# Geological and Diamond Drilling Assessment Report 

Copper 102 Mineral Claim

Alberni Mining Division

NTS 92 F-2W

Latitude $49^{\circ} 08^{\prime} \mathrm{N} \quad$ Longitude $124^{\circ} 52^{\prime} \mathrm{W}$

Owner: SYMC Resources Ltd.
Operator: SYMC Resources Ltd.

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Highway 4
Highway 4


SYMC RESOURCES LTD.
INDEX MAP
MACKTUSH PROPERTY NTS 92F/2 J. WILSON


## Introduction

The Copper 102 mineral claim is part of the Macktush property and is located immediatly west of Alberni Inlet, ten kilometres south of Port Alberni, B. C. (figure 1).

All of the claims are accessible by extensive logging roads used by MacMillan Bloedel Limited.

Elevations range from sea level at Alberni Inlet to 960 metres above sea level in the southwestern part of the claims block. The slopes are moderate to steep with ridgetops sometimes being fairly gentle. Several swamps and small lakes occur at drainage divides in the Copper 50 claim. The region is steeply incised by several prominent creeks draining easterly to Alberni Inlet.

Late Triassic Karmutsen Formation intermediate to basic volcanics and Middle Jurassic Island Intrusion granodiorites and other dioritic rocks underlie the claims (Muller, 1977).

The property consists of 159 units represented by ten Modified Grid mineral claims in the Alberni Mining Division. Claims outlines are shown on figure 2.

No claim posts or claim lines were examined by the writer.
Claims details at the time of work were:

| Claim Name | Record Number | No. of Units |
| :---: | :---: | :---: |
| COPPER 50 | 2474 | 10 |
| COPPER 100 | 1909 | 12 |
| COPPER 101 | 1910 | 9 |
| COPPER 102 | 1911 | 16 |
| COPPER 103 | 1912 | 12 |
| COPPER 104 | 1913 | 20 |
| COPPER 105 | 1914 | 20 |
| COPPER 300 | 2169 | 20 |
| COPPER 400 | 2170 | 20 |
| COPPER 500 | 2244 | 20 |

The oldest known geological work on the property is evidenced by a few very old shallow adits which have been enlarged during the current ownership.

The property has also been explored recently by a number of diamond drill holes, numerous trenches (both mechanical and by hand, some blasted), chip sampling and prospecting.

Other recent work includes metallurgical testing, investigations of possible tailings impoundment areas and studies of potential mining methods.

The current owner and operator is SYMC Resources Ltd.

John R. Wilson, F.G.A.C.<br>Consulting Geologist

The property contains a number of gold bearing quartz veins carrying silver and copper values, porphyry copper and molybdenum showings and an iron-copper skarn. One of the gold-quartz veins is the subject of this report.

Good assays have been found in the quartz vein by surface sampling and diamond drilling. That, plus the width, depth and strike length of the vein as described in this report indicates the property to be of economic merit.

Work on the Copper 102 mineral claim described herein consisted of:
(a) surveying the locations of diamond drill hole collars, adit portals, surface sample sites and adjacent roads within an area of 33600 square metres. The resultant map (figure $4)$ is at a scale of $1: 1000$. Figure 3 illustrates the work area with respect to the boundary of Copper 102 mineral claim.
(b) geological logging of core from three NQ diamond drill holes that had been drilled in 1987 totalling 279.5 metres.

## Survey of Work Sites

Surveyors from Sims Associates, B.C.L.S. of Qualicum Beach, Mr. H. McMaster, president of SYMC Resources Ltd. and the writer made a survey of diamond drill hole collars, adit portals, trenches, the drill skid road and part of MacMillan Bloedel logging road M-160. A theodolite was used to survey the points. Fieldwork took place on Jan. 24,1990 . Some sites were under snow at the time and could not be seen but they had been marked with ribbon and were verified by Mr. McMaster.

Sims Associates, B.C.L.S. then constructed a map of the survey points and, utilizing information from an earlier survey of theirs, included the intersection of the nearest mineral claim unit boundaries (the junction of units $3,4,13$, and 14 of Copper 102 claim).

