7015

NO. 7015

GEOLOGICAL MAPPING

OF

I AM 50 CLAIMS

N.T.S. 92 H/5W

Lat. 53°22'N Long. 121°53'W

Dates of Work

(Between 11 June and 21 Sept. 1978)

for

Chevron Standard Limited
Minerals Staff
Vancouver,B.C.

Owner: Isaac Miller
Operator: Chevron Standard Limited
Author: David Arscott

15 October 1978

CONTENTS

INTRODUCTION

General

Geological mapping was carried out by the writer during the 1978 field season as part of an attempt to understand and explain the presence of widespread disseminated and vein mineralization in the I AM 50 claim.

As a control for mapping, a 4-fold enlargement of government 1:16,000 aerial photography was used, with an average scale of about 1:4000. Scale distortions occur from the inherent photo radial displacement, and also from the severe terrain relief. Despite this defect the photo enlargement proved to be an excellent base for the mapping.

Outcrop is abundant on the north side of the property. About 20% of the available exposure has been mapped, enough to give a fairly good preliminary coverage. Emphasis was placed on areas which are most accessible and/or have the most mineralization potential.

Location and Access

The I AM 50 claim is located 100 km E of Vancouver and 9 km NW of Harrison Hot Springs, B. C. Access, as indicated on Fig. 1 is excellent, being essentially 2-wheel drive via the Hemlock Valley Road to the northern half of the property. Creek wash-outs preclude reaching the southern half of the property from this side, but alternative (4-wheel) drive access is available from the SE.

