

LOC NO: 0105	RD.
ACTION:	
FILE NO:	

GEOLOGICAL & DRILLING REPORT

WABANA CLAIM GROUP

VICTORIA MINING DIVISION

N.T.S. 92C/15

48° 50' NORTH, 124° 33' WEST

NUSPAR RESOURCES LTD.

SEPTEMBER, 1987

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,813**

GOLD COMMISSIONER  
RECEIVED and RECORDED  
DEC 30 1987  
M.R. # 095018J  
VICTORIA, B.C.

FILMED

GEOLOGICAL & DRILLING REPORT ON THE  
WABANA CLAIM GROUP

VICTORIA MINING DIVISION

N.T.S. : 92 C/15

48° 50' NORTH, 124° 33' WEST

OWNER & OPERATOR : NUSPAR RESOURCES LTD.

AUTHOR : PETER FISCHL, B. Sc.

SEPTEMBER 1987

## TABLE OF CONTENTS

	<u>Page</u>
Introduction. . . . .	2
Claim Status. . . . .	2
Location. . . . .	2
Access. . . . .	2
Previous Work . . . . .	3
Physiography & Drainage . . . . .	3
Regional Geology. . . . .	4
Claim Geology . . . . .	4-7
Structural Geology. . . . .	8
Drilling Summary. . . . .	9
Conclusions & Recommendations . . . . .	9
References. . . . .	10
Statement of Author's Qualifications. . . . .	11
Cost Statement. . . . .	12

Appendix 1: Drill Core Logs

Figures;

Figure 1 : Claim Location Map

Figure 2 : Geological Map (In Pocket)

## INTRODUCTION

Nuspar Resources Ltd. has completed a program of geological mapping and drilling on the BUZ and WABANA I mineral claims. The geological mapping was conducted along logging roads at a scale of 1:5000. Four shallow, angled, diamond drill holes were completed for a total depth of 339.25' (104.38 m).

## CLAIM STATUS

The WABANA Claim Group consists of four twenty unit claims (WABANA I - III, TATTERS I), one ten unit claim (BUZ) and three two-post claims (ARCHER III - V) for a total of 93 units. The claims comprising this group are held fully and in good standing by Nuspar Resources Ltd. of Victoria, B.C.

## LOCATION

The property is situated between the Nitinat and Caycuse Rivers, nine kilometres southwest of the west end of Cowichan Lake on southern Vancouver Island. It is located in the Victoria Mining Division, centered at a latitude of 48° 50' North and a longitude of 124° 33' West (N.T.S. 92 C/15).

## ACCESS

The property can be reached via Duncan, Lake Cowichan and Youbou along Highway 18 and then by the MacMillan Bloedel main haul road along the Nitinat River, or by the B.C. Forest Products main haul road up Nixon Creek and along the Caycuse River. Well maintained logging roads branch off the main haul road and extend to most parts of the property.



### PREVIOUS WORK

This area between the Nitinat and Caycuse Rivers has been examined in the past. Most of the work was done during the 1960's and 1970's, when higher copper and molybdenum prices prevailed.

In 1964 Avallin Mines Ltd. conducted a program of geological mapping (at 1:6000 scale), soil sampling, trenching and drilling on what are now the WABANA I & II, BUZ, ARCHER III, IV & V and TATTERS II mineral claims. Six zones of magnetite - chalcopyrite skarn mineralization were defined. One X-Ray diamond drill hole was drilled on a skarn zone just east of Tenas Creek.

In 1969 Quintana Minerals Corporation carried out regional geological mapping and soil sampling (at a reconnaissance scale) between the Nitinat and Caycuse Rivers which included most of the area covered by the WABANA claim group. The soil samples were tested for copper and molybdenum. The same skarn deposits were examined again plus some other mineral deposits that lie outside the WABANA claim group.

In 1976, Fox Geological Consultants mapped and sampled some of the pits on the skarn zone on the east side of Tenas Creek on the WABANA I mineral claim.

In 1983 G.A. Noel and Associates Incorporated examined this same skarn zone for Alcyone Explorations Ltd. (now Golden Hinde Ventures Ltd.) and confirmed the presence of extensive copper mineralization. The area was mapped at 1:4000 scale and soil sampled. Assays of trench samples showed low gold and silver values associated with copper mineralization.

