7714

GEOLOGY AND SOIL GEOCHEMISTRY

NUGGET CREEK GROUP

VICTORIA MINING DIVISION
BRITISH COLUMBIA

LOCATION: NTS 92 B 13 W
Latitude 48° 53' N
Longitude 123° 47' W

CLAIM NAMES: Little Nugget
Chemainus
Belle
Dunsmuir
Seattle
Copper King
Copper Queen
Queen Bee
Alliance Fr.
Patricia-Jane
Morley-Jane
Peggy Fr.
Beatrice

OWNER: P. Postuk

OPERATOR: S.E.R.E.M. Ltd.

REPORT BY: P. A. Ronning
G. Allen

DATE: December, 1979

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7714

TABLE OF CONTENTS

Page

1. INTRODUCTION 1

2. GRID REHABILITATION 2

3. GEOLOGY 2

3.1 DESCRIPTION OF LITHOLOGIES 2

Unit 1 - Quartz Schist 2

Unit 2 - Schist 4

Unit 3 - Chlorite Schist 6

Unit 5 - Feldspar Crystal Tuff 7

Unit 7 - Slate/Phyllite 9

Unit 8 - Dacite 9

Unit 10 - Cryptocrystalline Quartz 9

Unit 12 - Quartz Feldspar Porphyry 9

Unit 14 - Gabbroic Intrusion 10

Unit 15 - Andesite 12

Unit 17 - Sicker Group Sediments 12

3.2 GEOLOGICAL HISTORY AND STRUCTURE 14

3.3 MINERALIZATION 16

Sub-Unit 1b - Quartz Augen Schist 16

Sub-Units 1c, 1d, and 5a - Felsic Quartz Schists 16

Unit 2 - Felsic Schists 17

Unit 14 - Gabbroic Intrusion 17

Unit 15 and Sub-Unit 5b - Andesite and Andesitic Tuff 18

TABLE OF CONTENTS

Continued

	Page
4. SOIL GEOCHEMISTRY	18
Copper	19
Lead	20
Zinc	21
Silver	21
5. SUMMARY AND CONCLUSIONS	22
6. COST STATEMENT	23
7. STATEMENTS OF QUALIFICATIONS	25
APPENDIX - LIST OF CLAIMS	27

FIGURES

FIGURE 1 - Location Map (follows page 1)

FIGURE 2 - Claim Map (follows page 1)- 1:50,000

FIGURE 3 - Claim Map (in pocket)- 1:2,500

FIGURE 4 - Geology of the Nugget Creek Group of Mineral Claims(in pocket)

FIGURE 5 - Geological Cross-Section (page 15)

FIGURE 6 - Stratigraphic Section (in pocket)

FIGURE 7 - Soil Geochemistry - Copper (in pocket)

FIGURE 8 - Soil Geochemistry - Lead (in pocket)

FIGURE 9 - Soil Geochemistry - Zinc (in pocket)

FIGURE 10 - Soil Geochemistry - Silver (in pocket)

1. INTRODUCTION

The Nugget Creek Group is located about 13 kilometers northwest of the town of Duncan on Vancouver Island, British Columbia. Most of the claims are on the northwest slope of Big Sicker Mountain, except for the Copper King and Copper Queen, across the Chemainus River at the foot of Mt. Brenton.

The maximum elevation on the claim group is 600 meters, dropping to less than 150 meters in Copper Canyon on the Chemainus River. Most of the hillside is covered with timber and dense underbrush, with a few more open areas on rocky bluffs. The mountainside slopes between 20° and 40°, flattening out below 250 meters elevation into the drift-filled river valley. In the center of the valley, steep-walled Copper Canyon has been cut down through drift and some bedrock.

The claims east of the river can be reached by turning west off Highway No. 1, just south of the Chemainus River bridge, proceeding about 4 km to the end of pavement, turning left and following Mt. Sicker Road, an old mining and logging road for about 3 km. West of the river the Copper Canyon logging road, which leaves Highway No. 1 in Chemainus, crosses the claims about 6 1/2 km. from the highway.

This property is part of the Mt. Sicker Camp, which has had a history of sporadic mining activity since 1897. The camp centers around a mine on the old Lenora and Tyee claims south of the Nugget Creek Group. Those claims were actively mined from about 1897 to 1907, 1943 to 1947 and 1949 to 1952, producing 305,787 tons of ore containing 20,265,763 lbs of copper, 45,960,252 lbs of zinc, 40,052 ounces of gold and 841,276 ounces of silver. The massive sulphide type orebodies occur within meta-volcanics of the mid to upper Paleozoic Sicker Group.

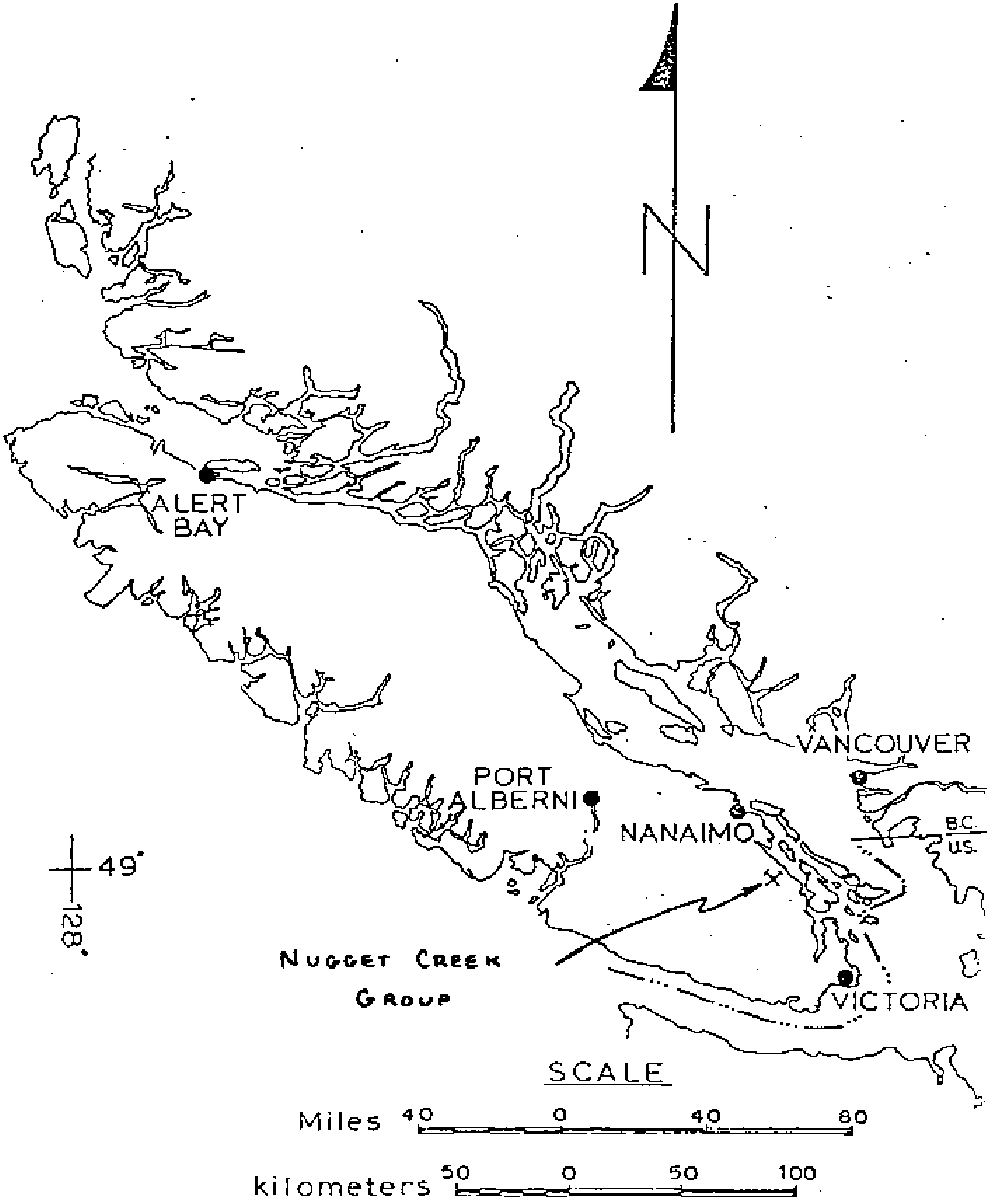
Records of the early history of the claims which make up the Nugget Creek Group are scanty. All of the present claims except the Beatrice, Patricia-Jane, Morley-Jane and Peggy Fraction date from the early days and the latter four replace early claims. A few old shafts and adits scattered over the group testify to early exploration work.

