BRENDA MINES LTD.
EXPLORATION GROUP

GEOCHEMICAL REPORT on the NORTH BRENDA PROPERTY

Nicola and Osoyoos Mining District

N.T.S. 92H/16

Lat. 49° 55', Long. 120° 04'

Paul C. Bankes

April, 1981

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LIST of FIGURES

I INTRODUCTION

The North Brenda area is situated directly north of the Brenda copper-molybdenite deposit and during the development and exploration of Brenda Mines this area under went intensive exploration activity. Kel Glen Mines Ltd. did exploration work consisting mainly of grass-roots surveys followed by limited drilling work on several small molybdenite occurrences located within the original claim block. These claims named: Marn, Slim, Rob and Cam were later allowed to lapse.

During 1979 and 1980, the area was restaked by Brenda Mines Ltd. in order to re evaluate the area's economic mineral potential.

II PROPERTY DESCRIPTION

a) Location and Access

The North Brenda property is located in south central British Columbia, approximately 26 kilometres northwest of the municipality of Peachland, B.C. The claims are situated 3 kilometres north of Brenda Lake, between Pennask and Trepanier Creeks.

Access to the property is via Sunset Main logging road which adjoins Peachland Main, 22 kilometres west of Peachland, B.C. Logging in the area has kept roads in good condition and easily passible by two wheel drive vehicles.

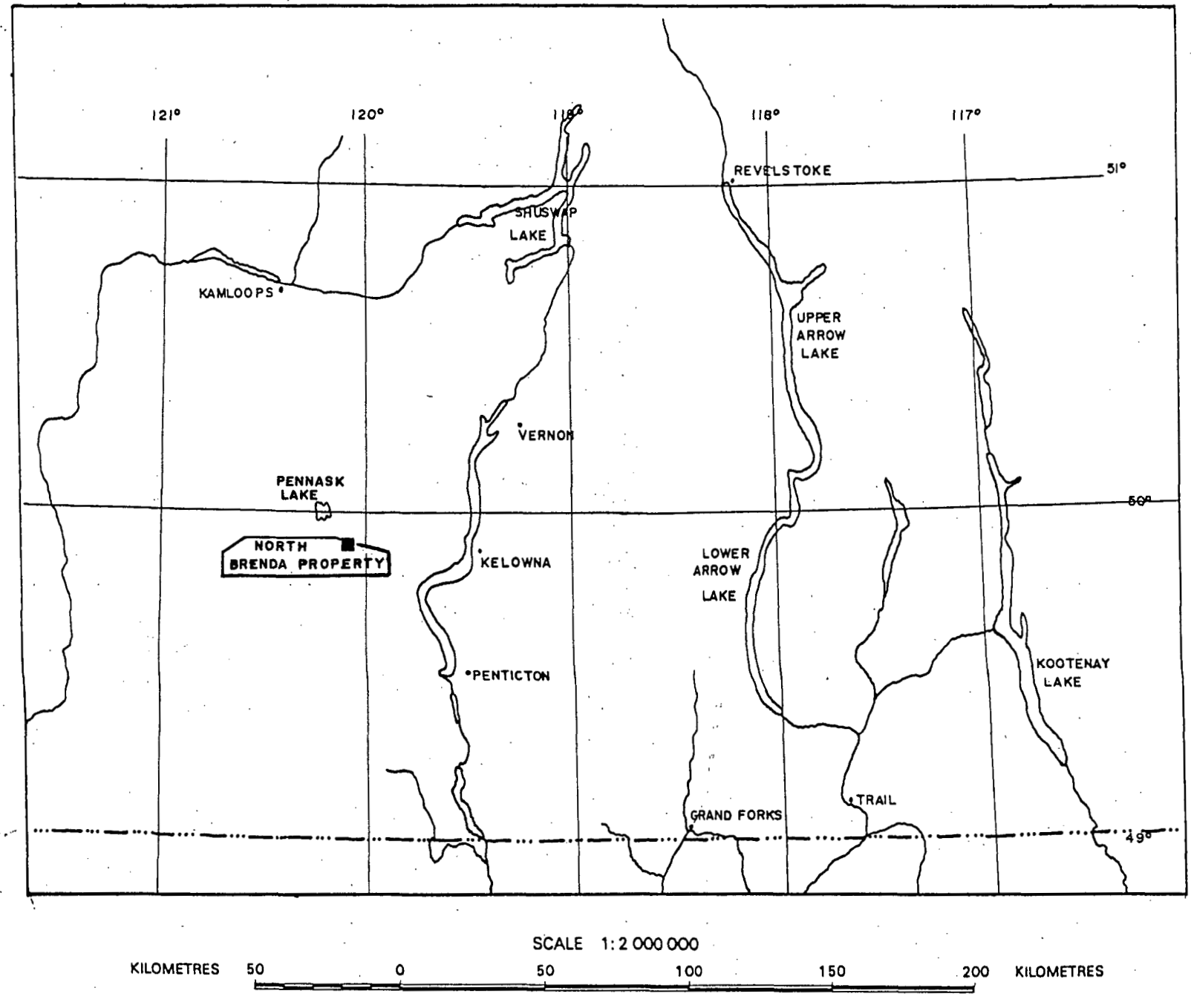

121°
120°
118°
117°
REVELSTOKE
51°
SHUSWAP
LAKE
KAMLOOPS
UPPER
ARROW
LAKE
VERNON
PENNASK
LAKE
50°
NORTH
BRENDA PROPERTY
KELOWNA
LOWER
ARROW
LAKE
PENTICTON
KOOTENAY
LAKE
TRAIL
GRAND FORKS
49°
SCALE 1:2 000 000
KILOMETRES 50 0 50 100 150 200 KILOMETRES

Figure 1

b) Topography and Vegetation

The North Brenda claims cover a series of gently rolling hills which form the boundary between Nicola and Okanagan water sheds. The property has been transected by northerly draining tributaries of Pennask and Nicola Creeks and by southeasterly draining branches of Trepanier Creek. Mature stands of spruce and pine on the central map area give way to grass covered marshes along the property's northern and northwestern margins. Tag alder and scrub pine are common to creek bottoms and low lying areas.

c) Claim Inventory

Claim Name	Record No.	Units	Record Date	Mining District
Marn 7	890	12	May 29/80	Nicola
Marn 8	891	15	May 29/80	Nicola
Marn 9	892	20	May 29/80	Nicola
Marn 10	1200	20	Aug. 20/80	Osoyoos
Marn 11	1201	8	Aug. 20/80	Osoyoos

III GRID ESTABLISHMENT

A 2.5 kilometre north-south baseline was cut across the central portion of the Marn 9 claim block. A second baseline was established along the western claim boundary of Marn 7. East-west location lines were placed at 200 metre intervals perpendicular to baselines. A total of 39 kilometres of grid line were well flagged, surveyed by Silva compass and marked at 50 metre stations.

