GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL

AND DIAMOND DRILLING REPORT ON

THE KLAZAN GROUP

Big Creek Area
Yukon Territory

Longitude: 137°30W
Latitude : 62°23'N

N.T.S. 115-I-6

Work done in the period
April 1 - September 15,1970

By:

W. J. ROBERTS
D. BRABEC

ATLAS EXPLORATIONS LIMITED

November, 1970

TABLE OF CONTENTS

LIST OF CLAIMS

KEY MAP

INTRODUCTION 1

LOCATION AND ACCESS 1

REGIONAL GEOLOGY 2

DETAILED GEOLOGY 4

ECONOMIC GEOLOGY 9

BULLDOZER TRENCHING 10

DIAMOND DRILLING 11

GEOCHEMICAL SURVEY 14

Previous Geochemical Prospecting......................14
Procedures 14
(a) Sampling 14
(b) Analysis 15
(c) Presentation of Data 16
Discussion & Interpretation of Geochem Results........17
(a) Frequency Distribution & Anomaly Thresholds....17
(b) Drainage and Soil Surveys.........................18
(c) Rock Survey 19

GEOPHYSICAL SURVEY 21

Ground Magnetometer Survey 21
(a) Survey Control 21
(b) Survey Techniques 21
(c) Presentation of Data 21
(d) Observations and Interpretations..................22

CONCLUSIONS AND RECOMMENDATIONS 23

Appendix I Drill logs of D.D.H. KL-1
Appendix II Drill logs of D.D.H. KL-2
Appendix III Drill logs of D.D.H. KL-3
Appendix IV Drill logs of D.D.H. KL-4
Appendix V Drill logs of D.D.H. KL-5
Appendix VI Summary of Costs
Appendix VII Vouchers Supporting Summary of Costs
Appendix VIII Affidavit Supporting Summary of Costs
Appendix IX List of Personnel

ILLUSTRATIONS

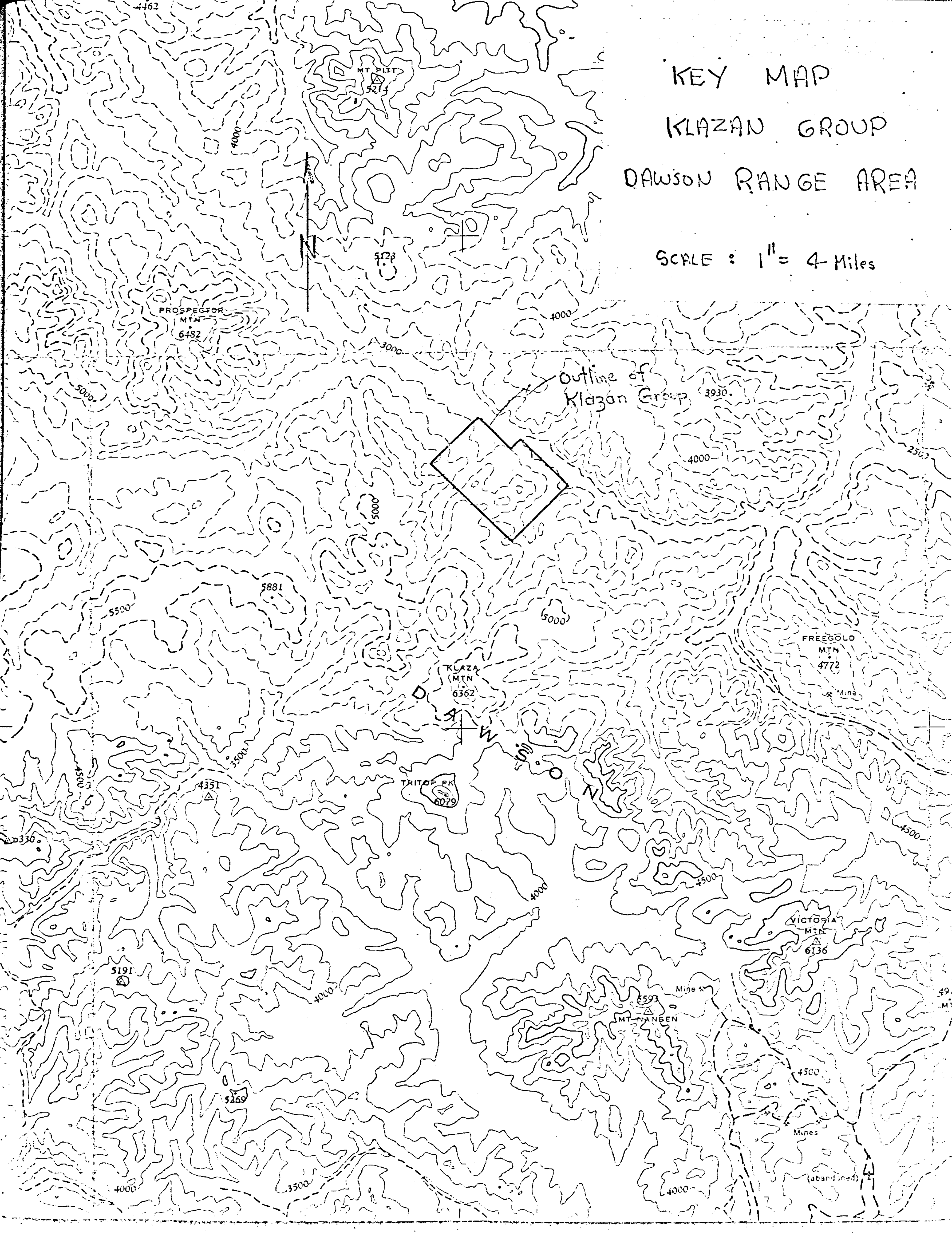
Figure 1	Map of Klazan Claims
Figure 2	Geology Map
Figure 3	Magnetometer Values and Profile Map
Figure 4	Magnetometer Contour Map
Figure 5A	Cross Sections D.D.H. KL-1, KL-2, KL-3
Figure 5	Cross Section of D.D.H. KL-4
Figure 6	Cross Section of D.D.H. KL-5
Figure 7	Analytical precision for Cu and Pb
Figure 8	Analytical precision for Zn
Figure 9	Cumulative frequency distribution for Cu and Zn in soil
Figure 10	Cumulative frequency distribution for Pb in soil
Figure 11	Cumulative frequency distribution for Cu in rocks
Figure 12	Cumulative frequency distribution for Pb in rocks
Figure 13	Cumulative frequency distribution for Zn in rocks
Figure 14	Cumulative frequency distribution for Mo in rocks
Figure 15	Geochem Stream Sediment Survey
Figure 16	Geochem Soil Survey - Cu
Figure 17	Geochem Soil Survey - Pb
Figure 18	Geochem Soil Survey - Zn
Figure 19	Geochem Soil Survey - Mo
Figure 20	Geochem Rock Survey

LIST OF CLAIMS

CLAIM NUMBER		GRANT NUMBER	RECORDING DATE
KLAZAN	1	Y39921	November 13, 1969
	3	Y39922	November 13, 1969
	5-12	Y39923-Y39930	November 13, 1969
	22-24	Y39931-Y39933	November 13, 1969
	26-37	Y39934-Y39945	November 13, 1969
	39	Y39946	November 13, 1969
	41	Y39947	November 13, 1969
	55	Y39948	November 13, 1969
	56-136	Y39949-Y40029	November 13, 1969

KEY MAP
KLAZAN GROUP
DAWSON RANGE AREA

SCALE : 1" = 4 Miles



TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED

330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL AND DIAMOND DRILLING REPORT ON THE KLAZAN GROUP

INTRODUCTION

Atlas Explorations optioned the original Klazan Group of 21 claims and staked an additional 109 claims, covering copper-molybdenum mineralization in the Dawson Range. The original Klazan Claims were assessed in 1967 by Coranex Limited, who carried out geological and geochemical surveys with follow-up bulldozer trenching. During the 1970 field season Atlas Explorations undertook a program including geological, geochemical and geophysical surveys as well as diamond drilling and bulldozer trenching to further assess the property.

LOCATION AND ACCESS

The Klazan Group is located in the Dawson Range approximately 140 miles northwest of Whitehorse and 50 miles west of Carmacks, at latitude 62°23'N and longitude 137°30'W. The claim group is elongate in a northwesterly direction between Etches and Foster Creeks, south of Big Creek.

Access can be made by gravel road, leading off the Klondike Highway at Carmacks, for 50 miles to the Revenue Creek campsite, thence by tractor tote road for another 8 miles to the property. Only tracked vehicles including a bombardier and bulldozer were used for transportation between the property and Revenue

Creek. An airstrip roughly 1600 ft. long by 200 ft. wide was constructed at the junction of Big Creek and Burgis Creek, located approximately 1½ miles north of the Klazan campsite. The airstrip was used throughout the program and was capable of accommodating small fixed-wing aircraft. A bombardier, as well as a D-4 cat with trailer, was used to shuttle supplies between the airstrip and the campsite.

REGIONAL GEOLOGY

The Dawson Range is composed of a northwesterly trending belt of intrusives ranging between Mesozoic and Tertiary ages. In the southeastern portion of the Range a large northwesterly trending elongate batholith of porphyritic hornblende syenite occurs along the southwestern side of Big Creek between Prospector Mountain to the northwest and Victoria Mountain to the southeast. This body is intruded by later Jurassic granites to quartz monzonites, as well as Tertiary quartz porphyries, rhyolite porphyries, other rhyolite volcanics and feldspar porphyries. The Klazan Group covers one of the areas of Jurassic to Tertiary activity with evidence of different phases of alteration and mineralization.

TABLE OF GEOLOGIC FORMATIONS

TERTIARY

5	Dark green, massive, aphanitic, basaltic to andesitic "post mineralization" dykes
4	Medium grey feldspar porphyry
3b	Light grey, glassy rolyitic fragmental tuff
3a	Light grey, massive, aphanitic rhyolite porphyry

JURASSIC OR LATER

2	Medium to fine grained quartz monzonite porphyry to granite porphyry
1b	Medium grained hypidiomorphic quartz monzonite
1a	Coarse grained hornblende syenite

DETAILED GEOLOGY

The Klazan claims were geologically mapped in detail on a scale of 1" to 400'. A map is included in the pocket accompanying this report. The following is a detailed description of the rock types found on the claims.

Syenite

Mapped as Unit 1a of probable Jurassic age, the rock is a coarse-grained hypidiomorphic porphyritic hornblende syenite. It is distinctly grey, often with a pinkish tinge. Large phenocrysts of potassium feldspar up to 1 inch in size occur somewhat aligned in a matrix of medium-to-coarse grained black hornblende and finer grained orthoclase, plagioclase and quartz. Compositionally, the rock is estimated to be composed of 25% microcline phenocrysts, 25% hornblende, 25% orthoclase, 15% plagioclase, 5% quartz and the remaining accessory minerals including magnetite and apatite. Hornblende phenocrysts occur up to 1" long and often are euhedral.

A noticeable foliation or a gneissoid appearance can be observed with alignment of microcline and hornblende phenocrysts in a southeast-northwest orientation - roughly paralleling the dimensions of the batholith lying south of Big Creek. In the northern portion of the claim group, close to Big Creek, a separate phase was observed consisting of a porphyritic hornblende rich variety with subhedral to euhedral crystals of hornblende up to 1" long in a fine-to-medium grained grey matrix of orthoclase, plagioclase and quartz. The porphyritic hornblende syenite has no evidence of alteration but fractures close to the contact of the Tertiary intrusives contain abundant epidote. Few veins in the southern portion of the claims also contained epidote and quartz. Fracturing is very low, leading to very resistant blocky topographic "high" outcrops. No mineralization was noted in this unit.

Quartz Monzonite

This unit appears to be associated with the earlier syenite and is also likely of Jurassic age. It was mapped as Unit 1b. It consists of a light pink hypidiomorphic granular, medium grained, quartz monzonite or monzonite, composed of approximately 55% K-feldspar, 25% plagioclase, 10% quartz, 8% biotite and 2% hornblende with minor apatite and magnetite. No evidence was found to relate this quartz monzonite to the quartz monzonite porphyry in Etches Creek. This unit outcrops along the northern portion of the Tertiary intrusives bordering both sides of Burgis Creek. There does not appear to be a preferential orientation of phenocrysts. Phenocrysts of orthoclase were observed to be up to ½" in size but not pervasive enough to alter the nomenclature to a porphyritic quartz monzonite.

Alteration of this unit consisted of epidote fracture fillings up to 1/8 inch wide. Epidote and chlorite alteration appears to increase towards the Tertiary intrusives. Near the Tertiary contact the quartz monzonite is phyllic altered - the plagioclase is partially altered to sericite, the quartz appears to increase and pyritization up to 2% pyrite is present. Also visible clay minerals are present. Fracturing is low with fillings of pyrite along the southern border changing to epidote fillings towards the north. Mineralization observed consisted of disseminated anhedral to subhedral pyrite along the southern contact.

Quartz Monzonite Porphyry to Granite Porphyry

A medium grained hypidiomorphic, granular, quartz monzonite porphyry was mapped as Unit 2 and corresponds to Unit 10 on the G.S.C. Carmacks geology sheet. It is roughly located in a southeasterly trending band east of Etches Creek. It is approximately composed of 35% plagioclase, 30% orthoclase, 25% quartz, 8% biotite, 2% hornblende with minor apatite and magnetite. Large phenocrysts of anhedral quartz up to 1 cm. in size constitute much of the quartz present. Along the northern edge of the band the quartz monzonite appears to grade into a fine-to-medium grained granite with a composition of 60% orthoclase, 30% quartz, 9% plagioclase, and 1% biotite. Quartz appears as porphyritic anhedral grains up to .5 cm. in size. The biotite is euhedral and the rock type shows no alteration.

Alteration is predominant west of Etches Creek with mainly argillic to phyllic alteration. Sericitization is predominant with over 70% of the rock locally composed of sericite producing a greenish colouration. Silicification is found in areas of high sericite alteration. No alteration of the granite porphyry or quartz monzonite porphyry was noted east of Etches Creek.

Locally the quartz monzonite porphyry is highly fractured with fillings of vuggy subhedral quartz crystals, sericite and clay minerals. No mineralization was observed in this unit.

Tertiary Intrusives

Rhyolite Units

The rhyolite rocks consist of crystal flows, tuffs and porphyry. The rhyolite flows and porphyry were mapped as Unit 3a since no differences could be distinguished in hand specimen. The crystal tuff occurs along the southern edge of the rhyolitic unit and was mapped as Unit 3b. It only occurs between Foster and Burgis Creeks. It consists of crystal fragments up to 1 inch in size but generally less than ½ inch of quartz and feldspar in a darker grey matrix of devitrified volcanic glass. It is approximately 60% matrix and 40% fragments.

There is no evidence of flow banding with alignment of fragments parallel to the elongation of the body in a northwest direction dipping gently north. It contains no evidence of alteration, fracturing or mineralization.

The rhyolite porphyry Unit 3a is a light grey massive aphanitic glassy rock unit with up to 5% subhedral to euhedral quartz phenocrysts less than 3 mm. in size and locally up to 10% potassium feldspar fragments less than 1 cm. The matrix appears as partially divitrified glass. Few flowage features were observed.

Alteration occurs in a central band running generally parallel to the strike of the Tertiary band and is largely phyllic with much sericitization and silicification.

Due to the high fracturing and brecciation observed on the northwest side of Burgis Creek, the unit appears very porous with limonite and jarosite stains in vugs and along fracture surfaces. A stockwork was noted on the northwest bank with many unoriented quartz veins up to ½ inch wide. Very few vugs noted where mineralization could have occurred. Minor molybdenite mineralization was discovered in one of the veins associated with anhedral pyrite. Much of the brecciation and large vug formation appears to have occurred after quartz veining as fragments of quartz veined material were observed in the breccia. In the area of TR-10, rhyolitic porphyry is highly phyllic altered with pods and lenses of green sericite consisting of up to 40% of the rock.

Feldspar Porphyry

A medium grey to dark greenish-grey quartz latite porphyry to feldspar porphyry, mapped as Unit 4, contains white to pink phenocrysts of subhedral to anhedral orthoclase. Feldspars are up to 5 mm. in size and comprise approximately 10% of the rock with the remainder as fine grained plagioclase, orthoclase and quartz with minor biotite, hornblende and apatite.

Alteration is generally low with limited replacement of K-feldspar phenocrysts by calcite and clays. Rings of translucent white to pink calcite are common around orthoclase phenocrysts. Hornblende is partially to totally altered to chlorite. Sericitization and silicification appear very minor.

Fracturing is low with fillings of clays, sericite and calcite with minor pyrite. Pyritization is predominant in outcrop along both banks of Burgis Creek and is estimated at over 1%. Associated with pyrite is minor sporadic fine grained disseminated galena and sphalerite. The feldspar porphyry being more resistant to weathering than the rhyolitic units forms blocky and steeper faced slopes. Due to a high pyrite content, weathered material can contain red brown limonite coatings. The brown limonite coating, originally termed the gossan, on the northwest bank of Burgis Creek, appears to have been caused by oxidation of waters passing through the pyritized feldspar porphyry. As can be noted on the accompanying geology map, the feldspar porphyry appears to form a sub-rounded stock in the central portion of the rhyolite band with elongations to the east and west. Numerous dykes occur peripheral to the stock. The quartz stockwork adjacent to the limonite stained area occurs along the contact of the rhyolite porphyry and feldspar porphyry.

Post Mineral Dykes

Unit 5 consists of massive dark green to grey aphanitic basalt to andesite dykes likely associated with late Tertiary volcanic activity. Fracturing and alteration are absent. The dykes are generally less than 5 ft. wide and trend northwest parallel to the elongation of the rhyolite band.

ECONOMIC GEOLOGY

Mineralization noted in outcrop consisted of mainly disseminated pyrite accompanied by minor traces of molybdenite. Pyritization is predominant in the fledspar porphyry (Unit 4) and in the silicified rhyolite porphyry (Unit 3a) along both banks of Burgis Creek. Approximately 1-2% pyrite with traces of sphalerite and galena occurs in feldspar porphyry dykes with no evidence of molybdenite or copper mineralization. Higher silver values appear to be associated with concentrations of galena and sphalerite within the feldspar porphyry.

Molybdenite, occuring in trace amounts, was observed in quartz veins within a stockwork in Trench No. 1 on the west bank of Burgis Creek. The stockwork consisting of quartz veins generally between 1/8 inch and ½ inch wide in the rhyolite porphyry was observed between stations 18+00 to 23+00 in Trench No. 1, a distance of 500 ft., with little evidence of possible extensions to the east and west. Later brecciation has displaced quartz veining and has produced a vuggy and porous unit. Minor molybdenite mineralization appears to have accompanied quartz fracture fillings with no evidence of dissemination within either the feldspar porphyry or rhyolite porphyry. No molybdenite was noted on the east bank of Burgis Creek or in any of the trenches located in Etches Creek. All mineralization noted occurs either in the central stock of feldspar porphyry or in the peripheral moderate to highly altered rhyolite porphyry.

Alteration consisting of silicification, pyritization, sericitization and clay alteration occurs along a linear feature in a near southeast-northwest orientation within the central portion of the rhyolite band. Limits of extent and types of alteration may be noted on the geology map. There appears to be zoning with silicification and intense sericitization in the central portions surrounded by low to moderate sericitization then finally clay alteration. Mineralization appears to be related to areas of intense silicification and sericitization. Since little outcrop exists between Etches and Burgis Creeks, the linear alteration feature is not fully conclusive.

BULLDOZER TRENCHING

A D-7 cat was used throughout much of the project for transporting heavy equipment, building of access roads, airstrip facilities, establishing diamond drill set ups, removing slide material in old trenches, and trenching. Early in April a winter tote road was improved from the Revenue Creek camp to the Klazan area, a total of 10 miles, and was used by the D-7 cat and sled for the transportation of equipment and supplies to the project. Later an airstrip measuring 1600 ft. by 200 ft. was constructed near the junction of Burgis and Big Creeks as well as an access road from the airstrip to the campsite.

Previously made Trenches 1, 2, 3, 4, 5, 6, 7, 10, 11 and 12 were cleaned out and sampled every 25 ft. by rock geochemical methods. The results are compiled on the accompanying Geochemical Rock Survey Map. A discussion of the results follows in the Geochemical Rock Survey portion of this report. Trench numbers 3, 4 and 5 were deepened to approximately 10 ft. however bedrock was not reached.

Trenches 13, 14 and 15 were attempted between Etches and Burgis Creeks to define geological contacts but due to very thick fluvial - glacial material bedrock was not reached. The average depth of the trenching was 5-8 ft. Trench No. 11 was extended from 21+00N to 31+00N, a length of 1000 ft. with an average depth of 5 ft. A total of five drill set-ups averaging 20 ft. by 40 ft. were established.

DIAMOND DRILLING

A total of five holes totalling 3171 ft. of diamond drilling was undertaken during the field season. Two phases of drilling were carried out.

Phase I of diamond drilling took place during the period May 1st - June 10th, 1970, when three holes were drilled. Hole KL-1 was located at L4E, 8+50N on the grid. The hole was drilled to a depth of 801 ft. at an angle of -55^{o} and Azimuth 200^{o}. It was located in an area of visible mineralization, also the area of the best geochemical results obtained from previous surveys by Coranex. Overburden was 70 ft. deep and core drilling was achieved to a depth of 801 ft.

The core was logged using four separate categories: rock type, alteration, fracturing and mineralization. The core from KL-1 was split with 5 ft. intervals placed in plastic sample bags and sent to Loring Laboratories in Calgary, Alberta, for assaying for copper, molybdenum disulphide, gold and silver. The assays were not of economic grade. The hole was completed on May 11, 1970.

Diamond drill hole KL-2 located at L4E, 11+50N, was drilled at an angle of -55^{o} in a direction of 80^{o} Azimuth. This drill hole was planned to establish a contact relationship between the rhyolite porphyry and quartz monzonite in an area of phyllic alteration. Due to artesian water at high pressures, the hole was abandoned at 324 ft. because of water action washing the sides of the hole producing cave. The core was logged and split, placed in plastic sample bags in 10 ft. sections and sent to Vancouver Geochemical Labs for rock geochem analysis. The rock type was similar throughout with little or no evidence of mineralization. The drill hole was abandoned on May 21, 1970.

Diamond drill hole KL-3 was located at set up 'D' at 4+20W, 3+00S on the grid. Three targets were being tested with one hole; a geochemical anomaly at station 38+00 on Trench No. 1, a gossan and anomalous stock and a stockwork located on the higher branch of Trench No. 1 situated between stations 18+00 and 23+00. It was thought that there was a northwest-southeast structure present and that a drill hole in the direction of the goechemical anomaly and gossan would prove valuable. Drill hole KL-3 was drilled at -55^{o} and an Azimuth of 350^{o}. As with drill hole KL-2, the core was sent to Vancouver Geochemical Labs for rock geochem analysis in 10 ft. sections. KL-3 was in Unit 4 throughout its length. Drill hole KL-3 began on May 24 and terminated at 801 ft. on May 30, 1970.

The drill logs are included in the Appendix.

<u>Phase II</u> of drilling took place during August when drill holes KL-4 and KL-5 were located in the Burgis Creek valley to test the stockword found in the area of Trench No. 1. Drill hole KL-4 was collared in Trench No. 1 at station 23+00 ft. and drilled at an angle of -60^{o} with a bearing of 010^{o} to a depth of 643 ft. Intervals of stockwork and moderate to highly sericitized material were encountered throughout the hole. Silicification, sericitization and pyritization tend to increase with depth. Mineralization is very weak with higher concentrations

at the contacts of feldspar porphyry with rhyolite porphyry. The highest grade interval consists of an average of .17% copper with minor molybdenite values from 330 ft. to 375 ft., a total of 45 ft. The increase in mineral content at this level may also be due to enrichment just below the depth of oxidation. A log of drill hole KL-4 including the assay results is included in the Appendix.

Drill hole KL-5 was collared at line 2W, 200 ft. north, located in the Burgis Creek valley floor. The hole was drilled vertically to a depth of 602 ft., approximately 42 ft. of overburden was penetrated. Feldspar porphyry was encountered throughout. Mineralization consisted of disseminated anhedral to subhedral pyrite with minor sporadic disseminations of chalcopyrite. All core was logged and split with half sent to Vancouver Geochemical Labs for analysis of copper and molybdenite. Results of logging and assaying may be noted in the Appendix. Mineralization throughout was very low with average values of approximately 0.01% copper and less than 0.005% molybdenite. The highest grade interval exists between 560 and 570 ft., a lenght of 10 ft. assaying 0.16% copper and 0.068% molybdenite. Copper mineralization consisted of fine grained disseminated chalcopyrite associated with chloritized feldspar porphyry. Areas of moderate to intensely silicified and sericitized material contain only very minor amounts of copper and molybdenite.

Drilling was terminated on August 24 and all drilling equipment was removed from the property. All core is stored in a covered core rack located at the campsite in Burgis Creek. Cross sections of drill holes KL-4 and KL-5 may be found in the accompanying pocket.

GEOCHEMICAL SURVEY

Previous Geochemical Prospecting

During the reconnaissance stream sediment survey by Coranex Ltd. in 1965, a THM anomaly was discovered in Burgis Creek. Follow-up by soil sampling revealed areas anomalous in Cu, Mo, Pb, Zn and As. A small gossan on the northwest side of Burgis Creek was found to carry up to 590 ppm Mo and 40 ppm As. Subsequent trenching of another anomalous zone on the southeast side of Burgis Creek exposed volcanics with minor, predominantly Pb-Zn-Mo mineralization along fractures.

A detailed account of this geochemical work, including maps showing the distribution of selected elements in anomalous areas, is given in a report by C. Campbell, 1966. Additional data and comments are included in another report by J. R. Woodcock, 1969. Both reports are on file at Atlas Explorations Limited in Vancouver.

Procedures

(a) Sampling

The following samples were taken during the geochemical survey conducted by Atlas in 1970.

(1) 849 soil samples taken mostly at 200 ft. intervals along northeasterly lines of 800 ft. spacing.
(2) 64 stream sediments taken at selected drainage sites.
(3) 410 rock chip samples weighing ¼-½ lb. each, at 25 ft. intervals from bedrock exposed in trenches.
(4) 3 water samples.

Soil samples were taken from B horizon wherever practical. Considerable difficulty in sampling was encountered on northern slopes due to permafrost. Additional sampling problems were posed by the soil being burried under 2-10" of volcanic ash which was difficult to penetrate both when frozen and excessively wet.

Stream sediments were collected both from drainages on the claim group as well as adjoining areas. Efforts were made to collect samples consisting predominantly of silt and fine sand.

Water samples collected were acidified at sample sites to prevent the precipitation of iron hydroxide and possible scavenging of heavy metals in the precipitate.

(b) Analysis

After drying, all silt and soil samples were sieved to -80 mesh and the fines retained for analysis. Rock samples were crushed in a jaw crusher and then pulverized in a grinder with steel plates. The resulting powder was reduced by quartering to a 20-30 g. working sample. 0.5 g. of each sample was digested with aqua regian, diluted to 10 mls. and allowed to settle. The concentration of Cu, Pb and Zn in the solutions were determined with a Perkin-Elmer 303AA spectrophotometer. Molybdenum content was estimated colourimetrically by the thiocyanate-stannous chloride method using the isopropyl ether for extraction of the coloured Mo complex. Interferences were often encountered in this test, particularly when analyzing soil, due to the organic matter extracted by the solvent along with the molybdenum complex.

During a short period when the atomic absorption unit of Atlas Explorations Laboratory was not operational, analytical determinations of all elements sough were performed by the Whitehorse Assay Office using a Techtron AA 4 atomic absorption spectrophotometer. According to the results obtained on the control soil sample, this did not cause any detectable change in the level of results for Cu, Pb and Zn, but the values for Mo obtained by AA technique were generally lower than those from colourimetric determinations.

Mo in water was determined by the thiocyanate-stannous chloride colourimetric method.

Analytical reproducibility precision was controlled by including a soil sample selected as standard with every 20 or 30 samples to be analyzed. 45 replicates obtained in this way were used to estimate the analytical precision for Cu, Pb and Zn. Reproducibility derived from the scatter diagrams (Figures 7 & 8) was as follows:

Cu	-	± 55%
Pb	-	± 25%
Zn	-	± 25%

Mo precision was not determined due to the lack of a suitable standard. However, in view of the interferences in colourimetric determination, it would appear that considerable errors can be expected at concentrations lower than 5 ppm.

Lower detection limits for all elements sought was 2 ppm in solid material and 3 ppb for Mo in water.

(c) <u>Presentation of Data</u>

Analytical results for soils are plotted on a scale of 400 ft. to the inch, and anomalous characteristics for each element are shown by contouring (Figures 16-19). Data for stream sediments and rocks are plotted on a scale of 3000 ft. to the inch and 100 ft. to the inch, respectively (See figures 15 and 20).

Discussion and Interpretation of Geochemical Results

(a) Frequency Distribution and Anomaly Thresholds

Copper values in soils range from 2 to 360 ppm, roughly 94% being lower than 50 ppm. The break in cumulative frequency plot (Fig. 9) indicates that a soil threshold of 50 ppm Cu, generally applicable within Dawson Range, may be adopted.

Lead content of soil was between 2 and 3720 ppm, with 82% of values within 0-30 ppm interval. The cumulative frequency plot for this metal (Fig. 10) shows a change in slope over the 20-40 ppm interval so that a threshold of 30 ppm appears to be adequate for soils and stream sediments.

Zinc values range from 2 to 924 ppm, with 84% of data lower than 100 ppm. A well expressed break in slope of the cumulative frequency curve (Fig. 9) indicates 100 ppm Zn as a realistic threshold value for soils.

Molybdenum values in soil vary from less than 2 ppm to 192 ppm. A large number of samples were very low in Mo (below 2 ppm). From visual inspection of data and keeping analytical limitations in mind, it is considered that 5 ppm can be used as anomaly threshold for Mo in soils.

The number of stream sediments being too small for statistical treatment, it was assumed that the threshold values established for soils also apply to stream sediments.

Rock samples are generally higher in metals sought than soils, probably as a result of a basic difference in sampling pattern. Soils were collected on a more or less uniform grid, but most rock chip samples were taken from trenches in altered rock. Consequently it is felt that these data are not suitable for determination of anomaly thresholds for rocks on the Klazan Group. The rather complex nature of frequency plots for metals in rocks, with breaks in slope at high concentrations, is likely to reflect different phases of mineralization and/or surface leaching.

(b) Drainage and Soil Surveys

Stream sediments from the major creeks in the area were low in elements sought, with the exception of one sample from Burgis Creek which was anomalous in Pb and Mo (See Fig. 15). Thus, mineralization in the valley of Burgis Creek is poorly expressed in drainage, partly probably as a result of strong dilution with barren material carried by this rather large creek.

Water samples, including one from a drill hole, carried less than 3 ppb Mo. Very high rate of flow from the drill hole may have caused a strong dilution of metal content in water. Composite Cu-Pb-Zn-MO anomalies in soil are found in two general areas: one over an alteration zone along Burgis Creek, and the other on the west side of Etches Creek valley. The first anomalous zone has a peak of 360 ppm Cu, 250 ppm Pb, 336 ppm Zn and 186 ppm Mo.

The second anomaly reaches its maximum at 540 ppm Cu, 140 ppm Pb, 690 ppm Zn and 32 ppm Mo. These two zones may in fact be one, but apparently disrupted in the middle as a result of sampling problems presented by permafrost, volcanic ash cover and a blanket of transported overburden along southeast side of Burgis Creek Valley.

Metal contours are mostly elongated in southeasterly direction. Highest values usually occur in the vicinity of contacts between two kinds of porphyritic volcanics (see the Geologic Report).

Cu, Pb, Zn and Mo anomaly peaks east of Burgis Creek are largely coincident, but west of it the values seem to decline in order Mo-Cu-(Pb+Zn). Pb and Zn anomaly extends farthest to the northwest across Foster Creek.

