

1675

GEOLOGICAL REPORT

AND

GEOCHEMICAL SILT SAMPLING SURVEYS

ON

ARCTIC and BIG A GROUPS

ARCTIC LAKE AREA

Liard Mining District,

British Columbia

Longitude 130°52'

Latitude 57°13'

by

James S. Dodge, P.Engr.B.C.  
Consulting Geologist  
Mitsui Mining & Smelting Co. Ltd.

August 10 - 21, 1968

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TABLE OF CONTENTS

LIST OF CLAIMS . . . . .	(A)
INTRODUCTION . . . . .	1
LOCATION AND ACCESS. . . . .	1
GEOLOGY. . . . .	3
GEOCHEMICAL SILT SAMPLING . . . . .	5
CONCLUSIONS . . . . .	6
APPENDIX I . . . . .	Attached
APPENDIX II . . . . .	Attached
APPENDIX III . . . . .	Attached
ILLUSTRATIONS	
<i>1</i> / Figure 1 - Geological and Geochemical Map . . . . .	Pocket

LIST OF CLAIMS

Claim Numbers

Tag Numbers

ARCTIC 1-5 incl.	684626-684630incl.
ARCTIC 7	613471
ARCTIC 8	580245
BIG A 1-6 incl.	687251-687256 incl.
BIG A 11	687261
BIG A 13-18 incl.	687263-687268

## INTRODUCTION

A geological mapping program, together with a reconnaissance geochemical silt sampling survey, were conducted by Mitsui Mining and Smelting Company, Ltd, on the Arctic and Big A Groups of claims during August 10 - 21, 1968.

Diamond drilling by the Shawinigan Mining and Smelting Company Ltd. during 1967 had reportedly indicated several thousand tons of low grade copper mineralization, primarily as tetrahedrite filling fractures in Mesozoic shaly dolomite.

Mitsui Mining & Smelting undertook a program combining detailed geologic mapping and reconnaissance, geochemical soil sampling for copper largely in the eastern one half of the claim groups with the view to evaluating the potential for the discovery of a porphyry-type geologic environment within and along the borders of a granitic stock which intrudes the older Mesozoic dolomitic sediments.

## LOCATION AND ACCESS

The contiguous claim groups are located about 200 miles north of Prince Rupert centering at longitude  $130^{\circ}52'$  west and latitude  $57^{\circ}13'$  north. The claims lie immediately southwest of Arctic Lake and west of Upper Mess Creek.

Access to the property is on foot from Arctic Lake which may be reached by chartered float aircraft from Prince Rupert or Stewart. However,

a helicopter from the Telegraph Creek area was chartered to facilitate the 1968 program.

GEOLOGY

Geological mapping during August 10 - 21, 1968 was conducted principally in the eastern one-half of the Arctic and Big A claim groups. A geological reconnaissance was also undertaken north and south of the claim area in order to obtain a better interpretation of the structural setting. The claim groups cover both the intrusive stock and the older mesozoic sediments lying mainly west of the contact. Air photographs served as a base for geological field mapping on a scale of 1" =  $\frac{1}{4}$  mile.

The intrusive is characteristically medium to coarse grained with a composition ranging from quartz monzonite to granite. Particularly noteworthy is the low mafic mineral content (5-10%) and the high pink potash feldspar content (50-60%). Medium to coarse grained quartz occasionally produces a porphyritic facies over large outcrop areas. Approximately  $\frac{1}{4}$  to  $\frac{1}{2}$  mile east of the western contact of the intrusive, along a north-south trend in one area immediately south of Arctic Lake and another area south of the glacier east of Mass Creek, the intrusive is characterized by mafic facies ranging in composition from quartz monzonite to quartz diorite.

The change from a granitic to a quartz dioritic composition is rather abrupt, but is transitional and not suggestive of fault boundaries. The presence of a narrow north-south trending outcrop of older andesitic volcanics immediately west of the southern area of quartz diorite probably represents a down-dropped fault block. The assimilation of similar blocks of volcanics by the quartz monzonite stock could account for the quartz diorite composition of the intrusive nearby.

In several scattered areas within the northern quartz diorite outcrop area, a few northeasterly trending feldspar prophyry dikes cut the granite. Young basalt flows crop out along a general north-south topograph depression following the south flowing headwaters of a tributary of Mess Creek and extending southward into the More Creek drainage. Basalt agglomerate outcrops in three small topographically prominent areas; the first as a conical hill near the south shore of Arctic Lake, and the other two near the glacier on the mountain  $1\frac{1}{4}$  miles southeast of the main workings.

Several north-south fault zones were mapped on the ridge east of the headwaters of the south-flowing tributary of Mess Creek. Air photo interpretation strongly suggests that the panel of north-south drainage pattern lineaments, perhaps one-mile wide, extending southward for several miles from Arctic Lake, may be a topographic reflection of similar parallel fault zones.

Hydrothermal alteration with the stock appears to be confined to the above mentioned fault zones where weak silicification, chloritization, and pyritization occurred. Weathering has produced pale brown gossans along these zones. Only an occasional grain of chalcopyrite or tetrahedrite was noted in the altered zones.

The western contact between the granitic stock and the older gently dipping sediments is characterized by silicification of the dolomitic members. No skarn-type metasomatic alteration was mapped.

Geochemical Silt Sampling

Over 50 geochemical silt samples were collected in the immediate claim group area in conjunction with a broader silting program outside the claim area designed to establish a 'background' level of copper geochemical values in the area.

Sample locations and their results expressed in parts per million copper content are shown on the attached geologic map. The highest value obtained was 44 ppm in a small creek 1500 feet north of the "southwest zone" where tetrahedrite occurs as fracture fillings in silicified dolomite.



CONCLUSIONS

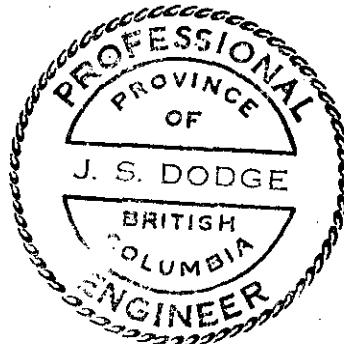
Geologic mapping did not reveal significant copper mineralization within the granitic stock. Neither favorable structural preparation nor a broad area of hydrothermal alteration was evident.

Silt sampling at approximately one-quarter mile intervals on all suitable creeks in the area yielded no significantly anomalous results.

Accordingly there is no geologic evidence for the occurrence of a porphyry-type copper deposit within or along the boundary of the intrusive stock.

Respectfully submitted,

*James S. Dodge*  
James S. Dodge, P. Engr.  
Consulting Geologist



Expiry Date: August 4, 1969

APPENDIX I

SUMMARY OF COSTS

	<u>COSTS - \$</u>	<u>SUB TOTAL</u>
<u>1. Geological Mapping</u>		
Wages, Salaries	200.00	..
Travel (helicopter) and Accommodation	640.00	890.00
Camp Support	<u>50.00</u>	( 840.00)
<u>2. Geochemical Surveys</u>		
Wages, Salaries	235.00	
Supplies and Miscellaneous Equipment	30.00	
Travel (helicopter) and Accommodation	600.00	
Assaying	90.00	
Camp Support	<u>50.00</u>	1005.00
<u>3. General Supervision</u>		
Wages, Salaries	<u>150.00</u>	150.00
 GRAND TOTAL .....		<u><u>\$2,045.00</u></u>

Declared before me at the *City*  
of *Vancouver*, in the  
Province of British Columbia, this *18<sup>th</sup>*  
day of *October, 1968*, A.D.

*James S. Dodge*

*J. Paul* **Sub-mining Recorder**  
A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.

APPENDIX II

AFFIDAVIT

SUPPORTING SUMMARY OF COSTS

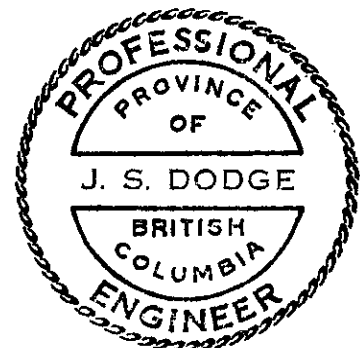
I, James S. Dodge, Professional Engineer, Consulting Geologist, Mitsui Mining & Smelting Co. Ltd., of Vancouver, British Columbia, do hereby state that to the best of my knowledge and belief the STATEMENTS OF COSTS, as presented in Appendix I of this report, "GEOLOGICAL REPORT AND GEOCHEMICAL SILT SAMPLING SURVEYS" is both true and correct.

Dated at Vancouver, British Columbia, this 18th day of October, A.D. 1968.

SWORN BEFORE ME at  
Vancouver, British Columbia  
this 18th day of October,  
A.D., 1968

J. Paul  
Sub-mining Recorder

James S. Dodge  
James S. Dodge, P. Engr.



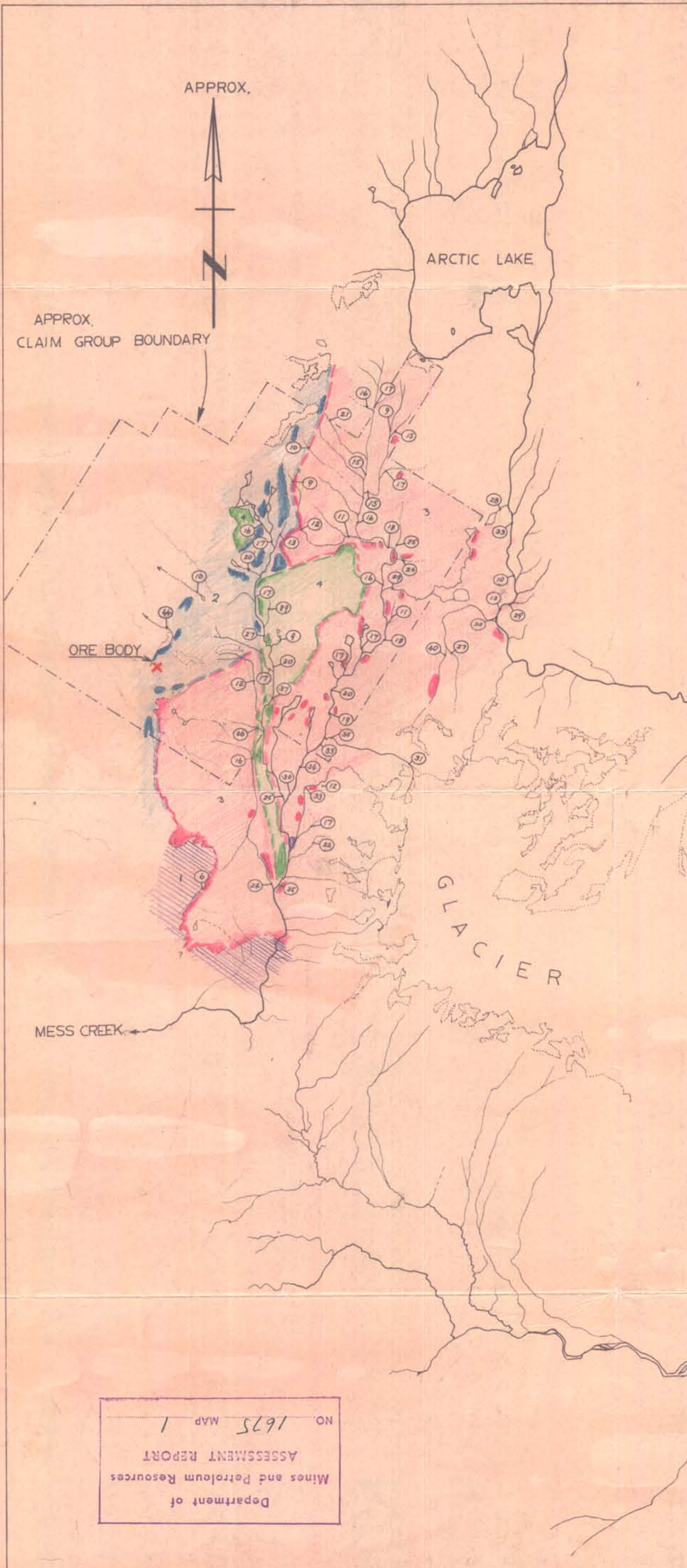
Expiry Date: August 4, 1969

APPENDIX III

PERSONNEL

<u>Name</u>	<u>Position</u>	<u>Address</u>
H. Kido	Geologist	Vancouver, British Columbia
J. Marion	Silt Sampler	Telegraph Creek, British Columbia
J. Dodge	Consulting Geologist	Vancouver, British Columbia





**LEGEND**

- Tertiary basalt
- Granite, Quartz monzonite, Quartz diorite
- Limestone, ARKOSE & Arkosic Conglomerate
- Metamorphic rock : Chlorite, sericite schist, Argillite
- 20 Cu in ppm (STREAM SEDIMENTS)
- SNOW, GLACIER

**MITSUI MINING & SMELTING CO. Ltd.**

**GEOLOGICAL & GEOCHEMICAL MAP**

**ARCTIC AND BIG A GROUPS**

**LIARD MINING DISTRICT  
BRITISH COLUMBIA**

AUGUST 1968

scale 1" to 1/4 mile approximately

FIG-1

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
MAP 1  
NO. 1675

1675

*James A. Dodge* → MORE CREEK

PROFESSIONAL  
OF  
J. S. DODGE  
BRITISH  
COLUMBIA  
ENGINEER

①

To accompany Geological and Geochemical Report  
by J.S. Dodge, P.Eng., on Arctic and Big A  
Groups, Liard Mining District, B.C.  
dated Aug 10-21, 1968

Expiry Date: August 4,