

*Mineral*

TENQUILLE

Owners:

- Tenquille Mineral Claim numbers 1 - 32 incl.,
- Tenquille Mineral Claim numbers 41 - 48 incl.,
- Tenquille Mineral Claim numbers 50 - 59 incl.,
- Tenquille Mineral Claim numbers 60 - 66 incl., (fractional)
- Tenquille Mineral claim numbers 67 - 70 incl.,
- Tenquille Mineral claim numbers 80 - 91 incl.,
- Tenquille Mineral claim numbers 92 - 93 incl., (fractional)

PHELPS DODGE CORPORATION  
of CANADA, LIMITED,

92J/10W

Location:

Tenquille Lake - Latitude 50° and Longitude 122° N.W.,  
Lillooet Mining Division

Author:

D.C. Malcolm, B.A. Sc., P. Eng. No. 2568

Dates of Work:

July 1st to September 15th, 1961

Vancouver, B.C.  
September 22nd, 1961

00365

365

TENQUILLE

Project No. 34

Geological Report

by:

D.C. Malcolm, B.A. Sc., P. Eng. No. 2568

Vancouver, B.C.

September 20th, 1961.

T E N Q U I L L E

Project No. 34

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<p>Department of Mines and Petroleum Resources ASSESSMENT REPORT</p> <p>NO. <u>365</u> MAP _____</p>
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of CANADA, LIMITED.

Location:

Tenquille Lake - Latitude 50° and Longitude 122° N.W.,

Lillooet Mining Division

Author:

D.C. Malcolm, B.A. Sc., P. Eng. No. 2568

Dates of Work:

July 1st to September 15th, 1961.

T E N Q U I L L ESummary:

Geologists of the Phelps Dodge Corporation of Canada, Limited, mapped the Tenquille claims in the summer of 1961. Numerous sulphide replacements in limestones, skarn zones, quartzites contain gold, silver, lead, zinc, copper and iron minerals. Siliceous replacements occur in sheared dikes of quartz feldspar porphyry. Detailed geological mapping was done to determine the structural controls, habits of the sulphides, and their distribution.

Location:

The Tenquille claims are staked north and south of Tenquille Lake and creek at Latitude  $50^{\circ} 32'$  - Longitude  $122^{\circ} 55'$ . Tenquille Creek is at an elevation of 5,300 feet and lies 87 miles north of Vancouver or 15 miles north of Pemberton on the Pacific Great Eastern Railway.

Geology:(a) Topography

The claim area is of moderate relief with open heather covered fairly steep creek bottoms separated by precipitous ridges. Timber is scarce over most of the claims but heavy timber and brush extend to Tenquille Lake along the slopes of Tenquille Creek on claims 27 to 30 and 7 to 10 inclusive.

The Lillooet Valley lies to the south of the claim area and some Tenquille claims extend over the height of land at elevations of 7,000 feet to the steep slope into the Lillooet valley.

(b) General Geology

References:

1. Geological Survey of Canada, Summary Report 1924, Part "A"- Pages "76A" to "99A" by C.E. Cairnes.
2. Minister of Mines Report 1923 pages 166 to 168.

A series of faulted and folded Upper Triassic volcanics and sediments occupy northwest trending belts separated by Coast Range Jura-Cretaceous granodiorite intrusives, by Cretaceous monzonite intrusives and by numerous dikes and plugs of quartz feldspar porphyry. The Upper Triassic rocks are in part an explosive volcanic series of flows, agglomerates and tuffs interbedded with a sedimentary series of fine pebble conglomerate, quartzite, limestone, dolomite and cherts. The sedimentation has been interrupted repeatedly by the volcanism and the upper part of the series is overlain by massive andesite flow rocks.

(c) Rock Types

1. Conglomerates Several 10 to 20 foot beds of this rock were found to the west of Tenquille Lake west of the claim area and on No. 5 claim. They were interbedded with white quartzite bands and cherts and were composed of a series of rounded chert pebbles from  $\frac{1}{4}$  to 1 inch in diameter cemented



area massive flows of andesite occur overlying the beds of cherty tuffs and agglomerates. They are dense, dark green coloured rocks. On the northeastern claims extensive areas of chlorite schist occur and are believed to be derived from thick andesite flows.

