

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

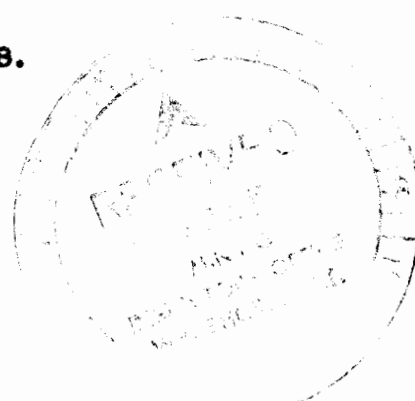
GEOLOGICAL REPORT
ON
THE MAC GROUP OF MINERAL CLAIMS (MAC 1-16)
DAWSON M.D. YUKON TERRITORY
NTS: 115 0-11



Located claims on which assessment credit is requested:

<u>Claim</u>	<u>Record No.</u>	<u>Date Recorded</u>	<u>Assessment Credit</u>
Mac 1	Y 15385	June 18, 1968	1 year
Mac 2	Y 15386	June 18, 1968	1 year
Mac 3	Y 15387	June 18, 1968	1 year
Mac 4	Y 15388	June 18, 1968	1 year
Mac 5	Y 15389	June 18, 1968	1 year
Mac 6	Y 15390	June 18, 1968	1 year
Mac 13	Y 15397	June 18, 1968	2 years
Mac 14	Y 15398	June 18, 1968	1 year
Mac 15	Y 15399	June 18, 1968	1 year
Mac 16	Y 15400	June 18, 1968	1 year
Total:			11 years

Work was done on these claims from August 13-18, 1968.



REPORT BY
W. P. ARMSTRONG
GEOLOGICAL ENGINEER

WPA:na
February 26, 1969

019102

This report has been examined by the Geological Evaluation Unit. Approved as to technical worth by:

D. B. Craig
RESIDENT GEOLOGIST

Approved as to cost in the amount of: \$1124.00

R. B. Padden
RESIDENT MINING ENGINEER

Accepted as representation work under Section 53(4) Yukon Quartz Mining Act.

[Signature]
COMMISSIONER OF YUKON

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GEOLOGICAL REPORT

ON

THE MAC GROUP OF MINERAL CLAIMS (MAC 1-16)
DAWSON N.D. YUKON TERRITORY

NTS: 115 0-11

1. INTRODUCTION

Reconnaissance geological mapping was carried out over the Mac 1-16 mineral claims in order to ascertain the nature and distribution of the auriferous conglomerate reported there. The mapping was conducted for Cominco Ltd. between the dates of August 13-18, 1968 by W. P. Armstrong, Geological Engineer, University of British Columbia and by H. Copper, an Exploration Technician.

The property is located in the Dawson Mining Division, Claim Sheet 115 0-11, at a latitude of 63° 42' N., 139° 07' W. The claims lie in the McKinnon Creek valley between elevations 2,000 and 2,500 feet. The bridge across the Indian River near its confluence with McKinnon Creek has been washed out; access to the property is gained by helicopter from Dawson City.

The terrain is of moderate relief, thickly forested in places with spruce and willow, with large areas of muskeg and swamp in the creek bottom. The area is nearly completely covered with overburden and muskeg and in many cases, lithologies of bedrock are inferred from the presence of rubble and float boulders in the overburden. This should give a reliable picture, since the area escaped Pleistocene glaciation and movement of rubble has probably been restricted to downslope fanning.

The control method used for geological mapping was altimeter and compass triangulation.

2. GENERAL GEOLOGY

According to a geological survey map, Ogilvie sheet 711 A by H. S. Bostock, the property is underlain by a sheet of indurated Eocene conglomerate, capped and intruded by sheets of andesite and rhyolite. The conglomerate rests upon a basement which is not exposed on the property but is presumed by Bostock to consist of Yukon Group metamorphic rocks and intrusives. Bostock proposed that the conglomerate was deposited as an extensive sheet in the Haystack Mountain area. Later volcanism covered much of the conglomerate and produced two prominent andesite cones in the basin. Other workers, including McLean, feel that the conglomerate was deposited as a beach deposit on both the Yukon Group rocks and on Tertiary volcanic rocks, since the conglomerate appears to overlay volcanic rocks in the McKinnon Creek valley. Andesite occupies the lowest level to which workings have penetrated in the McKinnon Creek valley, that is at the bottom of the Winchester shaft. Bostock apparently regards the presence of volcanic material in the creek bottom as a dike. The author considers it to be a remnant of a flow which occupied the creek valley.

A typical geologic section in the McKinnon Creek valley would be as follows: Basement rocks, which do not outcrop on the property, are composed of Yukon group metamorphics, chiefly gneisses and quartz-mica schists. Overlying the basement unconformably is the Eocene conglomerate, which is the formation of interest in the Mac claims. The thickness of this unit is unknown. Deposited on top of the conglomerate are intermediate to acid Tertiary flows of the Carmacks group. Extensive benches of Tertiary and recent stream deposits lie along the lower reaches of McKinnon Creek in the valley of the Indian River. The writer has seen no better evidence for suggesting the conglomerate constitutes an extensive beach deposit than that which could

also suggest that the conglomerate was formed by water courses which drained the Eocene topography.

3. GEOLOGY OF THE MAC PROPERTY

The oldest rocks in the property are the conglomerate rocks of Eocene age. The large size fraction of the conglomerate is composed mainly of well rounded white quartz pebbles of variable size. The maximum size of quartz grains would be about two or three inches found on the east side of the property in the trenches in claim Mac 16. Sand sized quartz particles comprise the coarse grained fraction in the conglomerate on the dump of a shaft to the west of claim Mac 3. Average size of the particles would be about $\frac{3}{4}$ " to 1" in diameter, other material making up the coarse grained fraction are well rounded fragments of micaceous quartzite, presumably derived from the underlying Yukon schist. These have a purplish to bluish cast and comprise up to 10% of the coarse grained fraction. No pebbles of volcanic rocks occur in the conglomerate.

The matrix of the conglomerate is quite variable. Occasionally the matrix consists of sand to silt sized clastic debris, and is moderately indurated, presumably with a silica cement. This type of matrix is found on the east side of McKinnon Creek in the trenches on claim Mac 16. Another type of matrix is characterized by an abundance of bluish finely divided mica giving the rock a dark purplish colour. The matrix has also been silicified and the rock is indurated to a variable degree.

Strong silicification of the matrix has taken place in the conglomerate on claims Mac 4 and 6. Here the conglomerate is so indurated that it resembles a quartzite.

The ratio of amounts of matrix to coarse fraction is quite variable, and in some cases, such as where the matrix consists of blue micaceous material, the matrix may constitute 30% of the rock. Although a sieve analysis has not been done on the conglomerate, a distribution of sizes appears to the author to be bimodal, that is, there is an abundance of pebbles and there is an abundance of fine grained fraction, but there is little material of intermediate sizes. This suggests that the conglomerate was once a well-sorted gravel, and the matrix settled into the interstices some time after the conglomerate was deposited.

4. STRUCTURE

Due to a lack of outcrop, structure in the property is difficult to ascertain. The conglomerate is not graded and rarely exhibits any banding which could be construed to be bedding. No cross-bedding or imbricate structures were found. Directions of stream flow, evidence of wave action or other features which could shed light on the origin of the conglomerate were not noted. Crude banding was observed in two localities. A northwest strike and moderate dip northeastward was seen in a trench to the northeast of the property. A similar strike but gentle dip in the opposite direction was noted at station M 11.

This evidence for direction of flow of paleo streams is conflicting.

Little tectonism has occurred since Tertiary time; one would not expect any major folding or faulting of the rocks in the property.

5. ECONOMIC CONSIDERATIONS

The average tenor of surface samples taken from the conglomerate in the Mac group range from Trace to 0.1 oz. Au/ton.

The shaft on the Britannia claim was filled with water so samples from deeper levels of the conglomerate could not be obtained.

The gold is apparently present in an extremely finely divided state in the matrix. This, together with the fact that the conglomerate would need to be crushed prior to treatment, indicates that recovery of the gold may be costly.

6. CONCLUSIONS AND RECOMMENDATIONS

Gold is present in the indurated Eocene conglomerate which underlies the Mac claim group. Associated with the conglomerate are volcanic rocks of the Carmacks group. It is the writer's opinion that these volcanic rocks were deposited later than the conglomerate, and cover the conglomerate in certain areas, so that the dimensions of the conglomerate as shown on the map likely do not indicate its true areal extent. The presence of volcanic material in the McKinnon Creek bottom is not a dike as implied by Bostock, nor is it basement rocks as McLean suggested, but merely is the remains of a late flow which followed the drainage. The thickness of the conglomerate is, therefore, a matter of speculation, and examination of the dump material of the Britannia shaft suggests that these workings did not penetrate to the base of the conglomerate.

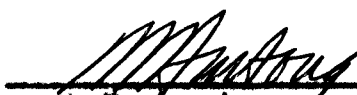
REFERENCES

- 1) Geological Survey of Canada Memoir 284. Klondike District by R.G. McConnell, pp. 217-237.
- 2) Indian River Tertiary Rocks in Lode Mining in the Yukon Dept. of Mines Bull. 222, pp. 62-74. by T.A. McLean.

ATTACHMENTS

- 1) Statement of Qualifications.
- 2) Statement of Expenditures.
- 3) Statutory Declaration Relating to Expenditures.
- 4) Geological Plan - Mac Gp. 1" = 500'.
- 5) Cross Section, Mac Gp.

Report by:


W. P. Armstrong
Geological Engineer

CANADA
PROVINCE OF BRITISH COLUMBIA
TO WIT:

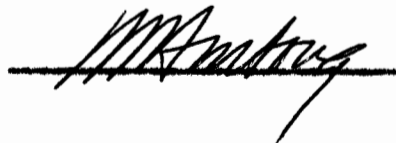
} STATUTORY DECLARATION RELATING TO
EXPENDITURES ON A GEOLOGICAL SURVEY
OF CERTAIN CLAIMS LOCATED IN THE
DAWSON MINING DIVISION, YUKON
TERRITORY

I, WILLIAM PAUL ARMSTRONG, Geological Engineer, of the
City of Vancouver, in the Province of British Columbia, DO SOLEMNLY
DECLARE:

1. That I am the person who performed a geological
survey and prepared a geological report as a result of said survey
on certain mineral claims for Cominco Ltd., the owner of the claims.
2. That copies of this report are being filed with the
Mining Recorder at Dawson.
3. That attached hereto and marked with a letter "A"
upon which I have signed my name at the time of declaring hereof,
is a statement of expenditures incurred in connection with the
geological survey of said claims.

AND I MAKE this solemn declaration conscientiously
believing it to be true and knowing it is in the same force and effect
as if made under oath and by virtue of the Canada Evidence Act.

DECLARED before me in the
City of Vancouver, in the
Province of British Columbia
this^{28th}..... day of
February, A.D. 1969.



A Notary Public in and for the
Province of British Columbia

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

W. P. Armstrong was responsible for carrying out the geological survey on the Mac Group of claims and for the preparation of this report. Armstrong graduated from the University of British Columbia in Geological Engineering in 1965 and has been working in a responsible capacity with Cominco Ltd. since that date.

I consider him to be an experienced and capable geologist.

J. Richardson, P.Eng.

C O M I N C O L T D.

EXPLORATION

WESTERN DISTRICT

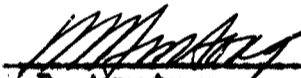
1968 GEOLOGICAL SURVEY EXPENDITURES
MAC GROUP OF MINERAL CLAIMS
DAWSON M.D.

GEOLOGICAL WORK

Geological survey performed by W.P. Armstrong
(Geological Engineer) and H.M. Copper (Exploration
Technician) August 13-18, 1968, and office interpre-
tation and compilation, W.P. Armstrong - 2 days
in February, 1969. \$ 580

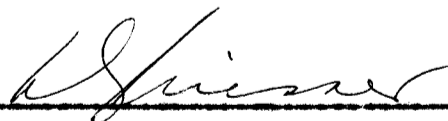
TRANSPORTATION

Helicopter charter \$ 544
\$ 1,124



W.P. Armstrong
Geological Engineer

This is Exhibit "A" to the Statutory
Declaration of W. P. Armstrong,
declared before me this... day of ..
day of .. A.D. 1969



*A Notary Public in and for the
Province of British Columbia*

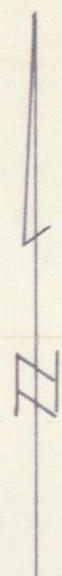






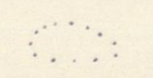


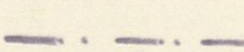



TABLE OF FORMATIONS

TERTIARY	
EOCENE	<p> VOLCANICS ANDESITE, TONALITE, RHYOLITE</p> <p> CONGLOMERATE</p>

LEGEND

-  TRENCH
-  SHAFT
-  CABIN
-  TALUS
-  OUTCROP
-  STATION
-  TRAIL
-  GEOLOGIC BOUNDARY (inferred)

GEOLOGICAL PLAN				
Drawn by: WPA	Traced by:			
Revised by: _____	Date: _____	Revised by: _____	Date: _____	MAC GROUP 019102
Scale: 1" = 500'			Date: FEB 1969	Plate:

2500

2000

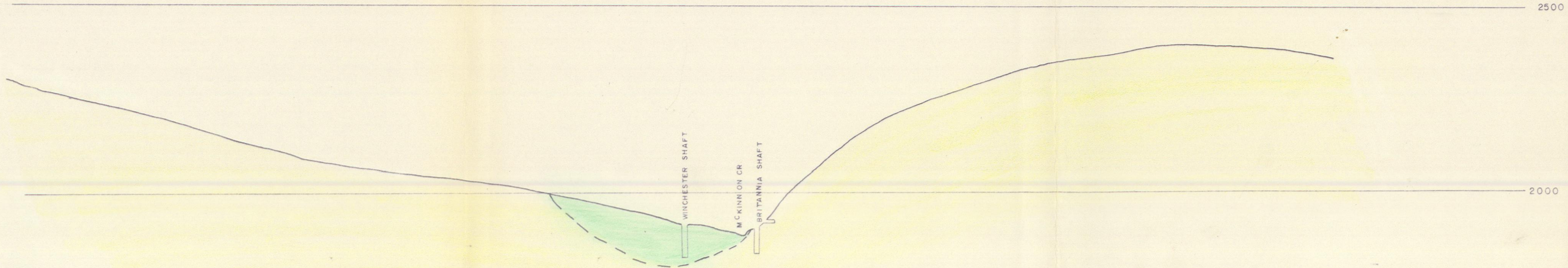


TABLE OF FORMATIONS

 VOLCANICS

 CONGLOMERATE

SECTION A - A'



Drawn by: WPA		Traced by:	
Revised by	Date	Revised by	Date

MAC GROUP

019102

Scale: HOR 1"=500'
VER 1"=200'

Date: FEB. 1969

Plate: