

This report has been examined by the Geological Evaluation Unit and is recommended to the Commission to be considered as representation work in the Yukon Territory.

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[Signature]

Resident Geologist or
Resident Mining Engineer

Considered as representation work under
Section 22 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

GEOLOGICAL AND GEOCHEMICAL REPORT
ON THE

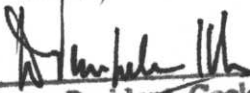
LEM 1-11 CLAIMS



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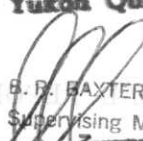
This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$ 4,400.00



Resident Geologist or
Resident Mining Engineer

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


B. F. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory



000158

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

LEM 1-11 CLAIMS

Mayo Mining Division

N.T.S.: 105 M/14

63°54'N Latitude, 135°14'W Longitude

Located Approximately 2.2 km East of Keno Hill, Y.T.

Owned by:

CANADA TUNGSTEN MINING CORPORATION LIMITED
Executive Office
Box 12525, Oceanic Plaza
Ste. 1600-1066 W. Hastings St.
Vancouver, B.C. V6E 3X1

Work by:

BEMA INDUSTRIES LTD.
19945-56th Avenue
Langley, B.C. V3A 3Y2

D.N. Bonnar, B.Sc.

G. Norman, B.Sc.

K.E. Northcote, Ph.D., P.Eng.

November, 1980

ABSTRACT

The LEM claim group consists of 11 contiguous claims which are wholly owned by Canada Tungsten Mining Corporation Limited. These claims are located in the Mayo Mining District, 2.2 km east of the Keno Hill townsite. They are underlain by rocks of the Central Quartzite and the Upper Schist Formations. A B-horizon soil survey completed on the 9 claims underlain by Central Quartzite Formation has delineated several areas containing anomalous amounts of lead, zinc and silver.

Further work proposed on the LEM claims includes bulldozer trenching of geochemical anomalies, a vector pulse EM survey on two specified areas of the LEM 1 and 3 claims and a survey of the claims.

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

LEM 1-11 CLAIMS

1.0 INTRODUCTION

Bema Industries Ltd. was engaged by Canada Tungsten Mining Corporation Limited to carry out a geological exploration program on their wholly owned LEM claims. This work was done between June and September, 1980 and included grid preparation, a geochemical soil survey and prospecting.

The claims covered by this season's work include LEM 1-9 inclusive. The field work was undertaken by a crew that varied from one to five men.

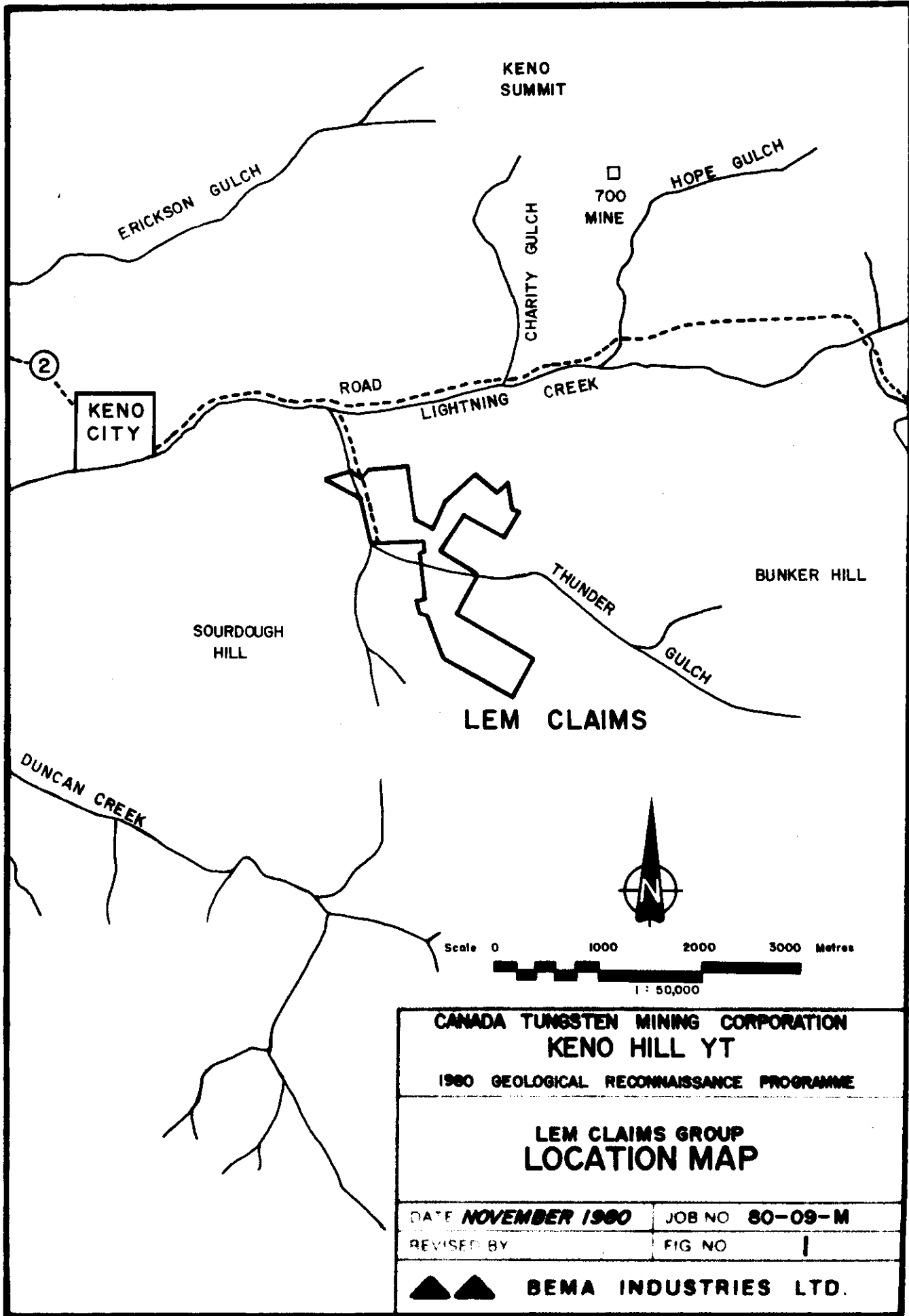
The purpose of the investigation on the LEM claims is to locate a high grade silver-lead vein of the type prevalent in the Keno Hill - Galena Hill area.

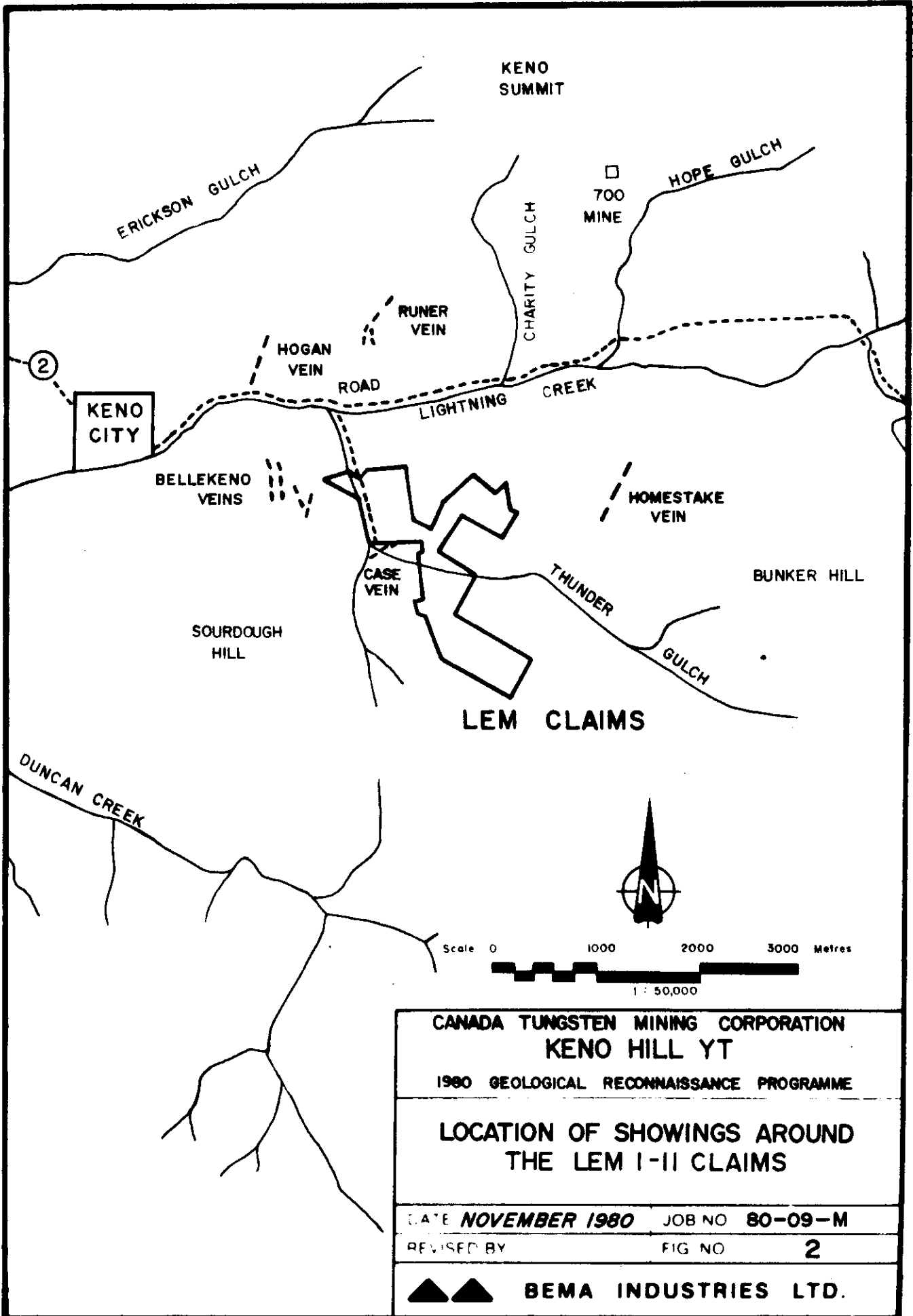
This report describes the results of this season's work and gives recommendations for further exploration of the LEM property.