(c) Rock Survey

High metal values in Trench No. 1, particularly those for Mo, appear to be related mostly to the quartz stockwork and the feldspar porphyry (see Geologic Map). Distribution of values is rather irregular, particularly within the gossan, probably as a result of variations in the intensity of leaching (See Fig. 20).

Trenches No. 2 and No. 6 gave values of similar level to those found in Trench No. 1, whereas Trenches No. 7 and No. 10 were relatively low in all elements sought.

Trench No. 11 has a concentration of high values within rhyolite porphyry and feldspar porphyry, whereas almost no anomalous values are found in the quartz monzonite porphyry.

Anomalous values for Pb, Zn and Mo in Trench No. 12 are restricted to the 0-100 ft. interval. No outstanding Cu concentrations are present (See Fig. 20).

Anomalous bedrock is generally found to be well reflected in the overlying residual soil.

Correlation coefficients computed from rock analyses indicate a significant positive correlation among Cu, Pb, Zn and Mo.

GEOPHYSICAL SURVEY

Ground Magnetometer Survey

(a) Survey Control

Survey control for both the magnetic and soil sampling surveys was attained by an extensive grid with cut lines covering the surface expression of the rhyolite unit. The grid consists of two base lines 3000 ft. apart with cross lines at 800 ft. spacing and 400 ft. spacing over areas of interest. A total of 37 line-miles was cut. Stations were located by chain and compass methods at 100 ft. intervals on all lines.

(b) Survey Techniques

A Sharpe MF-2 magnetometer was used, the instrument is hand held and measures the vertical magnetic component by use of an oil-dampered fluxgate which automatically levels itself in the vertical direction. Gamma values can be directly read from the instrument. Prior to the actual magnetometer survey, readings were taken along the base lines at cross line intersections. These stations were looped and re-read every hour as a means of controlling drift and diurnal variations. With established base stations a rapid and precise check was kept on magnetic variations. Thus, the entire survey was kept on a relative basis during day to day operation. All cross lines were read and re-checked at base stations within every hour as a means of checking magnetic variations. As a means of further checking diurnal changes, a Jalander magnetometer was used as a base station at camp and read every 20 minutes.

(c) Presentation of Data

Magnetic results were corrected for both diurnal and drift variations then plotted on a grid plan with a scale of 400 ft. to 1 inch. The data was then profiled and contoured with the resulting map included in this report.

(d) Observations and Interpretations

The ground magnetic survey corresponds closely to the aeromagnetic map produced by the Geological Survey of Canada with general low relief gamma values over rhyolitic units. Due to high magnetite content in the syenite and absence of magnetite in the Tertiary units, it was thought that the magnetic survey would clearly outline the extent of the elongate rhyolitic band. However, as can be noted on the accompanying Magnetic Contour Map, the relationship of the two units was not clearly defined. A large magnetic "high" exists between lines 40E and 16E from 15S to 30S and could be due to magnetite concentration in syenite. The highly variable magnetics in the northwestern portion of the grid area appear to be due to Tertiary basalt and andesite. No pronounced magnetic features exist in areas of known mineralization or alteration.

CONCLUSIONS AND RECOMMENDATIONS

The Klazan Group covers part of an elongate belt of complex Tertiary intrusive and extensive rock likely associated with a plane of weakness paralleling the Big Creek fault. A linear relationship of alteration and minor mineralization is apparent in the central portion of the Tertiary units which also parallel Big Creek. Higher grade mineralization appears to occur peripheral to the small feldspar porphyry stock in highly quartz veined and sericitized rhyolite porphyry. Two related phases of mineralization exist; chalcopyrite and sphalerite which occur as disseminations and fracture fillings with sericite and clay minerals within the feldspar porphyry as well as molybdenite associated with pyrite occurring sporadically in quartz veins in both the rhyolite porphyry and feldspar porphyry. Surface depletion of mineral content due to oxidation does not appear to be significant in the Burgis Creek area.

The ground magnetometer survey was ineffectual in locating areas of high alteration and mineralization but generally outlined the extent of the rhyolitic units. Magnetic "highs" are likely due to magnetite enriched segregations of syenite and are not thought to be of related economic interest.

Diamond drilling the stockwork, the limonitic stained rhyolite porphyry, the area of best surficial mineralization, and the valley floor has shown that grades of copper, molybdenum, gold and silver do not significantly increase with depth.

Mineralized bedrock in the area is geochemically well reflected in the residual soil, but anomalous trains in drainage seem to be rather short. Association of elements, both in the soil and in the bedrock, is fairly unusual, and may be significant for appraisal of ore potential. However, criteria for interpretation on this basis can be developed only on a regional scale, i.e. when more is known about metalogeny and geochemistry of Dawson Range.

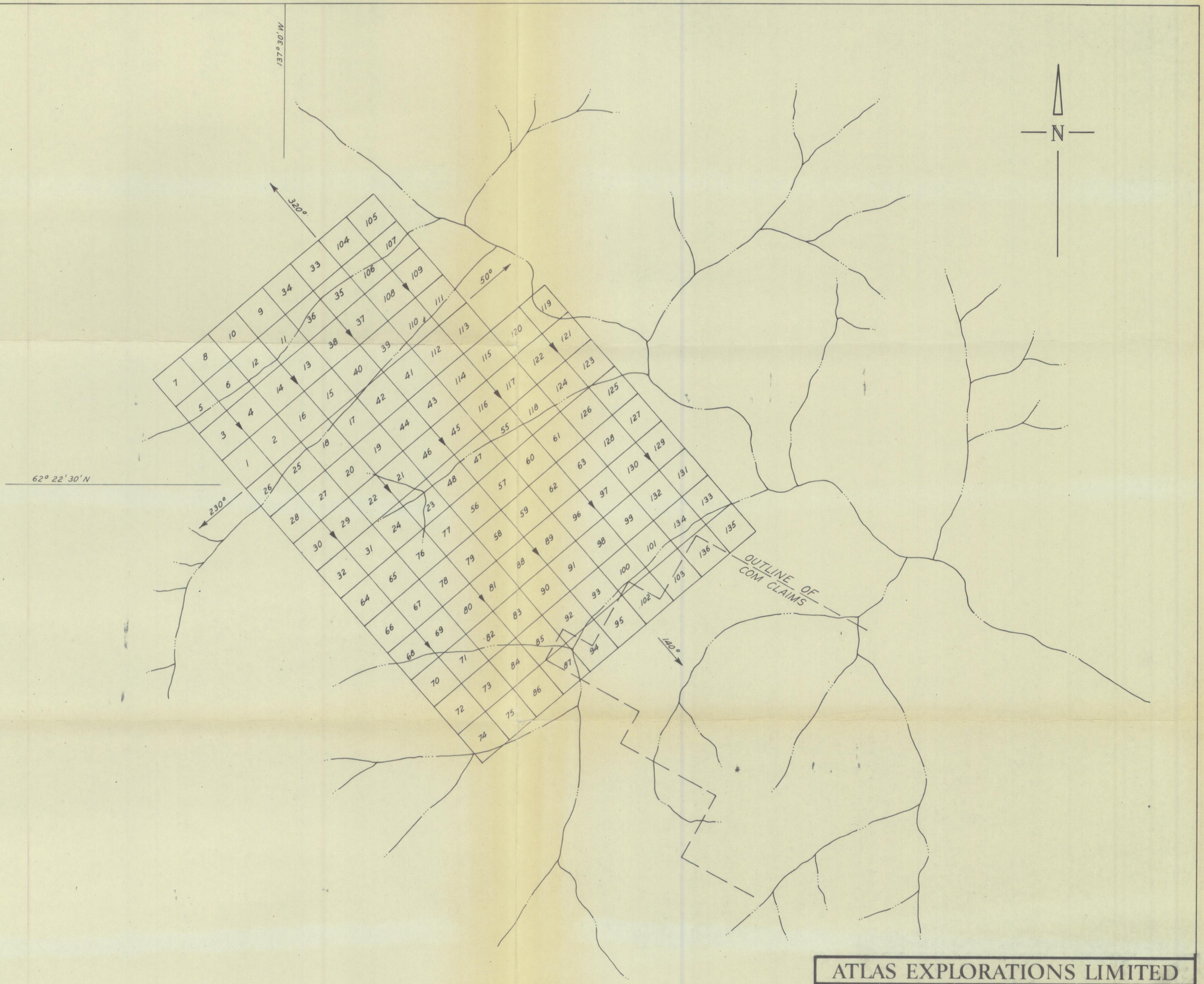
In view of the results of diamond drilling, it is likely that all geochemical anomalies found so far on the claim group reflect only sub-economic mineralization. Consistently low level of metals in drainage indicates that the presence of a sizeable ore body in the area is not likely. It is thought that further exploration on the property is not warranted at this time.

Respectfully submitted,

D. Brabec,
Geochemist

November, 1970

PROFESSIONAL ENGINEER
PROVINCE OF
M. E. COATES
BRITISH COLUMBIA



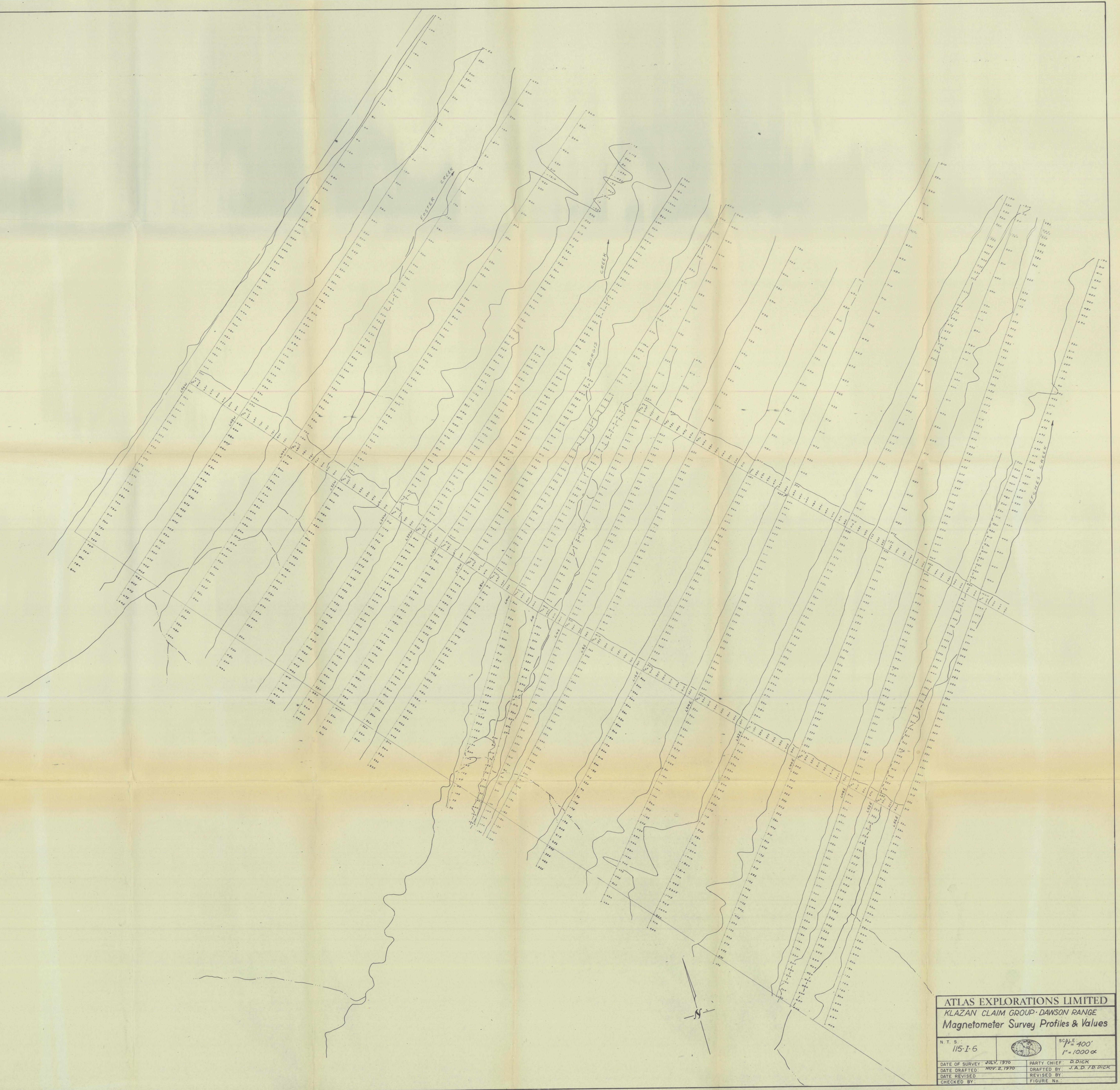
ATLAS EXPLORATIONS LIMITED

KEY MAP
KLAZAN CLAIM GROUP

N. T. S.:		SCALE:
115-I-6		1" = ½ mile

DATE OF SURVEY:	PARTY CHIEF:
DATE DRAFTED: Oct. 1970	DRAFTED BY: G.T.
DATE REVISED	REVISED BY:
CHECKED BY:	FIGURE No.:


KLAZAN MINERAL CLAIMS
LEGEND
5 Dark green, massive, aphanitic "post mineralization" dykes.
4 Medium grey to dark green grey feldspar porphyry of likely qtz. latite composition.
3b Light grey glassy rhyolitic fragmental tuff.
3a Light grey, massive, aphanitic rhyolite porphyry.
2 Medium to fine grained granular quartz monzonite porphyry to granite porphyry.
1b Medium grained hypidomorphic granular quartz monzonite.
1a Coarse grained hornblende syenite.
Legend
Clay alteration - argillic alteration.
Sericitization.
Evidence of silicification.
Stockwork.
Gossan.
Diamond drill hole.
Outline of trenches.
Outcrop boundary
Faults - assumed.
Geological contacts, defined, approximate.
Claim boundaries
ATLAS EXPLORATIONS LIMITED
VICTOR PROJECT - KLAZAN GROUP
GEOLOGY MAP
Scale: 1" = 400'
N.T.S.: 115-I-6
Geology: W. Roberts
Drawn by: W. Roberts
Sept. 13, 1970

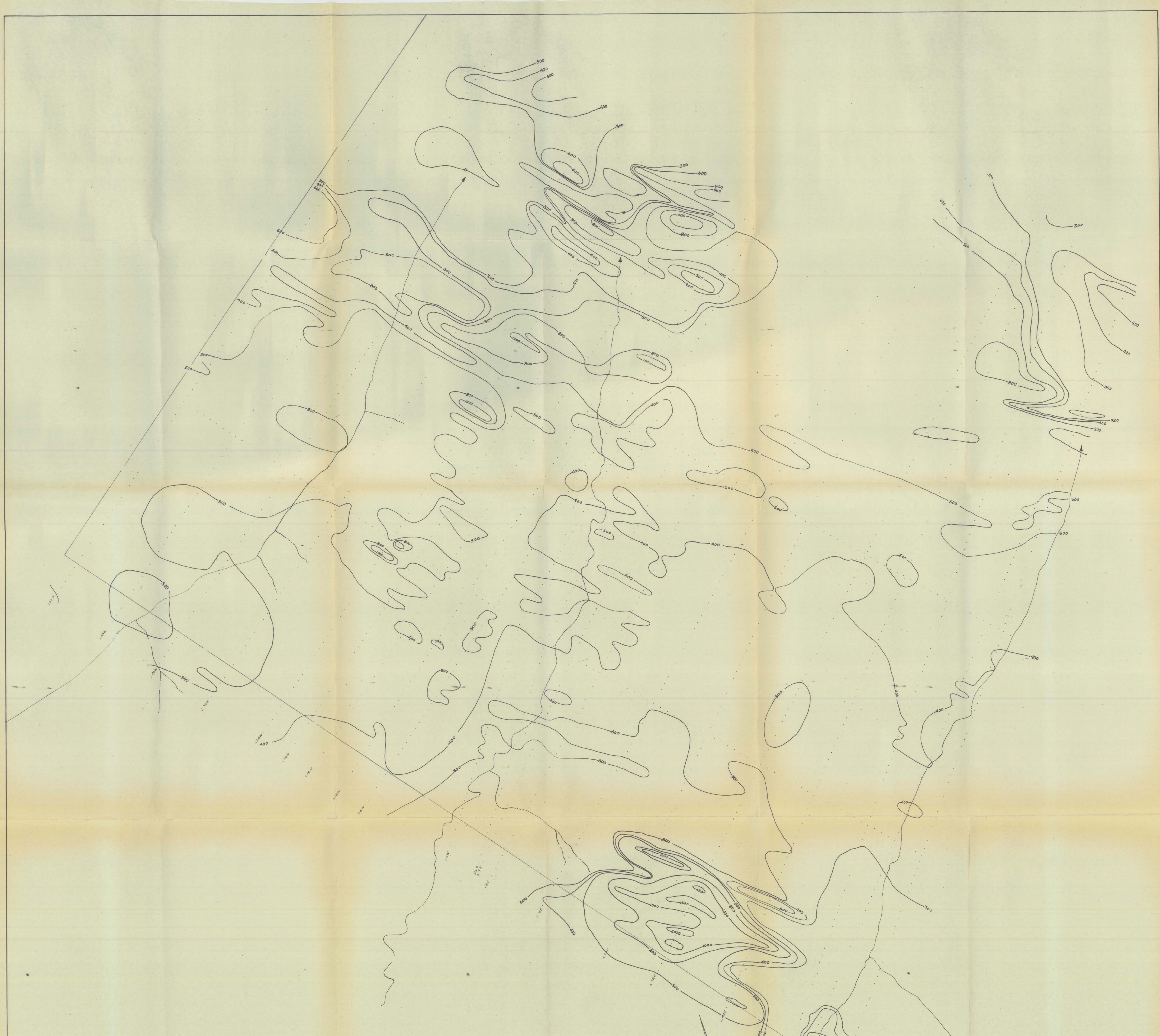


ATLAS EXPLORATIONS LIMITED

KLAZAN CLAIM GROUP · DAWSON RANGE

Magnetometer Survey Profiles & Values

N. T. S.: 115-I-6	SCALE: 1" = 400' 1" = 1000 α
DATE OF SURVEY: JULY, 1970	PARTY CHIEF: D. DICK
DATE DRAFTED: NOV. 2, 1970	DRAFTED BY: J.A.D. / D. DICK
DATE REVISED	REVISED BY:
CHECKED BY:	FIGURE No.:

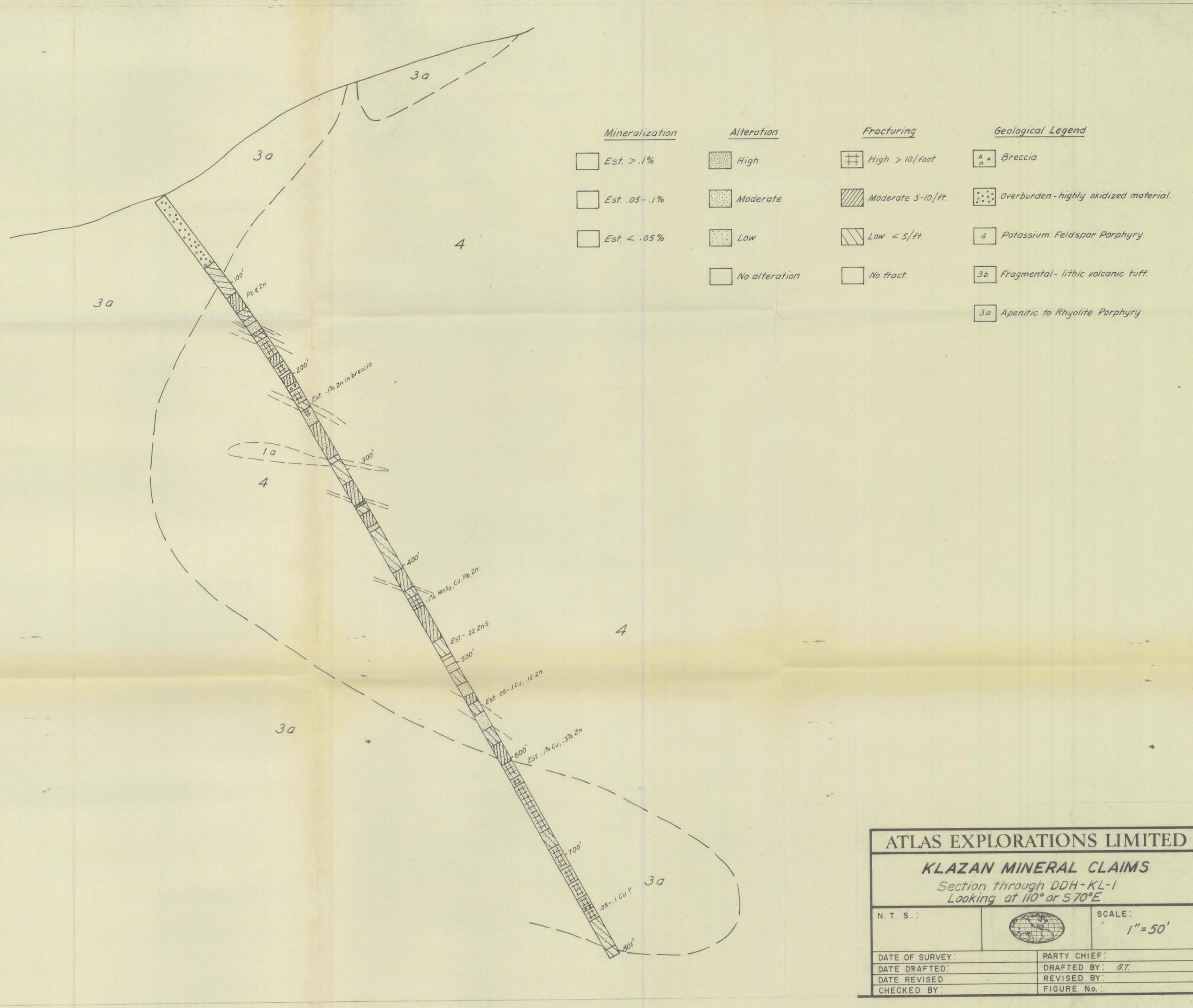


ATLAS EXPLORATIONS LIMITED

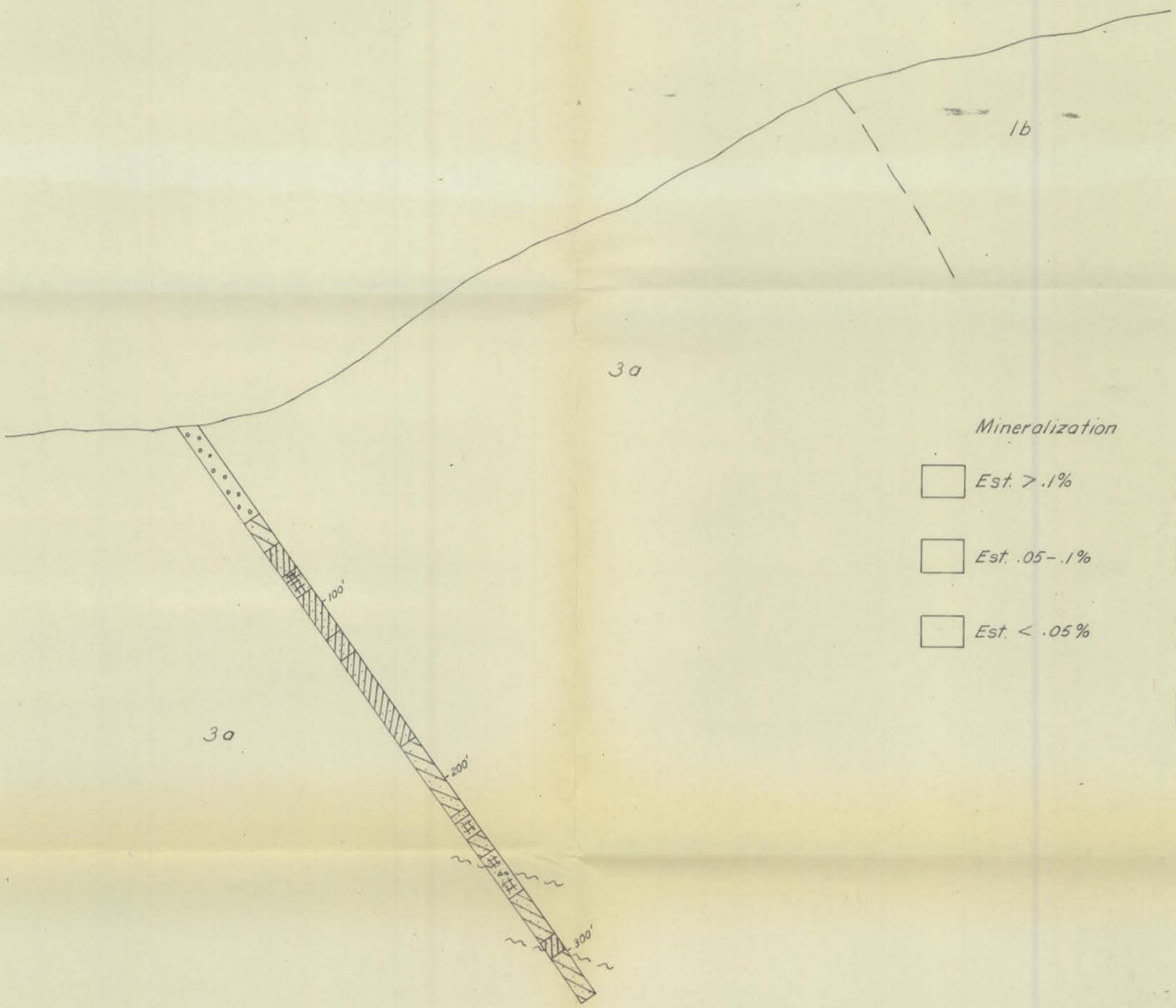
KLAZAN CLAIM GROUP DAWSON RANGE
Magnetometer Survey·Contour Map

RESULTS IN gammas

N. T. S.: 115·I-6		SCALE: 1" = 400' 1" = 1000 γ
DATE OF SURVEY:		PARTY CHIEF:
DATE DRAFTED: 2, 11, 70		DRAFTED BY: J.A.D.
DATE REVISED		REVISED BY:
CHECKED BY:		FIGURE No.:



Mineralization
Est. > .1%
Est. .05 - .1%
Est. < .05%
Alteration
High
Moderate
Low
No alteration
Fracturing
High > 10/foot
Moderate 5-10/ft.
Low < 5/ft.
No fract.
Geological Legend
Breccia
Overburden - highly oxidized material.
4 Potassium Feldspar Porphyry.
3b Fragmental - lithic volcanic tuff.
3a Apenitic to Rhyolite Porphyry
3a
3a
3a
3a
3a
4
4
4
1a
100'
Pb & Zn
200'
Est. .1% Zn in breccia
300'
400'
.1% MoS2, Cu, Pb, Zn
Est. - .22 ZnS
500'
Est. .05 - .1 Cu, .12 Zn
600'
Est. .1% Cu, .3% Zn
700'
.05 - .1 Cu ?
801'
ATLAS EXPLORATIONS LIMITED
KLAZAN MINERAL CLAIMS
Section through DDH-KL-1
Looking at 110° or S70°E
N. T. S.:
SCALE:
1" = 50'
DATE OF SURVEY:
DATE DRAFTED:
DATE REVISED
CHECKED BY:
PARTY CHIEF:
DRAFTED BY: G.T.
REVISED BY:
FIGURE No.:

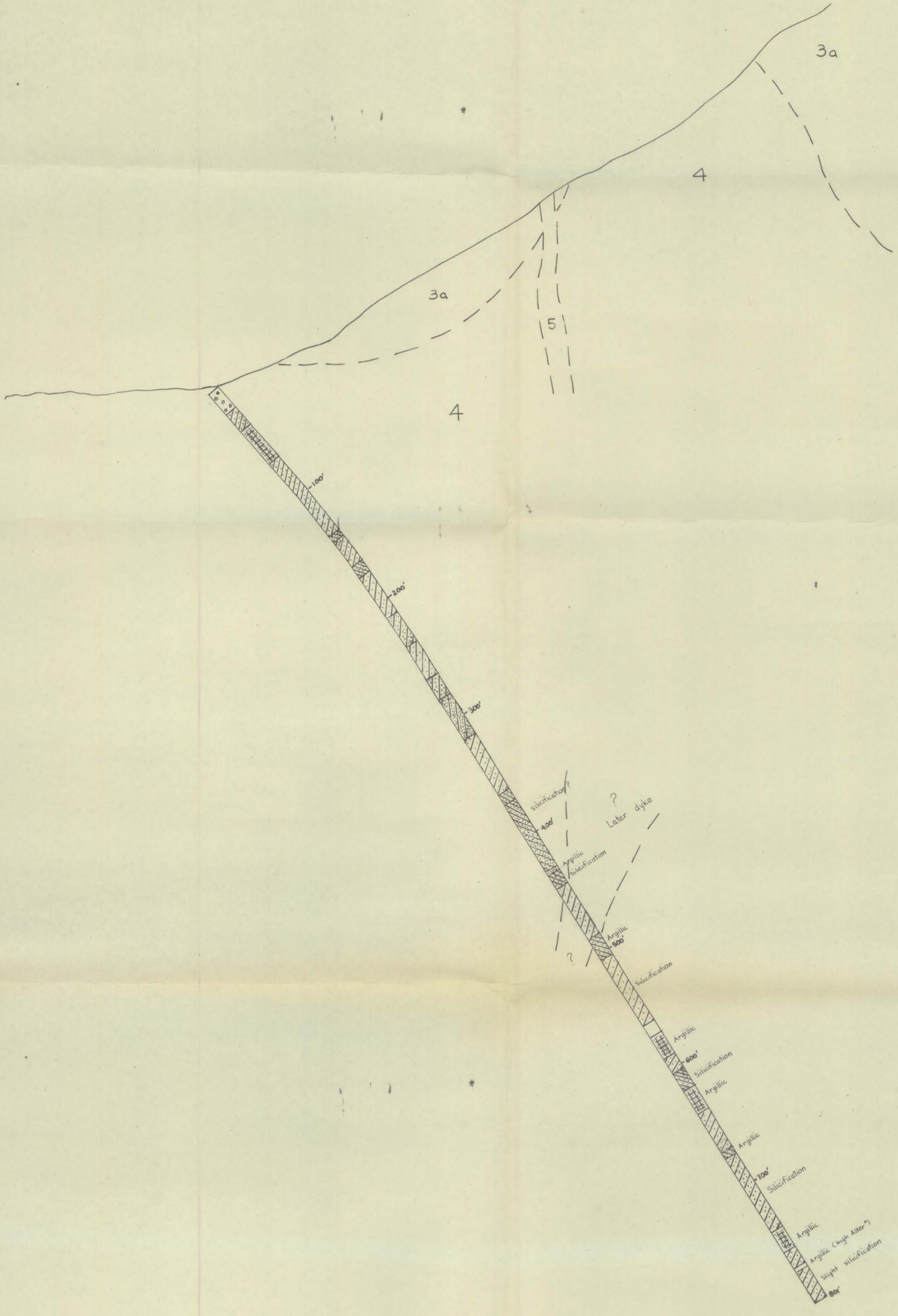


Mineralization	Alteration	Fracturing	Geological Legend
Est. > .1%	High	High > 10/foot	Breccia
Est. .05 - .1%	Moderate	Moderate 5-10/ft.	Overburden - highly oxidized material.
Est. < .05%	Low	Low < 5/ft.	3a Apenitic to Rhyolite Porphyry
	No alteration	No fract.	

ATLAS EXPLORATIONS LIMITED

KLAZAN MINERAL CLAIMS
Section through DDH-KL-2

N. T. S.:		SCALE: 1" = 50'
DATE OF SURVEY:	PARTY CHIEF:	
DATE DRAFTED:	DRAFTED BY: G.F.	
DATE REVISED	REVISED BY:	
CHECKED BY:	FIGURE No.:	



Mineralization
- Est. >.1%
- Est. .05 - .1%
- Est. < .05%

Alteration
- High
- Moderate
- Low
- No Alteration

Fracturing
- High >10/foot
- Moderate 5-10/foot
- Low <5/foot
- No Fract.

