GEOCHEMICAL REPORT

ON THE

ROYALE CLAIM GROUP

Coffee Creek Area, Y.T.

Longitude 139°00'W
Latitude 62°47'N

N.T.S. 115-J-14

By:

D. BRABEC

ATLAS EXPLORATIONS LIMITED

August 24, 1970

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 $ 4687.89

D. R. Craig
Resident Geologist or
Resident Mining Engineer

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

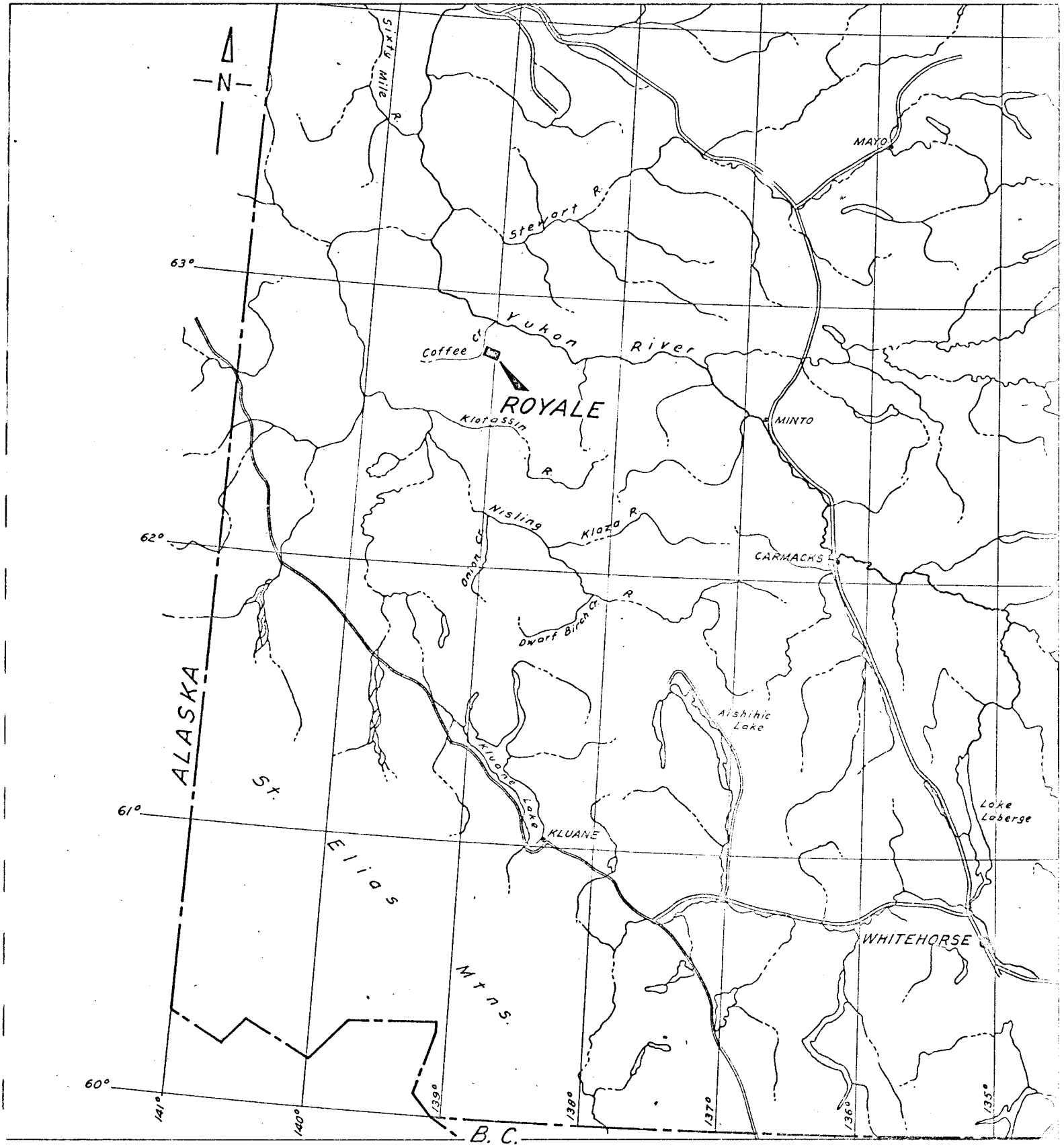
Commissioner of Yukon Territory

TABLE OF CONTENTS

LIST OF CLAIMS

Claim No.	Grant No.	Date Recorded
ROYALE 1-8	Y38090-Y38097	Sept. 24, 1969
ROYALE 9-16	Y380-98-Y38105	Sept. 24, 1969
ROYALE 17-24	Y38106-Y38113	Sept. 24, 1969
ROYALE 25-32	Y38114-Y38121	Sept. 24, 1969
ROYALE 33-40	Y38122-Y38129	Sept. 24, 1969
ROYALE 41-48	Y38130-Y38137	Sept. 24, 1969
ROYALE 49-56	Y38138-Y38145	Sept. 24, 1969
ROYALE 57-64	Y38146-Y38153	Sept. 24, 1969
ROYALE 65-66	Y38154-Y38155	Sept. 24, 1969

Total number of Claims = 66



Scale: 1" = 32 miles

KEY MAP SHOWING
ROYALE CLAIM GROUP
DAWSON RANGE - YUKON

TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED

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

GEOCHEMICAL REPORT ON THE ROYALE CLAIM GROUP

INTRODUCTION

In July 1969, Kenneth Dawson and Colin Godwin, geologists with Atlas Explorations, landed upon a rounded hill four miles west of Casino Mines Ltd. in the course of helicopter reconnaissance of the Dawson Range. Several types of intrusive rock were observed, and similarities to Patton Hill at Casino were noted.

In early September 1969, Atlas geologist and Vice-President Gordon Davis examined the area and noted disseminated pyrite and sericitic alteration. On the basis of this geological evidence and the occurrence of an aeromagnetic high near the hill, a decision was made to stake sixty-six ROYALE mineral claims for Atlas Explorations in the area.

