

3616

TITLE

GEOCHEMICAL REPORT ON THE MOT GROUP

LOCATION

APPROXIMATELY 12 MILES SOUTHEAST OF  
KAMLOOPS, BRITISH COLUMBIA  
50°38' N. LAT., 120°07' W. LONG.

AUTHOR

DONALD E. HOPKINS B. A., M. A.

OWNER

COPPER RANGE EXPLORATION COMPANY, INC.

INTERMITTANT WORK PERIOD

29 APRIL, 1971 THROUGH 13 NOVEMBER, 1971

DATE

7 DECEMBER, 1971

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO 3616 MAP

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## INTRODUCTION

Anomalous concentrations of gold and copper discovered in rocks during a regional exploration venture near Kamloops, British Columbia, prompted Copper Range Exploration Company, Inc., to stake the MOT group (fig. 1).

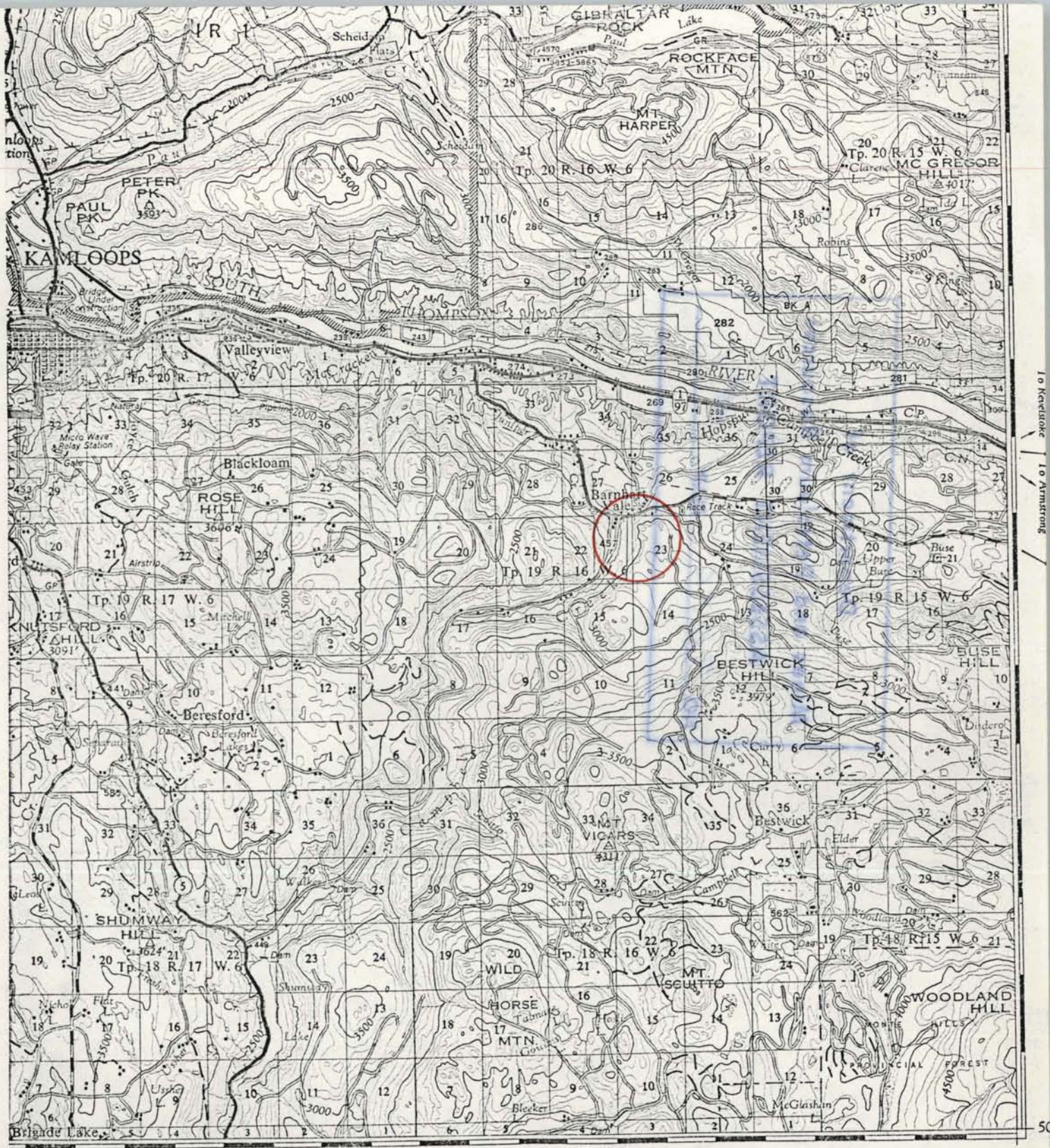
Following claim staking, Copper Range conducted a detailed investigation of the anomalous zone that included soil and rock-chip sampling and geologic mapping.

