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Cyprus Exploration Corporation, Ltd.

Scum Lake Project

Exploration and Diamond Drill Program 1972

By

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April 1973

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### APPENDICES (at rear of report)

- (i) Diamond Drill Logs 479-72-1 to 479-72-10 inclusive
- (ii) Assay Sheets 479-72-1 to 479-72-10 inclusive

### FIGURES (bound in report)

	Scale	
Fig. 1	Property Location Map	1" = 125 mi. 2
Fig. 2	Section along 88E, D.D.H. #s 479-72-4, 5, 6 & 8	1" = 100' 5
Fig. 3	Section along 104E, D.D.H. #s 479-72-3 & 10	1" = 100' 6
Fig. 4	Graphic Log D.D.H. #s 479-72-1 & 7	1" = 100' 7
Fig. 5	Graphic Log D.D.H. #s 479-72-2 & 9	1" = 100' 8

### MAPS (in pocket at rear)

Map 1	Claims	1" = 2000'
Map 2	Geology (1973)	1" = 1000'

INTRODUCTION

This report summarizes the exploration work and diamond drilling carried out by Cyprus Exploration Corporation, Ltd. on the Scum Lake property during the 1972 field season and is complimentary to reports on Geology by P. F. Lewis 1971 and Geophysics by P. E. Walcott, P. Eng., (Report on I. P. Survey - Feb. 1973) and should be read in conjunction with them.

LOCATION

The property is situated just north of Scum Lake on the Chilcotin Plateau about 70 miles west-southwest of Williams Lake at latitude 51°47'N and longitude 123°35'W. The pertinent published map sheets are as follows:

Topographic 1:50,000 Sheet 92 O/13E Scum Lake  
1:250,000 Sheet 92 O Taseko Lakes

