UMEX

UNION MINIERE EXPLORATIONS
AND MINING CORPORATION LIMITED

SUITE 200 - 4299 CANADA WAY
BURNABY, B.C. V5G 1H4

TELEPHONE 437-9491

ASSESSMENT REPORT

Geochemical Soil Survey

Pat 1-6 and Cal 1-10 Mineral Claims

(Record Nos. Y 98066 - Y 98081)

64°30'N, 136°35'W

N.T.S. 116-A-7

Mayo Mining District

by

A.A. Burgoyne, P.Eng.

Work Done: July 1 to 10, 1976

Date: August, 1976

Owner: Sumitomo Metal Mining Canada Ltd.

Work Performed by: Union Miniere Explorations and
Mining Corporation Limited

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 $ 1600.00

W D Lindsay
acting Resident Geologist or
~~Resident Mining Engineer~~

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

G.R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

1600

CONTENTS

Appendices

Figures

ASSESSMENT REPORT

Geochemical Soil Survey

Pat 1-6 and Cal 1-10 Mineral Claims

INTRODUCTION

The Cal and Pat claims are located 67 air miles north-northwest of Mayo, Yukon. The Cal claims are located in the vicinity of 64°30'N and 136°35'W and about four miles southeast of Callison Lake. The Pat claims are located two miles northeast of the Cal claims and two miles south of Callison Lake. Note Figure 1. Access to the properties is by helicopter from Mayo or from the Dempster Highway, 46 air miles to the west.

The Cal and Pat claims were staked on July 25, 1975 and recorded on July 28, 1975 on the basis of anomalous zinc stream sediment values. This report is to cover geochemical assessment requirements for the following claims:

Claim Name	Grant No.
Cal 1-10	Y 98072 - Y 98081
Pat 1-6	Y 98066 - Y 98071

Line placement and soil sampling was done on July 7-10, 1976. The field work was completed by Mr. D. Christie, B.Sc., geologist; and Mr. J. Verbeek and Mr. R. Joly, soil samplers; who were in turn under the supervision of Mr. A. Burgoyne, P.Eng. and Mr. C. Dyson, P.Eng.

GRID CONTROL

On the Cal claims a soil grid was established by using the claim line as a base line. Eight cross lines at 3000 feet length at 500 foot intervals were placed at right angles (N15°E) to the base line. On the Pat claims four lines of 3000 feet length at 500 foot intervals were placed parallel to the claim location line in a N22°W direction. All lines were chained and marked with flagging, indicating the grid coordinates, every 200 feet. Soil sampling was done at 200 foot intervals along all lines. Note Figure 2.

Approximately 4.55 line miles and 2.27 line miles of soil sampling was completed on the Cal and Pat claims, respectively.

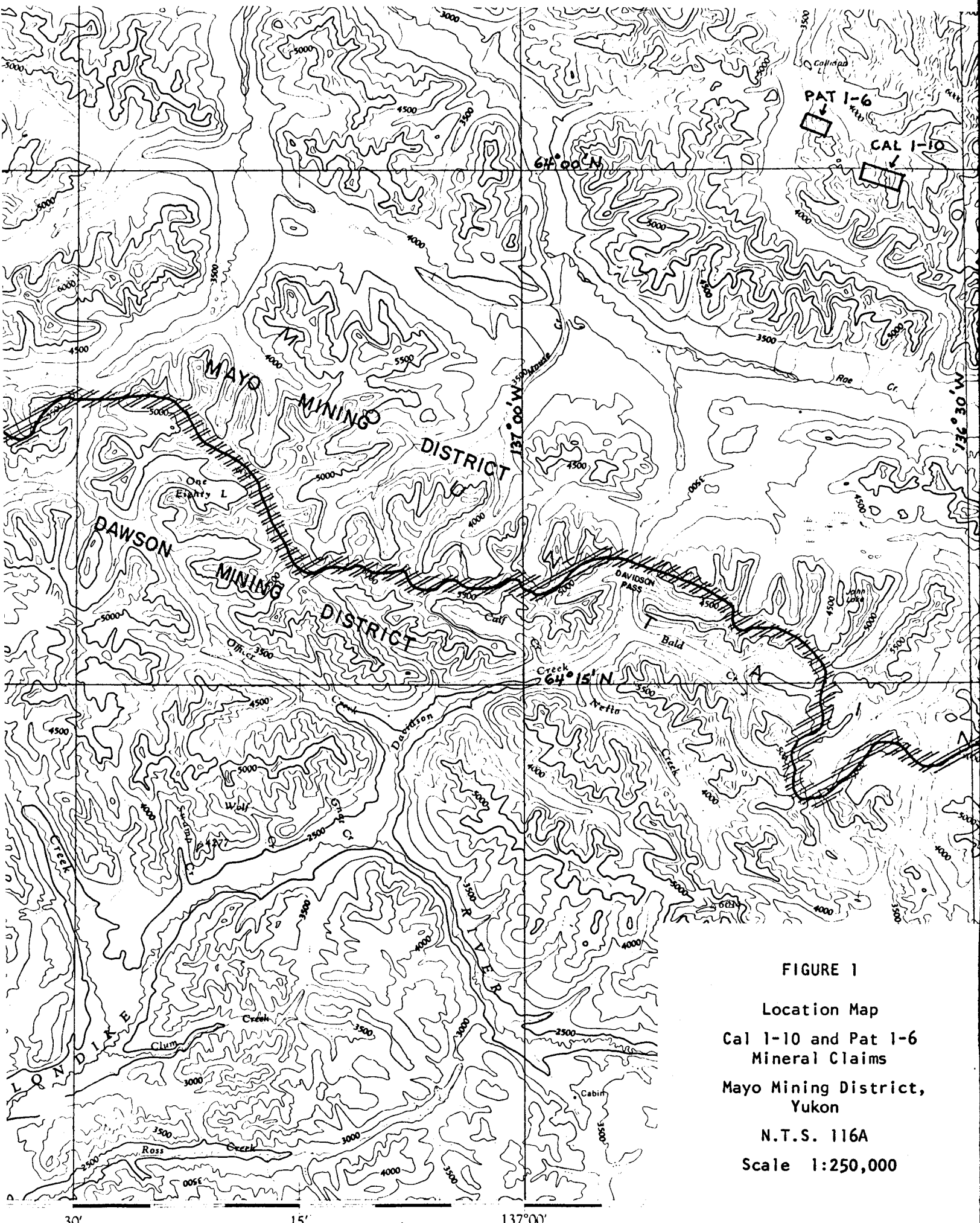


FIGURE 1

Location Map

Cal 1-10 and Pat 1-6
Mineral Claims

Mayo Mining District,
Yukon

N.T.S. 116A

Scale 1:250,000

GEOLOGY

Regionally[1] the Cal claims are underlain by Precambrian and/or Cambrian sedimentary and metasedimentary rocks. The Pat claims are underlain in the southern parts by the above described rocks and in the northern part by Ordovician and Silurian carbonates. A major east-west trending and southerly dipping thrust fault separates these two major time-rock units. Diorite and gabbro intrusive bodies of Mesozoic Age are also present.

Detailed mapping on the Cal claims reveals a series of shales, cherts, and limestones sandwiched between two major westerly trending and southerly dipping diorite sills. The sediments trend west to west-northwest and dip southerly from 56° to 70°. Local folding is common. The exact thickness of the sills can only be approximated; the northerly sill located on the northern edge of the claim block varies in thickness from 180 to 550 feet whereas the southerly sill located on the southern part and boundary of the claims varies from 500 to 1350 feet in thickness.

On the Pat claims the Precambrian-Cambrian sediments are almost entirely composed of chert and cherty-shale. Minor black shale rubble is present. The rocks trend west-northwest and dip from 62° to 89° southerly. Local folding is present. The northern edge of the claims are in thrust fault contact with Ordovician and Silurian limestone and minor siliceous limestone. These rocks trend west-northwest and dip 55° southerly.

GEOCHEMICAL SOIL SURVEY

Method

A total of 126 soil samples were collected over 4.55 line miles of grid on the Cal claims and 54 soil samples over 2.27 line miles of grid on the Pat claims. All soil samples were analysed for zinc, lead, and cadmium. At each sample location a pit was dug with a shovel or grub hoe to a depth of 4 to 12 inches, depending on soil development, and a sample was taken from the C soil horizon. The soil was then placed in a Kraft paper soil sample bag and marked. The soil development for the surveyed area is:

Ao - Organic litter, 0 to 1 inch thick, but considerably thicker in swampy areas such as west end of Pat claims.

