

2480

GEOLOGICAL REPORT ON THE PROPERTY OF  
ARGONAUT MINES LTD. (NPL)  
McLeese Lake, B. C. (Cariboo Mining Division)

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By: T. Takeda, P.Eng.  
July 15th, 1970.

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GEOLOGICAL REPORT ON THE PROPERTY OF  
ARGONAUT MINES LTD. (NPL)  
McLeese Lake, B.C.  
(Cariboo Mining Division)

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SUMMARY

1. The BM Group is owned by Argonaut Mines Ltd. (NPL) and located six and one-half (6 1/2) air miles north of Canex's Gibraltar Camp, McLeese Lake, B. C.
2. Chain and compass survey of key claims, geological mapping and geochemical soil sampling were carried out by the writer for the search of the possible source of chalcopyrite bearing floats.
3. As the result of claim survey, it is recommended to abandon BM #1, #3, #24 and #26 claims because of overstaking.
4. Geological work failed to locate the source of chalcopyrite bearing floats, partly due to the paucity of bedrock exposures in the mapped area and partly due to the limited amount of work done as reconnaissance.
5. Geochemical work was also inconclusive due to the limited extent of grid lines for soil sampling in the property.

## INTRODUCTION

At the request of Argonaut Mines Ltd. (NPL), the writer investigated the BM Group, McLeese Lake, B. C.

On November 8th, 1969, he had previously examined a base-line of BM Group, oriented  $N60^{\circ}E - S60^{\circ}W$ , en route to the ROJ Group of McLeese Lake Copper Mines Ltd. (NPL). At that time a float zone of altered volcanics with weak pyrite-chalcopyrite dissemination was discovered by the writer in the vicinity of BM #3 and #4 claims.

During the period of July 11th to July 18th, 1970 a program of geological and geochemical work of reconnaissance type was carried out by the writer for the search of the possible sulphide mineralization in this area.

On the contract basis, linecutting was done by M. Martin for the convenience of chain and compass survey of the key claims, and later lines were used for the geological - geochemical work.

## PROPERTY

The property consists of 24 mineral claims presently owned by Argonaut Mines Ltd. (NPL).

In the aeromagnetic map of Alexandria (Map 1538G, Scale 1" = 1 mile), a low magnetic anomaly of slightly less than 3,980 gammas is indicated in the area of  $122^{\circ}15'$  west longitude and  $52^{\circ}36'$  latitude.

The BM Group was originally staked by M. Martin and E. Buck in an attempt to cover this low magnetic anomaly, as a similar magnetic anomaly of 3,960 gamma or less occurs near the main mineralized zone of Gibraltar, Gunn and Duval properties in the Granite Lake area.

These 24 claims were recorded on July 28th, 1969 and then transferred to Argonaut Mines Ltd. on November 24th, 1969 (B/S 629/16 and 639/16).

NAME OF CLAIM	LOCATED BY:	METAL TAG NUMBERS	RECORD NOS.	BILL OF SALE
BM #1 - #4 incl.	M. Martin	33601M - 33604M	53002 - 53005 incl.	B/S 629/16 Nov. 24/69.
BM #9 - 16 incl.	M. Martin	33609M - 33616M	53006 - 53013 incl.	B/S 629/16 Nov. 24/69.
BM #17	E. Buck	33617M	53014	B/S 630/16 Nov. 24/69.
BM #22 - 32 incl.	E. Buck	33622M - 33632M	53015 - 53025 incl.	B/S 630/16 Nov. 24/69.

The above-mentioned claims are shown on the attached map (Scale 1" = 400 feet), which also illustrates the possible overlapping of adjacent claim groups, such as Bren, BB and My.

The property is between 3,500' and 4,350' elevation above sea level.

#### LOCATION AND ACCESSIBILITY

The property is situated approximately 20 miles north of McLeese Lake, B. C. and 6 1/2 air miles north of the Gibraltar mine.

Geographical location is 122°16' west longitude and 52°36' north latitude.

