

1941

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE RED NOS. 1 - 33 CLAIMS, SITUATED AT  
THE HEAD OF WREDE CREEK, FOUR MILES SOUTHWEST  
OF FLEET PEAK  
OMINECA MINING DIVISION  
56° 44' N, 126° 19' W

<u>Group</u>	<u>Number of Claims</u>	<u>Credit Requested</u>
Red #1 Group	33	41 years

Located claims on which assessment work credit is requested are as follows:-

<u>Claim</u>	<u>Record No.</u>	<u>Credit Requested</u>	<u>Total</u>
Red Nos. 1 & 2	60338 & 60339	1 year each	2 years
Red Nos. 3-10 inclusive	60340 - 60347 inclusive	2 years each	16 years
Red Nos. 11-33 inclusive	60348 - 60370 inclusive	1 year each	23 years
		Total	<u>41 years</u>

Work was done on these claims during the period July 24 to August 9, 1968.

REPORT BY

D. L. COOKE, Ph.D.,

UNDER THE SUPERVISION OF

J. RICHARDSON, P. ENG.

DLC:nc  
June 12, 1969  
Vancouver, B.C.

EXPLORATION

WESTERN DISTRICT

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TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
HISTORY.....	1
GEOLOGY.....	1
GEOCHEMISTRY	
Soil Survey.....	2
Sample Preparation.....	2
Atomic Absorption Analysis for Copper.....	2
Analysis for Molybdenum.....	3
CONCLUSIONS.....	3
REFERENCES.....	3
ATTACHMENTS.....	3

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. <u>1941</u> MAP.....
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DLC/nc  
June 12, 1969  
Vancouver, B. C.

C O M I N C O L T D.

EXPLORATION

WESTERN DISTRICT

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OMINECA MINING DIVISION  
56° 44' N, 126° 19' W

INTRODUCTION

This survey consists of concurrent geological mapping, prospecting and soil sampling, which was done in an effort to locate copper mineralization on the property.

The survey was conducted by I. R. Mayers, assisted by B. K. Bowen under the supervision of D. L. Cooke, PhD, and J. Richardson, P. Eng.

The Red claims are located in the Omineca Mining Division, at latitude N 56° 44' and longitude W 126° 19'. Elevation ranges from 5,800 to 6,300'. The prospect is situated at the headwaters of Wrede Creek, four miles southwest of Fleet Peak.

Access is by fixed or rotary winged aircraft from Smithers (140 miles) or Fort St. James (180 miles).

HISTORY

A quartz vein, which carries pyrite with small amounts of gold and silver was previously reported in the area of the Red claims. It is not known whether this prospect was actively explored in the past.

GEOLOGY

The Red claim group covers a copper prospect which occurs near the north end of the Omineca batholith.

Geological mapping on the Red claims has revealed that the host rocks are a quartz diorite porphyry and a microdiorite border phase of a centrally located diorite stock (Plate PC-68-5). This mass has intruded Takla andesites on the western margin of a larger granodiorite body. The volcanics are heavily fractured, altered and impregnated with pyrite, silica and epidote. Weathering of the pyrite has resulted in the development of a conspicuous gossan. The granodiorite and diorite are relatively fresh, but the porphyritic border phases of the diorite exhibit moderate alteration. Pyrite in the intrusions amounts to less than three per cent.

Traces of disseminated chalcopyrite were located in satellitic microdiorite dykes, and partially leached quartz-chalcopyrite veinlets located in quartz diorite porphyry float from the northwestern section of the claims. Smears of malachite and chrysocolla coat fracture planes in some of these mineralized areas (Plate PC-68-5).

The regional structural trend is northwesterly, but on the claims, local faults strike to the north, northeast and west-northwest. Shears along these directions are evident locally as schistose and amphibolitic zones within both intrusive and volcanic rocks. Small scale structural features, such as fractures and veins, are parallel to these faults.

#### GEOCHEMISTRY

Soil samples were collected and analyzed for copper using the Unicam SP 90 Atomic Absorption Spectrophotometer. Molybdenum was determined colorimetrically using thiocyanate. The results for copper and molybdenum are plotted on Plate PC-68-5A.

#### Soil Survey:

A total of 365 soil samples were taken where possible from the B horizon (red-brown), and if not available, the A horizon. Sample depth ranges from 5 to 10 inches. All samples were taken with a Manitoba pick and placed in Kraft sample bags.