Work done on the ROYALE claims in 1969 includes geochemical soil sampling and reconnaissance geologic mapping. In July 1970, line-cutting, soil sampling and geologic mapping was

carried out on the ROYALE claims.

LOCATION AND ACCESS

The ROYALE claims are in the Dawson Range in western Yukon, eight miles south of the abandoned settlement of Coffee Creek on the Yukon River 95 miles upstream from Dawson. Location of the claim group is given on Location Map. The claims are located four miles west of Casino Mines Ltd. on a ridge between the headwaters of Coffee Creek and Excelsior Creek. The claims fall mainly in the southeastern corner of claim sheet 115-J-14, with a few claims overlapping to 115-J-15. The claim group is depicted on the Key Map.

Access to claims was attained by helicopter during 1969 and 1970. Men and supplies were flown by fixed-wing aircraft to the nearby Casino, Polaris and Uranus airstrips, and then to the property by helicopter.

GEOLOGY

The ROYALE claims are underlain by a complex of intrusive and metamorphic rocks marking a contact between the Klotassin Batholith, Yukon Group gneiss, and Tertiary intrusions. Basement rocks are high-grade gneisses ascribed to the Yukon Group of probable Precambrian age. These metamorphic rocks form the roof pendants and walls of the granitic to granodioritic

Klotassin Batholith that constitutes the core of the Dawson Range. Small stocks, dykes and flows of Tertiary acidic igneous rocks occur throughout the Dawson Range. Copper, molybdenum, lead and zinc mineralization is associated mainly with these Tertiary intrusions in the region, and to a lesser degree, with Cretaceous Klotassin intrusions.