### PHYSIOGRAPHY & DRAINAGE

The claim group covers mountainous topography of the Vancouver Island Ranges. Elevations range from 40 metres in the Nitinat Valley to up to 979 metres to the south on WABANA III. Most mountain and ridge tops vary from 800 to 900 metres in elevation. The terrain is characterized by steep, rounded slopes that are incised by numerous creeks.

Drainage is provided by four major creeks. The northern and western part of the claim group is drained by the Jasper, Tenas and Granite Creeks into the south flowing Nitinat River. The southern part of the claim group is drained by Wilson and Seven Mile Creeks into the westward flowing Caycuse River.

## REGIONAL GEOLOGY

The region in which the claims are located is underlain by rocks of the Vancouver Group (upper Triassic) and the Bonanza Group (lower Jurassic). The Vancouver Group is made up of mafic volcanics of the Karmutsen Formation which are overlain by the Quatsino Limestone, which is in turn overlain by upper Triassic black argillites of the Parsons Bay Formation. The Bonanza Group in this area is made up of an undifferentiated group of formations that contain argillites, cherts, cherty tuffs, breccias (volcanic and sedimentary), sandstones and basaltic to rhyolitic flows.

This entire sequence has been broadly to tightly folded, with axes generally trending northwest-southeast. These rocks have also undergone extensive faulting. Metamorphism is restricted to the margins of granodiorite dykes originating from the Island Intrusions (middle Jurassic) and along the margins of andesitic Tertiary aged dykes.

## CLAIM GEOLOGY

To date, a limited amount of mapping has been carried out on the WABANA I and BUZ mineral claims. The results of this mapping are shown on Figure 2. The mapping was conducted largely along logging roads. A few off road limestone outcrops were also mapped in. The following formations were mapped:

### **KARMUTSEN FORMATION (UPPER TRIASSIC)**

Karmutsen Formation was found to consist of mostly andesitic to basaltic flows that contain some thin beds of silicious tuff. The flows are usually andesitic and are brown to dark grey to dark greenish grey. In a few places where they have been extensively chloritized, they take on a dark greenish colour. The flows are commonly amygdaloidal. A black chloritic material is the most common amygdaloidal infilling. Sparry calcite amygdals occur less frequently. Quartz amygdals are rare. These flows are aphanitic or feldspar porphyritic. In few instances hornblende phenocrysts occur with or without feldspar phenocrysts. Feldspar occurs usually as prismatic phenocrysts between one and three mm's long. They occur individually or more commonly as irregular clumps (glomeroporphyritic) that sometimes display radiating "starburst porphyry" patterns.

The cherty rocks that were occasionally interbedded with the flows are believed to be some sort of silicious tuff. These beds get up to several metres thick and are usually massive, but sometimes show well developed bedding. These beds are displayed in roadcut outcrops along Granite Creek Main, Tenas Creek Main and Tenas Creek 2. This silicious tuff commonly shows some tiny black chloritized hornblende (?) phenocrysts up to one millimetre in diameter, floating in a light green silicious matrix.

### KARMUTSEN FORMATION (UPPER TRIASSIC) (cont.)

The matrix is sometimes slightly calcareous. Occasionally, tiny feldspar phenocrysts up to one millimetre in diameter and rare quartz phenocrysts up to one millimetre, are visible.

### QUATSINO FORMATION (UPPER TRIASSIC)

Beds of Quatsino Limestone were found to be interbedded with mafic flows of Karmutsen Formation. The limestone is massive, micritic and dark to light bluish grey in colour. These limestone beds vary from one metre up to over 30 metres thick. Some beds on both sides of Tenas Creek display numerous rounded, spherical to globular, dark to medium grey chert nodules up to several millimetres in diameter within the limestone. These may have formed by silica replacing the calcareous remains of some sort of shelled foram.

### PARSONS BAY FORMATION (UPPER TRIASSIC)

Folded argillites of Parsons Bay Formation were found to outcrop in the roadcut along Tenas Creek 3. These argillites are dark grey to black in colour, well bedded, calcareous to non-calcareous and usually rusty stained on weathered surfaces. Casts of Halobia, a late Triassic bivalve, are frequently found on bedding planes.

### BONANZA GROUP (LOWER JURASSIC)

The Bonanza Group displays a variety of lithologies that are characteristic of an island arc type setting. Volcanics are the most frequent. These include the numerous tuff beds observed in the area. The tuff usually displays some black hornblende phenocrysts that are commonly no more than one millimetre in diameter, sometimes up to two millimetres in diameter in a light to medium green to greenish grey silicious to chloritic matrix. Tiny feldspar phenocrysts up to one millimetre are sometimes visible. The tuff lacks bedding, but individual rock clasts up to several centimetres in diameter are sometimes visible. The tuff is hematitic in places, in which case it displays a dark brownish purple to dark purplish grey colour.