The Nugget Creek Group area was part of the Mt. Sicker property when Mt. Sicker Mines Ltd. was formed in 1966. In 1972 Ducanex Resources made a reconnaissance geological map of the area (assessment report 3950) and drilled two holes totalling 264 meters on the Queen Bee and Seattle claims (see geological map).

Mt. Sicker Mines allowed the claims in the Nugget Creek area to lapse and they were subsequently staked by the present owners, Dr. Postuk and Mr. Fulton of Duncan. The work described in this report was done by S.E.R.E.M. Ltd. in August, September and October, 1979, as part of a larger exploration project on Mt. Sicker.

Location Map

Fig. 1



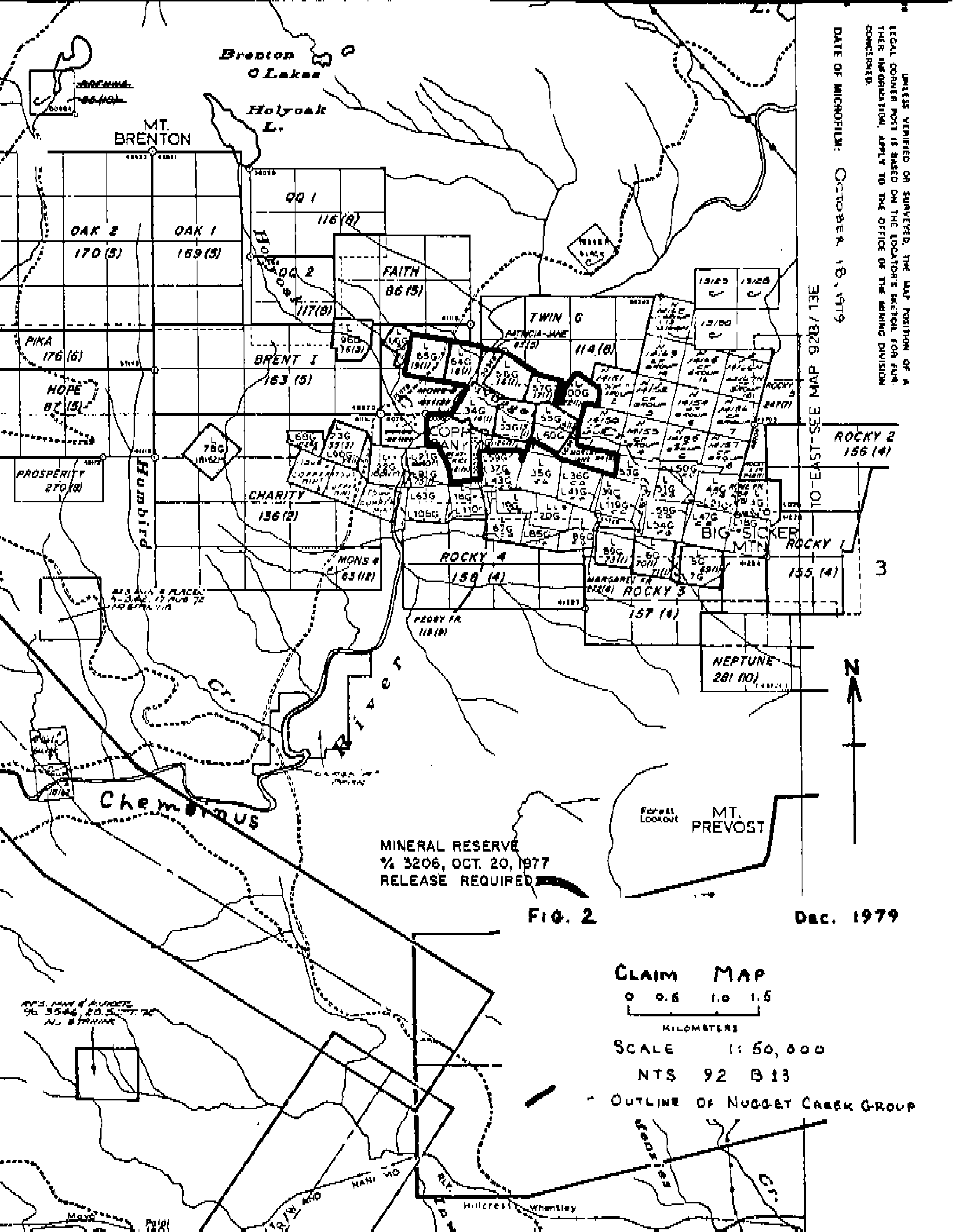


FIG. 2

DEC. 1979

CLAIM MAP

0 0.5 1.0 1.5
KILOMETERS

SCALE 1: 50,000

NTS 92 B 13

— OUTLINE OF NUGGET CREEK GROUP

The work described herein includes:

1. rehabilitation of 5.3 km. of grid lines on the Patricia-Jane, Dunsmuir, Seattle, Chemainus, Little Nugget and Belle claims.
2. Soil geochemical survey, 202 samples from 7.2 km. of lines, covering all or part of the Patricia-Jane, Dunsmuir, Seattle, Queen Bee, Chemainus, Little Nugget and Belle claims.
3. Geological mapping of 70 hectares at a scale of 1:2,500, covering all or part of the Patricia-Jane, Dunsmuir, Seattle, Queen Bee, Chemainus, Little Nugget and Belle claims.

2. GRID REHABILITATION

A grid system was established over most of Mt. Sicker, including the Nugget Creek area, by previous workers. Since it used Imperial measurements and had not been repaired since 1972 it was necessary to re-flag and re-chain the old lines. This was done using a hip chain and compass, putting stations every 30 meters on the north-south lines, which are nominally 120 meters (originally 400 feet) apart.

In order to plot the lines more accurately the two east-west base lines were surveyed using a brunton compass on a tripod and a nylon chain. The survey was tied into topographic features.

These grid lines were used for topographic control during the geochemical and geological surveys.

3. GEOLOGY

3.1 DESCRIPTION OF LITHOLOGIES

Unit 1 - Quartz Schist

These schists are rich in quartz and contain more sericite than chlorite or actinolite. Metamorphism has destroyed their original textures to such a degree that they cannot be classified according to their origin and must be grouped together as schists. It is assumed that most of them originated as some type of acid or intermediate volcanic rock.

Unit 1 is broken into four sub-units, described below:

Sub-Unit 1a - Sericite Quartz Schist

This name is given to schist composed almost entirely of quartz and sericite. Chlorite and other mafic minerals make up only a few percent of the rock, or are absent. The quartz occurs in very fine to finely crystalline form. Larger quartz grains such as augen are rare or absent.

The usual form for this rock has thin (less than 2 mm) laminae of fine grained quartz separated from each other by a millimeter or less of sericite schist. The ratio of quartz to sericite varies and either mineral may dominate. The quartz laminae and schistose foliations may be smooth and planar but usually are not. Viewed in cross-section the most common form has the quartz laminae persisting for a few centimeters, pinched out at either end between sericite foliations. Often, the schistosity is wavy, distorted by open microfolds with an amplitude of a few millimeters and a half wavelength of 1 to 3 centimeters. In other cases, the schistose surface is very rough and irregular, without any particular wavy pattern. Relatively common within these schists are 1 - 3 mm, whitish, rectangular, siticified feldspar phenocrysts. They generally make up less than 5% of the rock.

Very small amounts of disseminated pyrite are usually present in this schist. It and the other more acid schists very often contain heavy coatings of earthy red hematite on fractures or schistose cleavages.

Sub-Unit 1b - Sericite Augen Quartz Schist

In comparison with the other types of quartz schist, Sub-Unit 1b is rare.

Sericite augen quartz schist is a sericite quartz schist with a few percent quartz augen, ranging in size from 2 to 5 mm. The augen are enclosed by either finer grained quartz or by sericite. With glassey grey lustre and colour, they are sometimes easily seen in hand specimen, but often the first indication of their presence is a lumpy or knotty surface to the schistosity where it bends around the augen.