---

[1] Geological Survey of Canada, Map 1283A.

A1 - Decomposed organic debris, and humus-rich material, black in colour, 0 to 2 inches thick but considerably thicker in swampy areas.

B - Brown to orange in colour, coarse structure, accumulation of clay minerals, iron minerals, and organic matter, generally erratic distribution.

C - Weathered bedrock, angular fragments.

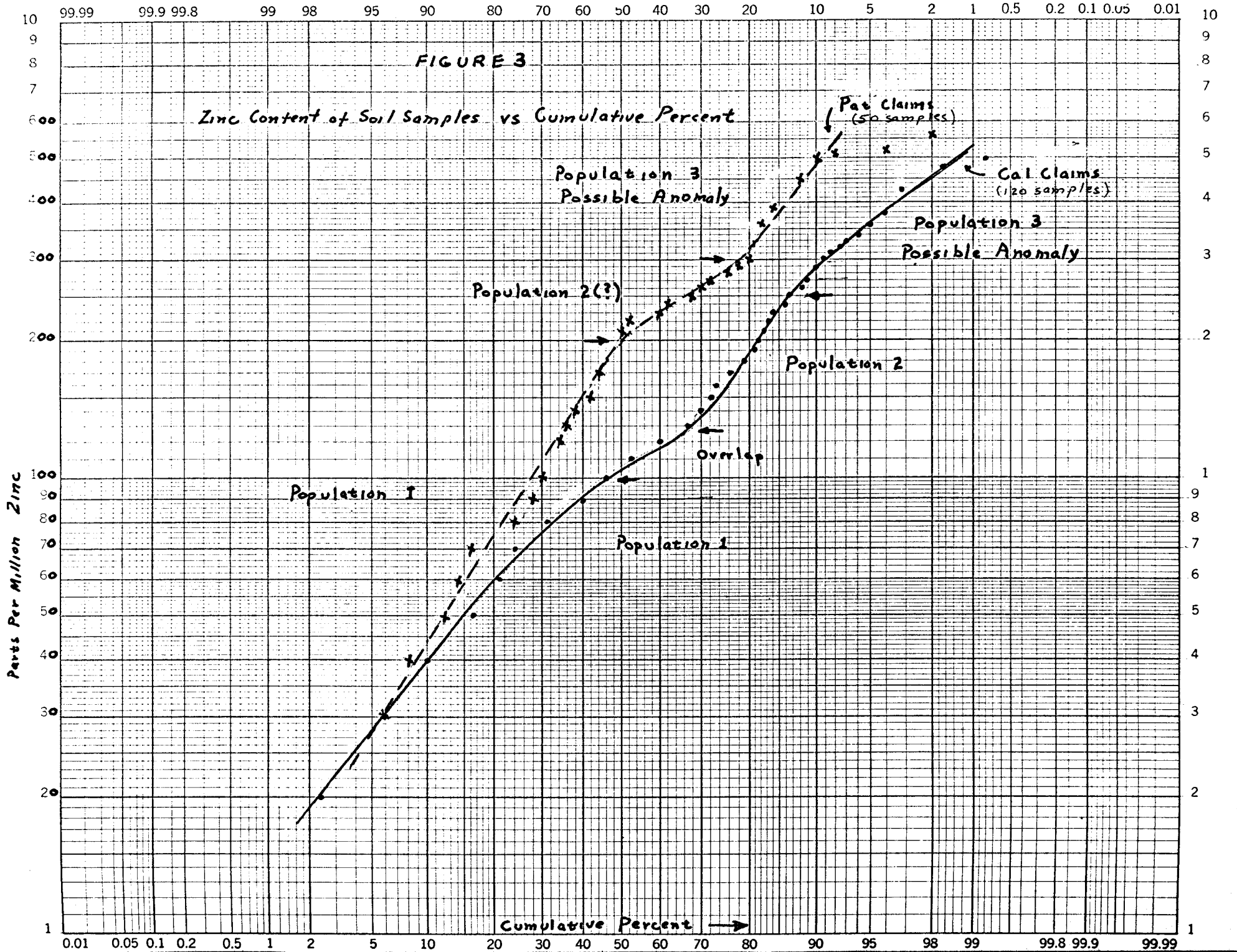
Analytical Treatment

The soil samples were analysed by Acme Analytical Laboratories Ltd. in Dawson City, Yukon. The samples were dried in their respective bags at a temperature of 60°C and sieved through a -80 mesh stainless steel screen. One-half portions of the -80 mesh fraction of the soils were placed in culture tubes and digested in 3 mls of aqua regia (3 parts hydrochloric and 1 part nitric acids) for one hour at 95°C. The digested samples were bulked to a specific volume with deionized water and then asperated into an atomic absorption spectrophotometer. Cabbration of the spectrophotometer is done by preparation of zinc, lead, and cadmium standard solutions daily.