Breccias of volcanic or sedimentary origin also frequent the mapped area. They are commonly made up of angular to subrounded clasts between one and 30 millimetres in diameter floating in a dark purplish grey hematitic or black argillaceous matrix. Breccia fragments include those of medium green, hornblende porphyritic, chloritic tuffs, a light to dark grey chert and brown to black, massive to laminated argillite.

### BONANZA GROUP (LOWER JURASSIC) (cont.)

On the west side of Tenas Creek, along Granite Creek 2, a sequence of brown to dark grey to black argillites and cherty laminated siltites are exposed in the roadcut. The argillites are faintly bedded to well laminated, and can be seen in sharp contact with the laminated siltite in places. The cherty laminated siltite consists of interlaminated light to medium green, yellowish tan and dark brown to black laminae. The brown to black laminae frequently occur as lenses and as laminae of limited lateral extent in grab samples. The green and yellow laminae commonly get up to one centimetre thick while the brown to black laminae and lenses are usually several millimetres thick. This cherty siltite is similar to the one described by G.E. Eastwood in "Geology of The Quinsam Lake Area, Vancouver Island", where he noted "thin beds of chert-like siltite and silty argillite" in the base of the Bonanza Group in the vicinity of Campbell River, Vancouver Island.

Near the end of Tenas Creek 2 some light to dark green bedded cherts are encountered in contact with Karmutsen lavas. A few beds of this chert contain peculiar round, black "blotches" that vary from two to six millimetres in diameter.

### GRANODIORITIC DYKES (MIDDLE JURASSIC)

Granodioritic dykes occur less commonly than the andesitic dykes which frequent the area. The granodioritic dykes intrude Karmutsen flows and Quatsino Limestone east of Tenas Creek. They are believed to have originated from the granitic to granodioritic, middle Jurassic Island Intrusions to the north. Because of their high feldspar content, they are found to be frequently altered to soft clay masses in places.

### COMOX FORMATION (LATE CRETACEOUS)

A small stretch of roadcut outcrop consisting of Comox Formation conglomerate was found to occur west of Tenas Creek near the beginning of Granite Creek 2. This conglomerate consisted of mostly rounded to subrounded clasts up to five centimetres in diameter, floating in a mudstone to sandstone matrix. Some of the clasts got up to 15 centimetres in diameter. The clasts are mostly made up of dark grey to dark greenish grey aphanitic basalts. Some of these are hematized. The matrix is also hematitic in places. A few thin beds of sheared up hematitic brownish purple argillite beds in this conglomerate outcrop.

**PORPHYRITIC ANDESITIC DYKES (TERTIARY)**

These dykes were found to occur throughout the mapped area. They intrude most rock types, including the previously mentioned Late Cretaceous Comox conglomerate. They tend to be steeply dipping and trend towards the northwest, north and northeast. These dykes consist of feldspar porphyritic to feldspar hornblende porphyritic andesite that shows feldspar phenocrysts between one and three millimetres in length floating in a dark greenish grey aphanitic matrix.

## STRUCTURAL GEOLOGY

The rocks of the mapped area have undergone extensive faulting, fracturing and folding. Faults and shear zones tend to be steeply dipping, but show no common trends. In the roadcut along Granite Creek 2, west of Tenas Creek, broad warps to tight folds were observed in the Bonanza argillite-cherty siltite sequence. To the east of Tenas Creek the sequence of Karmutsen flows and limestone beds dip steeply to the southeast, while outcrop of Parsons Bay Argillite just to the south on Tenas Creek 3, although tightly folded in places, generally dips to the northwest. This suggests a synclinal structure trending northeast-southwest.

## METAMORPHISM AND SECONDARY MINERALIZATION

The mapped formations show little in the way of metamorphism. Metamorphism is confined to some contact metamorphism of limestone that has been intruded by dykes.

Secondary mineralization consists mainly of thin veins of epidote, quartz and calcite. The epidote veins are common in the andesitic dykes. Hematitic staining occurs less frequently along fractures in the andesitic dykes and in Karmutsen lavas. East of Tenas Creek malachite stained shear zones and thin veins of chalcopryrite and epidote-chalcopryrite are developed in Karmutsen flows. Most occur as isolated individuals that can be traced for no more than a metre, with the exception of a stockwork of epidote-chalcopryrite veins on Tenas Creek 2 that is 2.3 metres wide along the roadcut. In addition to chalcopryrite, traces of bornite occur in these veins. The actinolite-magnetite-chalcopryrite skarn that was shown to occur in previous assessment reports further up slope, above the mapped roads east of Tenas Creek, wasn't encountered in any of the mapped roadcuts. The only skarn like mineralization occurs where an andesitic dyke contacts limestone on Tenas Creek 2. Here, a trace of chalcopryrite occurs in recrystallized limestone, adjacent to the dyke contact. The only other type of secondary mineralization noted consists of pyritized calcite amygdaloidal Karmutsen andesite that occurs over several metres along Granite Creek Main, about 375 metres northeast of the conjunction of Granite Creek Main and Tenas Creek Main. The pyrite occurs as small amygdals and as coarse disseminations within the andesite. A few pyrite cubes up to a few millimetres in diameter are also visible in the andesite.

## DRILLING SUMMARY

Four shallow, angled diamond drill holes were drilled on the WABANA I mineral claim. Drilling was carried out adjacent to the existing roads in the vicinity of streams of sufficient size to supply the water required for drilling. Holes 87-6 and 87-7 were drilled on Tenas Creek 3 towards the northeast at shallow angles to attempt to intersect the magnetite-chalcopyrite skarn mineralization that outcrops just upslope from the drill sites. Lithologies intersected consisted of aphanitic to porphyritic, amygdaloidal Karmutsen flows and porphyritic andesitic dykes that were veined with quartz, calcite, epidote and hematite. No skarn mineralization was encountered since the distances drilled in the two holes were not sufficient to properly test for the skarn mineralization.

Holes 87-8 and 87-9 were drilled on Granite Creek Main into pyritized Karmutsen volcanics. These rocks consist of amygdaloidal andesitic flows and silicious tuffs that were extensively veined with quartz and calcite. To the east on the ARCHER I mineral claim, pyritized felsic volcanics were found to contain anomalous gold values, hence the interest in this pyritized zone of Karmutsen Formation. Drill core from these two holes has not been assayed to date.

## Conclusions and Recommendations

The skarn mineralization outlined in previous assessment reports on the WABANA I and BUZ claims was not exposed in the roads that were mapped. In addition, drilling failed to intersect any skarn mineralization. Therefore, work should now concentrate on evaluating the continuity of the skarn exposed in pits and trenches upslope from the existing road network on the east side of Tenas Creek. The old pits and trenches should be remapped at a scale of 1:5000 or more detailed, and a detailed ground magnetometer survey should be conducted over the area containing the old workings to determine the extent and depth of the magnetite skarn mineralization. Potential drill targets can be considered upon completion of such a survey.

APPENDIX 1: DRILL CORE LOGS

## DIAMOND DRILL GEOLOGICAL LOG

Property: WABANA Claim Group  
Claim: WABANA I (N.T.S. 92C/15)  
Logged By: Peter S. Fischl, B.SC.  
Date Logged: September 10, 1987  
Hole #: DDH - 87-6 Core: EX (22.2mm) Elevation: 360 metres  
Dip (Inclination): 00 Bearing (Azimuth): 084  
Total Length: 31.09 metres (102 ft.)

Note: Drill core from Holes 87-6, 7, 8 and 9 are to be initially stored on site. The drill core is to be eventually stored at the residence of Mr. L.E.Sawyer (President of Nuspar) at 4252 Interurban Road, R.R.# 3 Victoria, B.C.

- 0 - 1.37m: Feldspar, hornblende porphyritic dyke. Feldspars 1 - 3 mm's in length. A few hornblende phenocrysts that are up to 2 mm's in length. Greenish grey aphanitic matrix. A few milky white quartz stringers.
- 1.37 - 2.13m: Hornblende feldspar porphyritic dyke showing numerous hornblende phenocrysts up to 2 mm's with some tiny feldspar phenocrysts in a medium grey matrix.
- 2.13 - 8.38m: Feldspar porphyritic to feldspar hornblende porphyritic dyke rock. Similar to first 1.37m. Numerous calcite stringers. Some calcite stringers show traces of pyrite. Rusty staining along some of these stringers.
- 8.38 - 10.52m: Aphanitic to hornblende porphyritic dyke. Hornblende phenocrysts up to 3 mm's long. Numerous calcite stringers. Several show rusty staining. Hematite along one fracture.
- 10.52 - 14.17m: Hornblende porphyritic to hornblende feldspar porphyritic andesitic dyke rock. Shows some hornblende phenocrysts plus a few feldspar phenocrysts up to 5 mm's long in a dark greenish grey aphanitic matrix. Some white calcite stringers, a few of which show some rusty staining. Some epidote veins. Some hematitic staining along fractures.