Survey control was provided by chain and compass for the location of claim lines. The two claim location lines were used as base and tie lines. Soil sample lines and locations were controlled by pace and compass. Sample spacing is 200' along traverse lines approximately 400' apart. Traverse lines are 200' apart in an area covering about three claims (Plate PC-68-5A).

#### Sample Preparation:

The respective soil horizon samples (A, B) are first dried overnight in an oven at 60°C - 100°C, and then subjected to sieving with a minus 80 mesh nylon screen. A 0.5 gram portion of each screened sample is weighed into a 16 x 150 mm. pyrex test tube and 5 ml. of 10% HCl added. The sample is next digested for one hour at 95°C in a water bath, and on removal from the water bath a further 5 ml. of 10% HCl is added, using an automatic pipette to ensure complete mixing. The mixture is allowed to settle and equilibrate for a period of from one to two hours, and then analyzed by atomic absorption.

#### Atomic absorption Analysis for Copper:

The SP. 90 Unicam atomic absorption Spectrophotometer accepts a small portion of the extract which is aspirated into an Oxygen-Acetylene flame. The flame temperature is sufficient to dissociate most of the sample into the atomic state. The amount of sample absorption of the line spectrum of the particular element being analyzed for is compared to the amounts obtained by previously carefully prepared standards. The values of the standards are plotted on log-log paper with percent absorption against concentration in µgm/ml. The amounts of copper are read from the graph in µgm/ml and these values are multiplied by a factor to give the readings in ppm copper. Sensitivity of this method is 5 ppm copper.



### Analysis for Molybdenum:

A Torsion Balance is used to weigh out 0.2 gram of the screened sample into an 18 x 150 mm pyrex test tube. Molybdenum is extracted by fusing the sample with a standard pyrosulphate, cooling the fused mass, adding 10 ml. of 10% HCl, and allowing the mixture to sit in a hot water bath. A 5 ml. aliquot is transferred to a 16 x 150 mm. test tube and 1 ml. of ammonium thiocyanate is added. After mixing thoroughly, 1 ml. of stannous chloride solution is added, and the mixture is shaken until the red coloration disappears. Water is added to bulk the specimen to the 10 ml. mark and  $\frac{1}{2}$  ml. isopropyl ether added. The test tube is stoppered, and shaken for 30 seconds. The phases are allowed to settle and the colour produced is compared against carefully prepared standards containing known amounts of molybdenum. The concentration of molybdenum in each sample is thus determined to the nearest 1 ppm.

### CONCLUSIONS

The program of geological mapping and prospecting was successful in locating minor amounts of copper mineralization associated with quartz diorite porphyry and microdiorite intrusions. Pyrite occurs in appreciable quantities in the intrusive and volcanic rocks. The results of the soil survey indicate that substantial amounts of copper and trace amounts of molybdenum are dispersed in the soils on the Red claims.

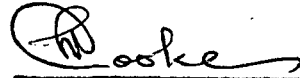
### REFERENCES

- (1) Lord, C. S., 1948, McConnell Creek Map-Area, Cassiar District, British Columbia, G.S.C. Memoir 251
- (2) Red Group - Field Notes and sketch maps - D. L. Cooke, I. R. Mayers, B. K. Bowen.

### ATTACHMENTS

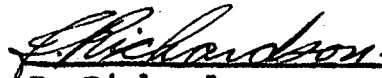
- (1) Statement of Expenditures.
- (2) Statutory Declaration of Expenditures.
- (3) Statement of Qualifications.
- (4) Plate PC-68-5, Geology, Red Group, 1" = 400'
- (5) Plate PC-68-5A, Soil Survey, Red Group, 1" = 400'

Report By



D. L. Cooke, PhD., Geologist

Endorsed By



J. Richardson,  
Professional Engineer

DLC/nc

June 12, 1969

Distribution:

Mining Recorder, Smithers	(2)
Vancouver, Exploration	(1)

