ORIGINAL
454

841686

GEOCHEMICAL COMPARISONS

HARRISON LAKE REGION SOILS

Chevron Standard Limited
Minerals Staff,
Vancouver, B. C.

February, 1978

Vancouver, B. C.

D. Arscott

INTRODUCTION

We now have soil metal content data on a number of properties 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.

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 PEAK value is the value above which 4% of samples of the given population lie.

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.

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.

DISCUSSION

1. Most of the log-probability plots show clearly anomalous populations. The one 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. 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.

3. 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. Other properties, such as the Snoopy and SF may be subject to some influence from an intrusive stock. High Cu geochemistry is associated with strong silicification.

4. 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.

5. An interesting trend of Zn/Cu ratios is present through the Seneca property (3.4 - 5.7 - 6.5 - 12.0 - 3.6), the significance of which is not clear. This is primarily a function of Zn content, since the Cu fluctuates much less.

   Cu contents are highest a) where the intrusive contacts are closest and b) where coarse felsic pyroclastics are present, such as on the main Pit grid and on the I AM property.

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 nearby presence of a major intrusive contact. However the developing metal ratio patterns make it wise to continue analysing for Cu and Pb during further work.

D. Arscott.

GEOCHEMICAL
COMPARISONS

HARRISON LAKE REGION SOILS

ZINC

AREA	MEAN	PEAK	CONTRAST
Eagle (W)	40	100	4.3
Eagle (E)	45	77	3.0
Chehalis	72	400	13.3
Top	77	220	4.8
North Grid Two	58	100	2.8
RR/FE	36	170	13.0
North Grid One	120	450	7.5
Cominco North (S)	56	135	4.5
Pit Area	86	455	9.9
South Grid	38	69	2.7
I AM	62	324	13.5
Snoopy	120	v.high	?
MacDonald Grid			
SF	100	750	20.3
Bigfoot	96	500	8.4

GEOCHEMICAL
COMPARISONS

HARRISON LAKE REGION SOILS

LEAD

AREA	MEAN	PEAK	CONTRAST
Eagle (W)	33	74	3.7
Eagle (E)	20	35	2.3
Chehalis	26	100	7.1
Top	32	68	2.7
North Grid Two			
RR/FE			
North Grid One	13	20	2.0
Cominco North (S)			
Pit Area	14	56	5.6
South Grid	16	23	1.7
I AM			
Snoopy	41	150	3.6
MacDonald Grid			
SF			
Bigfoot	14	66	7.3

GEOCHEMICAL

COMPARISONS

HARRISON LAKE REGION SOILS

COPPER

AREA	MEAN	PEAK	CONTRAST
Eagle (W)	42	135	15.9
Eagle (E)	33	66	3.8
Chehalis	23	116	12.8
Top	22	76	5.8
North Grid Two	10	24	4.0
RR/FE	10	90	22.5
North Grid One	10	62	15.5
Cominco North (S)	9	21	4.2
Pit Area	15	47	5.8
South Grid	11	21	3.5
I AM	18	71	10.7
Weaver	32	150	21.2
Snoopy	60	v.high	?
MacDonald Grid			
SF	21	58	5.2
Bigfoot	15	42	5.3

