

GEOLOGICAL REPORT

ON

THE PD CLAIMS  
TENAS CREEK, NITINAT RIVER AREA  
VANCOUVER ISLAND, BRITISH COLUMBIA

CO-ORDINATES:  $48^{\circ}52'N$ ,  $124^{\circ}33'W$

92C/15E

*Victoria M. D.*

FOR

*Owner  
Operator*

*W. W. Deans*  
ALCYONE EXPLORATIONS LTD.  
600-535 West Georgia Street,  
VANCOUVER, B.C.

FILMED

BY

HAROLD M. JONES, P.Eng.

SEPTEMBER 26, 1983  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11, 1986

G. A. NOEL & ASSOCIATES INC.  
CONSULTING GEOLOGISTS

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## SUMMARY

The FD claims consist of four 2-post claims located in the Victoria Mining Division on southern Vancouver Island, 35 km west-northwest of Lake Cowichan.

Previous exploration in the claims area located a copper-bearing skarn zone at least 600 m long. There are indications that one or more similar zones may be present, but relatively untested. A number of samples from the main zone indicate that significant values in copper are present along with low values in silver.

It is concluded that the FD claims contain typical copper-bearing skarns associated with limestone as found elsewhere on Vancouver Island, some of which were mined successfully during periods of high copper prices.

It is also concluded that additional exploration is warranted on the claims to better define the known mineralized skarn zone and to explore for others which are thought to be present but are very poorly exposed. Stage I, which consists of geological, geochemical and magnetometer surveys is estimated to cost \$ 23,230. Stage II which consists of trenching and sampling, is estimated to cost \$ 53,000.

## INTRODUCTION

At the request of Alcyone Explorations Ltd. the writer, on September 17, 1983 examined the FD claims. The purpose of the examination was to observe the geology and mineralization on the property and recommend a work program, if warranted.

Following the examination, the writer recommended that two additional 2-post claims be staked to cover old workings and mineralization seen to the south of the present claims. These were staked and recorded on September 22, 1983.

### Location and Access ( $48^{\circ}52'N$ Latitude, $124^{\circ}33'W$ Longitude)

The FD 1-4 claims are located in the Victoria Mining Division, 35 km west-northwest of Lake Cowichan, southern Vancouver Island. They are situated on a small tributary of Tenas Creek which flows northerly to the Nitinat River (Figure 1).

The property is readily accessible by 45 km of road from the town of Lake Cowichan (Figure 1). A logging access road leaves the main Nitinat road at Tenas Creek and follows the creek valley southerly through several switchbacks to the property, which is on the east side of the valley at 600 meters above sea level. All roads are being used for active logging and are accessible by two-wheel drive vehicle.

### Topography and Vegetation

The FD claims cover very steep slopes. Most of FD2 and 4 claims are logged off and now covered by logging slash, young second growth and salal. FD 1 and 3 are entirely within virgin forest which consists of large, mature fir, and hemlock.