Access to the property from Vancouver is via the Cariboo Highway (#2) to McLeese Lake, then by a branch of dirt road towards Likely. From that point, approximately two miles northeast of McLeese Lake, 15 miles of narrow dirt road runs north-northeasterly and then northerly, passing by Canex's Gibraltar camp, Alexandria Indian Reserve No. 12 and the Bren Group in the northwestern end of McLeese Lake Copper Mines Ltd. property. Then the property is reached by three miles of jeep road, which was built in December 1969 as an access road to the ROJ Group of McLeese Lake Copper Mines Ltd.

#### PHYSIOGRAPHY

The claims cover the hilltop of 4,350 feet elevation. Moderate vegetation of jackpine, fir, balsam and lesser spruce is mixed with patchy growth of birch trees. Occasionally, wind-falls and dense growth of young conifers are the minor hazard for field work.

There are several swampy draws of north-northeasterly trend. Practically no water is available during the summer season although several feet of snowfall is assumed in the winter time.

#### GENERAL GEOLOGY

The BM Property lies in the unmapped part of the Quesnel Map Sheet (Map 12-1959, Geological Survey of Canada).

According to this government map, Cache Creek Formation is the oldest stratigraphic unit of Palaeozoic era, composed of the alternation of sedimentary and volcanic rocks.

Granite Mountain Intrusive of Mesozoic era is possibly terminated in the southern part of Bun Group of McLeese Lake Copper Mines Ltd. Instead, medium-grained monzonite dykes, up to 20 feet wide, intrude the Cache Creek formation with sharp contact.

Overburden is seemingly shallow. Bedrock is exposed mainly on the top of 4,350 foot hill and also on the steep wall of the swampy draw as shown in the attached geologic map (Scale 1" = 400 feet).

#### ALTERATION AND MINERALIZATION

Cache Creek formation includes several facies of different composition and texture - such as fragmental andesite, "microdiorite", and phyllitic argillite.

Epidotization, chloritization and weak albitization are common. Fissility-foliation and shears are developed locally in northwesterly or north-northwesterly trends.

A pegmatitic feldspar vein up to two inches wide occurs in the volcanics. It has a strike of N30°E - S30°W with steep easterly dip. One blot of crysocola is the only sign of copper mineralization. Tabular chips of chlorite are enclosed in the vein.

Quartz stringers more or less 1/4 inch wide, occur in widely spaced narrow zones of northwesterly trend. Both walls are bounded by the thin band of brownish limonite.

Intense shear zone near the final post of BM #15 and #16 is associated with abundant hematite stains and slips.

Weak dissemination of very fine pyrite specks was noticed in the pale albitized volcanics. Cracks are often filled with limonite due to oxidization.

#### GEOCHEMICAL SURVEY

A program of geochemical soil sampling was carried out by the writer. A specific area was selected on the northwestern side of the 4,350 foot hill. Soil samples were taken approximately at 200 - 300 foot intervals along the surveyed lines, so as to bound a parallelogram shaped area of 3,000 feet x 4,500 feet.



65 samples were taken by the writer and analyzed at Chemex Labs Ltd. of North Vancouver by Atomic Absorption Method.

Assay results for copper and molybdenum was plotted in the attached geochemical survey map. The highest copper value is 123 ppm for the general background of more or less 10 ppm in this area. Molybdenum value is almost nil except for one 4 ppm Mo and two 1 ppm Mo assays in the northwestern corner, where the intense sheared zone with hematite slips is exposed.

Respectfully submitted,



T. Takeda, P.Eng.

July 15th, 1970

REFERENCES

1. Aeromagnetic Map (Alexandria 1538G) Scale 1" = 1 mile.
2. Geologic Map 12-1959 (Quesnel), Cariboo District, B. C.  
Scale 1" = 1 mile.
3. Topographic Map (Alexandria 93 B/9 West Half)  
Scale 1:50,000

LIST OF MAPS ATTACHED  
TO THE REPORT

- #1 1. Mineral Claim Map of BM Group (Scale 1" = 400 feet)  
- Surveyed and Compiled by T. Takeda  
June 11 - 18th, 1970.
- #2 2. Geologic Map of BM Group (Scale 1" = 400 feet)  
- Sampled and Compiled by T. Takeda  
June 11 - 19th, 1970.
- #3 3. *Geotechnical Map of BM Group (1" = 400')*

CERTIFICATE OF ANALYSIS

Sample 1 to Sample 65 inclusive assayed by Chemex Labs Ltd.  
June 25th, 1970.



