

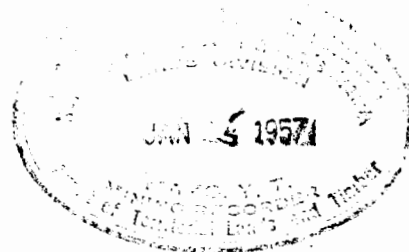


GEOLOGICAL REPORT  
ON THE  
RAE, HOFFMAN, COPPER, and CHALCO GROUPS  
HART RIVER AREA

Y.T.

by

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Thetford Mines

December, 1956.

09 1766

LIST OF CONTENTS

	<u>Page</u>
GENERAL DESCRIPTION	1.
PURPOSE AND METHOD OF INVESTIGATION	1.
ACCESSIBILITY	2.
TOPOGRAPHY	3.
GENERAL GEOLOGY	3.
ECONOMIC GEOLOGY	4.

Map (in pocket) : Geologic Map of the Rae, Hoffman, Copper  
and Chalco Claim Groups, Yukon -  
Scale: 1 in. = 1000 ft.  
(the map has two insets)

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GEOLOGICAL REPORT  
ON THE  
RAE, HOFFMAN, COPPER, AND CHALCO GROUPS  
HART RIVER AREA, Y.T.

GENERAL DESCRIPTION

The Rae, Hoffman, Copper, and Chalco claim groups are included within an approximate 7.5 square mile area located in the western portion of the Wernecke Mountains, within the Government's Larsen Creek Map-Area. The claim groups are located about the geographic point latitude  $64^{\circ}40'$ , longitude  $136^{\circ}55'$ , approximately 85 miles  $N.60^{\circ} E.$  of Dawson.

The Rae Group consists of 9 claims, the Hoffman Group of 24, the Copper Group of 8, and the Chalco Group of 8 (see map at back of report).

PURPOSE AND METHOD OF INVESTIGATION

The field work described below was carried out with the purpose of locating copper in commercial quantities.

During the period August 25 - 28, 1956, a 16-man crew consisting of myself as party chief, seven geologists, six assistants, a cook and cook's helper, supported by two helicopters and a 3-man crew, and all fuel and supplies were flown from Dawson into Marc Lake, approximately 12 miles  $N.53^{\circ} E.$  of the claim groups. The helicopters ferried the men and supplies from Marc Lake into a campsite on Rae Creek within Hoffman claim 1. Most of the party remained in the area until September 13, when it was ferried by helicopter to Two Beaver Lake, approximately 16 miles  $N.69^{\circ} W.$  of the prospect, and then flown by float plane to Dawson.

During the period August 25 - September 12 the following work was carried out:-

1. Trenching and pitting: 5 pits were put down to bedrock on a 600 ft.-long extension of the copper-bearing calcite vein of the original Rae showing on Rae 2 claim. The fault zone at the main McKamey showing on Copper 2 claim was trenched, and several deep trenches were dug in an unsuccessful attempt to reach bedrock across the fault zone some 300 - 500 ft. south of the main McKamey showing. A minor amount of trenching was done on a copper-float showing in the southeast corner of Chalco 1 claim.
2. The four groups of claims were prospected and were mapped geologically. The only control which was available was the Government's 4 mile Larsen Creek topographic sheet. As a result it was found impractical to map outcrops as such and no attempt to locate outcrops has therefore been made on the map included at the back of this report. The claim groups are not surveyed. We carried out a pace-and-compass survey to determine the relative position of the contiguous Copper and Chalco groups to the contiguous Rae and Hoffman groups.
3. Forty claims were staked adjacent to the Hoffman, Copper, and Chalco groups for increased protection if the original four claim groups proved to be of exceptional merit. None of the forty claims have been recorded by us.

On September 6, Mr. W.W. Oughtred, Manager of Asbestos Corporation (Explorations) Limited and Dr. P.H. Riordon, Exploration Manager of the same Company, visited the property and examined the original Rae showing and the main McKamey showing.

#### ACCESSIBILITY

Marc Lake, which is approximately 2000 ft. long, can be used by float planes although a full plane load can not be taken off the lake. Prospectors have made a trail up the broad Rae Creek valley from Marc Lake to the prospect. Two Beaver Lake, which is not quite 1/2 mile long, adequately accommodates float planes.

The Conwest Peel-Plateau winter road up the North Fork of the Klondike River is 30 - 40 miles west of the property which could be reached from the road by going eastward down the west fork of the Hart River, then east over to the south fork of the Hart River, then southeast across to the property. Such a road would be approximately 50 miles long and through easily manageable terrain.

The property is readily accesible by helicopter although wind conditions can be very bad. There are excellent and abundant natural heliports.

#### TOPOGRAPHY

The property is almost all above timberline. The lower valleys have some spruce. Elevations in the property range between 3500 and 5000 ft. above sea level.

#### GENERAL GEOLOGY

The region is characterized by a WNW - ESE - striking, SW-dipping sequence of sedimentary rocks intruded by several dioritic sills. In general the stratigraphic sequence from top to bottom appears to be limestone, argillite, slate, dolomite, slate, intermixed calcareous rocks, varicolored slates, and quartzite. Of particular importance in interpreting the structural geology within the claim groups is a clearly defined stratigraphic series consisting of a predominantly slaty section approximately 1000 feet thick, overlain by a rusty dolomitic and limestone section approximately 1200 feet thick, overlain by a relatively thin, distinctively green slate layer. By mapping offsets of that series, an insight is gained of the local structures.

The main diorite sill which occurs within the claim groups is 1000- 1500 feet thick and appears to have been intruded within the main argillite-slate group. The sill is highly jointed. The diorite is fine-grained, homogeneous, and rusty-grey weathering.

#### ECONOMIC GEOLOGY

Within the local area of and adjacent to the claim groups are three main faults, the strongest of which occurs along the Rae Creek valley. One of the other two faults runs off the Rae Creek fault southward up the creek valley containing the main McKamey showing; the other runs up the next creek to the east flowing into Rae Creek. The faulting is considered to have taken place shortly after the intrusion of the diorite sills. The faults, which offset the main sill, are considered to have provided conduits and loci of deposition for copper bearing solutions which had their source in the diorite magma chamber and which represent the last materials to have been tapped from that source. It is significant that the copper mineralization occurs in a locale characterized by the presence of diorite intrusives and by considerable faulting. In detail the mineralization appears to be localized mainly within the fault zones but also along joints in the diorite and along diorite - sedimentary rock contacts. The copper mineralization is primarily chalcopyrite but there is some bornite. Calcite, commonly hematitized, is the prevalent gangue mineral, forming veins and stringers which contain the metallic minerals. There is some quartz gangue.

The original showing in the local area - the Rae showing - occurs in a creek just south of a main diorite - black slate contact. The showing consists of a 6 ft. wide calcite vein, a 4 ft. width of which is reported

to have assayed 17% Cu. (mainly in chalcopyrite) and to have values in Ag. The vein occurs within black slate and strikes almost normal to the strike of the cleavage in the slate. The 5 pits which were put down along a 600 ft. long southern extension of the vein all encountered the 6 ft. wide vein but containing only minor amounts of chalcopyrite and bornite.

The main McKamey showing occurs near the bottom of the west wall of a small creek which flows northward into Rae Creek. The showing consists of a small lens (3-1/2 ft. max. thickness) of chalcopyrite with associated calcite gangue occurring within a faulted contact zone between the main diorite sill and a predominantly slaty formation. Trenching indicated that the mineralized zone was very local. On the other wall of the valley, slightly further down the small creek, a 1-1/2 ft. wide lens of chalcopyrite outcrops. Further up the west valley-wall from the main McKamey showing there is evidence of copper mineralization along major joints within the diorite. It was in this vicinity that several deep trenches were put down across the fault zone in an unsuccessful attempt to reach bedrock.

A 15 ft. long, 1-1/2 ft. wide lens of chalcopyrite is exposed on the west side of the Rae Creek bottom in R 8 claim.