- 14.17 - 21.64m: Feldspar-hornblende porphyritic dyke. Consists of feldspar and hornblende phenocrysts from < 1mm to up to 3mm's long, floating in a light to medium grey to greenish grey aphanitic silicious matrix. Some calcite stringers.
- 21.64 - 22.40m: Aphanitic to hornblende porphyritic dyke. Shows hornblende phenocrysts up to 2mm's long in a dark greenish grey aphanitic matrix. Some hematitic staining associated with a quartz stringer.
- 22.40 - 24.61m: Hornblende porphyritic to aphanitic amygdaloidal basalt. Shows hornblende phenocrysts in places. Phenocrysts up to 2 mm's in length, in a dark aphanitic matrix. Contains rounded black amygdals from 1 to 5 mm's in diameter. Amygdaloidal infilling is chloritic. Numerous calcite stringers.
- 24.61 - 25.98m: Feldspar porphyritic dyke. Consists of feldspars 1 to 3 mm's in diameter floating in a medium to dark greenish grey aphanitic matrix. A few calcite and epidote stringers. Feldspar phenocrysts near epidote stringers commonly replaced by yellow-green epidote. A few hornblende phenocrysts up to 3 mm's in length, some of which are rimmed with epidote.
- 25.98 - 26.97m: More of the dark grey basalt showing a few hornblende phenocrysts and some black amygdals. Permeated by a few calcite stringers.
- 26.97 - 29.34m: Dark grey to dark greenish grey amygdaloidal basalt. Shows numerous rounded white calcite amygdals less than 1 mm to up to 5 mm's in diameter. A few black, chloritic amygdals up to 3 mm's in diameter. Numerous calcite and epidote stringers.
- 29.34 - 31.09m: More dark grey basalt showing a few hornblende phenocrysts and some black chloritic amygdals. A few calcite and epidote veins.

## DIAMOND DRILL GEOLOGICAL LOG

Property: WABANA Claim Group  
Claim: WABANA I (N.T.S. 92C/15)  
Logged By: Peter S. Fischl, B.SC.  
Date Logged: September 10, 1987  
Hole #: DDH - 87-7      Core: EX (22.2mm)      Elevation: 360 metres  
Dip (Inclination): 22      Bearing (Azimuth): 073  
Total Length: 49.38 metres (162 ft.)

- 0 - 1.45m: Dark greenish grey basalt showing a few small hornblende and feldspar phenocrysts. Permeated by a few quartz and calcite stringers.
- 1.45 - 4.04m: Dark grey basalt showing black chloritic amygdals up to 4 mm's in diameter with a few hornblende phenocrysts. Quartz and calcite stringers common. Rusty staining along several of these. Also some epidote veins. Some hematitic staining associated with quartz and epidote stringers. Appears to be some hematite and epidote amygdaloidal infillings.
- 4.04 - 8.69m: Some dark grey basalt with a few black chloritic amygdals and some quartz amygdals. Quartz amygdals larger and more numerous than the black amygdals. They commonly get up to 5 mm's in diameter. A few quartz, epidote and calcite stringers.
- 8.69 - 11.13m: Dark grey to dark greenish grey basalt showing numerous black chloritic amygdals commonly at least a few mm's in diameter. Also a few quartz amygdals. A few black chloritic amygdals with quartz cores. Numerous epidote veins and some quartz stringers. Some hematitic staining associated with epidote veins.
- 11.13 - 11.81m: Zone of dark grey basalt with numerous quartz amygdals, some of which have pyritic cores. A few black, chloritic amygdals.
- 11.81 - 13.11m: Dark grey basalt showing some black, chloritic amygdals with a few quartz amygdals. Also a few quartz and epidote stringers.