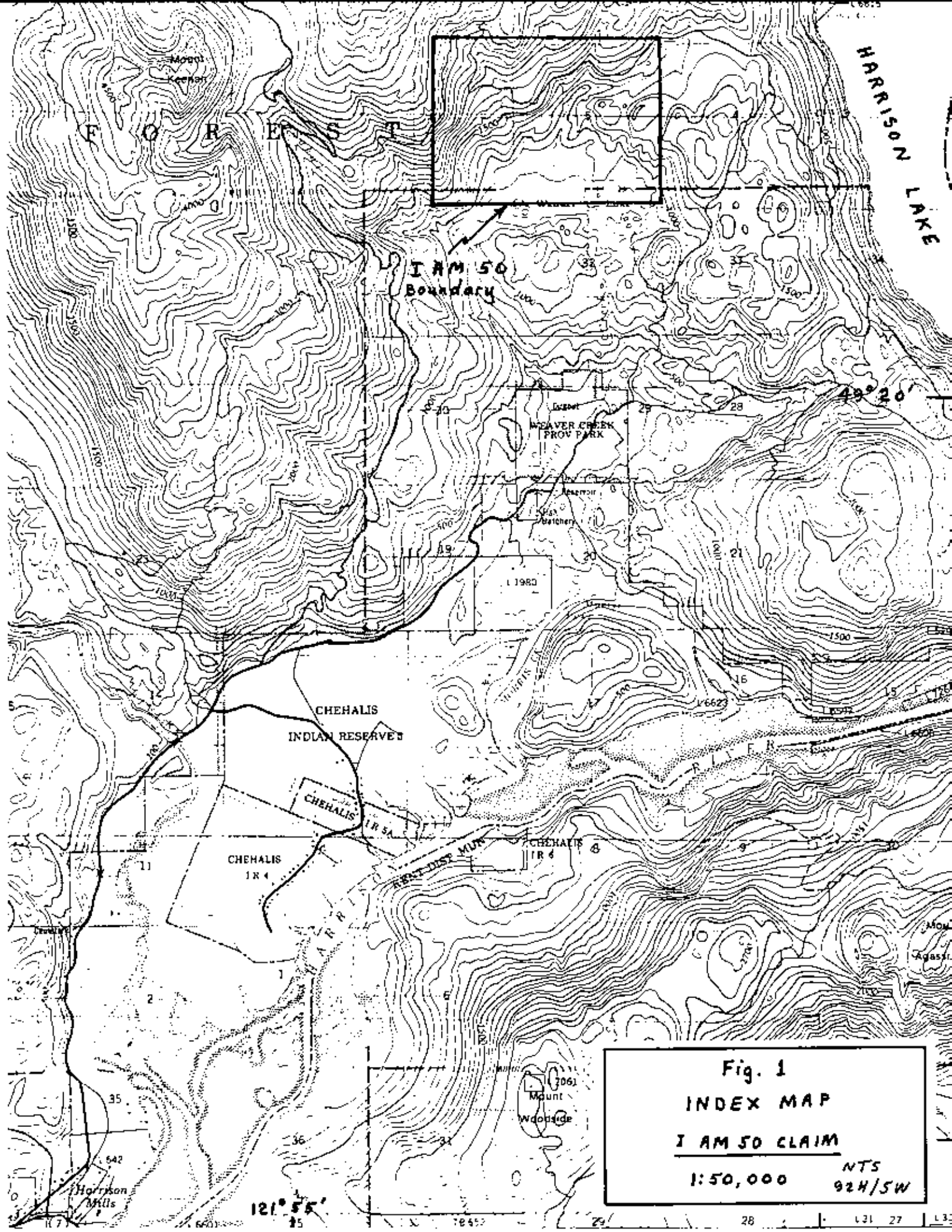


Fig. 1

INDEX MAP

I AM 50 CLAIM

1:50,000

NTS
92H/5W

Claim Description

The I AM 50 claim consists of 20 units, recorded in March 1978. Its record number is 288, and it is owned by Mr. and Mrs Isaac Miller of Whiterock, B. C.

History

The area mapped has obviously been subject to considerable attention but records are lacking.

Widespread soil sampling, as well as limited percussion and diamond drilling, is known to have taken place in 1974 (see references), substantiating the presence of extensive copper and zinc mineralization at depth.