Two septa of fine-to coarse-grained gneiss trend northwestward across the claim group. Contacts with coarse-grained Klotassin granodiorite show brecciation, argillic alteration and limonitic development, as does an exposed contact with a young granite stock in the northern part of the claim group. Minor pyrite and tourmaline mineralization were noted in these areas, but no minerals of economic interest were found.

Minor intrusions include a swarm of large dacite and latite porphyry dykes, and porphyritic granite dykes. Latite and dacite dykes follow the northwest grain of the terrain, and contain minor pyrite-pyrrhotite contact mineralization. Granite dykes apparently originated within the granite stock, and intrude host rocks peripheral to the stock.

Geology of ROYALE claims and adjacent area is depicted on Geological Map, Figure 4.

GEOCHEMICAL SURVEY

(a) Sampling Techniques

Field part of the geochemical survey consisted mainly of soil sampling at 200 ft. intervals along north-easterly oriented lines spaced at 1000 ft. Samples were taken from the B-horizon of soil at an average depth of 6 inches. A few sites only in altered areas were sampled from the C-horizon.

Only 8 silt samples were taken, mostly from the seepage areas. This kind of material was usually fairly rich in organic matter.

Thirty-two rock chip samples were collected at selected sites of the soil grid.

All samples, totalling 388, were sent to the Atlas Explorations laboratory in Whitehorse to be analyzed.

(b) Analytical Methods

After drying, all silt and soil samples were sieved to -80 mesh and the fines retained for analysis; 0.5 grams of each sample was digested with concentrated

nitric acid, diluted and allowed to settle. Since at the time the atomic absorption unit in the laboratory of this company was temporarily out of order, Cu, Pb, Zn and Mo content of solutions was determined in the Whitehorse Assay Office with a Techtron AA-3 spectrophotometer.

Performance of the analytical techniques was continually controlled by including a soil sample selected as standard with every 15-20 samples to be analyzed, which provided a series of 24 replicate analyses for four elements. The average analytical precision estimated from these results is shown in Table 1. (Mo is omitted because its concentration in the 'soil standard' was constantly below the detection limit of 2 ppm).

TABLE 1
Average Analytical Precision for Selected Elements

	Precision (%)	Concentration Level (ppm)
Cu	± 28	15
Pb	± 25	10
Zn	± 31	70

Lower detection limit for all four elements sought was 2 ppm.

(c) Presentation of Data

All analytical results were plotted on a 400 ft. to the inch map and selected concentration intervals of Cu and Zn shown by rough contouring.

INTERPRETATION OF RESULTS

(a) Copper

Concentrations of Cu vary from 2-80 ppm, 98.5% of results being below 30 ppm. As shown in Fig. 1, the latter value marks a break in the slope of cumulative frequency curve and can tentatively be taken as anomaly threshold. A better linear fit of data is achieved on arithmetic than on log probability scale which indicates a distribution close to normal.

Cu values higher than 30 ppm are scattered and do not outline any anomalous area. It is likely that such values are due to sparsely mineralized and brecciated rocks in the middle of the claim group. However, samples from altered zones are not always enriched in Cu.

Roughly contoured data on Fig. 5 show that very low Cu values may be related to the schists of Yukon Group in

the west corner of the claim group. Copper values between 20 and 30 ppm form two zones in the eastern part of the group, situated downslope from the brecciated intrusive rocks (compare with the geologic map, Fig. 4).

(b) Lead

Lead values, ranging from 4-22 ppm are mostly lower than 10 ppm and seem to form a homogeneous population (see Pb Cumulative Frequency Plot in Fig. 1). Distribution of values in the area does not show any features that could be correlated with bedrock geology. No attempt was made to contour these data.

(c) Zinc

Zinc values vary widely from 8-308 ppm with 97.5% of them falling below 100 ppm. Cumulative frequency plot (Fig. 2) indicates a prominent break in slope around 100 ppm, and possibly another one at 40 ppm. Concentration of 100 ppm is taken as anomaly threshold. Zn values give better linear fits on log than on arithmetic probability scale, which possibly indicates a lognormal type of distribution. Geographic distribution of data is rather irregular. Only 100 ppm contour is shown in Fig. 5. Most, but not all, Zn-high samples contain more than 20 ppm Cu and 10 ppm Pb.

