

# 2826

## GEOLOGICAL REPORT

### AXE AND SKI GROUPS

Similkameen Mining Division, B. C.

by

T. N. Macauley, P. Eng.

January 15, 1971

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. 2826 MAP
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Claims:                   Axe #1 to #16, Ski #1 to #4

Location:                10 miles south of Princeton, B. C.  
                            Lat. 49° 20' N, Long. 120° 35' W  
                            N.T.S. 92 H/7 E

Claims owned by:       Kalco Valley Mines Ltd.

Work done by:           Newmont Mining Corporation of Canada Limited

Work done between:    October 26, 1970, and January 15, 1971.

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MAPS

#1 Index Map (Fig. 1) . . . . .	Follows Page 1
#2 Geological Map . . . . .	In Pocket

## INTRODUCTION

The geology of the Axe and Ski claim groups was mapped by the writer during the fall of 1970. Although the two groups are separated by a 1400 foot gap, they are shown on one map in order to facilitate the discussion on geological interpretation. However, the time spent and the costs of performing the geological survey on the two groups have been kept separate for assessment purposes (see Appendix).

Control for mapping the Axe group was provided by a set of east-west picket lines 400 feet apart that was already existing on the property. The location line of the claim group was used for the base line, and it has an average bearing of N 6° W. Control for the Ski group was achieved by running a compass line N 65° W along the boundary between Ski #1-3 and Ski #2-4. Compass lines 400 feet apart were then marked out by blazing and flagging. All lines were walked by the writer in search of outcrop. The claims, grid, and geology are plotted on a topographic base map at a scale of 1" = 400' with a 20 foot contour interval. This base map was made from aerial photographs.

The claims upon which the survey was conducted are owned by Kalco Valley Mines Ltd. and are under option to Canmont Mining Properties Ltd. (A wholly-owned subsidiary of Newmont Mining Corporation).

## LOCATION AND ACCESS

The property is located in the southern interior of British Columbia, 10 miles south of the village of Princeton, at lat. 49° 20' N, long. 120° 35' W (see Fig. 1). It lies on Kennedy Mountain, which forms a broad spur between the valleys of the Similkameen River and Whipsaw Creek. This area is in the Similkameen Mining Division. The Ingerbelle orebody of Similkameen Mining Co. Ltd. lies about one mile to the east of the Axe group.

Access to the property is achieved by driving 13 miles south from Princeton on Highway 3, and then northwards on the Kennedy Lake road which bounds the Axe group on its east side. Access to the Ski group is by walking 1600 feet west from Kennedy Lake, or alternatively by the Whipsaw Creek road.

## PROPERTY

The Axe group of 16 claims forms a strip of ground measuring 10,400 feet N-S by 1400 to 3000 feet E-W. It is bounded on the east by the SER and ASH claims, which are prior stakings that cover much of the easternmost row of Axe claims. The JILL claims to the south and T claims to the west are later stakings. The record numbers of Axe #1 to 16 are 13357 to 13372, inclusive, and the claims were recorded on January 24, 1966.

The Ski group of 4 claims consists of a block of ground approximately 2200 by 2500 feet in size lying 1400 feet northwest of the corner of the Axe group. Portions of Ski 1 and 2 are lost to the earlier-staked RAD

