

6040

CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY
OF THE
CLAP CLAIMS

CLAP

Claim Sheet No. 92 I/7E

Lat.: 50°20'

Long: 120°~~28'~~

37

92I/7E

Claims: Clap 19
Nicola Mining Division
British Columbia

MINERAL RESOURCES BRANCH

ASSESSMENT REPORT

NO.

6040

by:
Colin C. Macdonald, B.Sc.(Eng.)

Covering Work Completed During the Period
June 27 to June 29, 1976

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SUMMARY

The Clap 1-18 claim group was staked in 1974 to determine the cause of a regional stream sediment anomaly. A geological and geochemical survey completed in 1975 outlined a major copper anomaly with a zone of mineralization exposed in the cliffs of the tributary gorges. To determine the extent of the anomaly and mineralized zone, which was open to the west, Clap 19 was staked as a 3-unit claim to the west. In June, 1976, the geology and geochemistry was extended to cover Clap 19.

It was found to be underlain by a hybrid dioritic phase of the Nicola batholith, containing xenoliths of meta-volcanics. An elongated aplite intrusion was found in the east-central part of the claim. No addition was made to the previously known zone of copper mineralization in quartz veins.

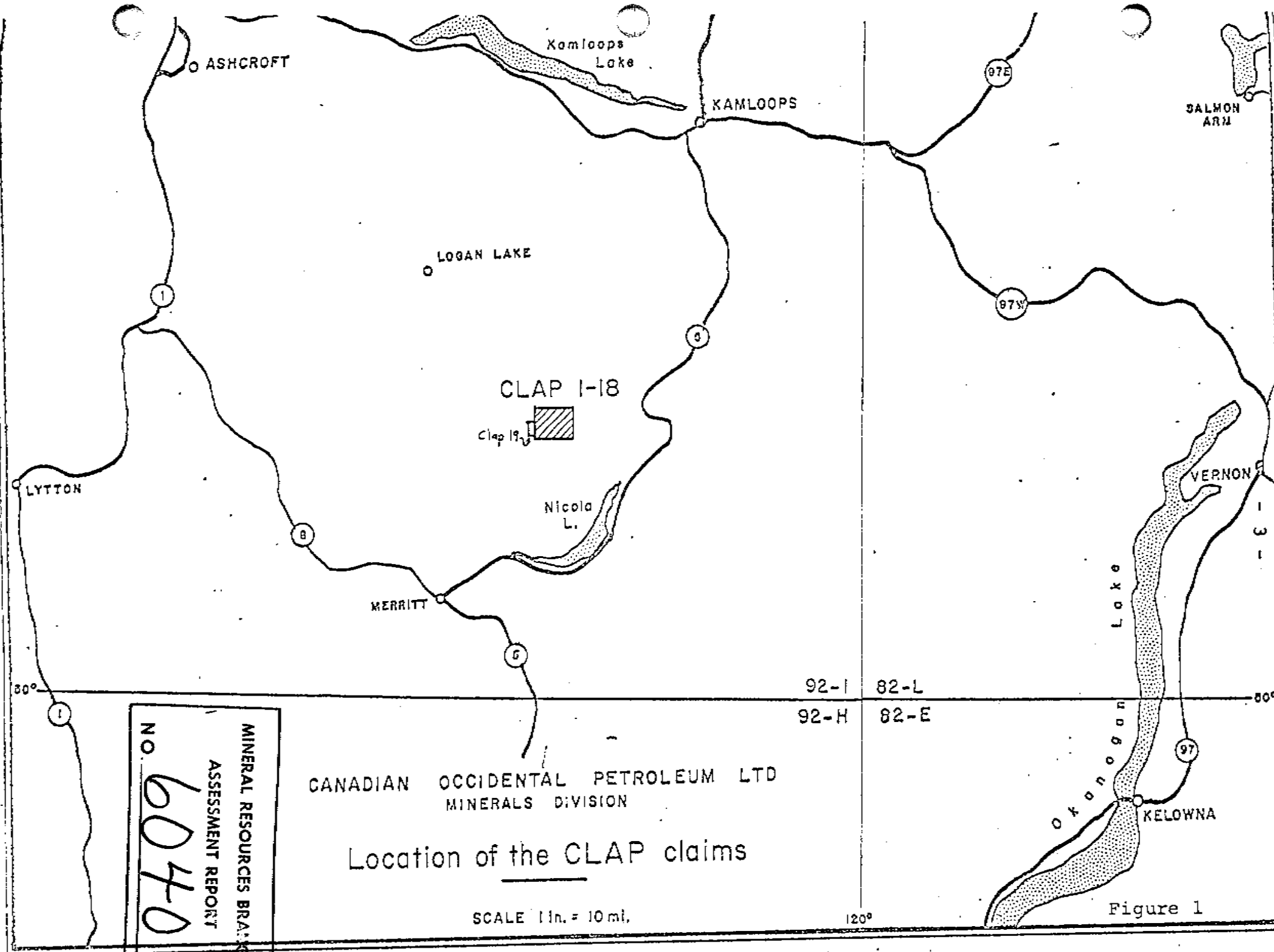
However, the geochemical anomaly which was open to the west on Clap 1-18 was completed, but with no increase in metal values. Since no indication is given of any more or better grade mineralization, no further work is recommended.