(d) Molybdenum

Mo data show a uniform level without any values higher than the detection limit of 2 ppm ('0' values for Mo plotted in Fig. 5 stand for concentrations below the detection limit).

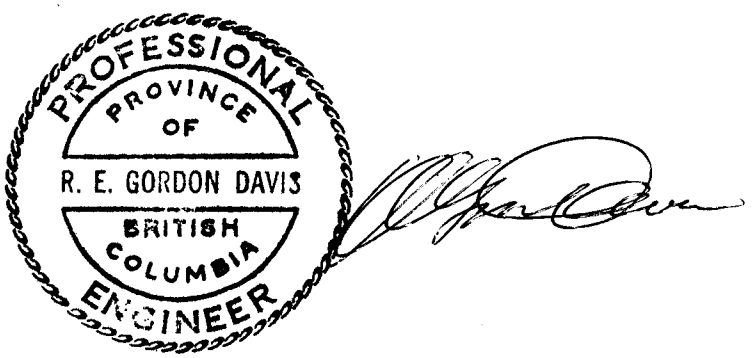
CONCLUSIONS AND RECOMMENDATIONS

With exception of a few scattered weak Cu and Zn anomalies, all elements sought show a rather low and uniform concentration level over the claim group. Occasional highs are believed to be caused by sparse mineralization along fractures. Further geochemical work in the area does not seem to be warranted.

Respectfully submitted,

D. Brabec,
Geochemist

August, 1970.