Based on the Sims survey, a 1:500 scale map was produced to show drill collars, portals, trenches, the drill skid road and parts of MacMillan Bloedel logging roads. The junction of units $3,4,13$, and 14 was included to demonstrate the relationship of the work area to the claim boundary.

Figure 4 is a $1: 1000$ scale version of the map that also shows quartz veining located in trenches, adits and drill holes. Figure 4 indicates that a single quartz vein strikes eastnortheasterly with a steep dip to the south. The strike length is at least 130 metres .

Samples from the trenches and adits were collected between 1983 and 1987. The following sample details were provided by SYMC Resources Ltd. Site numbers refer to those plotted on figure 4.

John R. Wilson, F.G.A.C. Consulting Geologist

| Site <br> No. | Notes | Assay <br> Tag No. | Width <br> (metres) | Gold <br> (oz/ton) | Silver <br> (oz/ton) | Copper <br> $(\%)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | vein | 101 | 0.91 | 0.303 | 0.12 | 0.01 |
|  | wallrock | 102 | 0.46 | 0.173 | 0.71 | 0.05 |
| 2 | vein | 50 | 2.13 | 0.303 | 0.01 | 0.01 |
| 3 | vein | 104 | 3.66 | 0.416 | 2.21 | 0.78 |
| 4 | vein | 1003 | 0.76 | 0.218 | 1.43 | 1.34 |
| 5 | vein | 1 | 4.88 | 0.952 | 0.34 | 0.60 |

Four diamond drill holes shown on figure 4 tested the quartz vein and were drilled at $-45^{\circ}$ with bearings of $\mathrm{N} 030^{\circ} \mathrm{W}$. The following section describes the drill results of three holes (87-01, 87-03 and 87-08). Logging and sampling of DDH 88-05 was undertaken by N.C. Carter, Ph.D., P.Eng. and is the subject of a separate report (Carter, 1990).

## Diamond Drill Core Logging

Core from three diamond drill holes on the Copper 102 mineral claim (holes numbered 87-01, 87-03 and 87-08) had been split and assayed in 1987 under the supervision of Frank C. Loring, P.Eng., Consulting Engineer. Complete logging of the core was undertaken in 1990 by the writer and is reported herein.

The three holes described above were drilled to depths of 132.6, 41.1 and105.8 metres respectively. Their purpose was to test a quartz vein. All holes were inclined at $45^{\circ}$ at a bearing of $\mathrm{N} 030^{\circ} \mathrm{W}$. The quartz vein was intersected at vertical depths of up to approximately 40 metres below surface.

The core, NQ in size, is now stored at the Port Alberni premises of SYMC Resources Ltd.

Locations of drill holes are shown on figure 4. Drill logs are included as Appendix I.
Core in the three holes consists of mainly quartz diorite with lesser andesitic volcanic inclusions in places.

Quartz diorite is medium grained and usually has a fresh appearance with white feldspar, pale grey quartz and black mafics. Sections of quartz diorite that carry andesitic volcanic inclusions have a mottled, chloritic green-grey character. Occasional thin, claycarbonate altered zones occur close to the sampled quartz veining. Sheared core with gouge is found in Holes 87-01 and 87-08.

Each hole contains split sections of core containing quartz veining, usually with fragments of silicified andesitic volcanic and minor quartz diorite. Veining is grey and white, multistaged, banded and brecciated with some open spaces. Split sections normally have $2 \%$ disseminated pyrite but sometimes have $5 \%$. Minor disseminated chalcopyrite and malachite occur in some split sections. Thinner quartz veining to several centimetres, unassociated with brecciated country rock, occurs unsplit in Holes 87-01 and 87-08.

Confident determinations of previously split core intervals was difficult when footage marker blocks were absent. Fortunately the supervisor of sampling in 1987, Frank Loring, P.Eng., provided a statement describing the split intervals (Appendix II). This was used in conjunction with the writer's logging to improve the accuracy of the drill logs.