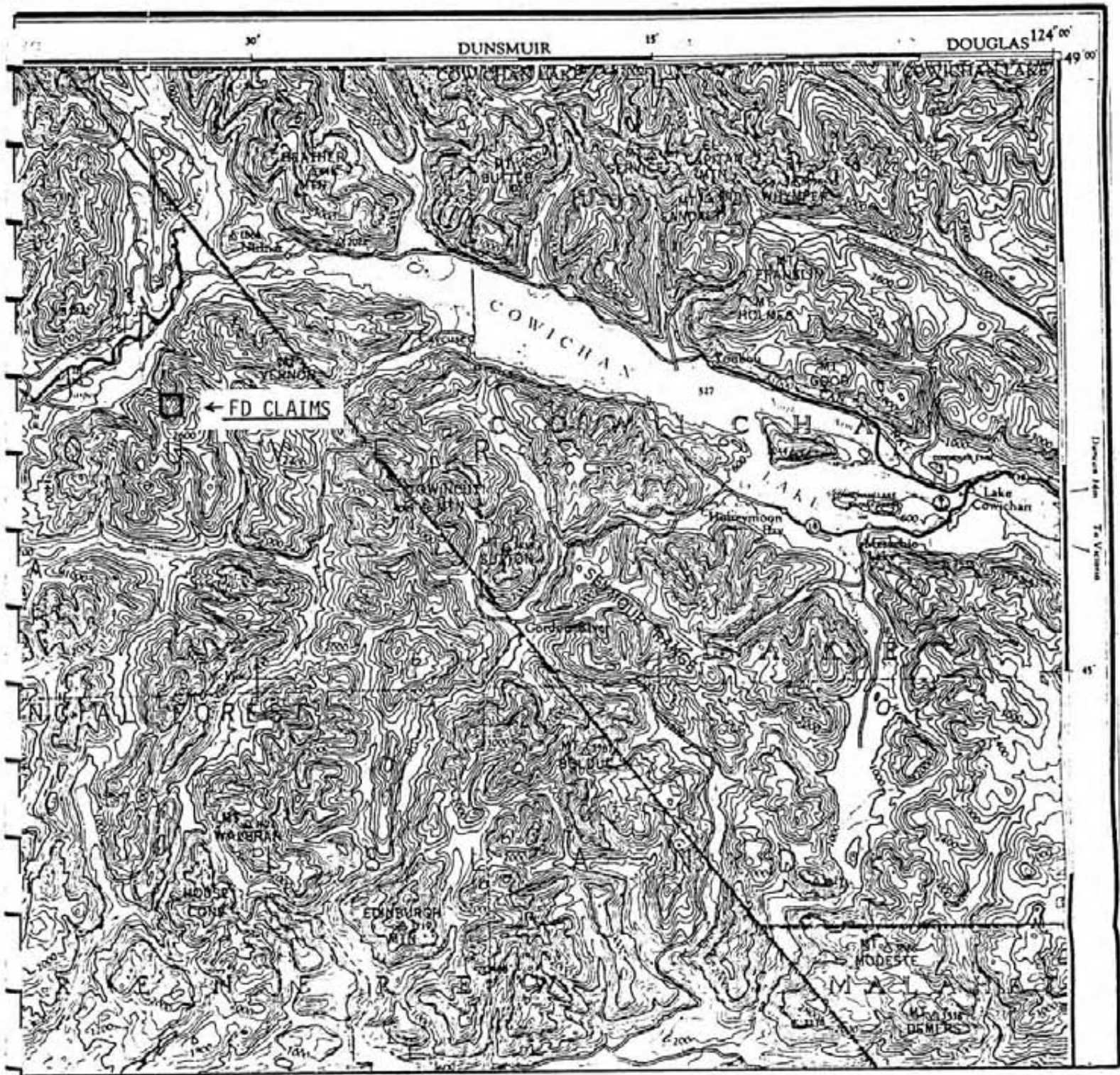


FIGURE I

LOCATION MAP

FD CLAIMS, TENAS CREEK, NITINAT RIVER AREA  
 VANCOUVER ISLAND, BRITISH COLUMBIA  
 VICTORIA MINING DIVISION  
 1:250,000



Tenas Creek and its tributaries have eroded steep V-shaped valleys. Relief on the claims range from 300 m at Tenas Creek to 750 m on the east boundary of FD 1 claim.

Bedrock is covered by a thin mantle of boulder till and colluvial rock debris rarely more than a few meters thick. It is exposed along the logging road, and at scattered locations throughout the claims in small cliff-like outcrops. Rock exposures may also be found in the main creek gulleys.

### Property

The property consists of four 2-post claims. They are:

Claim Name	Record Number	Recording Date
FD 1	687	4 October 1982
FD 2	688	4 October 1982
FD 3	1089	22 September 1983
FD 4	1090	22 September 1983

The claims are owned by W.W. Deans, R.R. 2, Ladysmith, B.C. They will be transferred via a Bill of Sale to Alcyone Explorations Ltd., 600-535 West Georgia Street, Vancouver, B.C.

### History

A number of old hand trenches are present on FD 1 and 3 claim. These were blasted and mucked out exposing skarn well mineralized with pyrite and chalcopyrite. It is not known where or who conducted this work.