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

1968 GEOLOGICAL-GEOCHEMICAL SURVEY  
EXPENDITURES  
RED GROUP, AT HEAD OF WREDE CREEK  
OMINECA MINING DIVISION  
94 D 9

SALARIES

1 Geologist (I.R. Mayers)			
16 days during period July 24- August 9	\$	\$	
@ \$40/man day		640	
1 Field Assistant (B.K. Bowen)			
16 days during period July 24 - August 9			
@ \$30/man day		480	
1 Senior Geologist (D.L. Cooke)			
2 days during period July 24- August 9			
@ \$50/man day		<u>100</u>	1,220

CAMP SERVICES

400

TRANSPORTATION

Charter helicopter 10 hrs @ \$140/hr. 1,400

SOIL SAMPLING

365 Cu analyses @ \$1.00 ea.	\$ 365	
365 Mo analyses @ \$2.00 ea.	<u>720</u>	<u>1,085</u>

TOTAL EXPENDITURES \$4,105

J. Richardson  
J. Richardson, P. Eng.

This is Exhibit "A" to the Statutory Declaration of J. Richardson, declared before me the ~~24~~ day of June, 1969 A.D.

[Signature]  
A Commissioner for taking Affidavits for British Columbia.

DOMINION OF CANADA:  
PROVINCE OF BRITISH COLUMBIA.  
To Wit:

In the Matter of

STATUTORY DECLARATION RELATING TO  
EXPENDITURES ON A GEOLOGICAL-  
GEOCHEMICAL SURVEY OF THE RED  
MINERAL CLAIMS PROPERTY OF COMINCO  
LTD. OMINECA MINING DIVISION.

I, JAMES RICHARDSON, Professional Engineer

of the City of Vancouver

in the Province of British Columbia, do solemnly declare that

1. I do personally know D. L. Cooke who prepared the accompanying geological-geochemical report as a result of a survey carried out under my supervision on certain mineral claims situated in the Omineca Mining Division owned by Cominco Ltd.

2. Copies of the said report are being filed with the Mining Recorder in Vancouver.

3. Attached hereto and marked with the 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 the said claims showing in addition the dates during which those making the said survey performed their work.

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 Vancouver, in the  
Province of British Columbia, this 26<sup>th</sup>  
day of June 1969, A.D.

*J. Richardson*

*[Signature]*  
A Commissioner for taking Affidavits for British Columbia or  
A Notary Public in and for the Province of British Columbia.

In the Matter of

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**Statutory Declaration**

(CANADA EVIDENCE ACT)

C O M I N C O L T D.

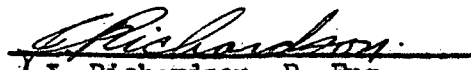
EXPLORATION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

