less sheared & less dense. There is some colour banding, particularly in the rock in the middle of the dyke.

There is a complete chg of lithology in the country rock across the upper part of the valley SW of Crofton Ridge, & this valley may follow a fault.

PROPERTY FILE

92R3049.

Sketch of Mt. Richards ridge & plateau
Aug. 8/79.



256016

92B/12E

92B-49, 92, 93

~~3200~~

~~49 Annual Report~~

Xrf. 48-123V

MOUNT RICHARDS (48° 123° N.W.)

(Several mineral claims have been staked on the southern and western slopes of Mt. Richards, a bluff hill between five and six miles north of the town of Duncan.) Relatively recent work in the form of surface trenching and cleaning out of old workings has been done on the Jane claim and old workings are present on the Sally and Sally No. 2 claims.

The rocky hillsides of Mount Richards rise abruptly from rolling farm lands to elevations of about 1,000 feet above sea level. In general the hillsides are lightly timbered with fir, arbutus, and oak trees but in places they are densely covered with small evergreens and thick underbrush. Outcrops though abundant are thickly moss-covered.

JANE

92B049

The workings are widely spaced but all are within a mile of the main Duncan - Nanaimo highway. The workings on the Jane Mineral Claim are about half a mile southeast of Westholme railway station, and are reached by a narrow farm road and an old railroad grade that turns east from the main highway less than a quarter of a mile south of Westholme station.

PROPERTY FILE

FILE 92B049

The workings include two short adits and several open-cuts between elevations of about 450 and 600 feet above sea level. Lenses of sulfides in schistose quartz-feldspar porphyry are exposed. The porphyry forms a dyke-like body about 450 feet wide trending north 70° west parallel to the strike of the schistosity. It is bounded on both sides by massive fine to medium-grained diorite that appears to intrude the porphyry. In places along its contacts the diorite is slightly schistose, in others it shows a narrow chilled margin.

Mineralization in the adits consists of lenses of fine-grained, dense, massive sulfides lying parallel to the schistosity of the porphyry. Pyrrhotite, sphalerite, chalcopryrite, and pyrite are the principal sulfides, and small amounts of quartz and calcite appear to form the only gangue minerals.

The lower adit trends south 65° east along the southern contact of the porphyry for 50 feet, and at about 40 feet from the portal a crosscut extends north into the porphyry for 30 feet. Several lenses of sulfides occur in the lower adit, the largest of which is about six inches wide and four feet long. The upper adit runs south 65 ° east for 15 feet and is 25 feet above and nearly 25 feet north of the lower adit. Sulfide lenses are more numerous in the upper adit than in the lower, and the largest is one foot to 18 inches thick and 4 to 5 feet long.

The following table gives assays of samples taken in the adits. The assays show that no silver or gold was present in any of the samples.

Description	Width Inches	Copper %	Zinc %
Lower adit 20 feet from portal	30	Trace	1.9
Lower adit near north end of crosscut	24	Nil	1.7
Upper adit above portal	36	0.05	16.1
Upper adit near face	30	Trace	2.5

Several open cuts in the porphyry east and north of the adits expose pyritic schists and quartz veinlets. The schists contain coarsely crystalline pyrite but no other sulfides were seen and assays show they contain no silver or gold. Quartz (veinlets) in the form of irregular lenses up to 6 inches wide and 3 feet long occur in both the schist and massive diorite, but they appear to contain no sulfides.

SALLY

Workings on the Sally claims are at the base of Mount Richards a few hundred yards northeast of Richards Trail, a narrow road branching southeast from the main highway a little more than half a mile south of Westholme station.

One adit, 45 feet long, was seen on Sally No. 2 claim. It is less than a quarter of a mile northeast of a point on Richards Trail a quarter of a mile from the highway. The adit is in massive diorite containing a few small lenses of quartz. Diorite above the adit is cut by a vertical, irregular quartz vein striking north 60° east and extending up the hill for about 100 feet. The vein is made up of a series of lenses of coarsely crystalline quartz up to $1\frac{1}{2}$ feet wide and 4 to 6 feet long along an otherwise barren fracture. Locally clusters of sulfides, mainly pyrite and chalcopyrite, are present in the quartz especially where northwesterly trending fractures intersect the main fracture. A sample of high grade material taken from a pile of broken quartz at the side of the vein contained 5.6% copper and no silver or gold.

Workings on the Sally claim are nearly half a mile southeast of the adit on the Sally No. 2 claim. They include three open-cuts and a caved adit along a vertical shear zone striking about north 50° west. The shear zone, which cuts porphyritic andesite, is 4 to 6 feet wide and is exposed over a length of about 500 feet. It contains massive, coarsely crystalline pyrite largely oxidized to limonite in the workings. No sulfides other than pyrite appear to be present and samples from the shear zone and from the waste dumps contained no silver or gold and only a trace of copper.

Mineralized areas and specimens on the Jane and Sally claims were tested for radio-activity but none was detected.