# CHEMEX LABS LTD.

212 BROOKSBANK AVE.  
NORTH VANCOUVER, B.C.  
CANADA  
TELEPHONE: 985-0648

• CHEMISTS • GEOCHEMISTS • ANALYSTS • ASSAYERS

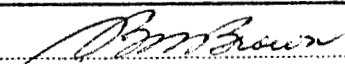
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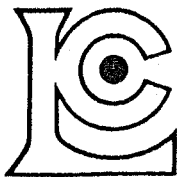
TO: Shultup Management & Invest. Ltd.,  
#1710 - 1177 W. Hastings  
Vancouver, B. C.

CERTIFICATE NO. 8706  
INVOICE NO. 3045  
DATE RECEIVED June 22/70  
DATE ANALYSED June 25/70

ATTN: Mr. Takeda

SAMPLE NO.:	PPM	PPM
	Copper	Molybdenum
1	24	0
2	30	0
3	8	0
4	16	0
5	17	0
6	19	0
7	14	0
8	11	0
9	24	1
10	58	0
11	34	0
12	22	0
13	26	0
14	19	0
15	13	0
16	24	0
17	20	0
18	26	0
19	22	0
20	20 20	0
21	22	0
22	10	0
23	22	0
24	16	0
25	114	0
26	123	0
27	16	0
28	17	0
29	8	0
30	14	0
31	11	0
32	20	0
33	17	0
34	19	0
35	13	1
36	52	0
37	24	0
38	94	0
39	13	0
40	14	0
Std. #22	52	17

Certified by 



# CHEMEX LABS LTD.

212 BROOKSBANK AVE.  
NORTH VANCOUVER, B.C.  
CANADA  
TELEPHONE: 985-0648

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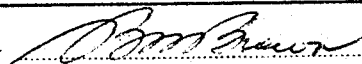
## CERTIFICATE OF ANALYSIS

TO: Shultup Management & Invest. Ltd.,  
#1710 - 1177 W. Hastings,  
Vancouver, B. C.

CERTIFICATE NO. 8707  
INVOICE NO. 3045  
DATE RECEIVED June 22/70  
DATE ANALYSED June 26/70

ATTN: Mr. Takeda

SAMPLE NO.:	PPM Copper	PPM Molybdenum
41	.13	0
42	20	0
43	62	4
44	32	1
45	26	0
46	19	0
47	13	0
48	16	0
49	19	0
50	20	0
51	25	0
52	13	0
53	30	0
54	20	0
55	32	0
56	17	0
57	22	0
58	30	0
59	30	0
60	28	0
61	25	0
62	30	0
63	30	0
64	28	0
65	13	0
Std. #22	50	17

Certified by 

C E R T I F I C A T E

I, TATSUYA TAKEDA, of Suite 1710, 1177 West Hastings Street, Vancouver 1, British Columbia, hereby certify that:

1. I am a Registered Professional Engineer (Geological) in the Province of British Columbia.
2. I am a graduate of the University of Tokyo, Japan in Applied Geology (B.Sc. 1951) and have practised my profession for 19 years in Canada, Japan, United States, Philippines and Malaya.
3. I certify the claims to be legally staked under the Mineral Act of British Columbia, however, as in all major staking programs there may ultimately be some question of overlap to a limited extent.
4. I have no interest, direct or indirect, in the lands or securities of Argonaut Mines Ltd. (NPL).
5. The foregoing report is based on the personal investigation and use of appropriate govermental maps and reports pertaining to the area.

Respectfully submitted,

*T. Takeda*

T. Takeda, P. Eng.



BM GROUP  
MCLEESE LAKE COPPER  
MINES LTD.

MARGUERITE + McLEESE LAKE  
VIA LOGGING ROAD

ACCESS ROAD

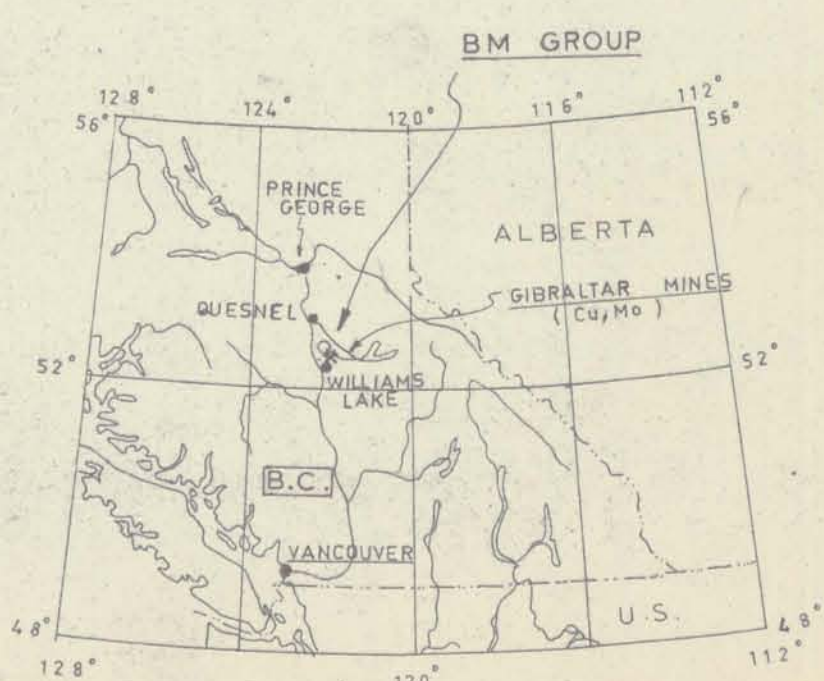


- 6 VOLCANICS ("CACHE CREEK GROUP") MAINLY FRAGMENTAL ANDESITE.
- 5 PHYLITIC ARGILLITE.
- 4 FOLIATED VOLCANICS.
- 3 EPIDOTIZED MICRODIORITE.
- 2 MONZONITE DYKE.
- 1 QUARTZ VEINLETS AND STRINGERS.
- STRIKE AND DIP OF FOLIATION.
- STRIKE AND DIP OF VEINLETS.
- STRIKE AND DIP OF SHEAR.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2480 MAP #2

2480

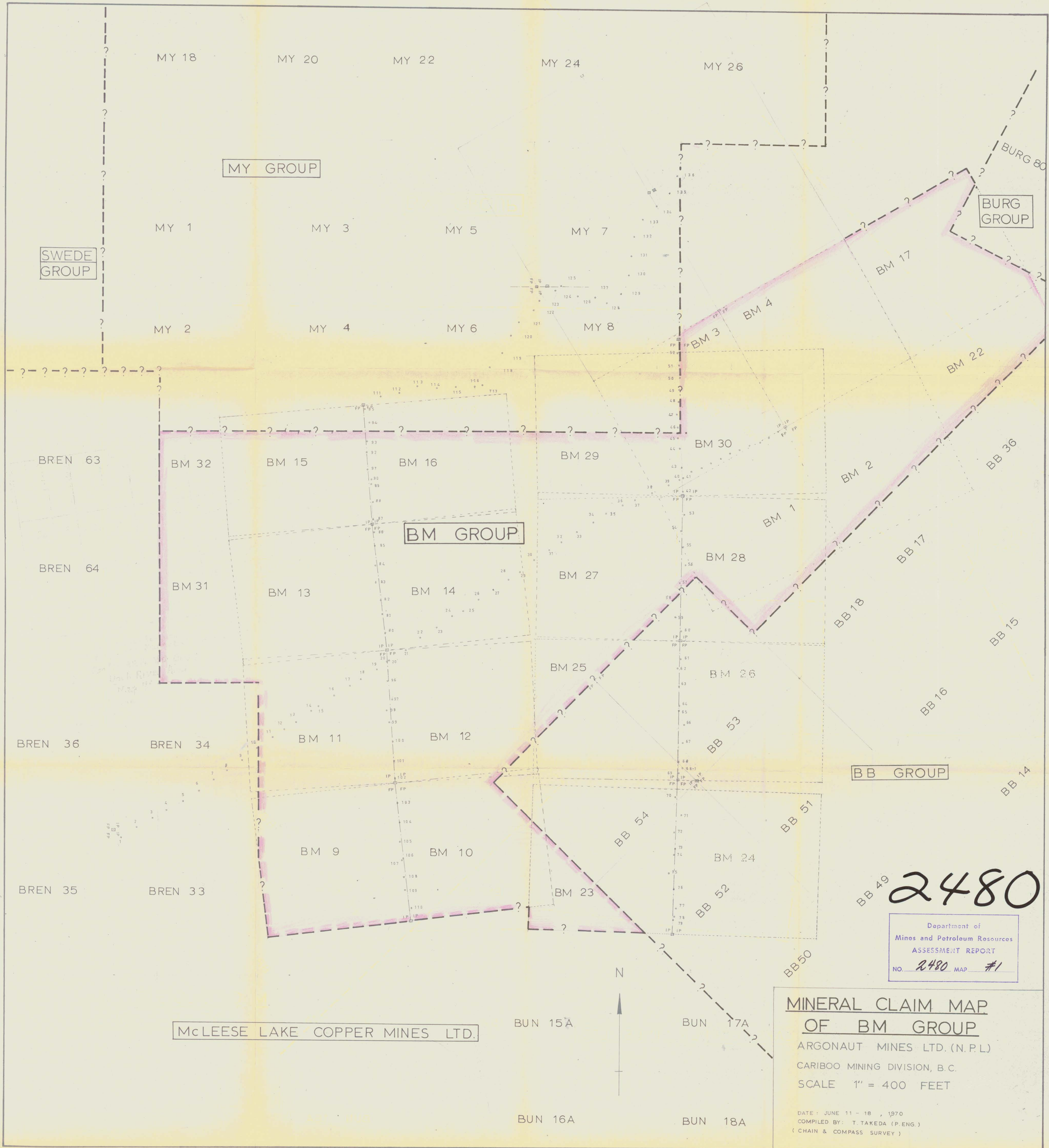
INDEX MAP



GEOLOGIC MAP  
OF BM GROUP  
ARGONAUT MINES LTD. (N.P.L.)  
CARIBOO MINING DIVISION, B.C.  
SCALE 1" = 400 FEET

DATE: JUNE 11 - 18, 1970  
MAPPED BY: T. TAKEDA (P. ENG.)





MY GROUP

SWEDE GROUP

BURG GROUP

BM GROUP

BB GROUP

McLEESE LAKE COPPER MINES LTD.

BB 49 **2480**

Department of  
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ASSESSMENT REPORT  
NO. **2480** MAP #1

**MINERAL CLAIM MAP  
OF BM GROUP**  
ARGONAUT MINES LTD. (N.P.L.)  
CARIBOO MINING DIVISION, B.C.  
SCALE 1" = 400 FEET

DATE: JUNE 11 - 18, 1970  
COMPILED BY: T. TAKEDA (P. ENG.)  
(CHAIN & COMPASS SURVEY)