INTRODUCTION

The Clap (1-18) claims were staked as a result of the Nicky project regional stream sediment geochemistry program completed during the summer of 1974. Staking was done by Eastern Associates Reg'd. of Whitehorse in November, 1974. A geological and geochemical survey was completed by Canadian Occidental Petroleum Ltd. during the summer of 1975. This survey delineated a major copper anomaly which was open to the claim group's western boundary, as well as outcropping Cu mineralization, also on the western edge. To fully evaluate and determine the extent of the mineralization and associated geochemical anomaly, a three-unit claim, Clap 19, was staked in October, 1975, by J.R. Hill of Canadian Occidental Petroleum Ltd. A geological and geochemical survey was completed on this claim in June, 1976. This report will describe the geology of the claim and the results obtained from a geochemical soil survey completed by Canadian Occidental Petroleum Ltd., Minerals Division, the holder of the claims.

LOCATION AND ACCESS

The claim group is recorded on claim map 92 I/7E in the Nicola Mining Division (Figures 1 and 2). The property is located about 15 air miles (25 km) northeast of Merritt, B.C., and is accessible by road from a turnoff on the Merritt Lake road at Rey Lake Ranch, 12 miles (19.3 km) north of Merritt. From this turnoff, the anomalous stream leading



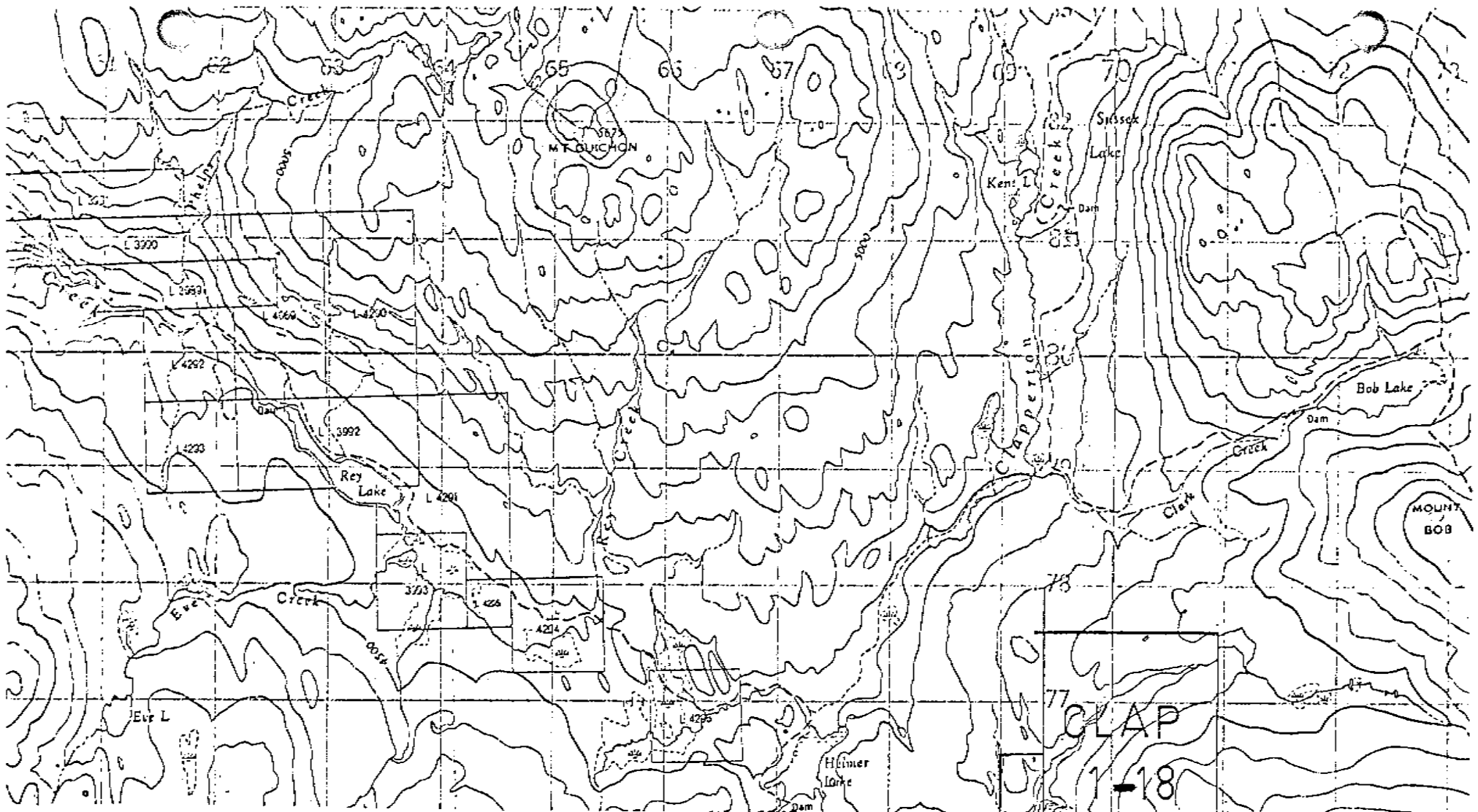
MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
 NO. 6040

CANADIAN OCCIDENTAL PETROLEUM LTD
 MINERALS DIVISION

Location of the CLAP claims

SCALE 1 in. = 10 mi.