A summary of quartz vein intersections determined by the writer and assays provided by SYMC Resources Ltd. follows.

| Hole <br> No | Sample <br> Tag No. | Interval <br> $($ metres $)$ | Length <br> $(\mathrm{m})$ | Gold <br> $(\mathrm{oz} / \mathrm{t})$ | Silver <br> $(\mathrm{oz} / \mathrm{t})$ | Copper <br> $(\%)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| $87-01$ | P 0512 | $109.58-110.72$ | 1.14 | 0.174 | 0.06 | 0.03 |
| $87-03$ | E 60357 | $33.50-34.29$ | 0.79 | 0.112 | 0.48 | 0.80 |
|  | E 60358 | $36.58-40.39$ | 3.81 | 1.290 | 5.04 | 0.95 |
| $87-08$ | E 60354 | $71.63-72.88$ | 1.25 | 0.290 | 0.05 | 0.03 |

## Conclusions and Recommendations

Core from Holes 87-01, 87-03 and 87-08 contain the same dominant rock type: quartz diorite with inclusions of andesitic volcanic in variable proportions. Quartz veining occurs in a silicified country rock mixture of quartz diorite and andesite. Veining is multistaged, banded and open in places. Pyrite and occasional chalcopyrite or malachite is disseminated in the split sections. Additional sampling and assaying should be undertaken on the existing core.

A gold-bearing quartz vein located in trenches, diamond drill holes and short adits has a significant length, width and depth. The gold values reported from the sampling to date are good and further work is necessary to develop the vein's potential. Exploratory work is also needed throughout the remainder of the property.
Statement of Expenditures (by SYMC Resources Ltd.)
Survey of Drill Collars. Trenches and Portals
Sims Associates: Surveying. Jan. 24, 1990 andproducing subsequent survey point map\$1817.52
John Wilson: Surveying at $\$ 230$ per day, Jan. 24, 1990 ..... $\$ 230.00$
Transportation to/from Port Alberni, Jan. 24, 1990 ..... \$31.68
Map assembly, drafting. ..... $\$ 480.00$
Herb McMaster: Surveying at \$150.00 per day, Jan. 24, 1990 ..... $\$ 150.00$
4X4 truck charges, Jan. 24,1990. Daily rate. ..... $\$ 75.00$
Moving and Sorting Core Boxes
J. Wilson: one day at $\$ 230$ per day Dec. 12, 1990 ..... $\$ 230.00$
Transportation to/from Port Alberni, Dec. 12, 1990 ..... $\$ 41.40$
Herb McMaster: one day at $\$ 150.00$ per day, Dec. 12,1990 ..... $\$ 150.00$
4X4 truck charges, Dec. 12,1990. Daily rate. ..... $\$ 75.00$
Core Logging
J. Wilson: one day at $\$ 230.00$ per day Dec. 14, 1990 ..... $\$ 230.00$
Transportation to/from Port Alberni, Dec. 14, 1990 ..... $\$ 41.40$
Typing drill logs ..... $\$ 90.00$
Writing Assessment Report, Drafting Maps
J. Wilson: two days at $\$ 250.00$ per day ..... $\$ 500.00$
Typing, Photocopying and Binding Report: ..... $\$ 58.00$
TOTAL EXPENSES: ..... $\$ 4200.00$

## Statement of Qualifications

I, John Wilson, of Merville, British Columbia hereby certify that:

1. I am a graduate of the University of British Columbia with a BSc.(honours geology),1972.
2. I am a Fellow of the Geological Association of Canada.
3. I have worked as a professional mineral exploration geologist in B.C. and eastern North America every year since 1972.

## References



Carter, N.C. (1990): Geological Report on the Macktush Property - private report for SYMC Resources Ltd.

Muller, J. E. (1977): Geology of Vancouver Island, Geological Survey of Canada Open File Report \# 463.