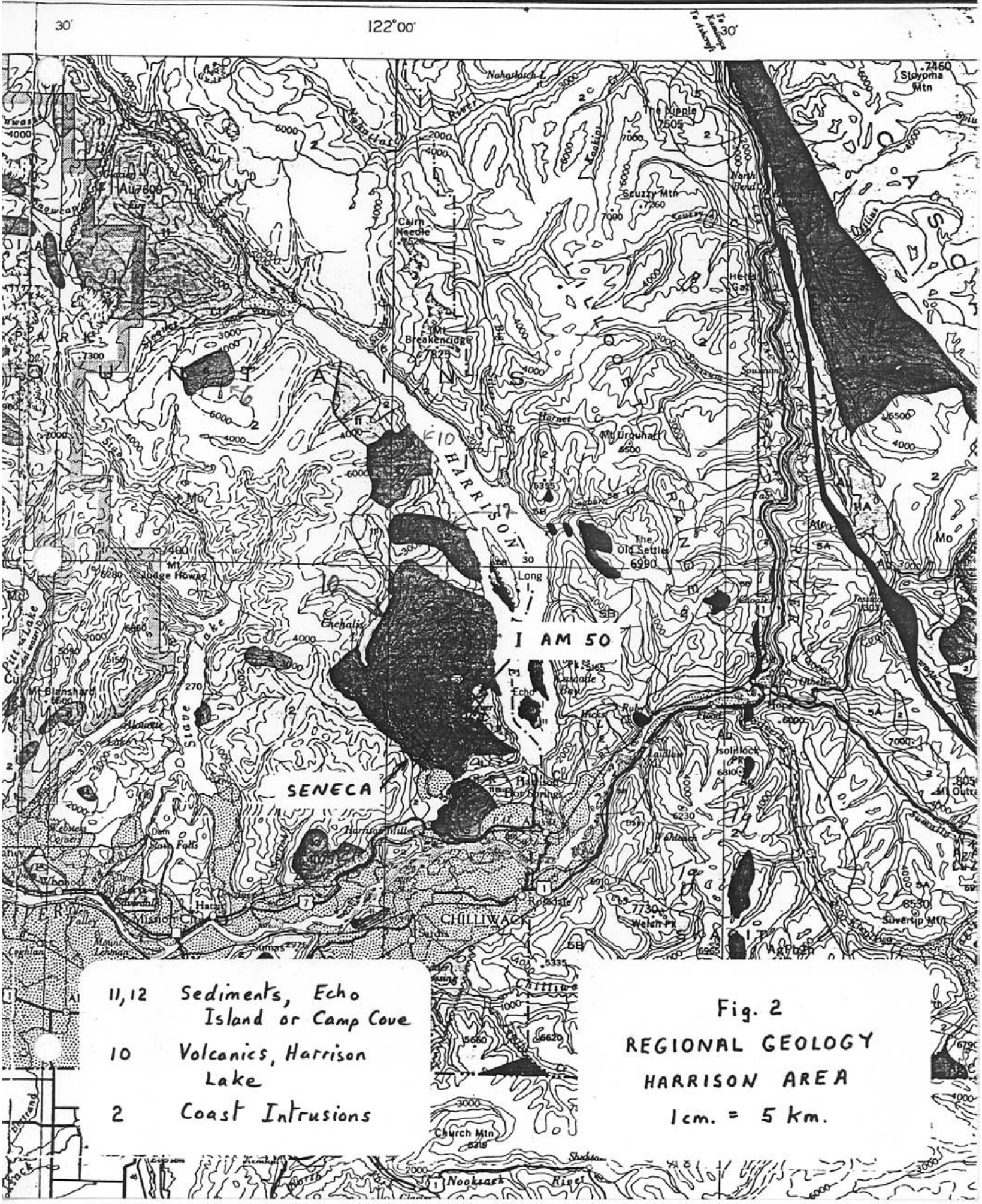
GEOLOGY

Regional Geology

The property is near the S end of the Chehalis pendant, a roughly oblong-shaped belt composed largely of volcanics and sediments of volcanic affiliation, and believed to be of Jurassic age (approximately 140 million years) (see Fig. 2).

These rocks can be subdivided along the following general lines:

Echo Island Formation	-	Shales and argillites
Harrison Lake Formation	-	Andesitic pyroclastics
		Minor shales and argillites
		Rhyolitic pyroclastics
		Dacitic tuffs
		Andesitic flows and pyroclastics
Camp Cove Formation	-	Greywackes
		Shale
		Conglomerate



11, 12 Sediments, Echo Island or Camp Cove

10 Volcanics, Harrison Lake

2 Coast Intrusions

Fig. 2

REGIONAL GEOLOGY

HARRISON AREA

1 cm. = 5 km.

These formations are cut by stocks, dykes, and sills of intermediate to felsic composition.

In detail the geology is extremely complex and difficult to unravel, and the available geological maps of the area are as varied as the number of geologists that made them. The principal references are listed in the Appendix.

Property Geology

(a) General

Since stratigraphic dips exceeding 45° are rare, both on the property and regionally, it is assumed that most rock units are still right side up. This assumption facilitates the outlining of a stratigraphic succession. However, faulting in the area of the claim is particularly strong, with some obvious repetition and/or "faulting-out" of individual rock units. With this qualification in mind it has been possible to assemble a generalized local stratigraphic succession as follows:

	Map Code	Description	Approximate Thickness (in area mapped)
Harrison Lake Volcanics	Alb, Ab	Coarse andesitic pyroclastics	+ 10 m
	Dlg, Dlb	Medium to coarse dacitic fragmental flows	40 m
	Ss	Dacitic tuffs	20 m
	St	Cherty to argillaceous well stratified sediments	15 m
	At, Al	Andesitic tuffs and lapilli tuffs	10 m
	Alg	Andesitic fragmental flow (possibly equivalent to down faulted Dlg)	20 m
	RD	Rhyodacite, massive to slightly porphyritic	200 m
Camp Cove Formation	Dlt	Dacitic lapilli tuffs	20 m
	Dt, Ss	Dacitic (sandy) tuffs	50-100 m?
	At, Alt	Andesitic tuffs	5-100 m?
	Sc	Cherty, poorly stratified sediments	+ 150 m

(b) Lithologic

What appear to be the oldest units present (Camp Cove Formation) are a volcaniclastic package of uncertain derivation. There is an apparent increase in stratigraphic thickness from north to south, but also an apparent increase in grain size in the same direction. Their stratification is poor and its orientation is in many cases unclear without a great deal more mapping. Texturally they vary from a sandy coarse dacitic to andesitic tuff to a grey fine grained cherty or rhyolitic unit (Dt, Ss, At, Sc).