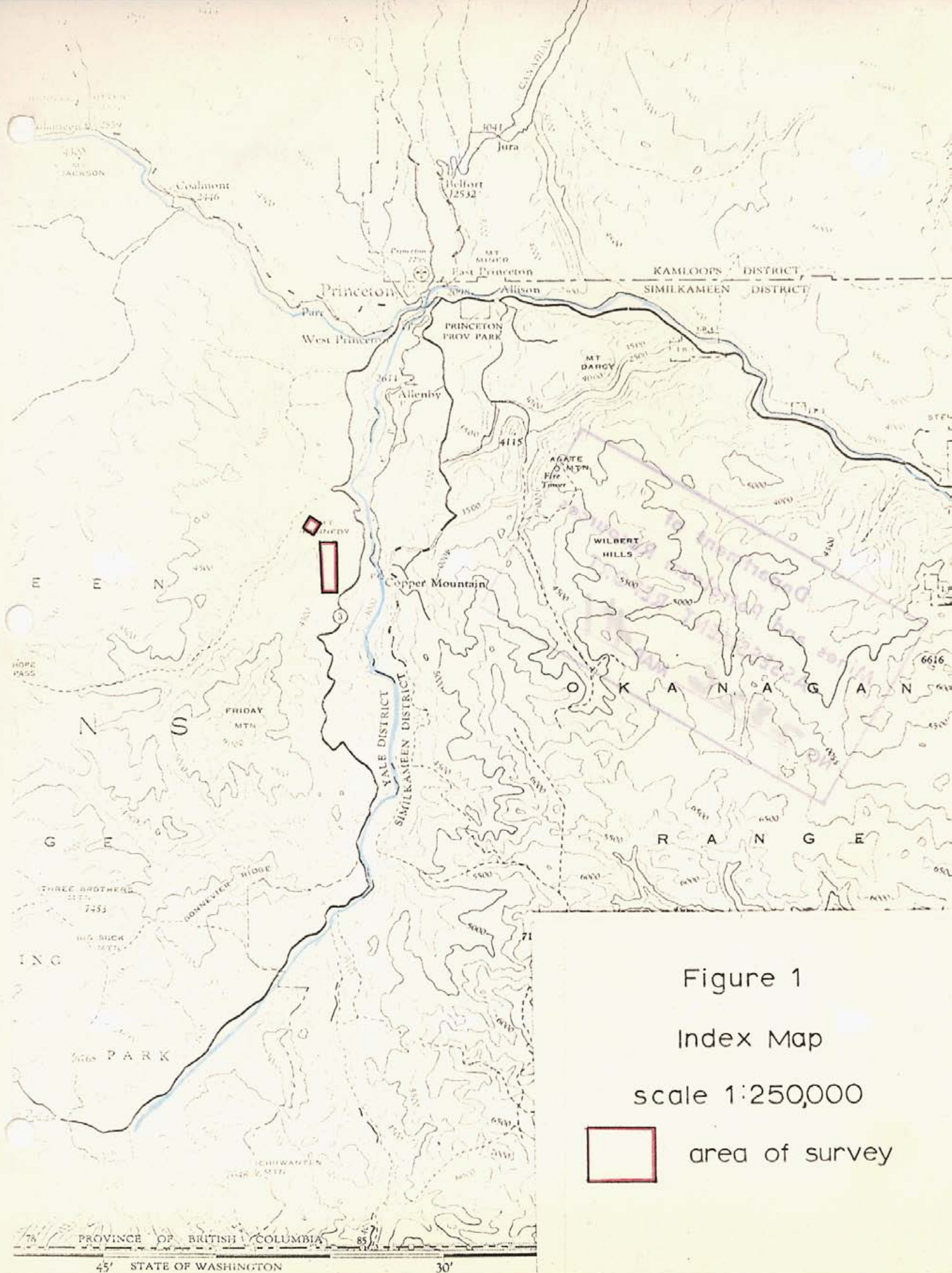


Figure 1

Index Map

scale 1:250,000



area of survey

claims on the east, while the CLAIRE claims on the other boundaries are later stakings. The record numbers for Ski #1 to 4 are 13797 to 13800, inclusive, and the claims were recorded on January 31, 1966.

### HISTORY

Much of the ground covered by the Axe claims was held by Granby in 1958 as the DEE, JOYANN, and KJ groups. They did some geochemical and magnetometer surveys.

From May, 1968, until May, 1970, both the Axe and Ski groups were under option to Noranda Exploration. On the Axe they carried out an electromagnetic survey over the whole group, and magnetic, induced polarization, geochemical and geological surveys over selected portions of the group. Two short percussion holes were also drilled.

No work has been done on the Ski group prior to the present surveys.

These claims lie within the area mapped by Rice at a scale of 1" = 4 miles (GSC Memoir 243, 1947). Dr. V. Preto remapped the whole Copper Mountain area, including this property, in greater detail in 1968 and 1969, but the results have not yet been published.

### TOPOGRAPHY AND OVERBURDEN

The Axe group consists of gently sloping, hummocky land lying between 3750 and 4100 elevations on top of Kennedy Mountain. Drainage is mainly subsurface; no streams exist on the property. A few grassy swamps would hold water in the spring of the year. Forest cover consists mainly of jack pine and fir. The owner of surface lot 889, P. Duttonhoffer, lives in his house on Axe #3 claim.

Overburden cover on the Axe group is extensive. It consists mainly of grey glacial till containing rounded pebbles and cobbles. It is probably only a few feet thick on the central portion of the property, but to the south on Axe 12 to 16 it is much thicker. The two percussion holes appeared to be still in till when stopped at 85 and 90 feet. Areas of angular rubble found mainly on gully walls are very likely indicative of the underlying rock type.

