GEOCHEMICAL COMPARISONS

HARRISON LAKE REGION SOILS

Chevron Standard Limited
Minerals Staff
Vancouver, B. C.

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D. Arscott

Vancouver, B. C.

INTRODUCTION

We now have soil metal content data on 4 properties (7 areas), predominently underlain by Harrison Lake volcanics. A statistical treatment of this data yields some preliminary conclusions, and will be of use in any further work done in this region.

The areas in question, and the approximate number of samples used in each case, are as follows:

Property	Area	No. of Samples
Eagle	West (1977) grid	252
Eagle	East (1976) grid	258
Chehalis	KU claims	656
Top	Top claims	550
Seneca	"North" grid (#1)	251
Seneca	Central, pit area	254 *
Seneca	"South" grid	291

* An attempt was made to exclude all samples that could have been contaminated by surface work.

Some degree of error may arise from the following causes:

(1) The Chehalis samples include a fairly large proportion underlain by sediments rather than volcanics.

(2) No attempt has been made to extract samples with a high organic content. It is believed, however, that they represent a very small proportion of the samples.

DATA TREATMENT

All data has been plotted as consistently as possibly on logarithmic - probability sheets (Figs. 1, 2 and 3) and various parameters extracted from these plots (Figs. 4, 5, 6 and 7).

The MEAN, read from the 50% point on the log-probability plots, refers to the sample population as a whole, i.e. both background and anomalous.

The CONTRAST figures are a measure of spread or range for the sample population, are a ratio of the value above which 4% of the samples lie, divided by the value above which 90% of the samples lie.

The VARIANCE figures are another measure of spread, roughly proportional to range and in some inverse relation to dispersion, particularly secondary dispersion. Their usefulness is debatable, but they are included since they show an interesting relationship to the other parameters.

CONCLUSIONS

1. Most of the log-probability plots show clearly anomalous populations. The main exception is the Seneca south grid and the most obvious explanation is the fact that it is underlain by alluvial sand with depth of the order of 50 feet. It is unlikely that any bedrock mineralization would be reflected at surface.

2. By almost any parameter involving Cu and Zn, the Seneca North grid is as significantly anomalous as the central (pit) area. These findings confirm our feeling that the main anomaly on the north grid is a significant drill target.

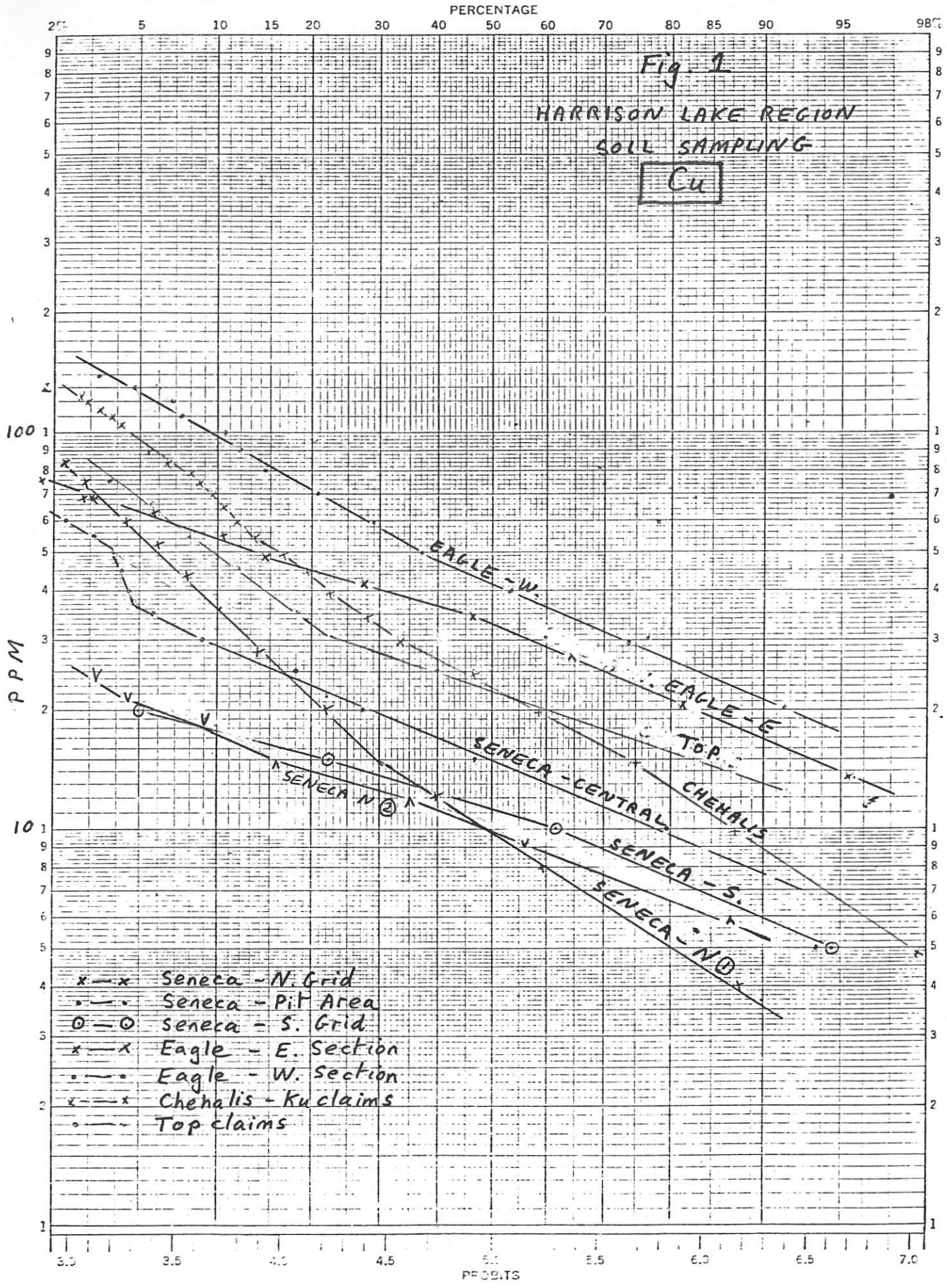
3. The Top area shows a curious relationship to the Chehalis. All 3 metal plots are "tilted" anticlockwise, i.e. the background values are higher, and the anomalous values lower, than at the Chehalis property. Seen another way, the means are almost identical but the contrast is considerably less. The reason is not clear, but this relationship would seem to match with increasing "fractionation" of metals through time in the ascending volcanic pile. Spurious factors could of course be involved, but this relationship might help to place us elsewhere in the correct stratigraphic position.