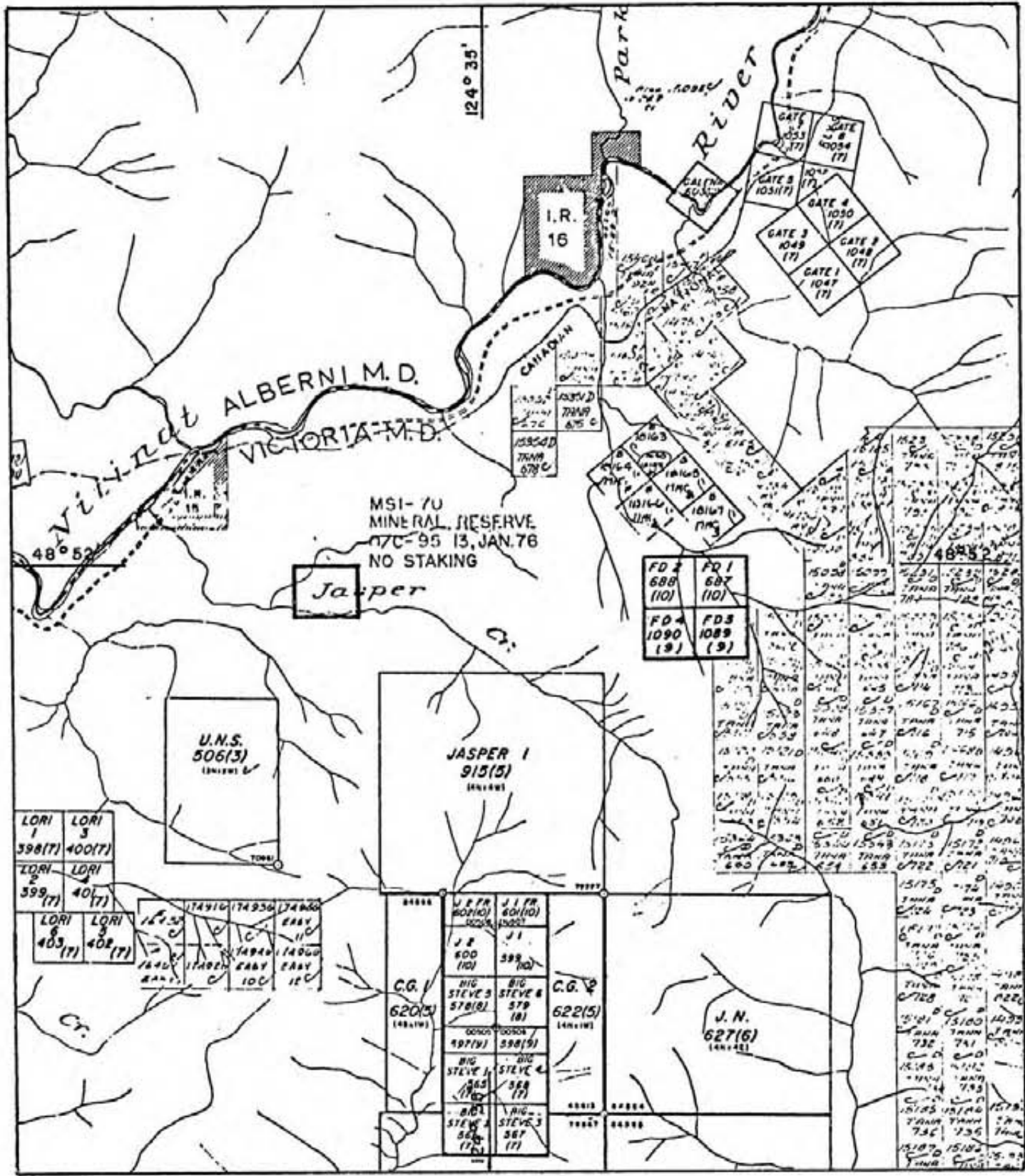


FIGURE 2

CLAIM MAP

FD CLAIMS, TENAS CREEK, NITINAT RIVER AREA  
 VANCOUVER ISLAND, BRITISH COLUMBIA  
 VICTORIA MINING DIVISION

92C/15E  
 1:50,000

In 1956 the present area of the FD claims was included within a 78 claim block owned by Avallin Mines Ltd. A geophysical survey and 1048 feet of diamond drilling were conducted on an anomaly (B.C.M.M. 1956). The location of this work is unknown. It is reported (BCMM 1957) that mineralization on the property, varying from sparse chalcopyrite to perhaps 10 percent chalcopyrite, is exposed in eight small open cuts, for a strike length of 1000 feet, but not enough work was done to establish continuity.