## LOCATION

MOT #9 through MOT #30 claims (fig. 2) are located near Barnhart Vale, British Columbia, approximately 12 miles southeast of Kamloops,  $50^{\circ}38' N$ : Lat;  $120^{\circ}07' W$ . Long. The claims are in the Kamloops Mining Division.

## GEOLOGIC SETTING

The MOT group is situated in mixed terrane which includes Paleozoic Cache Creek group chert, limestone and argillite, Cretaceous (?) plutonic rocks and volcanic flows of Tertiary Kamloops group. The metaliferous anomaly lies approximately one mile east of the Iron Mask batholith--Cache Creek group contact in Cache Creek rocks that have been intruded locally by light colored feldspar porphyry dikes. In the vicinity of the anomaly iron oxide is pervasive as fracture filling in the extensively cracked



15'  
To Merritt—45 miles

120°00'

Universal Transverse Mercator Projection

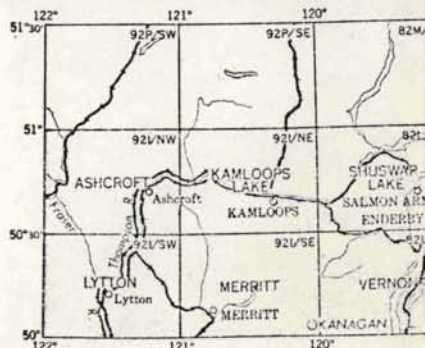
REFERENCE

- Road, Hard Surface, All Weather 2 Lanes
- .. Loose Surface, All Weather 2 Lanes
- .. Loose Surface, Less than 2 lanes All Weather Dry Weather
- .. Four Wheel Drive
- Trail
- Railway
- Main Telephone Line
- Main Electric Power Line
- Horizontal Control Station
- Contours (Interval 100 feet)
- Elevation in feet above mean sea-level 4500 Depression 6774'
- Intermittent Stream
- Intermittent Lake or Seasonal Inundation

MOT GROUP

0 2 MI.

fig. 1



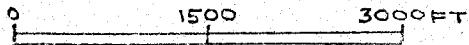
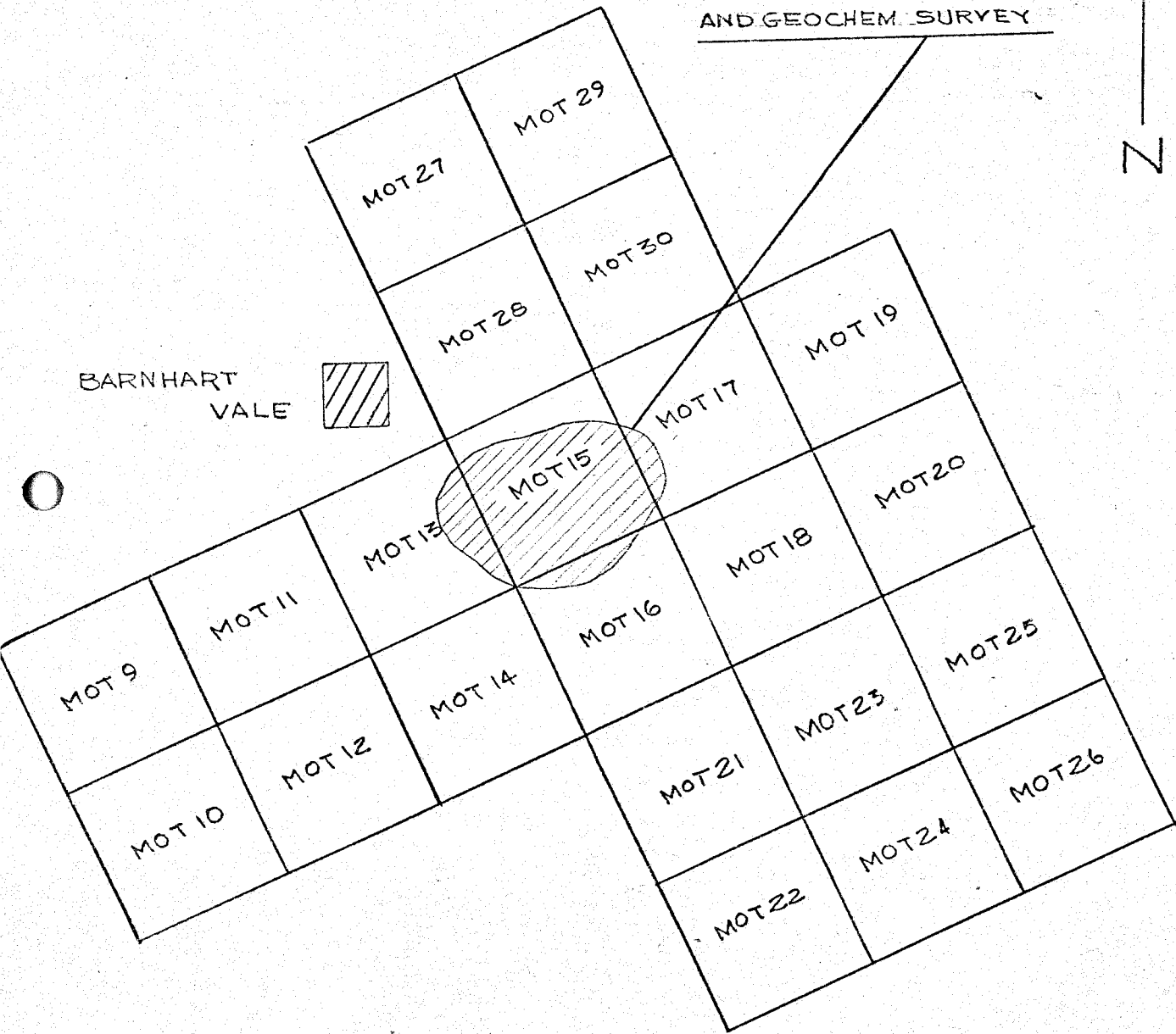
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NO. 3616 MAP #2