Geological 1:250,000 G.S.C. Map 29-1963 Taseko Lakes, by  
H. W. Tipper

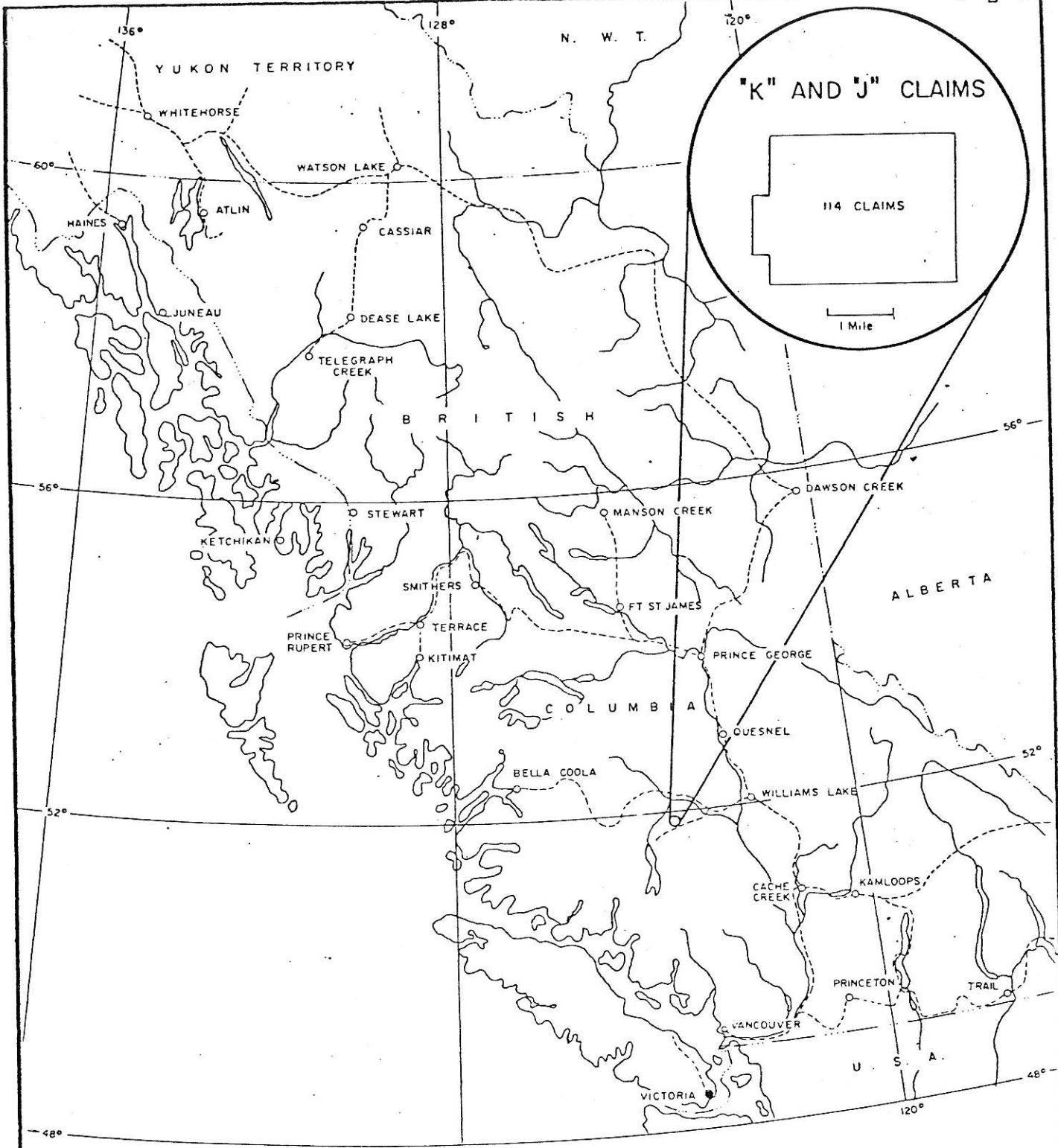
CLAIMS

The property comprises 114 full sized claims, namely K-55 to 100 and J-1 to 68, originally staked by K. W. Livingstone. As a result of the 1972 work, assessment was filed on all 114 claims with maximum years on a selected 40 claims making up the southwestern section of the original claim block. Groupings and expiry dates are shown on Map 1 at the rear of this report.

PREVIOUS WORK

Reconnaissance soil geochemical and magnetometer surveys were carried out in 1965 and 1971 by Amax and Duval respectively. Surface geological mapping on a scale of 1" - 1,000' was done by Cyprus Exploration Corporation, Ltd. in the fall of 1971 preparatory to the program of geophysical work and diamond drilling which is the subject of this report. The previous soil surveys were fairly negative, but were considered not too diagnostic considering the almost ubiquitous glacial cover.

Lewis concluded that in spite of limited exposure the Scum Lake property contained the ingredients of a "typical" porphyry copper, in that (a) a porphyritic granitic stock was intruded into older quartz-diorite and andesitic volcanics, and that there was evidence of subsequent brecciation of the porphyry associated with strong hydrothermal alteration and silicification, (b) leaching of primary sulphides was apparent in gossan outcrops of brecciated porphyry and (c) minor amounts of turquoise and jarosite occurred with hematite in some of the gossans.



CYPRUS EXPLORATION CORPORATION LTD.  
 SCUM LAKE PROJECT

PROPERTY LOCATION MAP

BRITISH COLUMBIA  
 SCALE : 1" = 125 MILES

FIG. 1

## WORK PROGRAM 1972

Further geological mapping in the spring of 1972 by P. Lewis largely confirmed his earlier reconnaissance, but was limited by the relatively poor exposure of the bedrock. A number of rock geochemical samples were taken from areas of gossan and iron oxide-stained, porphyry breccia exposures. The results shown on Map 2 were generally low, ranging from 16 to 265 p. p. m. copper, the latter occurring in a gossan near the eastern margin of the exposed porphyry breccia. No significant trends could be established from the samples and it was considered that intensive rock or soil sampling would not be very productive.

Three diamond drill holes were sited on the basis of surface geology and gossans and drilled for a total 1,571 feet to provide sound data on which to base surface I. P. and magnetometer surveys over the exposed porphyry and surrounding areas. While significant copper values were not intersected in this drilling sufficient encouragement was obtained in the nature of the alteration, rock types and total sulphide content including minor chalcocite and chalcopyrite, to carry out the proposed surface work.