In 1964, Avallin Mines Limited conducted geological mapping, soil sampling over a large block of O.G.M. claims. The ground, presently covered by the FD claims, was within the above area. Their geochemical survey was of a reconnaissance nature rather than using a grid (area too large), and analyses were done using the Rubeonic acid method. They recorded anomalous copper soil values below the mineralized skarn. They also mapped the skarn zone on their regional scale of one inch equals 500 feet. They also drilled one X-ray hole which intersected 20 feet of about one percent copper in the skarn (Assessment Report 642).

In 1969, Quintana Minerals acquired a very large number of claims in the general area of the FD claims. They conducted reconnaissance geological mapping along logging roads and creek gulleys. They also soil-sampled along grid lines spaced at 2000 foot separations. They were searching for a large tonnage porphyry-type copper body. Their geochemical work along a logging road downslope from the mineralized skarn obtained anomalous values in copper.

In 1976 the main area of mineralization was covered by the one unit NR claim. Fox Geological Consultants Ltd. mapped the claim and sampled several pits. Their work also confirmed the presence of significant copper mineralization.



Since 1976 the main logging road has been extended and a new branch road switchbacks up the hill and passes either through or near the east edge of FD 1 claim.

The writer mapped the extension of the main road and examined and sampled several pits.

## GEOLOGY

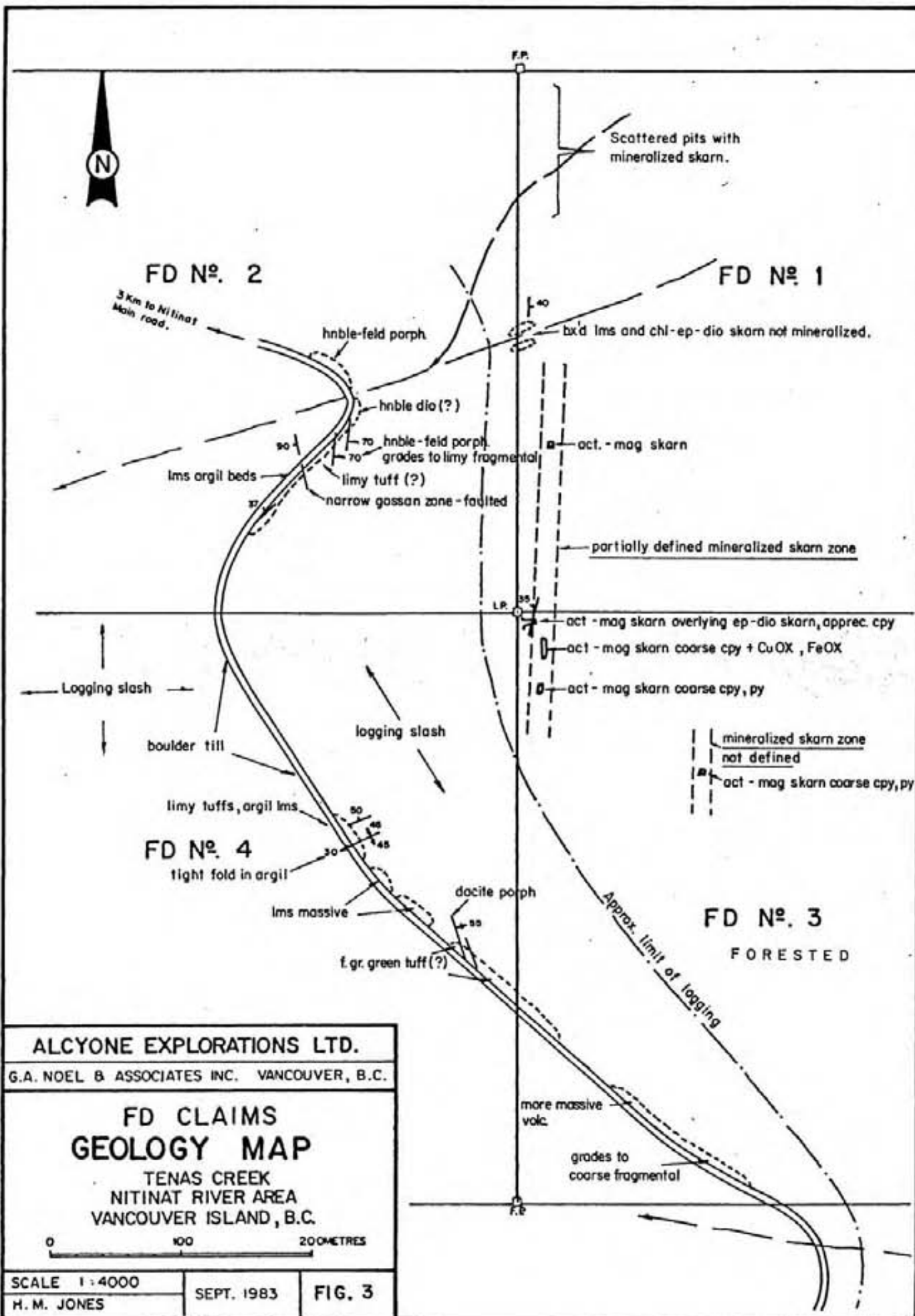
### General Geology

The Nitinat area is underlain by folded Permian and Triassic limestones, argillites, tuffs, fragmental volcanics, andesites and basic flows of the Sicker and Vancouver Groups. These are intruded by Jurassic or Cretaceous granodiorite of the Island Intrusives.

