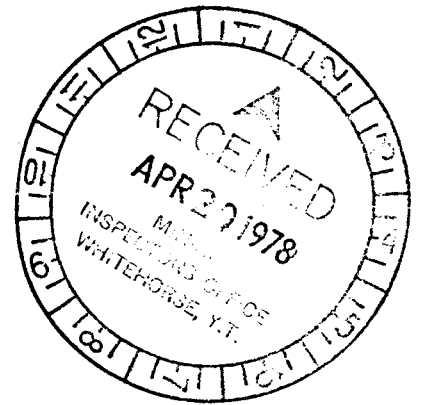


GEOCHEMICAL
REPORT ON THE COOKER GROUP
OF
MINERAL CLAIMS
MAYO MINING DISTRICT, Y.T.



N.T.S. 106C/4W
Latitude: 64°10'N Longitude: 133°55'W




by

J.H. Montgomery, Ph.D., P.Eng.

February 15, 1978

090315

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$19,200.00


Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

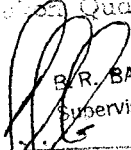


B.R. BAXTER
Supervising Mining Recorder
 Commissioner of Yukon Territory

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REPORT ON THE COOKER GROUP
OF MINERAL CLAIMS
MAYO MINING DISTRICT, Y.T.

1.0 INTRODUCTION

This report is written for Edina International Limited of Vancouver, B.C. on the COOKER group of 96 mineral claims located near Nadaleen River, Yukon Territory. The claims lie between the ROD claims, owned by McIntyre Mines Limited, and the CRAIG claims which are also owned by McIntyre Mines Limited. These claims were staked during 1976 by McIntyre to cover a significant silver-lead-zinc discovery.

This report is based on a personal visit to the claims on August 16, 1977 and September 19, 1977, on a knowledge of the general area gained during various visits to neighbouring properties, on a study of published government reports concerning the area and on geochemical soil sampling data from a survey conducted during 1977.

Recommendations are made to do additional exploration work on the COOKER claims. The proposed program consists of additional geochemical surveys, geological mapping, electromagnetic surveys and a limited amount of test diamond drilling. An estimate of costs is also included.

2.0 SUMMARY AND CONCLUSIONS

Edina International Limited of Vancouver, B.C. holds under option the COOKER group of mineral claims consisting of 96 full-sized claims which are located on the south side of Nadaleen River about 160 kilometers east of Mayo, Y.T.

The claim-area is underlain by the "Grit Unit" which is composed of carbonate (including ferrodolomite), shale and volcanic rocks all of Hadrynian age, and which is thrust over lower Paleozoic rocks, mainly black shales of the Road River formation and possibly Canol formation.

The only previous work on the COOKER claims consists of reconnaissance prospecting, geochemical soil sampling and minor hand-trenching. The geochemical survey resulted in the detection of a lead/zinc/silver anomaly. Preliminary mapping showed the presence of ferrodolomite and black shale strata in fault contact and with silver-bearing galena/sphalerite mineralization along the contact. Assays of this material range from 25 to 38% combined lead and zinc and 8 to 10 oz. / ton silver across 0.5 to 0.6 meters.

A program consisting of linecutting, additional geochemical soil sampling, geophysical surveys, geological mapping and test drilling is recommended. The proposed program is estimated to take about three months to complete and to cost about \$160,000.00.

3.0 LOCATION AND ACCESS

The claims are located on the south side of East Rackla River about 160 kilometers (100 miles) east of Mayo, Y.T. (See Figure 3-1).

The claims lie at elevations between 900 and 1500 meters (3000 and 5000 feet) on the northern flank of Mount Mervyn in the Nadaleen Range. The N.T.S. Map Reference is 106 C/4W; Latitude $64^{\circ} 10' N$; Longitude $133^{\circ} 55' W$. The property is accessible by helicopter from Mayo, Y.T. or from a base camp established at Kathleen Lakes about 20 kilometers (12.5 meters) to the west.

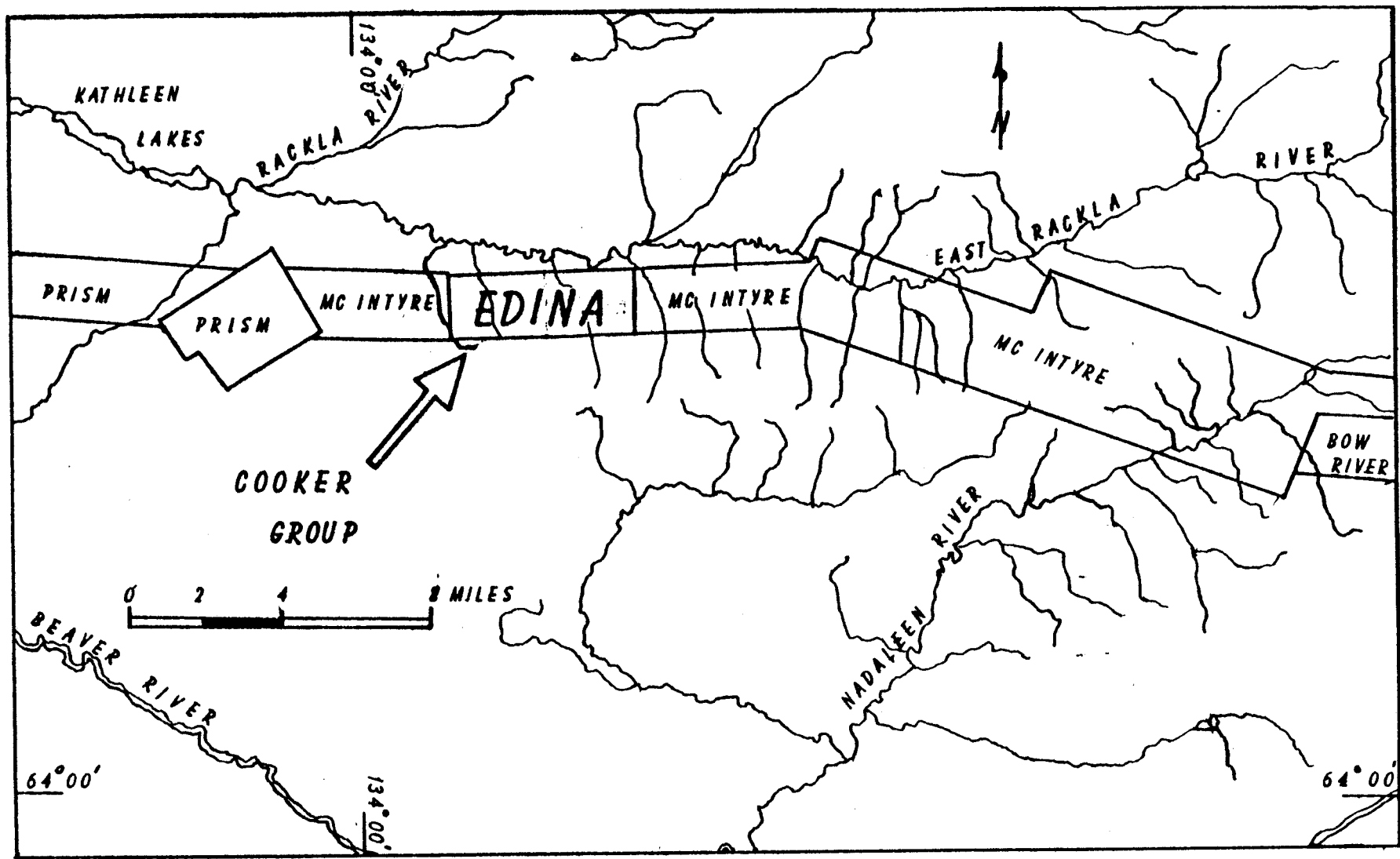


FIGURE 3-1
LOCATION MAP

EDINA INTERNATIONAL LTD.
COOKER CLAIMS

4.0 CLAIM INFORMATION

The COOKER group of mineral claims is located within the Mayo Mining District of Yukon Territory about 13 kilometers (8 miles) east of Kathleen Lakes (see Figure 4-1).