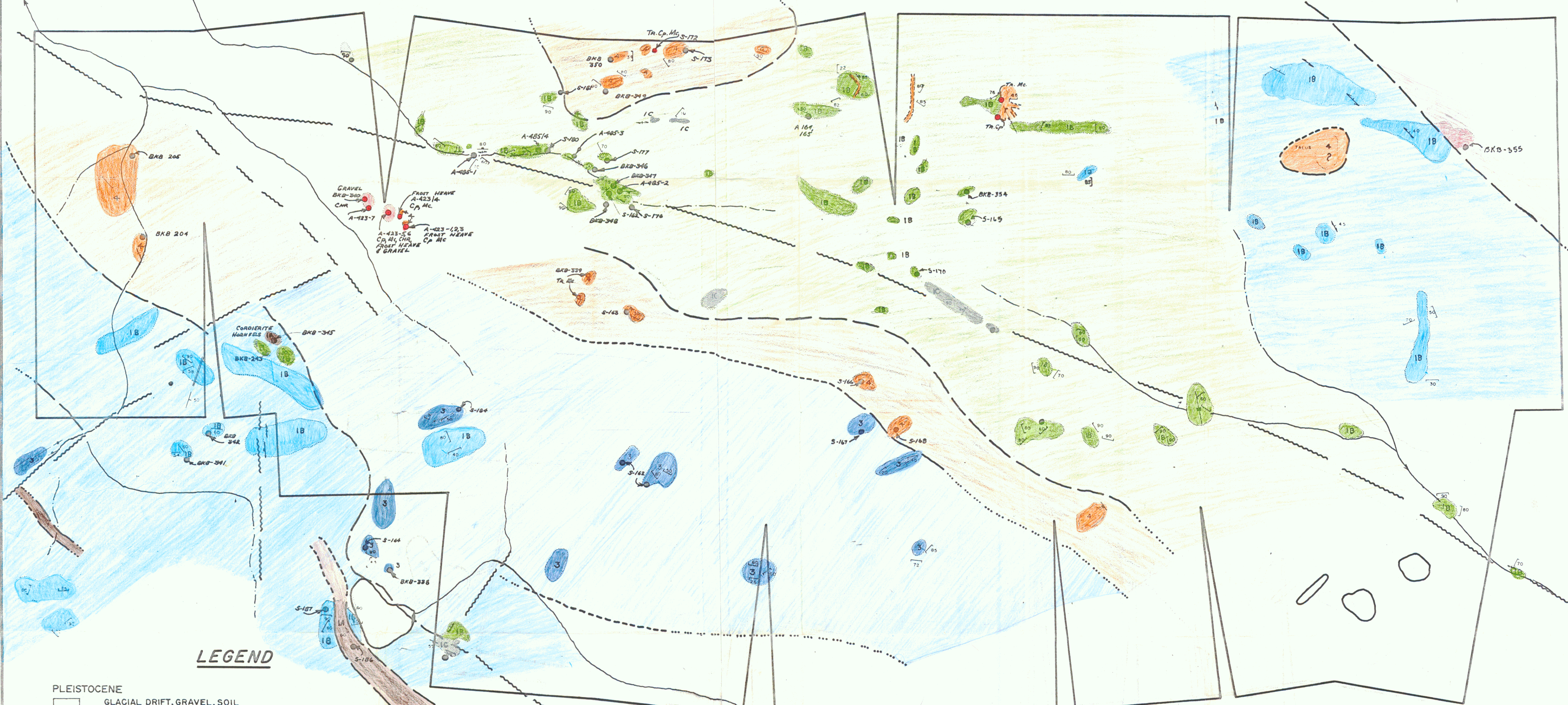
D. L. Cooke was responsible for carrying out the geological-geochemical survey on the RED Group of claims and for the preparation of this report. Mr. Cooke graduated as Bachelor of Science from the University of New Brunswick in Honours Geology 1959. He obtained his MA degree in Geology from the University of Toronto in 1961 and obtained his Phd in Geology at Toronto in 1966 and has been working in a responsible capacity with Cominco Ltd. since May 1, 1966.

I consider him to be an experienced and capable geologist.