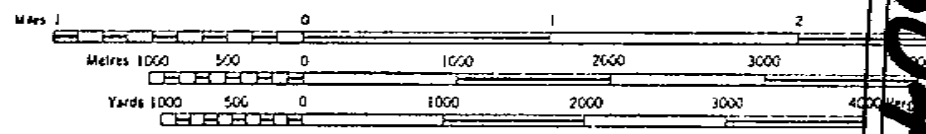
Figure 1



MAMIT LAKE
 KAMLOOPS DIVISION OF YALE DISTRICT
 BRITISH COLUMBIA

figure 2

SCALE 1:50,000 ÉCHELLE



MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
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to the Clap claims is the first stream past Helmer Lake on the powerline access road.

VEGETATION

The property is below tree line and completely covered with open pine and spruce forest. North slopes and valley floors have a thick undergrowth of alders, otherwise the forest floor is open and grassy.

PREVIOUS WORK

Portions of the Clap (1-18) claims overlap the Smokie (17-23) claim group. These were held by Ronrico Exploration Ltd. in 1969-1970. Assessment work (file #2715) included line cutting, soil geochemical survey and magnetometer survey. Claim posts and lines from the S.T. claim group were also found, but no assessment files were available.

WORK COMPLETED

Geological Mapping

Colin C. Macdonald (June 28-29, 1976)

Geochemical Survey

Dr. C.F. Gleeson, Consulting Geochemist

Steve A. McIntyre (June 28-21, 1976)

Richard M. Nodder (June 28-29, 1976)

Allen A. Seaman (June 28-29, 1976)

A total of 98 soil samples were taken and analysed for Cu and Mo, for a total of 196 determinations.

Names and Addresses of Personnel

R.H. Wallis Ph.D., P.Eng.	Canadian Occidental Petroleum Ltd. Minerals Division 801-161 Eglinton Ave.E. Toronto, Ont.	Geological Supervision
Colin C. Macdonald	"	Geological Mapping
Steve A. McIntyre	"	Geochemical Sampling
Richard M. Nodder	"	"
Allen A. Seaman	"	"

PHYSIOGRAPHY

The Clap 19 claim is located on a gently, westward sloping hill draining into Clapperton Creek. The area is dissected by a major tributary stream of Clapperton Creek, and the three branches of this stream have created gorges with locally steep relief.

GEOLOGY

Introduction

The Clap property is underlain by the hybrid phase of the Nicola Batholith as described by Cockfield (1948) and by a zone of chloritized volcanics on the west side of the property.

General Geology

The Clap (1-18) group was found to be underlain by a hybrid dioritic phase of the Nicola batholith containing metamorphosed volcanic xenoliths and some volcanic country rock (see 1975 report by R.L. George - Geology and Geochemistry of the Clap Claim Group). The diorite has been subdivided into a hornblende diorite, a biotite diorite, and a quartz-biotite diorite. Contacts between these units are gradational, as the biotite is often formed at the expense of the hornblende, possibly as a retrograde metamorphic product. These units were found to continue to Clap 19, with the hornblende diorite predominating. The other major unit was an aplitic dyke/intrusive body trending north-south and cutting the diorite.

Table 1

Table of Formations
(includes 1975 survey)

5a -	Chloritized andesite/basalt
5b -	Sericitized dacitic tuff
4a -	Aplite dykes, veins
4b -	Plagioclase porphyry dykes
4c -	Pegmatite dykes, veins
3 -	Biotite-quartz diorite
2 -	Biotite diorite
1 -	Hornblende diorite

Description of Rock Units

Unit 1 - This is a hornblende diorite, composed of 15-35% subhedral hornblende grains in a plagioclase groundmass with grains equal size with the hornblende. Grain size and texture is extremely variable due to the unit's hybrid nature, varying from fine to medium-grained, and poorly to strongly foliated. In many outcrops the hornblende has been partially altered to biotite flakes oriented parallel to the foliation. This was the most abundant rock on Clap 19.

Unit 2 - This is a biotite diorite consisting of 5-15% biotite flakes in a plagioclase matrix. Grain size is again variable from 1 to 4 mm and foliation, though usually present, also varies in intensity. This unit is found as a small zone in the northeast part of Clap 19 and as erratic patches within Unit 1. This unit may be in part due to complete alteration of the hornblende to biotite.