The Ski group lies on the moderately sloping west flank of Kennedy Mountain. Elevations range from 2920 at Whipsaw Creek to 3880 at the brow of the hill. No water runs in the gully shown on the map. Forest cover consists of fir, spruce and pine. Overburden consists mainly of grey-brown sandy loam, with relatively few outcrops or rubbly areas showing through. Thicknesses are probably not greater than 5 or 10 feet in most places. The overburden and the grassy forest floor make any float mapping difficult. Several small terraces (less than 100 feet wide) of river gravels occur at lower elevations near Whipsaw Creek.

GEOLOGY

A. Table of Formations

Age	Formation	Description
Pleistocene and Recent		Glacial till, sandy loam
<u>Unconformity</u>		
Tertiary (Eocene)	Princeton Group	Basalt
<u>Unconformity</u>		
Late Triassic	Nicola Group	Argillite, Volcanic Wacke, Tuff, Andesite

B. Rock Types

Rocks of the Nicola Group underlie most of the property. The argillite, as exposed on the central portion of the Axe group, is a grey to black, well bedded, fine-grained rock. A little interbedding with coarser material is evident here, and on the Ski claims more sandy beds (volcanic wacke) and possible tuffs are present. Due to the slabby nature of this rock, most outcrops consist of dislodged blocks and rubble, and in only a few places can reliable attitudes be measured. The black, fine-grained argillite was noted to contain a little fine pyrite in places.

Mainly on the southern half of the Ski group many of the outcrops consist of volcanic wacke. This rock is made up of sand-sized particles of andesitic composition, and rarely has particles up to 1 inch in diameter. It is probably derived from the erosion of the plentiful andesites and tuffs in the vicinity, but could also include some tuff. It is not stratified, but the distribution of the outcrops shows that it is interbedded with argillite. With a little alteration this rock is not readily distinguishable from andesite. A 30 foot outcrop of dark grey limestone bounded by volcanic wacke and coarser fragmental occurs at 1400W, 1400S.

At various places on the Ski claims are outcrops of a rock classified as metasiltstone. It is light greyish-green, fine-grained to aphanitic, hard, and sometimes possesses fine bedding. It appears to be an alteration product

of the argillite; possibly the pale colouring being due to albitization. For this reason it would not be justified to use the outcrop positions to trace out a marker bed.

Two large outcrop areas of andesite occur at the north edge of the Axe group and the east edge of the Ski group. This is a massive, light greenish-grey rock characterized by chunky white plagioclase phenocrysts up to 0.1" in size, fewer smaller augites, set in a fine-grained groundmass. Like the rest of the Nicola rocks on these properties, it is non-magnetic.

Two small occurrences of hornblende porphyry intrusive were noted in the Nicola rocks at the west side of Axe 6 and the SW corner of Ski 3. The intrusive on Axe 6 forms a N-S dyke less than 20' wide that was traced for 1600' through the argillite. On Ski 3 it is a very small patch in the metasilstone.

Tertiary basalt forms a 1000' to 2000' wide belt across claims Axe 8 and 10. It is a hard, black, fine-grained, moderately magnetic rock, having small sparse glassy quartz eyes. It weathers to a light grey colour. In several places it has been altered along fractures or over larger areas to a brick red colour. A light brown, porphyritic, Tertiary volcanic was found at the top of a cliff just off the NW corner of Ski 2, and this rock could extend a short distance onto the Ski claim. Not enough of the exposure was seen to determine the relationship of this rock to the Nicola rocks.

### C. Structure

The structural geology of these properties is not well understood. Outcrop is too sparse and the area of study too small to compile a stratigraphic column and determine the fold and fault patterns within the Nicola rocks. It would be necessary to map the areas of known outcrop around Kennedy Lake and west of the Axe group to gain this knowledge.

The argillite on Axe 6 strikes from E-W to N-S and dips 20° to 45° in the northeasterly direction. It continues to the south along the gully on the other side of the Tertiary basalt, but no attitudes could be found there. It could well continue off the Axe group to the NW and join the stratified rocks on Ski 1 and 3 which strike N 40° - 70° W and dip about 45° NE. Here the volcanic wackes and tuffs become more prevalent, and this change is shown diagrammatically on the map.

The two large outcrop areas of andesite appear similar and they would lie above the argillite, but this would have to be confirmed by further mapping around the lake.

No direct evidence of faulting was observed. The swamp through Axe 1 and 2 forms a part of a longer E-W lineament, but needs further proof of any fault movement. The belt of Tertiary basalt could lie in a down-faulted block, but a lava-filled valley in the Tertiary land surface is just as likely an explanation.