### Local Geology

The claims are underlain by a part of a series of northwesterly-trending Mesozoic volcanic and sedimentary rocks of the Upper Triassic aged Vancouver Group. These include limestone, shale and tuffaceous rocks of the Quatsino and Bonanza Formations. Karmutsen volcanic rocks, which comprise a thick sequence of basalt and related breccia, outcrop to the west of Tenas Creek and apparently underlie the formations exposed on the property.

Geology on the claims may be divided into three lithologic groups -grey calcareous shale, argillite, and tuffs (Unit 1); light grey fine-grained limestone (Unit 2); and fine to medium-grained dacite(?) or feldspar porphyry dykes (Unit 3) (Fox 1976).



Rocks of Unit 1 are well exposed along the logging road on FD Nos. 1, 2 and 3 claims. These show attitudes varying from northwest to northeast with variable dips. This is due to considerable folding within the unit. Tight folds were seen at two locations.

Outcrop is very limited uphill from the road, but appears to be mostly massive, grey, fine-grained limestone interbedded with chloritized tuffs(?) and lenses and irregular masses of skarn. These rocks underlie FD Nos. 1 and 3 claims.

Grey, fine to medium-grained dacite (?) or feldspar porphyry dykes cut the limestone formation and may contact or cut the skarn zones. These rocks are poorly exposed but are thought to represent a swarm of northwesterly-trending dykes (Fox 1976).

Irregular bands and lenses of skarn occur throughout the limestone unit in the vicinity of the above dykes. The skarn consists of chlorite-epidote; chlorite-diopside, and actinolite-magnetite.

#### MINERALIZATION

Chalcopyrite, bornite and pyrite are associated with irregular masses and lenses of skarn within the limestone unit.

Several mineralized skarn zones are present, the principal one of which is at least 600 m. long. Copper-bearing skarn was observed in four old prospect pits and in float scattered on the steep sidehill. All sulfide mineralization occurs in actinolite-magnetite skarn which forms smaller zones within a broader chlorite-epidote-diopside skarn.