4. The soil Cu content on the Eagle property as it changes from west to east clearly reflects the influence of accompanying metasomatic influences which have been mapped in outcrop, and is present in anomalous as well as background value populations. Although the main Cu anomaly on this property does not have the earmarks of volcanogenic sulphide mineralization, it looks quite good in the regional context, and might be worth some further investigation.

5. The soil Zn/Cu ratio on the Seneca property almost exactly matches the Zn/Cu ratio as averaged from bedrock drilling (6:1). If this has any significance we could wildly hazard a guess that the Seneca N anomaly represents mineralization averaging 0.6% Cu and 12% Zn!

6. A single metal, Zn, if analysed regionally, would lead us into significant areas in terms of volcanogenic sulphide mineralization. It yields clearly anomalous patterns, and does not seem to be appreciably affected by the near by presence of a major intrusive contact

D. Arscott


PERCENTAGE
Fig. 1
HARRISON LAKE REGION
SOIL SAMPLING
Cu
PPM
PROBITS
EAGLE - W.
EAGLE - E.
TOP
CHEHALIS
SENECA - CENTRAL
SENECA - S.
SENECA - N.
SENECA N ②
x—x Seneca - N. Grid
•—• Seneca - Pit Area
⊙—⊙ Seneca - S. Grid
x—x Eagle - E. Section
•—• Eagle - W. Section
x—x Chehalis - Ku claims
•—• Top claims
46 8080
PROBABILITY
X 3 LOG CYCLES
KEUFFEL & ESSER CO.

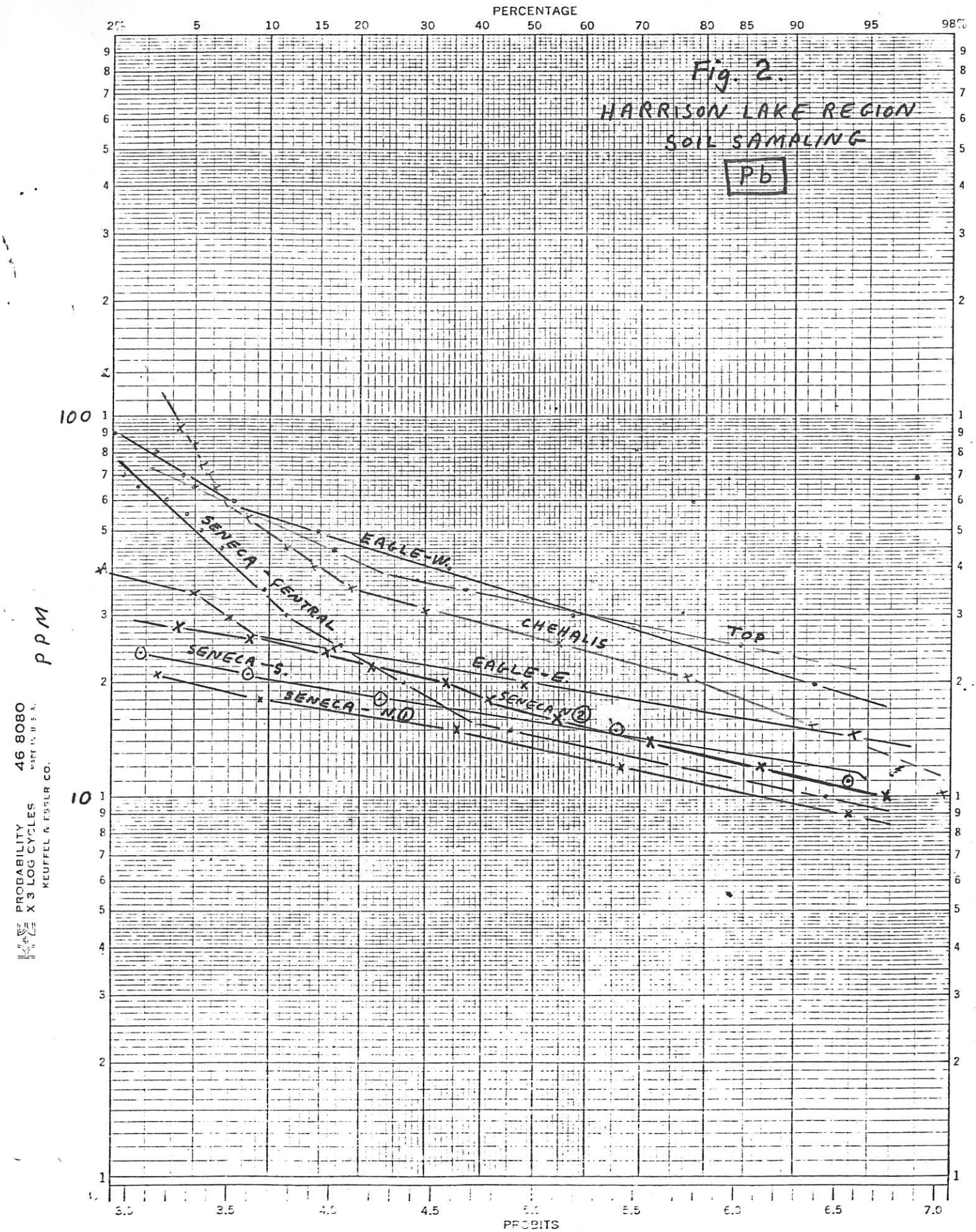


Fig. 2.

HARRISON LAKE REGION

SOIL SAMPLING

Pb

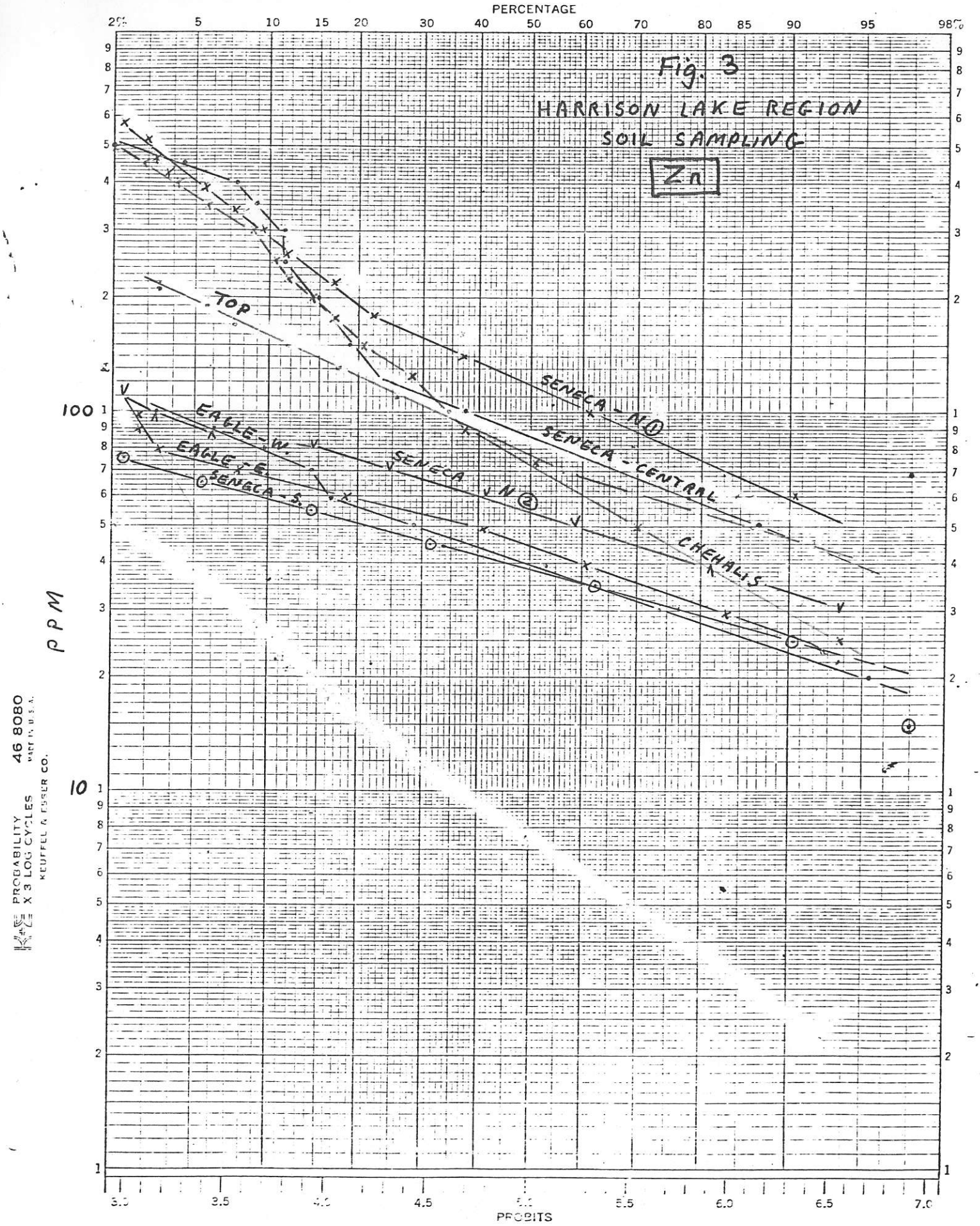

PERCENTAGE
2% 5 10 15 20 30 40 50 60 70 80 85 90 95 98%
Fig. 3
HARRISON LAKE REGION
SOIL SAMPLING
Zn
TOP
SENECA - N ①
SENECA - CENTRAL
EAGLE - W.
EAGLE - E.
SENECA - S. ⊙
SENECA N ②
CHEHALIS
100
10
PPM
PROBABILITY
X 3 LOG CYCLES
KEUFFEL & ESSER CO.
46 8080
3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0
PROBITS

FIGURE 4

GEOCHEMICAL COMPARISONS
HARRISON LAKE REGION SOILS

COPPER

AREA	MEAN	PEAK VALUES	CONTRAST	BACKGROUND VARIANCE	ANOMALY VARIANCE
Eagle (W)	42	135	15.9	20	32
Eagle (E)	33	66	3.8	16	10
Chehalis	23	116	12.8	14	31
Top	22	76	5.8	9	21
Seneca (N)	10	62	15.5	7	22
Seneca (Central)	15	47	5.8	7	22
Seneca (S)	11	21	3.5	5	- *

* No clearly anomalous population

FIGURE 5

GEOCHEMICAL COMPARISONS
HARRISON LAKE REGION SOILS

LEAD

AREA	MEAN	PEAK VALUES	CONTRAST	BACKGROUND VARIANCE	ANOMALY VARIANCE
Eagle (W)	33	74	3.7	13	17
Eagle (E)	20	35	2.3	5	3
Chehalis	26	100	7.1	10	63
Top	32	68	2.7	6	13
Seneca (N)	13	20	2.0	3	- *
Seneca (Central)	14	56	5.6	4	20
Seneca (S)	16	23	1.7	4	- *

* No clearly anomalous population

FIGURE 6

GEOCHEMICAL COMPARISONS
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ZINC

AREA	MEAN	PEAK VALUES	CONTRAST	BACKGROUND VARIANCE	ANOMALY VARIANCE
Eagle (W)	40	100	4.3	17	15
Eagle (E)	45	77	3.0	19	34
Chehals	72	400	13.3	42	100
Top	77	220	4.8	30	- *
Seneca (N)	120	450	7.5	60	130
Seneca (Central)	86	455	9.9	39	50
Seneca (S)	38	69	2.7	13	- *

* No clearly anomalous population

FIGURE 7

GEOCHEMICAL COMPARISONS
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METAL RATIOS

AREA	MEANS		PEAK VALUES	
	Zn/Cu	Zn/Pb	Zn/Cu	Zn/Pb
Eagle (W)	0.9	1.2	0.7	1.3
Eagle (E)	1.4	2.2	1.2	2.2
Chehalis	3.1	2.7	3.4	4.0
Top	3.5	2.4	2.9	3.2
Seneca (N)	12.0	9.2	7.2	22.5
Seneca (Central)	5.7	6.1	9.6	12.5
Seneca (S)	3.4	2.4	3.2	3.0