A control grid was established comprising 16 line miles of cut line suitable for I. P. surveys, with north - south lines spaced 800 feet apart on an east - west base line. Intervening flag and compass lines were placed between the cut lines to provide a 400 feet spaced grid for magnetometer work. The results of the I. P. and magnetometer surveys are discussed in detail in a report by P. Walcott, P. Eng., under whose supervision the geophysical work was carried out. The magnetometer survey indicates five magnetically different units which correspond generally to the mapped geological units, the porphyry appearing in somewhat low relief and of greater overall extent than mapped outcrop would indicate. The I. P. work outlined a large elliptical anomaly encompassing the known gossan zone and lying within the interpreted magnetic unit corresponding to the quartz-feldspar porphyry.

A further seven holes totalling 3,730 feet were drilled to test the I. P. anomaly laterally and in depth.

### DIAMOND DRILLING

A total of ten B. Q. diamond drill holes were put down on the basis of surface showings and I. P. /magnetic data for a total 5,301 feet. The statistics on the drilling are as follows:

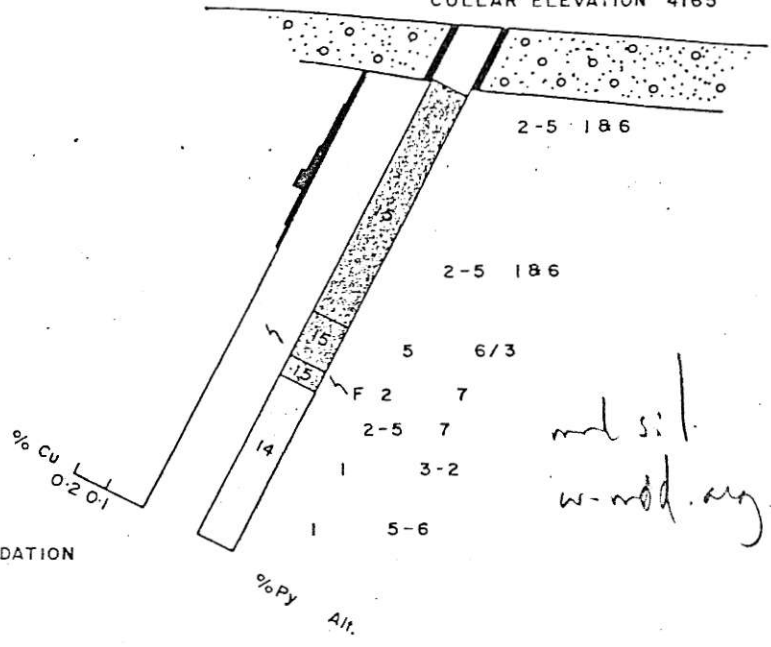
<u>Hole No.</u>	<u>Location</u>	<u>Azimuth</u>	<u>Dip</u>	<u>Final Depth</u>	<u>Started</u>	<u>Finished</u>
479-72-1	118E 200N	270°	-60°	592 ft.	May 18/72	May 20/72
479-72-2	96E 215N	180°	-60°	284 ft.	May 22/72	May 24/72
479-72-3	104E 192N	0°	-60°	695 ft.	May 28/72	June 1/72
479-72-4	88E 210N	-	-90°	721 ft.	June 19/72	June 23/72
479-72-5	88E 203N	-	-90°	241 ft.	June 5/72	July 1/72
479-72-6	88E 205N	-	-90°	927 ft.	July 2/72	July 9/72
479-72-7	112E 212N	-	-90°	639.5 ft.	July 10/72	July 14/72
479-72-8	88E 212N	-	-90°	154 ft.	July 18/72	July 20/72
479-72-9	76E 210N	-	-90°	500 ft.	Aug. 18/72	Aug. 22/72
479-72-10	104E 180N	-	-90°	547 ft.	Aug. 25/72	Aug. 29/72

Full details of the drilling are contained in the drill logs (Appendix i) and assay sheets (Appendix ii) together with graphic logs which provide a summary of essential features and are made up into sections where applicable (see Figs. 2-5).