Geological Legend
- 5 Dark green, massive, aphanitic dykes
- 4 Potassium feldspar porphyry
- 3a Aphanitic to Rhyolite porphyry

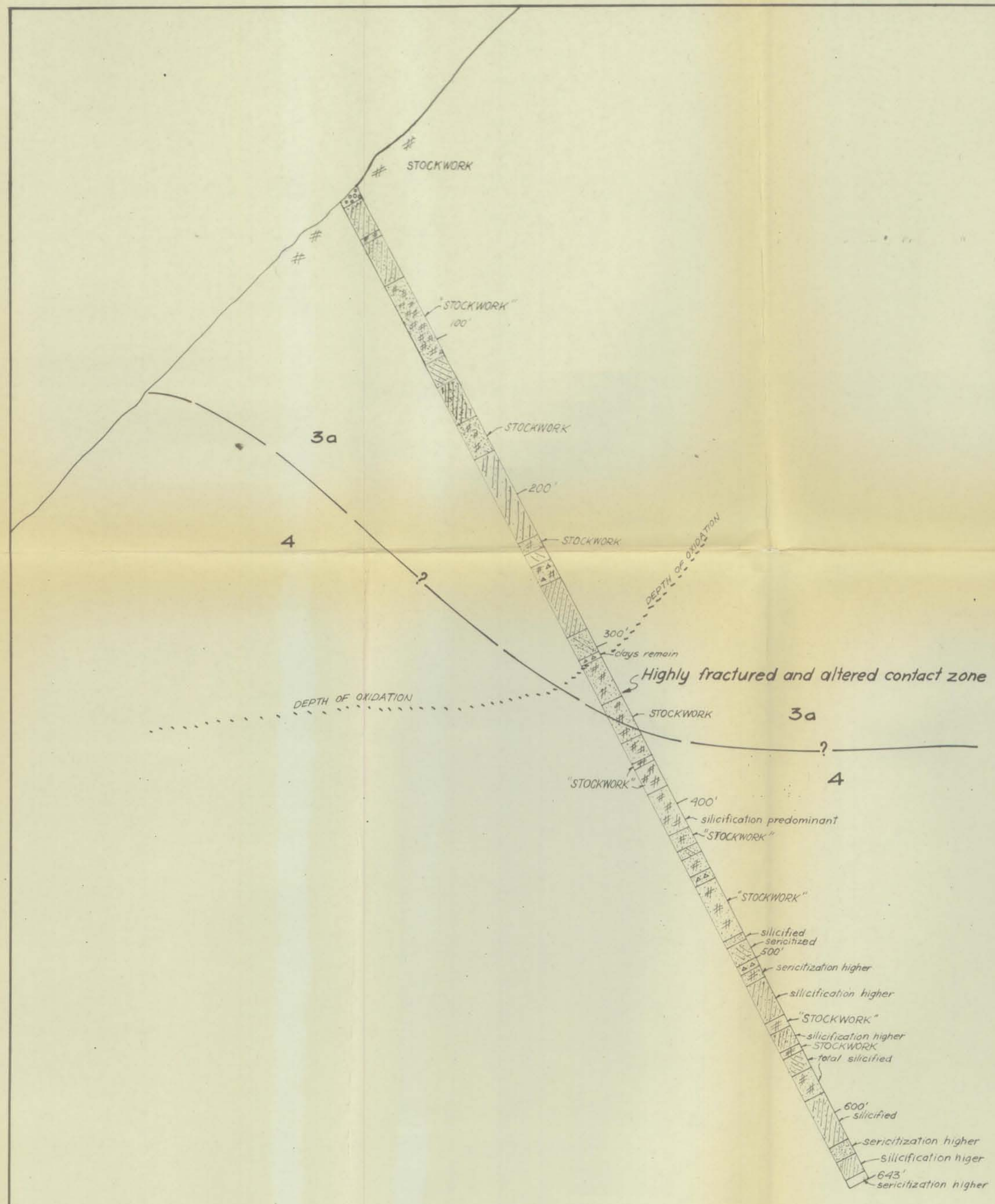
ATLAS EXPLORATIONS LIMITED

KLAZAN MINERAL CLAIMS

Section through DDH-KL-3
Looking at 260° or S80°W

N. T. S.:		SCALE: 1" = 50'

DATE OF SURVEY:	PARTY CHIEF:
DATE DRAFTED:	DRAFTED BY:
DATE REVISED:	REVISED BY:
CHECKED BY:	FIGURE No.:



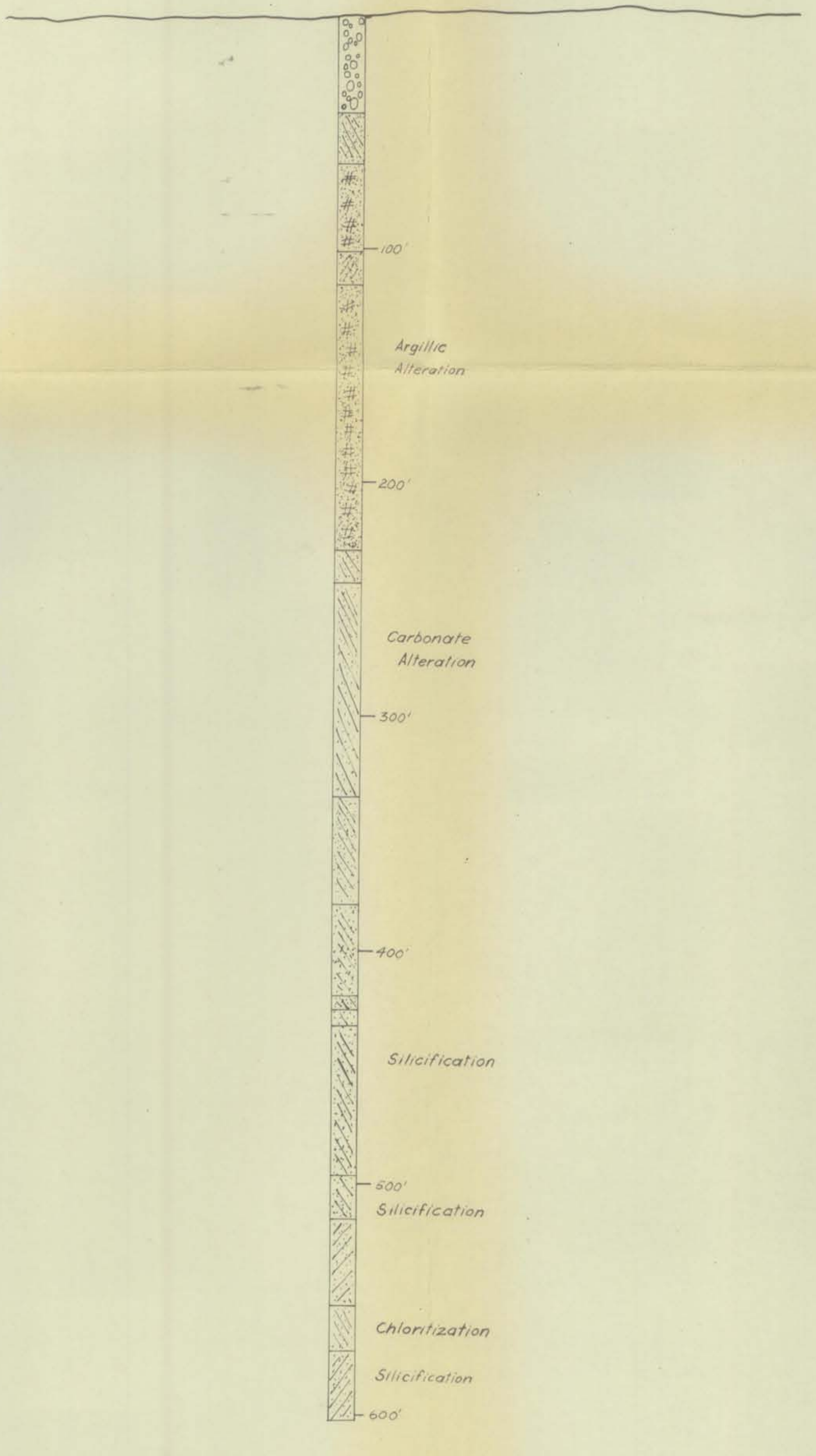
Mineralization		Alteration	
	Est. > .1%		High
	Est. .05-.1%		Moderate
	Est < .05%		Low
			No Alteration
Geological Legend		**Fracturing**	
	Breccia		High >10/foot
	Overburden		Moderate 5-10/foot
4	Potassium Feldspar Porphyry		Low < 5/foot
3a	Rhyolite Porphyry		No fraturing

ATLAS EXPLORATIONS LIMITED

KLAZAN CLAIM GROUP - VICTOR PROJECT
CROSS SECTION OF D.D.H. - KL-4
LOOKING N.80°W.

N. T. S.:	SCALE:
115-I-6	1" = 50'

DATE OF SURVEY:	PARTY CHIEF: WJR
DATE DRAFTED: OCT. 27·70	DRAFTED BY: JAD
DATE REVISED	REVISED BY:
CHECKED BY:	FIGURE No.:



Mineralization	Alteration
Est. >.1%	High
Est. .05-.1%	Moderate
Est < .05%	Low
	No Alteration

Geological Legend	Fracturing
Breccia	High >10/foot
Overburden	Moderate 5-10/foot
4 Potassium Feldspar Porphyry	Low <5/foot
3a Rhyolite Porphyry	No fracturing

ATLAS EXPLORATIONS LIMITED

KLAZAN CLAIM GROUP- VICTOR PROJECT
CROSS SECTION OF DD.H.-KL-5

N. T. S.:	SCALE:
115-I-6	1" = 50'

DATE OF SURVEY:	PARTY CHIEF: WJR
DATE DRAFTED: OCT.27-70	DRAFTED BY: JAD
DATE REVISED	REVISED BY:
CHECKED BY:	FIGURE No.:

Fig. 7 Analytical Precision for Cu and Pb

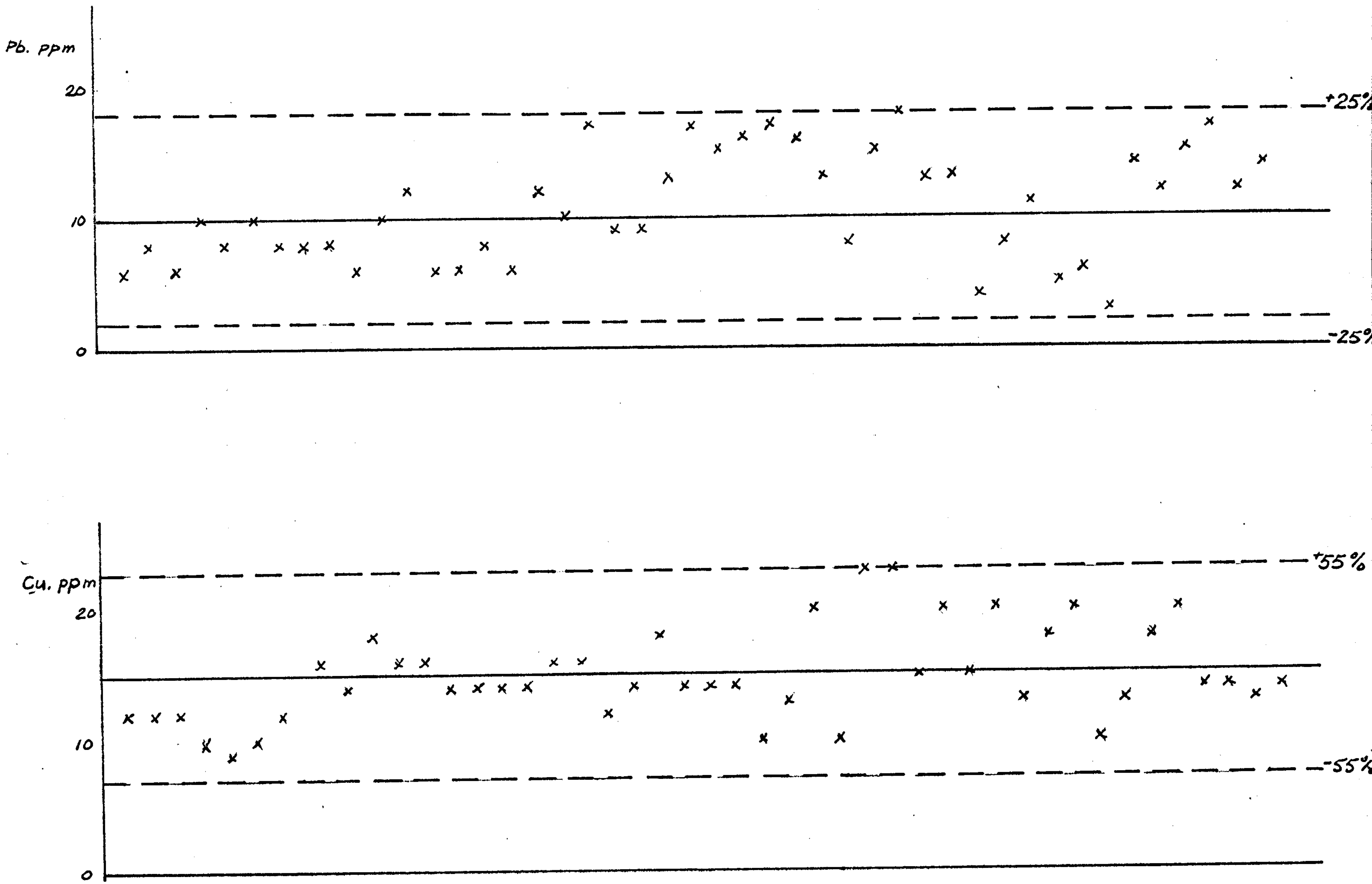
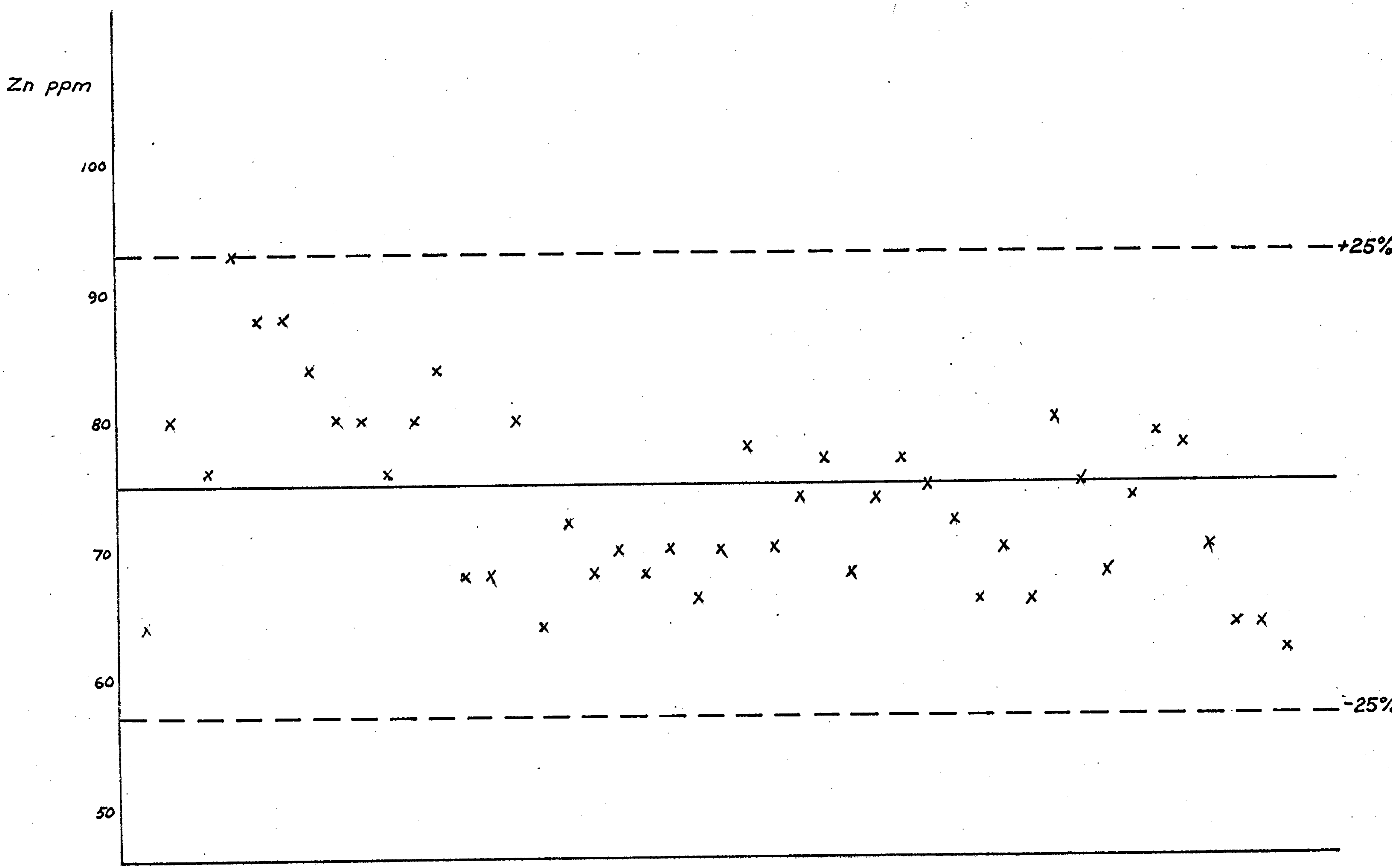