  
J. Richardson, P. Eng.



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1941 MAP #1

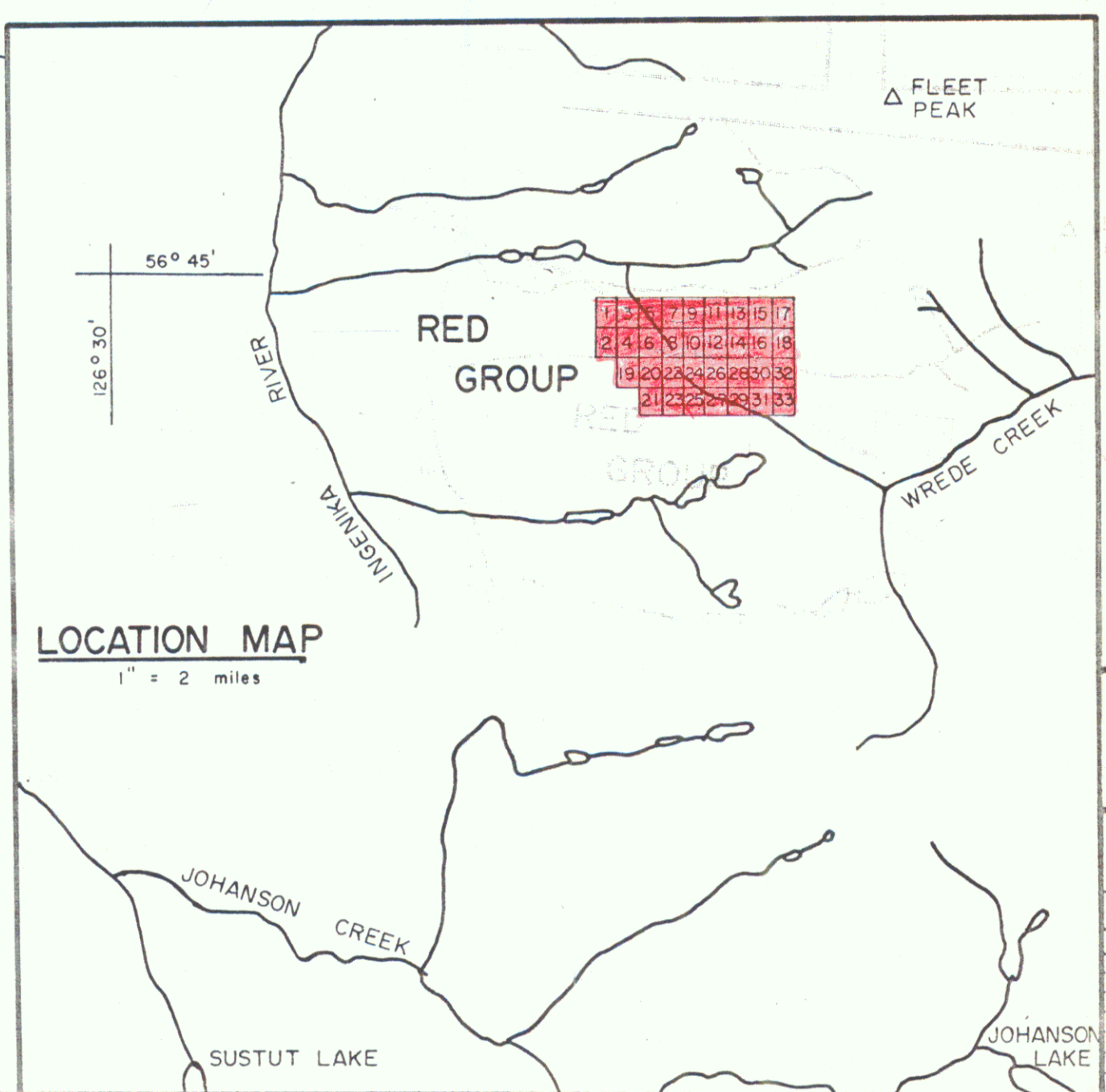


**LEGEND**

- PLEISTOCENE**  
 □ GLACIAL DRIFT, GRAVEL, SOIL
- JURA-CRETACEOUS**  
 ■ QUARTZ-DIORITE PORPHYRY, MICRODIORITE PORPHYRY, GRANODIORITE PORPHYRY  
 ■ DIORITE, AMPHIBOLITIC DIORITE  
 ■ EQUIGRANULAR GRANODIORITE
- TRIASSIC - JURASSIC (Talia Group)**  
 ■ SEDIMENTS: SANDSTONE, SHALE, QUARTZITE, AND HORNFELS EQUIVALENT  
 ■ VOLCANICS: ANDESITE, RHYOLITE, MINOR BASALT ■ ALTERED VOLCANICS  
 ■ AMPHIBOLITE, PHYLLITE, SHEARED AND OR FOLIATED ROCKS

**SYMBOLS**

- OUTCROP
- ALTERED OUTCROP, PYRITE, EPIDOTE, SERICITE, SILICA
- STRIKE AND DIP
- BEDS
- FRACTURES
- VIENS
- SHEARS
- GEOLOGICAL CONTACT: OBSERVED, INFERRED, ASSUMED
- FAULTS: INFERRED
- MINERALIZATION: Cp - CHALCOPYRITE, Mc - MALACHITE, Chr - CHRYSOCOLLA
- ROCK SAMPLE
- OUTLINE OF CLAIM GROUP