AREA OF GEOLOGIC MAP  
AND GEOCHEM. SURVEY



BARNHART  
VALE



LOCATION MAP  
OF THE  
MOT GROUP  
fig. 2

host rock. Argillic alteration is present in and near dike rocks.

Oxides and sulfides of copper are visible in trenches that occupy part of the main anomaly.

### GEOCHEMICAL SURVEY

#### I. Soil Sampling

In an attempt to delineate the anomaly, a soil sampling program was initiated. Seventy one samples were collected from the "B" horizon at 200 foot intervals along lines spaced 250 feet apart (figs. 3 - 4).

The samples were sent to Barringer Research in Vancouver for analysis to determine their arsenic, mercury and copper content. Arsenic, an element frequently associated with gold, was determined by colorimetric method, while mercury, an element associated with plutonic activity, was determined by spectrometer. Copper was determined by atomic absorption.

The data gained from the soil survey indicate concentrations of arsenic which vary from less than 2 to 56 ppm, mercury from 35 to 1028 ppb and copper from 31 to 155 ppm. Interpretation of values is as follows:

<u>Element</u>	<u>Background</u>	<u>Threshold</u>	<u>Anomalous</u>
Arsenic	0 - 9 ppm	10 - 29 ppm	over 30 ppm
Copper	0 - 69 ppm	70 - 99 ppm	over 100 ppm
Mercury	0 - 199 ppb	200 - 299 ppb	over 300 ppb

Contoured arsenic and copper values (figs. 3 - 4) indicate a northeast trending anomaly. The anomaly at present has not been fully delineated but is at least 1500 feet long and up to 750 feet wide.

No particular trend is indicated by mercury values.

## II. Rock Sampling

Following the soil survey the anomalous zone was mapped geologically (fig. 5) concurrently with detailed rock-chip sampling. Control was supplied by alidade and plane table for both sample sites and geology.

Limited outcrop in the area confined rock sampling to the prominent topographic high that occupies the south half of MOT # 15.

Rock chips were analyzed for gold and arsenic and the values plotted on maps\* (figs. 6 - 7). Gold was found to occur in rocks up to 106,400 parts per billion and arsenic up to 400 parts per million. Interpretation of values is as follows:

<u>Element</u>	<u>Background</u>	<u>Threshold</u>	<u>Anomalous</u>
Gold	0 - 199 ppb	200 - 399 ppb	over 400 ppb
Arsenic	0 - 49 ppm	50 - 99 ppm	over 100 ppm

Contoured gold and arsenic values (figs. 6 - 7) indicate a crude east-west lineament. The anomaly has an average width of 300 feet and is open on either end.

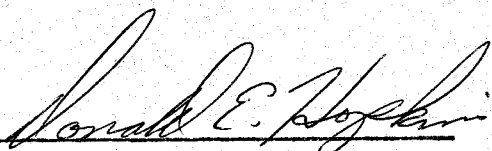
\*Can be superimposed on geology map (fig. 5).

## CONCLUSIONS

Precious and base metals were deposited in anomalous quantities in highly fractured sedimentary rock concurrently or shortly following the emplacement of feldspar porphyry dikes.

At present the anomaly is not fully defined. Few outcrops and thick accumulation of glaciofluvial material have confined geochemical investigation to the topographic high on MOT #15.

Further investigation of the area is recommended. A ground magnetometer survey should be conducted to determine the extent and configuration of the intrusive rocks and the anomaly should be drilled to determine vertical continuity of metal values.

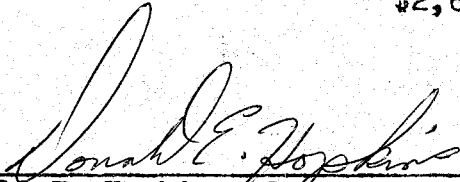
  
Donald. E. Hopkins, B. A., M. A.  
Geologist



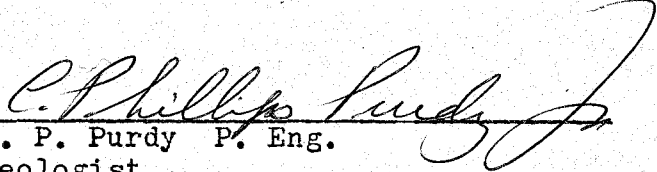
STATEMENT OF WORK: Intermittant work period; 29 April, 1971  
through 13 November, 1971.

1. Soil Survey:	6 man-days, including wages, room and board for prospector and assistant	\$227.00
2. Soil Analysis by Barringer Research:	Copper, Arsenic, Mercury	324.00
3. Rock Sampling and Geologic Mapping:	34 man- days, including wages, room and board (geologist and assis- tant)	1,483.00
4. Rock Analysis by Barringer Research:	Gold and Arsenic	200.00
5. Vehicle:	four wheel drive for 20 days	200.00
6. Report Preparation:	five man-days (geolo- gist and draftsman)	200.00
	Total	<u>\$2,634.00</u>

Signed

  
Donald E. Hopkins B. A., M. A.  
Geologist  
Copper Range Exploration Co., Inc.

Countersigned

  
C. P. Purdy P. Eng.  
Geologist  
Copper Range Exploration Co., Inc.

BARRINGER RESEARCH  
ANALYTICAL METHODS

1. Arsenic in soils and rocks

1.1 Soils

The soils are force-air dried and screened to -80 mesh with nylon bolting cloth. A .25 g. sample is weighed into a test-tube and fused with potassium bisulfate. The melt is digested with 5 mls. of .5N HCl. An aliquot is placed in a potassium iodide solution. This solution is reduced, and zinc pellets added. The resulting arsine gas is channeled over a mercuric chloride paper and the resulting color is compared to standards.

1.2 Rocks

The same as for soils, except in preparation. The rocks are pulverized to -200 mesh.

2. Copper in soils:

The soils are prepared as for arsenic. A .25 g. sample is weighed into a test-tube and refluxed with perchloric acid for four hours. The samples are cooled, diluted, and analyzed by atomic absorption. A Tectron AA-5 is used.

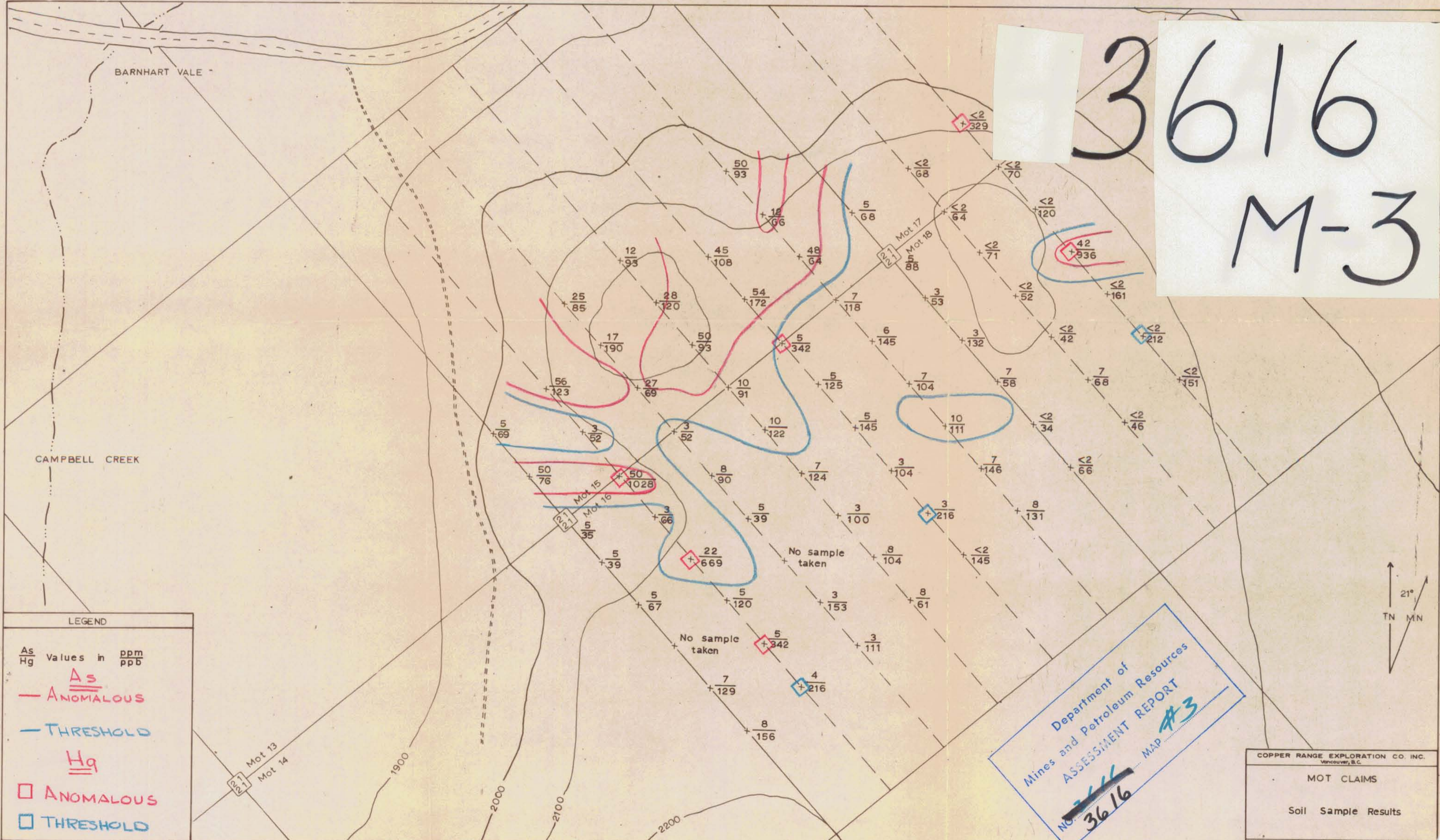
3. Mercury in soils:

The mercury instrument is based on the atomic fluorescence principle. The technique requires a 100 mg. sample to be heated to 700 degrees C. for 30 seconds. The resulting peak is integrated.

4. Gold in soils and rocks:

The sample is fused and fire assay bead is formed. The bead is dissolved in hot aqua regia, and then analyzed by atomic absorption. The detection limit is .1 ppb.

3616  
M-3



LEGEND

As  
Hg Values in ppm  
ppb

— As ANOMALOUS

— THRESHOLD

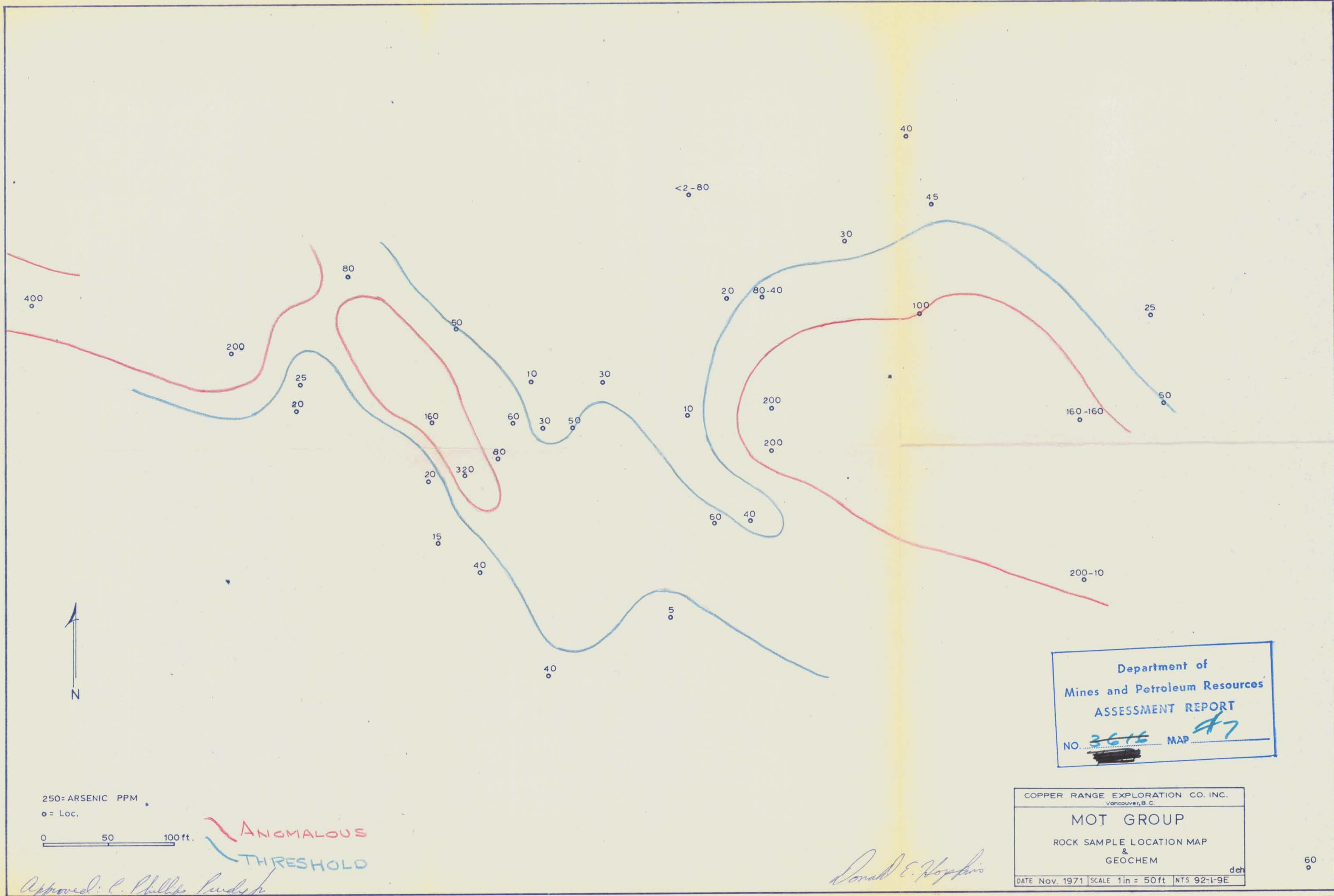
— Hg

□ ANOMALOUS

□ THRESHOLD

Approved: C. Phillips Purdy

250 0 250  
Donald E. Hayden's



250 = ARSENIC PPM  
 ● = Loc.

0 50 100 ft.

ANOMALOUS  
 THRESHOLD

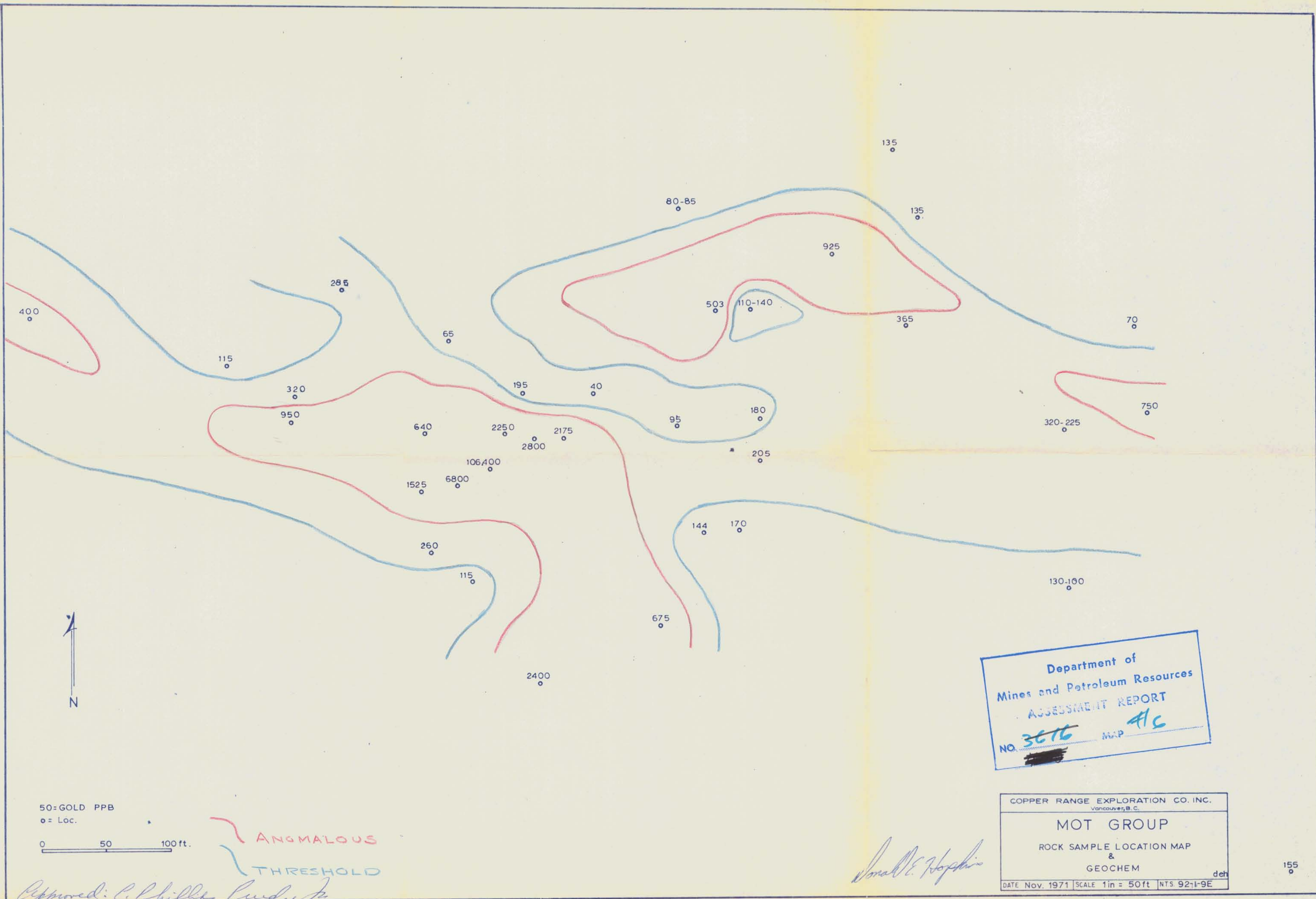
Approved: C. Phillips Ludypf

Donald E. Hopkins

Department of  
 Mines and Petroleum Resources  
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 NO. 3616 MAP 47

COPPER RANGE EXPLORATION CO. INC.  
 Vancouver, B.C.  
 MOT GROUP  
 ROCK SAMPLE LOCATION MAP  
 &  
 GEOCHEM  
 DATE Nov. 1971 SCALE 1in = 50ft NTS 92-1-9E

FIG. 7



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COPPER RANGE EXPLORATION CO. INC.  
Vancouver, B.C.  
MOT GROUP  
ROCK SAMPLE LOCATION MAP  
&  
GEOCHEM  
DATE Nov. 1971 SCALE 1 in = 50 ft NTS 92-1-9E

50: GOLD PPB  
o = Loc.

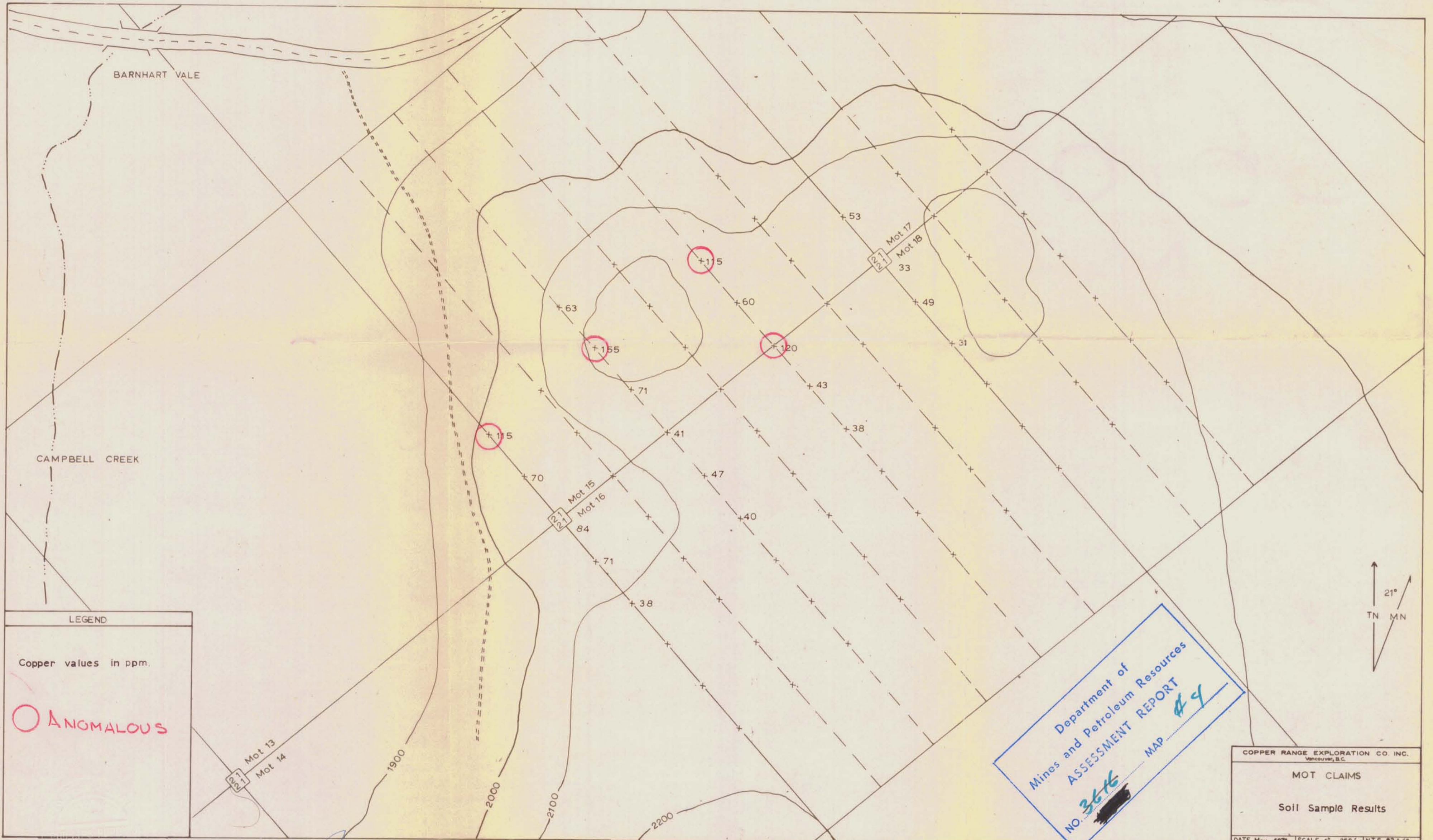
0 50 100 ft.

ANGMALOUS  
THRESHOLD

Approved: C. Phillip Rudy, Jr.

Donald E. Hopkins

FIG. 6



LEGEND

Copper values in ppm.

○ ANOMALOUS

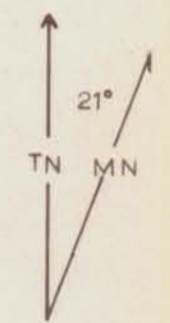
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 3616 MAP #4

COPPER RANGE EXPLORATION CO. INC.  
Vancouver, B.C.

MOT CLAIMS

Soil Sample Results

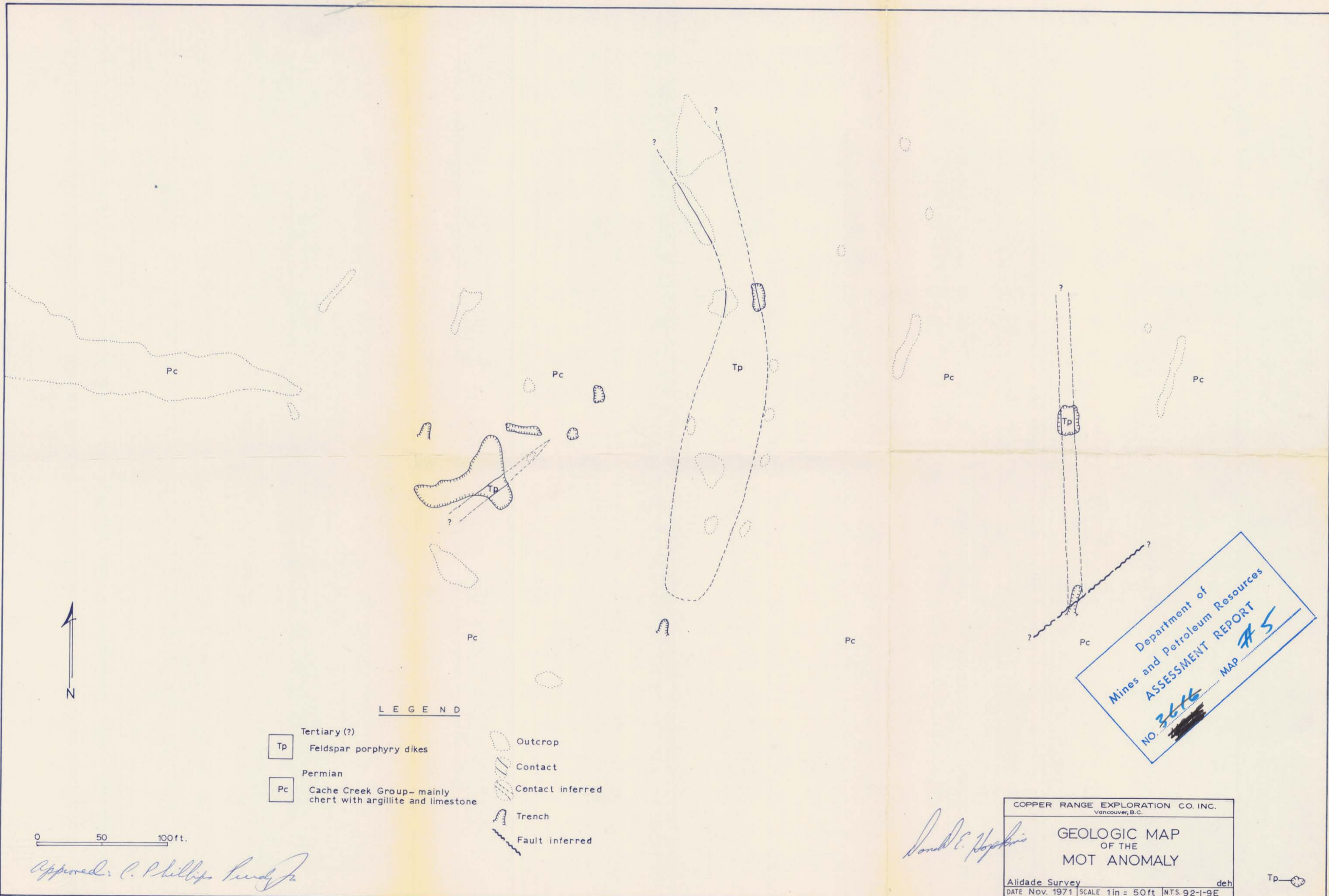
DATE May 1971 SCALE 1" = 250' N.T.S. 92 1/2



Approved: C. Phillips *[Signature]*

250 0 250  
*[Signature]*

FIG. 4



0 50 100ft.

LEGEND

- |  |  |
|--|--|
| <p><b>Tp</b> Tertiary (?)<br/>Feldspar porphyry dikes</p> <p><b>Pc</b> Permian<br/>Cache Creek Group—mainly<br/>chert with argillite and limestone</p> | <p> Outcrop</p> <p> Contact</p> <p> Contact inferred</p> <p> Trench</p> <p> Fault inferred</p> |
|--|--|

Approved: *C. Phillips Lundy Jr.*

Department of  
 Mines and Petroleum Resources  
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 NO. ~~3676~~ MAP #5

*Donald E. Hopkins*

COPPER RANGE EXPLORATION CO. INC.  
 Vancouver, B.C.

**GEOLOGIC MAP  
 OF THE  
 MOT ANOMALY**

Alidade Survey deh  
 DATE Nov. 1971 SCALE 1in = 50ft NTS. 92-1-9E

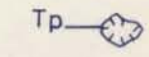


FIG. 5