- 13.11 - 16.15m Dark grey basalt with some quartz amygdals, some of which show pyritic cores, plus a few black, chloritic amygdals. A few calcite and epidote stringers. Some hematitic staining.
- 16.15 - 18.29 Dark grey basalt containing a few black amygdals. Some calcite, quartz and epidote stringers.
- 18.29 - 45.42m Grey feldspar hornblende porphyritic to hornblende porphyritic dyke rock. Feldspar phenocrysts from less than a mm to up to 4 mm's in length. Hornblende phenocrysts from less than a mm to up to 2 mm's in length. Feldspar phenocrysts adjacent to epidote stringers are commonly replaced by epidote, or are just bleached to a milky white colour. Feldspar phenocrysts adjacent to quartz stringers are commonly bleached white. Zone of numerous calcite and quartz stringers between 29.03 and 34.67 metres.
- 45.42 - 45.82m Hornblende porphyritic dyke consisting of black hornblende phenocrysts up to 2 mm's in a dark greenish grey aphanitic matrix. Numerous milky white calcite stringers and a few epidote stringers.
- 45.82 - 49.38 Feldspar hornblende porphyritic dyke consisting of numerous feldspar and hornblende phenocrysts up to 2 mm's in length in a dark grey to dark greenish grey aphanitic matrix. A few calcite stringers.

## DIAMOND DRILL GEOLOGICAL LOG

Property: WABANA Claim Group  
Claim: WABANA I (N.T.S. 92C/15)  
Logged By: Peter S. Fischl, B.SC.  
Date Logged: September 10, 1987  
Hole #: DDH - 87-8 Core: BQ (36.5mm) Elevation: 180m(591')  
Dip (Inclination): 50 Bearing (Azimuth): 073  
Total Length: 15.24 m (50')

- 0 - 0.61m: No core.
- 0.61 - 4.27m: Medium grey to greenish grey amygdaloidal andesite. Amygdals from a mm to up to 1 cm in diameter. Mostly sparry calcite in amygdals. Also some chloritic black amygdals. These tend to be smaller in size. Some amygdals contain calcite cores with chloritic rims. Numerous calcite stringers. Some hematitic staining. Some pyrite in amygdals and fractures.
- 4.27 - 4.88m: Mylonitized (?) zone consisting of rounded to ellipsoidal to lenticular dark greenish grey andesitic and dark purplish red hematitic clasts from a mm up to 2 cm's in diameter in a light grey silicious matrix.
- 4.88 - 5.03m: Partially mylonitized amygdaloidal andesite, showing calcite amygdals from a few mm's to up to 1 cm in diameter.
- 5.03 - 5.33m: Light to medium green cherty tuff with the top cm laminated. Bedding dips 32 to core. Some tiny black mafic phenocrysts up to 1 mm confined to the laminae in the upper 1.5 cm's. Throughout the rest of the chert bed these scattered mafic phenocrysts have been hematized. Also a few small calcite amygdals up to 2 mm's in diameter.
- 5.33 - 9.63m: Dark to medium grey feldspar porphyritic andesite/basalt, showing numerous tiny (up to 0.5 mm), chalky equant feldspar phenocrysts. Permeated by numerous calcite veins commonly up to 5 mm's wide. Upper 0.46 metres partially mylonitized and hematized. A few calcite amygdals in this zone. A few hornblende phenocrysts up to 2 mm's in diameter with the feldspars. Trace of pyrite associated with some hematitic fractures. At 9.53 to 9.63 m's there is a zone of numerous

calcite and chloritic amygdals from 1 to 5 mm's in diameter. The larger amygdals are calcareous and have chloritic rims. One bluish grey quartz amygdal 8 mm's in diameter in this zone. This zone also contains numerous hair-like acicular feldspar phenocrysts up to 1 mm long.

9.63 - 9.75m Feldspar porphyritic, medium to dark grey basalt, as before, with black chloritic amygdals up to several mm's in diameter.

9.75 - 15.24 Basalt as before, without amygdals and with a few hornblende phenocrysts. Some pyrite associated with calcite and quartz veins. Hornblende phenocrysts commonly chloritized. Tiny feldspar phenocrysts decrease towards bottom of hole. Chloritized hornblende phenocrysts become more numerous towards bottom. At end of hole some blebs of pyrite up to 2 mm's in diameter.