Unit 4a - This is a fine-grained siliceous aplite, which was found on Clap 1-18 only as small dykes and veins. However, there appears to be a major north-trending dyke which is up to 250 feet in width underlying the east-central part of Clap 19. This rock was seen to have intrusive contacts with the diorite, actually sloping off blocks of diorite in one outcrop.

Structure

Structure in this area is confined to a pervasive foliation or shear in the intrusive rocks, which in turn can result in preferred vein orientations. Foliation is fairly consistent at 100° - 130° T, with a dip of 60° - 85° to the south. Contacts are generally gradational between the sub-units of diorite. It is thought that this hybrid diorite is a distinct phase of the Nicola batholith to the south.

Metamorphism

Regional metamorphism is low in the area, and a retrograde metamorphism producing biotite at the expense of hornblende appears to have been the major metamorphic effect. This biotite occurs first along the hornblende cleavage planes, and in more advanced cases, completely replaces the hornblende, while keeping the same crystal shape.

Alteration

Alteration on the Clap 1-18 claims is restricted almost entirely to a series of veins and fractures, mainly quartz veins with accessory calcite, epidote, chlorite and sulphides. This vein system was found to be best exposed in the three gorges on the western edge of Clap 1-18, so was found to continue into Clap 19. However, lack of outcrop west of the tributary stream prevented complete mapping of the vein system's extent.

ECONOMIC GEOLOGY

General Statement

Mineralization in quartz veins was found on Clap 1-18 at the property's western edge. This mineralization zone was not appreciably extended during mapping of Clap 19; however, excellent exposure on the mineralized gorges as opposed to the more common forested slopes undoubtedly biases the apparent mineralized zone.

Mineralization

As mentioned above, no additional mineralization was found outside of the previously known gorge areas. These consisted of scattered quartz veins up to 6" (15 cm) containing disseminated blebs of chalcocite, chalcopyrite, bornite and malachite.

Summary of Geology and Mineralization

The Clap group is underlain by a hybrid dioritic phase of the Nicola batholith containing metamorphic volcanic xenoliths and by a small area of volcanic country rock. These diorites have been further sub-divided into hornblende, biotite, and quartz-biotite diorites. Contacts are gradational, and foliation is usually present but to varying degrees. A large aplite intrusion was found in the east-central area of Clap 19, which is younger than the diorite. No additions were made to the previously-known mineralized zone at the tributary gorges; however, this may be due to poor exposure over much of Clap 19.

SOIL GEOCHEMISTRY

Introduction

The Clap 19 claim is located on a gentle, westward slope, dissected by a major tributary stream of Clapperton Creek. Vegetation consists of open pine and spruce forest with areas of deciduous underbrush on north slopes and valley bottoms. Drainage is generally good except for local swampy areas adjacent to the stream.

Sampling Procedures

B horizon samples were taken at 200-foot stations on pace-and-compass east-west lines spaced 400 feet apart. These lines were spaced to be continuous with the sampling done in the 1975 survey. Samples were stored in special high wet-strength heavy-duty Kraft envelopes, and sent to Chemex Labs Ltd. in Vancouver for analysis. Actual geochemical reports are in Appendix I.

Laboratory Procedures

The samples are dried and sieved to minus eighty mesh. 0.5 grams of this fraction is digested in 5 ml of 3:2 mixture of 70% HClO_4 and concentrated HNO_3 , for 2.5 hours at 200°C . The final volume is adjusted to 25 ml with demineralized water. This solution is then analysed for Cu and Mo using a Tectron Mk V-VI atomic absorption spectrometer.

Standard Samples

To check the reproducibility and quality of the analytical work, control samples were routinely submitted with every batch of 35 samples. The control samples were prepared by sieving to -80 mesh a bulk sample of stream

sediment from McBride Creek, near the Ashnola River. Analytical results and statistics for these standard samples are given in Table 2 below.

Table 2

<u>Standard Sample - Statistics</u>			
<u>No.</u>	<u>ppm Cu</u>	<u>% diff. from Mean</u>	<u>ppm Mo</u>
27960	102	2.9	2
27982	108	2.7	<1
mean:	105	2.8	

Although there are not sufficient samples to give a good indication of reproducibility, the above results indicate that for the levels tested, the analyses fall within the acceptable limits of precision for the geochemical techniques used.

Statistical Treatment of Results

In order to ensure that the 1976 data and maps were directly comparable with those of the 1975 survey, the same anomalous, threshold and contour levels were used on Plans 2-4. (See 1975 report by R.L. George.)

SUMMARY AND DISCUSSION OF ANOMALIES

The contouring of soil values on the Clap 19 claim outlined one major anomaly, which satisfactorily completed the open anomaly from the 1975 survey. No molybdenum anomalies were outlined, as only two samples were above 1 ppm Mo; with one 2 ppm and one 3 ppm.

Anomaly A

Location: centred at L28N/15W

Trend of Anomaly: NE (including Clap 1-18)

Range of Values, Cu: 99-434 ppm

Dimensions of Anomaly: 4400 x 1800 ft. (1342 x 549 m)

Coincident Anomalies for Elements, Relationships to Geology, etc.