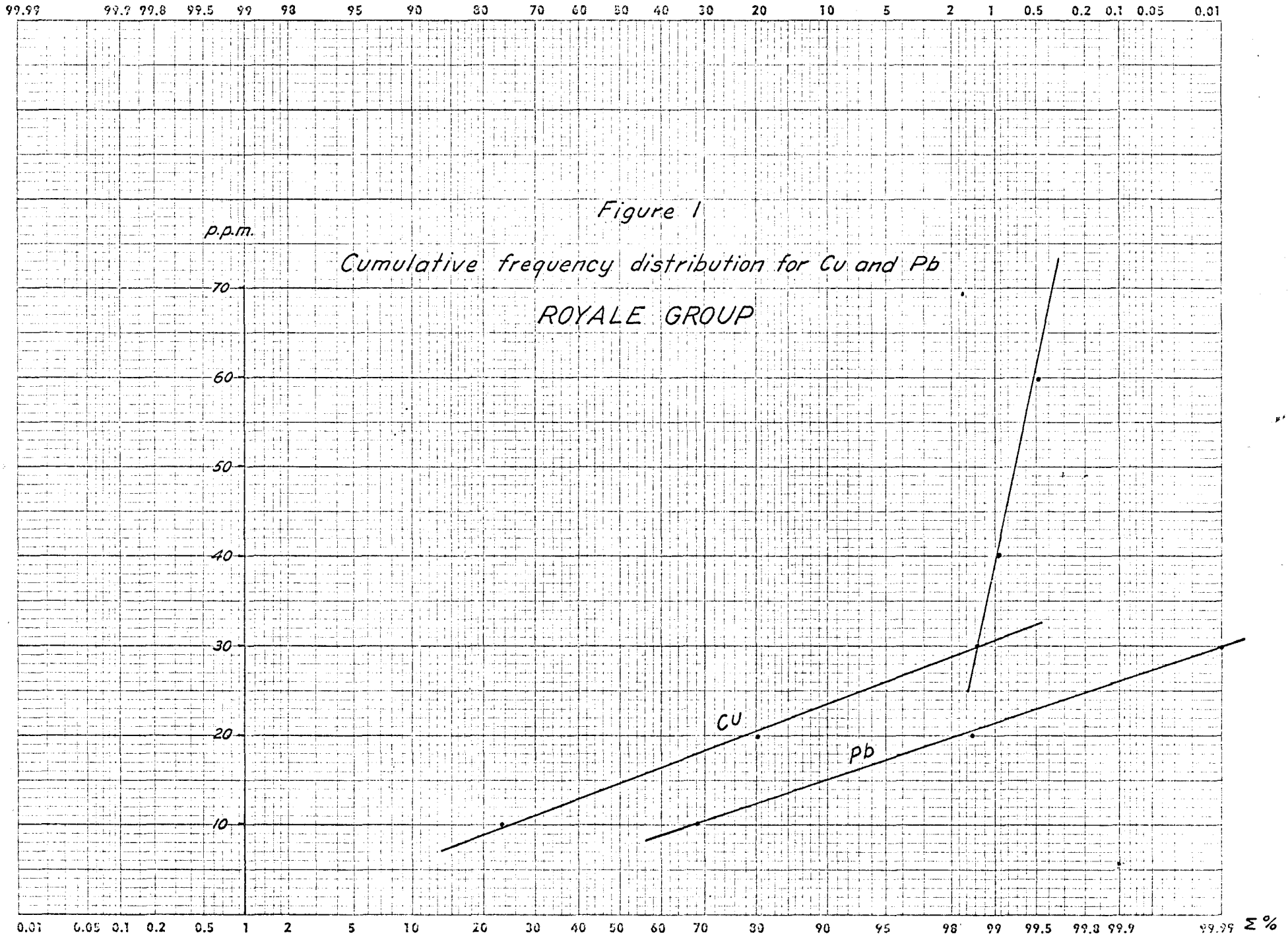


Figure 1

Cumulative frequency distribution for Cu and Pb

ROYALE GROUP

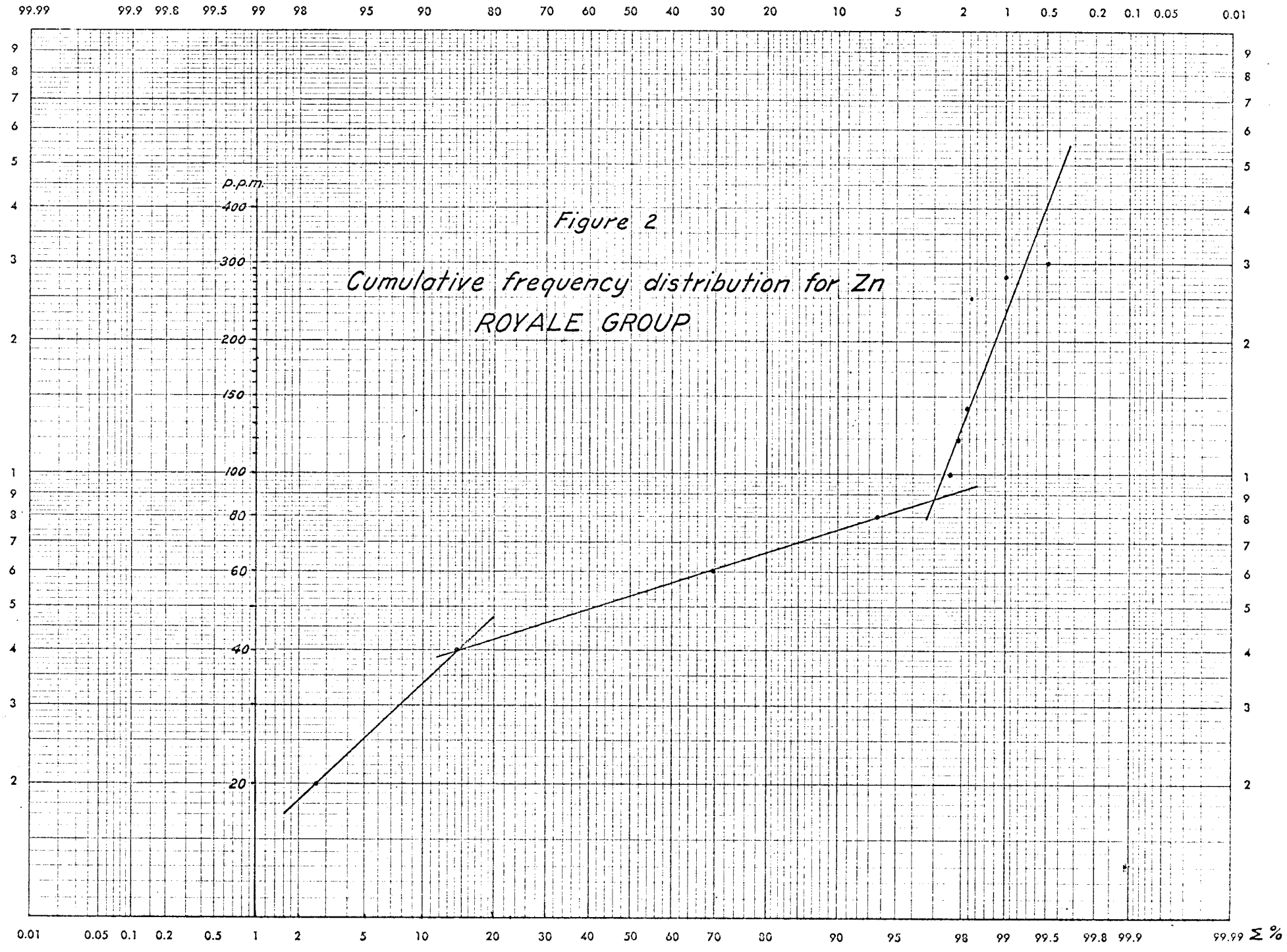


Figure 2

Cumulative frequency distribution for Zn

ROYALE GROUP

KEY MAP

ROYALE CLAIM GROUP N.T.S. 115-J-14

22,865,000 N

315,000 E

320,000 E

325,000 E

330,000 E

335,000 E

340,000 E

345,000 E

22,860,000 N

22,855,000 N

22,850,000 N

22,845,000 N

22,840,000 N

N

GEOLOGICAL LEGEND

TERTIARY

- Latite and dacite porphyry dykes, diabase dykes.
- 4 Alaskite dykes.
- 3 Granite. Medium to coarse grained subporphyritic, pink-grey granite, & related dykes.

LATE CRETACEOUS

- Klotassin Intrusions
- 2a Medium to coarse grained biotite granite, quartz monzonite & alaskite.
- 2b Fine to medium grained granodiorite and monzonite(?).
- 2c Medium to coarse grained hornblende granodiorite.

PRECAMBRIAN

- Yukon Group
- 1a Quartz-hornblende-plagioclase gneiss.
- 1b Granitic gneiss.
- 1c Amphibolite.
- 1d Marble.