The group, which consists of 96 full-sized claims, is held under option agreement by Edina International Limited with the vendors.

Claim information is listed in Table I:

TABLE I

<u>CLAIM(S)</u>	<u>RECORD NUMBER(S)</u>	<u>EXPIRY DATE(S)</u>
COOKER 1-16	YA13059 - YA13074	October, 1978
COOKER 17-32	YA13075 - YA13090	October, 1978
COOKER 33-48	YA13041 - YA13106	October, 1978
COOKER 49-64	YA13107 - YA13122	October, 1978
COOKER 65-80	YA13123 - YA13140	October, 1978
COOKER 81-96	YA13141 - YA13154	October, 1978

The above claim information was obtained from officers of Edina International Limited and from the Mining Recorders office in Mayo, Y.T. The locations of the claims shown in Figure 2 are approximate. A number of claim posts and location lines were examined in the field and the claims appear to have been staked properly and according to the requirements of the Yukon Quartz Mining Act.

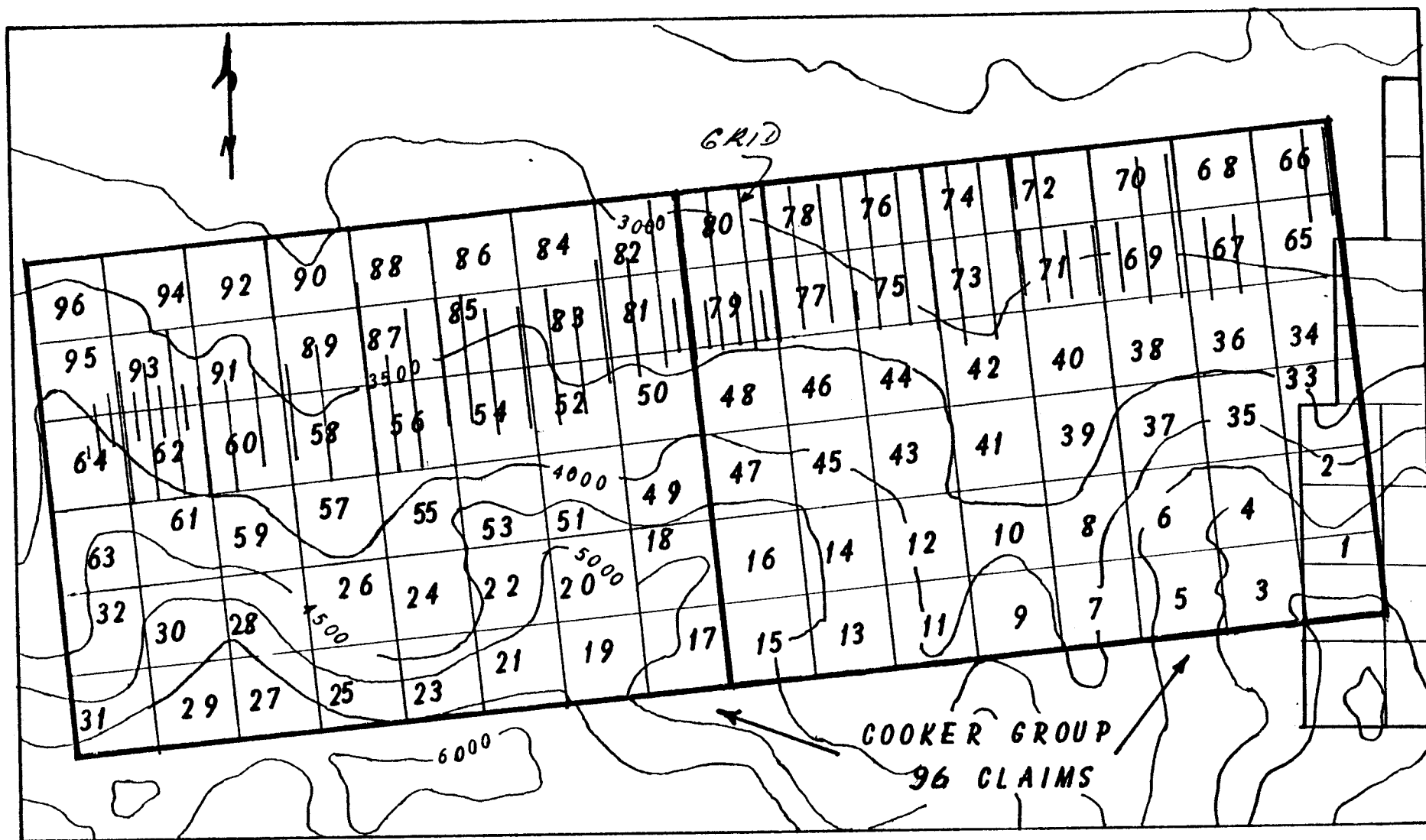
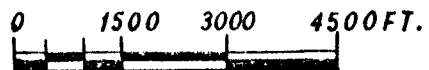


FIGURE 4-1

CLAIM MAP

EDINA INTERNATIONAL LTD.



COOKER GROUP

5.0 GEOLOGY

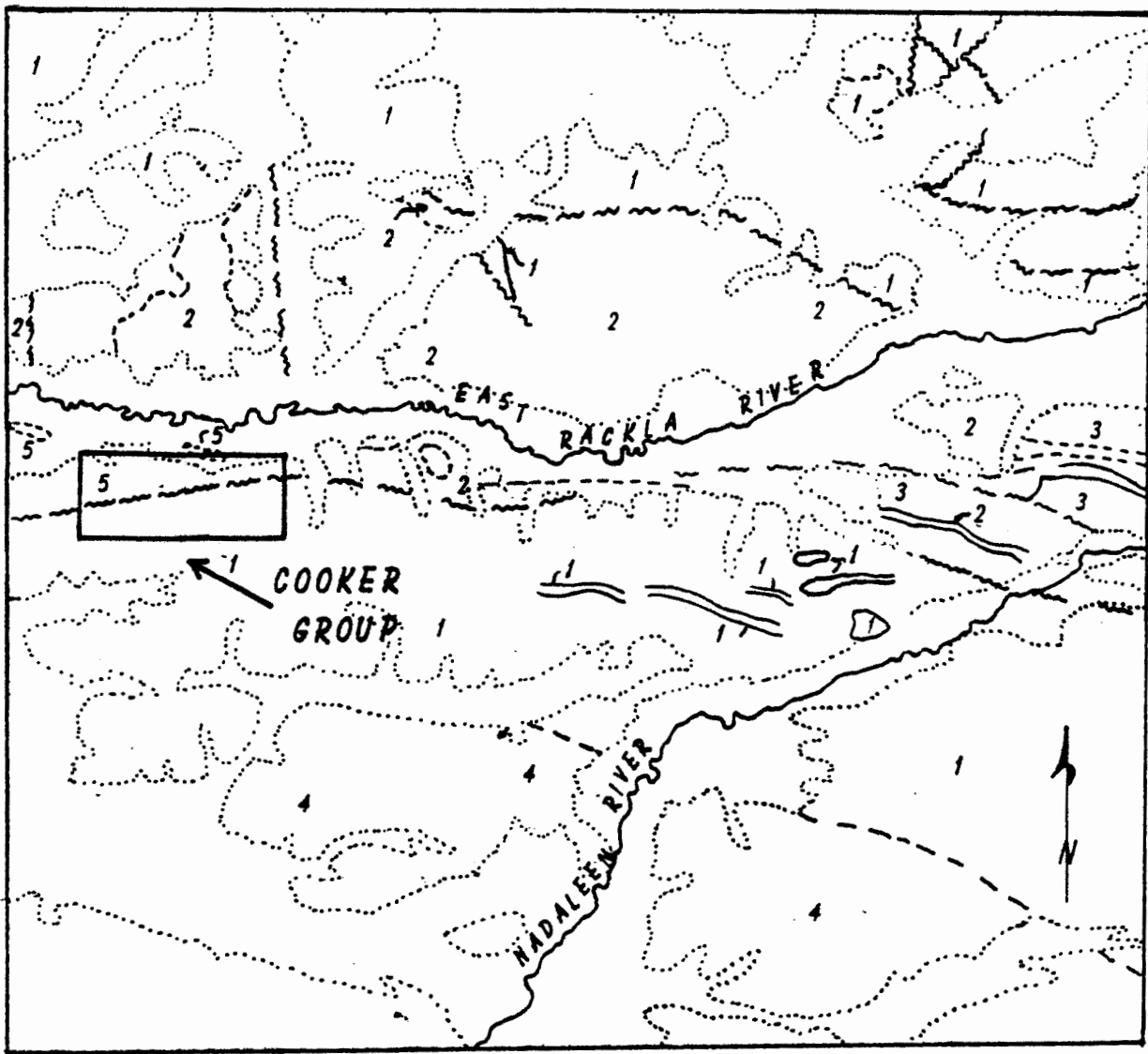
The regional geology of the Nadaleen River map-sheet was done by S.L. Blusson for the Geological Survey of Canada (see Open File #205, June, 1974). Figure 5-1 shows a portion of Blusson's original map. Since that time, however, the area has been re-mapped by Blusson with considerable revision.

A revised map of the area will become available early in 1978 but, in the meantime, some descriptive notes by Blusson which are to accompany his revised map are reproduced here:

East Rackla River - Nadaleen River Area (S. Blusson)

During a brief visit to the recently discovered silver/lead/zinc deposits in the Rackla River area an attempt was made to refine the regional mapping within this and the immediately adjacent parts of Mayo and Nash Creek map-areas, in order to outline geologic controls to mineralization. Two principal findings indicate that not only is geologic refinement needed but possibly major age revision as well.

1. The newly discovered mineralization and related strata (Canol Formation) has marked similarities to that of the Keno Hill district
- and 2. A thick section of Canol - and Imperial - like strata is traceable into, respectively, the "Lower Schist" and "Keno Hill Quartzite". It seems possible that the enigmatic Keno Hill assemblage

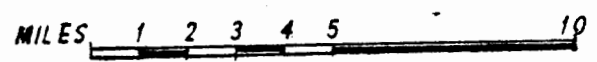


LEGEND

- 5 KENO HILL QUARTZITE
- 4 BLACK SHALES
- 3 ROAD RIVER FORMATION
- 2 DOLOMITE, MINOR LIMESTONE
- 1 HADRYNIAN "GRIT UNIT"

FIGURE 5-1

REGIONAL GEOLOGY



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COOKER GROUP

J.H.MONTGOMERY P.ENG.

is of Late Paleozoic age and all the known high silver/lead deposits in Selwyn Basin may relate to the Canol formation as the possible source rock. Included with the Canol Formation are the silver bearing Pb-Zn deposits of MacMillan Pass, the very rich deposits of the Rogue River area (Plata, Inca) and now the new finds at Rackla River.

Fossiliferous shale, limestone and quartzite of Triassic age that are limited to a local area south of Kathleen Lakes, are now considered not part of the Keno Hill section, although the relationship of the two sequences is still uncertain. The Mesozoic age of Keno Hill strata assigned by Tempelman-Kluit (1970) in Tombstone area depends on an apparent normal succession of "Lower Schist" (Unit 11) over Triassic rocks (Unit 10), but another thrust fault (in an area of repeated thrusting) would reverse that relationship.

The author believes that lithologically and structurally the Keno Hill section has more in common with the late Paleozoic rather than the Mesozoic clastic sequences of Northern Yukon and Alaska. Unlike the Keno Hill strata, the post Triassic thick piles of clastic rock occupy discontinuous successor basins and are nowhere

intensely deformed and regionally metamorphosed. Nor are they intruded by diabase sills, a feature so characteristic of Keno and Tombstone areas and never adequately explained. The Mississippian or Permian Rampart Group (Mertie, 1937); Brosge et al., (1969) and underlying beds of central Alaska, with their profusion of diabase sills and flows, and offset on Tintina fault some 50 km from Tombstone area, is considered the most likely Alaskan correlative of the Keno Hill assemblage.

Geologic Setting of Mineralization

Lead/zinc/silver mineralization found in several localities during 1976 was extensively explored by a number of companies with encouraging results. For the most part, mineralization occupies porous zones within a distinctive competent dolomite member (Zebra dolomite) of the Proterozoic "Grit" unit where this succession is overthrust on dark shale and chert of the Road River and Canol Formations. Similar silver-rich deposits, principally steely galena and quartz, are found locally within a geochemically high silver zone of the Canol Formation in particular where cut by the thrust fault. The Canol Formation, therefore, appears to be a likely source of the metals; metals mobilized and emplaced in openings during or after thrusting.

Based on intensive geochemical work a similar origin, i.e. that metals migrated from graphitic zones in the "Lower Schist", was proposed by Boyle (1965) for the rich silver veins of Keno Hill. Further enrichment of silver to values unique to the Keno district is attributed to supergene processes.

The "Grit Unit" is overlain unconformably to the south by a thick sequence with black, pyritic, gossan-producing shales near the base grading up through shale and siltstone to predominantly thin-bedded siltstone and fine-grained quartzite. This sequence, as much as 1500 m thick, contains numerous diabase sills and with increasing crystallization grades west into the "Lower Schist" and Keno Hill quartzite. To the east and southeast this succession can be followed for many miles and although not continuously traceable is on trend with similar rocks of the Canol and Imperial Formations in the MacMillan Pass area. North of Stewart River the Ordovician-Silurian Road River Formation, characterized by basinal chert, is progressively cut out below the thick clastic succession.

Whether or not the black shales above the "Grit Unit" and the Canol Formation overthrust by the "Grit Unit" are correlative as proposed,

it is clear that both units are widespread and warrant careful prospecting particularly where high metal zones are in fault contact with competent rocks.

Preliminary mapping on the COOKER group has shown that the Dawson Thrust Fault traverses the entire claim group. On the hanging wall side of the fault, a prominent ridge of ankerite (ferrodolomite) overlies black carbonaceous shales. Two small hand trenches across the contact showed the presence of lead/zinc/silver mineralization right on the contact. See Section 6.1 for details. Bedded barite strata are also present on the claim-area.

The ferrodolomite is part of the Hadrynian "Grit Unit" and the black shales are either Road River formation of Ordovician/Devonian age or Canol formation of Devonian/Pennsylvanian age. The galena/sphalerite mineralization is considerably sheared and oxidized and it was not possible to determine whether or not it was dragged along the fault place or was originally emplaced along the contact.

Primary minerals are galena and sphalerite with minor pyrite, chalcopyrite and tetrahedrite. Secondary minerals include smithsonite, hydrozincite, cerussite and malachite.

On the CRAIG claims (McIntyre) to the east, the overlying thrust plate is comprised of the "Grit Unit" which contains, from the bottom up, dark argillite, a dolomitic unit with silicification and silver/lead/zinc mineralization,

more dark argillite, maroon and green shales, ankerite (ferrodolomite) with mariposite, volcanics, serpentine, shales and limestone. On the footwall side of the thrust fault are Ordovician-Silurian-Devonian black shales and carbonates. Mineralization, which consists mainly of galena and sphalerite, is stratabound but definitely epigenetic. It appears that folding and faulting, with resultant brecciation of competent beds (dolomite) provided the conduits for hydrothermal solutions and permitted the remobilization and consequent silver enrichment of lead-zinc mineralization. The "source beds" are believed to have been underlying black shales.

On the ROD claims (McIntyre) to the west, silver/lead/zinc mineralization is present in the black shales on the footwall side of the thrust fault.

6.0 PREVIOUS WORK6.1 Regional Prospecting

Regional prospecting by the writer and others has established that some of the favorable geological strata and structures do extend onto the COOKER claims. These include the Dawson Thrust Fault, the Hadrynian "Grit Unit" (including ferrodolomite), black shales of the Canol and River formations and bedded barite deposits.

Two test pits were dug across the contact between ferrodolomite strata (part of the Hadrynian "Grit Unit") and the underlying black shale strata (believed to be Road River Formation). Silver-bearing galena/sphalerite mineralization is present along the contact. Samples taken from the test pits were analyzed for lead, zinc, silver and copper.

The results are listed in the following table:

SAMPLE (WIDTH - cm)	Pb%	Zn%	Cu%	Ag oz./ton
"Vein" (45 cm)	17.85	15.10	0.110	9.70
"Vein" (60 cm)	15.50	22.70	0.125	10.10
Footwall (60 cm)	0.73	1.48	0.032	0.48
Hangingwall (60 cm)	0.25	0.19	0.009	0.22
"Vein" (45 cm)	12.20	13.20	0.192	7.95
Footwall	0.42	1.20	0.025	0.22

6.2 Geochemical Survey

6.21 Introduction

A total of 1168 soil samples were taken on the COOKER group of claims during the 1977 field season. The samples were taken by a field crew of four under the supervision of Mr. Gary Scoretz.

Samples were taken at intervals of 50 meters along lines spaced 150 meters apart. Later, some closer-spaced sampling was done on anomalous areas. All samples were analyzed for lead, zinc and silver.

6.22 Results

The results of the geochemical survey are shown on the enclosed geochemical plans for lead, zinc and silver (Figures 6-7, 6-8 and 6-9).

Anomalous values were detected over a strike length of 5000 meters (discontinuously). Values in lead range up to 40,000 ppm, in zinc to 9000 ppm and in silver to 30 ppm.

6.23 Interpretation

Standard statistical values were calculated for each of the elements, lead, zinc and silver by computer. Frequency distribution curves and cumulative percent curves were computer-generated and replotted for inclusion in this report. See Figures 6-1, 6-2, 6-3, 6-4, 6-5 and 6-6.

In Figure 6-4, the probability curve has been partitioned into two main populations, a background population (B) which ranges from less than 10 ppm lead up to 130 ppm lead and an anomalous population (A) which ranges from 25 ppm to 7500 ppm. A contour interval of 130 ppm lead was used in Figure 6-7 to outline anomalous zones.

In Figure 6-5, the probability curve for zinc has been partitioned into two main populations, a background population (B) which ranges from 20 ppm zinc to 2000 ppm zinc and an anomalous population (A) which ranges from 1100 ppm zinc to 10000 ppm zinc. A contour interval of 1200 ppm zinc was used in Figure 6-8 to outline zones anomalous in zinc.

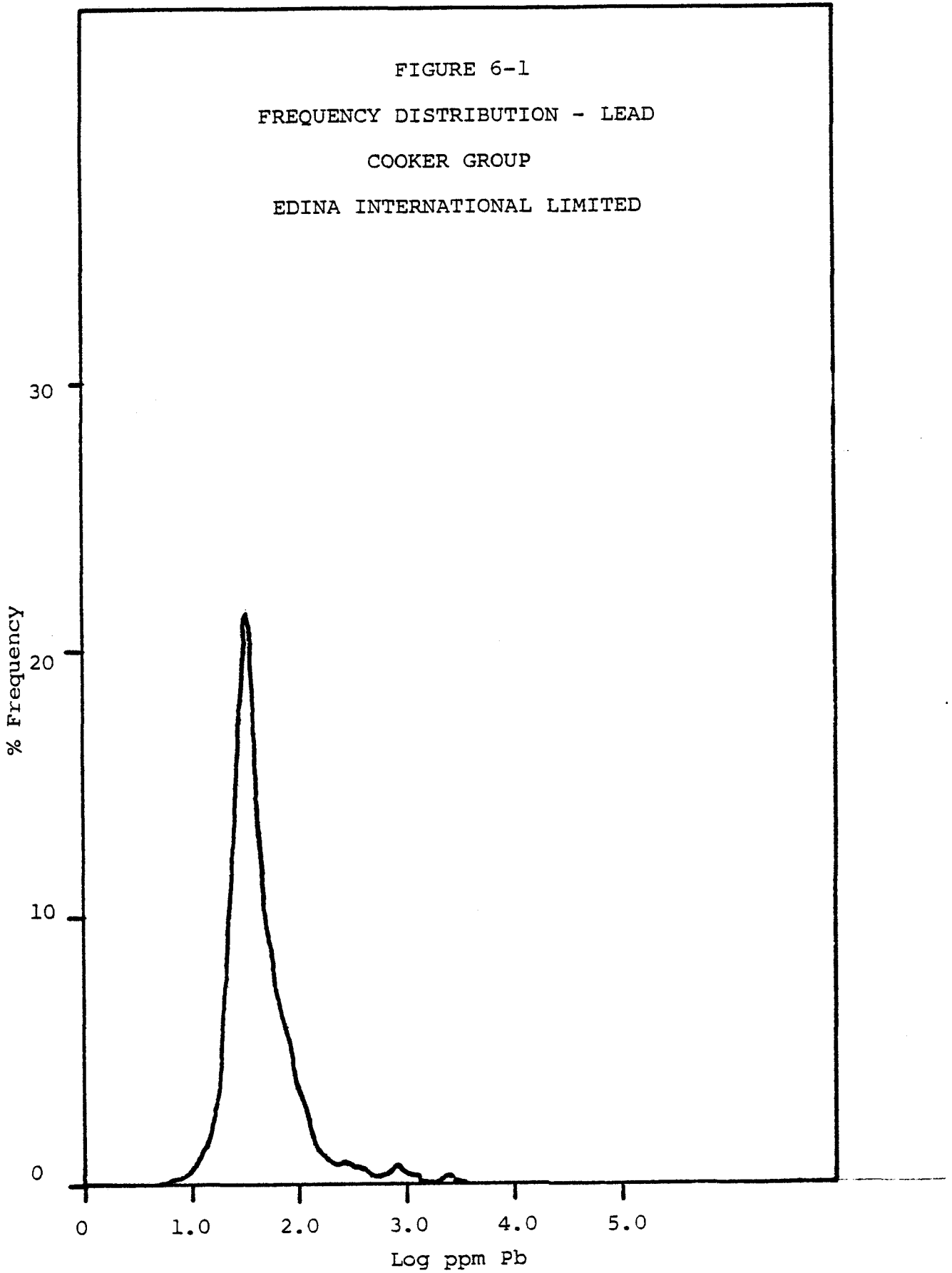
In Figure 6-6, the probability curve for silver has been partitioned into two main populations, a background population (B) which ranges from 1.0 ppm silver to 6.0 ppm silver and an anomalous population (A) which ranges from 2.5 ppm silver to 17.0 ppm silver. A contour interval of 2.5 ppm was used in Figure 6-9 to outline zones anomalous in silver.

In all of the above cases, there is some evidence that additional geochemical populations are present but, further interpretation will be left until the geochemical surveys are completed.

The following table lists the statistical values calculated for each element:

	Pb	Zn	Ag
No. Samples	1168	1168	1168
Mean	119	410	1.97
Std. Deviation	1246	606	1.78
Bar Interval	312	152	0.45
Population A	25-7500	1100-10000	2.5-17
Population B	10-130	20-2000	< 1.0-6.0

FIGURE 6-1
FREQUENCY DISTRIBUTION - LEAD
COOKER GROUP
EDINA INTERNATIONAL LIMITED



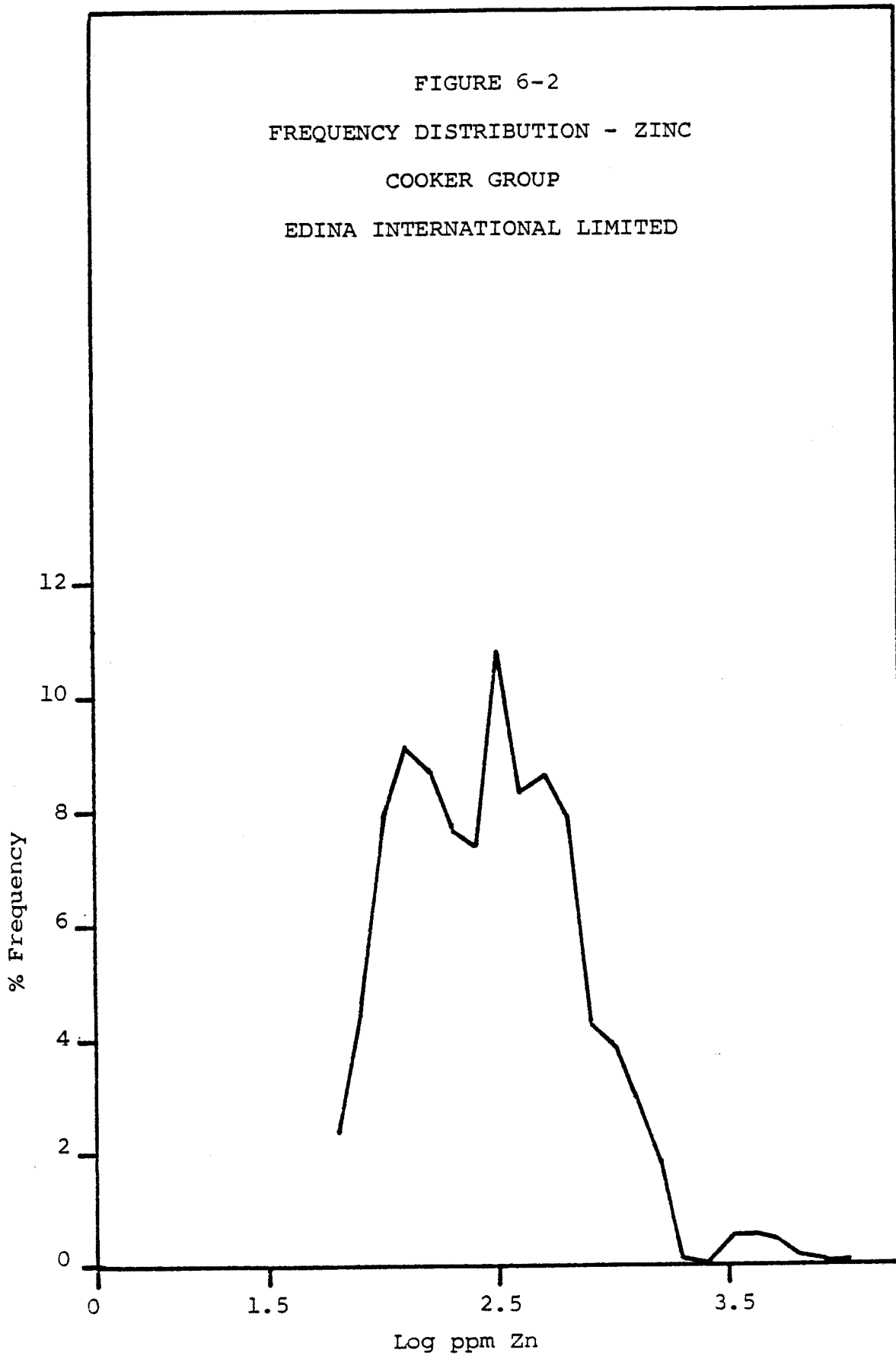
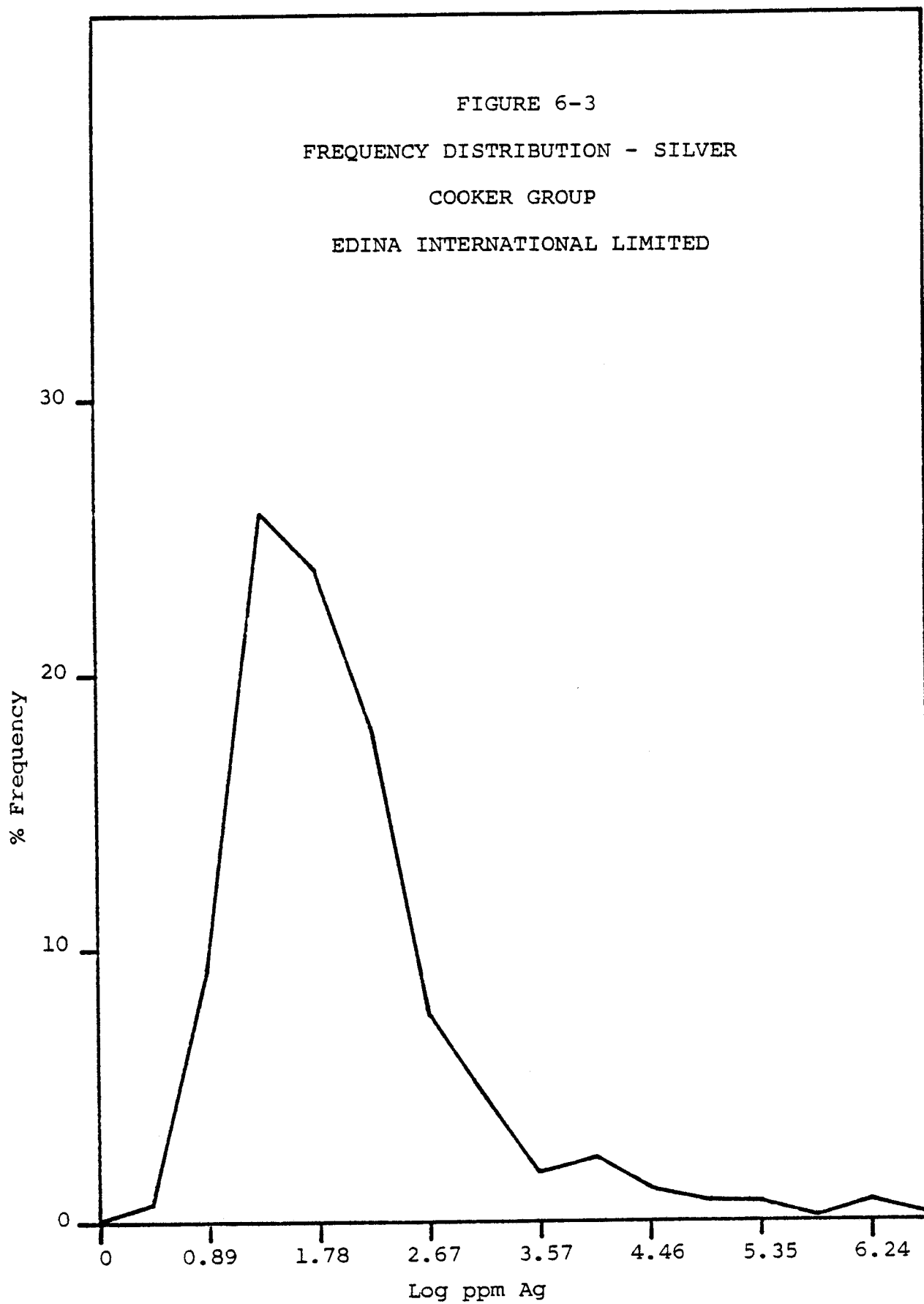


FIGURE 6-3
FREQUENCY DISTRIBUTION - SILVER
COOKER GROUP
EDINA INTERNATIONAL LIMITED



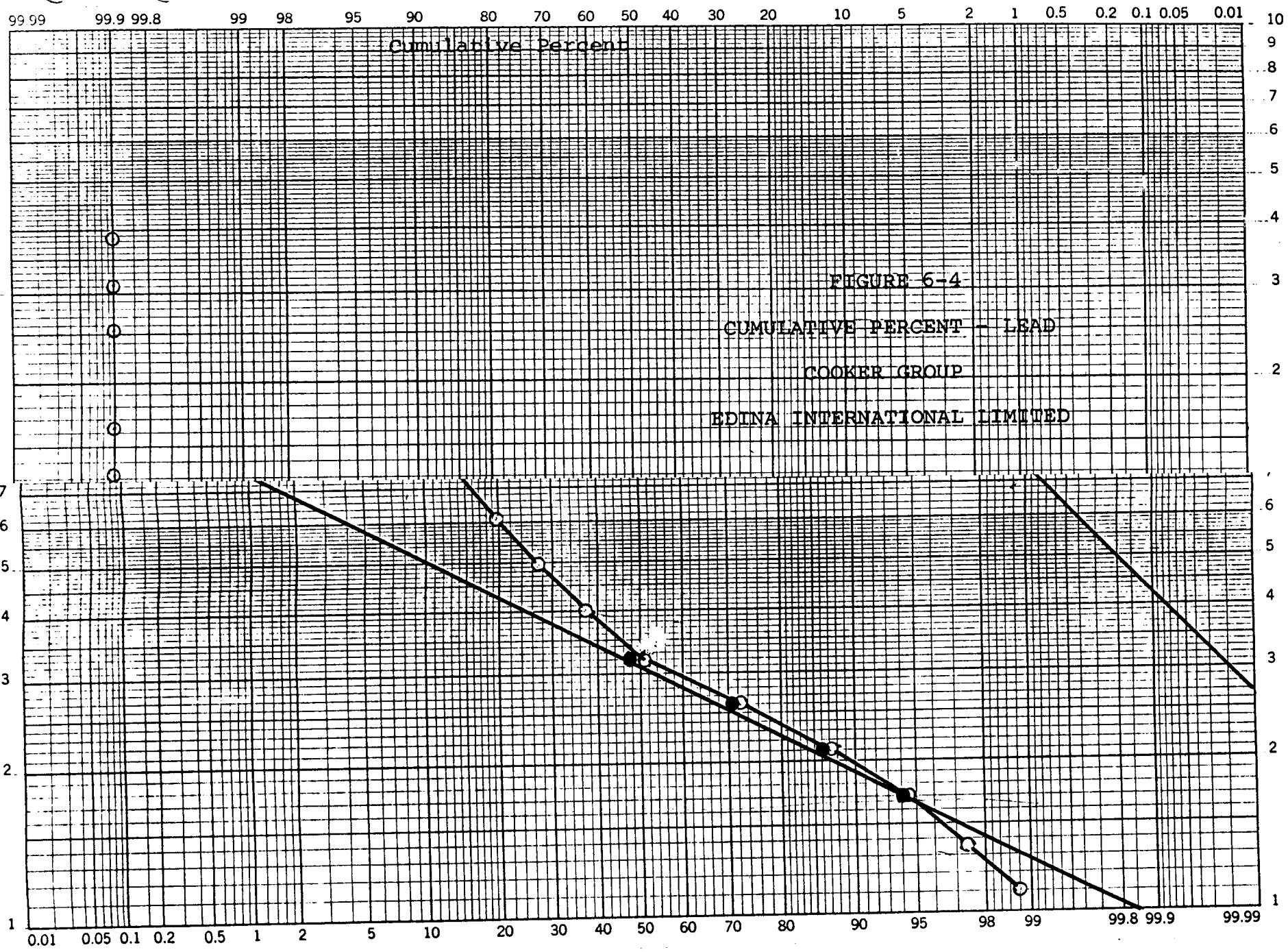
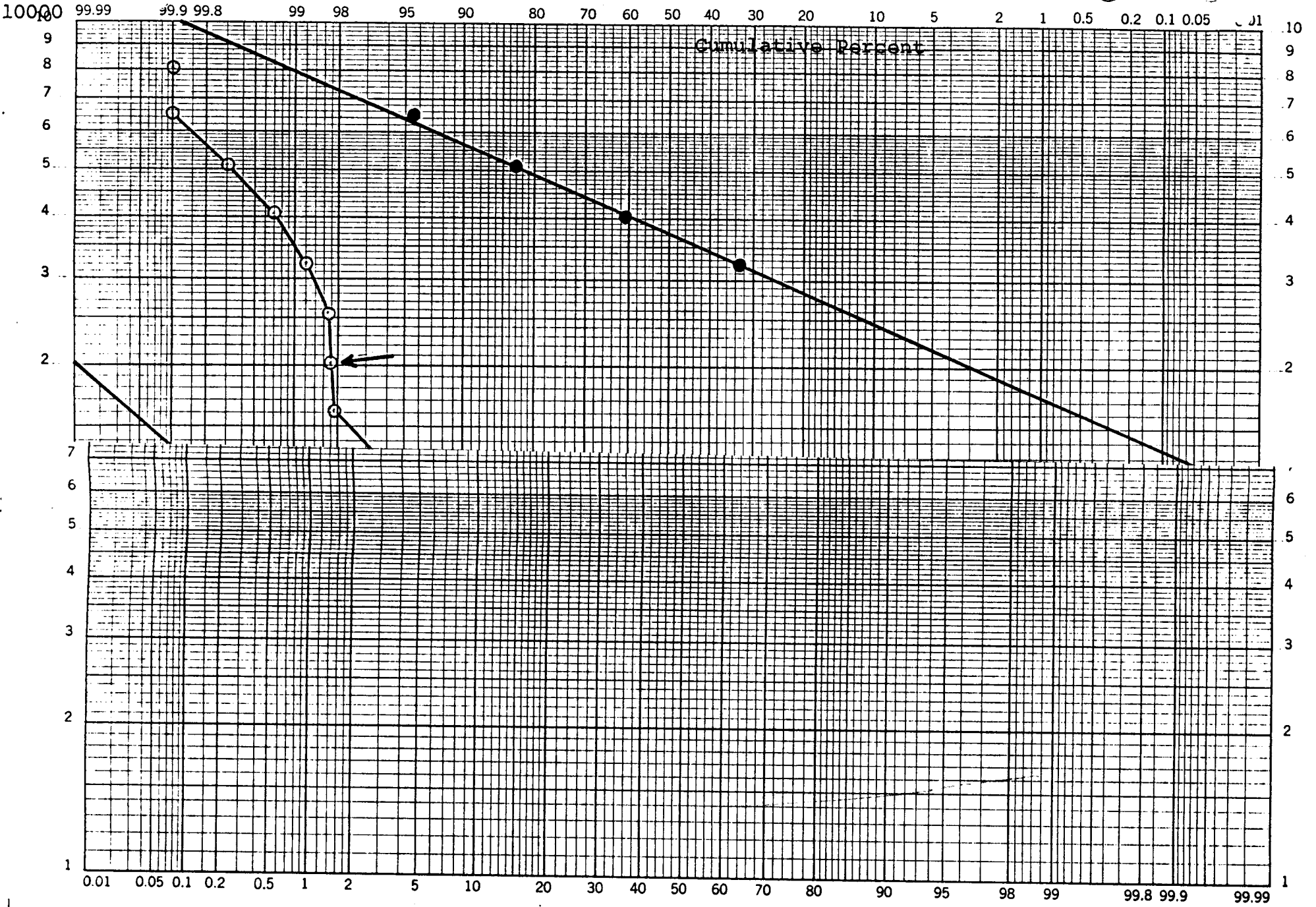


FIGURE 6-4
 CUMULATIVE PERCENT - LEAD
 COOKER GROUP
 EDINA INTERNATIONAL LIMITED



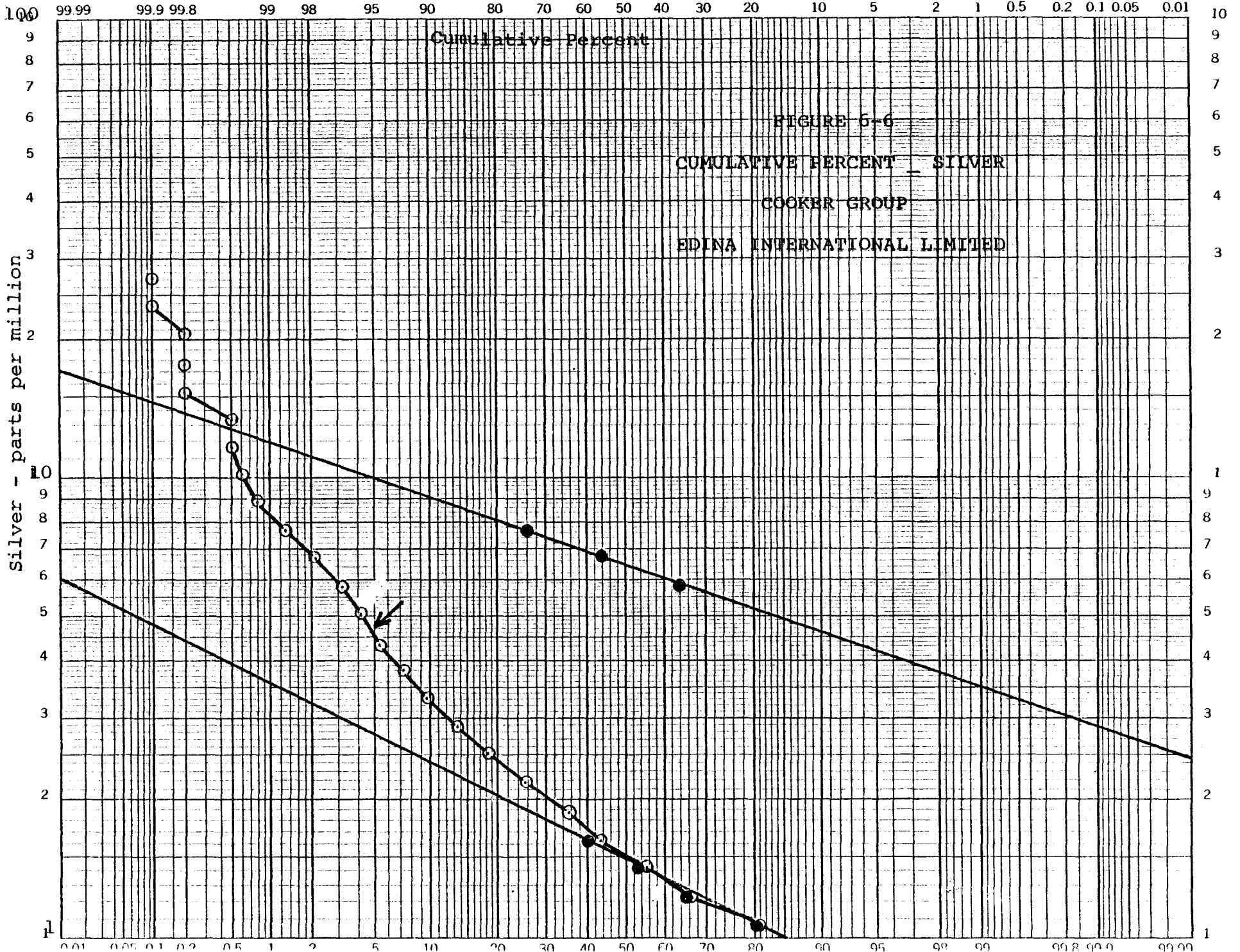


FIGURE 5-6
CUMULATIVE PERCENT - SILVER
COCKER GROUP
EDINA INTERNATIONAL LIMITED

6.24 Sampling Procedure

Soil samples were taken from the B soil horizon whenever possible from depths ranging from 6 to 15 inches. In some swampy areas, only organic soils were obtained. The samples, which were each approximately 200 grams were placed in 3½ by 6½ Kraft paper bags, partly air-dried and shipped to the Laboratory. Locations of the sample sites are shown on Figures 4-1, 6-7, 6-8.

6.25 Laboratory Procedure

The samples were all shipped to Min-En Laboratories of North Vancouver, B.C. and analyzed for lead, zinc and silver.

The samples were dried in a ventilated oven at 100 degrees Centigrade for 8 hours. The dried samples were then screened using 80-mesh stainless steel sieves. The +80 fraction was rejected and the -80 fraction selected for chemical analysis.

Portions (0.50 grams) of the above -80 fractions were weighed and digested in nitric and perchloric acids. The samples were then diluted to a fixed volume. Aliquots were taken and the lead, zinc and silver content determined in parts per million by Atomic Absorption Spectrophotometer.

7.0 RECOMMENDATIONS

Geological structures and strata, namely the Dawson Thrust Fault, "Grit Unit" and Canol and Road River formations which constitute possible host rocks for lead/zinc/silver mineralization, traverse the entire length of the COOKER group of claims.

Silver/lead/zinc mineralization occurs on the CRAIG (McIntyre) claims to the west and the ROD (McIntyre) claims to the east. It also has been found on the COOKER claims along the Dawson Thrust Fault, exposed in two small trenches.

A geochemical anomaly with moderate to high values in lead, zinc and silver occurs discontinuously along a strike length of 5000 meters on the COOKER claims.

In view of the above facts, a program of additional exploration is recommended for the COOKER group of claims. The proposed program consists of additional geochemical soil sampling, geological mapping, electromagnetic surveys and preliminary diamond drilling.

Details of the program follow:

1. Linecutting - prepare a grid over the remainder of the COOKER claims for basemap control for geological, geochemical and geophysical surveys. Lines should run north-south at a spacing of 150 meters.

2. Geochemical Soil Survey - complete the geochemical soil sampling program over the rest of the COOKER claim-area. Samples should be taken at intervals of 50 meters along the north-south grid lines. Detailed sampling at 25 meter intervals should be done on anomalous areas.
3. Geological Mapping - map the entire COOKER claim-area on a scale of 1:4800 using the established grid for control.
4. Electromagnetic Survey - run lines with a C.E.M. electromagnetic unit at a spacing of 300 meters.
5. Diamond Drilling - approximately 2000 feet of diamond drilling will be required to test anomalous zones.

8.0 BIBLIOGRAPHY

1. Blusson, S.L. (1974) - "Nadaleen River", G.S.C.
Open File #205, June, 1974.

2. Green, L.H. (1972) - "Geology of Nash Creek,
Larsen Creek and Dawson Map-Areas, Yukon Territory"
G.S.C. Memoir 364.

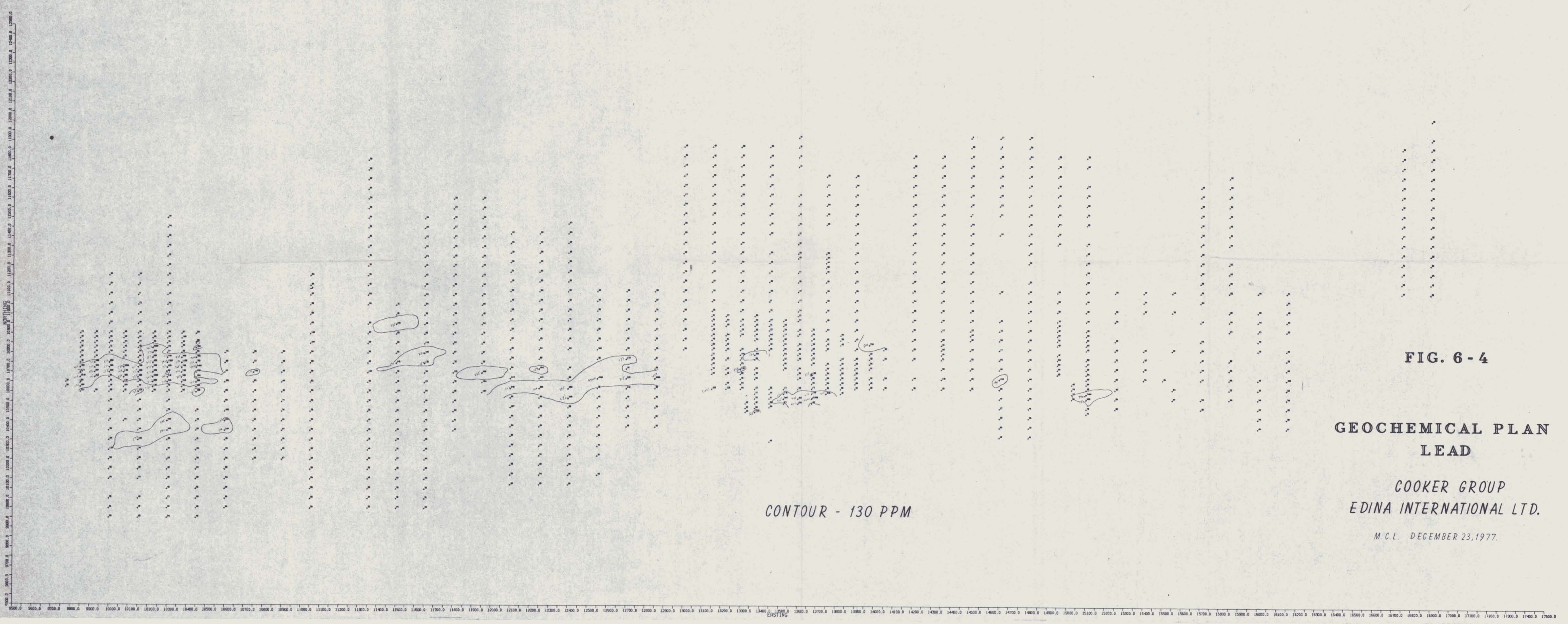


FIG. 6-4

GEOCHEMICAL PLAN
LEAD

COOKER GROUP
EDINA INTERNATIONAL LTD.

M.C.I. DECEMBER 23, 1977.

CONTOUR - 130 PPM



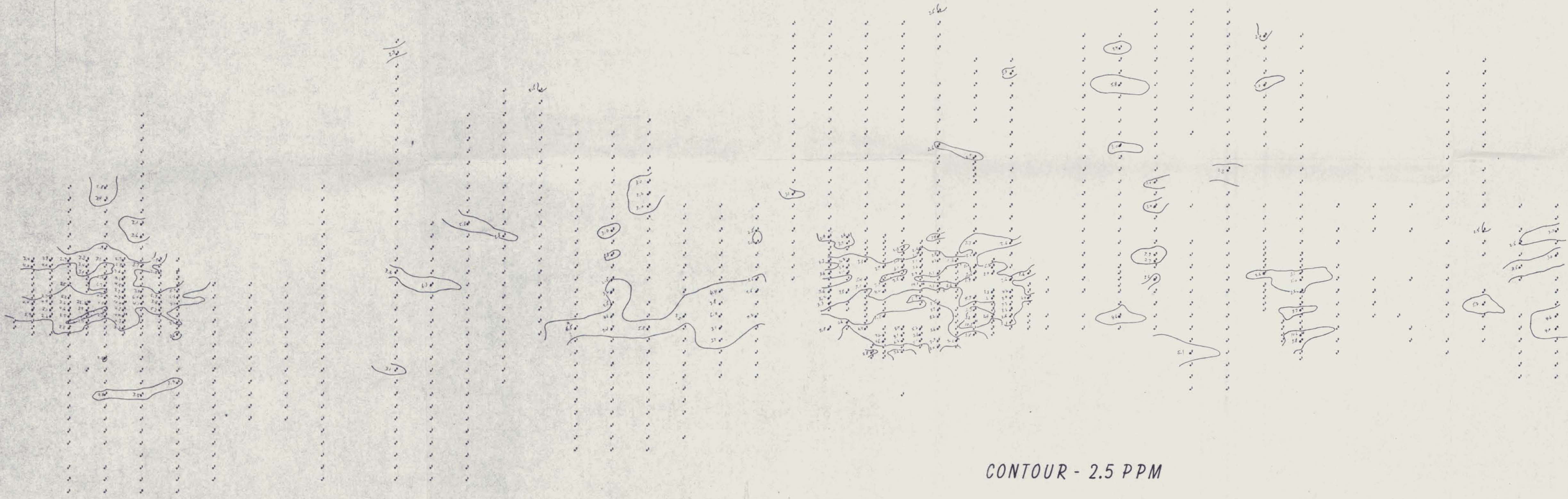
CONTOUR - 1200 PPM

FIG. 6-5

GEOCHEMICAL PLAN
ZINC

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CONTOUR - 2.5 PPM

FIG. 6-6

GEOCHEMICAL PLAN
SILVER

COOKER GROUP
EDINA INTERNATIONAL LTD.

M.C.L. DECEMBER 23, 1977.