At the top of these volcaniclastics is a distinctive unit (Dlt) characterized by rounded grey 4 mm fragments in an andesitic matrix. It is mainly present in the northern and northeastern parts of the claim, and may be faulted-out towards the south.

Central to the claim, and most important economically, is a large unit (RD) pale grey in colour, and tentatively classified as a rhyodacite on the basis of its hardness and colour. Thin section work indicates that it may actually be a dacite. It occupies the area of greatest structural complexity and is in variable relation to the neighbouring units. It is homogeneous in composition over large areas and, where fresh, has a granular to slightly porphyritic medium grained texture. Previous drill core data (D.D.H. #4 - Assessment Report 4977) indicate an intrusive contact on the W side, but its contacts seem generally conformable. Local, but subtle,

"volcanic" brecciation is present, and baritic-copper-zinc stringer mineralization is widespread All these characteristics, along with a stratigraphic position similar to that of the Seneca deposit footwall, suggest that the rhyodacite is best described as a high level (hyperbyssal) intrusive. It may have locally been effusive, although no clearly explosive breccias have yet been observed which would be indicative of a(subaqueous)dome. Of special interest is that its alteration and mineralization, as well as structure, are anomalous. The alteration is locally intense sericitization or chloritization(near the main faults) and intense silicification over large areas (away from the faults).

Above the rhyodacite, and locally in contact with it is a well defined section of sediments and volcaniclastics, traceable over a strike length of at least 1000 m. Its lowest member is an unbedded andesitic tuff (At), followed by a well stratified cherty to argillaceous sediment (St) the argillaceous component of which increases northwards. Above this is a poorly bedded, sandy textured tuff (Ss), partly interbedded with the overlying fragmental flows.

The andesitic fragmental flow (Alg) is characterized by an extremely friable and mottled texture. Angular to subrounded clasts constitute 50% of the rock and attain a maximum diameter of 3 cm. In some cases chilled clast margins are discernable.

The term "fragmental flows" has been tentatively used to describe these rocks in lieu of a more precise definition. Elsewhere they have been described as "ash-fall tuffs and breccias", "rottenstone", and "laumontite bearing flows". In position this unit appears to be stratigraphically below the upper sediments, but it may be down-faulted as it bears a strong resemblance to the dacitic fragmental flow unit above them. The latter differs in having a slightly lighter average colour, a lack of obvious chill textures, rare bedded spherulitic sections, and local areas carrying well rounded felsic porphyritic clasts up to 5 cm in diameter. The presence of these clasts has resulted in other mappers referring to the unit as a volcanic conglomerate. In uncertain relationship to the dacite fragmental flows is an amygdaloidal, spheroidal weathering, andesite (As) which is almost certainly a flow.

Above, and intergrading with the fragmental flows, is a resistant (cliff-forming) dacite breccia (Dbg) characterized by a high proportion of subrounded breccia sized fragments. It is clearly a pyroclastic.

Finally, the lowest part of a regionally pervasive unit, an andesite breccia, is present near the western boundary of the claim.

Large,erosion resistant dacitic to rhyodacitic, green to purple feldspar porphyry dykes and sills are present (D-RDph), but mainly at higher stratigraphic levels. These are most common regionally within the fragmental flow units, and the well rounded clasts within the latter seem to be of the same composition. A particularly large dyke is present near the SW corner of the claim, and the abundance of

this type of intrusion is known to increase southerly and southwesterly from the property.

The occasional presence of columnar jointing in the rhyodacite suggests that it is cut by dykes of the same composition, but contacts are difficult to discern.