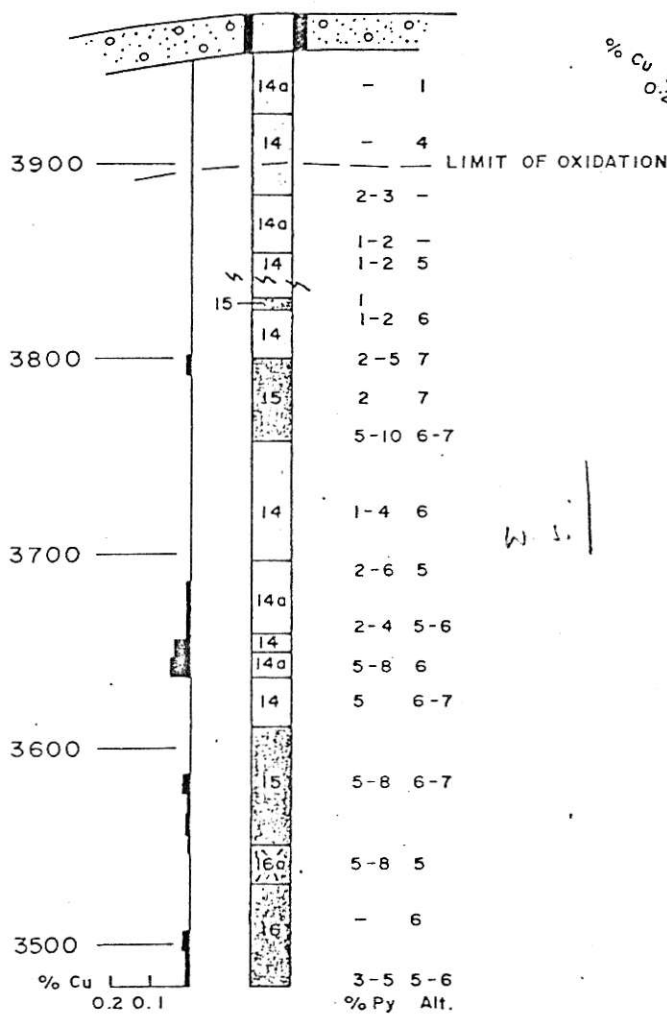
As indicated the first three holes were sited on promising gossans in brecciated porphyry mainly to provide some basic data for further work, but also as a direct investigation of the gossan zones. Highly altered quartz-feldspar porphyry was intersected in all three holes but only minor amounts of copper were noted. From surface to about 100 feet depth a zone was apparent in which primary pyrite and other sulphides were largely leached and replaced by iron oxides, with manganese films and undetermined black to dark brown secondary oxides particularly noticeable. This zone passed fairly quickly through one of partly corroded and rounded pyrite grains in kaolinized material in which minor chalcocite and very rare blebs of

214 N      215 N      216 N  
 |            |            |  
 96 E

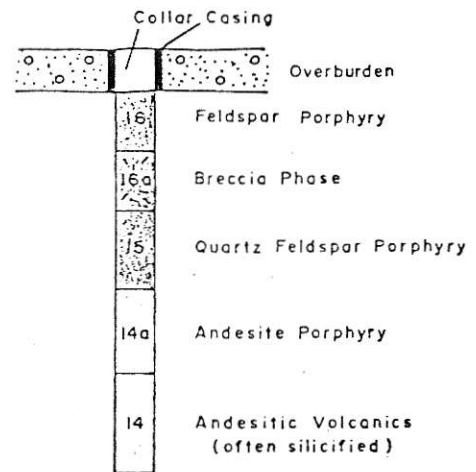
DDH 479-72-2  
 COLLAR ELEVATION 4165'



ELEVATION      DDH 479-72-9  
 4000 ———  
 COLLAR ELEVATION 3975'



EXPLANATION



CYPRUS EXPLORATION CORP. LTD.

SCUM LAKE PROJECT

GRAPHIC LOG

DDH 479-72-2 & 479-72-9

Scale: 1" = 100'

April 1973

FIG. 5

chalcopyrite were noted. D.D.H. 479-72-1 terminated in silicified volcanics or dyke material in which pyrite and minor chalcopyrite occurred in veins and as fracture coatings. The second hole was aimed to look at depth below an intense red gossan some 3,000 feet north-northwest of the first drill hole, but was abandoned after 290 feet in extremely difficult ground, as it was apparent that the hole was intersecting a steeply-dipping and well developed shear zone. Hole 479-72-3 was drilled southwest of the first drill hole and directed northwards beneath iron-stained and brecciated porphyry, with similar results to hole 479-72-1, although chalcocite and a little molybdenum were noted just below the oxidized zone.