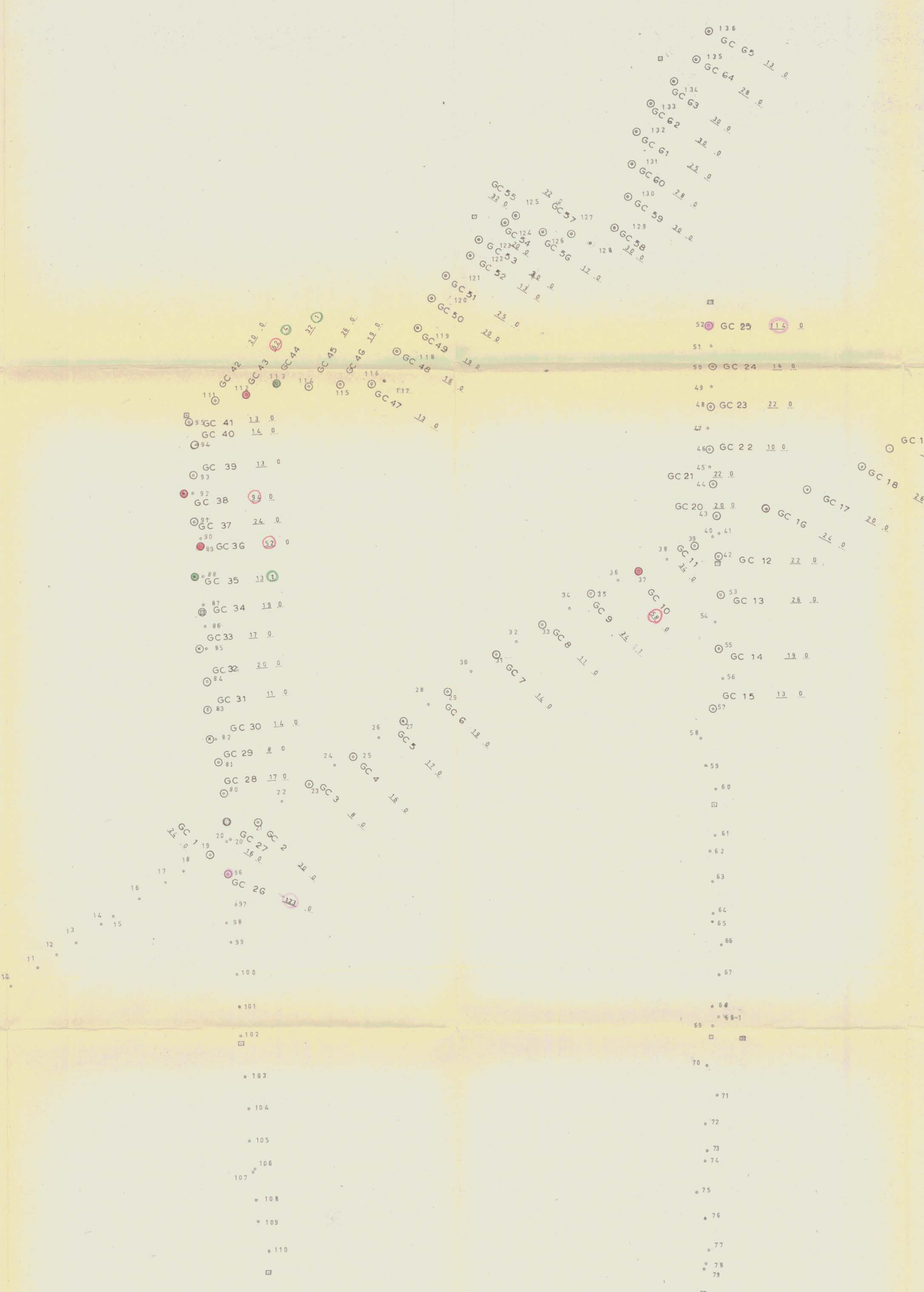
BUN 15A

BUN 17A

BUN 16A

BUN 18A





⊙ ⊙ ⊙ GC9 ..... SAMPLE LOCATION AND SAMPLE NUMBER.

..... COPPER AND MOLYBDE NUM VALUE ( P.P.M.) IN SOIL SAMPLES.

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Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2480 MAP #3

GEOCHEMICAL SURVEY MAP  
OF BM GROUP

ARGONAUT MINES LTD. (N.P.L.)  
CARIBOO MINING DIVISION, B.C.  
SCALE 1" = 400 FEET

DATE: JUNE 11 - 18, 1970  
SOIL SAMPLING BY: T. TAKEDA (P.ENG.)