Molybdenum did not show anything in the anomalous area, but it does coincide with a known area of mineralization near the eastern edge of Clap 19. The semi-circular copper anomaly delineated on Clap 19 joins up very well with the open-ended anomaly detected in the 1975 survey in Clap 1-18.

Intensity of Anomaly: Moderate

Cause of Anomaly: The sharp definition of the overall Clap copper anomaly seems to indicate a distinct zone of quartz-copper vein mineralization, possibly related to a younger intrusion at depth, since the host diorite does not seem to change in the anomalous vein.

Recommendations: Little indication is given of any increase in grade at depth, or even of a zone of consistently mineralized sets of fractures with a close spacing. Hence, no further work is recommended.

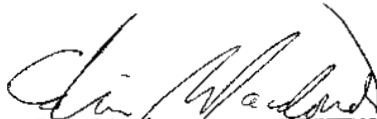
CONCLUSIONS

The Clap 19 claim is underlain by a hybrid dioritic phase of the Nicola Batholith, containing metamorphosed volcanic xenoliths. This diorite has been further sub-divided into hornblende, biotite, and quartz-biotite diorites. Contacts are gradational and foliation is usually present but to varying degrees. A large aplite dyke or intrusion is found in the east-central part of the claim. No additions were found to the previously-known mineralized zone, partially due to poor exposure, but the geochemical anomaly was found to continue as a semi-circular extension. However, the levels are not as high as those of some of the 1975 survey.

RECOMMENDATIONS

Little indication is given of an increase in grade or mode of occurrence, hence no further work is recommended.

Respectfully submitted,


Colin C. Macdonald



Toronto

September 27, 1976

Sub-Mining Recorder
RECEIVED
OCT 25 1976
M.R. # _____ \$ _____
VICTORIA, B. C.

Statement of Expenditures

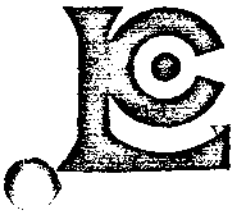
CLAP 19

June 27 - 29, 1976

Salaries: C.C. Macdonald, Steve A. McIntyre Richard Nodder, A.A. Seaman 8 man days, 26.37/man day	\$ 210.96
Geochemical Analysis - 98 samples 196 determinations	563.60
Camp costs	93.48
Vehicle Usage	97.98
Consultant (C.F. Gleeson & Assoc.)	527.96
Reporting Costs	<u>112.00</u>
Total	<u>\$1,765.98</u>

APPENDIX I
Geochemical Values

212 BROOKSBANK AVE. RECEIVED
NORTH VANCOUVER, B.C.
CANADA V7J 2C1 JUL 8 1976
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597 J. J. B.



CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Canadian Occidental Petroleum Ltd.
Minerals Division
801 - 151 Eglington Ave. East
Toronto, Ontario

ATTN: CLAP
cc: C. MacDonald

CERTIFICATE NO. 37512
INVOICE NO. 17125
RECEIVED July 5/76
ANALYSED July 6/76

SAMPLE NO. :	PPM Copper	PPM Molybdenum
A 27595	191	1
27596	56	< 1
27597	70	< 1
27598	52	< 1
27599	34	< 1
27600	38	< 1
27601	52	< 1
27602	50	< 1
27603	30	< 1
27604	38	< 1
27605	28	< 1
27606	18	< 1
27607	228	< 1
27608	176	< 1
27609	215	< 1
27610	54	< 1
27611	5	< 1
27612	40	< 1
27613	20	< 1
27614	116	1
27615	295	1
27616	136	< 1
27617	54	< 1
27618	68	< 1
27801	51	< 1
27802	248	< 1
27803	72	< 1
27804	14	< 1
27805	235	1
27806	278	1
27807	148	1
27808	24	< 1
27809	50	< 1
27810	20	< 1
27811	12	< 1
27812	21	< 1
27813	144	< 1
27814	13	< 1
27815	33	< 1
A 27816	154	< 1
STD.	100	8



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *J. J. B. Swaites*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Canadian Occidental Petroleum Ltd.
Minerals Division
801 - 161 Eglinton Ave. East
Toronto, Ontario

CLAP

ATTN: cc: C. MacDonald

CERTIFICATE NO. 37513
INVOICE NO. 17125
RECEIVED July 5/76
ANALYSED July 6/76

SAMPLE NO. :	PPM	PPM
	Copper	Molybdenum
A 27817	18	< 1
27818	434	< 1
27819	94	< 1
27820	62	< 1
27821	26	< 1
27822	24	< 1
27823	26	< 1
27824	44	< 1
27937	160	1
27938	33	< 1
27939	31	< 1
27940	34	< 1
27941	51	< 1
27942	24	< 1
27943	24	< 1
27944	24	< 1
27945	22	< 1
27946	14	< 1
27947	13	< 1
27948	21	< 1
27949	21	< 1
27950	144	3
27951	21	1
27952	50	< 1
27953	38	1
27954	108	< 1
27955	26	< 1
27956	14	< 1
27957	18	< 1
27958	18	< 1
27959	14	< 1
27960	102	2
27961	22	< 1
27962	31	< 1
27963	24	< 1
27964	26	< 1
27965	118	< 1
27966	70	< 1
27967	30	< 1
A 27968	40	< 1
STD.	100	8