## Appendix I

## SYMC Resources

## Diamond Drill Record



$\qquad$

| from <br> (metres) to | description | sample from to | sample no. | Au | Ag | Cu |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |


|  | The true interval of the split section is believed to be 109.58- <br> 110.72 metres as indicated by Frank Loring, P. Eng. (Appendix <br> II). The variance is likely due to missing markers, shifting core <br> within the tray and minor lost core. <br> QUARTZ DIORITE with ANDESITIC VOLCANIC <br> INCLUSIONS. Fairly fresh appearance. Minor quartz-calcite <br> veinlets. |  |  |
| :--- | :--- | :--- | :--- |
| End of Hole | Note: Core boxes were weather beaten from being stored in the <br> field. Some boxes had been tipped over while in storage and the <br> contents jumbled. A brief examination of the pile of loose core <br> revealed only quartz diorite with occasional inclusions of andesitic <br> volcanic; no significant veining, alteration or mineralization was <br> apparant. All boxes were found to be labelled with hole number <br> and footages. Of the 24 boxes that comprise hole \#87-1, core was <br> found and logged in boxes numbered 2 and 13 to 24. Logging <br> indicated core recovery to be 100\%. |  |  |

$\qquad$


| from <br> (metres) to | description | sample from to | sample no. | Au | Ag | Cu |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 34.29-36.58 <br> 36.58-40.39 <br> 40.39-41.06 <br> End of Hole | Loring (Appendix II) reports the sampling interval here to be from 33.53 to 34.29 metres. The variance could have been induced during conversion from feet to metres and from rounding-off discrepancies during measurement. <br> QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS. <br> Split section. 40\% QUARTZ VEINS and 60\% ANDESITIC VOLCANIC with minor QUARTZ DIORITE. Quartz veining occurs throughout the section but a one metre wide quartz-vein rich zone is in the middle of the interval. Quartz veining is white and grey, often banded and carries minor disseminated pyrite as 2 mm crystals. Some veins contain open spaces filled with quartz crystals. Veining cuts very rusty, iron stained, greenish andesite and some quartz diorite. The country rock contains traces of disseminated pyrite varying up to $5 \%$ across 15 cm in places. Occasional quartz stockworks cross the andesite and quartz diorite. <br> Note: Approximately $25 \%$ of the split core section (quartered?) remains in the tray and occupies the first 3.81 metres of core box space. It is followed by 67 cm of solid core which marks the end of the hole. Loring (Appendix II) reports the sampling interval here to be from 37.19 to 41.00 metres, a length of 3.81 metres, which is equivalent to the sample width the writer measured. <br> QUARTZ DIORITE. Medium grained; white with black mafics. Weak to strongly iron stained / weathered. <br> Note; Core boxes were weather beaten from being stored in the field but all boxes had readable labels indicating hole number and footage. Minor core was missing from the boxes, apparantly due to tipping over while in storage. All seven boxes that comprise hole \#87-3 were logged. Core recovery appeared to be $95-100 \%$, normally the latter. |  |  |  |  |  |



| from <br> (metres) | description | sample from to | $\begin{aligned} & \text { sample } \\ & \text { no. } \end{aligned}$ | Au | Ag | Cu |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |


| 64.31-71.63 | 41.76 m : 5 mm white quartz vein at $20^{\circ}$ to CA. <br> $43.89 \mathrm{~m}: 3 \mathrm{~cm}$ banded quartz vein with trace pyrite in grey quartz at $40^{\circ}$ to CA . <br> 51.82 m : shearing and quartz-calcite veinlets at $15^{\circ}$ to CA . <br> QUARTZ DIORITE and some ANDESITIC VOLCANIC INCLUSIONS. Medium-grained quartz diorite as above, but much less veined and altered. Minor $0.5-1 \mathrm{~cm}$ quartz-calcite veining. Minor epidote veinlets in lower 2 m . <br> Split Section. QUARTZ VEIN. Multi-stage, banded and brecciated. Some open spaces and quartz crystals. Some buff coloured, iron stained patches. Total sulphides (pyrite and trace chalcopyrite) is 3-5\%. <br> Notes: <br> The split section is in core box \#13 which, unlike adjacent boxes, contains no footage marker blocks or inscriptions describing footage, hole number or box number. <br> The designation of this box as number 13 of hole $87-8$ is based on: 1. the statement of Herb McMaster, president of SYMC Resources Ltd., identifying it as such. <br> 2. the geological continuity of drill core between box \#13 and adjacent boxes <br> 3. the position of the observed split section which approximates the interval recorded by Frank Loring, P.Eng. (Appendix II). <br> Accurate measurements of core intervals in box \#13 are hindered by missing footage markers, some missing core and the broken, apparantly quartered nature of the split section. |  | ? |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |

$\qquad$ Page_2

| from (metres) | description | sample from to | sample no. | Au | Ag | Cu |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |



Hole no.

| from <br> (metres)$\quad$ to | description | sample from to | sample no. | Au | Ag | Cu |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 76.66-78.03 | QUARTZ DIORITE. Mostly broken with shearing and quartzcalcite veinlets throughout. Top few cm are more strongly sheared and contain some gouge. |  |  |  |  |  |
| 78.03-78.33 | ANDESITIC VOLCANIC INCLUSION. No significant veining, alteration or mineralization. |  |  |  |  |  |
| 78.33-79.86 | QUARTZ DIORITE. Medium grained, well fractured and broken. |  |  |  |  |  |
| 79.86-85.65 | ANDESITIC VOLCANIC INCLUSIONS in QUARTZ DIORITE. Grey-green colour. Quartz-calcite veinlets are fairly common. |  |  |  |  |  |
| 85.65-87.17 | QUARTZ DIORITE. Minor ANDESITIC VOLCANIC INCLUSIONS. Intense quartz-calcite veinlets. Core often broken. |  |  |  |  |  |
| 87.17-105.77 | QUARTZ DIORITE. Minor ANDESITIC VOLCANIC <br> INCLUSIONS. <br> Fairly fresh-looking quartz diorite. Solid core. Rare quartz-calcite veinlets. |  |  |  |  |  |
|  | $87.48 \mathrm{~m}: 3 \mathrm{~mm}$ hematite-quartz veinlet at $35^{\circ}$ to CA. <br> 95.86 m : iron stained fracture <br> 97.23-97.84 m: intense, buff coloured, bleached (?), claycarbonate alteration. Minor 1 cm buff stained quartz veins. <br> 104.85 m : two 1 cm banded white-grey quartz veins at $0^{\circ}$ to $35^{\circ}$ to CA. No visible mineralization. |  |  |  |  |  |
| End of Hole |  |  |  |  |  |  |


| from (metres) | description | sample from to | sample no. | Au | Ag | Cu |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |


|  | Note: Core boxes were weather beaten from being stored in the <br> field. Some had been tipped over in the past and minor core lost. <br> All boxes were found to be labelled with sometimes barely visible <br> markings of hole number and footage except box \#13 which had <br> no readable markings (see previous "Note"). All 19 of the boxes <br> that comprise hole 87-8 were logged. Some minor gaps in the core <br> are presumed due to loss while in storage. Reduced core recovery <br> attributable to drilling is $85 \%$ at 31.09 to 34.14 m and $90 \%$ at 76.2 <br> to 79.86 m . Core recovery elsewhere appears to be $100 \%$. |  |  |  |
| :--- | :--- | :--- | :--- | :--- |

$\qquad$ $87-8$

## Appendix II

> Frant Gatorimay F.Eng. Gonsultamangineer
> R.B. 2 m Madion Eeatio E.E. VOR $2 T G$
> May E, 299

Syme hesources Lto.
SOQ king=uey fuE.
Fort Alberniy E. C.

Attention: Ma, Herb Momaster

Fe:
 clarification of core sampaes frm your property befen by myseif in 16 GF .

DDH $87-1$
 mixed qta . Gemple Fogiz.


DDH 67-5
Fiotege tio to itaus Mixad mtan Pust, Sanple Eos57

 G358.

DDH 67-E


F口otage z马e to gob. F Qt. Bome pyrite.
 6054

These samples were baken in Eeptembery Otomer, and November,
 working with me boder my supervision.
$\triangle$ trust thet this is the informetion thes yourequire.


Diamond Drill Hole


SYMC RESOURCES LTD.

Positions of claim unit locations, portals, trenches, drill hole collars and skid road was by theodolite.

## DRILL SITES, PORTALS and TRENCHES

MACKTUSH PROPERTY NTS 92F/2W J. WILSON

NOV. 1991 FIGURE 4