7. Quartz Feldspar Porphyry

An equigranular light coloured rock composed of quartz and feldspar intergrowth with minor biotite and phenocrysts of rounded quartz and feldspar. This rock occurs in dikes up to several hundred feet in width generally with a northwest strike and as numerous dike swarms of small intrusions. East of Tenquille Lake a dark coloured intrusive shows quartz and feldspar phenocrysts in a dark coloured siliceous groundmass. It appears to be an isolated plug.

8. Quartz diorite and Granodiorite

These intrusions occur west of the claims in the Lillooet Valley and north of the claims. They are typical Coast Range intrusions and occur as wide dikes or sills elongated in a northwest direction and separated by metamorphosed and sheared sediments and volcanics.

(d) Alteration

The most common alteration in the cherty tuff and limestones is in the formation of a skarn rock with grey and brown banded hornfels and brown garnet. Dolomitization and silicification are present but irregular in distribution in the skarn zones.

On the northeastern claims quartz feldspar porphyry dikes have been extensively sheared, sericitized and



the volcanics adjoining the dikes show a complete change to chlorite schist.

(e) Mineralization

Sulphide mineralization is widespread over the claim area and while individual deposits are varied due to local structural controls, zoning and rock types, all the sulphides are high temperature replacement deposits with erratic gold and silver values. The following occurrences were mapped:

On claim No. 54, interbedded limestones and cherty tuffaceous rocks are altered to skarn zones and contain irregular replacements of magnetite, chalcopyrite with minor sphalerite and gold and silver.

On Claim No. 1, a skarn zone of limestone, quartzite and cherts contain massive pyrrhotite with sphalerite and minor galena, chalcopyrite and magnetite. Erratic gold values occur in the sulphides. Similar deposits occur on claims 57, 67, and 69 and in numerous small skarn zones marked on the map in the attached pocket.

On Claim No. 6, a 4 foot lamprophyre dike intrudes massive andesitic flows and a narrow quartz vein along one wall contains galena, sphalerite and chalcopyrite.

On Claim numbers 23, 24, 25 and 26, narrow persistent fissures contain stringers of manganese stained quartz with galena and sphalerite and gold values.

To the northeast of Tenquille Lake on Claim No. 83, a wide quartz feldspar porphyry dike intrudes

andesite flows and both the flows and intrusive is extensively sheared to chlorite schist and quartz sericite schist respectively. Along the contact of the dike galena, sphalerite and chalcopyrite occur in lenses in the sheared volcanics and in the dike pyrite, chalcopyrite and magnetite occur in intensely silicified replacement zones. A similar siliceous replacement occurs on Claim No. 88.

Disseminated galena, sphalerite and pyrite occur in sheared volcanic rocks on the east side of Claim No. 85.

(f) Faulting

A study of air photographs has shown numerous linears on the claim area and some of these, when checked on the ground have shown extensive faulting while others are in overburden covered draws. These linears have been marked on the enclosed maps as faults. One regular series of faults strikes north or a few degrees either east or west of north and dip from 60 to 80° to the west. The rocks on the east sides of these faults have been moved north and downwards.

A second group of faults or shear zones strikes east or a few degrees north or south of east and dip from 60 to 85° to the north or vertically. These faults are interrupted by the north striking faults and apparently have had little or no movement along them.

Faults with strikes of north 45° west parallel with the trend of the sediments and faults with strikes of north 45° east parallel with the axes of folds

and may represent adjustments in the sedimentary beds.

(g) Folding

The claim area lies on the east limb of an open anticline whose axis lies east of the claims. The beds have an average strike of north  $48^{\circ}$  west and a dip of  $55^{\circ}$  northeast.

Superimposed on this fold are a series of sharp, almost isoclinal folds and drag folds with axes striking north and plunging from  $5$  to  $10^{\circ}$  to the north.

5. Summary of Geology:

An explosive volcanic series of tuffs and agglomerates is interbedded with a series of cherts, limestones, quartzite and conglomerate and overlain by massive flows of andesite. The beds strike north  $48^{\circ}$  west and dip  $55^{\circ}$  northeast and lie on the east limb of an anticline. These rocks have been sharply folded into a series of anticlines and synclines with axes striking and plunging north. The rocks have been broken across their strike and dip by a series of large faults and shear zones and intruded by quartz diorite and quartz feldspar porphyry dikes emplaced along the north and east striking faults and shears. These intrusions were followed by further movement of the faults and by extensive high temperature sulphide replacements in the sheared, contorted rocks.