Results

All geochemical soil results are plotted in Figure 2. Only zinc values have been contoured. Cumulative frequency versus metal content statistical plots were made for zinc soil data only as this metal was the one of economic interest on the Cal and Pat claims. Note Figure 3. On the Cal claims three discrete populations are present: Population 1 from 20 to 100 ppm, Population 2 from 130 to 250 ppm, and Population 3 from 250 to 500+ ppm. An overlap of Populations 1 and 2 occurs from 100 to 130 ppm. Population 1 is a background population possibly caused by limestone/chert/shale sedimentary units. Population 2 is also considered to represent a background population, possibly the cause being the diorite sills. Population 3 is thought to represent very minor and weak zinc mineralization and is considered possibly anomalous. The distribution of Population 3 (note Figure 2) is spatially related to the sedimentary-diorite sill contacts. It should also be noted that Population 2 is spatially related to Population 3. The property was thoroughly prospected and no zinc mineralization has been found.

On the Pat claims two or possibly three zinc metal populations are present



in the soil. The validity of the cumulative frequency versus concentration plot in this instance is questionable due to the limited number (n=50) of samples used. Population 1 is from 30 to 200 ppm and is thought to be a background population caused by chert and cherty-shale. Population 2 from 200 to 300 ppm may be a discrete population or alternatively a zone of overlap between Population 1 and 3. The cause of Population 2 is not known. Population 3 is from 300 to 500+ ppm; this population is thought to be possibly anomalous. Explanations for the possible anomalous values of Population 3 are:

(1) Low grade erratic zinc mineralization, although no such mineralization has been noted on the property.

(2) The possible anomalous zinc values largely straddle a northwesterly flowing creek. Here ground waters carrying background zinc have possibly deposited zinc at the ground water-ground surface interface over very long periods of time, because of pH-Eh changes, causing a substantial concentration of zinc.

(3) Those very high zinc values of +3000 ppm in the extreme western part of the claims are contained in organic and swampy ground and organic fixation of zinc is probably the cause.

Lead values on the Cal and Pat claims vary from 4 to 50 ppm. Values are not considered anomalous and generally no correlation of zinc to lead is apparent.

Cadmium values vary from 0.1 to 47 ppm. Background values would appear to be up to 1.2 ppm; possibly anomalous values are in excess of 1.5 ppm and are generally associated with high and/or possibly anomalous zinc values. The mobility of cadmium is probably significantly less than zinc in the weathering environment; the spatial distribution of possibly anomalous cadmium will in general be coincident to anomalous zinc, but in detail be more restricted.

CONCLUSIONS AND RECOMMENDATIONS

Possible anomalous zinc soil zones are found on the Cal and Pat claims. The cause of such values on the Cal is thought to be caused by low grade, non-economic, erratic zinc mineralization localized at diorite sill-sedimentary unit contacts. On the Pat claims possible anomalous zinc zones are possibly caused by weak non-economic zinc mineralization and/or by Eh-pH changes in

the weathering environment and organic fixation processes.

No further work is recommended.

Respectfully, submitted,

A.A. Burgoyne

A.A. Burgoyne, P.Eng.

LEGEND

- •138/22/0.2 Location of C Horizon Soil Sample with Zinc, Lead, and Cadmium values in parts per million, respectively
- 250 250 ppm zinc contour value on Cal claims only
- 300 300 ppm zinc contour value on Pat claims only
- ♦ Organic Soil Sample

FIGURE 2

Plot of Zinc, Lead, and Cadmium Values in C Soil Horizon, Cal and Pat Claims

Scale: 0 800 1600 feet
1:10,000

UMEX CORPORATION LTD.

DRAWN BY: AB
DATE: Aug/76
SURVEYED BY:

DWG. No.