1.1 LOCATION AND ACCESS

The LEM claim group is located 2.2 km east of Keno Hill townsite in the Yukon Territory, centered on 63°54'N latitude and 135°14'W longitude (N.T.S.: 105 M/14). The claims straddle Thunder Gulch with part of the claims located on the eastern slope of Sourdough Hill and part on the western slope of Bunker Hill (see Figure 1).

Access to the LEM claims is by a gravel road servicing a small gold placer operation on Thunder Gulch. This road has recently been upgraded and extended by the owner of the adjacent CASE claims. Old bulldozer roads criss-cross over a large proportion of the LEM 1-8 claims, allowing easy access to all parts of the claims.





CANADA TUNGSTEN MINING CORPORATION KENO HILL YT	
1980 GEOLOGICAL RECONNAISSANCE PROGRAMME	
LOCATION OF SHOWINGS AROUND THE LEM I-II CLAIMS	
DATE NOVEMBER 1980	JOB NO 80-09-M
REVISED BY	FIG NO 2
 BEMA INDUSTRIES LTD.	

1.2 PROPERTY

The 11 contiguous LEM claims are owned outright by Canada Tungsten Mining Corporation Limited. The present expiry date of these claims is November 14, 1985. A list of the claims and grant numbers is shown in Table 1.

TABLE 1

<u>CLAIM NAME</u>	<u>GRANT NO.</u>	<u>EXPIRY DATE</u>	<u>OWNERSHIP</u>
LEM 1	YA 17395	Nov. 14, 1985	Canada Tungsten
LEM 2	YA 17396	Nov. 14, 1985	Canada Tungsten
LEM 3	YA 17397	Nov. 14, 1985	Canada Tungsten
LEM 4	YA 17398	Nov. 14, 1985	Canada Tungsten
LEM 5	YA 17399	Nov. 14, 1985	Canada Tungsten
LEM 6	YA 17400	Nov. 14, 1985	Canada Tungsten
LEM 7	YA 17401	Nov. 14, 1985	Canada Tungsten
LEM 8	YA 17402	Nov. 14, 1985	Canada Tungsten
LEM 9	YA 17403	Nov. 14, 1985	Canada Tungsten
LEM 10	YA 17404	Nov. 14, 1985	Canada Tungsten
LEM 11	YA 17405	Nov. 14, 1985	Canada Tungsten

1.3 HISTORY

The LEM claims were staked in November 1977 by Y. Lemieux and A. Arsenault and were purchased by Canada Tungsten Mining Corporation Limited in February, 1979.

Although no written record of previous work has been located, there is evidence that a limited amount of exploration work has been done on the claims. On the LEM 4 claim there are several pits and hand cobbled trenches which indicate a former interest in this area. Because these trenches now contain vegetation, this work was probably completed over ten years ago.

In 1979 Bema Industries Ltd. established a grid over all 11 (eleven) LEM claims. Geological mapping on this grid consisted primarily of mapping float which is thought to reflect underlying bedrock. This study established an approximate contact between the Central Quartzite and the Upper Schist Formation.

1.4 BIBLIOGRAPHY

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- Franzen, J., 1979 - Metal Ratio Zonation and Ore Control: A Model for the Keno Hill Silver Camp; (Talk at Seventh Geoscience Forum Whitehorse, Yukon Territory).
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- Sinclair, A.J., 1976 - Applications of Probability Graphs in Mineral Exploration. Special Vol. No. 4, The Association of Exploration Geochemists.
- Tempelman-Kluit, D.J., 1977 - Stratigraphic and structural relations between the Selwyn Basin Pelly Cassiar Platform and Yukon Crystalline Terrane in the Pelly Mountains, Yukon; in Report of Activities, Part A, G.S.C. Paper 77-1A, p. 223-227.
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- 1966 - K-Ar Isotopic Ages, Report 7: G.S.C., Paper 66-17, pp. 44-48.
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- 1973 - Age determinations and Geological Studies - K-Ar Isotopic Ages, Report 11: G.S.C., Paper 73-2, pp. 27.

1.5 PRESENT EXPLORATION WORK

Exploration work on the LEM claims during the 1980 field season commenced in late June when a grid was established on 9 of the 11 claims, work continued intermittently until September 13, 1980. LEM claims 10 and 11 were not included in the grid because they are underlain by the Upper Schist Formation which is not considered to be a favourable host for ore deposition. B-Horizon soil samples were taken at 60 meter intervals from lines spaced 60 meters apart. After the soil samples had been analysed for Pb, Zn and Ag, using standard atomic absorption methods, geochemical anomalies were prospected for vein float.

Other exploration work on the LEM claims included minor geological mapping (scale - 1:5,000) and the transfer of geology and claim locations from a 1:2,500 scale map to the 1:5,000 scale orthophoto coverage.

1.6 PHYSIOGRAPHY

The LEM claims lie on the northwest flank of the Gustavus Range which is a subdivision of the Yukon Plateau. Straddling Thunder Gulch, the claims partially occupy the east slope of Sourdough Hill and the west slope of Bunker Hill. They range in elevation from 1060 meters to 1425 meters a.s.l.

The LEM 3 claim, located on the steep east slope of Bunker Hill, has deep moss and sparse tree cover. The remaining 10 claims are on gentle slopes on both sides of eastward trending Thunder Gulch. Overburden is nearly continuous over these claims with less than 1% rock exposure and the area is covered by thick "buck" brush and scattered stands of spruce.

2.0 GENERAL GEOLOGY

The Keno Hill - Galena Hill area is located in the Central Yukon at the northwestern end of the Selwyn Basin. The Selwyn Basin is a Pb-Zn-Ag bearing province which covers central Yukon, western N.W.T. and north central B.C. The basin is bounded to the east in the MacKenzie Mountains by a marginal carbonate shelf facies. To the west, the basinal shale facies gives way to the carbonate shelf complex of the Pelly-Cassiar Fold Belt or terminates abruptly against the Tintina Trench. The Tintina trench, which passes 100 km south of Keno Hill, contains a strike-slip fault with 450 km of right-lateral displacement (Tempelman-Kluit, 1977).

The rocks underlying the Keno Hill - Galena Hill area are predominantly metasediments of the Yukon Group. Until recently the Yukon Group was thought to be Pre-Cambrian in age. Boyle (1965) considered the section to be a simple homocline of metasediments of probable Pre-Cambrian age. Tempelman-Kluit (1970) and Green (1971) have interpreted Mesozoic ages for the Lower Schist (Jurassic) and Central Quartzite (Lower Cretaceous) Formations and a Pre-Cambrian age for the allochthonous Upper Schist Formation. Blusson (1978) suggested the Lower Schist and Central Quartzite Formations resemble the Upper Devonian to Mississippian Canol and Imperial Formations.

The Lower Schist Formation consists predominantly of graphite and chlorite-sericite schists with minor intercalated quartzites. It is conformably overlain by the Central Quartzite Formation.

The Central Quartzite Formation consists of thick and thin-bedded quartzite with intercalated graphitic phyllite, argillite and schist.

Overlying the Central Quartzite Formation is the Upper Schist Formation. This contact may be conformable (Boyle, 1965) or may be a thrust fault (Green, 1971). The Upper Schist Formation consists primarily of quartz-mica schists, graphitic schists and thin-bedded quartzites with minor limestone lenses.

This stratigraphic sequence has been intruded by several phases. The oldest of these phases is the greenstone sills. These sills, originally dioritic to gabbroic in composition, now occur as lens-shaped "boudins" or "tectonic fish", probably as a result of strong structural deformation. These boudins are discontinuous but tend to align, en echelon, in certain stratigraphic horizons.

The second plutonic phase in the area is the granitic rocks which have intruded along the hinge zone of the Mayo Lake Anticline. These intrusions range from quartz monzonite to diorite in composition and give radiometric ages between 81 Ma and 109 Ma (Wanless, et. al., 1966, 67, 71, 73; Armstrong, 1978; cited by Tessari, 1979).

The youngest intrusions in the area are dykes and sills of biotite lamprophyre and quartz-feldspar porphyry. As these two units have not shown cross-cutting relationships their relative ages cannot be ascertained.

In the Keno Hill - Galena Hill area there have been at least two periods of structural deformation (Green, 1971). The oldest period of deformation recognized involved isoclinal and recumbent folding and extensive bedding-plane movement. Rocks involved in this deformation developed a strong foliation and retained few original structures. Many of the greenstones have been foliated which indicates they were intruded prior to this period of deformation. However, it has been postulated that some of the larger greenstone sills were intruded during this period of deformation (Green, 1971). The intensity of this period of deformation is indicated by the boudinage of the pre-existing greenstone sills. It has also been hypothesized that during this deformation the Upper Schist Formation was thrust over the Central Quartzite and Lower Schist Formations. The existence of this thrust fault is controversial in the Keno area.

The second period of deformation superimposed open folds and a pervasive wrinkle lineation on the already deformed rocks. The broad northwest trending, southeast plunging Mayo Lake Anticline formed during this period of deformation. Later, during this same period of deformation, two subsidiary anticlines, the McQuesten River and Lynx Creek anticlines, formed (Tessari, 1978). These sub-parallel structures trend northeast-southwest and plunge to the west. The Keno Hill - Galena Hill area is on the southern limb of the McQuesten River Anticline.

Granitic rocks were then emplaced in the sequence after the second period of deformation.

The vein faults and cross faults both postdate the younger deformation as they contain fragments of lineated phyllites (Green, 1971). Several periods of movement in the vein faults is evidenced by brecciation of ore minerals.

The relative ages of the vein and cross faults to the period of mineralization are controversial. This is an extremely important relationship as 95% of the district's silver production is from deposits associated with cross faults. It is clearly evident that cross faults postdate vein faults as many vein faults are offset by cross faults. Boyle (1965) considers that the cross faults are post-mineralization and the presence of cross faults in nearly every mine is fortuitous. However, Franzen (1979) states that the cross faults are pre-mineralization and acted as barriers to ore solutions. Thus cross faults have localized mineralizing solutions creating ore pods.