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY:

B. Swartz



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Canadian Occidental Petroleum Ltd.
Minerals Division
801 - 161 Eglinton Ave. East
Toronto, Ontario

CLAP

ATTN: cc: C. MacDonald

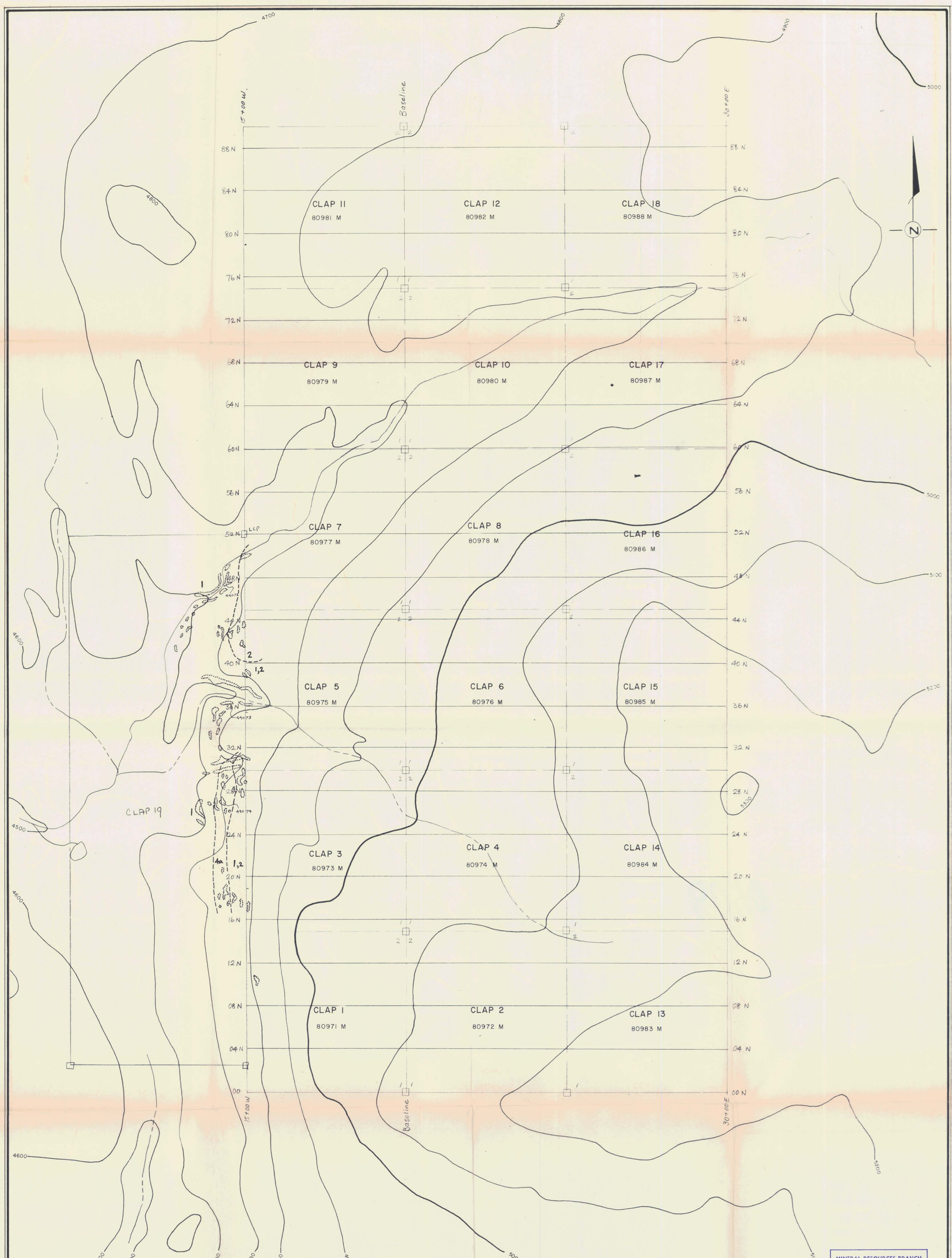
CERTIFICATE NO. 37514
INVOICE NO. 17125
RECEIVED July 5/76
ANALYSED July 6/76

SAMPLE NO. :	PPM	PPM
	Copper	Molybdenum
A 27969	26	< 1
27970	31	< 1
27971	465	< 1
27972	51	< 1
27973	31	< 1
27974	31	< 1
27975	72	< 1
27976	44	< 1
27977	36	< 1
27978	72	< 1
27979	33	< 1
27980	21	< 1
27981	20	< 1
27982	108	< 1
27983	34	< 1
27984	34	< 1
27985	88	< 1
A 27986	56	< 1



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *[Signature]*



GEOLOGICAL LEGEND

- - - - - Inferred geological contact
- Rocks**
- 4a - - - - - Aplite dykes and veins
- 2 - - - - - Biotite diorite
- 1 - - - - - Hornblende diorite
- 44074 - - - - - Rock chip sample no.