Except for the presence of augen, Unit 1b is texturally and mineralogically similar to 1a.

Sub-Unit 1c - Chlorite Sericite Quartz Schist

This type of schist is more common than the pure sericite quartz schist.

The criterion for inclusion in this unit is that a schist contain a significant amount of chlorite, but that chlorite be less abundant than sericite. The usual amount of chlorite is about 10% of the phyllosilicates. However, anywhere up to 50% of the phyllosilicates may be chlorite.

Chlorite is usually the only mafic mineral recognized in these schists but it is probable that fine grained actinolite is mixed with much of the chlorite.

The chlorite usually occurs as millimetric specks or streaks within the schist. In the plane of the schistosity it most often appears as streaks about 1 mm wide and a few millimeters long; looking at these streaks end-on they appear as specks. As the amount of chlorite in the schist increases the streaks become patches and the schistose foliations become dominantly green.

Minor amounts of pyrite and within a few small zones chalcopyrite, are commonly dissiminated in the chlorite sericite quartz schist. Specks of epidote are sometimes seen. The less chloritic versions, like Sub-Unit 1a, often have heavy coatings of earthy red hematite on fractures and cleavages.

The texture described for Unit 1a, with thin laminae of quartz separated by schistose foliations, is also characteristic of Unit 1c. The latter unit is even less likely than the former to have smooth planar schistosity.

In some areas the schist is highly silicified, giving the groundmass a cherty appearance. This is most notable in the south, along the Chemainus River.

Sub-Unit 1d - Chlorite Sericite Augen Quartz Schist

Sub-Unit 1d is Sub-Unit 1c with the addition of quartz augen in variable amounts. The augen range in size from 2 to 5 millimeters and usually make up less than 10% of the rock, though in some instances they reach 20%. In more siliceous types the augen show up as clear grey crystals within the finer grained quartz, while in less siliceous schists the augen are enveloped by sericite or chlorite.

Unit 2 - Schist

The schists are related to the quartz schists, but differ from them because of their lack of quartz.

The unit includes several sub-units which grade into each other along and perpendicular to their strike. In general, Unit 2 comprises soft light coloured schists, very fissile and subject to deep weathering which leads to red, light brown and black spots and stains on the surface and schistosity planes.

The schistosity is usually steep, striking WNW with minor local variations including sudden ± 45° changes over 1 - 2 cm (kink bands?) which show as near vertically plunging ridges on the schistosity plane.

Sub-Unit 2a - Sericite Schist

This is mostly a fine and very fine grained sericitic schist, cream to light grey in colour.

Quite often the rock holds light coloured silt to sand size grains or specks among which quartz can be observed. The quartz seems mostly sub-rounded to rounded and to a lesser extend angular. Calcite is also a common constituent.

Sub-Unit 2a schists in the central part of the map area are commonly pyritic, and contain the only known zinc showing on the property.

Sub-Unit 2b - Sericite Augen Schist

The sericite augen schist is essentially a sericite schist (2a) with significant amounts of quartz augen (see Unit 1) which vary in amount and size from place to place. Up to 20% augen may occur, mostly seen as fine to medium size puckerings on the schistosity planes. Equidimensional shapes (mostly sub-rounded to rounded) are dominant on the schistosity planes. Some angular shapes might be caused by cataclasis and/or recrystallization.

In places the rock is covered with brown freckle-like spots (less than 1 cm) of oxide and shows a slight increase in the amount of calcite. More common are the red and light brown oxide spots and stains, caused by weathering.

Sub-Unit 2c - Chlorite Sericite Schist

This is sericite schist containing significant amounts of chlorite. Usually 10% or less of chlorite is present, but where Sub-Unit 2c is transitional to Sub-Unit 3b, the chlorite may approach 50%. Its most frequent mode of occurrence is as parallel streaks in the plane of the schistosity. As the chlorite becomes richer, these streaks coalesce to form spots and patches. It may also occur as discrete specks, probably representing altered grains of some original mafic mineral. Sometimes finely dispersed chlorite is visible only as a green pigment in the schist.

Sub-Unit 2d - Chlorite Sericite Augen Schist

This is a chlorite sericite schist (2c), containing significant quantities of quartz augen.

Unit 3 - Chlorite Schist

These schists form WNW trending bands conformable to the general structure in the area. They are commonly closely associated with, and may grade into, andisites (Unit 15) and andesitic tuffs (Sub-Unit 5b).

Sub-Unit 3a - Chlorite Schist

This is a soft dark-green schist composed of chlorite with little or no sericite. It is frequently calcareous, with the calcite invisible in the groundmass of the rock or as thin coatings on fractures.

Freshly broken specimens of chlorite schist often have a slightly silty feel and weathered surfaces may be slightly rough. On cut surfaces a few percent fine sand or silt size quartz and feldspar grains sometimes are visible. Much of the chlorite schist is probably a metamorphosed silty mudstone or very finely tuffaceous mudstone.

Usually, this unit contains only trace amounts of pyrite.

Contacts between the rocks of Sub-Unit 3a and more sericitic ones such as those of Unit 1 may be sharp or gradational.

Sub-Unit 3b - Sericite Chlorite Schist

In this sub-unit chlorite schist contains significant but variable amounts of sericite, which show up as thin (1 mm or less) lighter coloured streaks or ribbons in the plane of the schistosity. The schistosity planes are shiny and smooth or wavy.

Very often, the schistosity is slightly deformed by open folds, 1 or 2 cm in amplitude and 4 or 5 cm in half-wavelength. A fracture, with a few mm of displacement perpendicular to the schistosity usually follows the axial plane of a fold. These fractures characteristically are weathered out to form tabular cavities 2 or 3 mm thick and a few centimeters in their lateral dimensions. Thus exposures of Unit 3b often show sets of these thin cavities, lined up along planes spaced a few centimeters apart.

This phenomenon has not been noted in other types of schist. Since Sub-Unit 3b is believed to be contemporaneous with the other types of schist, the phenomenon must be due to some chemical and physical characteristics peculiar to this rock type.

The sericite chlorite schist is often calcareous, and the axial plane fractures may once have been lined with calcite, which on weathering left the cavities behind.

Contacts between Sub-Unit 3b and more sericitic schist tend to be gradational over about 5 cm. Bands of sericite schist, a few decimeters thick, sometimes occur within Sub-Unit 3b.

Unit 5 - Feldspar Crystal Tuff

This unit has been divided into two sub-units based on overall composition.

Sub-Unit 5a - Rhyolitic to Dacitic Feldspar Crystal Tuffs and Flows

Sub-Unit 5a is closely associated with Unit 1 in this area. The two may in part be equivalent.

Rocks of this Sub-Unit range in colour from milky white to dark greenish gray, but are most commonly an intermediate light greenish gray. The groundmass, largely responsible for the overall colour, is generally cryptocrystalline and highly siliceous. The colour and hardness suggest a predominantly quartz (secondary silicification?), feldspar and epidote composition. Sericite and chlorite are usually minor components.

The predominant large grains are milky white to light epidotic green plagioclase feldspar crystals, which commonly show carlsbad twinning. Crystals range in size from less than 1 to 4 mm (averaging 1-2 mm) and make up from less than five to thirty percent of the total rock. They are most commonly sub-rounded but vary from rounded to sub-angular to sub-hedral. In cross section they commonly have a rounded rectangular shape.

Quartz grains are only rarely observed and seem to be restricted to the more schistose parts of the unit. Where present, they make up less than five percent of the rock.

Small rounded chloritic masses make up a few percent of some of the darker greenish rocks. They are generally well rounded and less than 1 mm in diameter.

Rarely, clearly discernible volcanic rock fragments are observed. They range from a few mm to over 1 cm in size and from sub-rounded to sub-angular in shape. These clasts contain sub-rounded to sub-hedral feldspar crystals in a light colored crypto-crystalline groundmass, and are probably dacitic in composition.

Visible grains are generally randomly oriented. Variations in the concentration of these grains may form cm. thick banding.

In outcrop schistosity is made quite apparent by lineations on weathered surfaces. In hand specimen, however, these rocks appear only moderately schistose to massive, depending on the sericite and/or chlorite content. Phyllo-silicates form very thin parting planes between millimetric, siliceous lamellae.