Ore contained in vein faults generally consists of galena and sphalerite in a quartz siderite and pyrite gangue. The silver-bearing ore consists of galena, freibergite, pyrargyrite and native silver. Lead is recovered from galena and zinc and cadmium are recovered from sphalerite.

2.2 LOCAL GEOLOGY

The LEM claims are underlain by the Central Quartzite and Upper Schist Formations. It is thought that angular float directly reflects underlying bedrock geology. Where sparse outcrops are found there is a perfect lithologic correlation between the float and outcrop.

LEM #1-7 claims only locally contain abundant quartzite float. LEM 8 has numerous outcrops of dark grey quartzite containing local 2 to 7 centimeters wide quartz "sweats"; some outcrops have interbedded phyllite. Bedding attitudes vary from 065° to 105° and dips measured were 16° to 35° south.

In the southern part of the claim group, sparse float suggests a north-south trending contact between quartzite on the west and schist and phyllite on the east. Outcrops on LEM 10 and 11 claims to the southeast verify this change in rock type. On these claims rusty quartz-sericite schist and black graphitic phyllite crop out. Foliation attitudes measured were east-west with shallow southerly dips. Float on LEM 10 and 11 is predominantly schist and phyllite but there are also some areas of dark grey quartzite float.

2.2 CENTRAL QUARTZITE FORMATION

Outcrops of Central Quartzite are predominantly massive beds thirty (30) centimeters to two (2) meters in thickness and commonly contain thin interbeds of graphitic phyllite,

phyllitic quartzite and phyllite. The interbeds vary from two (2) centimeters to one meter in thickness and constitute less than ten percent of any given sequence of Central Quartzite Formation.

In detail, the colour of the quartzite varies from white to dark grey with intermediate colours being the most common. Light to dark grey bands ranging in size from one to five millimeters are visible locally and may represent original sedimentary layers.

A phyllitic foliation is present in many quartzite samples. Platy minerals causing this foliation are fine to coarse grained muscovite and graphite.

2.3 UPPER SCHIST FORMATION

Both quartz-sericitic and graphitic varieties of schist are found on the LEM claims. Both schists are strongly foliated and crenulated; small drag folds are common.

Quartz boudins are abundant. These range in thickness from one to five centimeters with lengths from five (5) to fifty (50) centimeters.

2.4 ECONOMIC GEOLOGY

Thus far no vein faults have been located on the LEM 1-11 claims.

3.0 GEOCHEMICAL SURVEY

A total of 343 soil samples were collected from the LEM 1-9 claims. The samples were taken from the B-soil horizon at 60 meter intervals from cross lines spaced 60 meters apart. The samples were placed in Kraft paper bags, air dried and shipped to Bondar-Clegg & Company Ltd., 36B Industrial Road, Whitehorse, Y.T., for analyses. The samples were processed using a hot Lefort aqua regia extraction and analysed for Ag, Pb and Zn by atomic absorption.

Statistical evaluation of the geochemical data (see Appendix I), utilizing a frequency graph and a cumulative frequency curve, resulted in the following contour intervals: 84, 130, 260 ppm Zn; 1.5, 2.0, 4.0 ppm Ag and 22, 40, 80 ppm Pb. These correspond to threshold, anomalous and twice anomalous values respectively.

Results of this survey delineated several anomalous areas (see Map 2, 3, 4). The LEM 3 claim gave anomalous values for virtually all samples in Pb, Zn and Ag (the highs being 254 ppm Pb, 239 ppm Zn, 11.0 ppm Ag). These anomalous values may have resulted from drainage of metal-charged groundwaters from the above Bellekeno properties or a parallel vein fault crossing the top of the claim.

Other anomalies of possible significance occur on the LEM 1, 4, 6 and 8 claims (see Table 2).

TABLE 2

GEOCHEMICAL ANOMALIES

ANOMALY #	LOCATION	HIGH VALUES			COMMENTS
		Pb ppm	Ag ppm	Zn ppm	
1	all of LEM 3 claim	254	11.0	239	defined by approximately 15 samples
2	northeast corner of LEM 1	96	18.4	229	defined by 4 samples
3	central LEM 4	41	.9	78	weak northeasterly trend shown by 3 samples in Pb values only
4	east LEM 4	80	4.0	286	defined by 2 samples
5	LEM 6 southeastern boundary	76	4.0	170	trending northeast on claim boundary
6	LEM 8 western edge	58	2.0	121	defined by 2 samples

4.0 CONCLUSIONS

The LEM claims are considered to have a high mineral potential for the following reasons:

1. the claims are underlain predominantly by the Central Quartzite Formation,
2. there are several prominent Pb, Zn, Ag soil geochemical anomalies on the property.

These attributes fully justify further exploration on the LEM claims.

On the basis of work completed in 1980 the following priorities are established:

- (a) Investigation of anomalous soil geochemistry on the LEM 3 claim.
- (b) Investigation of other geochemical anomalies.
- (c) Extrapolation of known structures onto the property.

5.0 RECOMMENDATIONS

1. It is proposed that the LEM 1-11 claims be surveyed and their exact locations plotted on the orthophoto. In addition, all exterior claim boundaries which are in the proximity of areas where work is planned should be clearly flagged. This would ensure that physical work will not be done on adjacent properties.
2. It is recommended that a vector pulse EM (VPEM) survey be carried out on the LEM 1 - CASE 3 boundary and on the LEM 3 claim.
4. It is proposed that linear geochemical and/or geophysical anomalies be tested by bulldozer trenching. Approximately two weeks of bulldozer trenching would be required to adequately investigate geochemical soil anomalies 1, 2 (Table 2). An additional 10 days of bulldozer trenching should be set aside for either follow-up trenching on anomalies 1, 2, 3, 4 or for trenching anomalies 5 and 6. Diamond drilling may be required on high priority anomalies where overburden is too deep for trenching.

Report by:

David N. Bonnar

David N. Bonnar, B.Sc.
Geologist

G. Norman Nov 19/80

George Norman, B.Sc.
Senior Project Geologist

K.E. Northcote

K.E. Northcote, Ph.D., P.Eng.
Geological Supervisor

STATEMENT OF QUALIFICATIONS

The field work and report preparation was done by the following persons whose qualifications are outlined below:

David N. Bonnar

Completed B.Sc. in Geology at Carleton University in 1980. He has been employed for two field seasons in mineral exploration for Giant Yellowknife Mines Ltd. Has been employed by Bema Industries Ltd. since May 7, 1980 under the supervision of G. Norman, B.Sc. and K.E. Northcote, Ph.D., P.Eng.

George Norman

Geologist for Bema Industries Ltd., Langley, British Columbia: Professional Geologist of Alberta, member of the Association of Professional Engineers, Geologist and Geophysicists of Alberta. Completed B.Sc. (Honours Geology) at the University of Alberta in 1973; employed by Imperial Oil during the 1972 field season as a geologist's assistant; employed by Canadian Superior Ltd. from May, 1973 to October, 1973 as a field geologist; employed by Kaiser Exploration Ltd. from November, 1973 to December, 1974 as a field geologist; employed by Utah Mines Ltd. from April, 1975 to March 1980 as a geologist; presently employed by Bema Industries Ltd., as a consultant geologist under the supervision of K.E. Northcote, Ph.D., P.Eng.

.... /2 Statement of Qualifications cont.

I, KENNETH E. NORTHCOTE OF BEMA INDUSTRIES LTD. DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of British Columbia and hold the following degrees:
B.A. Honours Geology, 1953
M.Sc. Geology, 1961
Ph.D. Geology, 1968
2. I am a member of the Association of Professional Engineers of the Province of British Columbia.
3. I have practised as a professional Geologist since 1953, gaining a wide variety of geological experience with petroleum companies, mining companies and Federal and Provincial governments.
4. I have no interest, direct or indirect, in the property or shares of Canada Tungsten Mining Corporation Limited, nor do I expect to receive any such interest.
5. I have supervised the 1980 summer field program on the LEM 1-11 claims and approved the accompanying report for submittal for assessment purposes.

Signed: _____

K E Northcote

K.E. Northcote, Ph.D., P.Eng.
Geological Supervisor

Date: _____

Nov 18, 1980.

APPENDIX I

STATISTICS

APPENDIX I

STATISTICS

Statistical interpretation of the data from the LEM soil samples was done primarily by a graphic method. A cumulative frequency curve, in conjunction with a frequency graph, was utilized to pick threshold and anomalous values. The same population was greater than 340 samples and thus the results are statistically reliable.

Data on the cumulative frequency graph were separated into two populations; a background population and an anomalous population. The upper limit of the background population is the threshold value. The lower limit of the anomalous population is the anomalous value. Values between the threshold value and the anomalous value may or may not be anomalous but as such they are considered to be worthy of note. Values above the anomalous value are herein considered to have originated by concentration of metals from a metalliferous source.

Values of Ag on the cumulative frequency curve give a threshold value of 1.5 ppm Ag and an anomalous value of 2.0 ppm Ag. On the frequency graph a secondary high occurs at 2.0 ppm Ag. This secondary high may occur as a result of a highly anomalous area, such as the LEM 3 claim, causing the graph to skew to the right.

The threshold value for lead is 22 ppm Pb and values above 40 ppm Pb are considered anomalous. Secondary highs occur at 33 ppm and 46 ppm on the Pb frequency graphs. These minor departures from the expected may also be related to the high anomalous LEM 3 area.

The threshold value for Zn is 84 ppm while values above 130 ppm Zn are considered anomalous. Values for Zn on the cumulative frequency curve define two clearly separate populations. Distortion occurs above the 98% level but is not considered significant.