## DIAMOND DRILL GEOLOGICAL LOG

Property: WABANA Claim Group  
Claim: WABANA I (N.T.S. 92C/15)  
Logged By: Peter S. Fischl, B.SC.  
Date Logged: September 20, 1987  
Hole #: DDH - 87-9 Core: BQ (36.5mm) Elevation: 180m(591')  
Dip (Inclination): 45 Bearing (Azimuth): 40  
Total Length: 22.94 m (75.25')

- 0 - 0.61m: No core.
- 0.61 - 1.73m: Amygdaloidal basalt/andesite. Shows numerous rounded to irregular milky white sparry calcite amygdals commonly between 2 & 8 mm's in diameter. Also a few black chloritic amygdals up to 3 mm's in diameter. Matrix is aphanitic, medium to dark grey. In places altered to a tan-light brownish colour. A few thin calcite stringers. Some pyrite that is associated with calcite veins and calcite amygdals.
- 1.73 - 2.13m: Intensely pyritized black limestone showing finely disseminated pyrite and some pyrite blebs up to a cm in diameter. This limestone is likely Parsons Bay Formation. Numerous white calcite veins commonly up to 5 mm's in diameter. Upper contact somewhat irregular but dipping approximately 20 to core.
- 2.13 - 2.44m: Alteration zone consisting of calcite amygdals up to a cm in diameter in a creamy white matrix.
- 2.44 - 2.59m: Calcite amygdaloidal dark grey basalt.
- 2.59 - 3.66m: Black, micritic limestone that has been intensely permeated by white calcite veins up to a cm in diameter. Looks brecciated in places.
- 3.66 - 3.89m: Medium grey micritic limestone with a few calcite stringers.

- 3.89 - 4.98 Feldspar porphyritic dark greenish grey basalt. Shows numerous tiny feldspar phenocrysts up to 0.5 mm's in diameter. A few black chloritic amygdals up to a few mm's in diameter. Some medium grey, recrystallized limestone clasts up to 5 mm's in diameter. Some pyrite along the edges of the limestone clasts. Veined with a few calcite stringers. Some hematitic staining.
- 4.98 - 5.21m Basalt containing numerous black, chloritized hornblende phenocrysts in a dark grey aphanitic matrix. Phenocrysts up to 2 mm's in length.
- 5.21 - 12.80m Dark grey basalt showing numerous tiny white feldspar phenocrysts up to 0.5 mm's long, and numerous black chloritic amygdals up to 3 mm's in diameter. Numerous calcite stringers. Some of these contain hematite. A few calcite amygdals formed adjacent to calcite veins. Some of the calcite amygdals have chloritic rims. Trace of pyrite with calcite veins. A few coarse blebs of pyrite up to 0.5 cm's in diameter visible over a few cm's at 12.40m. Also shows numerous small black hornblende phenocrysts in places. Phenocrysts up to a mm in length.
- 12.80 - 13.79m Same basalt as above without the tiny white feldspar phenocrysts.
- 13.79 - 14.02m Medium grey basalt showing just a few hornblende phenocrysts.
- 14.02 - 15.54m Medium grey basalt showing some black chloritic hornblende phenocrysts up to 2 mm's and some small greenish grey feldspar phenocrysts up to a mm in diameter. Also a few black, chloritic amygdals and rare calcite amygdals. Numerous calcite stringers, some of which show hematite.
- 15.54 - 16.15m No core.
- 16.15 - 16.76m Same medium grey basalt showing numerous greenish grey feldspar phenocrysts up to a mm in diameter and less frequent black hornblende phenocrysts up to 2 mm's. Contains a few calcite amygdals up to 4 mm's in diameter.

- 16.76 - 18.29m Medium grey basalt showing numerous white, chalky, tiny feldspar phenocrysts up to 0.5 mm's in length and slightly larger greenish grey feldspars up to a mm in length, with some black hornblende phenocrysts. Extensive calcite veining. These veins get up to 1 cm thick. Some contain hematite.
- 18.29 - 19.81m Light to medium grey basalt/andesite, showing numerous black, chloritic amygdals and scattered, tiny, white, chalky feldspar phenocrysts up to 0.5 mm's long. A few calcite stringers. In places the basalt is altered to a light purplish grey colour, causing black amygdals to stand out. A few calcite amygdals.
- 19.81 - 22.94m Light grey basalt/andesite containing numerous small chloritic amygdals up to 2 mm's in diameter. Also a few calcite amygdals. Some calcite stringers. Also some greenish grey, translucent, prismatic feldspar phenocrysts that occur as individuals commonly 1 mm in diameter and 3 mm's long or as clumps up to 6 mm's in diameter, frequently in radiating "starburst" clusters (glomeroporphyritic). A few scattered hornblend phenocrysts up to 3 mm's long.