Few textures within this Sub-Unit are clearly indicative of a particular genesis. Some rocks, however, do have a distinct clastic character. It is assumed, therefore, that this unit is pyroclastic in nature.

Sub-Unit 5b - Andesitic Tuffs

These tuffs form broad east to southeast trending belts with extensive exposures along the Chemainus River. They are dark greenish-gray in colour and are probably andesitic in composition. There is much interlaying between these rocks and the more felsic rocks of Unit 1 and Sub-Unit 5a.

The groundmass is a fine-grained aggregate of chlorite, feldspar and epidote (plus?)

Visible feldspar grains may be absent or make up to 30% of the rock. They are dark greenish gray to epidotic green in colour, average 1 mm in diameter and are sub-angular to sub-rounded in shape. Chlorite grains are indistinct millimetric rounded bodies which are commonly smeared out along the schistosity. Chlorite may form up to 80% of the rock.

These tuffs commonly have centimetric banding ranging in colour from light to dark greenish-gray. Some layering is also indicated in a few places by strings of small siliceous pebbles. They are weakly to strongly schistose and commonly grade into chlorite schists of Unit 3, the difference between the two probably being one of grain size rather than of composition. Pyrite commonly makes up 1% or more of the rock.

Epidote nodules are quite common in these tuffs. They range in size from less than one to several centimeters and are generally rounded-elipsoidal in shape. In some places they are concentrated within narrow bands giving the rock a vague layered appearance. The nodules are highly silicified and epidotized with original textures largely obliterated. In some nodules, however, epidotized sub-rounded to sub-rectangular, ≐ 1 mm feldspar crystals make up to 30% of the rock. The texture of the nodules appears to be volcanic and may indicate that they are blocks or bombs within the tuffs.

Unit 15 and Sub-Unit 5b are similar in composition and colour. Rocks with coarse banding or a coarse granular texture have been assigned to Sub-Unit 5b. If the textures are volcanic with well formed phenocrysts or are fine grained and non genetically indicative, the rocks have been classed as part of Unit 15. The two units, however, may in part be equivalent.

Unit 7 - Slate/Phyllite

Few outcrops of this unit have been observed within the map area. They are found within zones of andesite and Unit 2 schists, and are conformable to the general structure in the area.

The phyllite is a dark bluish gray with a lustrous sheen on the schistosity planes. It is fine grained, chloritic and may be similar in composition and genesis to the chlorite schists of Unit 3.

Unit 8 - Dacite

Rocks of Unit 8 outcrop in only a few places between 8E and 8W a few hundred meters north of the 26N base line.

These rocks have a light bluish to greenish gray, fine grained, siliceous, massive to moderately schistose groundmass. It is probably composed of quartz, sericite, feldspar and minor amounts of chlorite.

Visible feldspar grains (phenocrysts?) are generally ≤ 1 mm in length, sub-angular to sub-rectangular, lath shaped, and make up to 30% of the rock. Visible quartz grains, which may or may not be present, are rounded, ≤ 1 mm in diameter and make up less than 15% of the rock.

Compositionally, rocks of Unit 8 are probably similar to those of Unit 1 and of Sub-Unit 5a.

Unit 10 - Cryptocrystalline Quartz

This unit is only found in float in the north end of a trench at 9+60N between lines 8W and 4W. It is a massive, very hard, gray, cryptocrystalline variety of quartz, resembling chert. It contains up to 5%, 2-3 mm pyrite cubes.

Unit 12 - Quartz Feldspar Porphyry

North of the 26 N base line and for a large part within the andesite zone exists a narrow band of the quartz feldspar porphyry. The band appears to be not much wider than 40 meters, trending in a WNW direction from stn. 10+20 N on line 32 E (off map) to stn. 11+10 N on line 12 E. West of line 12 E, the band curves toward the west and west-south-west.

The quartz feldspar porphyry is a weakly schistose to moderately schistose siliceous sericite quartz feldspar augen rock. It is hard and cohesive with a weak tendency to cleave parallel to the schistosity.

It contains about 25% quartz and about 25% white altered feldspar (mostly k-feldspar?). Both quartz and feldspar are medium to coarse grained. Quartz tends to be rounded, (oval) or prismatic, showing one or more crystal faces. Often the quartz and feldspar grains are flattened into lenticular or ellipsoidal shapes with their major dimensions parallel to the schistosity. The matrix appears to be mostly streaky siliceous sericite, with, in places, some patches and streaks of chlorite and dispersed chlorite. The rock is light coloured, creamy white, light gray or greenish gray. It is often white on weathered surfaces.

Unit 14 - Gabbroic Intrusions

Sub-Unit 14a - Gabbro

Gabbroic rock, because of its hardness and massive nature, is well exposed in this area.

The common primary minerals in the rock are plagioclase (25% - 60%), dark green pyroxene (40% - 60%), magnetite or ilmenite (up to 15%) and minor pyrite. Secondary minerals include chlorite, actinolite, epidote, quartz, calcite, and hematite. Chlorite and actinolite replace the pyroxenes in some places. Epidote replaces plagioclase or occurs in patches and veinlets but a few crystals have been observed, appearing to have grown interstitially in the coarse grained parts of the gabbro. Growth rims can sometimes be seen on these crystals. Calcite occurs in veins with quartz or interstitially between crystals of other minerals. Occasionally specular hematite replaces magnetite.

Most of the gabbro is medium grained but the cores of larger bodies may be coarse grained. The amount of interstitial magnetite is sometimes very high, up to 15% in the coarsest parts. The coarse grained rock is more or less equigranular. A slight lineation, caused by sub-parallel alignment of prismatic minerals, may be visible in a horizontal section.

In parts of the northern gabbro body, disseminated pyrite makes up to 1% of the rock. One outcrop, at 12+75N on line 24 W, contains minor amounts of disseminated chalcopyrite.

Finer grained parts of the gabbro often have a porphyritic texture with feldspar phenocrysts.

Scattered throughout the gabbro there are large veins of milky white quartz. They can be several meters thick and several tens of meters long, apparently subvertical and trending WNW in most cases. The veins can be accompanied by minor amounts of calcite (often near the contacts), K-feldspar, chlorite (near the contacts) and in at least one place small amounts of coarse grained chalcopyrite (26N base line: 16E - 20E). On a smaller scale there are veins and veinlets and replacements of quartz and calcite, with lesser amounts of chlorite and epidote, in part in the adjacent rock. Several of these quartz-carbonate veins contain small amounts of chalcopyrite.

The gabbro intrudes the country rocks. It is usually finer grained near its contacts with other rocks and some rocks resembling hornfels have been seen near contacts.

Sub-Unit 14b - Diabase

The name diabase was given to fine grained rocks of gabbroic composition.

The rock can be found near the contacts of the large gabbroic bodies, as small intrusions and dykes or as fine grained zones within the coarser grained gabbro.

The diabase is dark green, fine grained or aphanitic, with or without feldspar phenocrysts. Disseminated fine magnetite crystals can cause weak to moderate magnetism. Its composition is quite uniform.

Sub-Unit 14c - Diorite

The name diorite is used to describe those parts of the gabbroic intrusions with a mafic content of 25% or less.

Sub-Unit 14d - Schistose Derivations of 14a, b or c

The schistose versions of the gabbro and related rocks vary between chlorite schist and a schistose rock with recognizable gabbroic, diabasic or dioritic characteristics. As a rule, it is rich in chlorite (depending on the intensity of the schistosity) and some epitote, calcite and hematite. Quartz-calcite veinlets and sometimes veins can be abundant, with the calcite occurring in places as streaks parallel to the schistosity.

The schistosity can be either well developed planar to weak or erratic. Transitions towards coarser structures such as closely spaced planar features and fracture cleavages occur.

In a few cases traces of chalcopyrite have been observed in this rock type. The rocks of Sub-Unit 14d can be found all through Unit 14 in zones varying from a few decimeters to zones greater than 20 m in width. They are particularly frequent near zones of shearing or faulting, most of which trend WNW.

Unit 15 - Andesite

This unit forms a broad WNW trending belt north of the southern gabbro body and has been divided into two sub-units.