LEM Pb Values from Soil Samples

Sample Interval	Midpoint X	Frequency F	%	Cumulative Percent
1 - 5	3	6	1.75	1.75
6 - 10	8	93	27.11	28.86
11 - 15	13	84	24.49	53.35
16 - 20	18	65	18.95	72.30
21 - 25	23	31	9.04	81.34
26 - 30	28	9	2.62	83.97
31 - 35	33	11	3.21	87.17
36 - 40	38	4	1.17	88.34
41 - 45	43	7	2.04	90.38
46 - 50	48	7	2.04	92.42
51 - 55	53	5	1.46	93.88
56 - 60	58	5	1.46	95.34
61 - 65	63	1	.29	95.63
71 - 75	73	1	.29	95.92
76 - 80	78	3	.87	96.79
91 - 95	93	2	.58	97.38
96 - 100	98	2	.58	97.96
101 - 105	103	2	.58	98.54
136 - 140	138	1	.29	98.83
151 - 155	153	1	.29	99.13
156 - 160	158	1	.29	99.42
191 - 195	193	1	.29	99.71
295 - 300	298	1	..29	100.00

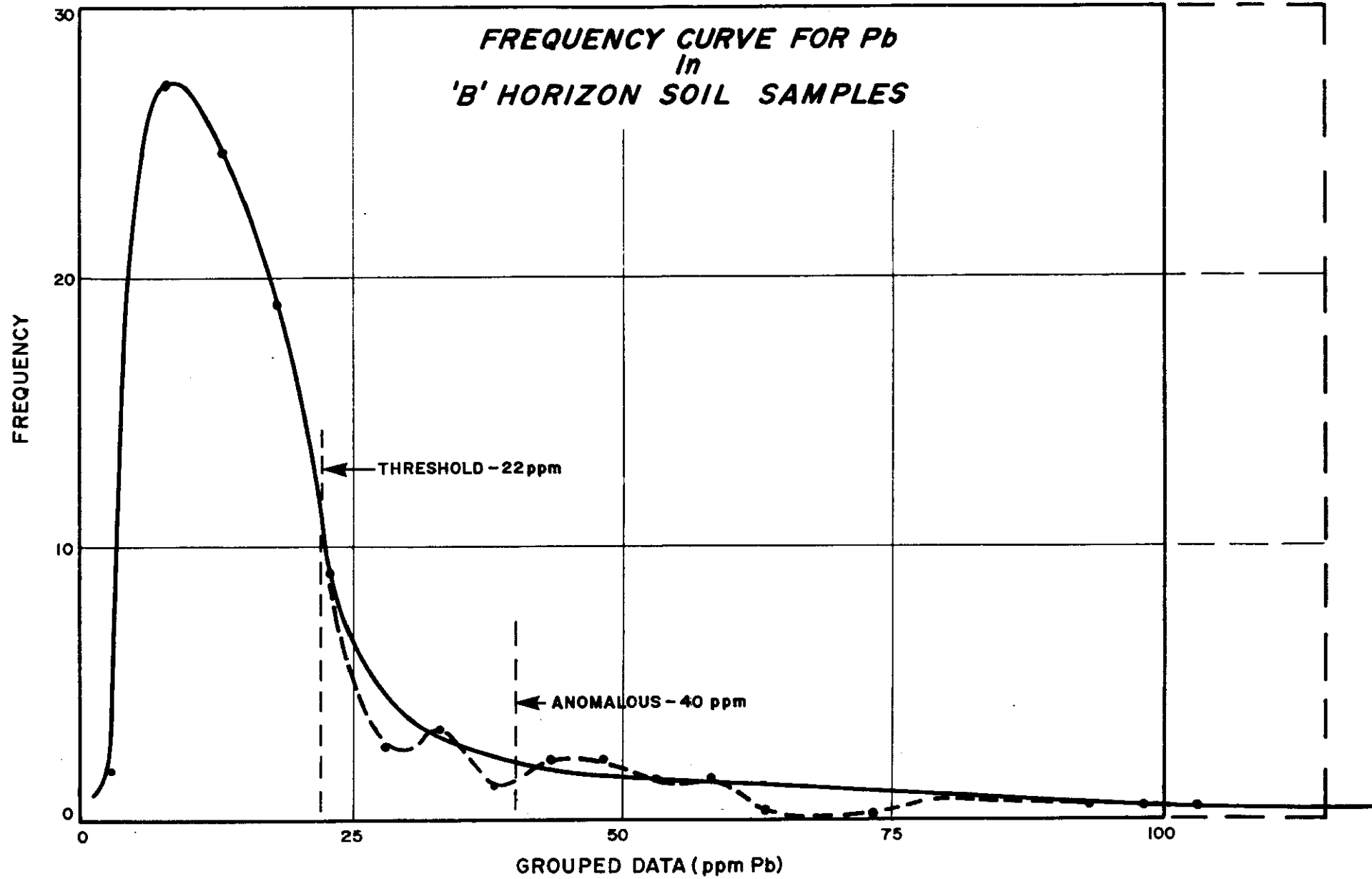
LEM Ag Values from Soil Samples

Sample Interval	Midpoint X	Frequency F	%	Cumulative Percent
.1- .3	.2	86	25.15	25.15
.4- .6	.5	110	32.16	57.31
.7- .9	.8	62	18.13	75.44
1.0- 1.2	1.1	29	8.48	83.92
1.3- 1.5	1.4	22	6.43	90.35
1.6- 1.8	1.7	3	.88	91.23
1.9- 2.1	2.0	10	2.92	94.15
2.2- 2.4	2.3	4	1.17	95.32
2.5- 2.7	2.6	2	.58	95.90
2.8- 3.0	2.9	2	.58	96.48
3.1- 3.3	3.2	1	.29	96.77
3.4- 3.6	3.5	1	.29	97.06
3.7- 3.9	3.8	0		97.06
4.0- 4.2	4.1	2	.58	97.64
4.3- 4.5	4.4	2	.58	98.22
4.6- 4.8	4.7	0		98.24
4.9- 5.1	5.0	1	.29	98.53
5.5- 5.7	5.6	1	.29	98.83
6.4- 6.6	6.5	1	.29	99.12
7.0- 7.2	7.1	1	.29	99.42
10.9-11.1	11.0	1	.29	99.71
18.4-18.6	18.5	1	.29	100.00
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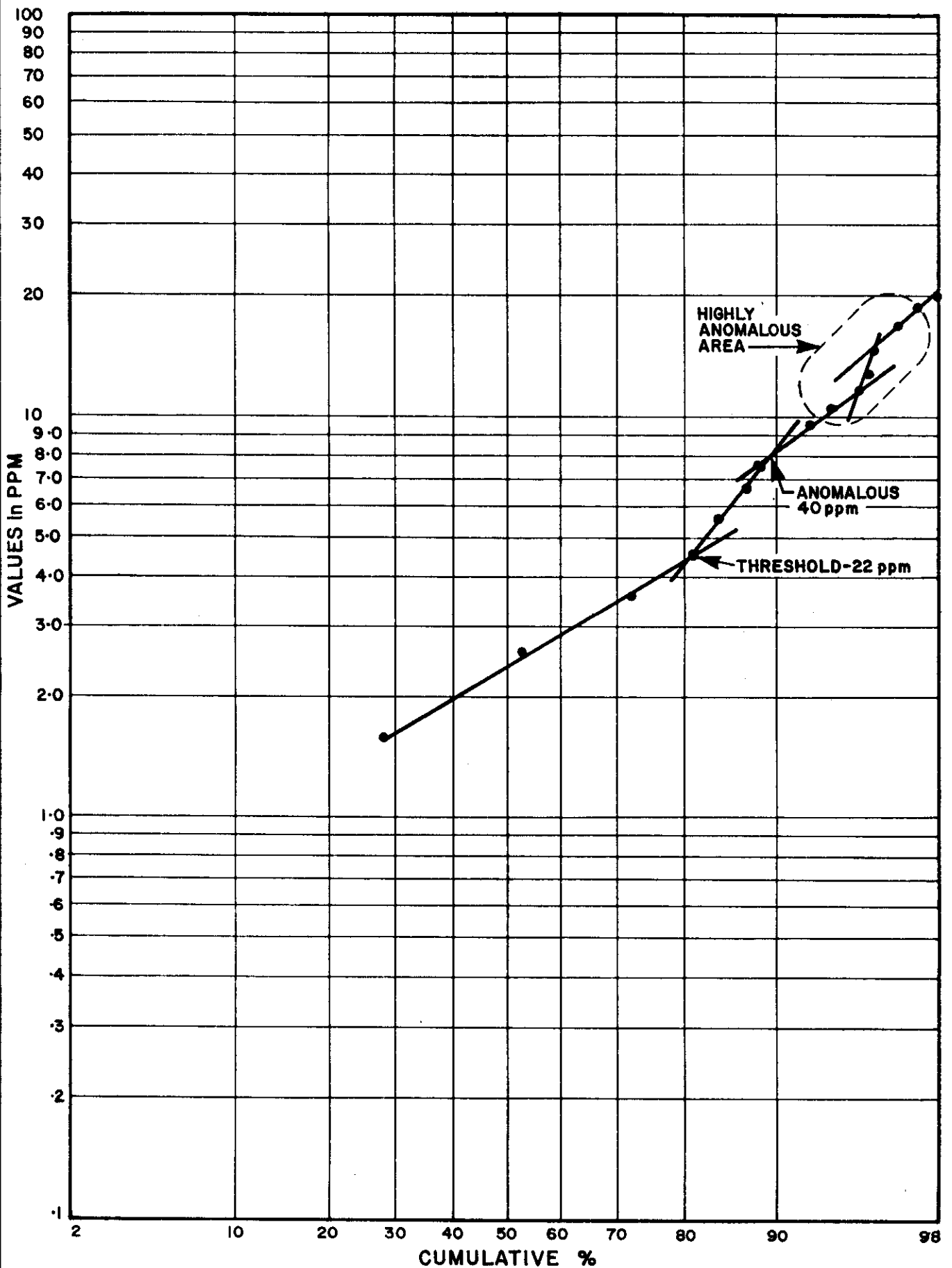
LEM Zn Values from Soil Samples

Sample Interval	Midpoint X	Frequency F	%	Cumulative Percent
1 - 20	10.5	21	6.16	6.16
21 - 40	30.5	104	30.50	36.66
41 - 60	50.5	105	30.79	67.45
61 - 80	70.5	64	18.77	88.22
81 - 100	90.5	20	5.87	92.08
101 - 120	110.5	4	1.17	93.25
121 - 140	130.5	4	1.17	94.43
141 - 160	150.5	7	2.05	96.48
161 - 180	170.5	4	1.17	97.65
181 - 200	190.5	2	.59	98.74
201 - 220	210.5	1	.29	98.53
221 - 240	230.5	4	1.17	99.71
241 - 260	250.5	0	0	
261 - 280	270.5	0	0	
281 - 300	290.5	1	.29	100.00
		<u>341</u>		

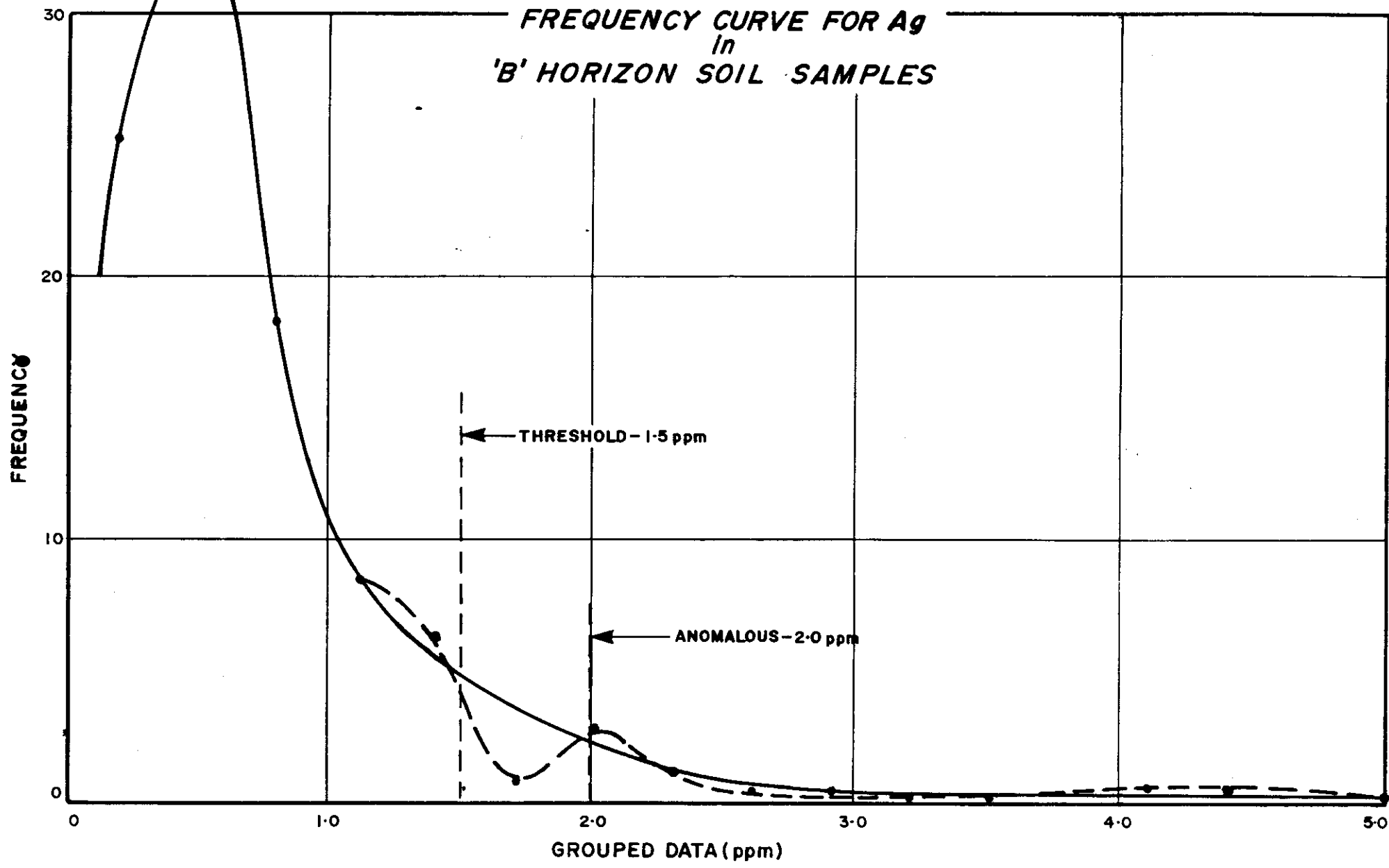
**FREQUENCY CURVE FOR Pb
In
'B' HORIZON SOIL SAMPLES**



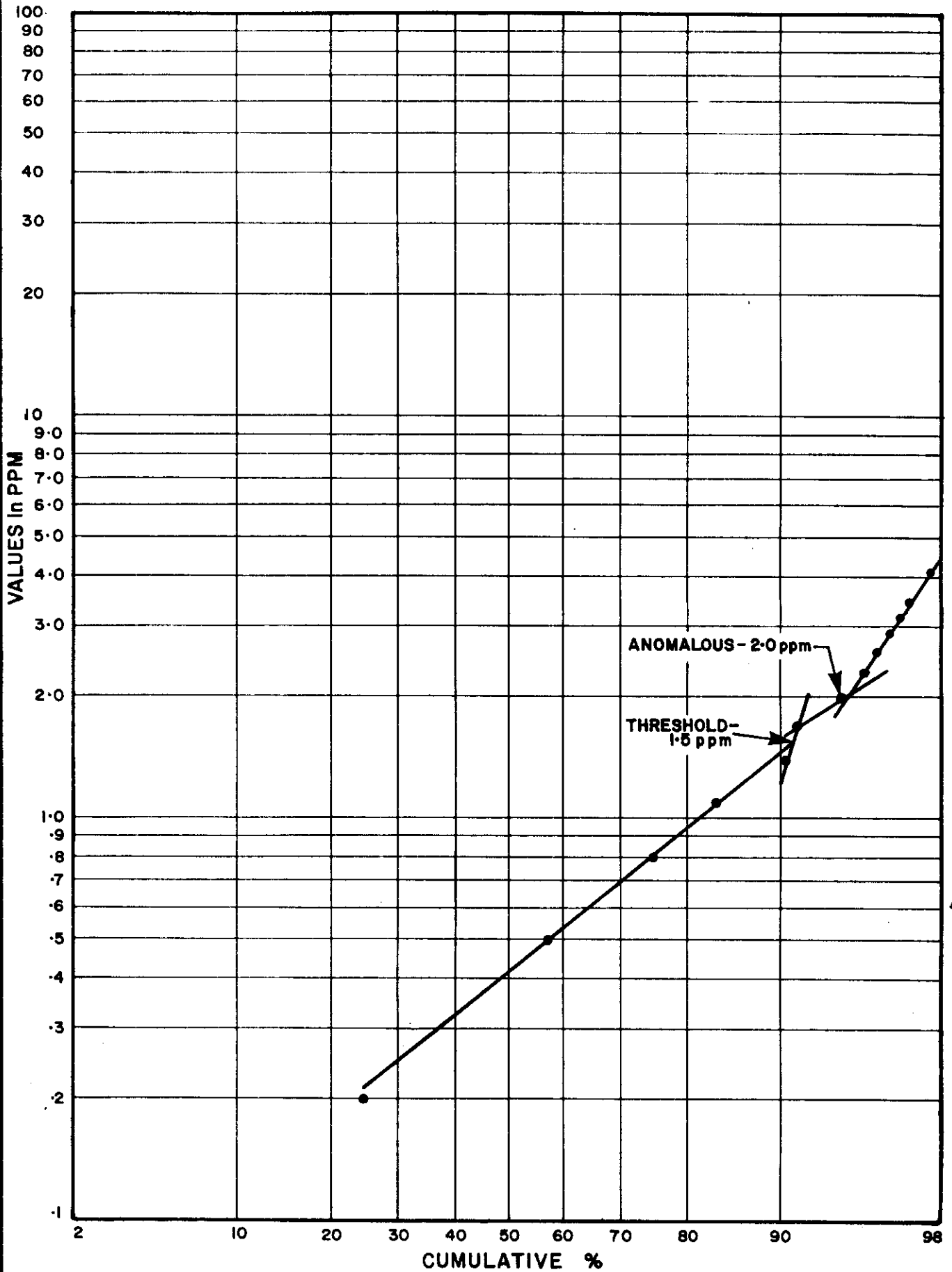
**CUMULATIVE FREQUENCY CURVE FOR Pb
from
'B' HORIZON SOIL SAMPLES**



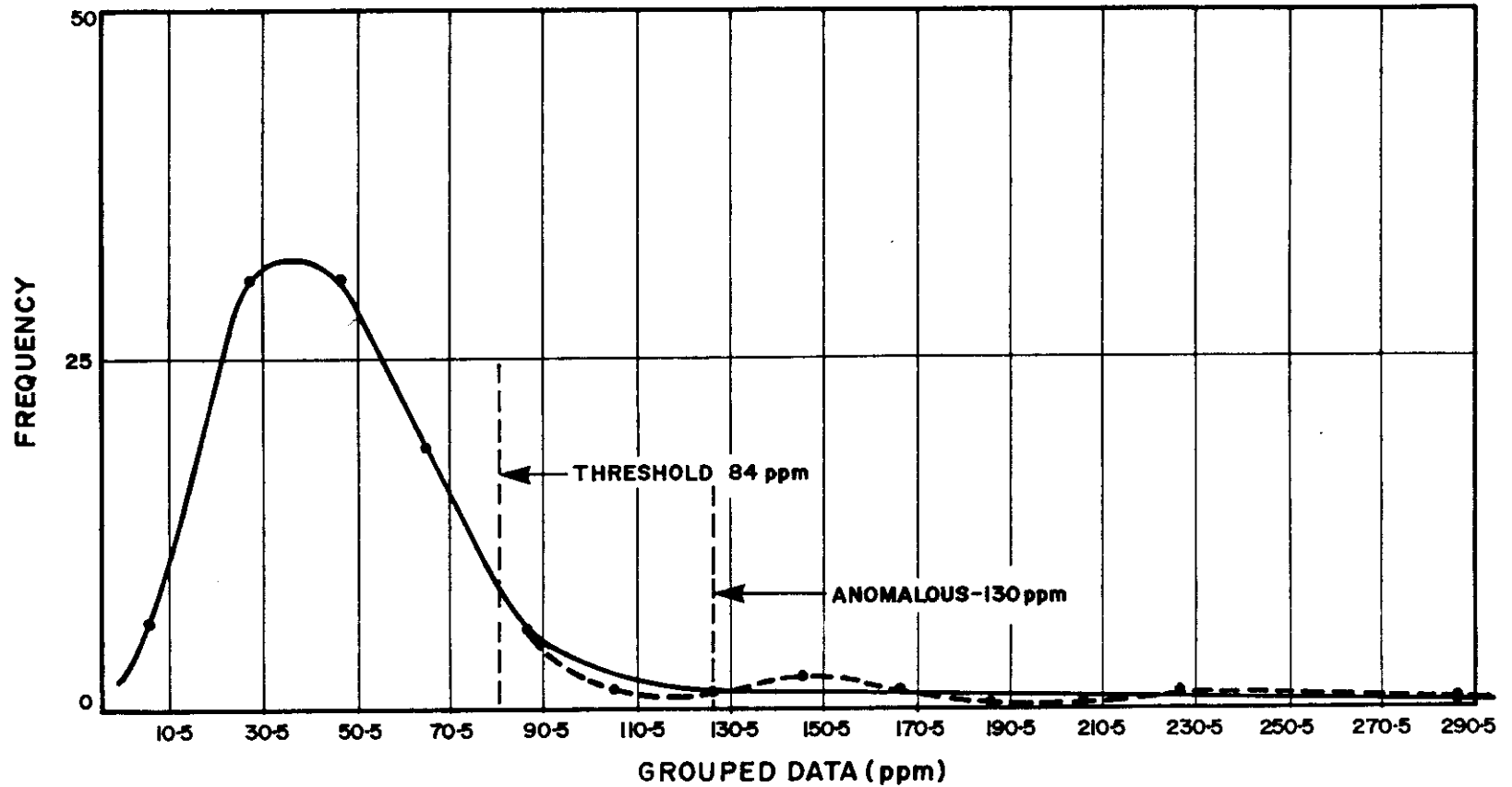
FREQUENCY CURVE FOR Ag
in
'B' HORIZON SOIL SAMPLES



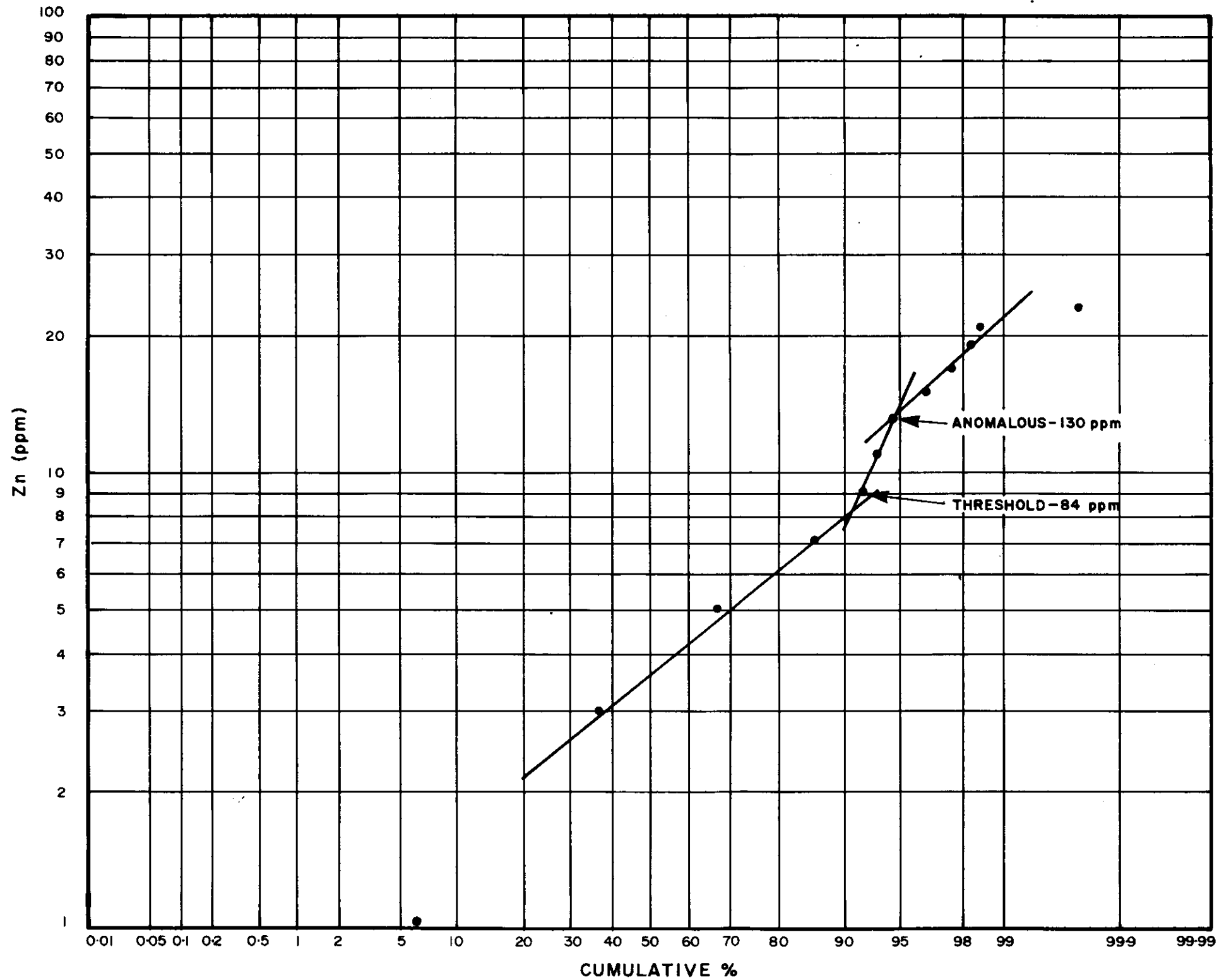
CUMULATIVE FREQUENCY CURVE FOR Ag
from
'B' HORIZON SOIL SAMPLES



**FREQUENCY CURVE FOR Zn
in
'B' HORIZON SOIL SAMPLES**



CUMULATIVE FREQUENCY CURVE FOR Zn
from
'B' HORIZON SOIL SAMPLES



APPENDIX II

GEOCHEMICAL RESULTS



BONDAR-CLEGG & COMPANY LTD.

136B INDUSTRIAL RD, WHITEHORSE, YUKON Y1A 4X1

PHONE: (403) 667-6523

TELEX: 036-83460

JUL 31 1980

Geochemical Lab Report

FROM: BEMA Industries

REPORT NUMBER: 40 - 196

PROJECT: 80 - 09 - M

DATE: July 28, 1980

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
1	2.2	51	56						
2	0.8	55	90						
3	0.3	16	55						
4	4.0	80	238						
5	0.6	39	286						
6	1.2	31	148						
7	0.3	24	76						
8	0.8	22	98						
9	0.2	33	63						
10	0.5	17	47						
11	0.3	14	70						
12	0.8	24	58						
13	1.0	21	116						
14	0.3	26	88						
15	0.4	24	96						
16	0.5	18	64						
17	0.5	10	72						
18	0.5	20	45						
19	0.2	6	31						
20	0.5	5	37						
21	0.6	26	42						
22	0.4	17	49						
23	0.5	2	44						
24	0.6	24	73						
25	0.5	20	33						
26	0.3	13	82						
27	0.6	35	191						
28	0.3	12	30						
29	0.5	6	23						
30	0.3	8	14						
31	0.9	41	55						
32	0.2	19	38						
33	0.5	46	215						
34	0.3	7	26						
35	0.5	10	50						

Geochemical Lab Report

REPORT NUMBER: 40 - 196PAGE: 2

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm					
36	0.2	18	61					
37	0.3	14	44					
38	0.2	20	50					
39	0.4	18	74					
40	0.4	19	33					
41	1.3	11	28					
42	0.5	19	80					
43	0.3	12	55					
44	0.2	13	70					
45	0.3	28	56					
46	0.6	45	113					
47	0.6	12	37					
48	0.4	12	51					
49	3.8	15	37					
50	0.3	11	40					
51	0.5	21	48					
52	0.3	13	64					
53	0.5	33	32					
54	0.6	15	36					
55	0.3	14	34					
56	0.9	14	20					
57	0.4	15	18					
58	0.2	3	23					
59	0.2	10	28					
60	0.6	39	49					
61	0.2	8	21					
62	0.4	12	20					
63	0.3	20	27					
64	0.3	10	66					
65	0.1	8	17					
66	0.4	25	61					
67	1.4	28	70					
68	4.5	76	38					
69	0.6	13	73					
70	2.8	104	175					
71	0.3	17	81					
71A	0.5	13	53					
72	0.2	14	51					
73	0.4	8	28					
74	0.3	13	43					

BUNDAK GLEGG & COMPANY LTD.

Geochemical Lab Report

REPORT NUMBER: 40 - 196

PAGE: 3

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
75	0.8	18	38						
76	0.5	41	69						
77	1.1	52	74						
78	0.6	16	90						
79	0.4	21	79						
80									
81	0.9	21	50						
82	0.3	18	69						
83	0.2	15	52						
84	0.2	12	58						
85	0.6	33	61						
86	0.7	22	30						
87	0.5	14	59						
88	0.0	16	30						
89	0.5	5	51						
90	0.5	16	73						
91	0.8	19	54						
92	1.4	16	31						
93	0.3	12	48						
94	0.5	10	47						
95	0.4	9	45						
96	0.5	3	24						
97	0.7	13	50						
98	0.3	11	47						
99	0.2	12	50						
100	0.4	10	32						
01	0.5	12	85						
02	0.3	14	46						
03	0.7	22	68						
04	18.4	96	229						
05	1.9	17	61						
06	0.9	26	117						
07	1.2	22	54						



BONDAR-CLEGG & COMPANY LTD.