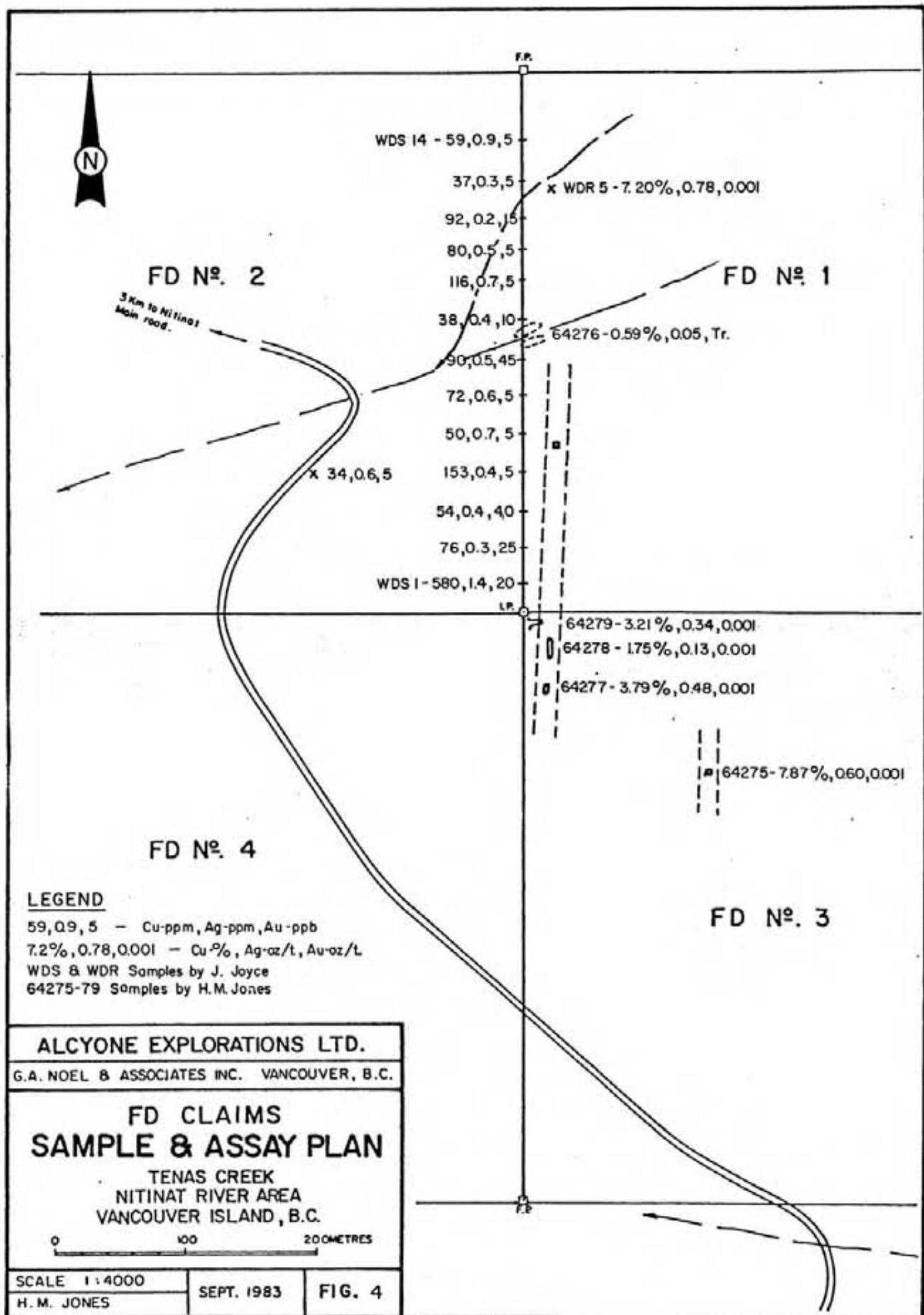
Coarse aggregates of chalcopyrite, pyrite and rarely bornite, mixed with coarse bundles of actinolite and magnetite, are exposed over widths of one to two meters in the prospect pits.

Sampling by Fox Geological Consultants Ltd. (1976) demonstrated the presence of variable values in copper in the mineralized outcrops and pits. The following are results of their sampling:

Sample No.	% Cu		
NR 1	0.02	)	Representative of skarn found in outcrops and prospect pits
NR 2	0.17	)	
NR 3	0.01	)	
NR 4*	16.00	)	
NR 5	1.30	)	
NR 6	3.50	)	
NR 7	1.10	)	

(\*) High grade zone of chalcopyrite in actinolite - magnetite skarn.

Samples taken by the claim owner in 1982 along the FD No. 1 and 2 location line and from some pits, confirm copper values in soils and rocks related to the skarn zones (See Figure 4). These assays also show variable low values in gold and silver and include several anomalous gold and silver assays.



FD No. 2

FD No. 1

3 Km to Nitinat  
Main road.

WDS 14 - 59,0,9,5

x WDR 5 - 7.20%, 0.78, 0.001

37,0,3,5

92,0,2,15

80,0,5,5

116,0,7,5

38,0,4,10 64276 - 0.59%, 0.05, Tr.

90,0,5,45

72,0,6,5

50,0,7,5

153,0,4,5

54,0,4,40

76,0,3,25

WDS 1 - 580,1,4,20

64279 - 3.21%, 0.34, 0.001

64278 - 1.75%, 0.13, 0.001

64277 - 3.79%, 0.48, 0.001

64275 - 7.87%, 0.60, 0.001

x 34,0,6,5

FD No. 4

FD No. 3

**LEGEND**

59,0,9,5 - Cu-ppm, Ag-ppm, Au-ppb  
 7.2%, 0.78, 0.001 - Cu-%, Ag-oz/t, Au-oz/t  
 WDS & WDR Samples by J. Joyce  
 64275-79 Samples by H.M. Jones

<b>ALCYONE EXPLORATIONS LTD.</b>		
G.A. NOEL & ASSOCIATES INC. VANCOUVER, B.C.		
<b>FD CLAIMS SAMPLE &amp; ASSAY PLAN</b>		
TENAS CREEK NITINAT RIVER AREA VANCOUVER ISLAND, B.C.		
SCALE 1:4000	SEPT. 1983	FIG. 4
H. M. JONES		



The writer collected four samples from sulfide-rich actinolite-magnetite skarn, the object of which was to test for the presence of gold with sulfides. Their assays are as follows:

SAMPLE NO.	TYPE	WIDTH	ASSAYS			DESCRIPTION
			Au Oz/T	Ag Oz/T	% Cu	
64275	Grab	-	0.001	0.60	7.87	Actinolite-magnetite skarn, coarse py & cpy
64276*	Chips	1.0 m	Tr	0.05	0.59	chlorite epidote skarn, diss. py, cpy
64277	Grab		0.001	0.48	3.79	Actinolite-magnetite skarn, coarse sulfides
64278	Grab		0.001	0.13	1.75	" "
64279	Grab		0.001	0.34	3.21	" "

(\*) - Values converted from rock geochemical assay.

The above assays confirm the presence of significant copper values in the actinolite - magnetite skarn. They also indicate that low silver values accompany the copper mineralization.

## CONCLUSIONS

The results of previous work on the FD claims indicates that at least one skarn zone is present which carries significant values in copper. An examination by the writer located mineralization in one pit and in float up slope from the main mineralized area, indicating the presence of one or more other copper-bearing skarn zones on the property.

It is concluded that the FD claims contain typical copper-bearing skarns associated with limestone as found elsewhere on Vancouver Island. Some of these deposits have been mined successfully during periods of high copper prices.

It is also concluded that detailed work, which was not done in the past, is warranted to define the known mineralization zone and explore others which appear to be present in this area of poor outcrop exposure.

## RECOMMENDATIONS

It is recommended that the claims be explored by detailed geological mapping, soil sampling and a magnetometer survey, the purpose of which is to locate and define all of the mineralized skarn zones.

COST ESTIMATES - (Time - 2 weeks)

STAGE I

Geochemical Survey, including assays	\$ 10,000
Geological Survey, including rock assays	4,500
Magnetometer Survey	2,000
Vehicle	1,200
Report Preparation and Drafting	2,500
	<u>\$ 20,200</u>
Contingencies - 15%	<u>3,030</u>
TOTAL - STAGE I	<u>\$ 23,230</u>

STAGE II

Trenching - bulldozer to strip overburden and build roads, then drill and blast to provide fresh samples - time - one month

Geological Supervision & Consulting	\$ 7,000
Bulldozer	15,000
Rock-work crew	9,000
Equipment - rentals, powder, etc.	4,000
Vehicle - rental and operating costs	2,000
Room and Board - 4 men	5,400
Assays	1,500
Report	2,500
	<u>\$ 45,900</u>
Contingencies @ 15%	<u>6,885</u>
TOTAL STAGE II	<u>\$ 52,785</u>
- SAY -	<u>\$ 53,000</u>

This work is not contingent on Stage I. There are already areas that warrant the above work. New areas located from Stage I would also be trenched at the same time.

STAGE III

Drilling - contingent on Stage I and II.

- say 1000 m BQ wireline drilling @ \$ 148.50/m,  
all inclusive \$ 148,000

Respectfully submitted,

Harold M. Jones, P.Eng.

REFERENCES

B.C. Dept. of Mines Annual Report - 1956, p. 124; 1957, p. 72; 1959, p. 138.

B.C. Dept. of Mines, G.E.M.- 1969, p. 221; 1976, p. E109.

Fox, P.E. (1976) - Geological Report on the NR Mineral Claim, Assessment Report.

Fyles, J.T. (1955) - Geology of the Cowichan Lake Area, Vancouver Island, B.C., B.C. Dept. of Mines, Bulletin No. 37.

Malcolm, D.C. (1965) - Avallin Mines Limited Geological Report, Assessment Report 642.

Malcolm, D.C. (1967) - Geological and Geochemical Report for Quintana Minerals Corporation, Assessment Report 2163.



**CERTIFICATE**

I, Harold M. Jones, of the City of Vancouver, British Columbia, do hereby certify that:

1. I am a Consulting Geological Engineer with G.A. Noel & Associates Inc., at 721 - 602 West Hastings Street, Vancouver, British Columbia.
2. I am a graduate of the University of British Columbia in Geological Engineering, 1956.
3. I have practised my profession as a Geological Engineer for 25 years.
4. I am a member of the Association of Professional Engineers in British Columbia, Registration No. 4681.
5. I examined the FD claims on September 17, 1983 on behalf of Alcyone Explorations Ltd.
6. Alcyone Explorations Ltd. is hereby given permission to reproduce this report, or any part of it, for filing with a Prospectus or Statement of Material Facts, or other documents as required by the regulatory authorities, provided, however, that no portion may be used out of context in such a manner as to convey a meaning differing from that set out in the whole.

DATED AT VANCOUVER, B.C.  
26 September 1983

Harold M. Jones, P.Eng.



To: Fox Geological Consultants Ltd.,  
410 - 675 W. Hastings St.,

Vancouver, B.C.  
V6B 1N2

ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

phone: 253 - 3158

File No. 82-1550 A

Type of Samples Rocks & Soils

Disposition \_\_\_\_\_

### GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.		Cu	Ag	Au ppb							
WDS - 1		580	1.4	20	} soil samples along claim line FD No. 1 - FD No. 2 IP → F.P. collected by J. Joyce					1	
2		96	.3	25							2
3		54	.4	40							3
4		153	.4	5							4
5		50	.7	5							5
6		72	.6	5							6
7		90	.5	45							7
8		38	.4	10							8
9		116	.7	5							9
WDS - 10		80	.5	5							10
											11
WDS - 12		92	.2	15							12
13		37	.3	5							13
14		59	.9	5							14
15		286	.5	5							15
16		126	.1	5						16	
17		150	.2	5						17	
WDS - 18		266	.1	5						18	
										19	
WDR - 1	R	5800	1.0	5						20	
2		198	.1	20						21	
3		206	.1	5						22	
4		34	.6	5	} on road near creek, west of baseline } rock samples					23	
5		72000	26.8	45							24
6		560	.2	5							25
WDR - 8	R	80	5.2	580						26	
										27	
										28	
										29	
										30	
										31	
										32	
										33	
										34	
										35	
										36	
										37	
										38	
										39	
										40	

All reports are the confidential property of clients  
All results are in PPM.

DIGESTION:.....

DETERMINATION:.....

DATE SAMPLES RECEIVED Nov. 22, 1982

DATE REPORTS MAILED Nov. 25, 1982

ASSAYER Dean Toye

DEAN TOYE, B.Sc.  
CHIEF CHEMIST  
CERTIFIED B.C. ASSAYER

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V6B 1P2

TELEPHONE (604) 689-5533

COST STATEMENT

GEOCHEMICAL SAMPLING ON FD 1 AND 2 CLAIMS  
NITINAT RIVER AREA, VICTORIA MINING DIVISION

Wages: James Joyce - November 20, 1982	\$ 75.00
Assays - 13 soils, 2 rock	104.50
Vehicle rental and gas	<u>35.00</u>
TOTAL:	<u>\$214.50</u>