Sub-Unit 15a - Andesite

This sub-unit is relatively massive with a weakly siliceous, fine grained, dark green chloritic groundmass. Some specimens show up to 20%, ≤ 1 mm, sub-rectangular, sub-rounded epidotic green feldspar phenocrysts. These have a fairly distinct volcanic flow or intrusive texture. Most rocks of this sub-unit, however, have less genetically indicative textures. In most cases a weak schistosity appears to have partially destroyed the larger grains, smearing them out into streaks within the groundmass. Fine grained dissseminated pyrite commonly makes up to 1% of the rock.

Sub-Unit 15b - Schistose Andesite

These rocks have a weak to moderate schistosity and have no recognizable feldspar or mafic crystals. They are a dark green, fine grained aggregate of chlorite, epidote and feldspar (plus?) with light streaks paralleling schistosity. They are weakly siliceous and some are quite calcareous. Fine grained disseminated pyrite, and rarely chalcopyrite, make up to 1% of the rock.

Some rocks of this sub-unit resemble a slightly more massive equivalent of a chlorite schist. Andesites and chloritic schists are found in close association and may grade into one another. The andesites are also similar in composition to Sub-Unit 5b tuffs, but have no genetically distinctive textures. They may be andesitic flows, or more likely, fine grained massive andesitic tuffs.

Unit 17 - Sicker Group Sediments

Sediments within the Sicker Group in this area range texturally from siltstones to conglomerates and compositionally from intermediate to felsic. They are only a few tens of meters wide and very restricted in occurrence. These sediments are closely assosiated with Sub-Unit 5b andesitic tuffs and may be derived from them.

Sub-Unit 17a - Fine Grained Siliceous Tuffaceous Sediments

One outcrop of this sub-unit has been observed in this area (10 + 90N, 30M east of line 12W).

The rock is thickly laminated with < 1-2 cm. bands ranging in colour from dark chloritic green to light epidotic green. It has a weak schistosity parallel to the banding. It is highly siliceous and has a fine grained granular to cryptocrystalline texture with sub-rounded, sub-millimetric feldspar and unidentified darker grains. It is probably more felsic than andesitic in composition.

Sub-Unit 17b - Andesitic Tuffaceous Sediments (Siltstone, Lithic Wacke)

There are a few known exposures of this Sub-Unit in the area, forming a discontinuous belt north of the northern gabbro body. The belt parallels the schistosity in the area and extends from the Chemainus River to a point just east of the upper access road.

The exposure of this sub-unit on the Chemainus River is weakly schistose and thickly laminated, with 0.5 - 1 cm bands which are in turn thinly laminated with sub-millimetric layers. The bands are various shades of greenish-gray in colour and have a fine grained granular texture on a weathered surface.

Feldspar grains, which make up to 50% of the rock, are ≤ 1 mm in diameter, epidotic to dark greenish grey in colour and sub-rounded in shape. Dark chloritic grains have a fuzzy rounded outline, are ≤ 1 mm in diameter and make up less than 10% of the rock. The groundmass is chloritic and relatively siliceous. Epidotization and silicification have somewhat obliterated original textures.

This tuffaceous wacke grades, over a few tens of meters to the north into an epidote nodule-bearing andesitic tuff, the two rocks being similar in composition.

To the southeast the rocks of this sub-unit are weakly to moderately schistose, dark greyish green in colour and fine grained. Dark, weakly siliceous chloritic bands with dark green vague sub-millimetric, sub-rounded grains are interlayered with highly siliceous lighter greenish grey cherty bands. Bands range from < 1 mm to several mm in thickness and pinch and swell over the few centimeters of a hand specimen.

To the east of the upper access road, these rocks contain up to a few percent disseminated pyrrhotite.

Sub-Unit 17e - Pebble to Cobble Conglomerate

This Sub-Unit is found in only one location, on the Chemainus River. It is closely associated with Sub-Unit 5b.

The rock is dark greenish-grey, andesitic in appearance, and has textures much like those of Sub-Unit 5b. Contained within an andesitic tuffaceous matrix are randomly dispersed rounded to sub-angular pebbles and cobbles of andesitic tuffs and chloritic, pyritic schist up to several cm's in diameter. The pebbles of tuff are similar in appearance to tuffs of Sub-Unit 5b and contain 1-2 mm sub-angular to sub-rounded feldspar grains in a finer grained groundmass of feldspar, chlorite and epidote (plus?).

The existence of conglomerates within the tuff-volcanic sequence suggests that there were periods of uplight and erosion interrupting the volcanic activity.

3.2 GEOLOGICAL HISTORY AND STRUCTURE

Schists in this area can be divided into two general groups on the basis of overall composition. Felsic rocks make up Units 1, 2 and Sub-Unit 5a. Intermediate rocks include those of Units 3, 15 and Sub-Unit 5b. Although metamorphism has largely obliterated original textures, the rocks are recognizably volcanic with both pyroclastic and flow textures persisting in each group. These two groups form an interlayered volcanic pile and record a succession of intermediate to felsic eruptions.

Relationships between the various rock types in the area are best observed along the Chemainus River where there is an almost continuous exposure of bedrock.

The various types of felsic rocks generally grade imperceptably into each other. Contacts between the felsic schists and the andesitic tuffs are almost invariably abrupt. Chlorite schists commonly separate the two, in which case contacts may be gradational. Contacts between the chlorite schists and the andesitic tuffs are generally gradational, suggesting that the two rocks were formed during the same volcanic event with the chlorite schist marking the beginning or the end of an andesitic eruption.

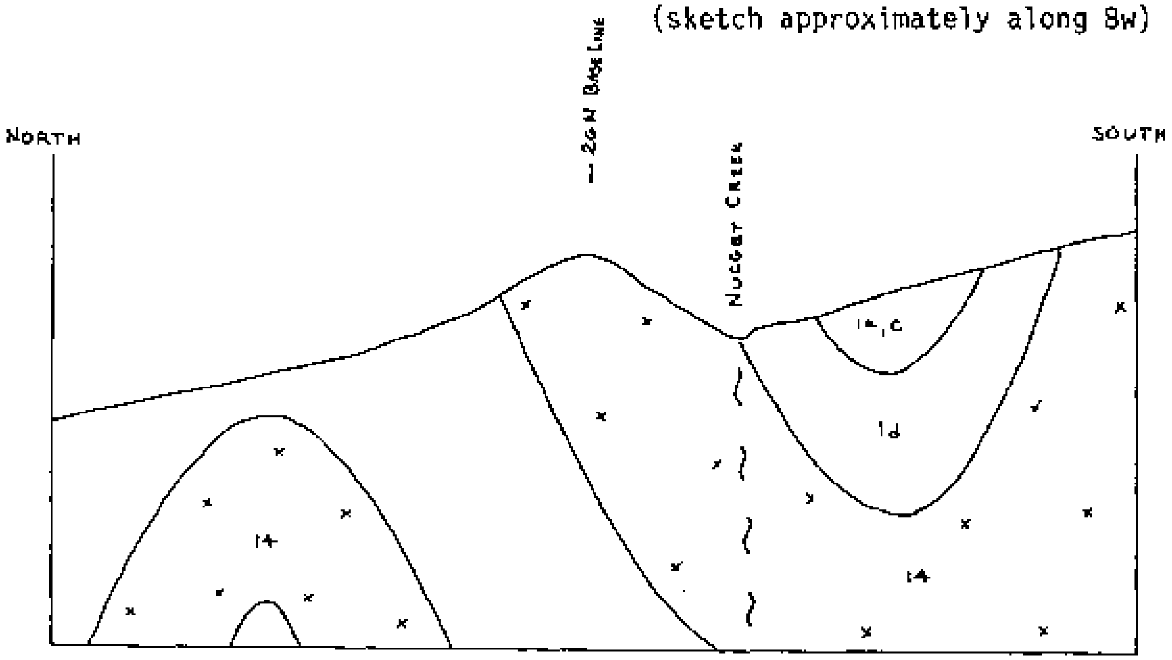
A stratigraphic section (Fig. 6) has been constructed using the geology exposed along the river. It shows that there are up to six major divisions in the volcanic sequence in this area, each division being dominated by either felsic or intermediate rocks. There may be repetition of the sequence due to folding.

Rock units and sub-units grade laterally from one to another. They also pinch and swell forming large discontinuous pods or lenses within the pile, suggesting restricted deposition or erosion between periods of deposition. The existence of conglomerates within the volcanics may suggest that volcanism was interrupted by a period of uplift and erosion.