Some sedimentary sections were measured and the tuffaceous sediments were mapped separately from the remaining sediments but the structures were found so complex in detail that with sharp topographic changes, it was found

8.

impossible to map the individual beds on a plan. The enclosed plan does not separate beds other than the andesitic flows and a thick chert member which underlies the flows.

Report by:

D.C. Malcolm

D.C. Malcolm, B.A. Sc., P. Eng. No. 2568

Vancouver, B.C.  
September 22nd, 1961.

Expenditure - Project No. 34 - TenquilleWages:

Project Geologist	- D. C. Malcolm	July 1 to Sept.15/61	\$ 2,200.00
Assistant	- W. Meyer	July 1 to Sept.13/61	1,070.66
Assistant	- R. Malcolm	July 1 to Sept.12/61	858.00
Assistant	- W. Shuttleworth	July 1 to Sept.13/61	931.45
Assistant	- R. Glazier	July 1 to Sept.12/61	726.00
Assistant	- W. Frederick	July 30 to Sept.15/61	602.34

Supervision and Field Work - D. C. Malcolm  
 B.A. Sc.  
 P.Eng. 2568

<u>Camps and Cookery</u> . . . . .	817.91
<u>Transportation and Trucking</u> . . . . .	1,259.81
<u>General Field Expense</u> . . . . .	39.23
<b>TOTAL</b> . . . . .	<b>\$ 8,505.40</b>

*Verna M. Scott*  
Accountant

Claims:      TENQUILLE LAKE

Tenquille Lake - Latitude 50° Longitude 122° N.W.  
 - Lillooet Mining Division

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Owner:                      PHELPS DODGE CORPORATION  
                                          of CANADA, LIMITED,

	<u>Mineral Claim No.</u>	<u>Record No.</u>
Tenquille	1 to 32 inclusive	86666 to 86697 inclusive
Tenquille	41 to 48 inclusive	86698 to 86705 inclusive
Tenquille	50 to 59 inclusive	86706 to 86715 inclusive
Tenquille	60 to 66 " (fractional) Staked September 7th, 1961 and recorded September 19th, 1961.	<u>Tag No.</u> 409160 to 409166 inclusive -
Tenquille	<u>Mineral Claim No.</u> 67 to 70 inclusive Staked September 8th, 1961 and recorded September 19th, 1961.	<u>Tag No.</u> 409167 to 409170 inclusive -
Tenquille	<u>Mineral Claim No.</u> 80 to 91 inclusive Staked September 8, 9, and 10th, 1961 and recorded September 19th, 1961.	<u>Tag No.</u> 409180 to 409191 inclusive -
Tenquille	<u>Mineral Claim No.</u> 92 and 93 (fractional) Staked September 10th, 1961 and recorded September 19th, 1961.	<u>Tag No.</u> 409192 and 409193

**Dominion of Canada**  
PROVINCE OF ONTARIO

COUNTY OF YORK

**In the Matter of The Mines Act of British  
Columbia, and  
IN THE MATTER OF Phelps Dodge Corporation of  
Canada Limited.**

TO WIT:

I, VERNA MARIE SCOTT,

of the City of Toronto, in the County of York,  
Province of Ontario,

DO SOLEMNLY DECLARE THAT:-

- 1) The list of expenditures totalling \$8,505.40, forming part of the annexed report, truly and accurately reflect the expenditures made by Phelps Dodge Corporation of Canada Limited in completing the field work on the mining lands which are the subject of said report.

AND I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath, and by virtue of "The Canada Evidence Act."

DECLARED before me at the City  
of Toronto,  
in the County  
of York,  
this 19th day of September,  
A.D. 19 61.

*Verna M. Scott*

Dated September 19th, 1961.

IN THE MATTER OF

The Mines Act of British  
Columbia, and  
IN THE MATTER OF Phelps Dodge  
Corporation of Canada Limited.