Fig. 8 Analytical precision for Zn



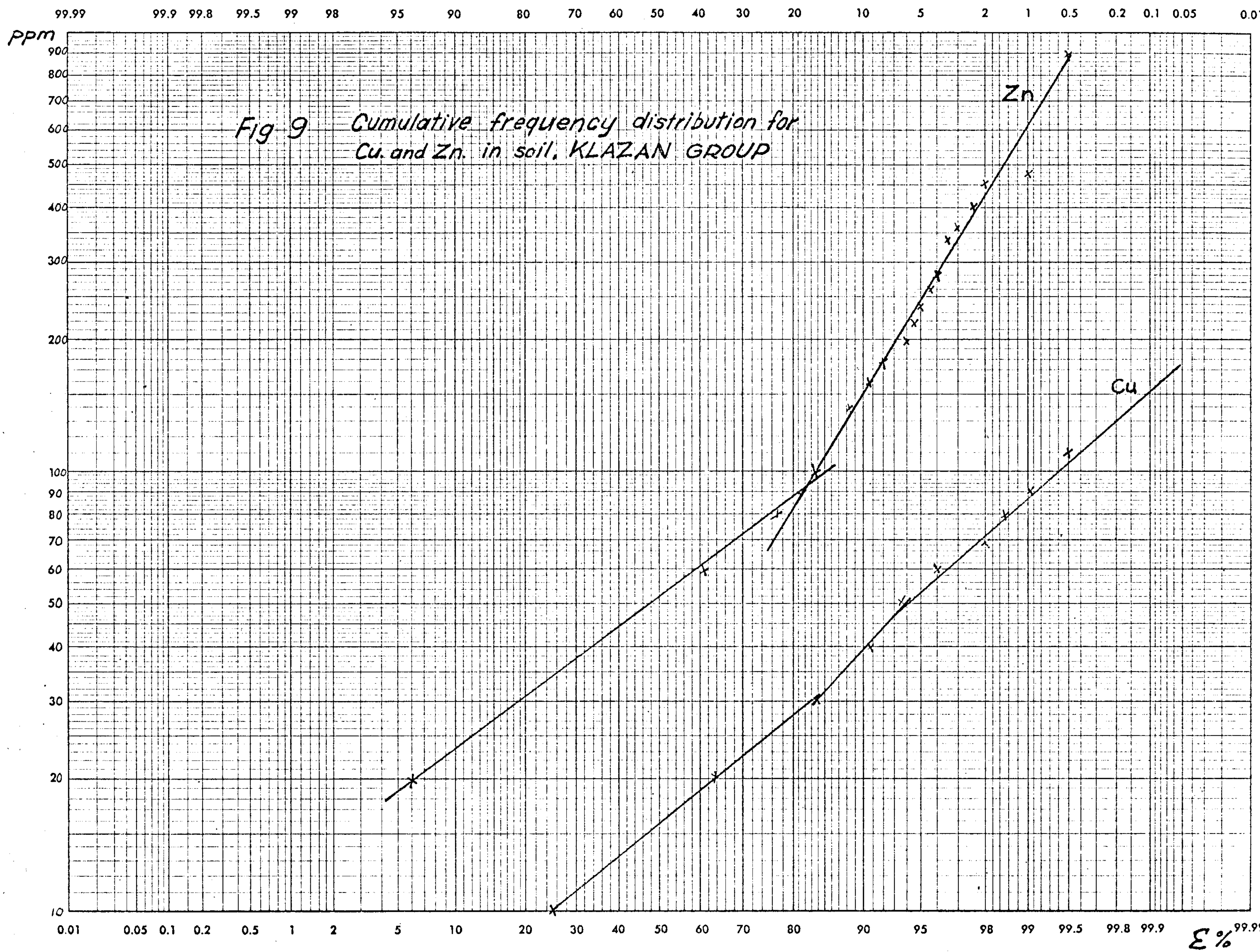


Fig 9 Cumulative frequency distribution for Cu. and Zn. in soil, KLAZAN GROUP
ppm
Zn
Cu
Σ%
CLEARPRINT CHARTS

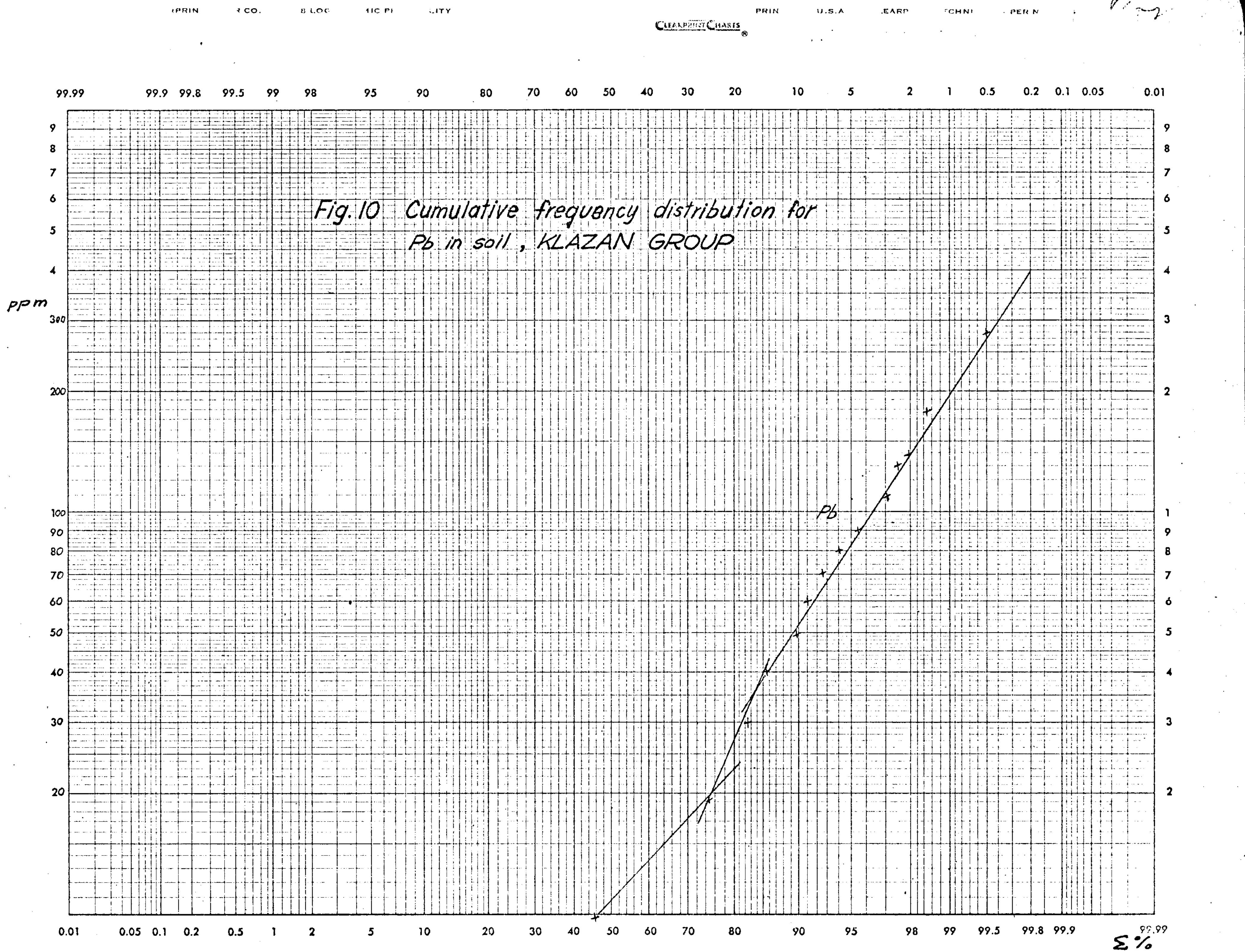


Fig. 10 Cumulative frequency distribution for
Pb in soil, KLAZAN GROUP
ppm
Pb
Σ%
CLEARPRINT CHARTS