The volcanic rocks have been intruded by gabbroic bodies which appear to slightly cross-cut the stratigraphy. Outcrop patterns suggest that the gabbro bodies have been tightly folded along with the schists, and although they are not reliable stratigraphic markers, they may be indicative of the general structure. South of the 26N base line there is a lens of Sub-Units 1a and 1c separated from the gabbro to the north and to the south by rocks of Sub-Unit 1d, suggesting that this is the core of a synform. The northern gabbro body appears to be an antiform. (See Fig. 5).

Fig. 5 GEOLOGICAL CROSS-SECTION

(sketch approximately along 8w)



The orientation of the schistosity between the two gabbro bodies, near line 4W, is quite anomalous and may indicate that the fold hinge of the antiform passes through the area. There is a zone of sporadic mineralization along this supposed hinge, extending from an adit on the Chemainus River in the northwest to a shaft near 9N, 4W in the southeast.

Schistosities in the volcanics in the cores of these folds (and in the area in general) are steeply dipping, striking at approximately 110° and probably parallel the axial planes of the large folds. The few minor folds observed indicate a near horizontal fold axis.

If this interpretation of the structure is correct, the gabbros must be separate bodies. Records from diamond drilling done between the two exposures of gabbro (Ducanex, 1972) substantiate this theory. Two holes were drilled near the northern contact of the southern gabbro; one to a depth of approximately 110 m below the surface. No gabbro was encountered.

Geology described in the drill logs corresponds well to the surface geology. Both holes were collared in chloritic, intermediate rocks (andesites), and penetrated a succession of intermediate and felsic tuffs and volcanics. Near the bottom of each hole, mudstones and/or graphitic schists (?) were encountered. These may relate to rocks of Sub-Unit 17b observed on surface approximately 500 m along strike to the northwest.

Nugget Creek flows along the only major fault in the area. A zone a few meters wide of quartz and orange weathering carbonate veins and stringers in the creek bed roughly parallels the schistosity. Displacement does not appear to have been great.

3.3 MINERALIZATION

There are isolated zones of weak mineralization in almost every rock type in the area.

Sub-Unit 1b - Quartz Augen Schist

To the east of a trench at 9 + 60 N between 4W and 8W is a zone of Sub-Unit 1b. In this zone, between lines 4W and 0, there is an adit and a vertical shaft. Only a minor amount of pyrite was found in the muck from these workings. Drilling by Ducanex in 1972 tested this area. Only pyrite was encountered.

Sub-Unit 1c, 1d and 5a - Felsic Quartz Schists

These schists commonly contain up to 1% fine grained disseminated pyrite. In several areas along the Chemainus River and Nugget Creek these rocks also contain minor amounts ($\ll$ 1%) of disseminated chalcopyrite. One such zone along the Chemainus River extends for approximately seventy meters across strike. A selected sample in one zone contained 0.13% cu.

Also within these schists, especially prevalent in the south, along the Chemainus River, are silicified pyritic shear zones. These zones are generally only a few cm's in width, with a quartz vein or stringer in the core. Some small pods in these zones contain up to 60% pyrite and rarely a few percent chalcopyrite. Two adits on the Chemainus River follow chalcopyrite bearing shear zones. In the muck of the southern adit there are pieces, several cm's in width, of massive pyrite and chalcopyrite. A selected sample from the muck contained 1.4% Cu. and 0.24 oz/ton Ag.

Unit 2 - Felsic Schists

Within Unit 2 schists between the two gabbro bodies is an east-west trending pyritic zone extending from line 20W to line 4W. The rock contains 1-2% fine grained disseminated pyrite with some narrow, highly pyritic zones a few cm's wide. One adit was driven into a highly pyritic zone just east of line 16W. No mineralization other than pyrite was seen in the muck pile.

One outcrop on the upper mine access road is a talcose pyritic schist. Over a width of approximately 1m the rock has been sheared into gouge, contains 2-3% fine grained disseminated pyrite and has small pods a few cm. wide with up to 30% pyrite. The highly pyritic parts produce a strong positive zinc test reaction, although no zinc mineralization has been seen.

A trench, starting approximately 15 m to the east of this showing, appears to be sitting north of the pyritic, zinc bearing shear zone. The rocks in the trench are sericite and sericite augen schists with some pods, a few cm's in width containing up to 10% pyrite. Grey chert (Unit 10) with up to 5%, 2-3 mm pyrite cubes, occurs as float in the northern part of the trench.

Unit 14 - Gabbroic Intrusion

Within the gabbro bodies there are several narrow shear zones with quartz (± carbonate) stringers containing minor amounts of chalcopyrite and pyrite. These shear zones are most commonly only a few cm's in width and contain less than 2% chalcopyrite. A short adit at 12N near line 20W, in the northern gabbro body, follows a small shear zone. The host gabbro is silicified over a width of approximately 30 cm and contains up to 5% fine grained disseminated pyrite and 1 to 2% masses of chalcopyrite up to 1 cm in diameter.

Fine grained disseminated pyrite is found in many places in the northern gabbro body. Near line 24W at 12 + 45N the gabbro is quite dark and contains an unusually high percentage of magnetite. Also, disseminated throughout the rock is fine grained pyrite and chalcopyrite ($<$ 1%).

Unit 15 and Sub-Unit 5b - Andesite and Andesitic Tuff

Andesites and andesitic tuffs commonly contain up to 1% fine grained disseminated pyrite; and rarely, traces of chalcopyrite. Silicified shear zones within these rocks also contain minor amounts of pyrite and chalcopyrite. Two adits between lines 8W and 4W seem to follow pyritic, silicic shears. No copper mineralization was found in outcrop or in muck in either case. An adit on the Chemainus River, in the core of the folded, northern gabbro, follows a shear zone in andesitic tuffs. The andesites have been sheared and chloritized over a width of 4 to 5 meters. In the core of the zone there are quartz-carbonate stringers, with an associated silicification of the host. Pyrite and chalcopyrite occur over a width of approximately 20 cm in the quartz-carbonate stringer zone, both in the stringers themselves and partly replacing the chloritic host. A selected sample from this zone contained 4.4% Cu and 0.43 oz/ton Ag.

4. SOIL GEOCHEMISTRY

As part of a larger soil sampling program over much of Mt. Sicker, 202 samples were collected on the Nugget Creek Group. Figures 7, 8, 9, and 10 show the results, along with those of 110 samples collected off the claims.

Samples were collected by 2 men trained and supervised by a geologist.

In almost all cases the soil profile consists of a few centimeters of black organic material (Ao and A1 horizons) followed by a light grey A2 horizon that may be very thin or as thick as 5 cm. The underlying B horizon is usually medium brown or occasionally reddish brown.

Samples were routinely collected from the B horizon. None were collected from swampy areas or places where there was evidence of man-made disturbance (roads trenches, etc.). The depth of samples varied from 10 cm. to 50 cm, with about 15 cm average. Records were kept of depth, colour, texture, etc.

Most of the soil on Mt. Sicker is derived from glacial till, rather than residual material. This reduces the value of this type of soil survey, but experience on other parts of the mountain shows that mineralization in bedrock is usually reflected in the soil. Many small erratic anomalies also occur, which may be due to the soil's gracial origin.

All samples were analyzed in the Min-En Laboratories of North Vancouver for copper, lead, zinc and silver. In their analytical procedure the samples are dried and screened to obtain the minus 80 mesh fraction. One gram of this is digested 6 hours in a mixture of HNO_3 and $HClO_4$. The samples are cooled and diluted to standard volume and then analyzed by atomic absorption spectrophotometers. A CH_2H_2 - air flame combination is used.

Threshold levels for the different elements were determined prior to this survey, using data from more than 2000 samples collected east and south of the Nugget Creek Group. The geology of the Nugget Creek Group is similar to that elsewhere on Mt. Sicker and it is assumed that the same threshold levels apply. These levels were calculated using a graphical method described by Lepiltier in Economic Geology (Vol. 64, 1969, pp 538-550). The threshold levels are:

	anomalous	very anomalous
Copper	86 ppm	270 ppm
lead	42 ppm	
zinc	125 ppm	410 ppm
silver	1.8 ppm	

4.1 COPPER

There are many broad copper anomalies in this area.