GEOCHEMICAL
COMPARISONS

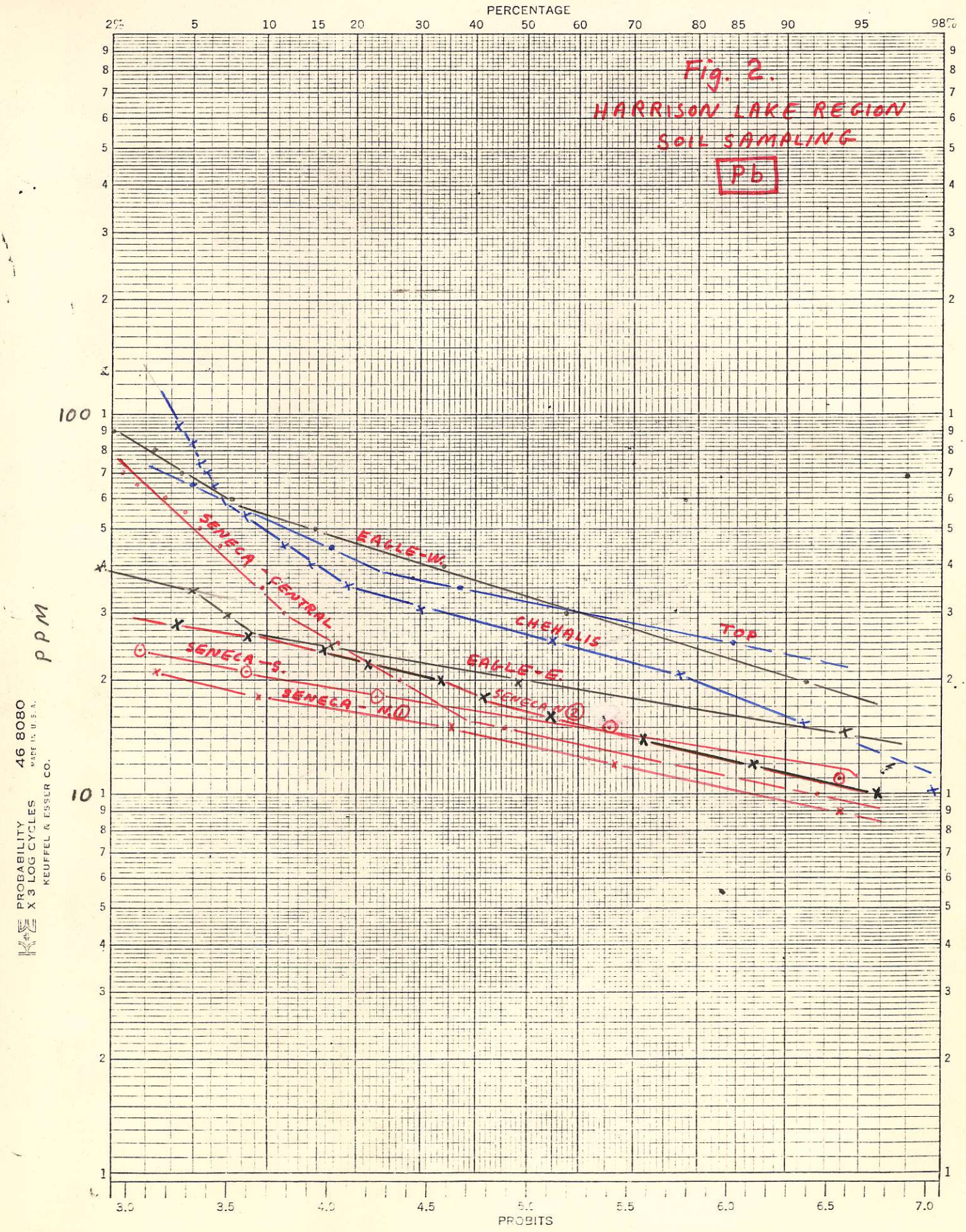
HARRISON LAKE REGION SOILS

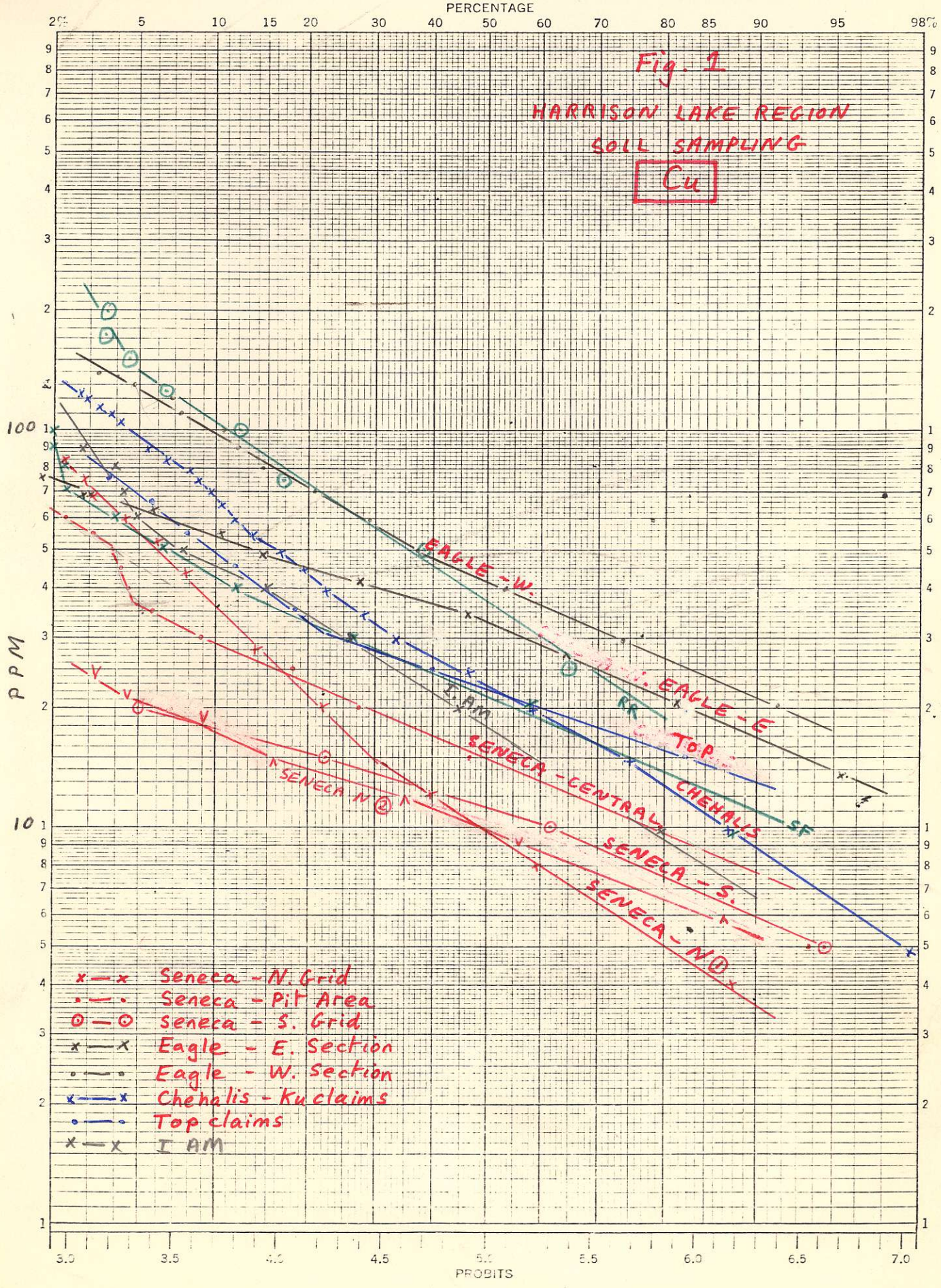
METAL RATIOS

AREA	Zn/Cu		Zn/Pb		Pb/Cu	
	MEANS	PEAKS	MEANS	PEAKS	MEANS	PEAKS
Eagle (W)	0.9	0.7	1.2	1.3	0.8	0.5
Eagle (E)	1.4	1.2	2.2	2.2	0.6	0.5
Chehalis	3.1	3.4	2.7	4.0	1.1	0.8
Top	3.5	2.9	2.4	3.2	1.5	0.9
North Grid Two	5.8	4.2				
RR/FE	3.6	1.9				
North Grid One	12.0	7.2	9.2	22.5	1.3	0.3
Cominco North (S)	6.2	4.7				
Pit Area	5.7	9.6	6.1	12.5	0.9	0.8
South Grid	3.4	3.2	2.4	3.0	1.5	1.1
I AM	3.4	4.5				
Snoopy	3.0					
MacDonald Grid						
SF	4.8	13.0				
Bigfoot	6.4	12.0	6.8	7.6	0.9	1.6

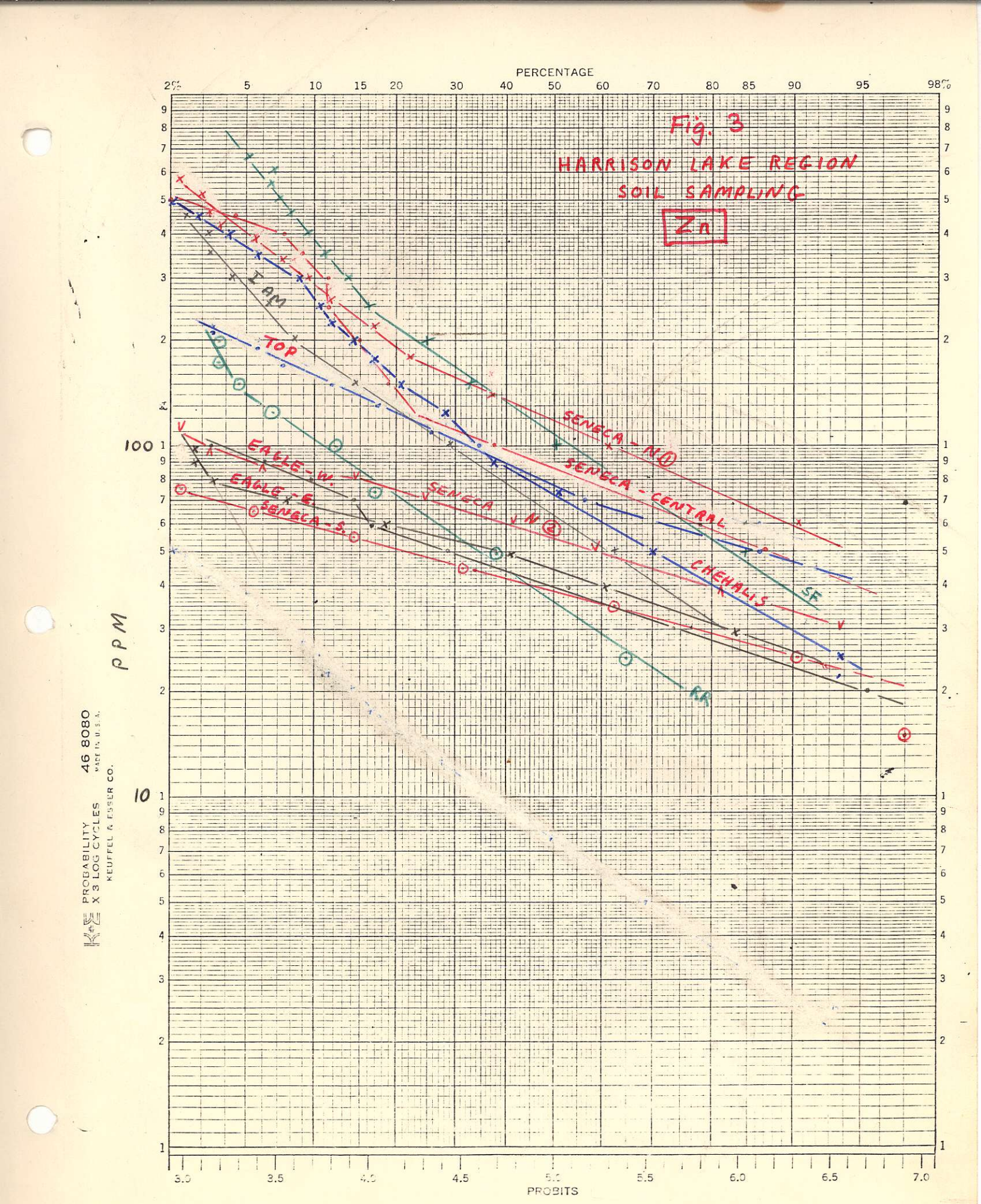
AREAS COVERED

PROPERTY	AREA	NO. OF SOIL SAMPLES	COMMENTS
Eagle	West (1977) grid	252	Echo Island group?
Eagle	East (1976) grid	258	Echo Island group?
Chehalis	KU claims	656	Moderately coarse felsic volcanics. Widespread disseminated Zn in andesite.
Top	Top claims	550	Some vein sulphides.
Seneca	North Grid Two	250	Heavy overburden.
"	RR/FE grid	108	
"	North Grid One	251	
"	Cominco North Grid (S.end)	223	
"	Pit Area	254	Massive fragmental and disseminated sulphides. Felsic breccia present.
"	South Grid	291	Heavy overburden.
I AM	Amax Grid	283	Coarse felsic mineralized volcanic breccia.
Snoopy	Reconn. samples	110	Disseminated Zn, Cu sulphides in agglomeratic andesite.
Cartmell	MacDonald Grid		One Zn fragment bearing float specimen found.
SF	Fitzgerald Grid	410	Fine grained felsic and intermediate rocks. Vein sulphides.
Bigfoot	Delphi Grid	+200	Fine grained felsic and intermediate rocks. Vein sulphides.


PERCENTAGE
2% 5 10 15 20 30 40 50 60 70 80 85 90 95 98%
Fig. 2.
HARRISON LAKE REGION
SOIL SAMPLING
Pb
100
10
ppm
EAGLE-W.
SENECA - CENTRAL
CHEHALIS
TOP
SENECA - S.
EAGLE-E.
SENECA - N.
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



PROBABILITY
X 3 LOG CYCLES
KEUFFEL & ESSER CO.
46 8080
MADE IN U.S.A.


PERCENTAGE
2% 5 10 15 20 30 40 50 60 70 80 85 90 95 98%
Fig. 3
HARRISON LAKE REGION
SOIL SAMPLING
Zn
TAM
TOP
SENECA - N①
SENECA - CENTRAL
EAGLE - W.
EAGLE - E.
SENECA - S.①
SENECA - N②
CHEHALIS
SF
RR
100
10
PPM
PROBITS
3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0
PROBABILITY
X 3 LOG CYCLES
KEUFFEL & ESSER CO.
46 8080