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1941 MAP #1

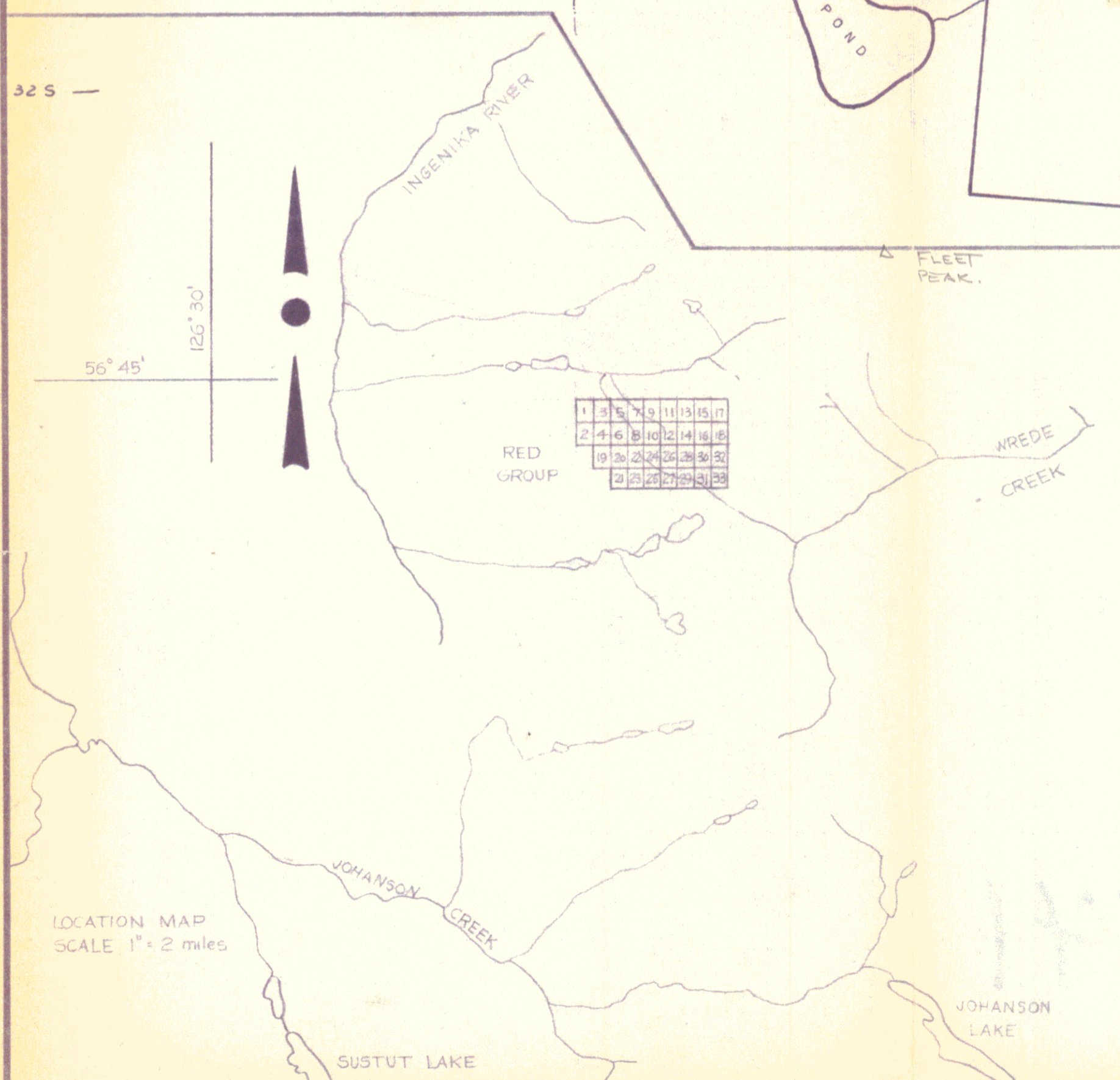
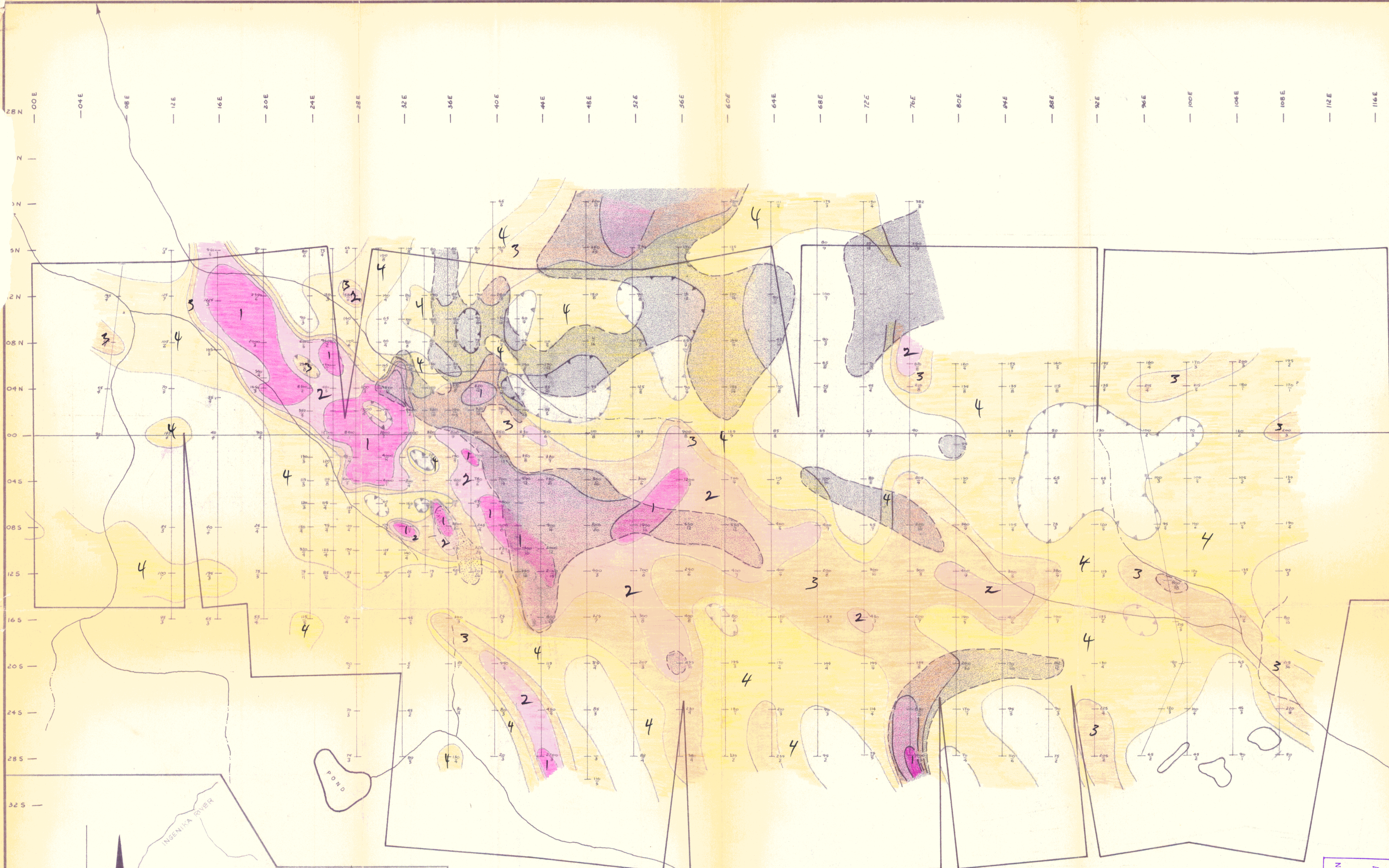
1941