Several are located near the perimeter of, and underlain by, the northern gabbro body. The strongest anomaly in the area is part of this group. It covers part of the northern side of the gabbro body, parallels structure, and includes areas where copper mineralization has been observed. Chalcopyrite occurs in a silicified shear at 12 + 00N near 20W and finely disseminated in gabbro at 12 + 45N near 24W. The disseminated chalcopyrite, along with magnetite, may be part of a weak magmatic segregation zone. A fairly strong anomaly is situated in an area with little outcrop on the supposed southern edge of the northern gabbro body. If the gabbro is in fact folded, this anomaly would be covering the same 'horizon' within the gabbro as are those anomalies in the north. Another reason for the anomaly could be the existence of mineralized veins in the area. Chalcopyrite bearing quartz carbonate veins have been observed along the Chemainus River near the southern edge of the gabbro; both within the gabbro and the schists.

There are several broad copper anomalies in the felsic schist belt between the two gabbros. These schists contain disseminated pyrite and in some zones small amounts of disseminated chalcopyrite. From exposures along the Chemainus River, it is also known that these schists are commonly cut by quartz stringers which in many cases carry pyrite and chalcopyrite. The broad, weak nature of the anomaly suggests a disseminated source of mineralization in the bedrock.

A weak copper anomaly sits just north of the northern gabbro. The area has no rock exposures, but from extrapolation of exposures along the Chemainus River, is thought to be underlain by andesitic tuffs. Along strike from this anomalous area, in the Chemainus River, are several chalcopyrite bearing quartz veins and stringers.

Within the southern gabbro body are several, small, scattered weak anomalies, as well as one larger, weakly anomalous zone. Chalcopyrite bearing quartz veins within this gabbro body are relatively common and could be the reason for the small anomalies. The larger anomaly, which overlaps a silver anomaly, is more likely caused by some sort of wide spread disseminated mineralization, although nothing of this nature has been observed.

There is a small, moderately strong anomaly at 11 + 70N on line 0E. It is near a shaft and a related muck pile of weakly pyritic andesite. A geochemical analysis of a rock sample from the area showed no anomalous values of copper, lead, zinc or silver.

4.2 LEAD

There are only a few small, weak lead anomalies in the area. The majority are underlain by felsic schists.

Three of the northern anomalies are underlain by Unit 2 pyritic sericite schists. One of the anomalies is situated below some Unit 7 phyllitis within the sericite schists, and correspondes to a zinc anomaly in the same area. Two other anomalous samples taken in this belt of sericite schists were also anomalous in zinc and silver.

To the south, two anomalous samples appear to be underlain by the same belt of chloritic schist. Both samples were also anomalous in zinc.

4.3 ZINC

There is a fairly good overlap of copper and zinc anomalies in many places. As with copper, there are several weakly anomalous zones within the perimeter of the northern gabbro body. They may extend into the surrounding schists, since the exact shape of the gabbro is not known.

Just north of the only known showing of zinc in bedrock is a highly anomalous NE trending zone. It extends across several postulated geological contacts, being underlain by felsic schists of Units 2 and 8, and andesites, phyllites and chloritic schists of Units 15, 7 and 3. The highest value of zinc come from two samples just north of a shaft and muck pile. The anomalies may be due to contamination, but of the two, the highest value (2100 ppm) is the farthest from the shaft. This sample was taken from next to an outcrop of chloritic phyllite, and it may be reflecting the natural high zinc content found in many shales.

Within the sericite schists in the Norhtern part of the area are some Unit 7 phyllites. The area is anomalous in both lead and zinc. This anomaly is one of a cluster of weak anomalies within schists of Sub-Units 2a and 2b. These rocks are similar to those underlying anomalies near the zinc showing to the south.

4.4 SILVER

Silver anomalies are weak and most commonly only one sample site in extent.

A cluster of weak anomalies in the northern part of the area is underlain by Unit 2 sericite schists. These sites are also anomalous in zinc and in lead.

One weakly anomalous silver value on the south side of the northern gabbro body corresponds to a copper anomaly and is surrounded by anomalous zinc values. It is unique in that it is the only place where copper, zinc and silver anomalies overlap.

A broad, weak silver anomaly underlain by part of the southern gabbro body, corresponds in part to a zone of anomalous copper values. Both copper and silver anomalies lie on the topographic high. All sites with anomalous silver values, except one, are underlain by gabbro. Samples of copper bearing quartz veins in the schists just to the south of the anomaly contain up to 38 ppm silver. There may be weak silver mineralization in quartz veins cutting the gabbro, but the large size of the anomaly suggests a more disperse source for the silver.

One small anomaly is near the shaft sunk into andesites on line 0. It is near to but not overlapping with copper and zinc anomalies in the same area.

5. SUMMARY AND CONCLUSIONS

This area is underlain by an interlayered sequence of felsic to intermediate flows, pyroclastics and tuffaceous sediments. Gabbros, which slighly crosscut the stratigraphy, intrude this volcanic pile. The entire assemblage has been tightly folded and metamorphosed. Resultant schistosities, which likely parallel the axial planes of the folding, are near vertical and strike at approximately 110°.

There is copper mineralization throughout this area. Chalcopyrite, found in almost every rock type, may be finely disseminated throughout the host, or contained within quartz carbonate stringers.

Zinc mineralization in bedrock is found in only one location. The host is a talcose, sheared, pyritic sericite schist. There are no zinc bearing minerals visible in the rock.

Causes for most of the geochemical anomalies are not known. Strong zinc anomalies in soil between lines 8W and 0E form a belt which nearly parallels the shear zone in the zinc showing nearby. There may be a major zinc bearing structure in this area.

Sericite schists near the 56N base line, in the northeast part of the area, are of interest because they underlie a cluster of geochemical anomalies of silver, zinc and lead.

One small zone near the Chemainus River on the south side of the northern gabbro body is weakly anomalous in copper, zinc and silver. This is especially of interest because it is the metal assemblage most common in the known ore deposits of the area.

Further work in the form of prospecting, detailed soil sampling and geophysics (VLF-EM and possibly Vector Pulse - EM) would be advisable in these areas.

6. COST STATEMENT

Labour	
Re-chaining lines, August 13/79 - August 21/79	
5.5 days x $49 per day	$ 269.50
Surveying, September 10, 11/79	
Field 1 day x $87 per day	
1 day x $49 per day	
office 1 day x $87 per day	223.00
Geological Mapping, August 13/79 - August 24/79 Sept. 12/79 - Oct. 19/79	
Field 25 days x $87 per day	
office 7 days x $87 per day	2,784.00
Soil sampling, Sept. 27/79 - Oct. 15/79	
Field 5 days x $ 49 per day	
Office 1 day x $ 49 per day	294.00
Field Supervision, August 13/79 - October 15/79	
2 days x $104 per day	208.00
Analysis (soil samples)	
202 samples x $3.95 per sample	797.90
Shipping (soil samples)	12.40
Transportation	
Vehicle 1.2 months x $500 per month	600.00
Fuel and oil (estimated)	60.00

Rent (house in Duncan used as office and base. Estimate that over 1.2 months 30% of use of house related to Nugget Creek Group)	
1.2 months x $350. per month x 30%	$ 126.00
Report, December 3, 1979 - December 14, 1979	
Writing and drafting 3 days x $87 per day	261.00
Map reproduction (estimated)	50.00
Typing (estimated)	20.00
TOTAL	$ 5,705.~~00~~ 80

EXPLANATORY NOTES:

- wages shown are monthly salary converted to daily rate and including 20% for UIC, CPP, accounting, etc.
- since the area covered by work is partly off claims, labour was pro-rated according to proportion of work done on claims.

  Example: soil sampling

  $$8 \text{ days total} \times \frac{202}{312} \begin{array}{l}\text{samples on claims}\\\text{samples total}\end{array} = 5 \text{ days}$$

- office time listed for geological mapping includes drafting, cutting rock specimens, etc.
- office time listed for soil sampling includes drying and shipping samples, drafting, etc.

7. STATEMENT OF QUALIFICATIONS

I, Peter A. Ronning of Duncan, British Columbia, hereby certify that:

1. I am a graduate of the University of British Columbia, holding the degree of Bachelor of Applied Science in Geological Engineering (1973).
2. I am a geologist employed by S.E.R.E.M. Ltd. of 505-850 West Hastings Street, Vancouver, B.C.
3. I have worked in the field of mineral explortaion for six years.
4. The work described in this report was carried out under my supervision.
5. I have no financial interest in the claims covered by this report or in S.E.R.E.M. Ltd.

Dated at Duncan, B. C. this 20th day of December, 1979.

P. Ronning

Peter A. Ronning
Geologist

7. STATEMENT OF QUALIFICATIONS

I, Gordon J. Allen, of Cowichan Bay, British Columbia, hereby certify that:

1. I am a graduate of the University of British Columbia, holding a Bachelor of Science degree in Geology (1975).
2. I am a geologist employed by S.E.R.E.M. Ltd. of 505 - 850 West Hastings Street, Vancouver, B.C.
3. I have been practising my profession for the past four years and have been active in the field of mineral exploration during the past nine years.
4. I have no financial interest in the claims covered by this report, in Mount Sicker Mines Ltd. or in S.E.R.E.M. Ltd.

Dated at Duncan, B.C. this 20th day of December, 1979.

Gordon J. Allen

Gordon J. Allen
Geologist

APPENDIX

LIST OF CLAIMS

NAME	LOT NO.	RECORD NO.
Little Nugget	33 G	13 (1)
Chemainus	34 G	14 (1)
Belle	55 G	15 (1)
Dunsmuir	56 G	16 (1)
Seattle	57 G	17 (1)
Copper King	64 G	18 (1)
Copper Queen	65 G	19 (1)
Queen Bee	100 G	22 (1)
Alliance Fr.	59 G	120 (9)
Patricia - Jane		83 (5)
Morley - Jane		84 (5)
Peggy Fr.		119 (9)
Beatrice		121 (9)

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7714

NUGGET CREEK GROUP.
CLAIMS MAP.
VICTORIA MINING DIVISION.
SCALE: 1 : 2500
0 50 100
METERS

LOCATION BY CHAIN AND COMPASS,
OLD SURVEY RECORDS.

NTS.
92 B
13 W.

DATA: FILES
DRAFT: C. VAN HOUTEN.
DATE: DECEMBER 1979.

FIG.
3

GEOLOGY OF THE NUGGET CREEK GROUP OF MINERAL CLAIMS

VICTORIA MINING DIVISION

1:2,500

0 50 100
METERS

MAP SYMBOLS

LITHOLOGIC CONTACT - DEFINED
- APPROXIMATE
- ASSUMED

FAULT - DEFINED
- ASSUMED

SCHISTOSITY

BEDDING

JOINT

SHEAR

MINOR FOLD AXIS - INCLINED, HORIZONTAL

AXIAL PLANE OF MINOR FOLD

VEIN

OUTCROP WITH CORRESPONDING LITHOLOGY

TRENCH

ADIT

DIAMOND DRILL HOLE

GRID STATION

FORESTRY SURVEY POST

50 METER CONTOUR LINE

ROAD

QTZ - QUARTZ
CARB - CARBONATE
PY - PYRITE
CP - CHALCOPYRITE
MC - MALACHITE
MAG - MAGNETITE
Zn', Zn' - POSITIVE ZINC TEST REACTION - STRONG, WEAK

- LITHOLOGIC ZONE

LITHOLOGIC UNITS

1	QUARTZ SCHIST	1a - SERICITE 1b - SERICITE AUGEN (AUGEN = QUARTZ AUGEN) 1c - CHLORITE SERICITE 1d - CHLORITE SERICITE AUGEN
2	SCHIST	2a - SERICITE 2b - SERICITE AUGEN 2c - CHLORITE SERICITE 2d - CHLORITE SERICITE AUGEN
3	CHLORITE SCHIST	3a - CHLORITE 3b - SERICITE CHLORITE
5	FELDSPAR CRYSTAL TUFF (INCLUDES SOME FLOWS)	5a - RHYOLITIC TO DACITIC 5b - ANDESITIC
7	SLATE / PHYLLITE	
8	DACITE (INCLUDES SOME TUFFS)	
10	CRYPTOCRYSTALLINE QUARTZ	
12	QUARTZ FELDSPAR PORPHYRY	
14	GABBROIC INTRUSION	14a - GABBRO 14b - DIABASE 14c - DIORITE 14d - SCHISTOSE DERIVATIVES OF 14a, b OR c
15	ANDESITE	15a - ANDESITE 15b - SCHISTOSE ANDESITE
17	SICKER GROUP SEDIMENTS	17a - FINE GRAINED SILICEOUS, TUFFACEOUS SEDIMENTS 17b - ANDESITIC TUFFACEOUS SEDIMENTS (SILTSTONE, LITHIC WACKE) 17c - PEBBLE TO COBBLE CONGLOMERATE

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7714

DATA: P. RONNING, C. VAN HOUTEN, G. ALLEN
DRAWN: G. ALLEN
DATE: DEC., 1979

FIG. 4

STRATIGRAPHIC SECTION

FROM CHEMAINUS RIVER EXPOSURE BETWEEN
MINE ROAD (S) AND B.L. 56N (N)

1: 2,500

0 50 100
METERS

LEGEND

MAP SYMBOLS

— LITHOLOGIC CONTACT

····· GRADATIONAL LITHOLOGIC CONTACT

〰 FAULT

PY	PYRITE
CP	CHALCOPYRITE
MC	MALACHITE

LITHOLOGIC UNITS

1	QUARTZ SCHIST	1a - SERICITE 1b - SERICITE AUGEN 1c - CHLORITE SERICITE 1d - CHLORITE SERICITE AUGEN
2	SCHIST	2a - SERICITE 2b - SERICITE AUGEN 2c - CHLORITE SERICITE 2d - CHLORITE SERICITE AUGEN
3	CHLORITE SCHIST	3a - CHLORITE 3b - SERICITE CHLORITE
5	FELDSPAR CRYSTAL TUFF (INCLUDES SOME FLOWS)	5a - RHYOLITIC TO DACITIC 5b - ANDESITIC
14	GABBROIC INTRUSION	14a - GABBRO 14b - DIABASE 14d - SCHISTOSE DERIVATIVES OF 14a OR 14b
15	ANDESITE	15a - ANDESITE 15b - SCHISTOSE ANDESITE
17	SICKER GROUP SEDIMENTS	17b - ANDESITIC TUFFACEOUS SEDIMENTS (SILTSTONE, LITHIC WACKE)

DATA: G. ALLEN
DRAWN: G. ALLEN
DATE: NOV., 1979

FIG.
6

NUGGET CREEK GROUP OF MINERAL CLAIMS

VICTORIA MINING DIVISION.

SOIL GEOCHEMISTRY.

COPPER, IN PPM.

SCALE: 1 : 2500

LEGEND.

CONTOURS:

86 PPM ≤ Cu < 270 PPM

Cu ≥ 270 PPM

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7714

NTS.
92 B
13 W

DATA: FIELD
DRAFT: C. V. SOUTEN
DATE: DECEMBER 1979.

FIG.
7

NUGGET CREEK GROUP OF MINERAL CLAIMS

VICTORIA MINING DIVISION.

SOIL GEOCHEMISTRY.

LEAD IN PPM.

SCALE: 1 : 2500

0 50 100
METERS

LEGEND
CONTOURS:
Pb ≥ 42 PPM.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7714

NTS.
92 B
13 W

DATA FIELD
DRAFT. C V HOUTEN
DATE. DECEMBER 1979.

FIG.
8

NUGGET CREEK GROUP OF MINERAL CLAIMS.

VICTORIA MINING DIVISION.

SOIL GEOCHEMISTRY.

ZINC IN PPM.

SCALE: 1 : 2500

0 50 100
METERS

LEGEND

CONTOURS :
125 PPM ≤ ZN < 410 PPM.
ZN ≥ 410 PPM.

MINERAL RESOURCES BRANCH
NO. 7714

NTS.
92 B
13 W

DATA FIELD
DRAFT C. J. HOUTEN
DATE DECEMBER 1979

FIG.
9

NUGGET CREEK GROUP OF MINERAL CLAIMS.
VICTORIA MINING DIVISION.

SOIL GEOCHEMISTRY.
SILVER IN PPM.

SCALE. 1 : 2500

0 50 100
METERS

LEGEND
CONTOURS:
AG ≥ 1.8 PPM - - - - - - -

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7714

NTS		FIG.
092B	DATA FIELD DRAFT [illegible] DATE DECEMBER 1979	10