136B INDUSTRIAL RD. WHITEHORSE, YUKON Y1A 4X1

PHONE: (403) 667-6523

TELEX: 036-8-460

Geochemical Lab Report

FROM: BEMA

REPORT NUMBER: 40 - 207 JUL 18 1980

PROJECT: 80 - 0941

DATE: July 12, 1980

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
111	1.4	13	39						
12	0.9	14	40						
13	1.1	12	43						
14	1.1	16	47						
15	0.4	15	31						
16	0.7	13	12						
17	2.8	44	73						
18	3.5	43	90						
19	0.9	22	30						
20	1.0	16	47						
21	1.1	13	30						
22	1.0	10	22						
23	1.1	17	28						
24	1.1	13	21						
25	0.9	16	50						
26	4.3	21	74						
28	0.6	17	50						
29	0.7	14	80						
30	0.7	10	39						
31	2.1	15	83						
32	1.5	10	49						
33	1.2	15	34						
34	1.1	23	53						
35	1.3	26	66						
36	1.3	18	77						
37	1.1	10	44						
38	0.4	9	30						
39	0.8	12	45						
40	0.8	10	49						
41	0.8	10	22						
42	0.8	18	57						
43	1.0	22	10						
44	0.6	10	41						
45	0.5	6	48						
46	0.6	6	20						

BUNDAH-LEGG & COMPANY LTD.

Geochemical Lab Report

REPORT NUMBER: 40 - 207

PAGE: 2

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
147	0.5	4	15						
48	0.7	12	39						
49	0.9	14	32						
50	0.9	20	40						
51	1.2	29	78						



BONDAR-CLEGG & COMPANY LTD.

136B INDUSTRIAL RD. WHITEHORSE, YUKON Y1A 4X1

PHONE: (403) 667-6523
TELEX: 036-8-460

Geochemical Lab Report

JUL 18 1980

FROM: BEMA

REPORT NUMBER: 40 - 211

PROJECT: 80 - 09M

DATE: July 12, 1980

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
B 171	I.S.	I.S.	I.S.						
72	0.5	13	40						
73	0.4	15	38						
74	1.3	21	35						
75	0.7	16	39						
76	0.8	19	41						
77	0.5	18	77						
78	0.6	13	30						
79	0.8	19	24						
80	0.6	17	26						
81	0.5	10	30						
82	0.7	13	32						
83	0.6	17	36						
84	0.8	12	31						
85	0.6	13	30						
86	0.6	13	26						
87	1.0	25	65						
88	0.7	13	31						
89	0.5	13	33						
90	0.5	19	37						
91	0.4	16	28						
92	0.7	18	49						
93	0.6	12	21						
94	0.7	11	27						
95	0.7	12	37						
96	0.5	19	46						
97	1.4	17	22						
98	1.0	21	42						
99	1.2	24	29						
200	1.1	25	71						
01	0.4	10	20						
02	0.9	12	36						
03	1.1	16	51						
04	1.4	60	40						
05	0.7	13	62						

Geochemical Lab Report

REPORT NUMBER: 40 - 211PAGE: 2

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm					
B 206	1.0	20	59					
07	0.5	14	59					
08	0.6	17	42					
09	0.7	20	48					
10	1.1	13	39					
11	0.7	11	91					
12	0.7	21	52					
13	0.7	31	70					
14	0.7	8	29					
15	0.8	14	31					
16	0.9	11	41					
17	0.5	12	50					
18	1.4	20	63					
19	0.7	6	12					
20	0.7	50	54					
21	1.5	44	78					
22	1.0	11	44					
23	0.9	12	18					
24	0.5	18	77					
25	0.6	7	17					
26	0.7	12	49					
27	0.8	15	59					
28	1.7	16	50					
29	1.5	39	56					
30	1.2	29	61					
31	1.1	19	50					
32	0.6	11	56					
33	0.7	12	11					
34	0.7	10	42					
35	0.8	10	40					
36	0.5	10	34					
37	0.6	20	83					
38	1.4	17	81					
39	0.8	13	61					
40	0.7	14	45					
41	0.7	15	39					
42	0.7	13	16					
43	0.7	16	49					
44	0.8	17	45					
45	1.0	20	62					

DUNNAN GLEGG & COMPANY LTD.

Geochemical Lab Report

REPORT NUMBER: 40 - 211

PAGE: 3

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
B 246	1.1	29	59						
47	1.0	27	59						



BONDAR-CLEGG & COMPANY LTD.

136B INDUSTRIAL RD, WHITEHORSE, YUKON Y1A 4X1

PHONE: (403) 667-6523

FAX: 036-8-460

AUG 5 1980

Geochemical Lab Report

FROM: BEMA Industries

REPORT NUMBER: 40 - 235

PROJECT: 80 - 09 M

DATE: July 29, 1980

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
247	2.0	25	58						
48	4.0	56	91						
49	1.5	52	49						
50	1.1	32	80						
51	0.3	18	45						
52	1.9	12	45						
53	1.0	24	30						
54	2.7	60	148						
55	2.1	99	152						
56	1.0	105	59						
57	0.5	16	170						
58	0.7	17	71						
59	0.7	22	43						
60	0.5	23	76						
61	0.4	19	70						
62	1.4	22	61						
63	1.2	32	62						
64	2.1	76	60						
65	0.5	16	41						
66	0.0	12	70						
67	0.0	?	40						
68	0.4	12	49						
69	0.2	10	41						
81	0.6	10	53						
82	0.5	11	50						
83	0.3	10	20						
84	0.6	10	49						
85	0.3	14	76						
86	0.2	13	34						
87	0.4	14	70						
88	0.6	24	76						
90 _A	0.3	14	30						
90 _B	0.3	6	20						
91	0.2	8	18						
92	0.5	8	10						

Geochemical Lab Report

REPORT NUMBER: 40 - 235

PAGE: 2

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm					
293	0.2	6	21					
94	0.3	9	60					
95	0.3	16	76					
96	0.6	14	70					
97	0.4	9	78					
98	0.3	10	54					
99	0.4	8	34					
000	0.6	10	56					
01	0.2	10	61					
02	0.2	14	00					
021	1.6	46	153					
22	1.2	62	120					
23	2.2	60	47					
24	1.3	33	120					
25	6.4	192	239					
26	2.1	49	145					
27	11.0	254	196					
28	2.4	70	200					
29	1.3	62	70					
30	7.1	130	120					
31	1.7	48	97					
32	2.0	58	121					
33	0.4	11	32					
34	0.0	10	50					
35	0.2	0	45					
36	0.5	9	56					
37	0.5	9	20					
38	0.2	9	45					
39	0.3	0	49					
40	0.1	8	147					
41	0.2	9	50					
42	0.3	10	50					
43	0.2	10	41					
44	0.4	9	30					
45	0.3	12	38					
46	0.4	16	33					
47	0.4	14	5					
48	0.3	31	30					
49	0.4	16	28					
50	0.0	8	36					

BUNDAK-CLEGG & COMPANY LTD.

Geochemical Lab Report

REPORT NUMBER: 40 - 235

PAGE: 3

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm					
351	0.2	10	32					
52	0.5	34	77					
53	0.3	8	51					
54	0.8	12	53					
55	0.5	6	73					
56	0.4	9	64					
57	0.2	8	47					
58	0.2	11	30					
59	0.4	8	33					
60	0.2	8	35					
61	2.0	21	48					
62	0.6	22	41					
63	0.4	9	25					
64	0.4	10	47					
65	0.6	9	40					
66	0.5	6	29					
67	0.3	5	36					
68	0.2	6	20					
69	0.2	10	53					
70	0.5	13	37					
71	1.1	14	38					
72	1.5	10	43					
73	0.2	8	35					
74	0.2	6	32					
75	0.2	13	47					
76	0.2	10	38					
77	0.1	8	31					
78	0.2	10	42					
79	0.2	9	38					
80	0.3	6	24					
81	0.3	9	32					
82	0.3	6	19					
83	0.2	3	28					
84	0.2	10	41					
85	0.4	8	28					
86	0.3	9	52					
87	0.4	9	51					
88	0.3	5	60					
89	0.2	13	33					
90	0.4	10	33					

BUNDAK-CLEGG & COMPANY LTD.

Geochemical Lab Report

REPORT NUMBER: 40 - 235

PAGE: 4

SAMPLE NUMBERS	Ag ppm	Pb ppm	Zn ppm						
391	0.5	6	11						
92	0.3	4	32						
93	0.3	8	35						
94	0.2	11	10						
95	0.6	18	39						
96	0.4	8	28						
97	5.0	156	142						
98	2.0	45	79						
99	2.7	50	100						
400	0.6	34	66						
01	2.2	91	74						
02	1.5	48	90						
03	0.7	22	24						
404	0.1	50	92						

APPENDIX III

STATEMENT OF COSTS

LEM CLAIMS

Labour

PERSONNEL	CLASSIFICATION	RATE (PER DAY)	TOTAL DAYS	TOTAL COST
<u>MANAGEMENT and OPERATIONS</u>				
NORDIN, G., BSc.	Senior Geologist	\$ 275	.140	\$ 38.50
NORMAN, G., BSc.	Senior Project Geologist	275	2.260	621.33
BARTLETT, S., BSc	Geologist	175	.024	4.20
JOHNSON, C.	Mayo Expeditor	150	1.570	235.18
PHILPOT, M.	Geologist	175	.645	112.89
<u>FIELD</u>				
BOGDANOVICH, B.	Field Technician #2	110	8.610	947.55
BONNAR, D.	Senior Geologist Assistant	110	8.690	956.19
DONNELLY, J.	Geological Assistant #3	75	1.120	83.95
FIELD, M.	Camp Cook Assistant #3	95	2.270	215.46
GARTNER, M.	Camp Cook #1	150	3.190	478.80
HANSEN, K.	Geologist Assistant #1	95	.084	7.98
HUNT, S.	Camp Cook #1	150	.192	28.80
MAHAFFEY, T.	Mechanic	160	.398	63.74
MARCY, N.	Field Supervisor #3	130	.312	40.56
MacKENZIE, A.	Field Supervisor #3	130	6.320	821.91
MacRAE, J.	Field Technician #3	95	10.280	976.70
McADAM, G.	Expeditor Assistant	140	.067	9.38
NEWTON, P.	Field Technician #3	95	1.210	115.18
SATCHWELL, J.	Field Technician #2	110	.648	71.28
SCHATZ, D.	Geological Assistant #2	85	2.460	209.24
SOMERS, I.	Field Technician #1	130	.036	4.68
STRUCK, W.	Field Technician #2	110	.550	60.06
<u>ADMINISTRATION</u>				
BUSHNELL, M.	Accounts Payable	120	.012	1.44
CALIHOO, J.	Accounts Payable	120	.009	1.08
CLARK, H.	Payroll	120	.150	18.00
CLARK, L.	Payroll Assistant	120	.018	2.16
COOPER, D.	Warehouseman	95	.012	1.14
HEPPERTE, V.	Secretary	120	.021	2.52
KLEE, T.	Secretary	120	.034	4.06
LLEWELLYN, P.	Secretary	120	.092	11.03

