OCCIDENTAL MINERALS CORPORATION OF CANADA

# GEOLOGY AND GEOCHEMISTRY

# OF THE LAD CLAIM GROUP

LAD CLAIMS
1 (Y57637) TO 36 (Y57670) INCLUSIVE

LADUE RIVER AREA

YUKON TERRITORY



CLAIM SHEET 115 N/7

Lat. : 63° 27' 30" North
Long.: 140° 52' 0" West



BY:

P. MEHROTRA

C.F. GLEESON

COVERING WORK COMPLETED DURING PERIOD:

JUNE 7 - JULY 11, 1971

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## INTRODUCTION

The Lad claim group consists of thirty-six claims, which were staked as a result of a reconnaissance geochemical program completed during the summer of 1970.

This report will describe the geology of the claim area and the results obtained from a geochemical soil survey completed for Occidental Minerals Corporation of Canada, the holder of the claims.

## OBJECTIVE

The purpose of the work was to evaluate an area underlain by a circular aero-magnetic high and from which was obtained a rock sample high in copper. To do this, the claims were soil sampled and mapped geologically.

## LOCATION

The Lad group is recorded on claim map 115 N/7 and lies within the Dawson Mining District. The claim area straddles the North Ladue River, about fourteen miles upstream from its junction with the White River.

## VEGETATION

The Ladue River divides the claim area

roughly into two halves. In the western portion of the area, the most common tree type is black spruce. Poplar is commonly found on the hill tops. The eastern portion of the claim area is swampy and covered with "nigger heads".

## PHYSIOGRAPHY

The area lies in the Klondike Plateau and forms part of the western portion of the Yukon Plateau Physiographic Province. The topography consists of narrow, V-shaped valleys separated by long, smooth-topped and steep-sided ridges.

## LOGISTICS

The camp was set up on a sand bar in Ladue River. The area is only accessible by helicopter. The work was completed during period June 7 and July 11, 1971.

The claims were covered by picket lines cut four hundred feet apart and completed under contract by Harman Management Limited. Some 225,000 feet of lines were cut at an average rate of 2464 feet/man/day.

Geological mapping was completed by P.J. Gannon under supervision of P.N. Mehrotra.

Geochemical soil samples were collected by S. Donovan under supervision of Dr. C.F. Gleeson.

## NAMES AND ADDRESSES OF PERSONNEL

| Name | Address | Company and Position |
|---|---|---|
| | | Occidental Minerals Corporation of Canada |
| J.J. Brummer | 801-161 Eglinton Avenue E. Toronto 12, Ontario | Exploration Manager |
| P.N. Mehrotra | 801-161 Eglinton Avenue E. Toronto 12 | Geologist |
| P.J. Gannon | 680-2nd Avenue Campbell River, B.C. | Geologist |
| S. Donovan | 495 Southborough Dr. West Vancouver, B.C. | Soil Sampler |
| L.B. LeDoux | 10395-103 Ave. Edmonton, Alta. | Cook |
| C.F. Gleeson | 764 Belfast Road Ottawa K1G 0Z5 | Consulting Geochemist |
| | | Harman Management Ltd. |
| J. Lewis | General Delivery Dawson City, Y.T. | Line-cutter |
| A. McLeod | General Delivery Ross River, Y.T. | Line-cutter |
| T. Charlie | General Delivery Ross River, Y.T. | Line-cutter |
| F. Charlie | General Delivery Ross River, Y.T. | Line-cutter |
| J. Etzel | General Delivery Whitehorse, Y.T. | Line-cutter |
| L. Bill | General Delivery Whitehorse, Y.T. | Line-cutter |
| P. Magnusson | General Delivery Whitehorse, Y.T. | Cook |
| J. McInnis | 1895-5th Avenue Prince George, B.C. | Line-cutter |

## GEOLOGY: (P.J. GANNON AND P. MEHROTRA)

### Table of Formations

| | |
|---|---|
| Late Tertiary(?) | (6) Rhyolite & trachyte porphyries |
| Tertiary(?) | (5) Andesite agglomerate and porphyry |
| Intrusives | (4) Quartz porphyry<br>(3) Quartz monzonite dyke |

| | | |
|---|---|---|
| Paleozoic(?) Formations | (2) | Schist, quartzite pebble conglomerate with minor shale, siltstone and greywacke |
| Precambrian(?) Nasina Group | (1) | Chlorite-sericite schist and quartz-sericite schist with minor quartzite; sericite schist; banded quartzite |

Precambrian(?) Nasina Group (1)

The oldest rock-unit is Precambrian(?) Nasina Group that has been divided into three members:

(a) Chlorite-sericite schist and quartz-sericite schist, both with minor amounts of quartzite.

(b) Sericite schist.

(c) Banded quartzite.

This metamorphic complex shows abundant chevron folding and micro-faulting with the formation of minor epidote at the contact of a younger quartz-monzonite intrusive.

The predominant strike is N53$^{o}$W and the predominant dips (away from the fold areas) are between 45$^{o}$ and 68$^{o}$ SW.

The main feature of the above complex is the abundance of coarse-grained sericite which is directly proportional to the amount of folding. However, there is no relation between sericite and mineralization. Accordingly, the sericite is considered to be the product of regional metamorphism and not hydrothermal alteration.

Paleozoic(?) Formations (2)

The second-oldest rock-units, which crops out immediately south of the Nasina Group along the river, consist of Paleozoic(?) sedimentary rocks which rest unconformably on the older Group. The strike and dip of these rocks is the same as that of the underlying metamorphics.

The units consist mostly of a mixed schist and quartzite pebble conglomerate containing small lenses of shale, siltstone and greywacke.

Intrusives

(a) Quartz-Monzonite Dyke (3)

The next rock-unit outcrops on L 32E east of station 48+00 N and consists of a 2.5 feet wide, slightly cross-cutting, quartz-monzonite dyke which is exposed for about twenty-five feet.

(b) Quartz-Porphyry (4)

This unit occurs at the contact between the Paleozoic(?) sedimentary rocks on the south side and the Nasina Group. It consists of an irregular quartz-porphyry intrusive that can be traced about fifty feet.

Volcanic Rocks (5)

These units occur near the south end of L32E and lie flat and unconformable on the Paleozoic sedimentary rocks. They consist of andesite agglomerate with minor andesite porphyry.

Late Tertiary(?) Porphyries (6)

The youngest rock-unit consists of Late Tertiary, flat-lying, rhyolite and trachyte porphyries. These units, which are exposed at the southern end of the property and west of the Ladue River, are not in contact with any of the older rock-units.

## MINERALIZATION

With the exception of the rhyolite and trachyte porphyries (Unit 6) that are considered to be the only post-sulphide mineralization rock-units, all the others show some signs of iron-sulphide mineralization.

In general, the mineralization consists overwhelmingly of well-developed pyrite cubes and rare showings of pyrrhotite.

The pyrite mineralization is found as very small veinlets in the metamorphic rocks and follows the foliation. The quartzite is usually poorly mineralized and was found to be low in trace elements.

The pyrite mineralization is never present in amounts over 0.3 per cent sulfides. The only exception is a small system of complex fracturing north of the quartz-monzonite intrusive and along the river. In this area, mapped as gossan, there are regular pods of pyrite which make up to 2.5 per cent of the rock. The abundance of sulfide mineralization is directly proportional to the increase in feldspar

as well as silicification. Numerous barren white quartz veins and veinlets occur all over the property.

## ALTERATION

The only significant areas of alteration are the irregular pods found in the vicinity of quartz-monzonite. Pyrite leaching has progressed up to one hundred per cent in small areas in the chlorite schist. These sections are well jointed and thus easily leached. The quartzite along these areas contain similar quantities of sulfide mineralization but the alteration is at the most 10 - 25 per cent. Alteration consists mainly of argillic silicification and minor feldspathization.

Within the pods mentioned above there are limonites which form a gossan. In this case, the most predominant limonite mineral is goethite, with the rare occurence of jarosite.

The quartz porphyry is stained with goethite and leached 60 - 100 per cent. It is the only unit to show alteration.

## GEOCHEMICAL SURVEY (C.F. GLEESON)

### Soil Sample Collection and Analysis

Soil samples were taken from the "B" horizon at 200 feet intervals on lines 400 feet apart.

The samples were sent to the Bondar-Clegg and Company Ltd. laboratory in Whitehorse, where

they were dried and sieved to minus 80 mesh. This fraction was analyzed geochemically for copper, zinc and molybdenum using atomic absorption spectrometry after extraction with a hot-solution of $HCl-HNO_3$.

Anomalies

Results are shown on the attached plan. Values have been contoured and the following anomalies outlined.

Anomaly #1

This is a coincident copper-zinc anomaly which is located at the northwest corner of the claim block. It trends north-northwesterly off the claims. Values for copper range from 30 to 81 ppm and for zinc from 100 to 420 ppm. The core of the anomaly is about 1800 feet long and averages 500 feet in width.

No geological information is available, as the area is covered by a swamp. Due to this lack of information, a final evaluation of the anomaly at this stage is not possible. Since it is a low-intensity copper anomaly, no work is recommended on it at this time. If work is done on it in the future, then the anomaly should be traced north and northwestward until closure is achieved.

Anomaly #2

This is a weak but distinct copper-zinc anomaly that trends northwest between L 16E and 36E. It is about 3000 feet long and averages 400 feet in width. Values for copper range from 30 to 71 ppm and for zinc from 75 to 165 ppm. Slightly anomalous

molybdenum values (3 to 5 ppm) occur within the zone.

Geologically the area is underlain by chlorite-sericite schists of the Nasina Group. The attitude of the anomaly parallels the strike of the schists and this, plus the low intensity of the metal values, suggests that the anomaly is formational. Hence it could be due to minor amounts of copper in the schists. No further work is recommended.

Other Anomalies

A series of weak but distinct northeast-trending copper anomalies accompanied in places by low anomalous molybdenum values occur in the swampy area on the east side of the Ladue River. The attitudes of these anomalous zones is at right angles to those on the west side of the river.

It is suggested that this offset could be due to a fault which would extend down the Ladue River.

Conclusions

Due to the absence of geological and geophysical data in this area, full evaluation of the significance of these anomalies is not possible. However, because of the low intensity of the copper values in these zones, no further work is suggested here at this time.


Signed: P. Mehrotra

P. Mehrotra, M.Sc., Member of G.A.C.

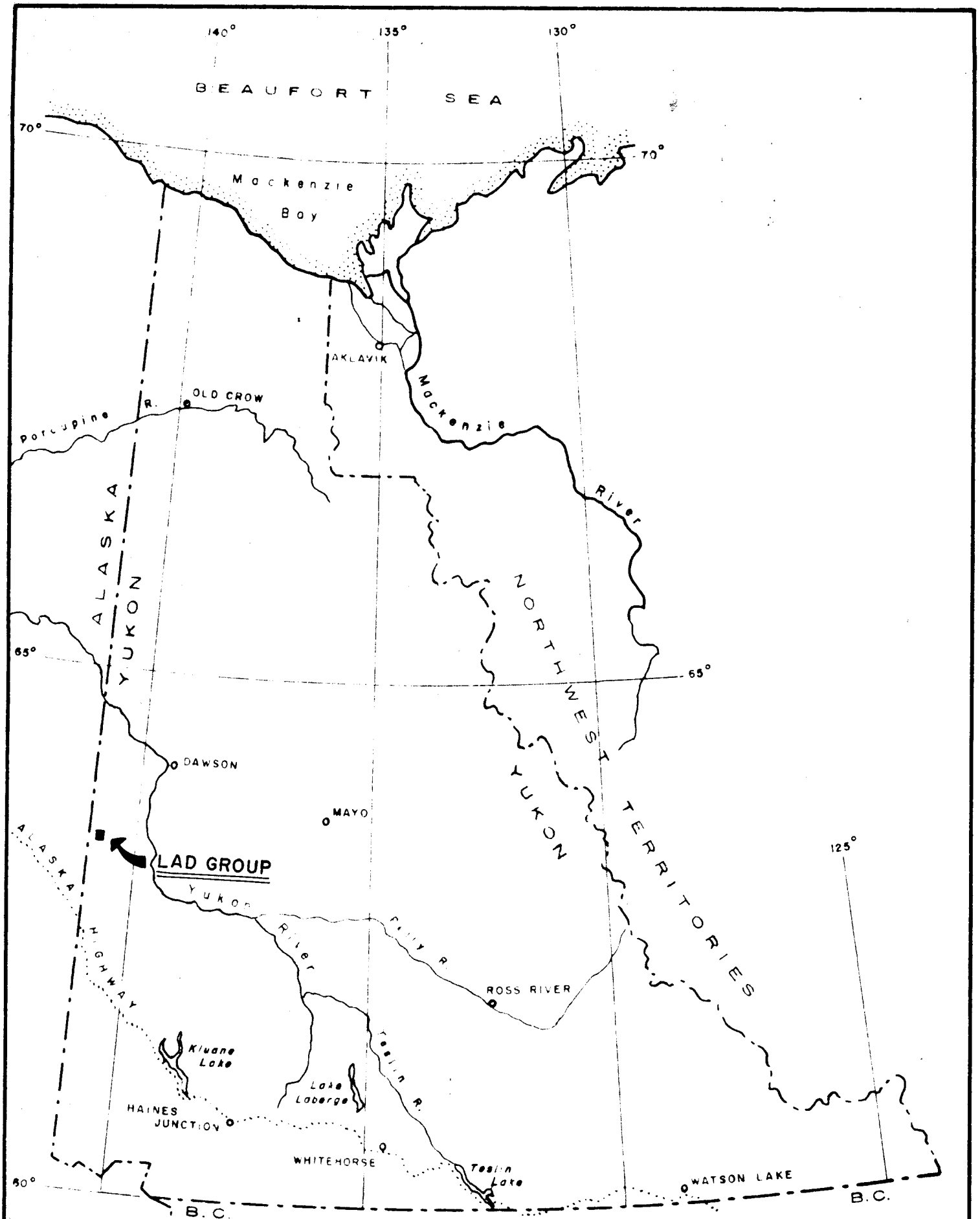
C.F. Gleeson

C.F. Gleeson, Ph.D., P.Eng.(Ont.)

## GEOCHEMICAL ANALYSES OF BEDROCK SAMPLES

(See geology map for location of samples)

| Sample Number | Rock Type | Values in ppm | | | | | | | ppb |
|---|---|---|---|---|---|---|---|---|---|
| | | Cu | Zn | Mo | Ag | Pb | Cr | Ni | Au |
| 1 | Chlorite schist, quartz vein with pyrite. | 83 | 340 | 8 | 0.9 | | | | |
| 2 | Banded silicified quartzite with cpy? | 66 | 174 | 2 | 1.3 | | | | |
| 3 | Banded quartzite with Py. | 55 | 74 | 1 | 0.6 | | | | |
| 4 | Sheared andesite, with garnet & Py. | 54 | 98 | 2 | 0.5 | | | | |
| 5 | Chlorite schist, no mineralization. | 47 | 74 | 2 | 0.6 | | | | |
| 6 | Chlorite-sericite schist. | 4 | 28 | 1 | 0.2 | | | | |
| 8 | Banded quartzite. | 45 | 42 | 3 | 0.2 | | | | 10 |
| 9 | Quartzite. | 22 | 34 | 2 | 0.4 | | | | |
| 10 | Quartzite with Py. | 23 | 18 | ND | 0.2 | | | | |
| 11 | Quartzite-sericite schist, with Py, actinolite. | 4 | 16 | 1 | 0.5 | | | | |
| 12 | Hornblendized rock. | 34 | 54 | 1 | 1.0 | | | 8 | |
| 13 | Quartz monzonite, with Py, hornblende. | 4 | 19 | 1 | 0.3 | | | 5 | |
| 14 | Quartz vein with Py. | 4 | 8 | 1 | 0.1 | | | | |
| 15 | Quartz-chlorite-sericite schist, with Py. | 8 | 34 | 1 | 0.3 | | | | |
| 16 | Biotite schist, with Py & magnetite. | 44 | 101 | 2 | 0.7 | | | 38 | |
| 17 | Quartzite. | 9 | 31 | ND | 0.4 | | | | |
| 18 | Quartz-porphyry. | 7 | 31 | 3 | 0.8 | | | | |
| 19 | Andesite porphyry, with croceite? | 9 | 55 | 2 | 0.5 | 52 | 4 | 9 | |
| 20 | Quartz-sericite schist. | 11 | 45 | ND | 0.3 | | | | |
| 21 | Quartz-sericite schist. | 25 | 20 | ND | 0.2 | | | | |
| 22 | Banded sericite-rich quartzite with Py. | 2 | 22 | ND | 0.1 | | | | |
| 23 | Conglomerate. | 6 | 24 | ND | 0.6 | | | | |
| 24 | Andesite agglomerate. | 13 | 40 | 1 | 0.6 | | | | |
| 25 | Rhyolite. | 4 | 66 | 2 | 0.3 | | | | |
| 26 | Rhyolite with chert bands. | 3 | 96 | 2 | 0.2 | | | | |




LOCATION MAP

LAD GROUP

YUKON TERRITORY

(1)

July/71 S.

## LEGEND

### LATE TERTIARY

6 Rhyolite and Trachyte Porphyry

### TERTIARY

5 Andesite Agglomerate, minor Andesite Porphyry

### EARLY TERTIARY

4 Quartz Porphyry

3 Quartz Monzonite

### PALEOZOIC (?)

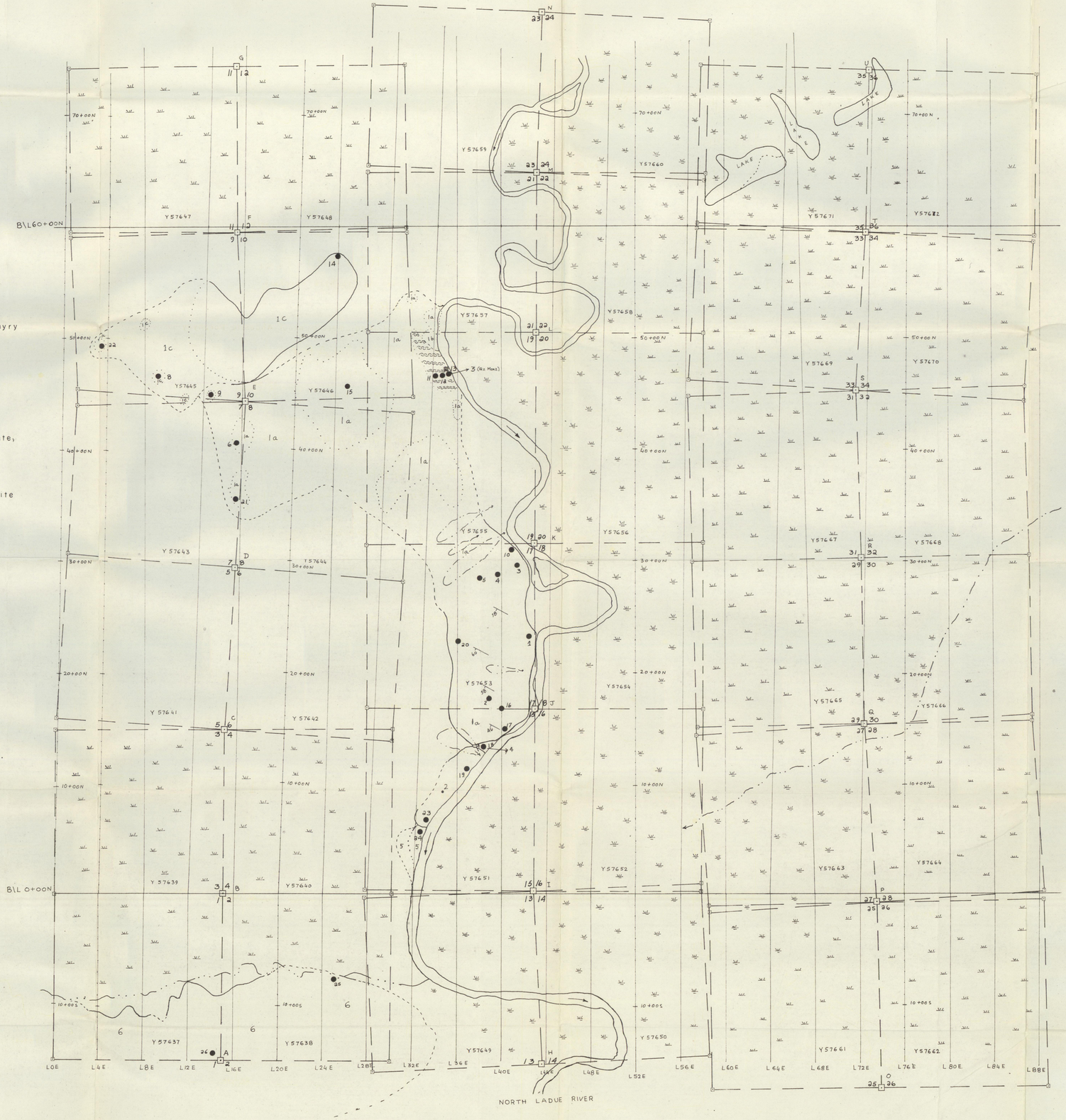
2 Schist & Quartzite Mixed Pebble Conglomerate, minor Shale, Siltstone, Greywacke.

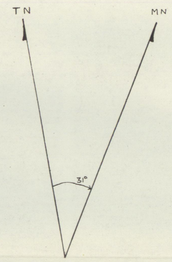
### PRECAMBRIAN (?)

1 NASINA GROUP : 1a, mainly Chlorite-Sericite Schist & Quartz-Sericite Schist, minor Quartzite. 1b, Sericite Schist. 1c, Banded Quartzite

### SYMBOLS

- Area of rock outcrop
- Geological boundary (defined, inferred)
- Bedding, dip
- Multidirectional fracturing
- Gossan
- Rock sample location ● 25
- Stream
- Seasonal stream
- Bog
- Muskeg
- Claim posts location
- Claim lines




OCCIDENTAL MINERALS CORPORATION OF CANADA

NTS REF 115 N/7

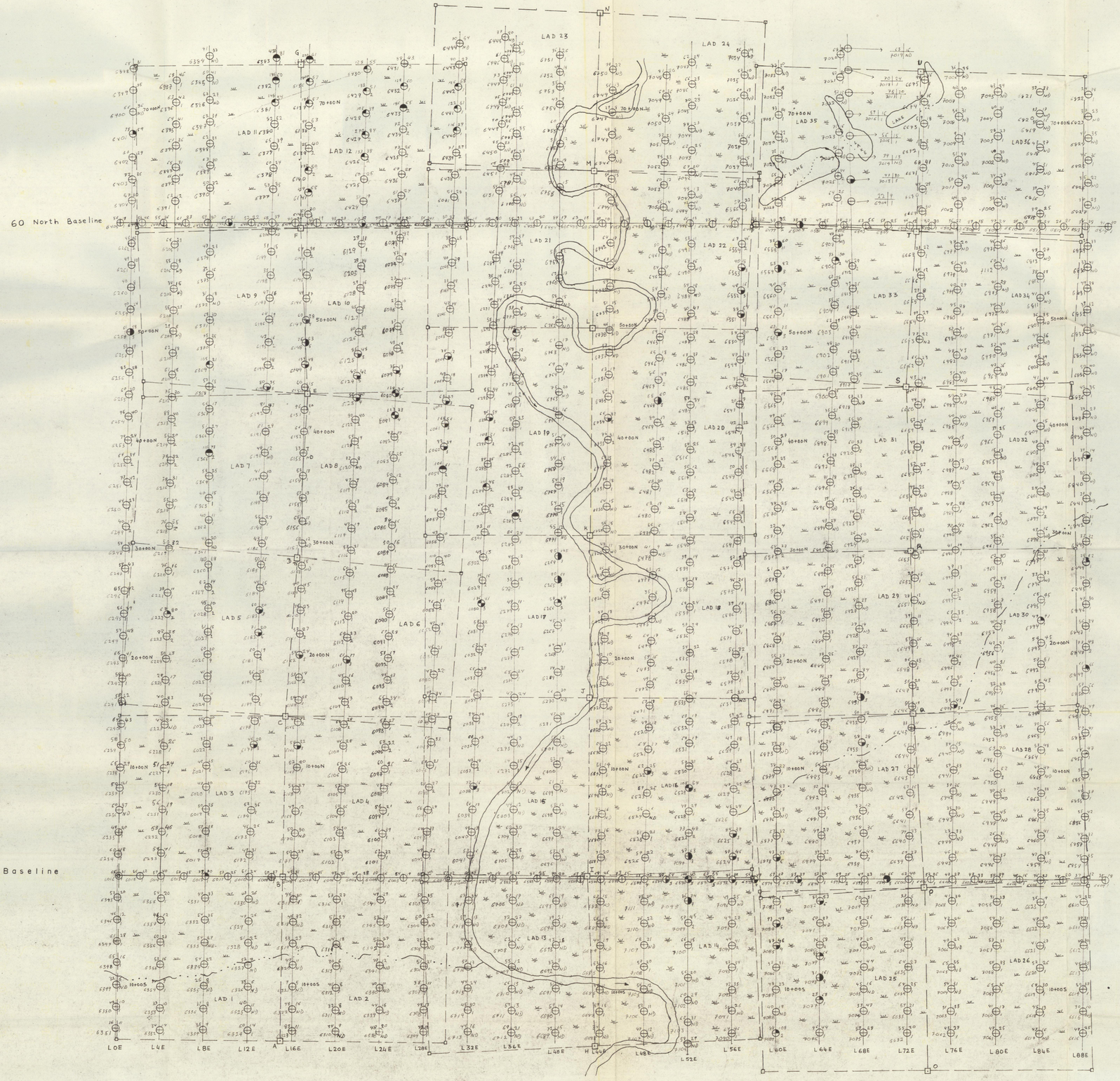
# LADUE RIVER AREA - YUKON TERRITORY
# LAD CLAIM GROUP

## GEOLOGICAL MAP

0 400 800 1200 1600

FEET

Geology by: P.J. GANNON, P. MEHROTRA
JUNE 7 - JULY 11, 1971




OCCIDENTAL MINERALS CORPORATION OF CANADA

NTS REF 115 N/7

LADUE RIVER AREA - YUKON TERRITORY

LAD CLAIM GROUP

# GEOCHEMICAL MAP

0 400 800 1200 1600

FEET

Sampling by: S. DONOVAN, C.F GLEESON

JUNE 7 - JULY 11, 1971

L E G E N D

TERTIARY

G — Rhyolite and Trachyte Porphyry

5 — Andesite Agglomerate and Porphyry

4 — Quartz Porphyry

3 — Quartz Monzonite

PALEOZOIC (?)

2 — Schist Quartzite, Conglomerate, minor Shale, Siltstone and Greywacke

PRECAMBRIAN (?)

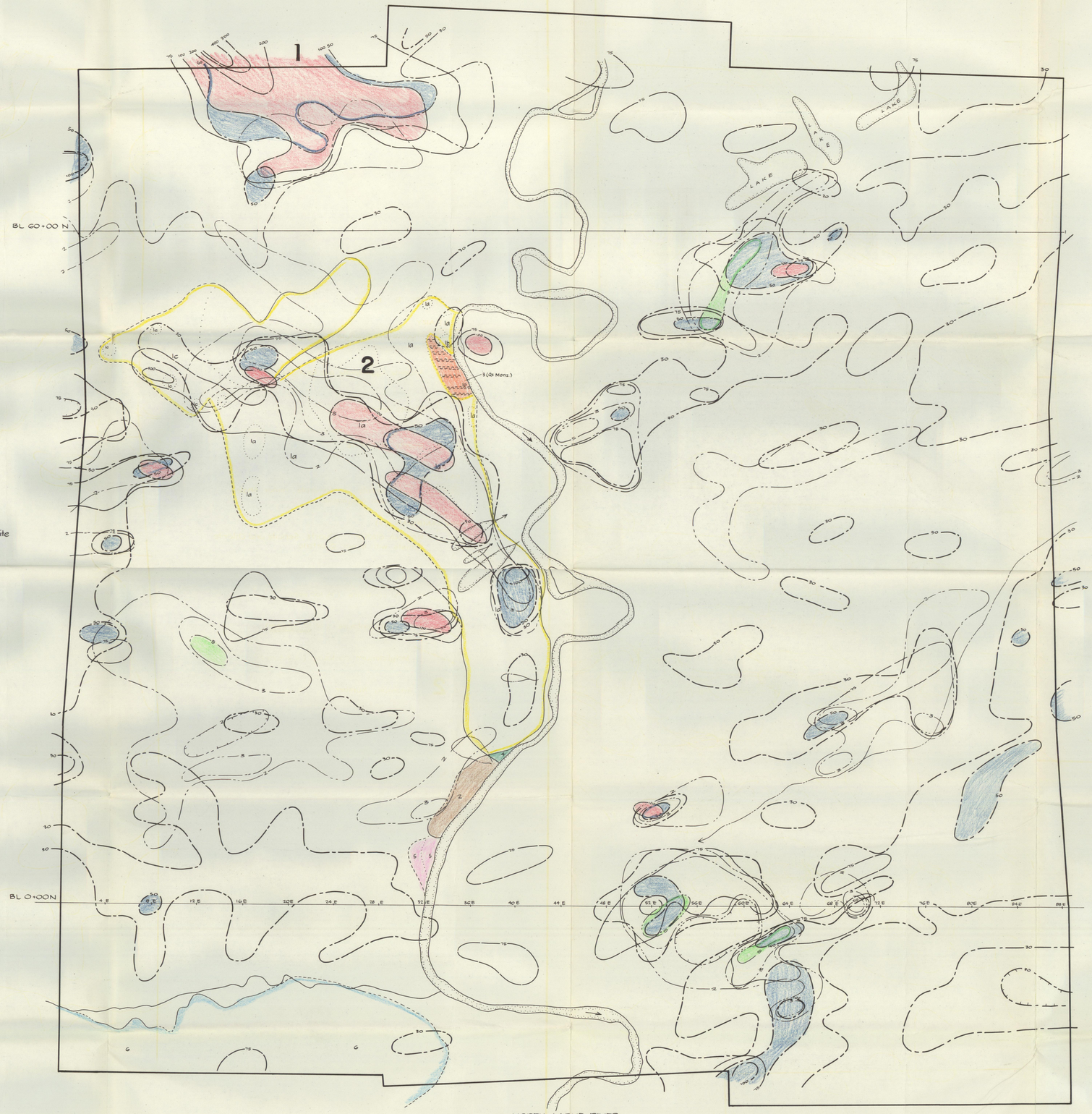
1 — NASINA GROUP - Quartz, Sericite and Chlorite Schists with minor Quartzite

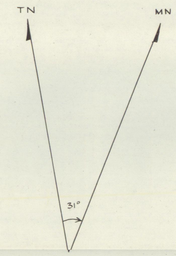
Zinc contours ( 75, 100 ppm)

Copper contours ( 30, 50, 100 ppm)

Molybdenum contours ( 2, 3, 5 ppm)

**2** Anomaly Number




OCCIDENTAL MINERALS CORPORATION OF CANADA

NTS REF 115 N/7

LADUE RIVER AREA - YUKON TERRITORY

LAD CLAIM GROUP

# GEOLOGY & GEOCHEMISTRY

0 400 800 1200 1600

FEET

Geology by P.J. GANNON, P. MEHROTRA

Geochemistry by C.F. GLEESON.

JUNE 7 - JULY 11, 1971

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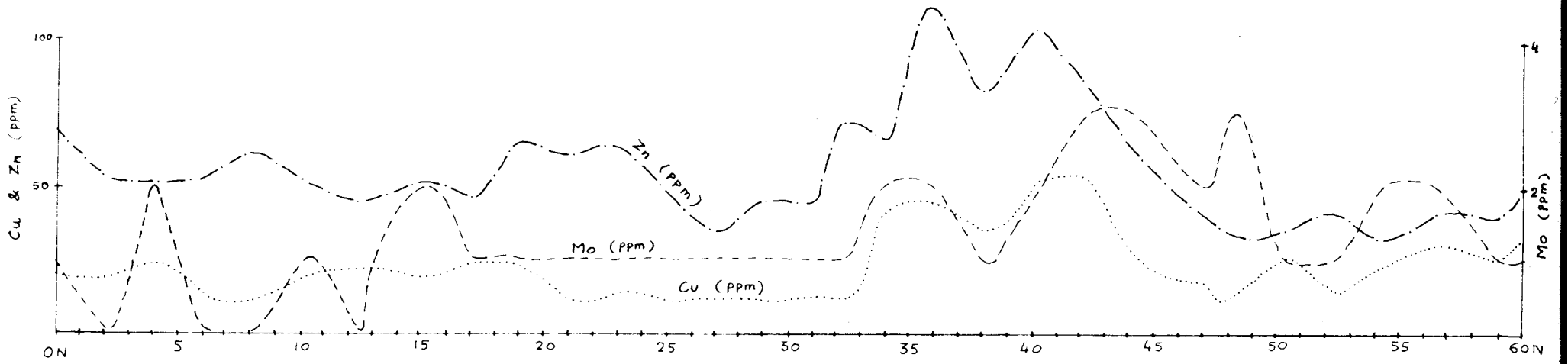


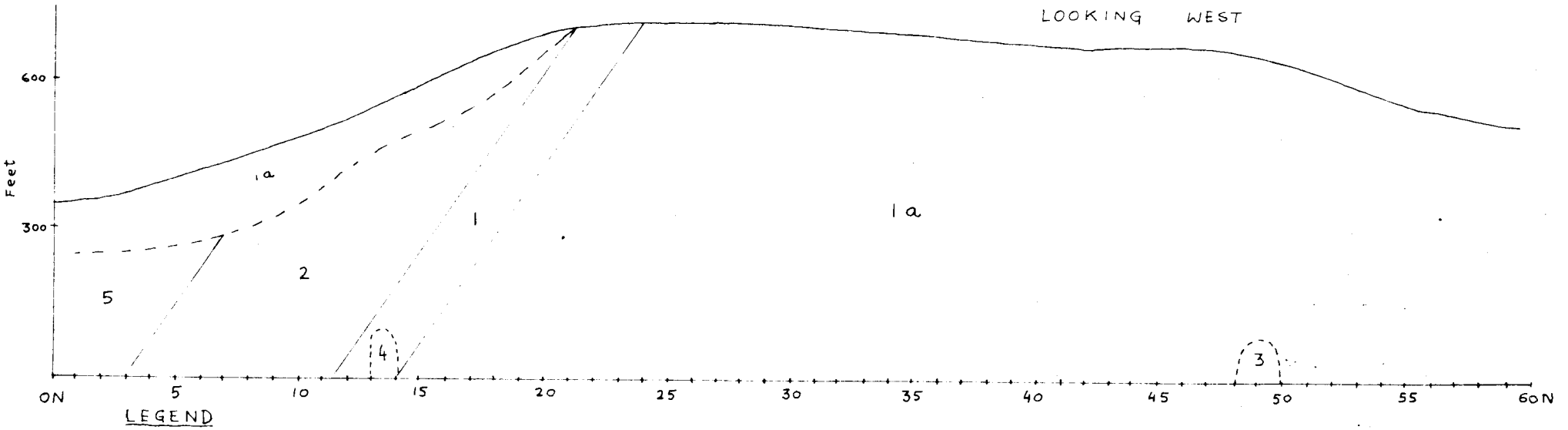


LEGEND

5 : Andesite, agglomerate
4 : Quartz porphyry
3 : Quartz Monzonite
2 : Schist, quartzite, conglomerate
1 : Nasina Group : schists, quartzite
1a : Chlorite - sericite schist, Quartz - sericite schist, quartzite

# GEOLOGICAL CROSS-SECTION AND GEOCHEMICAL PROFILES

FROM B\L ON, 40E TRUE NORTH