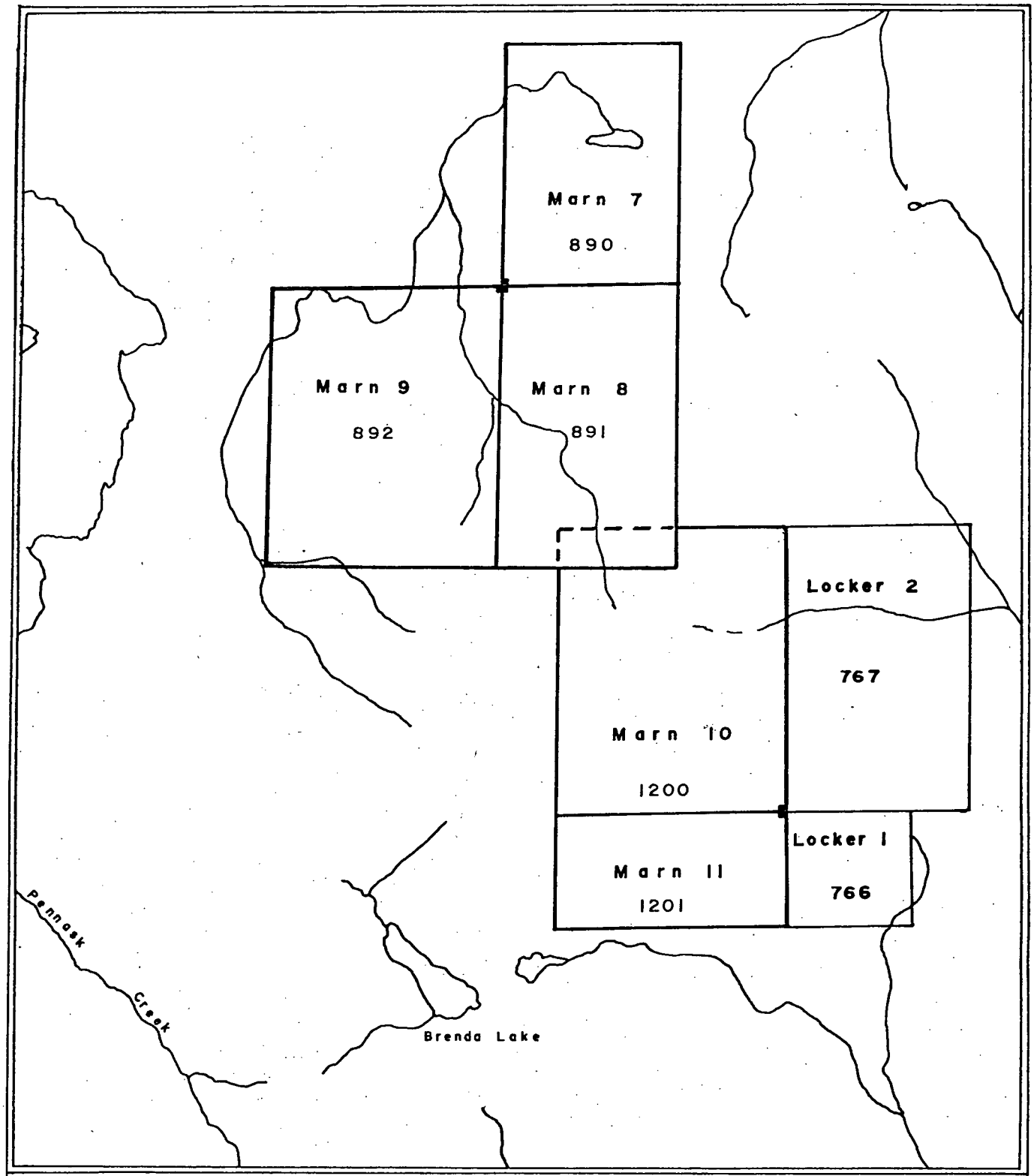

Marn 7
890
Marn 9
892
Marn 8
891
Locker 2
767
Marn 10
1200
Locker 1
766
Marn 11
1201
Pennask Creek
Brenda Lake
CLAIM MAP
Scale 1:50,000 Échelle
Miles 1 0 1 2 3 Milles
Metres 1000 0 1000 2000 3000 4000 Mètres

Figure 2

IV GEOLOGY

a) Regional Geology

The regional geology has been described by H.M.A. Rice in the Geological Survey of Canada Memoir 243 (Geology and Mineral Deposits of the Princeton Map Area, 1960). Nicola Group volcanic and metasedimentary units have been intruded by large granite and granodiorite batholiths of the Coast Intrusions (Pennask Batholith).

Table of Formations

Era	Period or Epoch	Formation	Lithology
Cenozoic	Pleistocene and Recent		Glacial till, sand, silt and gravel.
	Unconformable Contact		
	Jurassic or Later	Pennask Batholith (Coast Intrusions)	Grey, red and white granodiorite and quartz diorite.
Mesozoic			
	Intrusive Contact		
	Upper Triassic	Nicola Group	Grey andesite, andesite porphyry and argillite. Minor schist, limestone and quartzite.

Figure 3

b) Property Geology

Preliminary geological mapping suggests that the property is predominantly underlain by granodiorite (Pennask Batholith) to the east and by argillite and andesite units to the west (Nicola Group). Proximal to the contact, granodiorite outcrops have been cut by several 1 to 2 centimetre quartz veins. Veins are widely spaced and host pyrite and trace molybdenite. Mineralization along this zone appears as isolated, contact related occurrences.

V GEOCHEMICAL SURVEY

a) Introduction

A geochem survey was completed over the Marn 7 and Marn 9 claim blocks between August 16 and November 3, 1980. Soil samples were taken from the B(f) horizon at 50 metre intervals over the entire grid. A total of 892 samples were collected and analyzed at the Brenda Mine assay laboratory for Cu, Mo, Pb and Zn in ppm.

Geochemical results have been plotted on accompanying maps and contoured to correspond with element distributions.

Soil Geochem Parameters

Element	Background Value	Low Anomalous	Anomalous	High Anomalous
Cu	15	30	50	70
Mo	3	5	8	11
Pb	9	12	16	20
Zn	35	50	75	100

Figure 4

b) Treatment of Results

1) Statistical Analysis

Statistical presentation of the various sample types were made so as to better compare bulk characteristics of the geochemical data. The two statistical formats used in this report are cumulative frequency distribution and histogram frequency. The histogram is the more obvious of the two, enabling the reader to make quantitative observations regarding data grouping made etc., while the cumulative frequency plot may be used to graphically derive qualitative information such as standard deviations, background values, low anomalous values and threshold values.

The following is not meant to be a definitive treatment of the statistical analysis of geochem data, but rather a guide to the more important statistical parameters considered in this report.

2) Distribution

In beginning the treatment of a large body of geochemical data, it is necessary to determine the distribution which best fits the data. It has been determined (by concentration vs. frequency plots) that most geochemical data follows a lognormal distribution often referred to as the bell-shaped curve. Natural geochemical values often tend to form negatively skewed distribution curves when plotted. This results from the fact that it

is more common to have low values in geochemical data, than high values. If, instead of the actual value itself, its logarithm is plotted in the abscissa, the frequency curve takes a symmetrical, bell-shaped form, typical of the normal distribution. Plotting the actual geochemical values on a logarithmic graph will achieve the same results. This is the procedure used for the data considered.

3) Histogram

The histogram used in preparing this report is a plot of the interval frequency vs. interval (see Figure 5). Several important statistical parameters may be determined such as the total range of data in sample, modes, and the range with the highest frequency of values. Finally, the general form of the density distribution of the data can be determined quickly.

4) Cumulative Frequency

Cumulative frequency paper is generally constructed with a probability scale as the ordinate and a logarithmic scale as the abscissa (Figure 6). By replacing the arithmetic ordinate scale of the histogram with a probability scale, the cumulative frequency curve is represented by a straight line or a line of "best fit". This line joins points calculated from frequencies, cumulated from the highest to the lowest values; thus the 100% will correspond

to the lowest class and can be eliminated.

There are essentially three parameters defining the geochemical population, which may be obtained graphically, using the cumulative probability plots. These are:

a) Geometric mean or background value (b) located by the intersection of the cumulative frequency curve at the population mean (50%). Trace intersection down to ppm scale.

b) Low anomalous value (1) located by the intersection of the cumulative frequency curve at the 16%. Trace intersection down to ppm scale. The 16% line expresses the scatter of the values around the population mean, incorporating the addition of one standard deviation (s) to the mean.

c) Anomalous or threshold value (t) located by the intersection of the cumulative frequency curve at the 2.5%. Trace intersection down to ppm scale. The threshold value is a fairly complex geochemical parameter and is supposed to be the upper limit of the background fluctuation (b). This incorporates the addition of two standard deviations (2s) to the mean.

Geochemical results for each element have been plotted on accompanying maps and contoured to correspond with element distributions.

c) Discussion of Results

Geochemical results on the North Brenda property were generally disappointing. Soil samples taken around known mineral occurrences averaged only slightly above regional background levels. Contouring of the various elements did, however, identify three weakly anomalous zones.

Zone 1

A large low grade Cu, Zn anomaly covers much of the southern portion of the Marn 9 claim block. Zinc values are more uniform and continuous in distribution than the Cu geochem, which occurs central to the zone. Small Mo, Pb anomalies occur locally across the area. A Mo geochem at 23+00E, 40+00N corresponds well with known mineral occurrences.

Zone 2

The geochem survey has identified several small Mo, Cu anomalies on the south eastern flank of the Marn 7 claim block. Small Pb anomalies occur sporadically across the zone.

Zone 3

Zone 3 consists of a series of small discontinuous Cu, Zn, Mo soil highs on the north western portion of the Marn 7 claim block. Anomalies are low grade and rarely exceed a few hundred metres in size.

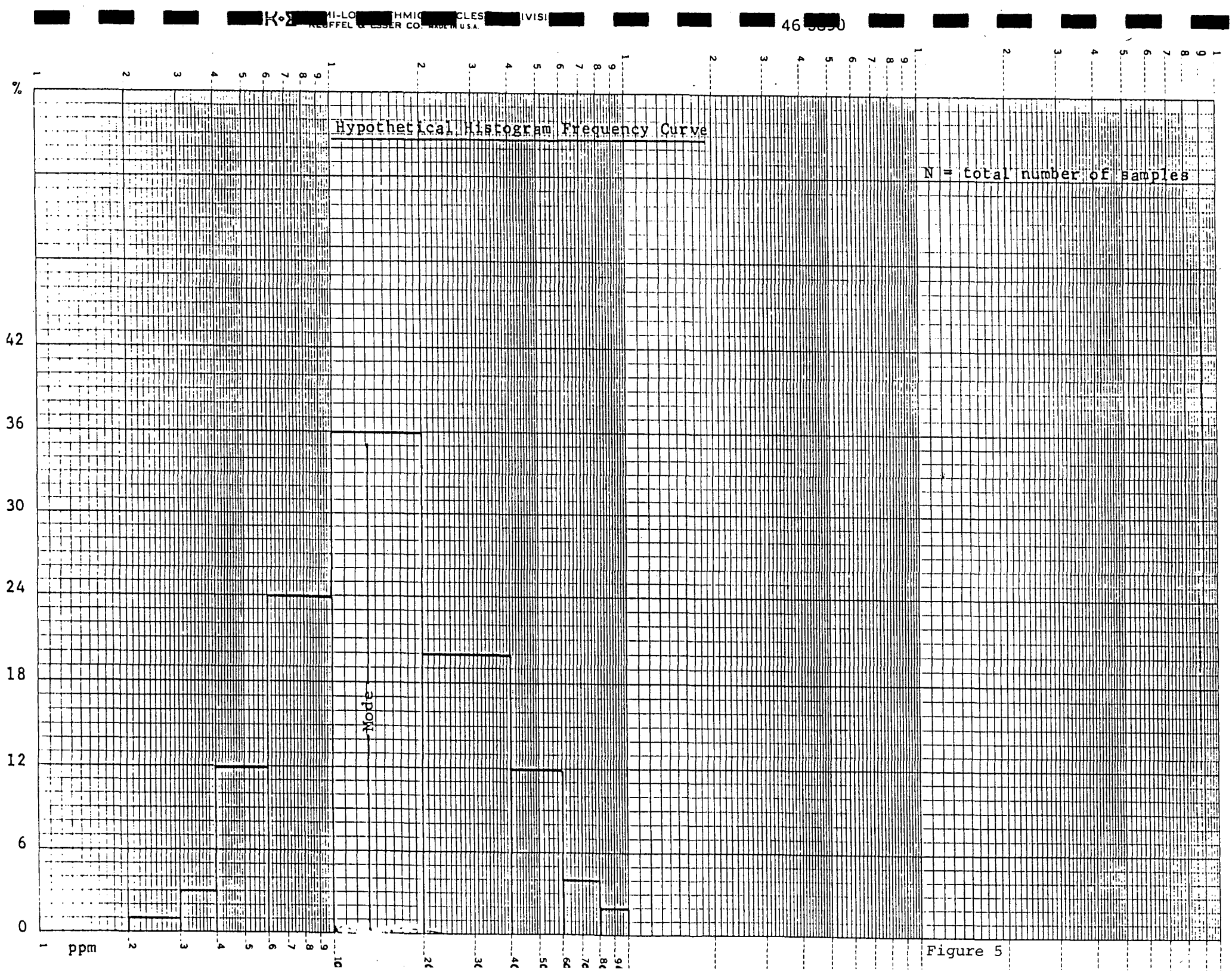

Hypothetical Histogram Frequency Curve
N = total number of samples
%
42
36
30
24
18
12
6
0
ppm
Mode

Figure 5

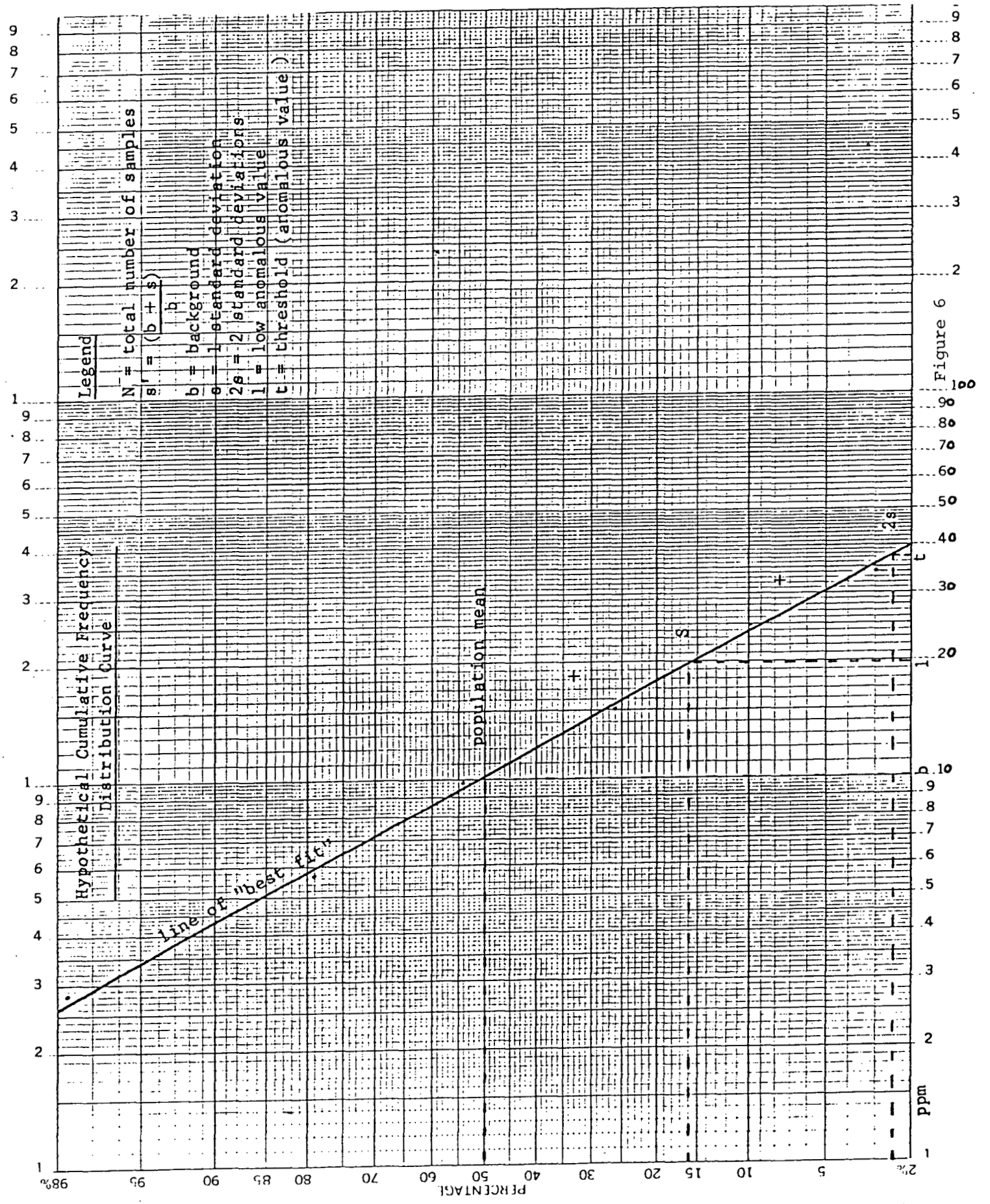
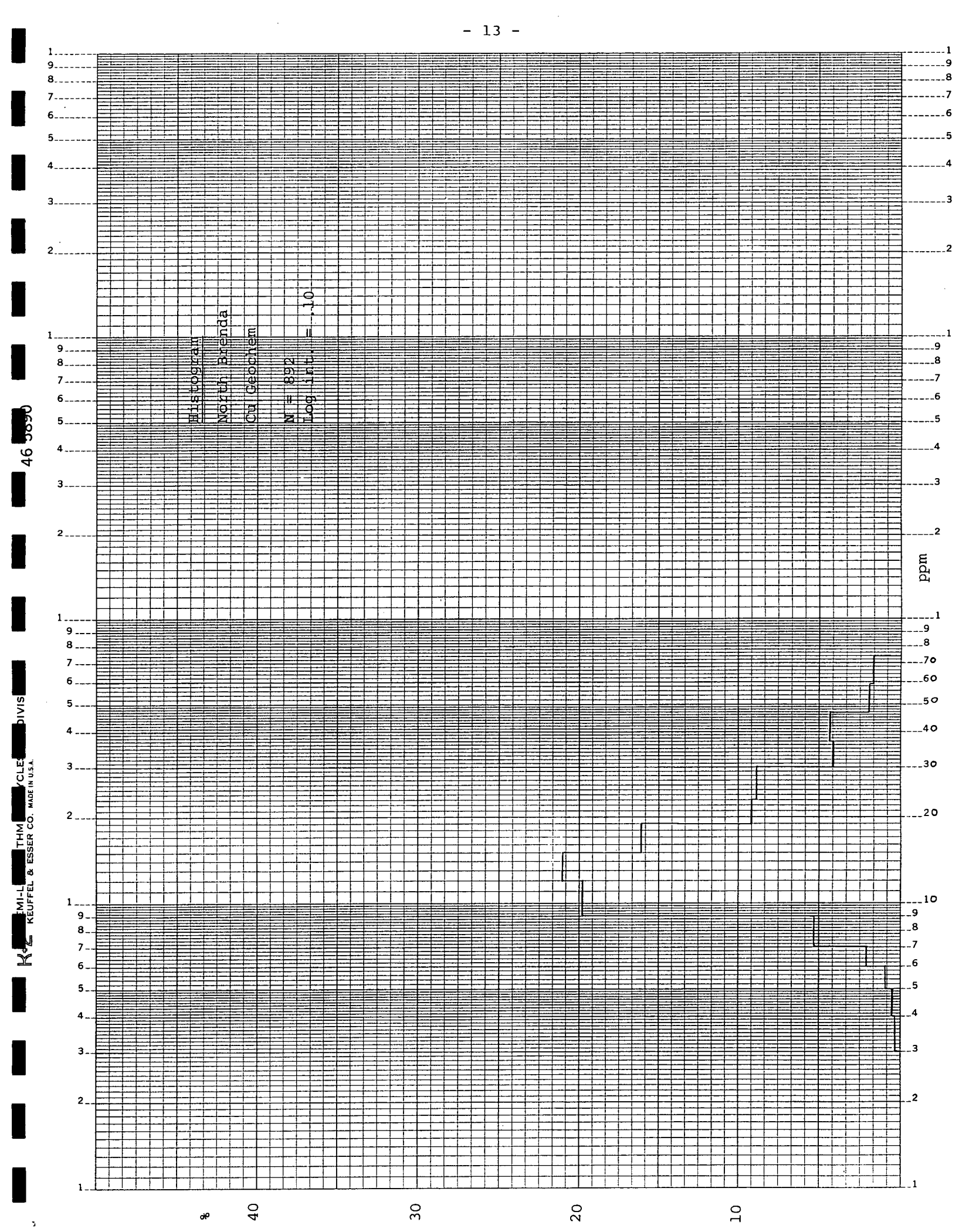
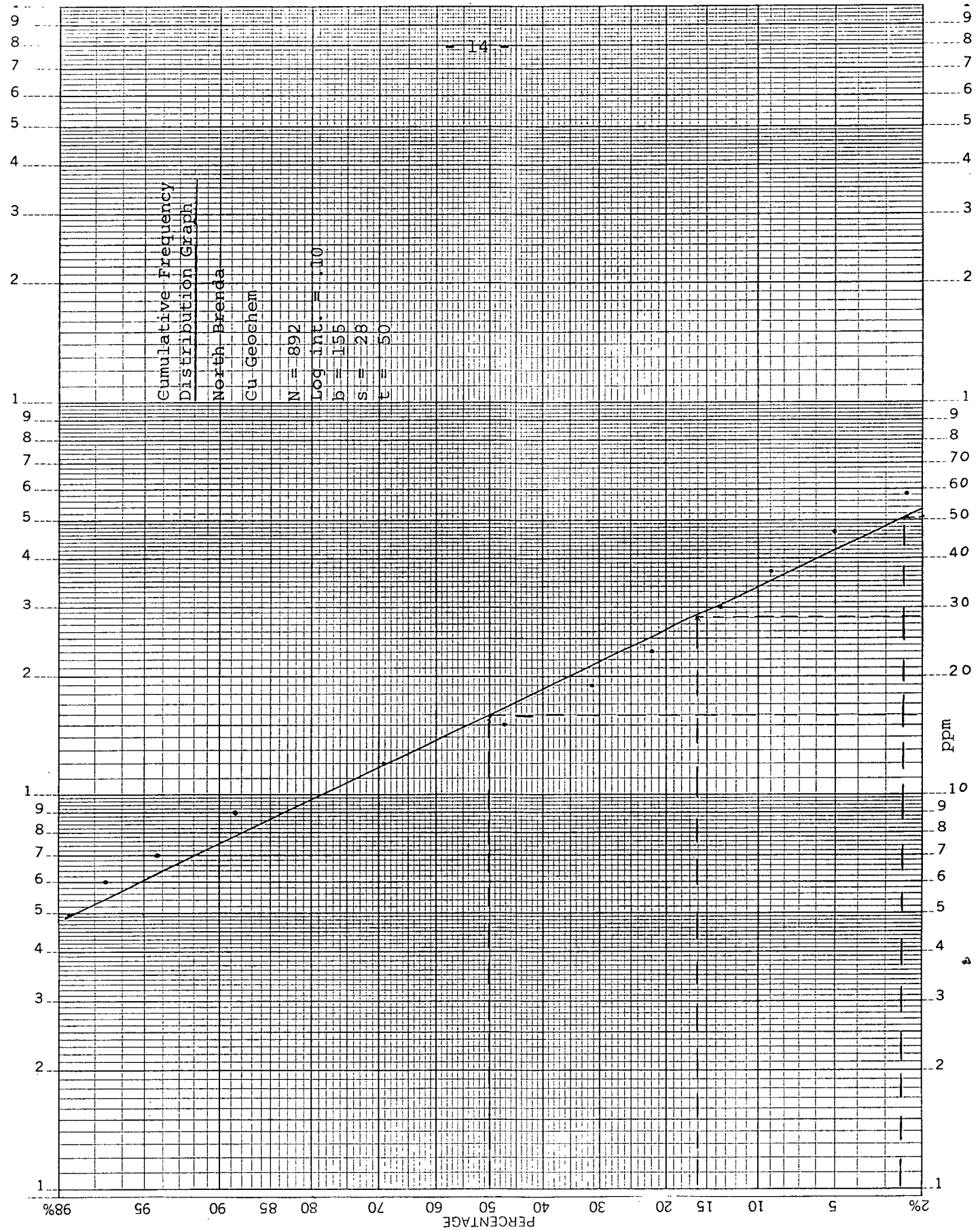

Hypothetical Cumulative Frequency Distribution Curve
Legend
N = total number of samples
s' = (b + s) / b
b = background
s = 1 standard deviation
2s = 2 standard deviations
l = low anomalous value
t = threshold (anomalous value)
Line of "best fit"
population mean
PERCENTAGE
ppm

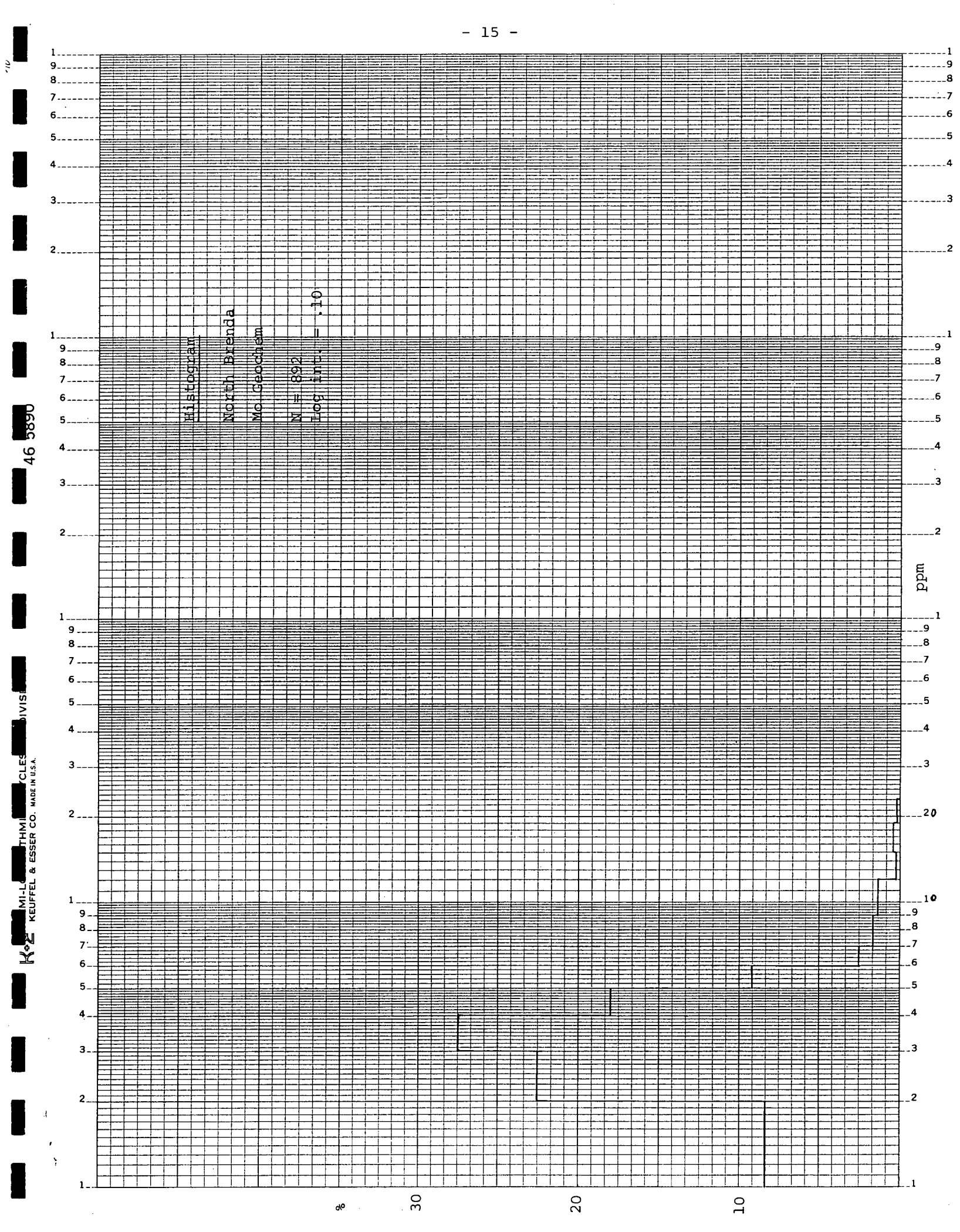
Figure 6

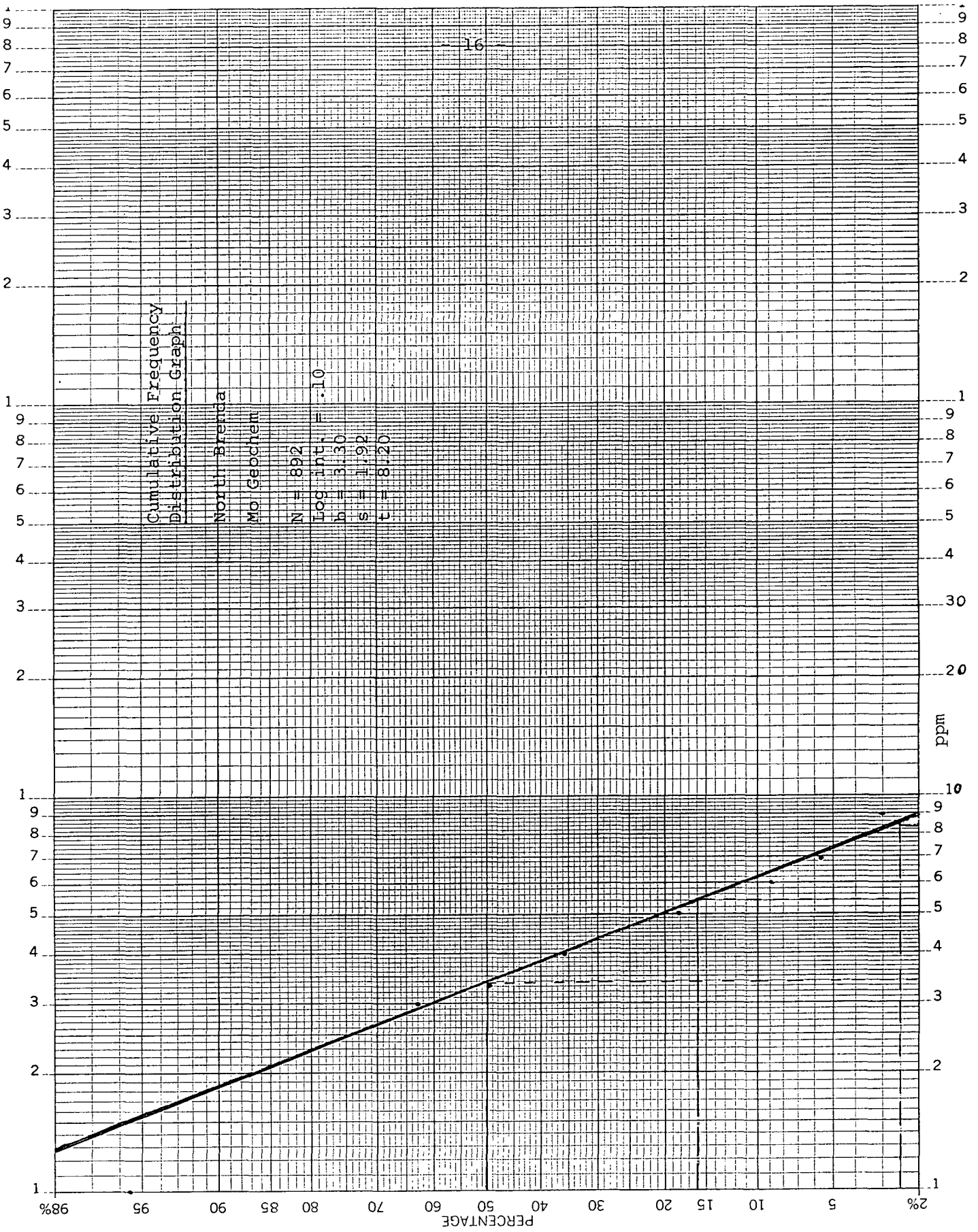

Histogram
North Brenda
Cu Geochem
N = 892
Log int. = .10
ppm
%
40
30
20
10



46 8080

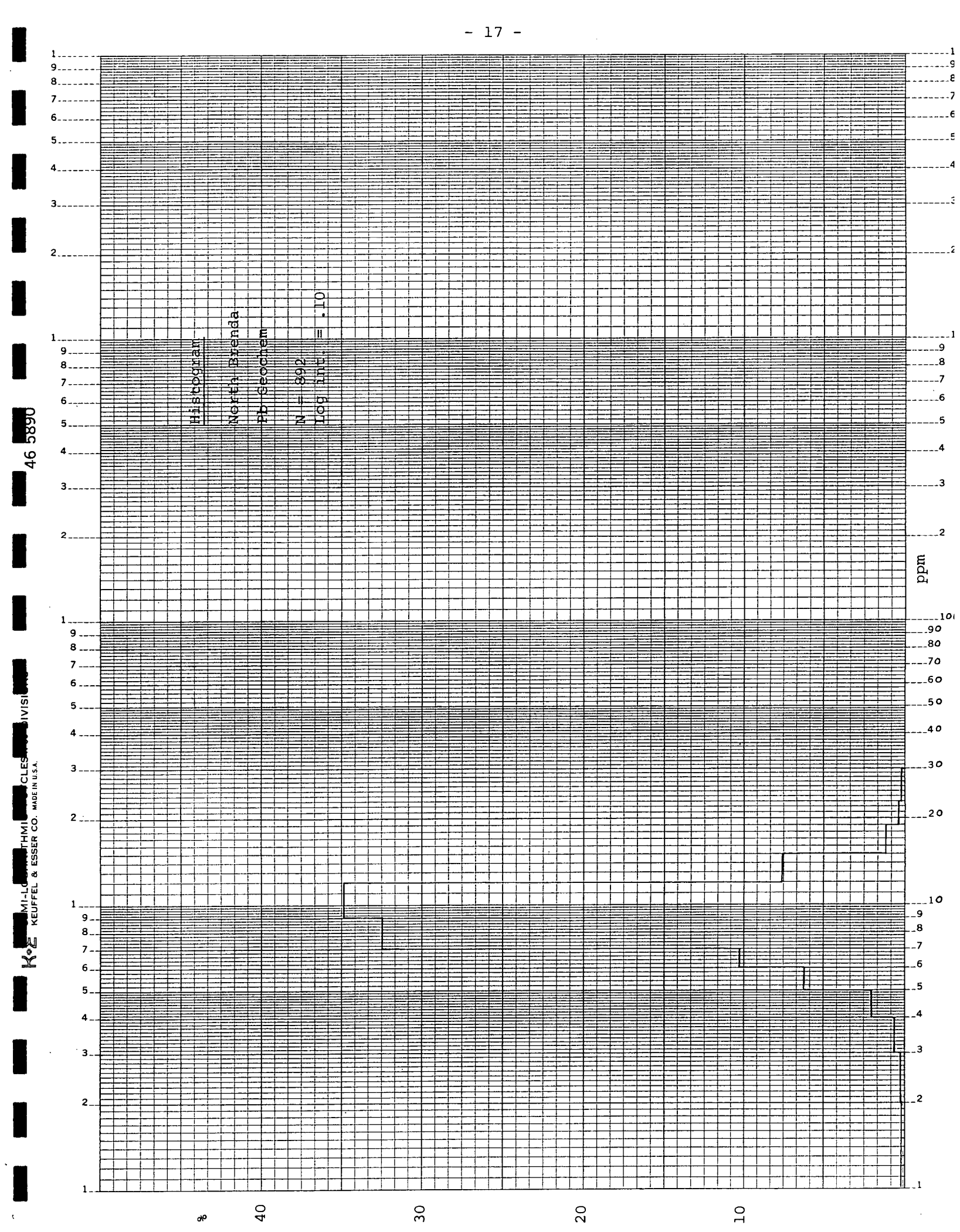
PROBABILITY X 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

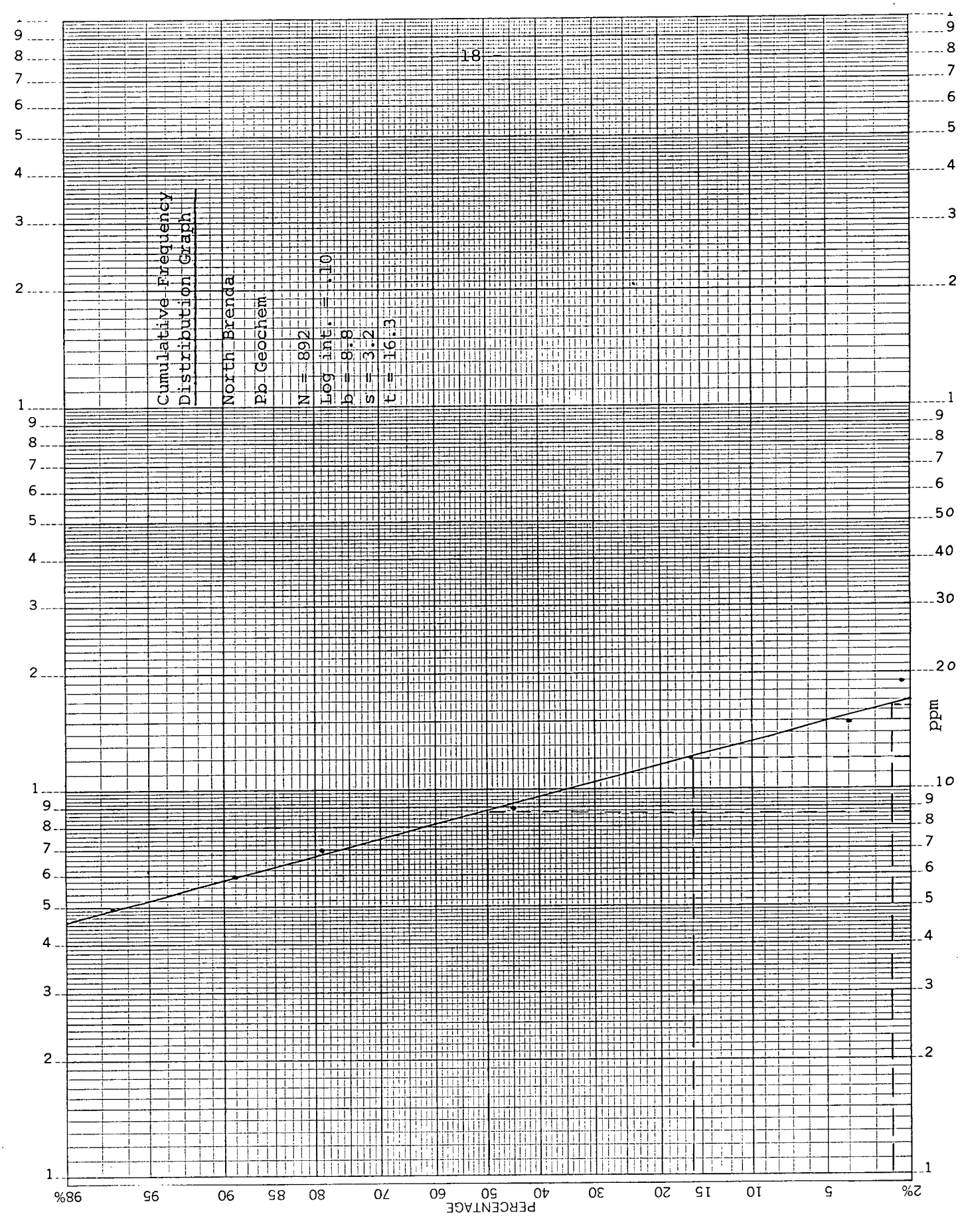




46 8080

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


Histogram
North Brenda
Pb geochem
N = 392
Log Int. = .10
ppm
%
40
30
20
10
46 5890
KEUFFEL & ESSER CO. MADE IN U.S.A.



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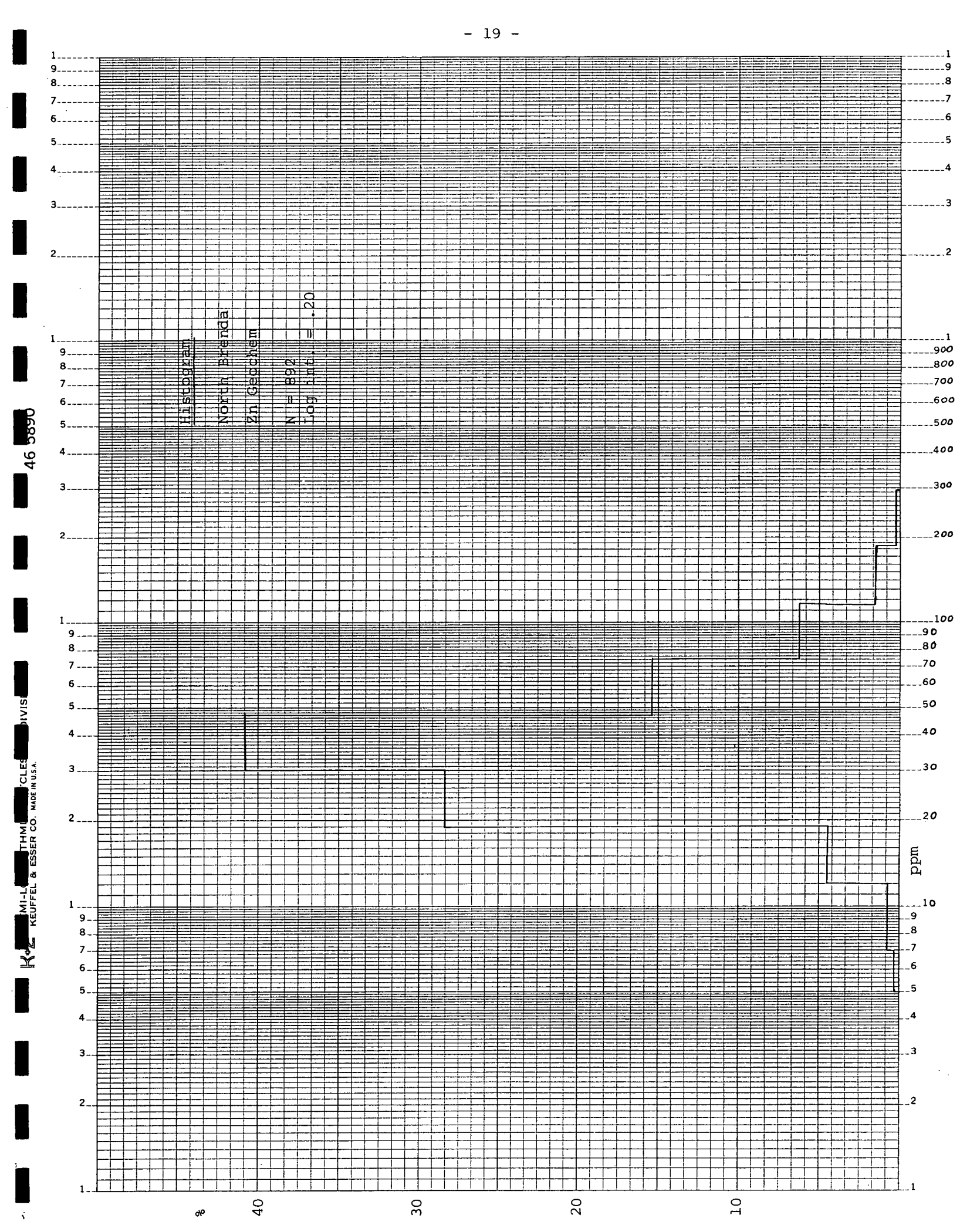
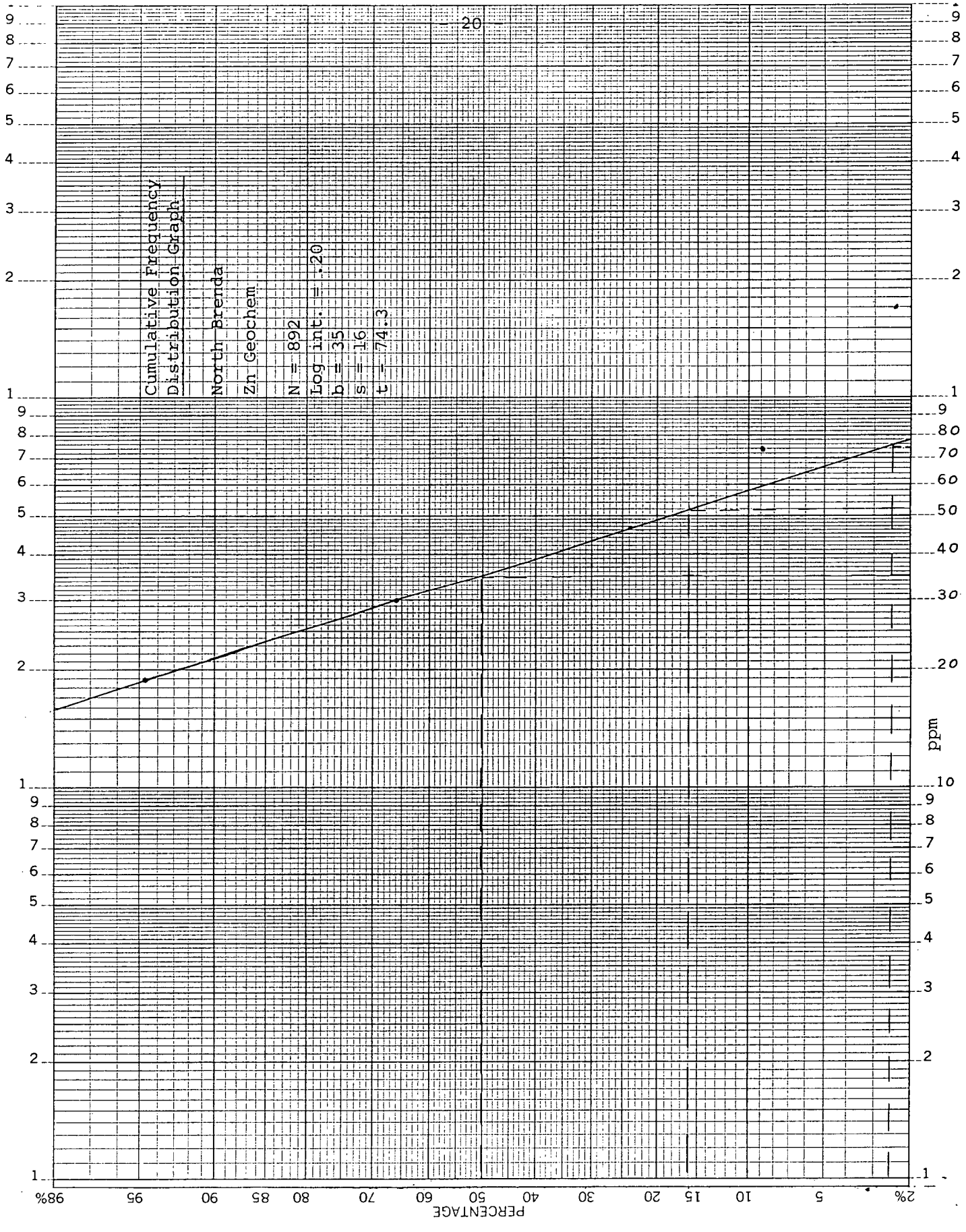
PROBABILITY X 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.


Histogram
North Brenda
Zn Geochem
N = 862
Log inc. = .20
ppm
%
40
30
20
10



46 8080

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

VI CONCLUSION

The geochemical survey, done as a preliminary evaluation, has shown that the area is only weakly mineralized or that the soil geochemistry is perhaps not applicable. Field observations noted considerable thickness of overburden over much of the property.

The mineralization in outcrop is restricted to a single showing located at coordinates 4,000 north, 2,300 east. This occurrence consists of one or more quartz veins which host only sporadic molybdenite blebs.

APPENDIX I

PREPARATION of SOILS and SILTS for GEOCHEMICAL ANALYSIS

1. Empty soil sample into the pan and then place the sample packet into the pan with the sample.

2. Place the pan containing the sample into the oven (Temp=105 C) and leave until dry approx. 2 hours.

3. Remove from the oven when dry and remove rocks and twigs etc.

4. Break up the clay lumps with a rubber bung and then transfer the sample to an 80 mesh screen.

5. Screen approx. 50 - 100 grams of sample through the screen and transfer to the original packet and seal.

6. Discard the +80 mesh fraction of the sample.

ANALYSIS by A.A. for Cu, Pb, Zn, Ag and Mo.

1. Weigh 2.00 GM on the top pan balance into a 150 ML beaker (check that beaker No. is the same as written on work sheets)

2. Add 15 MLS Nitric Acid, cover with watchglass and heat on low heat until brown Nitrous fumes are gone.

3. Remove beakers from hot plate, cool for 5 minutes.

4. Add 10 ML Hydrochloric Acid. Place on hot plate. When all brown Nitrous fumes are gone, remove watchglasses and take just to dryness on a low plate.

5. Remove from plate, cool, add 20 MLS distilled water, 5 MLS Conc. Hydrochloric Acid and boil salts into solution.

6. Cool in water bath, when cold transfer to 100 MLS Volumetric flask, add 1 MLS Superfloc solution and dilute to 100 MLS with distilled water.

7. Mix thoroughly and then transfer to original beaker.

8. When all samples ready, transfer to A.A. room for reading.

9. If Mo is required, 10.00 MLS of this solution is transfered to a test tube and 1.00 MLS of ALC_3 solution added.

APPENDIX II

STATEMENT of QUALIFICATIONS

I, Paul Bankes, of the town of Peachland, Province of British Columbia, do hereby certify that:

1) I am a geologist residing in Peachland with Post Office Box 9 as my address.

2) I am a graduate of the University of Western Ontario, with a BSc in geology (1978).

3) I have been employed as an exploration geologist by Brenda Mines Ltd. since April 1978.

P.C. Bankes, BSc
Exploration Geologist
Brenda Mines Ltd.

Date

STATEMENT of QUALIFICATIONS

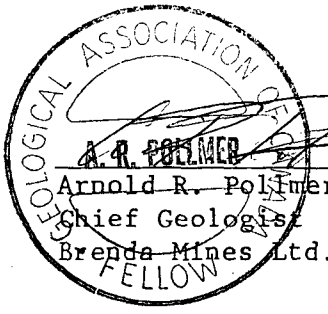
I, Arnold R. Pollmer of Peachland, Province of British Columbia, *do certify that:*

1) I have been employed as a geologist by Noranda Mines Limited from December 1973 to June 1977; I am presently employed as the chief geologist by Brenda Mines Ltd.

2) I am a graduate of the University of Wisconsin with a Bachelor of Science Degree in Geology (1972).

3) I am a member of the Canadian Institute of Mining and Metallurgy.

4) I am a fellow of the Geological Association of Canada.



A. R. POLLMER

Arnold R. Pollmer
Chief Geologist
Brenda Mines Ltd.

APPENDIX III

Statement of Costs

1) Line Cutting and Geochem Survey

August 16 - November 3, 1980; 7 days; 892 samples; 39 kilometres of line @ $82.50/line kilometre	$3,218.81

2) Food and Other Camp Expenses

August 16 - 20, 1980; 5 days; $15.85/man day for 4 men	317.14

3) Transportation

Truck Rental	
August 16 - November 3, 1980; 7 days @ $15.00/day	105.00
Fuel Costs	
August 16 - November 3, 1980; 7 days	146.42

4) Assay Costs

892 samples analyzed for Cu, Mo, Pb and Zn @ $2.37/sample	2,107.00

5) Report Preparation

a) Writing and Drafting	
April 1 - 10, 1981; 8 days @ $80.00/day	640.00
b) Typing	
April 13, 1981; 1 day @ $50.00/day	50.00
c) Supplies	
Paper, etc.	45.00
TOTAL	$6,629.37

SHEET No. ..... ACCOUNT No. .....

NAME BRENDA MINES LIMITED TERMS

ADDRESS P.O. Box 420, Peachland, B. C., V0H 1X0 RATING

☆o CREDIT LIMIT

DATE		DESCRIPTION	FOLIO	✓	DEBITS	✓	CREDITS	DR. OR CR.	✓	BALANCE
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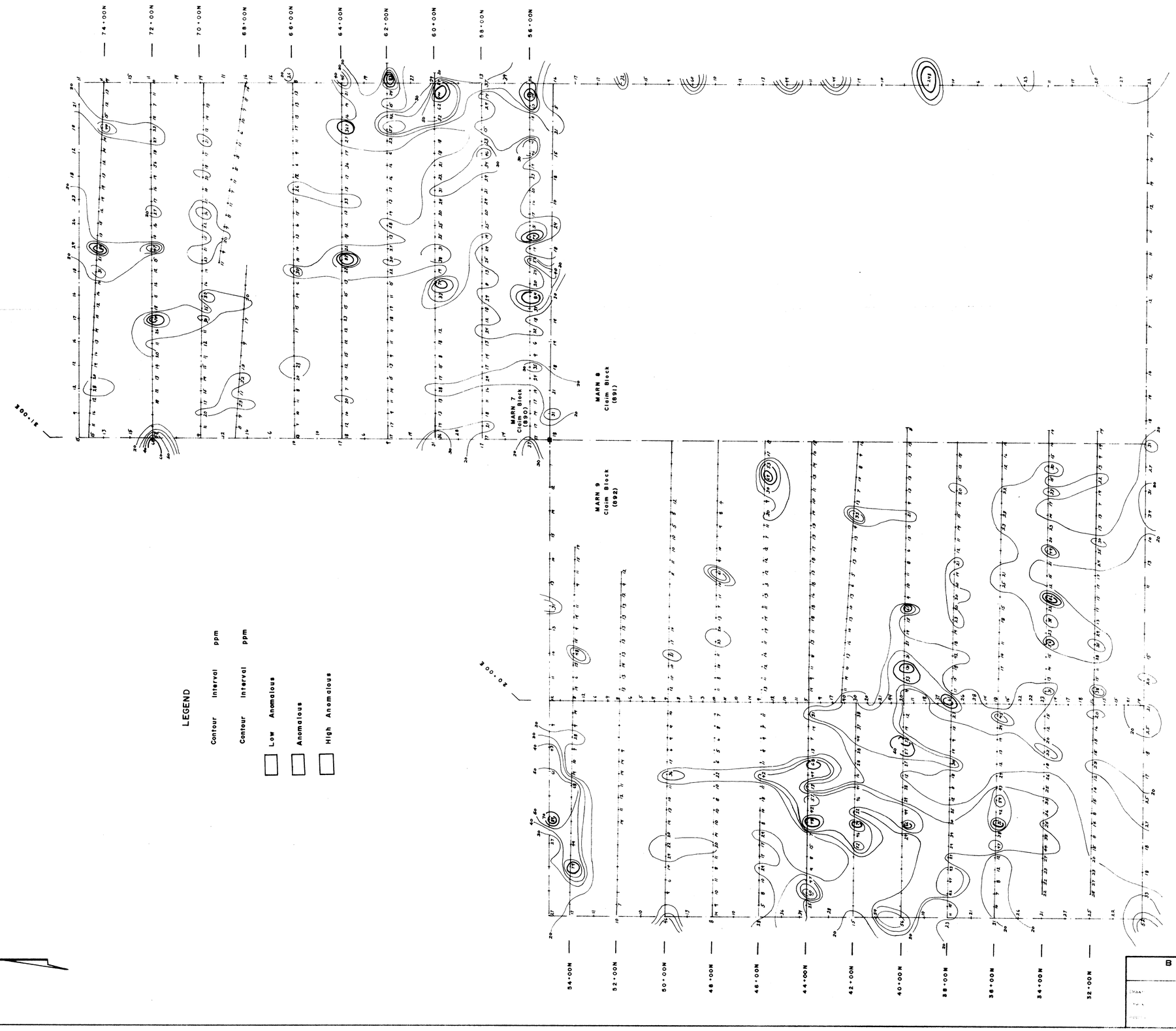
May28	80	A.R. 7829 MM					11687 73			36027 05



LEGEND

Contour Interval ppm

Contour Interval ppm

Low Anomalous

Anomalous

High Anomalous

Scale 1:7,500

200 0 200 400 600 800 1,000 Meters

BRENDA MINES LTD.
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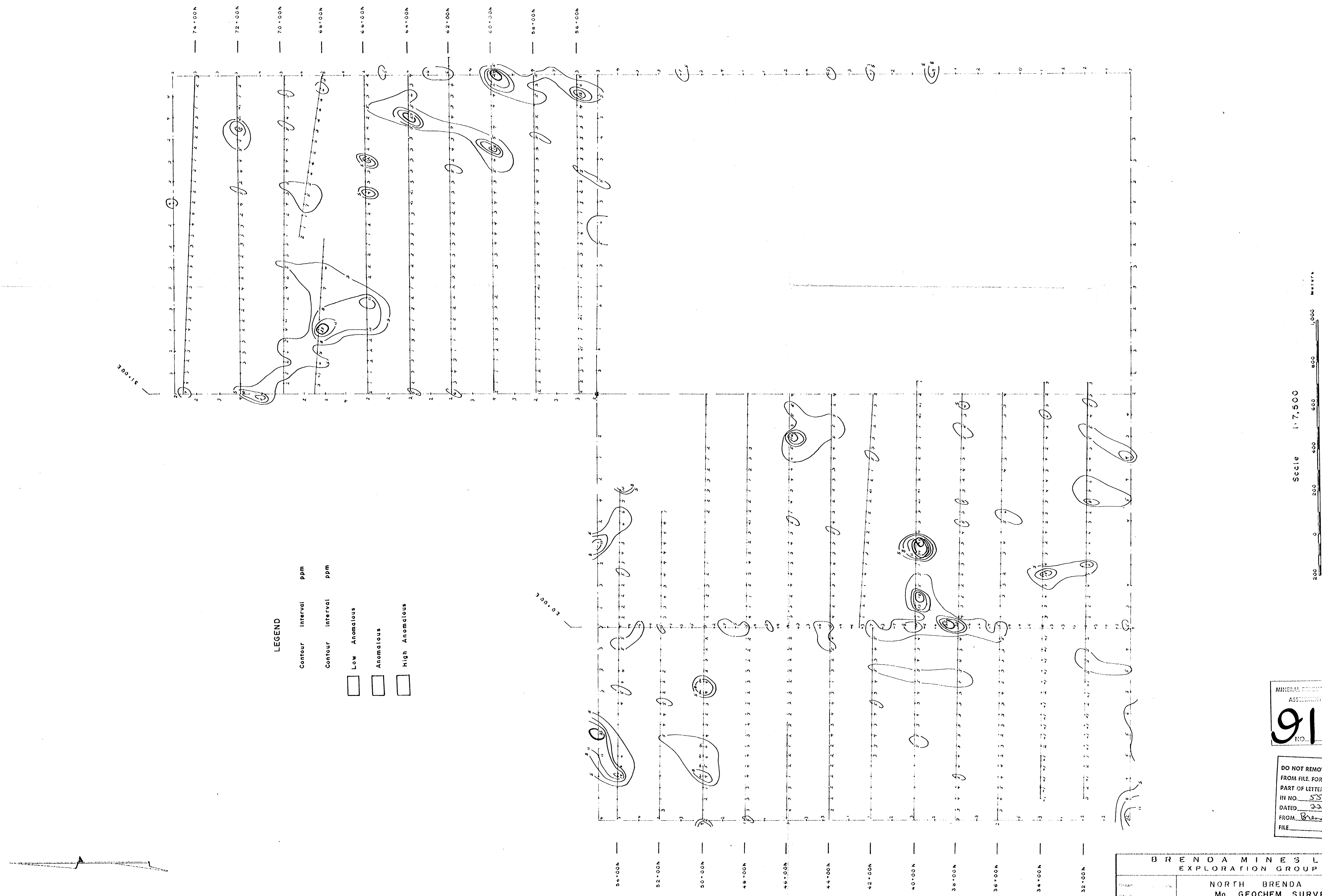
NORTH BRENDA
Cu GEOCHEM + CLAIM MAP

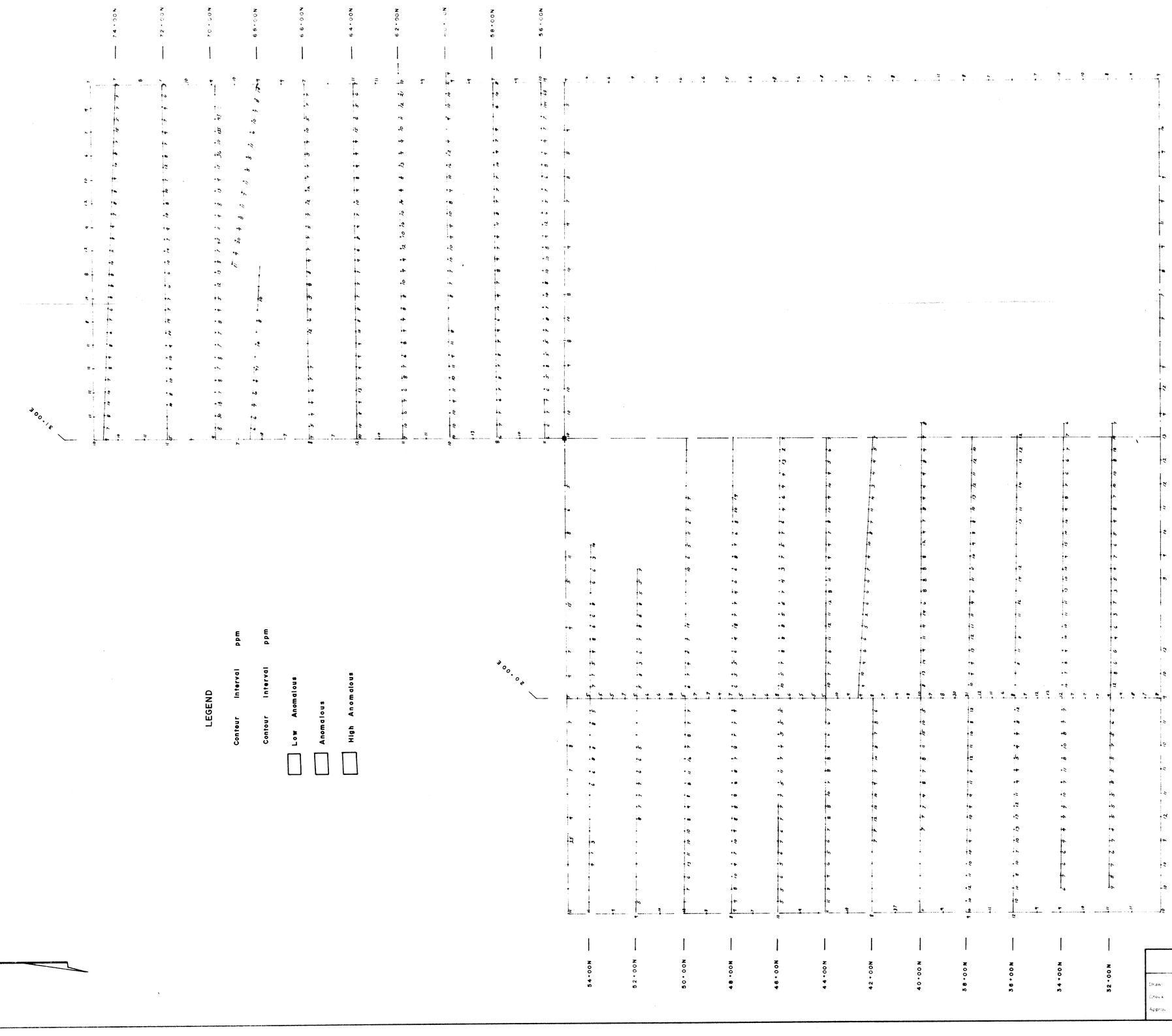
1:7,500 Figure 15



BRENDA MINES LTD.
EXPLORATION GROUP

NORTH BRENDA
Mo. GEOCHEM SURVEY

Drawn		
Check		
Approv	SCALE 1:7,500	FILE No. Figure 16



LEGEND

Contour Interval ppm

Contour Interval ppm

Low Anomalous

Anomalous

High Anomalous

BRENDA MINES LTD.
EXPLORATION GROUP

Drawn
Check
Approved

NORTH BRENDA
Pb. GEOCHEM SURVEY

SCALE 1 : 7,500 | FILE No. Figure 17


74+00N
72+00N
70+00N
68+00N
66+00N
64+00N
62+00N
60+00N
58+00N
56+00N
54+00N
52+00N
50+00N
48+00N
46+00N
44+00N
42+00N
40+00N
38+00N
36+00N
34+00N
32+00N
300+1E
300+0E
LEGEND
Contour interval ppm
Contour interval ppm
Low Anomalous
Anomalous
High Anomalous
Scale 1:7,500
200 0 200 400 600 800 1000 Meters
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
9167
DO NOT REMOVE
FROM FILE. FORMS
PART OF LETTER
IN NO. 5055
DATED 22.5.81
FROM Brenda Mines
FILE
BRENDA MINES LTD
Zn GEOCHEM SURVEY
Figure 18