The most favorable loci for major mineralization appears to be along the fault zones. The costs involved in thoroughly searching for major deposits in those loci using geophysical or other methods would be extremely high. It was decided that the present showings did not justify such an expense.

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P.M. Kavanagh, Ph.D., B.A.  
Chief Geologist,  
Asbestos Corporation (Explorations) Limited.



A F F I D A V I T

STATEMENT OF EXPENDITURES FOR REPRESENTATION WORK

I, W.W. OUGHTRED, of Thetford Mines in the Province of Quebec, make oath and say that the following expenditures were made for the purpose of carrying out representation work on mineral claims Rae - Numbers 1 to 9 (Record Nos. 57973 - 57981), Hoffman - Numbers 1 to 24 (Record Nos. 80002 - 80025), Copper - Numbers 1 to 4 (Record Nos. 80026 - 80029), Copper - Numbers 5 to 8 (Record Nos. 80044 - 80047), Calco - Numbers 1 to 4 (Record Nos. 80034 - 80037), and Calco - Numbers 5 to 8 (Record Nos. 80048 - 80051) situate in the Mayo Mining District, Yukon Territory, this work having been done since the twenty-sixth day of August, 1956.

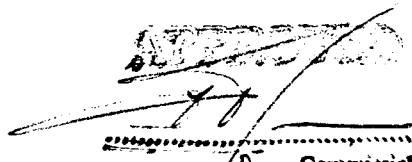
The grand total expenditure should be equally apportioned among each of the forty-nine mineral claims.

SALARIES:

<u>Names</u>	<u>Salary (per month)</u>	<u>Days Worked</u>	<u>Totals</u>	
J. MacIntosh	\$ 450.00	19	\$ 275.00	
R. Lee	400.00	17	220.00	
R. Dawson	400.00	16	207.00	
F. Leavitt	400.00	14	181.00	
P. Kirby	400.00	19	245.00	
R. Poulin	400.00	16	207.00	
O. Sund	400.00	18	234.00	
E. Winter	375.00	19	230.00	
G. Caley	275.00	11	98.00	
D. Morris	300.00	16	155.00	
S. Johnston	300.00	16	155.00	
H. Morris	300.00	17	165.00	
P. Fox	300.00	14	135.00	
J. Hanulik	300.00	10	97.00	
J. Gaundroue	300.00	11	105.00	\$2,709.00
<b>Total</b>		<b>233</b>		

TRANSPORTATION (all air):

1. Fixed-wing aircraft (Beaver and Cessna) transport of personnel from Dawson to Marc Lake and from Two Beaver Lake to Dawson, and supplies from Dawson to Marc Lake
2. Helicopter:
  - (a) 83 hrs. @ 11 gals./hr. @ \$1.30/gal. 1,186.90
  - (b) rental charges 7,803.00
  - (c) 83 hrs. @ \$10.00/hr. 830.00
3. W.W. Oughtred and P.H. Riordon (consultant capacity) 2 return trips, Vancouver - Dawson @ 275.00

  
 Commissioner  
 3,416.44  
**091766**  
 9,819.90  
 JAN 18 1957  
550.00 13,786.34

SUPPLIES:

- |  |               |                     |
|--|---------------|---------------------|
| 1. Board - 233 man-days @ 3.00           | 699.00        |                     |
| 3 man helicopter crew for 15 days @ 3.00 | <u>135.00</u> | 834.00              |
| 2. Material - dynamite, caps, fuse       |               | <u>44.80</u> 878.80 |


GENERAL:

Recording of 8 mineral claims	80.00	<u>80.00</u>
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GRAND TOTAL \$ 17,454.14

Sworn and Subscribed to at  
 THETFORD MINES, QUE.,  
 this 28<sup>th</sup>  
 day of December 1956

  
 C. S. C. A.

  
 W.W. Oughtred,  
 Manager,  
 Asbestos Corporation (Explorations) Limited  
 17,374.14  
 Y. met allow