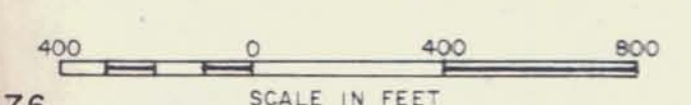
LEGEND

- 4800 — Topographic contour
- Stream
- ⌵ ⌵ ⌵ Swamp
- Claim post
- - - - - Claim line

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. **6040**
MAP NO. #1

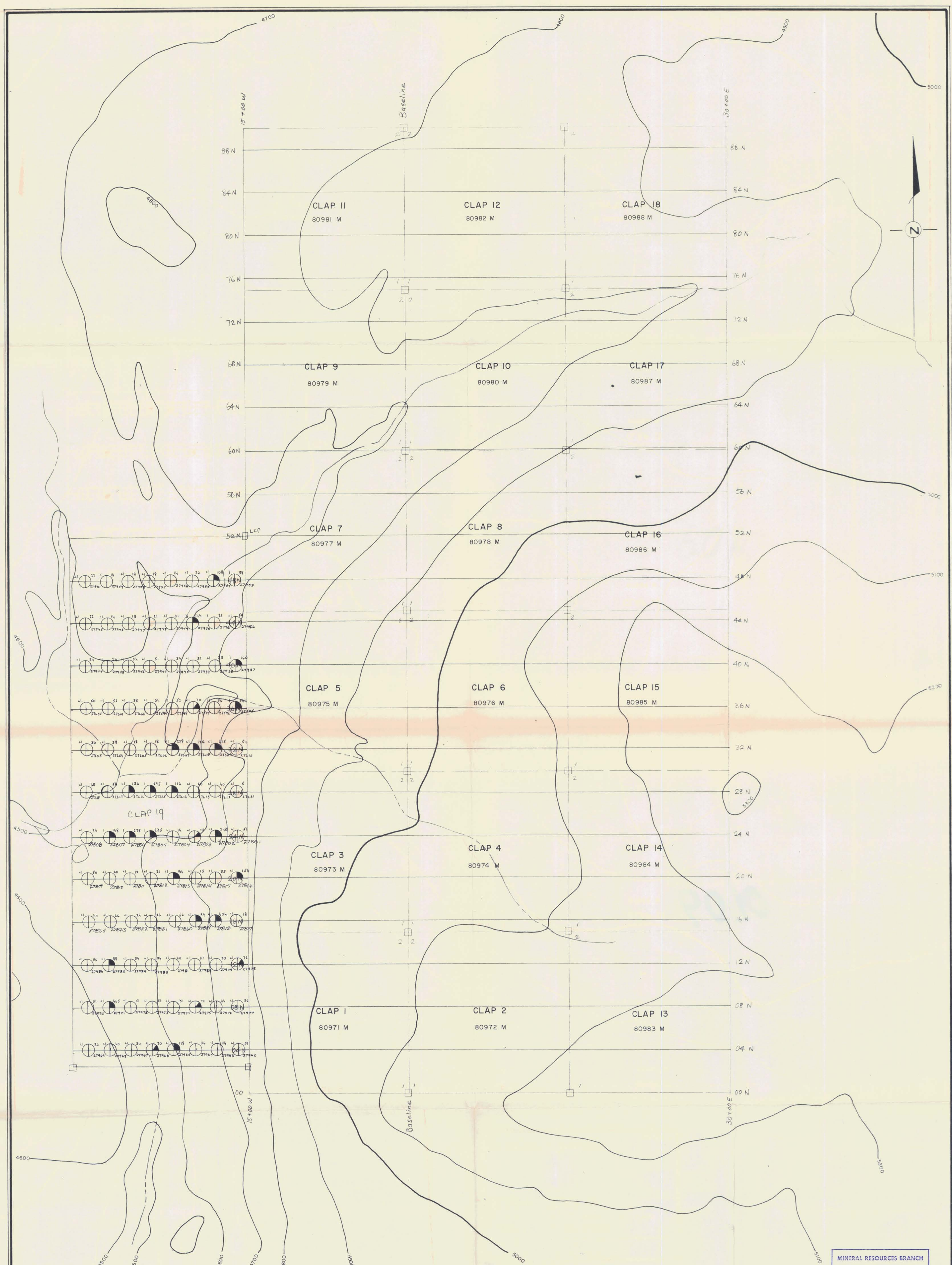
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CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION
CLAP CLAIMS
NICOLA MINING DIVISION, BRITISH COLUMBIA — 92-1-7/E
GEOLOGY—CLAP 19



SEPTEMBER 1976

PLAN 1



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. **6040**
MAP NO. **#2**

6040

- LEGEND
- Topographic contour
 - Stream
 - Swamp
 - Claim post
 - Claim line

METALS THRESHOLD ANOMALOUS

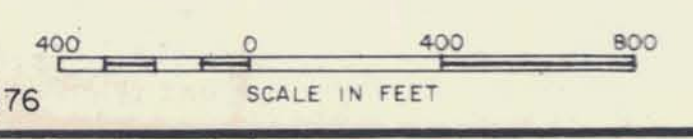
Mo Cu

Sample No.