Holes 4, 5, 6 and 8 were designed initially to test the stronger parts of the I. P. anomaly centred a little north and west of the quartz porphyry outcrops which form a low but prominent topographic feature. Of these, drilling difficulties were encountered in holes 5 and 8, hence the rather close spacing required to gain information at depth. Similar patterns of alteration, leached zones, etc. were noted as in previous holes, the more northerly holes also encountering significant silicification especially in andesitic volcanic country rocks.

Holes 7, 9 and 10 were sited on the flanks of the I. P. anomaly to test areas of lower metal factor where it was hoped that the ratio of chalcopyrite to pyrite might be significantly increased. Hole 479-72-7 surprisingly intersected volcanics immediately beneath the overburden and was drilled entirely in various types of porphyritic andesite, silicified andesite and related rocks. Holes 9 and 10 both contained altered porphyry but again without significant economic mineralization.

#### ALTERATION AND MINERALIZATION

A system of reporting alteration was established in holes 479-72-1 to 3 and was retained throughout, although it should be noted that time delays due to the somewhat unexpectedly difficult drilling in some of the holes resulted in the core logging being carried out by a number of different people. The classification used and reported in both detailed and graphic logs is as follows:

1. Intense argillic alteration, giving "toothpaste" rock, as in DDH-2, 40-168 feet.
2. Moderate to high argillic alteration, loss of porphyritic texture, crumbly.
3. Argillic alteration, retaining texture, crumbly.
4. Weak argillic alteration and mild silicification - normal rock consistency. Quartz phenocrysts and kaolin after feldspar.



5. Silicified, generally seen as grey silica blebs in porphyritic rock with white matrix, pyrite  $\approx 1\%$ , or as pervasive alteration, but retaining white matrix.
6. Silica-flooded, grey matrix, but retaining texture, 1-2% pyrite.
7. Silica. No texture. Pyrite  $\approx 2\%$ .

Combinations such as 5 on 2 - used in the detailed drill logs - refers to a rock that has lost its texture through argillization, but has subsequently been silicified to a hard, or silica-blebby, rock.

The most obvious general feature is that a zone from 90-100 feet of leached and oxidized material is evident in all holes, including those in which the near surface rocks were andesites or andesitic equivalents, suggesting that the area had escaped intense glaciation presumably due to a cover of younger volcanics. This zone was followed by one of a varying thickness in which secondary minerals, mainly manganese dendrites, chalcocite coatings and the like, were prominent. Where intersected the quartz porphyry was more or less altered but with less intense alteration in the most southerly hole, 479-72-10. Silicification, although a general feature, was much more marked in the northerly holes and particularly in the andesitic country rock which was often completely silicified. Beneath the leached zone, both in the area of secondary enrichment and below, disseminated pyrite is ubiquitous and chalcopyrite rare. Molybdenite occurs sporadically as minor flecks and smears on shears and in association with quartz veining in silicified sections of the quartz feldspar porphyry. Pyrite, minor chalcopyrite and a little sphalerite were noted in the silicified andesites most often as vein fillings and fracture coatings. Black coatings on pyrite and specks in the enriched zone proved difficult to identify, but judging from assay results most often were iron/manganese oxide combinations, although some chalcocite was observed.

The alteration and silicification noted are consistent with hydrothermal activity, probably resulting from late silica-rich fluids and gaseous material which may have been responsible for both the noted brecciation of the porphyry and some of the surrounding country rock, although in the latter case intense silicification has largely annealed the preceding brecciation. This activity is considered to be genetically related to the intrusion itself and in all probability represents late stage activity of a continuous sequence of events.

#### CONCLUSIONS AND RECOMMENDATIONS

The Scum Lake quartz-feldspar porphyry intrusive has all the marks of a classical porphyry situation, however it does not appear to be hosting ore grade mineralization. A secondary chalcocite zone is only very poorly

and sporadically developed and the best assays returned were those from D. D. H. 479-72-3 with three ten-foot samples in the 0.2% Cu range. No apparent gradients could be established from the assay results, and the spread of the holes was considered sufficient to negate any reasonable-sized mineralized section within the area of the I. P. anomaly.