TO ACCOMPANY GEOLOGICAL - GEOCHEMICAL REPORT ON THE RED CLAIMS  
1 - 33 INCLUSIVE, DATED JUNE 12 1969  
ON WREDE PEAK, OMINICA M.B. by — *Bocha*

Drawn by:	IRM	Traced by:	PTR
Revised by:	Date	Revised by:	Date
DLC	SEPT 20/64		
PLT	JAN 10/65		

**GEOLOGY  
RED GROUP**





**LEGEND**

4	100 - 200 p.p.m. Cu
3	200 - 400 p.p.m. Cu
2	400 - 1,000 p.p.m. Cu
1	Greater than 1,000 p.p.m. Cu
(Grey shaded area)	Greater than 10 p.p.m. Mo
(Cross symbol)	Traverse line and sample location
(Cross symbol)	25 p.p.m. Cu, 4 p.p.m. Mo

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1941 MAP #2

TO ACCOMPANY GEOLOGICAL-GEOCHEMICAL  
REPORT ON THE RED CLAIMS 1-35 INCLUSIVE  
DATED JUNE 12, 1969 BY: *[Signature]*

1941

Drawn by: I. R. M.	Traced by: B. K. B.	<p><b>SOIL SURVEY</b> <b>RED GROUP</b> OMINECA MIN. DIV. N.T.S. 94-D/9</p>
Revised by: D. L. C.	Revised by: Sept. 19, 1968	
Scale: 1 inch = 400 Feet	Date: August 11, 1968	Plate: PC 68-5A