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

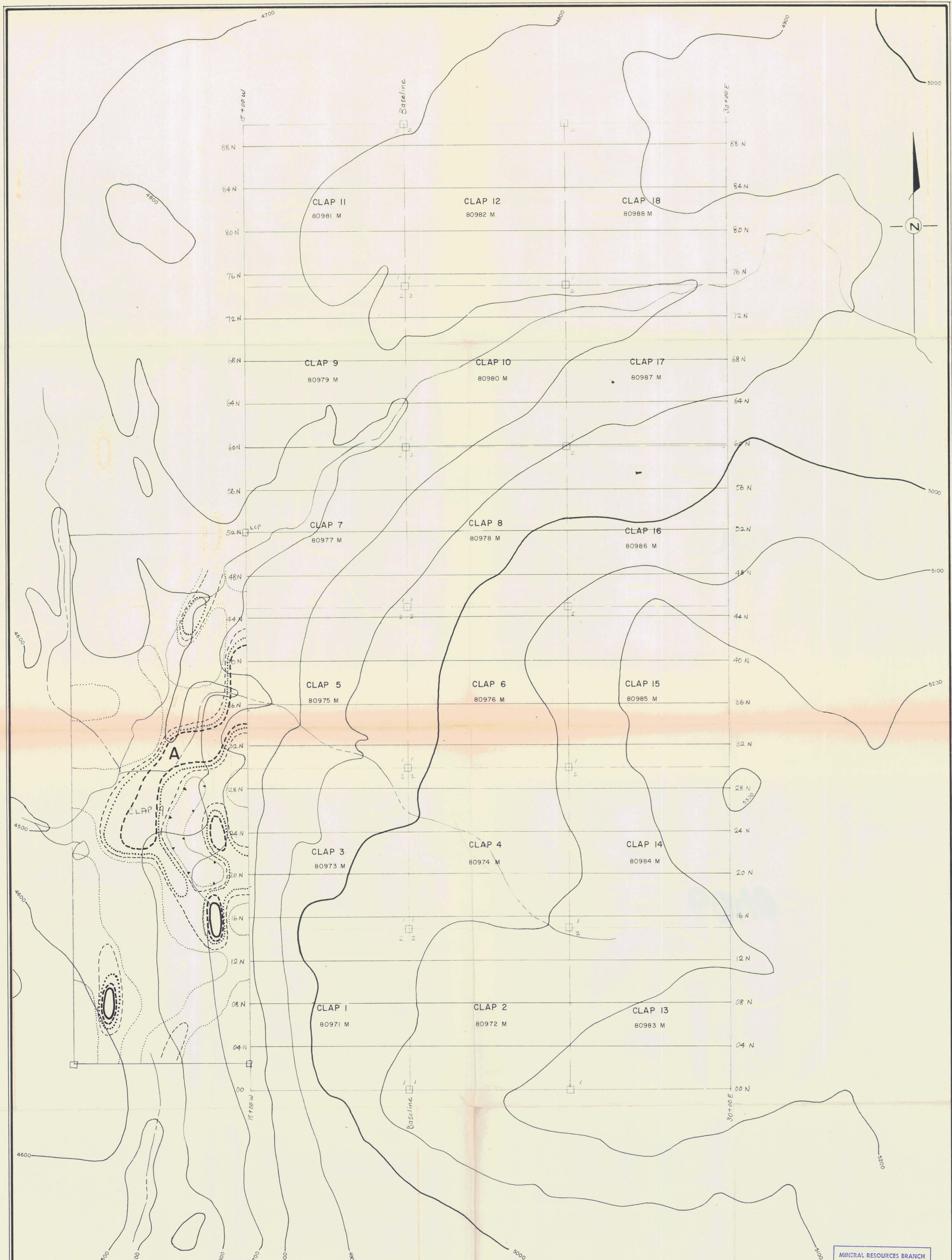
CLAP CLAIMS
NICOLA MINING DIVISION, BRITISH COLUMBIA — 92-1-7/E

SOIL GEOCHEMISTRY
CLAP 19



SEPTEMBER 1976

PLAN 2



COPPER CONTOURS

- 40 ppm
- 80 ppm
- 120 ppm
- 160 ppm
- 320 ppm

LEGEND

- Topographic contour
- Stream
- Swamp
- Claim post
- Claim line

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. **6040**
MAP NO. **#3**

6040

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION
CLAP CLAIMS
NICOLA MINING DIVISION, BRITISH COLUMBIA — 92-1-7/E
COPPER CONTOURS—CLAP 19

400 0 400 800
SCALE IN FEET

SEPTEMBER 1976 PLAN 3