All rocks were only moderately fractured. The pale, hard alteration in the metasiltstone shows evidence of spreading outward from some of the fractures in this rock; elsewhere the fractures are "dry."

#### MINERALIZATION

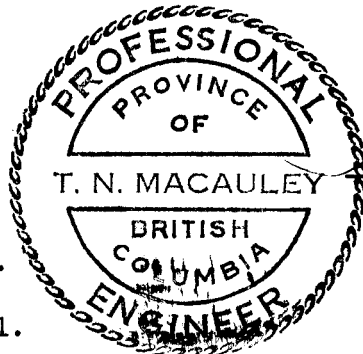
Copper is the chief metal of interest in this area. On the Axe group, no occurrences of copper mineralization were found. Traces of fine pyrite were noted in some of the argillite, and a trench at the SE corner of Axe 3 showed 1 - 2% pyrite and trace pyrrhotite in andesite and agglomerate.

On the Ski group, copper mineralization was found in the five locations indicated on the map. In all instances it is in the form of chalcopyrite associated with pyrrhotite, and occurs as very sparse, small specks or blebs. Sometimes it is related to tight healed fractures. The host rock is usually the metasiltstone or, if not, the rock near the mineralization has undergone the same pale, hard alteration (albitization?). In the immediate area of the chalcopyrite, the host rocks usually contain 1 to 3% pyrrhotite and less than 1% pyrite. No trends of the mineralization could be found, and fracturing did not seem to have any preferred direction. As the amount of copper mineralization was very low (estimated at less than 0.1% Cu) no samples were taken for assay.

In Memoir 243 (p. 113) reference is made to a gold occurrence that would be located near the NW corner of Ski 4 on Whipsaw Creek. It is described as pyrite-arsenopyrite mineralization. This showing was not observed by the writer.

#### CONCLUSIONS

1. Geological mapping has shown that most of the area covered by these claims is underlain by rocks of the Nicola Group.
2. The Nicola argillite and Tertiary basalt covering much of the Axe group appear to be unfavourable rocks for copper mineralization.
3. The pale-coloured, hard, fine-grained, altered rock termed metasiltstone present on the Ski group appears to be the most favourable rock for copper mineralization, although some can also be found in the volcanic wacke and andesite.



*T. N. Macauley*  
T. N. Macauley, P. Eng.

Vancouver, B. C.

January 15, 1971.



APPENDIX

STATEMENT OF COST - AXE GROUP

<u>Charges</u>	<u>Dates</u>	<u>Man Days</u>	<u>Cost/ Man Day</u>	<u>Cost</u>
T. N. Macauley Geological Mapping	Oct. 31, Nov. 2 (1/2), 3, 4, 5, 1970			
T. N. Macauley Report & Map Preparation	Jan. 5 (1/2), 6, 12, 1971	7	\$75.00	\$525.00
Transportation - Jeep vehicle		5	10.00	50.00
Report and Map Preparation (Typing, Printing, Colouring)				49.65
TOTAL COST				<u><u>\$624.65</u></u>

Declared before me at the *City*  
of *Vancouver*, in the  
Province of British Columbia, this *22nd*  
day of *1st* *January* 1971, A.D.

*T N Macauley*

*Phillips*  
A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.

SUB-MINING RECORDER

APPENDIX

STATEMENT OF COST - SKI GROUP

<u>Charges</u>	<u>Dates</u>	<u>Man Days</u>	<u>Cost/ Man Day</u>	<u>Cost</u>
T. N. Macauley Geological Mapping	Oct. 26 (1/2), Nov. 2 (1/2), Nov. 6, 7, 1970			
T. N. Macauley Report & Map Preparation	Jan. 7 (1/2), 1971	3-1/2	\$75.00	\$262.50
Transportation - Jeep vehicle		3	10.00	30.00
Report & Map Preparation (Typing, Printing, Colouring)				12.40
TOTAL COST				<u><u>\$304.90</u></u>

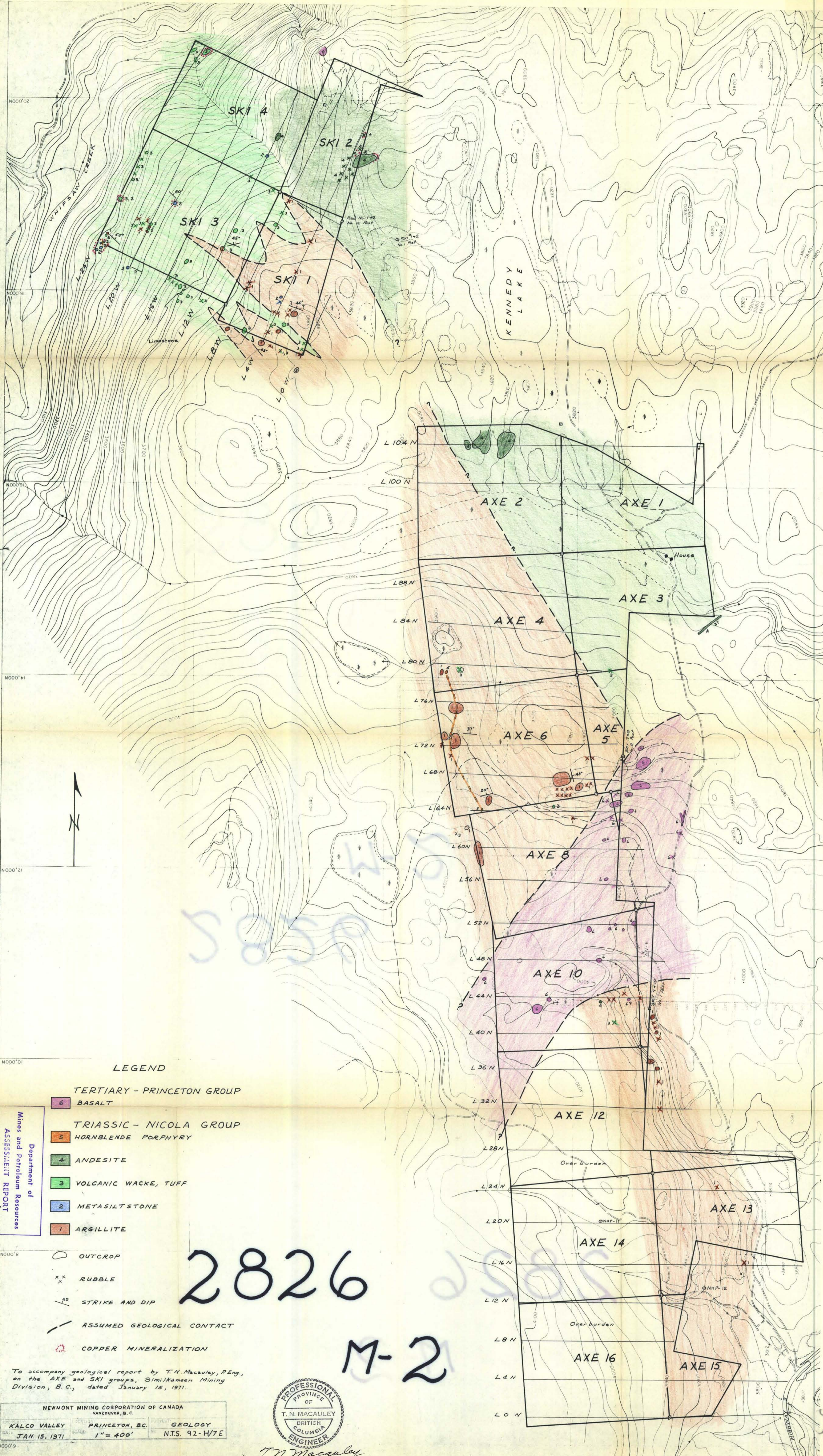
Declared before me at the *City*  
of *Vancouver*, in the  
Province of British Columbia, this *22nd*  
day of *January*, 1971, A.D.

*T N Macauley*

*S Phillips*

A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.

SUB MINING RECORDER



LEGEND

- 6 TERTIARY - PRINCETON GROUP BASALT
- 5 TRIASSIC - NICOLA GROUP HORNBLende PORPHYRY
- 4 ANDESITE
- 3 VOLCANIC WACKE, TUFF
- 2 METASILTSTONE
- 1 ARGILLITE
- OUTCROP
- xx RUBBLE
- AS STRIKE AND DIP
- - - ASSUMED GEOLOGICAL CONTACT
- COPPER MINERALIZATION

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M-2

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 2826 MAP #2

To accompany geological report by T.N. Macaulay, P.Eng., on the AXE and SKI groups, Similkameen Mining Division, B.C., dated January 15, 1971.

NEWMONT MINING CORPORATION OF CANADA		
VANCOUVER, B.C.		
KALCO VALLEY	PRINCETON, B.C.	GEOLOGY
JAN. 15, 1971	SCALE: 1" = 400'	N.T.S. 92-H/7E



T.N. Macaulay