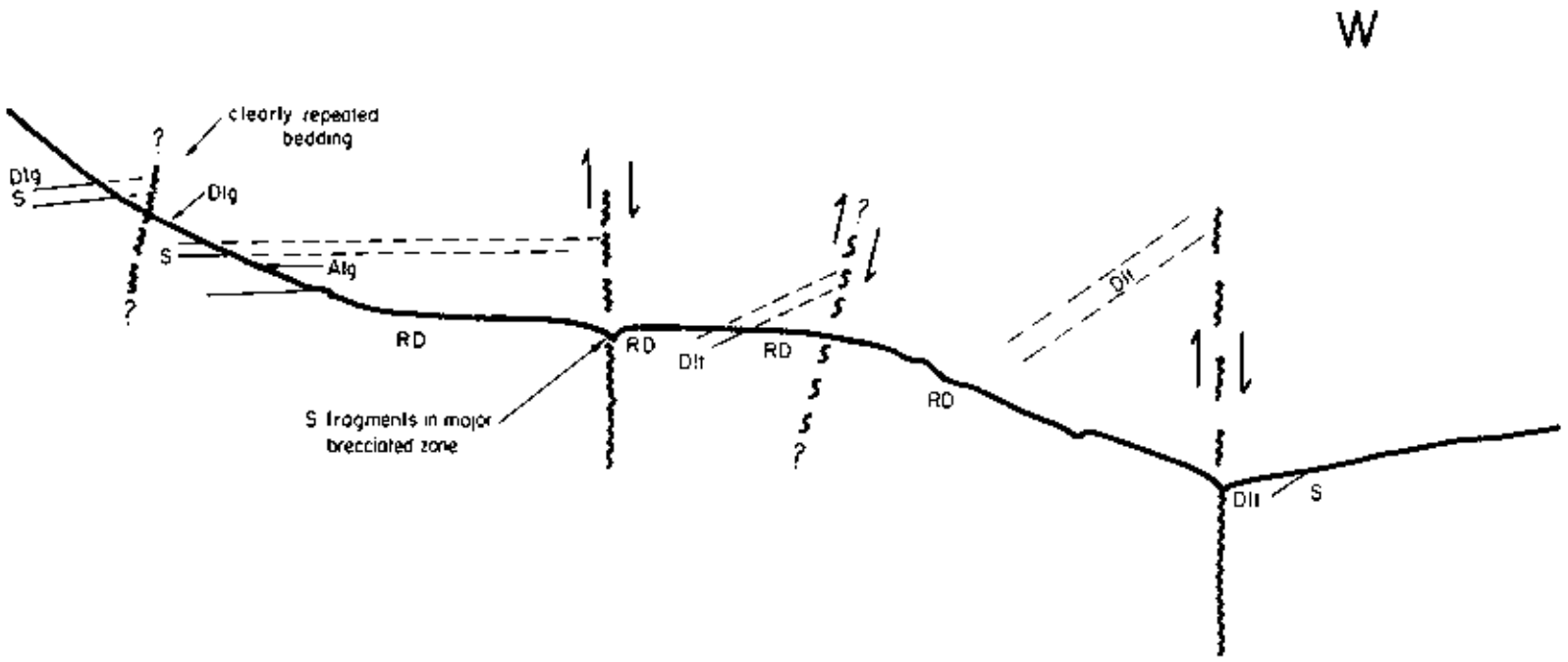
(c) Structural

Most of the creeks cutting the claim are the site of intense faulting, with structurally brecciated and/or altered zones up to 100 m wide.

Faults are present with almost all trends, but are most prominent in the NS, N 25°E, N 50°E, and N 45°W directions. There is a distinct lack of EW or near EW faulting.

The actual movement on these faults is difficult to elucidate, but we have some clues. The stylized EW geologic section in Fig. 3 suggests a repeated E side down movement across 2 known (and also 2 hypothetical) northerly trending faults. The dip movement would have to be between 100 and 300 m in each case. The present outcrop position could also be accounted for by a much greater light lateral horizontal movement, but a mainly vertical movement seems more probable, and such a movement may be enough to explain the amount of brecciation observed adjacent to at least one of these faults.

Several interesting patterns are discernible. One is a convergence of major faults (and lineaments) towards Weaver Lake. Another, on a



Dlg	Dacite fragmental flow
S	Sediments
Alg	Andesite fragmental flow
RD	Rhyodacite
Dlt	Dacite lapilli tuff

FIG. 3

CHEVRON MINERALS

STYLIZED EW SECTION THROUGH CLAIM CENTRE

I AM 50 CLAIM

1:10,000

0 800 1600 ft

metres 0 200 400 800 metres

more local sacle, is intense, convergent faulting and gaping fractures, centred on a small nearly circular structure in the north central part of the claim. This feature, clearly observable on airphotographs, has a relatively unsilicified core some 100 m across which is of almost the same composition as the surrounding rhyodacite but may be slightly coarser grained and slightly more mafic. Curiously, this core is much less silicified than its immediate aureole, where quartz stringers are locally abundant enough to be referred to as a quartz stockwork. The gaping fractures adjacent to this core (also visible on airphotographs) are in one case 2 m across and 6 m or more deep. They seem unrelated to topography (i.e. to break-away on cliffs), and trend N 40^{o} to 60^{o}E. These features may be compatible with an intrusive core, and certainly with a former hydrothermal system.

Folding, where evident, is of the broad warping variety. The bedding varies from nearly horizontal in the W to moderate westerly dips in the E. No warping has been observed adjacent to faults, which suggests that much of the faulting occurred at a relatively shallow depth below the surface, at a different time, and under different tectonic conditions from the folding.

One interesting possibility that arises from these general structural considerations is that the Camp Cove sediments to the W, returned to their former level, might be coeval with the sediments at the W side of the claim, and therefore represent an easterly thickening of the same sedimentary package. However this is highly speculative.

(d) Mineralization

Disseminated pyrite is widespread throughout the rhyodacite in amounts up to 10%. In consequence almost all the rhyodacite is rusty weathering, but for simplicity only the most intensely gossanous areas are shown on Fig. 4. The pyrite seems to be more closely allied to sericite than to silica or chlorite alteration, but the alteration types overlap. Pyrite is rare in other units except where they are in contact with the rhyodacite.

Coarsely crystalline quartz-sphalerite-pyrite-barite veins and stringers are also widespread within the rhyodacite, and locally within the adjacent argillaceous sediments. Most veins are less than 2 cm wide, although in one area near the northern claim boundary (or possibly on neighbouring claims) there is one chalcopyrite-rich vein 30 cm wide. Nowhere do the veins in the visible exposures appear to be clustered enough to constitute economic mineralization. Nevertheless the amount and extent of copper and zinc is impressive, and such clusters, though not probable, could exist.

Also striking is the close similarity of these veins to the footwall veins in some parts of the stringer zone below the Seneca deposit. This similarity, and the stratigraphic position of the rhyodacite, make it difficult to escape the conclusion that the same type of volcanogenic event has occurred on the two properties. Certainly the mineralization bears a much closer appearance to a volcanogenic stringer type than it does to "porphyry" type mineralization. What is disappointing is, as mentioned earlier, the lack of an obvious explosion-type breccia which would permit us to speculate that massive

copper-zinc sulphides are also present. However, this apparent lack might be attributable to (a) insufficient exposure in outcrop.

(b) venting not coincident with the present exposed surface.

Hence the possibility that massive sulphides are present cannot be discounted. If they do indeed exist, the tonnage potential considering the size of the overall feeder (stringer) zone and the extent of hydrothermal activity is considerable.

Two small showings low in the stratigraphic section are worth noting. One is represented by a float Sample (#93). This is a silicified rhyolitic rock with traces of sphalerite. It appears to be structurally brecciated but it may have originated in the multilithic lapilli represented by Sample #94. The other is a rhyodacite lapilli tuff with fairly angular fragments, bearing abundant coarse pyrite, present in float as well as a small road outcrop (Sample #95). Sample #93, upon analysis, yielded 39 ppm Cu and 1830 ppm Zn.

SUMMARY AND CONCLUSIONS

Widespread stringer mineralization bearing zinc and copper sulphides is present in a large mass of strongly altered rhyodacite central to the claim This mass probably represents a near surface intrusion that may have been locally vented to surface. The instrusion was followed by a period of quiescence, represented by fine-grained sediments, by broad scale gentle

folding, and then by renewed (andesitic) volcanism. The entire area, at some point late in its history, was subjected to intense block faulting, regionally convergent on Weaver Lake. The stratigraphy from the rhyodacite upwards, is not unlike that of the Seneca deposit, 7 km to the SW. The mineralization and associated alteration is also quite similar to that of certain stringers in the Seneca deposit footwall. Hence the possibility exists that the mineralization is part of a Kuroko-type event, although at least one important feature (explosive volcanic brecciation) has not yet been recognized on the I AM 50 claim.

RECOMMENDATIONS

1. Detailed mapping along the westerly rhyodacite contact, and in the vicinity of samples #93 and #95 is clearly necessary.

2. Consideration should be given in any future work to an electromagnetic survey in areas where the rhyodacite and sediments may be in contact.

David Arscott

David Arscott
1978-10-28

ROCK SAMPLES

I AM 50 CLAIM

Number	Location	Description	Analyses Cu, ppm	Analyses Zn, ppm
24	W. boundary	Argillite, black to grey, thin bedded.	25	57
25	W. boundary	Andesitic lapilli breccia or fragmental flow, mottled green to purple, friable. Fragments up to 2 cm in diameter, subrounded, and showing chill margins.		
26	NW corner	Rhyodacite, grey, medium grained, fairly homogenous in texture. Moderate chlorite sericite alteration. Minor disseminated pyrite. Sample is close to quartz-sphalerite-pyrite vein. Thin section name: dacite-andesite.		
27	NW corner	Rhyodacite lapilli breccia. As 26 but consists of andesite-dacite fragments in more felsic intrusive ground mass.		
46	W. central	10% rounded purple porphyritic fragments in andesitic friable matrix which shows strong chlorite alteration.		
47	N. central	Dacite lapilli tuff. Subrounded pale green 4 mm fragments (50%) in dark green matrix (50%). May be a trachyte.		
50 (float)	NW corner	Dacite lapilli tuff, grey. 50% subrounded to subangular fragments 4 to 20 mm in diameter.	8	49
51	NW corner	Dacite tuff breccia. Similar to #50 but much coarser, with fragments up to 8 cm in diameter. Also 15% pyrite, and some epidote in matrix.	8	56
85	W. central	Rhyodacite, grey, porphyritic. 30% white feldspar phenocrysts up to 3 mm in diameter. Strong sericite chlorite alteration.		

ROCK SAMPLES

I AM 50 CLAIM

Number	Location	Description	Analyses Cu, ppm	Analyses Zn, ppm
86	W. central	Andesite, grey-green. Andesite fragments in andesite dacite matrix.		
87	NW corner	Andesite, almost basaltic appearance. Thin section indicates andesite lapilli fragments in felsic matrix.		
89	SE corner	Rhyolite? Purple to grey, massive, very fine grained, and hard. 12% K-feldspar but no quartz.		
90	SE corner	Similar to 89 but with more cherty appearance, and vague flow banding locally. Moderate carbonate, sericite alteration.		
91	SE central	Crystal tuff, coarse grained with occasional lapilli sized fragment. Unstratified. Fragment compositions are feldspar (40%) and argillite (10%), in a siliceous looking matrix.		
92	SE central	Andesite, green, mottled by alteration (strong carbonate, chlorite, sericite). Volcanic.		
93 (Float)	Central	Rhyolite? brecciated (probably structurally) and silicified, grey. Traces of sphalerite.	39	1830
94	Central	Rhyodacite lapilli tuff, grey, Some of the larger (subrounded) fragments are salmon coloured. 5% pyrite.		
95 (Float)	SE central	Rhyodacite lapilli tuff, grey. Fragments are subangular and somewhat silicified. 30% exceed 4 mm diameter. 8% pyrite in cubes and iregular masses.	30	22
96	Central	Rhyodacite, grey, medium grained sugary texture, with 5% disseminated pyrite.		

ROCK SAMPLES

I AM 50 CLAIM

Number	Location	Description	Analyses Cu, ppm	Analyses Zn, ppm
97	N. central	As 96	15	53
98	N. central	As 96	94	243
99	N. central	Quartz vein with 10% coarse cubic pyrite .	6	480
100	N. central	Rhyodacite to dacite, dark grey, medium to slightly coarse grained. Trace of chalcopyrite in one chip of this (compiled) sample.		
101	NE corner	Andesite tuff, grey, fine grained and unstratified, with black irregular (glass?) blebs up to 2 mm in diameter and constituting 25% of the sample.		
102	NE corner	Silicified rhyodacite? Grey, sugary,with 10% disseminated pyrite, some grains of which show curious concentric zoning.		
104 (Float)	W. boundary	Dacite to rhyodacite porphyry, slightly purplish grey with 10% white phenocrysts up to 2 mm in diameter. Sample is from a 10 cm well rounded boulder from within a large block of fragmental flow float.		
105	W. central	As 25, but showing a wider variety of textures, including more angular fragments.		

NOTE: Thin section work indicates that dacite to andesite composition predominate in the above suite of rocks.

STATEMENT OF COSTS
1978 PROGRAM

I AM 50 CLAIM

LABOUR COSTS

Employee	Field Dates	Person - days Field	Office	Travel	Total
D. Arscott	11 June, 12, 14, 20 13 July, 14, 20, 21 Sept.	8	3	2	13
R. Todd	11 June, 19 Aug.	2	-	-	2
J. Webber	11 June, 19 Aug.	2	-	-	2
V. Rolfe	11 June, 19 Aug.	2	-	-	2
					19

Cost per person day, average $117.16, including benefits

Total labour cost $2,226.00

OTHER COSTS

Truck 12 days @ 30.00	360.00	
Food 16 days @ 9.00	144.00	
Camp and field supplies	120.00	
Drafting 2 days @ 65.	130.00	
Analyses 16 @ 2.60	41.60	
Thin sections, with report 10 @ 29.75	297.50	
Miscellaneous: telephone, reproduction, etc.	30.00	
	$1,123.10	1,123.10

TOTAL PROGRAM COST $3,349.10

David Arscott

CERTIFICATE

I, David Philip Arscott, am a Professional Engineer, registered in British Columbia with office address at 901 - 355 Burrard Street, Vancouver, B. C. V6C 2G8.

I have 13 years' experience in various phases of mineral exploration, of which approximately 10 years have been spent in B. C. and the Canadian Cordillera.

I personally carried out the preliminery geological mapping of the I AM 50 claim as detailed in this report.

David Arscott

David Arscott, P.Eng.
15 October 1978

REFERENCES

Government Reports

1965 Vancouver North, Coquitlam, and Pitt Lake Map Areas, GSC Memoir 335

1970 Hope Map Area, GSC Paper 69-47

1972 Geology, Exploration and Mining in B.C., p. 102-114

1973 Geology, Exploration and Mining in B.C., p. 125-128

Property Assessment Reports

1974 Report #4977 (DS and STONEY Claims)

1974 Report #5001 (DS and STONEY Claims)

ANOMALOUS STRUCTURE
Quartz flooded halo
Abundant open fractures
Principal shearing is N5E/65E and N60E/70S

Weaver Lake

Harrison Lake

Hemlock Valley Road

Morris Lake Road

DDH 4

PROPERTY OUTLINE - VERY APPROXIMATE

LEGEND

R	Rhyolite
RD	Rhyodacite
D	Dacite
A	Andesite
M	Multilithic
Ss	Dacitic to sandy tuffs, poorly bedded
St	Sediments, thin bedded, cherty to argillaceous
Sc	Sediments, cherty, poorly bedded
b	volcanic breccia } textural terms, not necessarily genetic
l	lapilli
t	tuff
p	porphyry
m	massive
g	mottled, rotten texture
f	very fine grained
q	quartz alteration and/or stringers
s	spheroidal weathering
c	carbonate alteration
o	obsidian shards and blebs
h	purplish cast
r	strong gossan

Outcrop
→20 Columnar jointing
Bedding
Sheeting
Photo lineaments
(96) Specimen Nos.
Float
× 3,88,950 Silt samples – Mo, Cu, Zn in ppm
•–,–,10 Water samples – Mo, Cu, Zn in ppb

BASE CONTROL IS FROM AIRPHOTO BC 7471-223 AND ENLARGED 4 TIMES

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
NO. 7015

D. Abbott
9 Nov. '78

FIG. 4
CHEVRON MINERALS
GEOLOGY
M480-1 AM 50 CLAIM
~1"=400'
100 0 100 200 meters
APPROX