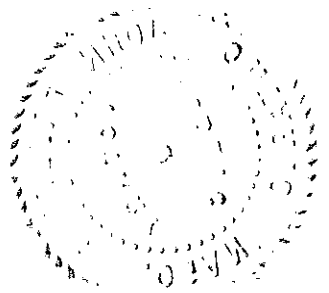
**Statutory Declaration**

of

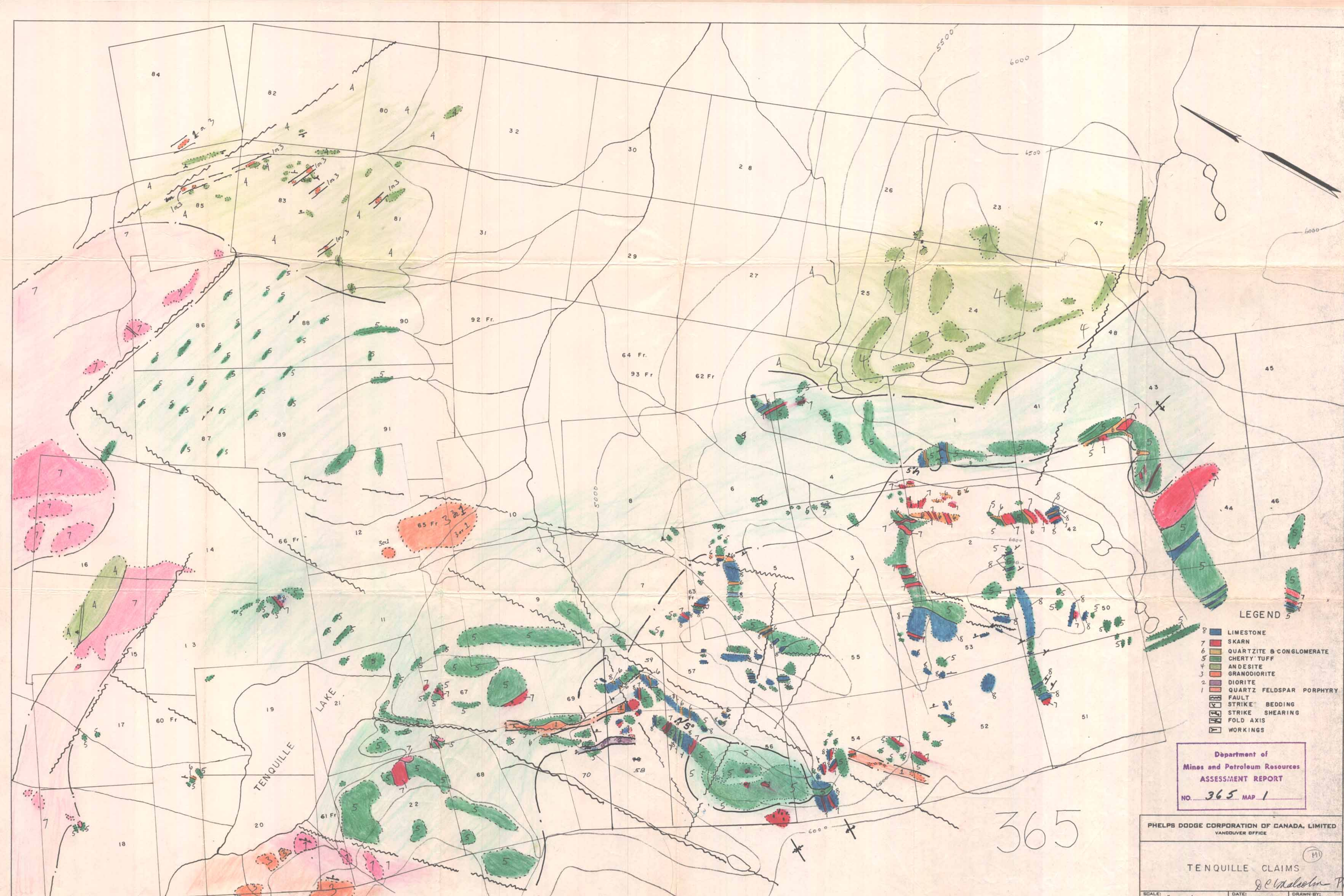
**VERNA MARIE SCOTT**

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Law and Commercial Stationers

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FINLAY, ROBINSON & PEPALL,  
Barristers & Solicitors,  
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Scotia Bldg., 44 King St. W.,  
TORONTO 1, Ontario.







LEGEND

- 8 Limestone
- 7 Skarn
- 6 Quartzite & Conglomerate
- 5 Cherty Tuff
- 4 Andesite
- 3 Granodiorite
- 2 Diorite
- 1 Quartz Feldspar Porphyry
- Fault
- Strike Bedding
- Strike Shearing
- Fold Axis
- Workings

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 365 MAP 1

PHELPS DODGE CORPORATION OF CANADA, LIMITED  
VANCOUVER OFFICE

TENQUILLE CLAIMS

D.C. Malcolm, P. Eng.

SCALE: 1" = 500' DATE: 19, 9, 61 DRAWN BY: D.C.M.

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