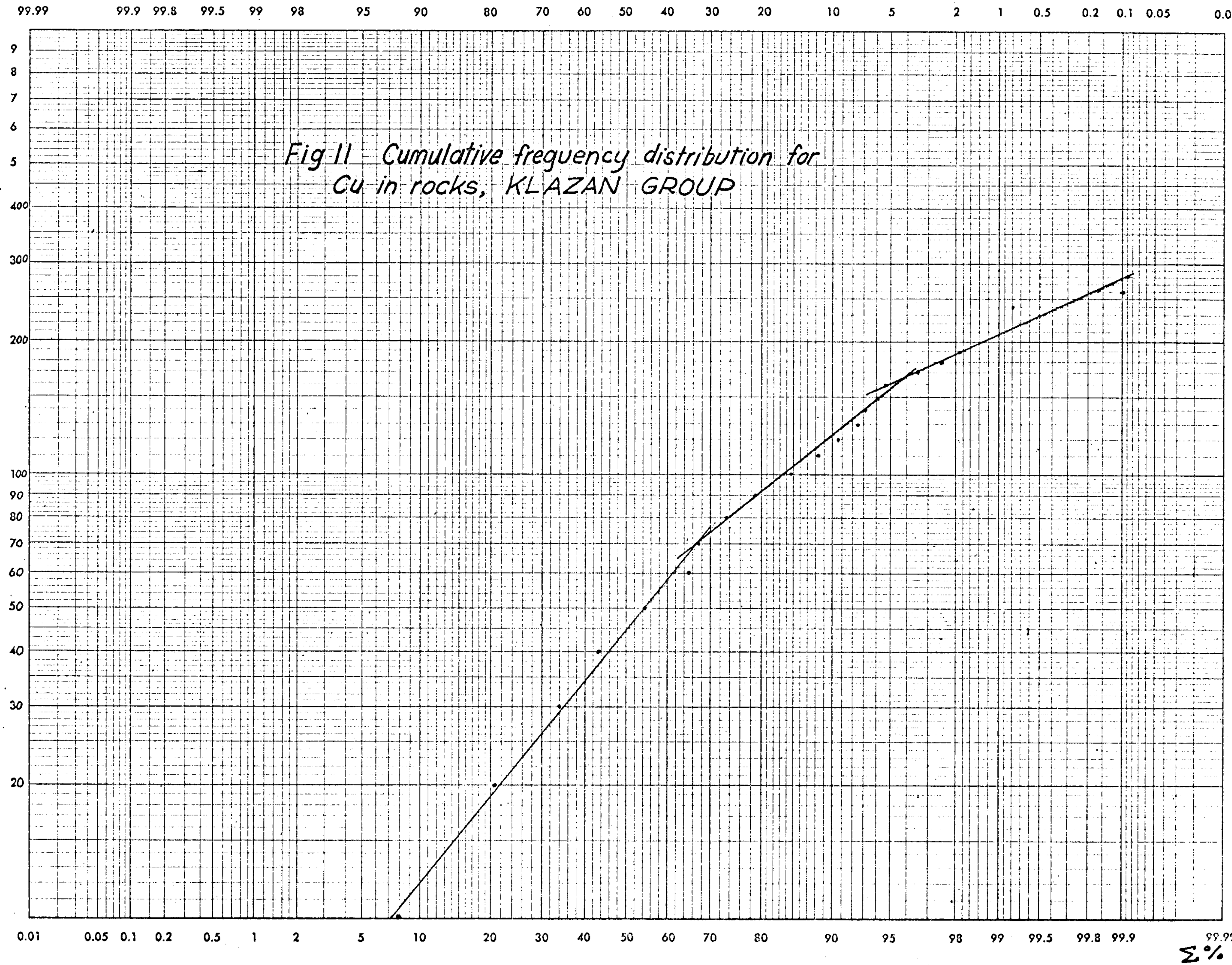


Fig 11 Cumulative frequency distribution for
Cu in rocks, KLAZAN GROUP
Σ%

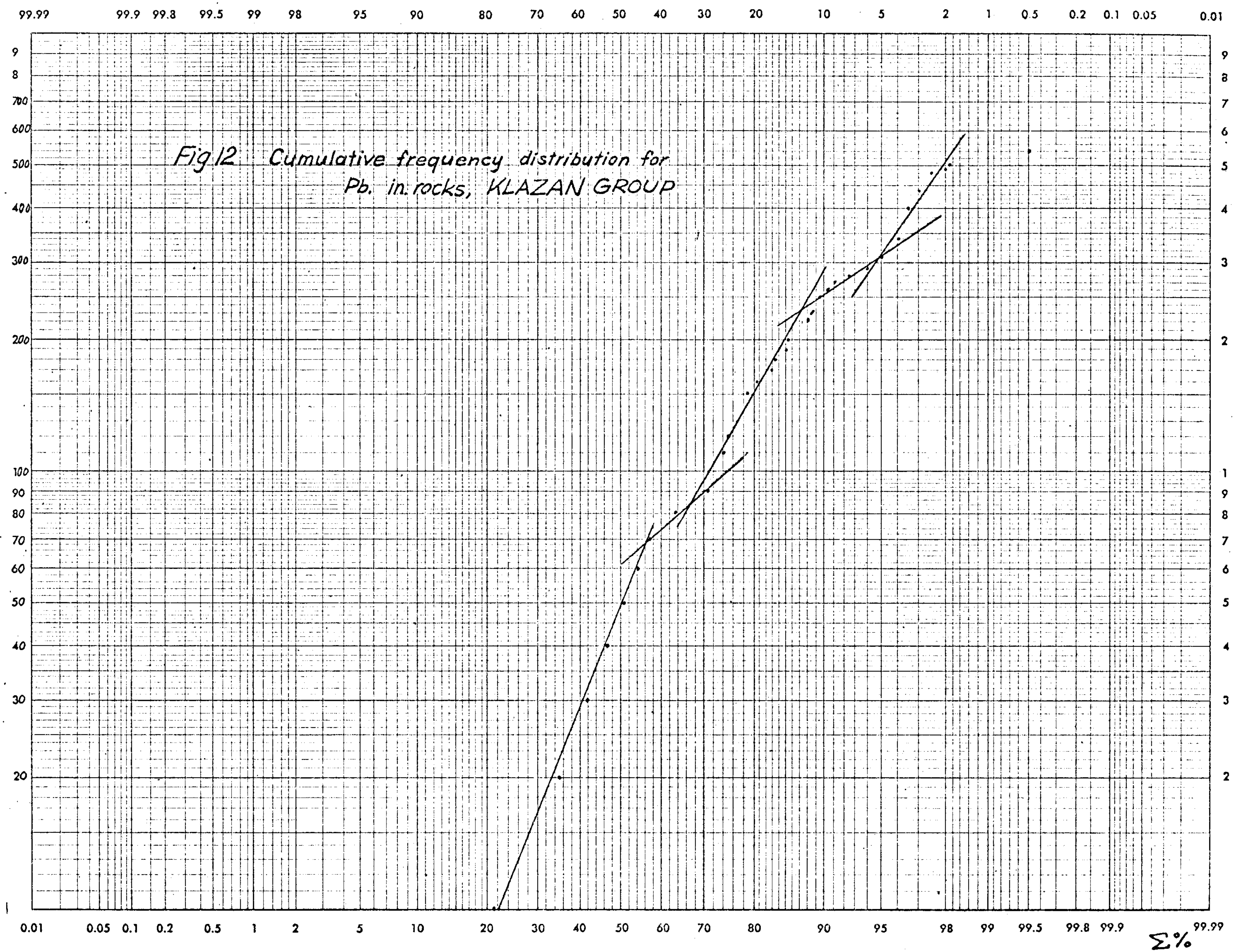


Fig 12 Cumulative frequency distribution for
Pb. in rocks, KLAZAN GROUP
Σ%

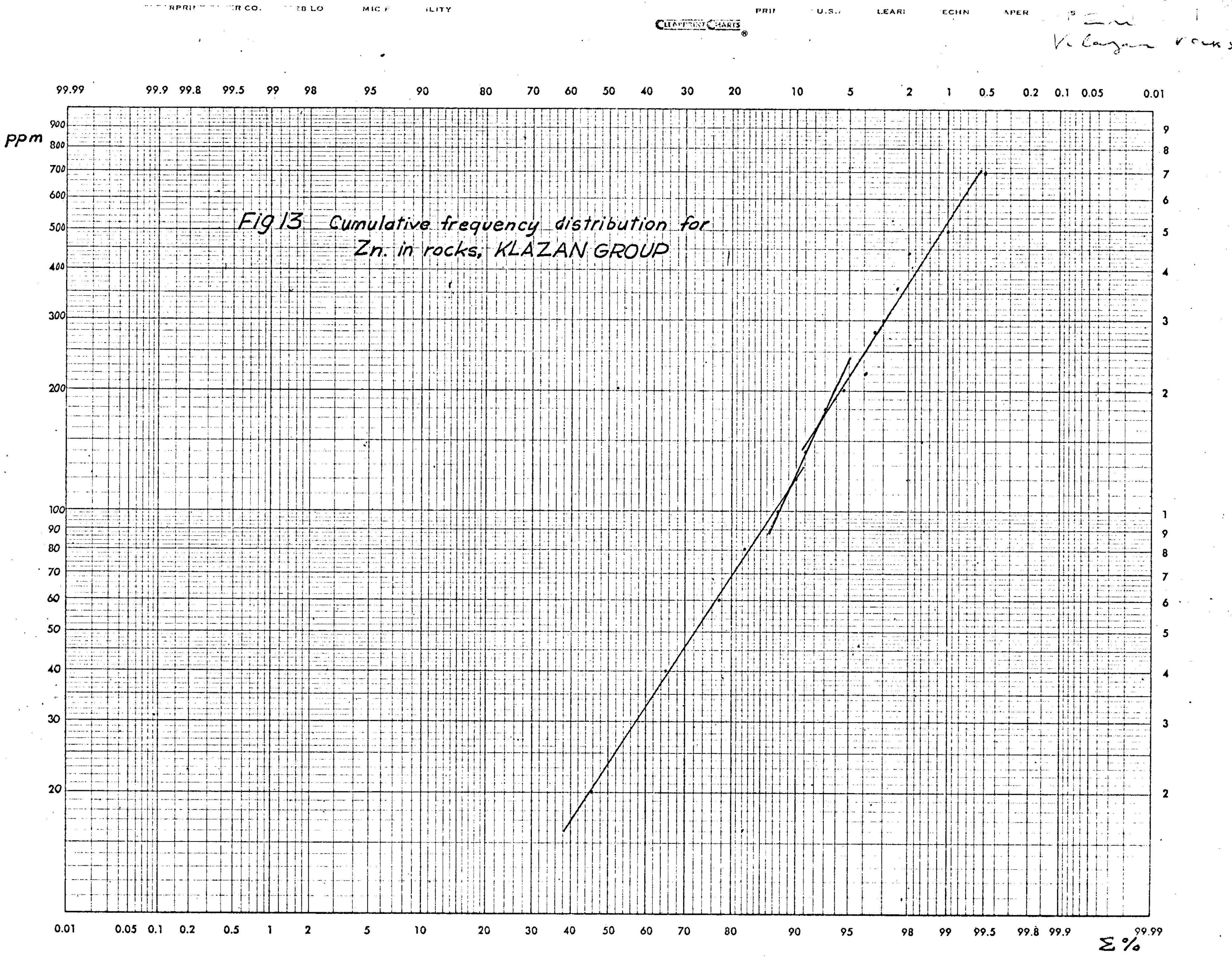


Fig 13 Cumulative frequency distribution for Zn. in rocks, KLAZAN GROUP
ppm
Σ %

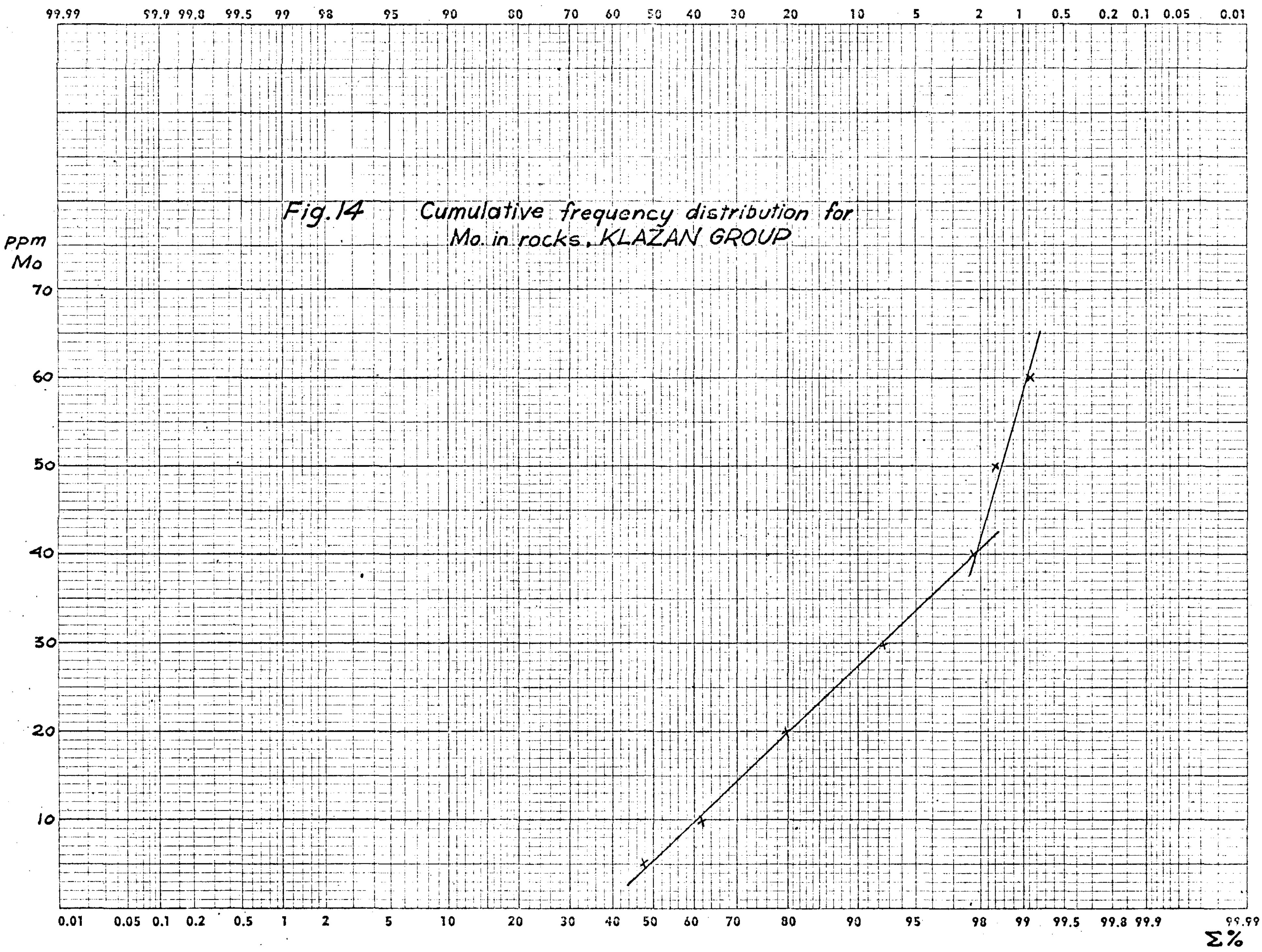
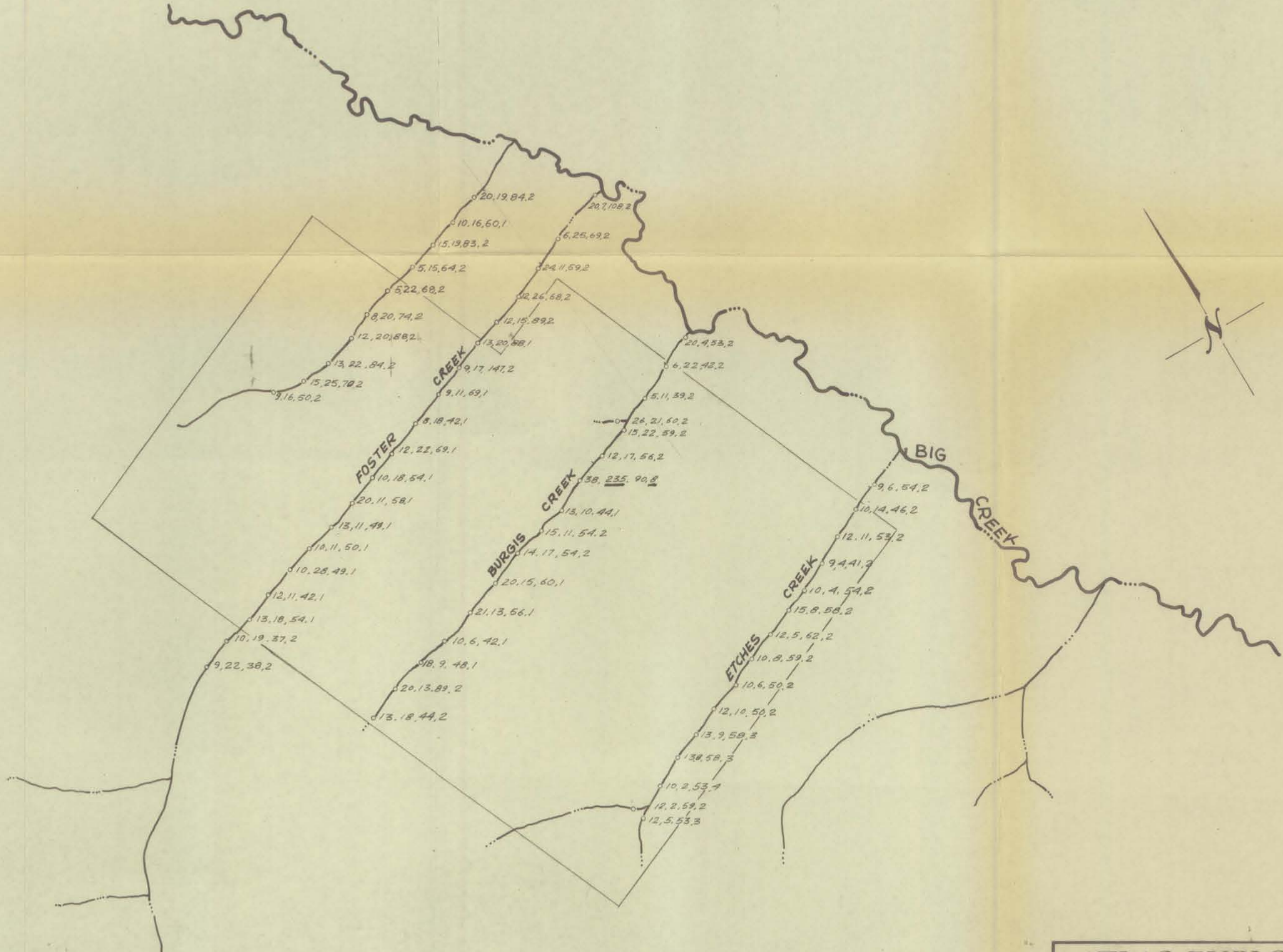


Fig. 14 Cumulative frequency distribution for Mo. in rocks, KLAZAN GROUP
ppm Mo
70
60
50
40
30
20
10
99.99 99.9 99.8 99.5 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.5 99.8 99.9 99.99
Σ%



Results in ppm

Order of values Cu., Pb., Zn., Mo.
(anomalous values under lined)

Sample Attack aqua regia
Estimation : AA spectrometry

ATLAS EXPLORATIONS LIMITED

KLAZAN CLAIM GROUP · DAWSON RANGE

Geochemical Stream Sediment Survey

N. T. S.: 115·I·6		SCALE: 1" = 3000'
DATE OF SURVEY:	PARTY CHIEF:	
DATE DRAFTED: 4·11·70	DRAFTED BY: J.A.D.	
DATE REVISED	REVISED BY:	
CHECKED BY:	FIGURE No.:	

LEGEND

Order of Values — Cu 44, Mo 6 • 64 Pb, 280 Zn

Limit of fuvial Material (dotted line)

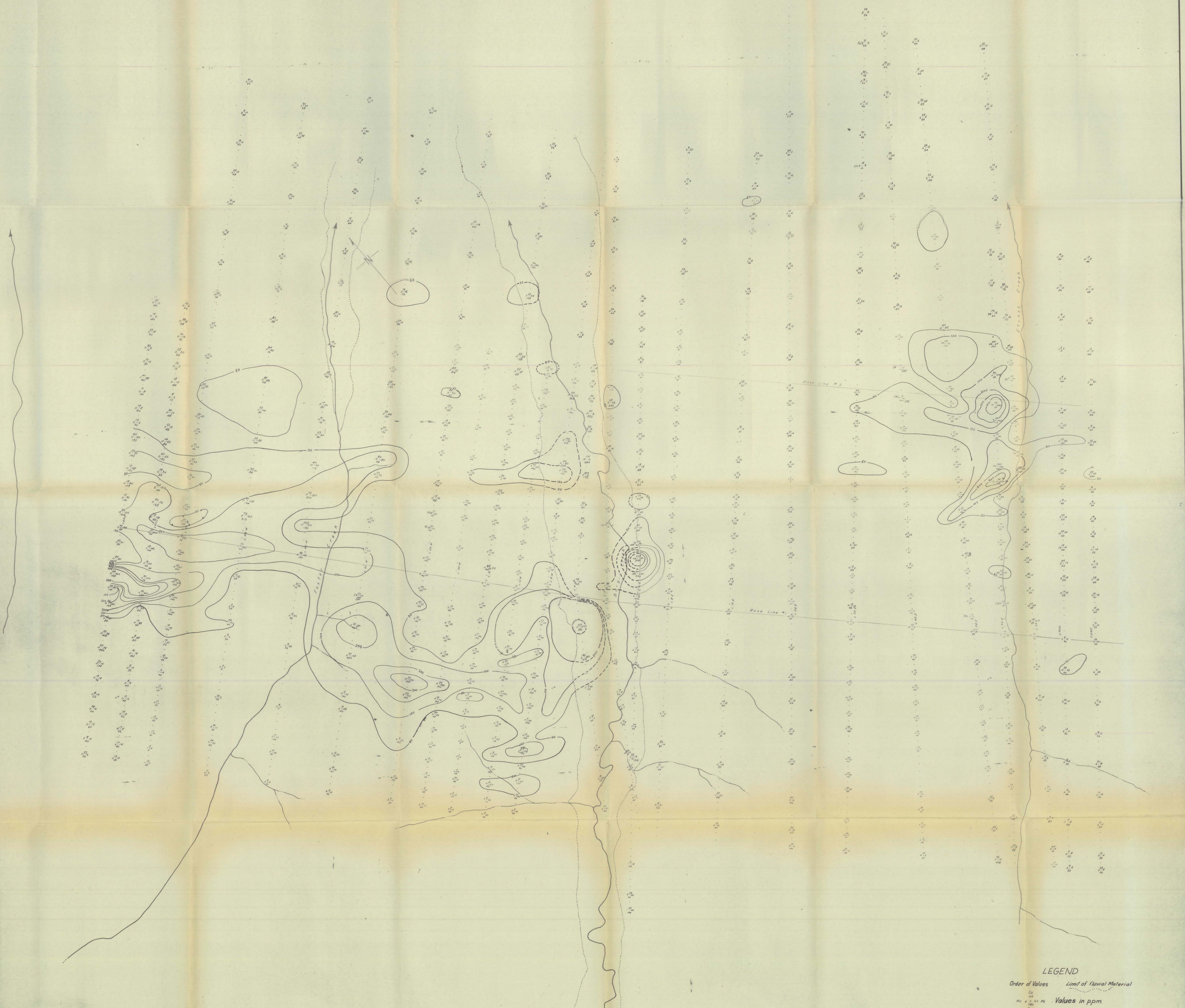
Values in ppm

Sample attack: aqua regia
Estimation: A A spectrometry

ATLAS EXPLORATIONS LIMITED

VICTOR PROJECT - KLAZAN GROUP
GEOCHEMICAL COPPER CONTOURS

N.T.S.: 115-I-6	SCALE: 1" = 400'
DATE OF SURVEY:	PARTY CHIEF:
DATE DRAFTED: 29.10.70	DRAFTED BY: J.A.D.
DATE REVISED	REVISED BY:
CHECKED BY:	FIGURE No.:



LEGEND

Order of Values

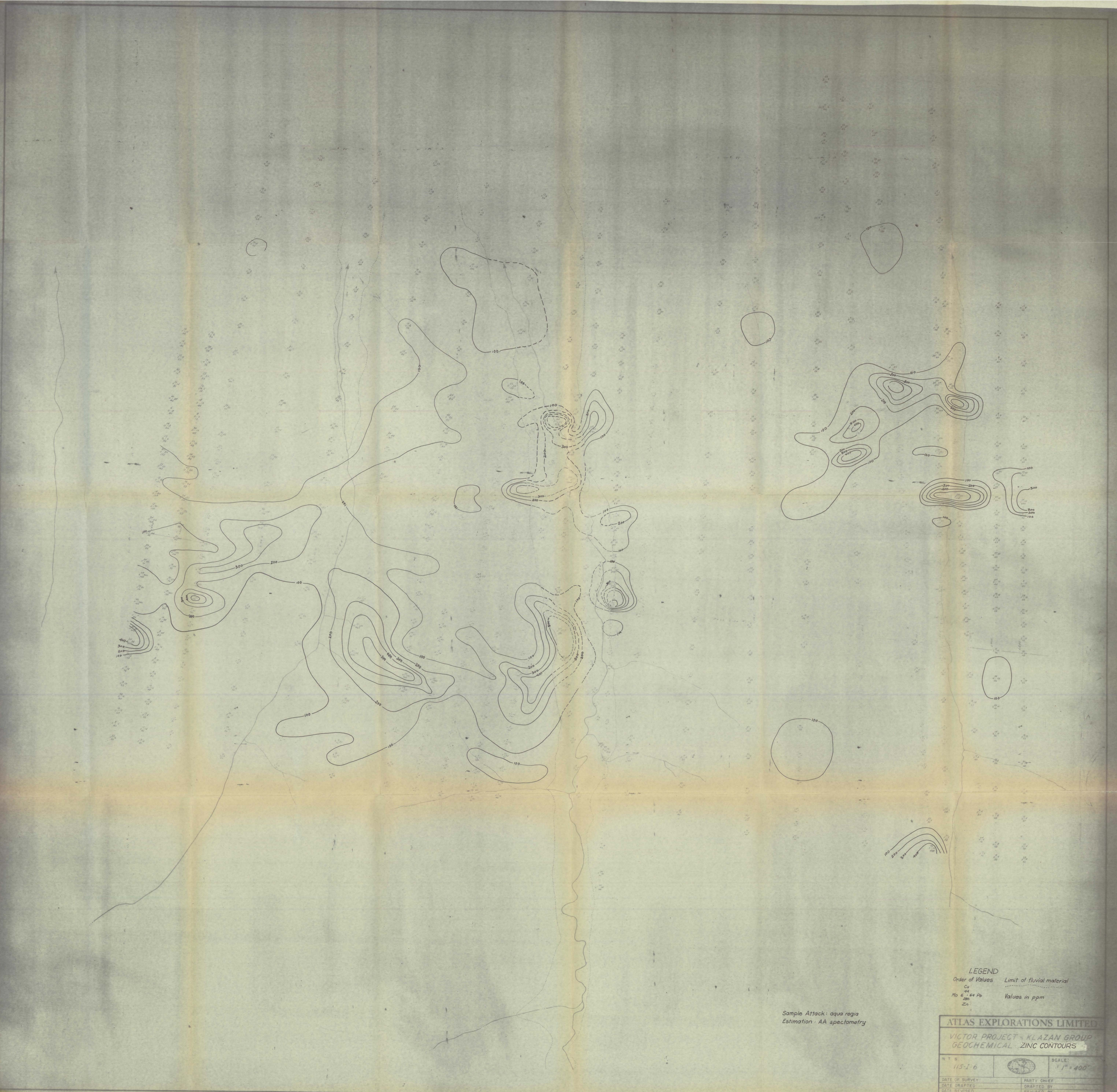
Cu
44
Mo 6 • 64 Pb
280
Zn

Limit of fluvial Material

Values in p.p.m.

Sample Attack: aqua regia
Estimation: AA spectrometry

ATLAS EXPLORATIONS LIMITED	
VICTOR PROJECT - KLAZAN GROUP GEOCHEMICAL LEAD CONTOURS	
N. T. S.: 115-I-6	SCALE: 1" = 400'
DATE OF SURVEY:	PARTY CHIEF:
DATE DRAFTED: 28.10.70	DRAFTED BY: J.A.D.
DATE REVISED	REVISED BY:
CHECKED BY:	FIGURE No.:



Sample Attack: aqua regia
Estimation : AA spectometry

LEGEND

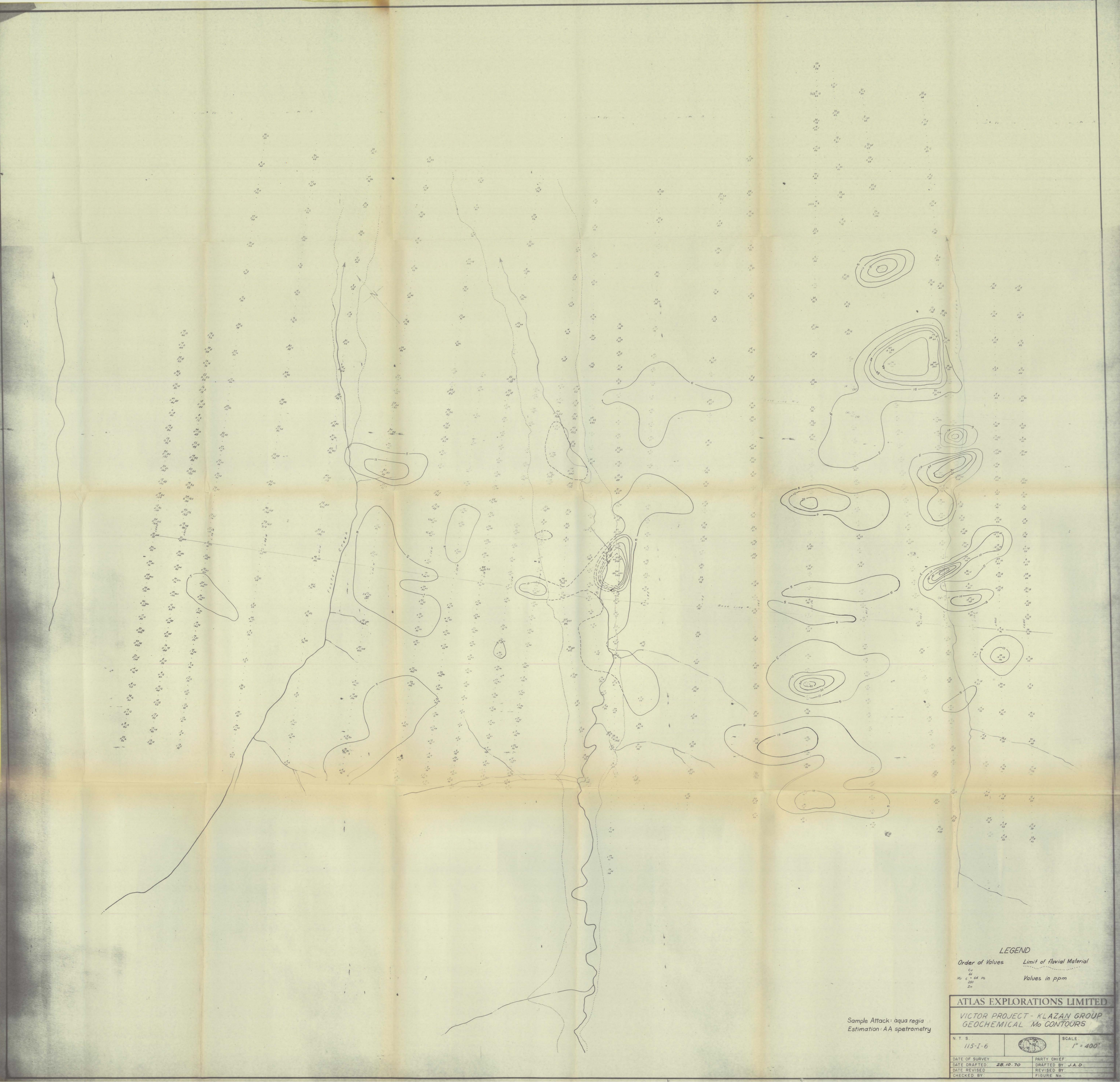
Order of Values

Cu
44
Mo 6 · 64 Pb
280
Zn

Limit of fluvial material

Values in ppm

ATLAS EXPLORATIONS LIMITED		
VICTOR PROJECT - KLAZAN GROUP GEOCHEMICAL ZINC CONTOURS		
N T S 115-I-6		SCALE: 1" = 400'
DATE OF SURVEY	PARTY CHIEF	
DATE DRAFTED	DRAFTED BY	
DATE REVISED	REVISED BY	


LEGEND
Order of Values
Cu
44
Mo 6 • 64 Pb
280
Zn
Limit of fluvial Material
Values in ppm
Sample Attack: aqua regia
Estimation: AA spetrometry
ATLAS EXPLORATIONS LIMITED
VICTOR PROJECT - KLAZAN GROUP
GEOCHEMICAL Mo CONTOURS
N. T. S.: 115-I-6
SCALE: 1" = 400'
DATE OF SURVEY:
DATE DRAFTED: 28.10.70
DATE REVISED
CHECKED BY:
PARTY CHIEF:
DRAFTED BY: J.A.D
REVISED BY:
FIGURE No.:


Mo. Cu. Ag. Au/ppb
Trench No. 7
Mo. Cu. Ag. Au/ppb
Trench No. 2
Mo. Cu. Ag. Au/ppb
Trench No. 6
Cu. Pb. Zn. Mo.
Trench No. 10
Cu. Pb. Zn. Mo.
Trench No. 12
Cu. Pb. Zn. Mo.
Trench No. 1
Cu. Pb. Zn. Mo.
Trench No. 11
BASE LINE
BASE LINE #2
CREEK
ETCHES
Legend
Results in ppm except where shown Au/ppb.
Refer to KLAZAN Geologic map for actual location of trenches.
△ Rock chip sample
Sample Attack: aqua regia
Estimation: A A spectrometry
ATLAS EXPLORATIONS LIMITED
KLAZAN CLAIM GROUP - DAWSON RANGE
GEOCHEMICAL ROCK SURVEY
N. T. S.
115-I-6
SCALE:
1" = 100'
DATE OF SURVEY:
DATE DRAFTED: NOV. 3. 1970
DATE REVISED
CHECKED BY:
PARTY CHIEF:
DRAFTED BY: J.A.D.
REVISED BY:
FIGURE No.

SUMMARY OF COSTS KLAZAN DRILLING
PHASE I May 1-June 10,1970
D.D.H. KL-1,2,3

Wages	1,104.01	$
(Plus Non-Wage Labour Cost =12%)		1,236.49
Helicopter Support		1,095.97
Fixed-Wing		3,898.58
Assay		946.10
Drill Contract Charges		26,883.56
Supplies		4,083.40
Camp Support		1,590.00
Expediting (20% x $1,236.49)		247.30
		$39,981.40
Head Office Administration - 10%		3,998.14
TOTAL		$43,979.54

SUMMARY OF COSTS KLAZAN DRILLING
PHASE II - August, 1970
D.D.H. KL-4, 5.

	Sched. No.	Geology	Geophysics 50% Line-cutting	Geophysics	Geochem 50% Line-cutting	Geochem	Diamond Drill.	Access & Physical Work	Total
Wages:									
General	"E"	6,313.35	760.12	649.66	760.12	2,313.31	210.56	493.82	11,500.94
Report Writing	"G"	181.36		45.34					226.70
Helicopter	"D"	712.91		78.86		280.79			1,072.56
Fixed-Wing	"D"	832.46	107.74	92.08	107.73	327.88	29.84	69.99	1,567.72
Assay	"C"					3,065.50	1,325.75		4,391.25
Supplies	"F"	151.28		1,968.70		43.50	16,918.59	14,340.00	33,422.07
& Contract	"D"	1,164.34	150.68	128.79	150.69	458.59	41.74	97.90	2,192.73
Camp Support	"B"	2,894.90	609.93	373.24	609.93	1,857.10	1,401.92	236.69	7,983.71
Expediting	"A"	1,262.67	152.02	129.93	152.03	462.66	42.11	98.76	2,300.18
		$15,513.27	$1,780.49	$3,466.60	$1,780.50	$7,809.33	$19,970.51	$15,337.16	$64,657.86
Head Office Administration	10%								6,465.78
						TOTAL			$ 71,123.65

TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED

330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

AFFIDAVIT SUPPORTING SUMMARY OF COSTS

I, DRAGON BRABEC, Geochemist, Atlas Explorations Limited, of Vancouver, British Columbia, do hereby state that, to the best of my knowledge and belief, the statement of cost presented in this report - (Geological, Geochemical Geophysical and Diamond Drilling Report on the Klazan Group) is both correct and true.

D Brabec
Dragan Brabec

Nov. 10/1970
Date

Notary Public in and for
Yukon Territory

LIST OF PERSONNEL

Name	Position	Address
John Brock	Vice-Pres. Expl-Geophysicist	Vancouver, B.C.
Wayne Roberts	Geologist	Vancouver, B.C.
Dragon Brabec	Geochemist	Vancouver, B.C.
Ted Skonseng	Prospector	Whitehorse, Y.T.
Wayne Davis	Cat Driver	Whitehorse, Y.T.
Mervin Peel	Cat Driver	Whitehorse, Y.T.
Jack Acheson	Cat Driver	Whitehorse, Y.T.
Bill Carson	Cat Driver	Ross River, Y.T.
Lee Carson	Cook	Ross River, Y.T.
George Gray	Cook	Ross River, Y.T.
Robert Etzel	Linecutter	Ross River, Y.T.
Sam McLeod	Linecutter	Ross River, Y.T.
Peter Fox	Linecutter	Teslin, Y.T.
Lawrence Bill	Linecutter	Whitehorse, Y.T.
Louie Carlick	Soil Sampler	Ross River, Y.T.
Doug Jacobson	Soil Sampler	Vancouver, B.C.
Neil Glass	Soil Sampler	Vancouver, B.C.
Donald Dick	Magnetometer Operator	Vancouver, B.C.
Doug Jones	Geological Assistant	Vancouver, B.C.