References

G.A. Noel & Associates Incorporated  
Assessment Report 11196., 1983.

Malcolm, D.C.  
Assessment Report 642.  
Avallin Mines Ltd., 1964.

Malcolm, D.C.  
Assessment Report 2163.  
Quintana Minerals Corp., 1969.

Massey, N.W.D. & Friday, S.J.  
Geology of the Cowichan Lake Area, Vancouver Island (92 C/16).  
B.C. Ministry of Energy, Mines and Petroleum Resources, in  
Geological Field Work 1986, Paper 1987-1, Pages 223-229,  
1987.

Muller, J.E.  
Geology of the Nitinat Lake Map Area, B.C.  
Geological Survey of Canada, Open File 821, 1982.

Sutherland Brown, A., Yorath, C.J.; Anderson R.G. & Dom, K.  
Geological Maps of Southern Vancouver Island, Lithoprobe 1.  
Geological Survey of Canada, Open File 1272, 1986.

## STATEMENT OF QUALIFICATIONS

I, Peter S. Fischl, do hereby certify that:

1. I am a graduate of the University of British Columbia (1986), with a Bachelor of Science Degree in Geological Sciences.
2. I am a member in good standing of the Geological Association of Canada (Cordilleran Section), the Canadian Society of Petroleum Geologists (Coal Division) and the American Association of Petroleum Geologists.
3. I have held several summer field positions in the past. From June 1 to August 31, 1984, I was employed as a mapping assistant with the exploration department of Westmin Resources Ltd. From July 2 to September 6, 1985, was employed by the Geological Branch of the British Columbia Ministry of Energy, Mines & Petroleum Resources as a geological field assistant.
4. I have been employed as a geologist with Nuspar Resources Ltd. since February, 1987.

Peter Fischl

Peter S. Fischl, B.Sc.

## COST STATEMENT

## Geological Surveying:

Geological Mapping: 11 Days @ \$200/day	= \$	2,200.00
Supply Costs (Field Conditions)		
: 11 Days @ \$45/day	=	495.00
Transportation (4x4 Pick-up Truck)		
: 11 Days @ \$40/day	=	440.00
		<hr/>
		3,135.00
		<hr/>

## Drilling:

Drilling (EX Size): 264.0' @ \$18/ft	=	4,752.00
Drilling (BQ Size): 125.25' @ \$24/ft	=	3,006.00
Core Logging	=	300.00
Core Storage Facility (Area: 200 sq.ft.)		
200 sq. ft. @ \$18/sq. ft.	=	3,600.00
		<hr/>
		11,658.00
		<hr/>
		\$ 14,793.00

=====

Total Geological Surveying & Drilling	= \$	14,793.00
PAC Withdrawal	=	4,142.00
		<hr/>
		\$ 18,935.00

=====

\$18,600 is to be applied to the Wabana Claim Group (93 units) for two years.



Province of British Columbia  
 Ministry of Energy, Mines and Petroleum Resources  
 MINERAL RESOURCES BRANCH-TITLES DIVISION

GOLD COMMISSIONER  
 RECEIVED and RECORDED  
 OCT - 2 1987  
 M.R. #095331J '980.  
 VICTORIA, B.C.

MINERAL ACT

FORM 1

NOTICE TO GROUP

Mining Division VICTORIA Location COWICHAN LAKE

Name of group WABANA GROUP Map No. 92C088 (92C/15)  
 We, the undersigned owners\* of the following adjoining claims, desire to group them according to the provisions of the Mineral Act:-

NAME OF CLAIM	No. of Units	Record No.	Month of Record	SIGNATURE OF OWNER*	Free Miner Certificate No.
* BUZ	10	1879	04/87	L. E. Sawyer	279492
WABANA 1	20	1761	10/86	L. E. Sawyer	279492
WABANA 2	20	1762	10/86	L. E. Sawyer	279492
WABANA 3	20	1818	01/87	L. E. Sawyer	"
TATTERS 1	20	1816	01/87	L. E. Sawyer	"
* ARCHER 3	1	1881	04/87	L. E. Sawyer	"
* ARCHER 4	1	1882	04/87	L. E. Sawyer	"
* ARCHER 5	1	1883	04/87	L. E. Sawyer	"

\* CLAIM RECENTLY TRANSFERED TO NUSPAR FROM L. E. SAWYER (FMC: 2794)