Despite the number of holes the absolute configuration of the quartz-porphyry intrusive is still in doubt. The section along line 88E suggests that the intrusion dips off steeply to the south or southwest from a fairly shallow extension below holes 479-72-4 and 8. However the graphic logs of holes 479-72-1 and 7 indicate that a northerly dip might be assumed. The magnetic and more particularly the I. P. expressions suggest a plug-like feature slightly elongated along a northwest-southeast axis. Successive separations from  $n_1$  to  $n_4$  on the total metal factor contour analysis, suggest a move to the southwest at successive depth levels. In general this would confirm the idea of a southwesterly dip indicated on sections 88E. It is obvious, however, from other sections that apophyses and dykes of quartz porphyry are common, and that the overall shape of the intrusive may be more complex than the I. P. anomaly indicates.

Because of the silicification present in most of the volcanic country rocks there is some doubt as to the absolute identification and correlation of some of the aphanitic volcanics, and both basic volcanics of unit 12 and more intermediate types of unit 14 may be present. For the purposes of the graphic log all silicified volcanics have been grouped in unit 14. If necessary this problem could be solved by a comparative relogging of the cores and some thin-section work, neither of which appears to be justified on the grounds of economic potential.

The southern sub-outcrop limit of the quartz-porphyry intrusive was not delineated by the drilling but the somewhat fresher material and lack of copper values in the most southerly hole, 479-72-10, would suggest that further work in this direction is not justified.

The most important aspect of the work is that a porphyry situation was established and that due to a fortuitous timing in formation of a younger volcanic cover or other reasons, a modest zone of leaching and supergene enrichment was formed and preserved despite subsequent glaciation. Although the Scum Lake deposit is not sufficiently rich in copper to form an orebody it is suggested that other similar deposits may be present in the general area, which do contain a significant copper content. It is suggested that airborne magnetometer surveys, probably using second derivative plots, might be useful in delineating areas of prospecting interest for this type of deposit in the form of magnetic lows.

Appendix (i)

Diamond Drill Logs 479-72-1 to 479-72-10 inclusive

ELEVATION

4200

4100

4000

3900

3800

3700

3600

3500

3400

South

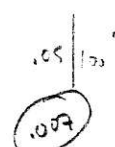
North

195 N DDH 479-72-5

205 N DDH 479-72-6

210 N DDH 479-72-4

212 N DDH 479-72-8



% Cu 0.2 0.1

% Py Alt

0.06/70

0.003

0.04/120

0.002



0.05/93

< 0.001



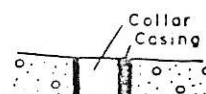
0.006

0.06

% Cu 0.2 0.1

% Py Alt

EXPLANATION



15 Feldspar Porphyry

15 Quartz Feldspar Porphyry

15 Breccia Phase

14a Porphyritic Andesite

14 Andesitic Volcanics (mainly silicified)

% Cu 0.2 0.1

% Py Alt

LIMIT OF OXIDATION

Fig. 2

CYPRUS EXPLORATION CORP. LTD  
 SCUM LAKE PROJECT  
 SECTION ALONG 88 E

Scale: 1" = 100'  
 April 1973

South

North

191 N

192 N

193 N

DDH 479-72-3

COLLAR ELEVATION 4420'

ELEVATION

400

300

200

100

000

300

400

500

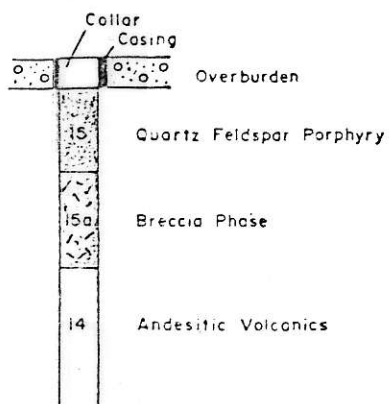
108 N

DDH 479-72-10

COLLAR ELEVATION 4200'

LIMIT OF OXIDATION

EXPLANATION



*w. mg.*

*mod. sil.*

% Cu 0.2 0.1

And. dyke 5-10 6-7  
14 2 6  
%Py Alt.

*1-2 5 w. mg.  
1-2 6 w. mod. sil.*

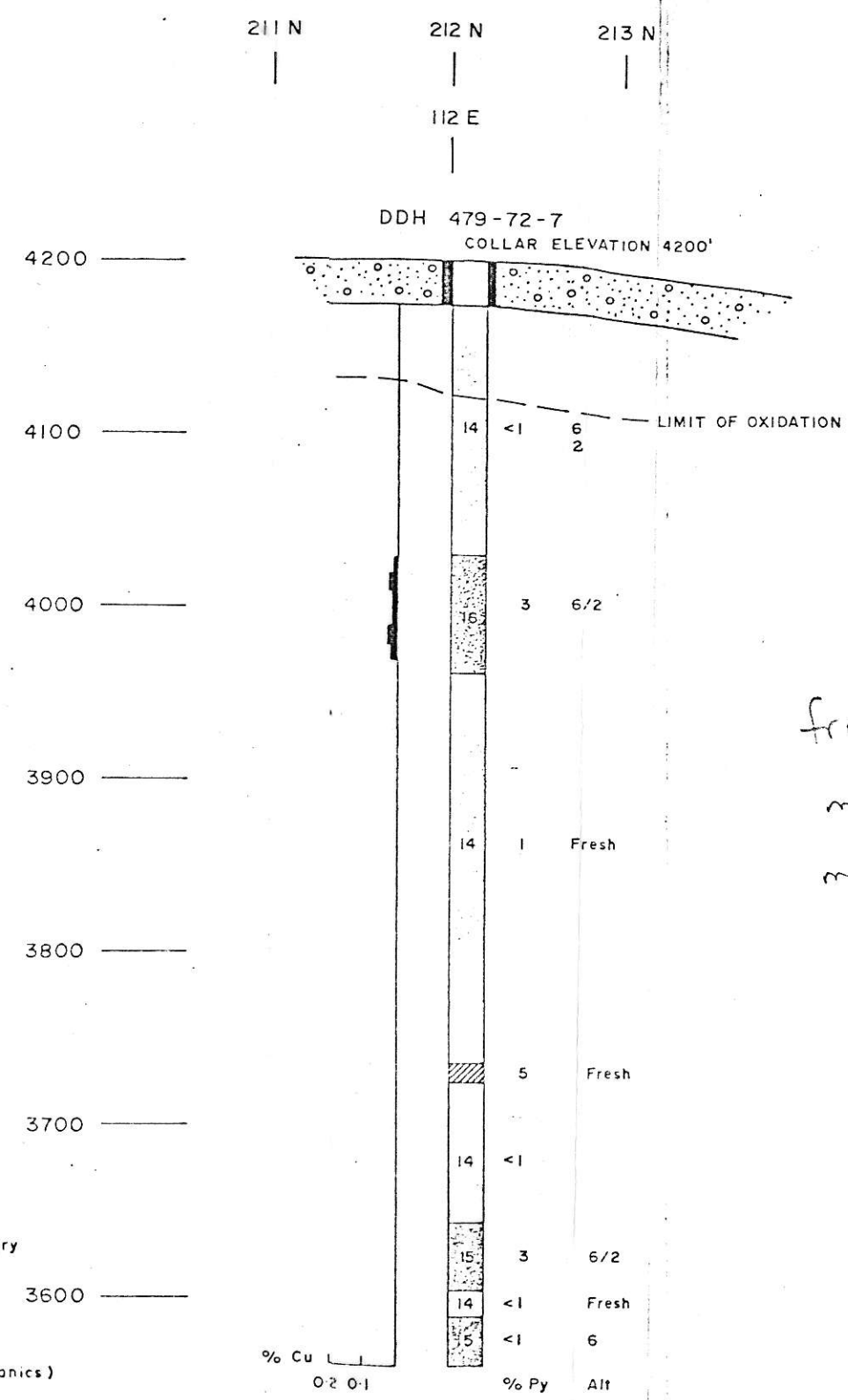
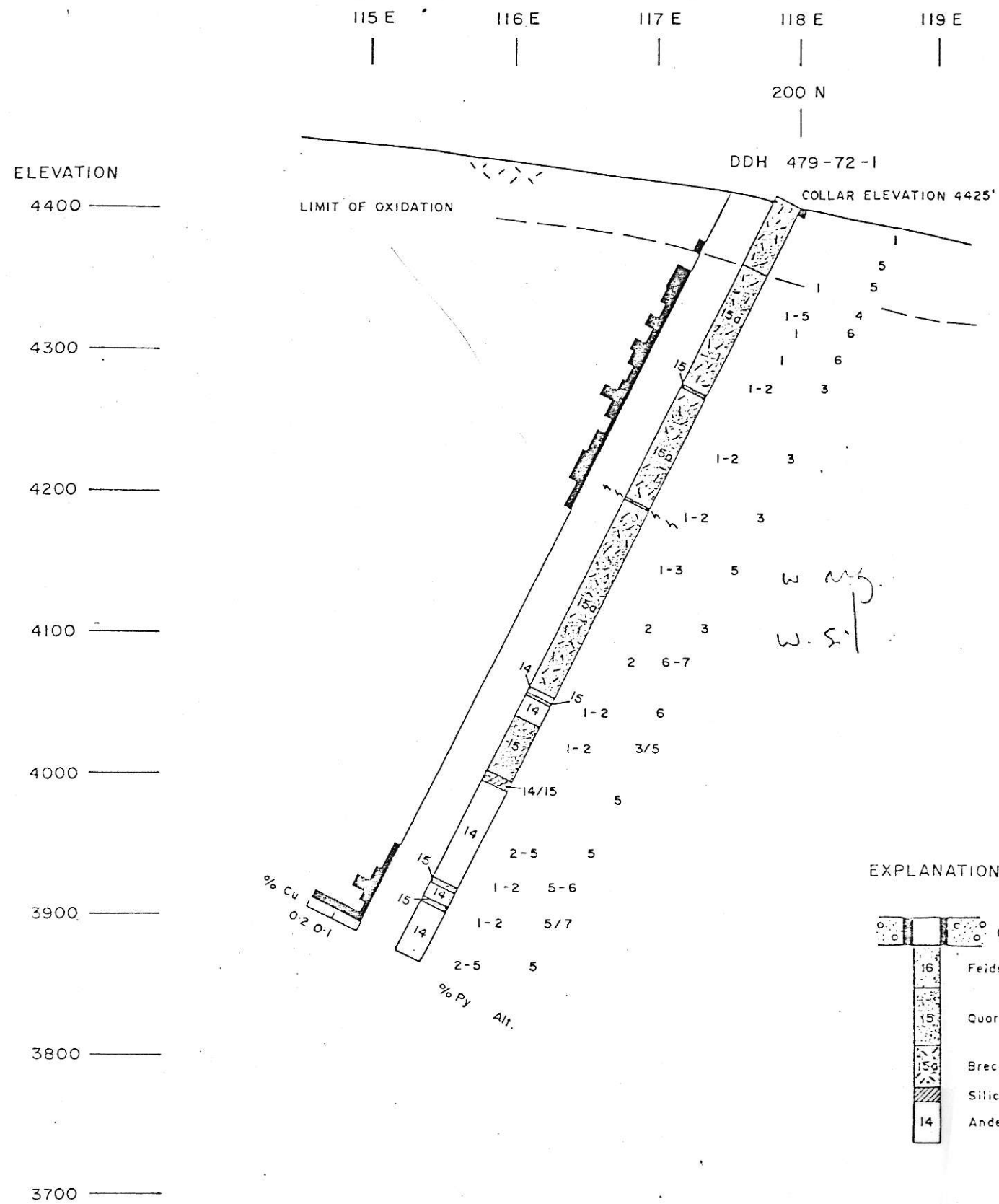
*% Cu 0.2 0.1  
% Py Alt.*

CYPRUS EXPLORATION CORP. LT  
SCUM LAKE PROJECT  
SECTION ALONG 104 E

Scale: 1" = 100'

April 1973

FIG. 3



*fresh -  
mod sil.  
mod arg. in patches*