<u>PERSONNEL</u>	<u>CLASSIFICATION</u>	<u>RATE</u> <u>(PER DAY)</u>	<u>TOTAL</u> <u>DAYS</u>	<u>TOTAL</u> <u>COST</u>
<u>ADMINISTRATION con't</u>				
MILLAR, B.	Administration Manager	\$ 120	.004	\$.52
PERKINS, C.	Secretary	120	.045	5.40
RUSSELL, T.	Bookkeeper	120	.054	6.48
THACKER, A.	Purchasing Agent	120	.534	64.05
			<hr/>	<hr/>
			51.900	\$6,221.44

EXPENSES

TOTAL DISBURSEMENTS

Geochemistry	\$ 1,308.50
Camp Construction	152.17
Camp Equipment	227.10
Camp Groceries	616.69
Camp Fuel/Supplies	395.84
Vehicles Rental	482.63
Vehicles - operation, maintenance, gas	190.17
Communication - phone, radio	178.96
Freight - courier, air, trucking	89.29
Transport, travel - commercial airline	286.02
Accommodation	40.98
Copying	1.70
Expediting	234.00
Equipment Rentals	308.58
Geological mapping - core logging	727.73
Aircraft	60.34
Geochem (disperse)	<u>7.09</u>
	\$ 5,307.79

Geochemistry

Soils	343 samples @ \$3.50/sample for Pb, Zn, Ag	\$ 1,200.50
Rock Assays	6 samples @ \$18.00/sample for Pb, Zn, Ag	<u>108.00</u>
	TOTAL GEOCHEMISTRY COSTS	\$ 1,308.50

Drafting and Reproduction

Drafting	18 days @ \$150.00/day	\$ 2,700.00
Reproduction		<u>168.00</u>
	TOTAL DRAFTING & REPRODUCTION	\$ 2,868.00

TOTAL EXPENSES

TOTAL LABOUR (direct and dispersed)	\$ 6,221.44
TOTAL DISBURSEMENTS	5,307.79
TOTAL DRAFTING AND REPRODUCTION	<u>2,868.00</u>
	<u>\$14,397.23</u>

This work can be applied as assessment for 5 additional years on the LEM 1-11 claims. The new due date is November 14, 1990.



LEGEND

SYMBOLS

ROCK OUTCROP	FELSENMEER
GEOLOGICAL BOUNDARY	TALUS
— Defined	BEDDING
- - - Approximate	/ Inclined
- - - Assumed	VEIN STRUCTURE
FOLIATION	— Defined
/ Inclined	- - - Approximate
FAULTS	- - - Assumed
— Observed	TRENCHES
- - - Inferred	/ Open end
SHAFT	/ Closed end
CLAIM BOUNDARY	SURVEY MARKER
CABIN	PIT
ROAD	CAT TRAIL

ABBREVIATIONS

MINERALS

Gn - Galena	Ca - Calcite
Sph - Sphalerite	Chl - Chlorite
Py - Pyrite	Gf - Graphite
Lim - Limonite	Po - Pyrrhotite
Sid - Siderite	Ser - Sericite
Qtz - Quartz	

ROCK TYPES

Phy - Phyllite	Grnst - Greenstone
Ls - Limestone	Sch - Schist
Q:F:P - Quartz feldspar porphyry	QTZTE - Quartzite

LITHOLOGY

DRIFT

8

LAMPORPHYRE

7

QUARTZ - FELDSPAR PORPHYRY

6

GRANITIC ROCKS

5 Granodiorite, quartz monzonite, minor granite and quartz diorite

GREENSTONE

4

UPPER SCHIST FORMATION

3

3a Quartz-sericite schist

3b Quartz-chlorite-sericite-schist

3c Thin bedded quartzite

3d Phyllite, graphitic phyllite

3e Limestone

CENTRAL QUARTZITE FORMATION

2

2a Massive quartzite

2b Thin bedded quartzite

2c Graphitic phyllite

LOWER SCHIST FORMATION

1

1a Thin-bedded quartzite

1b Quartz-chlorite-sericite-schist

1c Graphitic schist

1d Phyllite and argillite

1e Quartz-sericite schist

1f Massive quartzite - No.9

CANADA TUNGSTEN MINING CORPORATION
KENO HILL Y.T.
 1980 GEOLOGICAL EXPLORATION PROGRAMME

LEM CLAIMS
GENERAL GEOLOGY

DATE: NOVEMBER 1980	JOB NO: 80-09-M	FIG NO: 3
DRAWN BY: T.D.	SCALE: 1:5000	METRES
REVISED BY:		





Contour Interval- ppm -22 Threshold
 -40 Anomalous
 -80 2x Anomalous

CANADA TUNGSTEN MINING CORPORATION
 KENO HILL Y.T.
 1980 GEOLOGICAL EXPLORATION PROGRAMME

LEM CLAIMS
SOIL GEOCHEMISTRY
Pb

DATE NOVEMBER 1980	JOB NO 80-09-M	FIG NO 4
DRAWN BY: S.O.	SCALE: 1:5000	METRES
REVISED BY:		



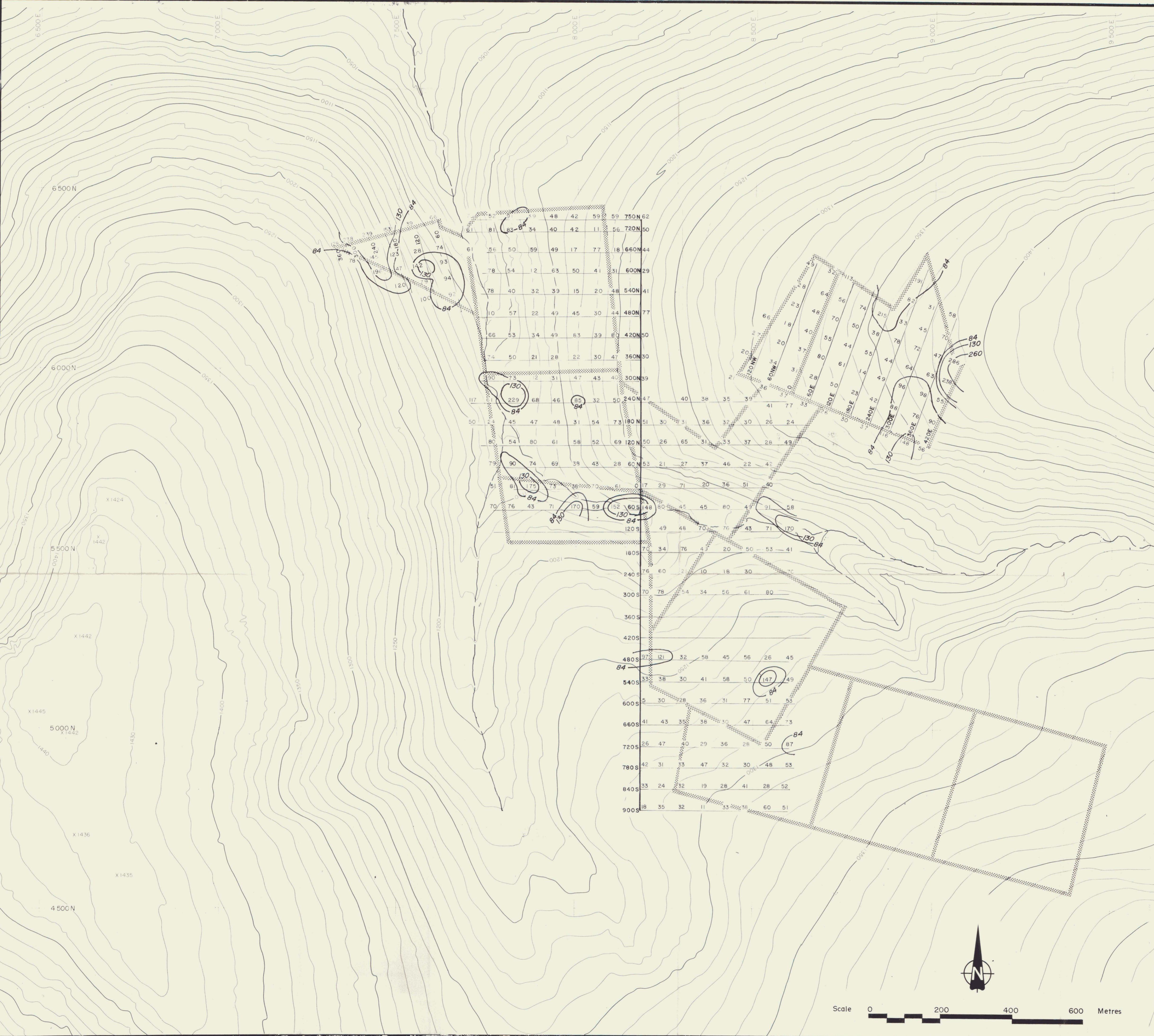
Contour Interval- ppm -1.5 Threshold
 -2.0 Anomalous
 -4.0 2x Anomalous

CANADA TUNGSTEN MINING CORPORATION
 KENO HILL Y.T.
 1980 GEOLOGICAL EXPLORATION PROGRAMME

LEM CLAIMS
SOIL GEOCHEMISTRY
 Ag

DATE NOVEMBER 1980 JOB NO. 80-09-M FIG NO. 5
 DRAWN BY: sσ
 REVISED BY: SCALE 1:5000 METRES





Contour Interval- ppm -84 Threshold
 -130 Anomalous
 -260 2x Anomalous

CANADA TUNGSTEN MINING CORPORATION
 KENO HILL Y.T.
 1980 GEOLOGICAL EXPLORATION PROGRAMME

LEM CLAIMS
SOIL GEOCHEMISTRY
 Zn

DATE: NOVEMBER 1980	JOB NO: 80-09-M	FIG NO: 6
DRAWN BY: 50	SCALE: 1/5000	METRES
REVISED BY:		