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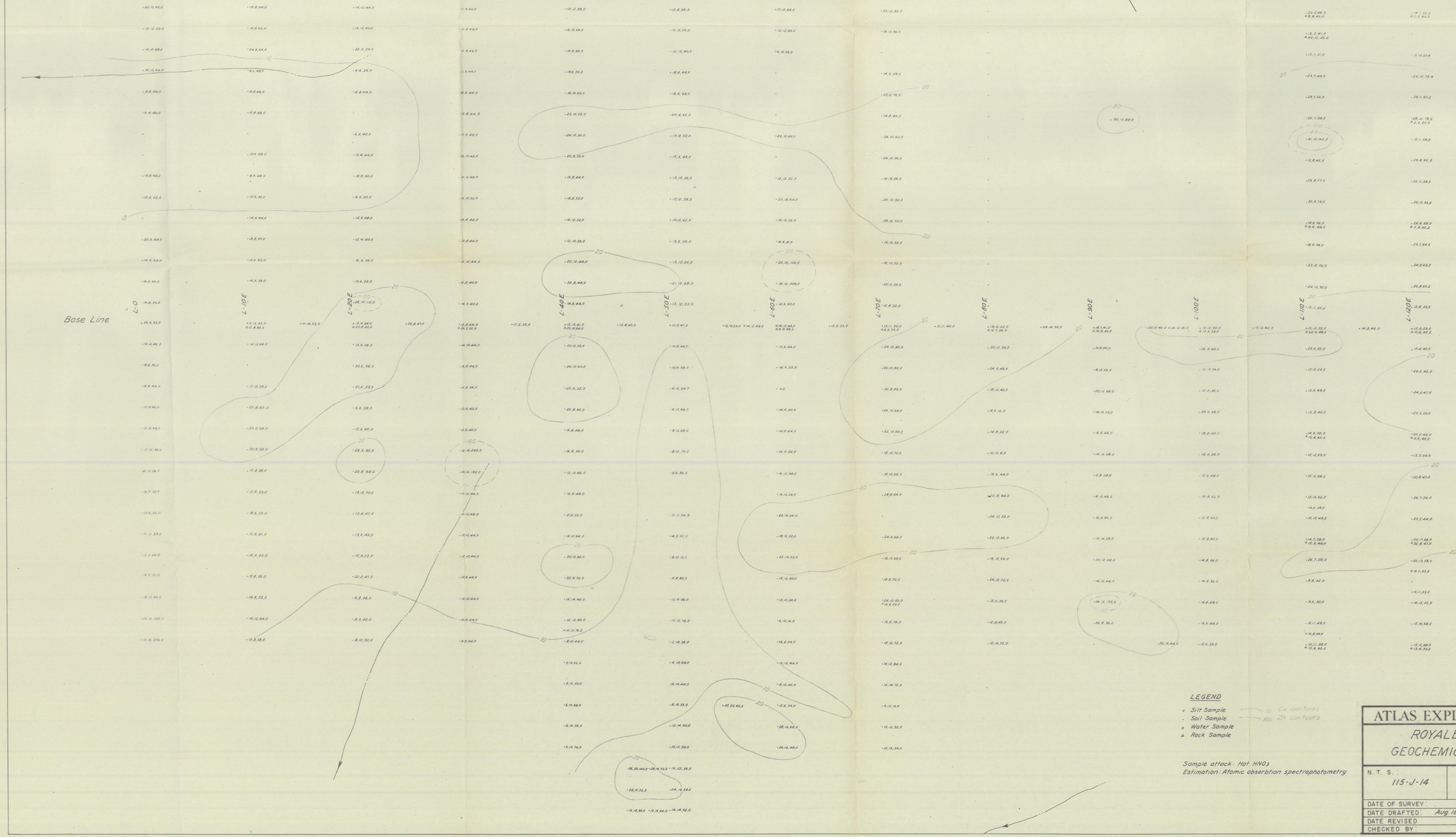
GEOLOGY OF ROYALE CLAIMS

Dawson Range - Yukon

N. T. S.: 115-J-14		SCALE: 1" = 1000'
DATE OF SURVEY:		PARTY CHIEF:
DATE DRAFTED:		DRAFTED BY: G.T.
DATE REVISED		REVISED BY:
CHECKED BY:		FIGURE No.:



LEGEND

- Silt Sample
- Soil Sample
- x Water Sample
- △ Rock Sample

10 Cu contours
100 Zn contours

Sample attack: Hot HNO3
Estimation: Atomic absorbtion spectrophotometry

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ROYALE CLAIM GROUP
GEOCHEMICAL SOIL SURVEY

N. T. S.: 115-J-14		SCALE: 1" = 400'
DATE OF SURVEY:		PARTY CHIEF:
DATE DRAFTED: Aug. 18, 1970		DRAFTED BY: G.T.
DATE REVISED		REVISED BY:
CHECKED BY:		FIGURE No.: