

REPORT ON
1995 SOIL GEOCHEMICAL SURVEY
OF THE
BAL CLAIMS
DAWSON MINING DISTRICT
NTS 116C/2

Lat.: 64° 06' N. Long.: 140° 59' W.

BY

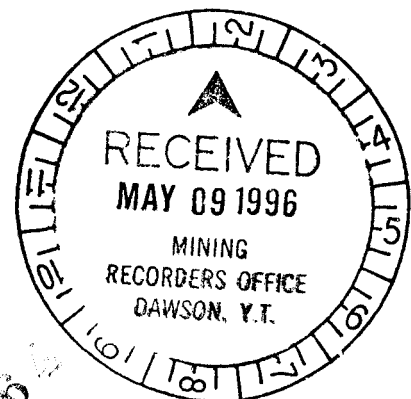
Uwe Schmidt, P.Geo.

FOR

ATNA RESOURCES LTD.

April 27, 1996

Work performed on August 3, 1995



093464

TABLE OF CONTENTS

	Page
1. INTRODUCTION	1
2. PROPERTY, LOCATION AND ACCESS	1
3. PHYSIOGRAPHY	2
4. HISTORY	2
5. REGIONAL GEOLOGY	2
6. PROPERTY GEOLOGY	3
7. GEOCHEMISTRY	3
8. CONCLUSIONS	6
9. RECOMMENDATIONS	6
10. BIBLIOGRAPHY AND REFERENCES	7
11. STATEMENT OF EXPENDITURE	8

Appendices

Appendix A	Certificates of Analysis
Appendix B	Statistics
Appendix C	Statement of Qualifications

List of Illustrations

<u>Figure</u>	<u>Title</u>	<u>Scale</u>	<u>Following Page</u>
1	Location	1:5,000,000	1
2	Claim Map	1:30,000	2
3	Cu Geochemistry	1:5,000	5
4	Pb Geochemistry	1:5,000	5
5	Zn Geochemistry	1:5,000	6

1. INTRODUCTION

The recent discovery of the ABM polymetallic massive sulphide deposit by Cominco Ltd. in Finlayson Lake area of south-central Yukon has renewed an interest in volcanogenic massive sulphide (VMS) deposits within Yukon-Tanana Terrane. The fault-displaced extension of Yukon-Tanana which hosts this deposit, lies west of Dawson City, southwest of the Tintina Fault Zone. It is this geological setting which attracted Atna Resources to the area and led to an option agreement with YGC Resources covering five mineral properties, including the Bal claims.

On August 3, 1995, a three man field crew examined the Bal claims and soil sampled the claims along 5 grid lines. This work was intended to satisfy assessment requirements for the claims while also providing an opportunity to examine the property.

Work was carried out by Northwest Geological Consulting Ltd. employees. A total of 36 soil samples were collected along 1.75 km of line. The writer was contracted by Atna Resources to carry out field management and supply field crews. Field crew consisted of the writer and field assistants Ron Beauchamp and Regan Moran. Overall program supervision was provided by Peter DeLancey, P.Eng., president of Atna Resources Ltd.

2. PROPERTY, LOCATION AND ACCESS

The Bal property consists of 6 quartz mineral claims, covering an area of 125 hectares, located approximately 75 km west of Dawson City, Yukon. The claims are registered in the Dawson Mining District in the name of YGC Resources Ltd.

The property lies 2 km north, and within walking distance of the "Top of the World Highway". The coordinates of the approximate centre of the property are latitude 64° 06' 15" N and longitude 140° 59' 30" W, located within NTS map areas 116C/2.

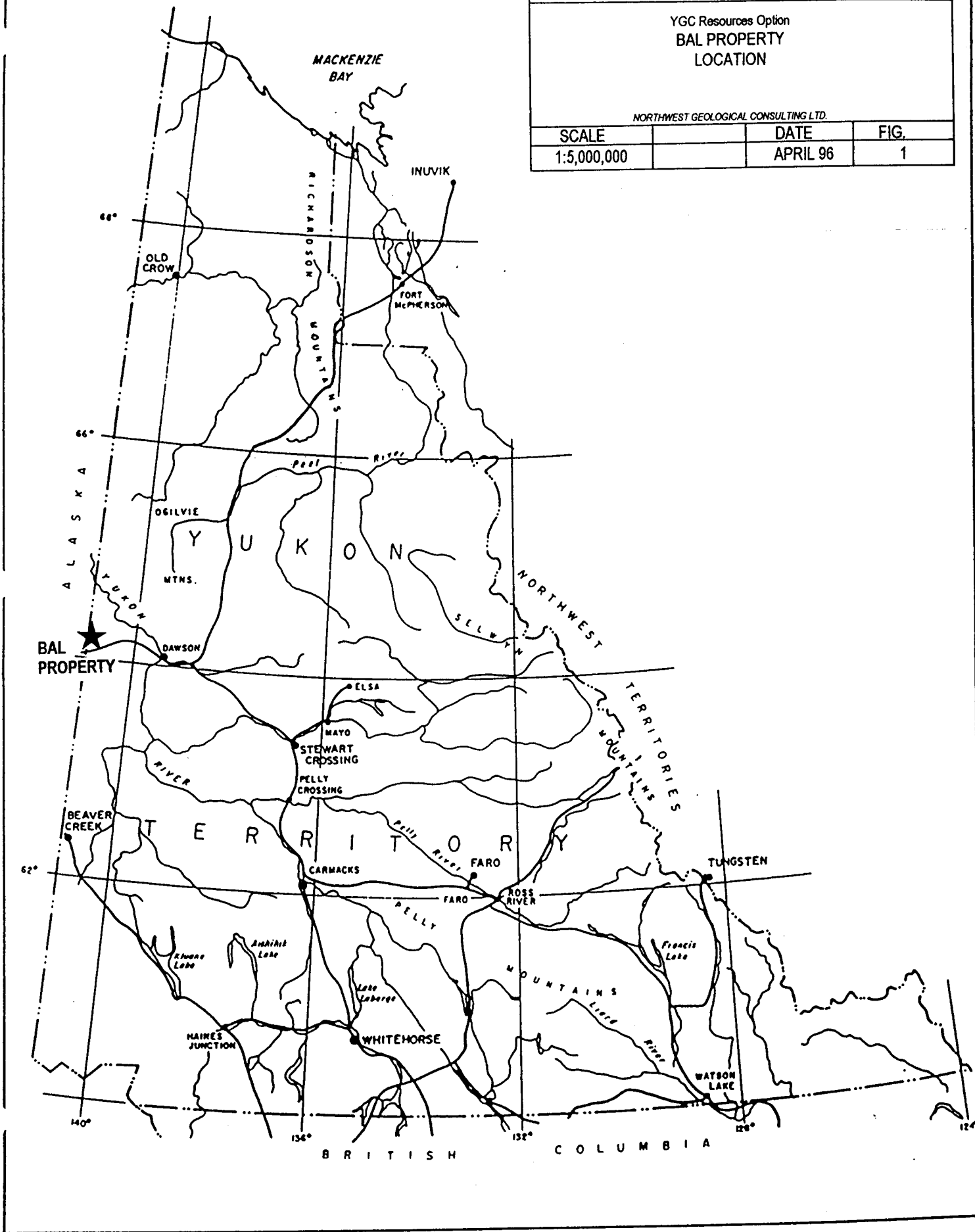
Name	Grant Numbers	Lapse Date
Bal 1-6	YB30599-YB30604	Mar. 4, 1996

ATNA RESOURCES LTD.

YGC Resources Option
BAL PROPERTY
LOCATION

NORTHWEST GEOLOGICAL CONSULTING LTD.

SCALE	DATE	FIG.
1:5,000,000	APRIL 96	1



3. PHYSIOGRAPHY

The property lies within the Klondike Plateau, a minor, unglaciated, subdivision of the Yukon Plateau. Ridge crests in the area generally lie at elevations ranging from 1000 to 1400 metres and probably represent an old uplifted erosion surface (Green, 1972). Major streams and rivers have gentle gradients but tributary streams occupy narrow, V-shaped valleys with steep gradients and well developed dendritic patterns. The claims are located within the of Hall Creek. Bedrock exposure in the area is limited to road cuts, creek valleys and sporadic outcrops along the ridge tops. Overburden thickness varies over the property but thicknesses encountered during sampling are estimated to be less than 1 metre.

Elevations, on the claims range from approximately 820 to 900 metres. The area examined and sampled in 1995 occurs near tree line and is covered by typical alpine vegetation at higher elevations, including mosses and isolated patches of "buckbrush" (dwarf birch). At lower elevations, the claims are covered by spruce and alpine fir.

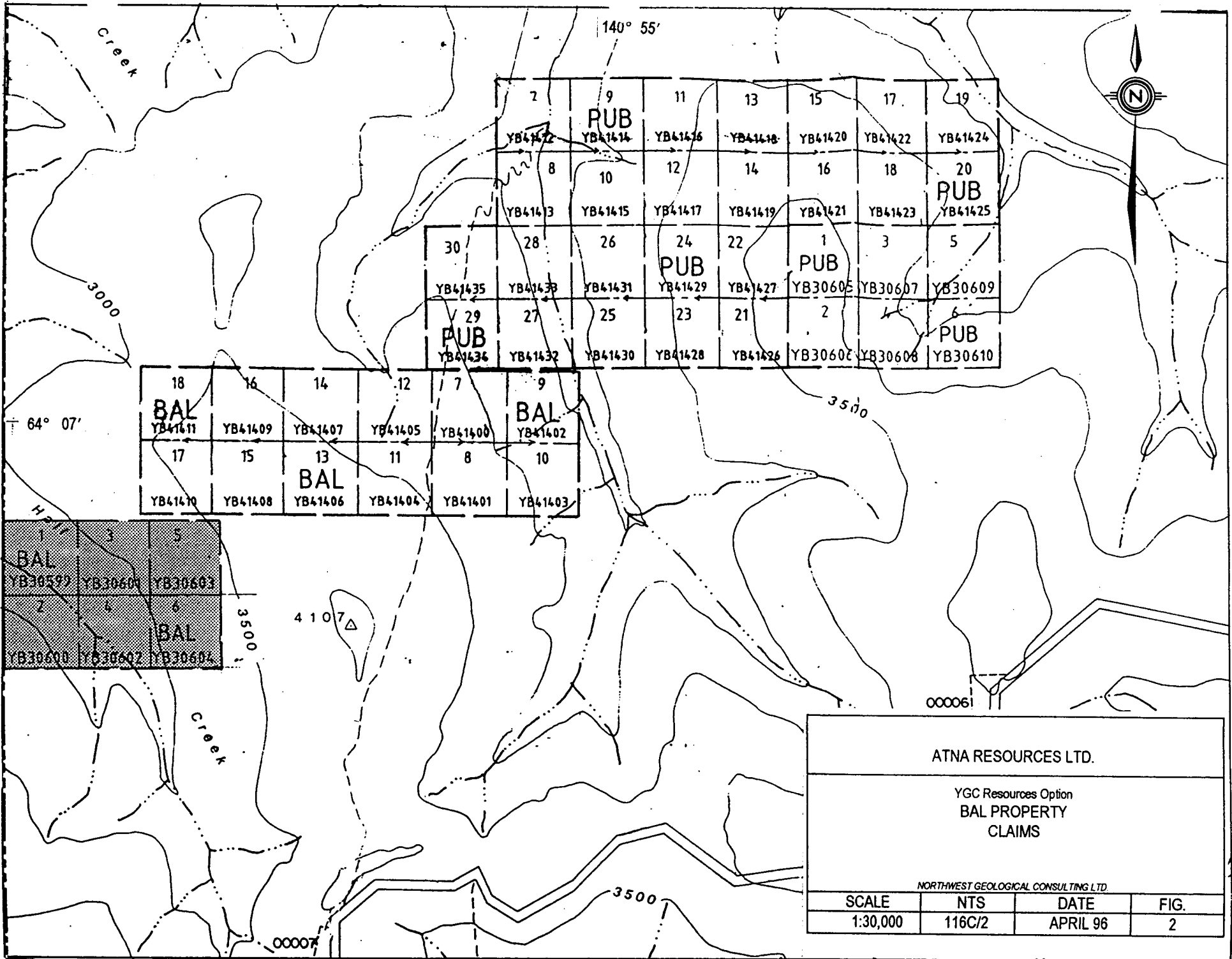
4. HISTORY

The Bal claims were first staked and explored by Cominco Ltd. in 1980 (Carne, 1992). Work by Cominco included prospecting and geochemical sampling. The Bal 1-6 claims were staked by YGC Resources Ltd. in June, 1990. This was followed in 1992 by an expansion of the property, grid soil sampling, mapping, prospecting, and a Max-Min I-9 geophysical orientation survey. The 1992 program was funded by Kennecott Canada Inc. under an option agreement with YGC Resources.

Work by Atna Resources Ltd. in 1995 is limited to a one day property examination which included limited grid soil sampling.

5. REGIONAL GEOLOGY

A large area of the western to southeastern Yukon is underlain by the Yukon-Tanana Terrane (YTT). This geologically complex terrane consists of polydeformed metamorphic rocks derived from a variety of igneous and sedimentary protoliths thought to have



ATNA RESOURCES LTD.			
YGC Resources Option BAL PROPERTY CLAIMS			
NORTHWEST GEOLOGICAL CONSULTING LTD.			
SCALE	NTS	DATE	FIG.
1:30,000	116C/2	APRIL 96	2

originated outboard of North American autochthonous strata, and ranges in age from Precambrian to Recent. Yukon-Tanana Terrane is host to a variety of economically important classes of mineral deposits. Recently, exploration has focussed on stratabound massive sulphide deposits that occur in subdivisions of this terrane in two areas of the Yukon. A number of stratabound base metal occurrences are known west and south of Dawson City. A second group of similar but economically more important mineral occurrences is known in YTT of Finlayson Lake area. The geology is similar to Dawson area but is now geographically removed by 450 km of right-lateral displacement along the Tintina Fault.

Mortensen (1992) divided the YTT into 3 structural assemblages: 1) Nisling assemblage, a lower structural package of quartzite and marble of possible Proterozoic and/or Cambrian age; 2) Nasina assemblage, a middle structural package of Late Devonian to middle Mississippian carbonaceous metasedimentary, mafic and felsic metavolcanic rocks; 3) an upper structural package of mid-Permian felsic metavolcanic (Klondike Schist) and metaplutonic rocks.

6. PROPERTY GEOLOGY

The claims and surrounding area are underlain by a northerly-dipping, 2,000 metre thick sequence of metavolcanic rocks belonging to Mortensen's upper structural assemblage (Klondike Schist). They consist primarily of pyritic quartz-muscovite schist, quartz and/or feldspar augen schist and chloritic schist with minor graphitic quartz-muscovite schist intervals (Carne, 1992).

7. GEOCHEMISTRY

Grid soil sampling was limited to three north-south and two east-west soil lines, having a combined length of 1.75 km and a total of 36 samples.

Previous lines in this area had a line spacing of 100 metres. The 1995 lines were also run at a 100 metre spacing and 50 metre sample interval but were run between the old lines to reduce the overall line spacing to 50 metres.

Sample lines are marked with orange flagging tape and were established by slope-corrected compass and "hip-chain" surveys. Grid stations are identified by blue and orange flagging tape with grid coordinates marked on "Tivek" tags. The grid coordinates were also used to identify the soil sample. Samples of B horizon soils were collected using sampling shovels or mattocks. Soils typically consist of clay rich-colluvium covered by a variable thickness of organic material. Sample depths ranged from 20 to 40 cm. Permafrost development is variable and did not hinder sampling.

Samples were analyzed by Acme Analytical Laboratories Ltd. of Vancouver, employing a standard 30 element Inductively Coupled Argon Plasma (ICP) package with gold analyzed by acid leach/AA from a 10 g sample. Certificates of analyses are appended to this report (Appendix A).

The interpreted soil sample analyses for Cu, Pb and Zn are plotted at 1: 5000 scale on Figures 3 to 5. These plots include only data from 1995.

STATISTICAL METHOD

Analytical data analyzed statistically using Probplot, a computer program designed to optimally fit multiple normal distributions to exploration geochemical data on probability plots (Stanley 1987).

A statistical analysis of Cu, Pb and Zn analytical data was carried out with the aid of histograms and cumulative probability plots generated by Probplot. Because of the low number of samples taken on the Pub claims, the analytical data were combined with analyses from the nearby Bal claims. During data analyses the data set was reduced by eliminating analyses which are at the analytical detection limit. Sub-population boundaries were visually estimated and modified until theoretical mixed population curves closely matched the real data points. Anomaly thresholds for each sub-population were then calculated by the Probplot program. Threshold values assigned to six symbol classes were determined by selecting the mean value and the mean plus two standard deviations of each sub-population. Summary statistics, histograms, and probability plots produced by Probplot, are appended to this report (Appendix B).

Trial plots were generated within Autocad and final thresholds were selected by a visual assessment of anomaly definition and contrast with background values. The final plots classify the analytical data for each element into ranges of increasing value which are assigned symbols of increasing size. In most cases, log probability plots were used to determine thresholds. The lowest population thresholds are often ignored on symbol plots because they represent background concentrations.

DISCUSSION OF RESULTS

Copper (Fig.3)

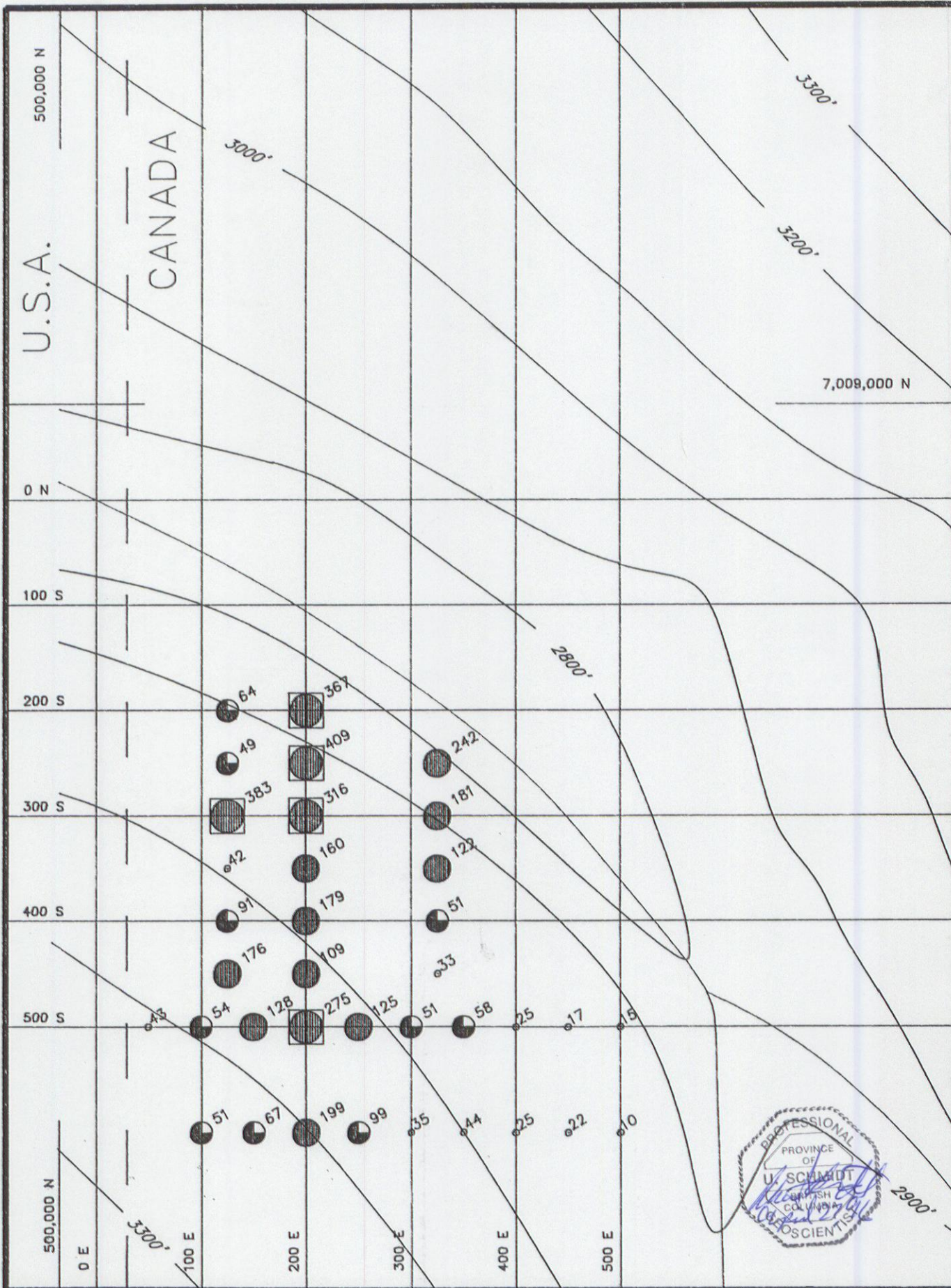
Copper concentrations in 36 soil analyses range from 13 to 159 ppm. The data were sub-divided into 2 lognormal populations, with population boundaries selected at 85% of the data. An anomalous threshold of 41 ppm was selected, representing the mean minus two standard deviations of population 2. Symbol boundaries were chosen at 42, 79 and 152 ppm Cu. The higher thresholds correspond to the mean of population 2 and the mean plus two standard deviations of population 2, respectively.

Scaled symbol plots of the data at 1:5000 scale (Fig.3) outline three groups of anomalous concentrations along three grid lines. The anomalous analyses occur at the north end of the grid and outline an area of interest, covering an area of at least 200 by 300 metres.

Lead (Fig. 4)

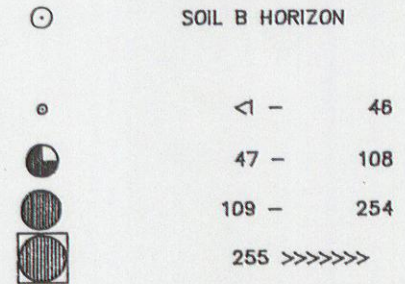
Lead analyses range from 10 to 409 ppm. The data were sub-divided into 2 lognormal populations with population boundaries selected at 75% of the data. A concentration of 47 ppm Pb was chosen as the anomalous threshold and corresponds to the mean minus two standard deviations of population 2. Scaled symbols were assigned thresholds of 47, 109 and 255 ppm Pb. The higher thresholds represents the mean of population 2 and the mean plus two standard deviations of population 2, respectively.

Anomalous lead concentrations are broadly coincident with Cu but occur over a larger area with dimensions of at least 200 by 400 metres.



Analytical Thresholds

PB Values in ppm
SOIL B HORIZON



ATNA RESOURCES LTD.

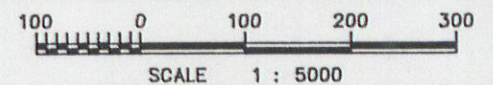
Bal Property
Pb Geochemistry

Work By
U. Schmidt
Date Drafted
04-23-96
Drafted By

Date Revised
04-23-96
Revised By

N.T.S. Number
116C/2
File Name
BALPBFIN

Northwest Geological Consulting Ltd.



Figure

4



Zinc (Fig. 5)

The zinc analytical data were divided into two populations with analyses ranging from 60 to 784 ppm. A population boundary was selected at 90% of the data. An anomaly threshold of 96 was selected, which represents the mean of population 1. Scaled anomaly symbols were assigned thresholds of 201, 279 and 384 ppm. These values correspond to the mean minus 2 standard deviations of population 2, the mean of population 2 and the mean plus two standard deviations of population 2, respectively.

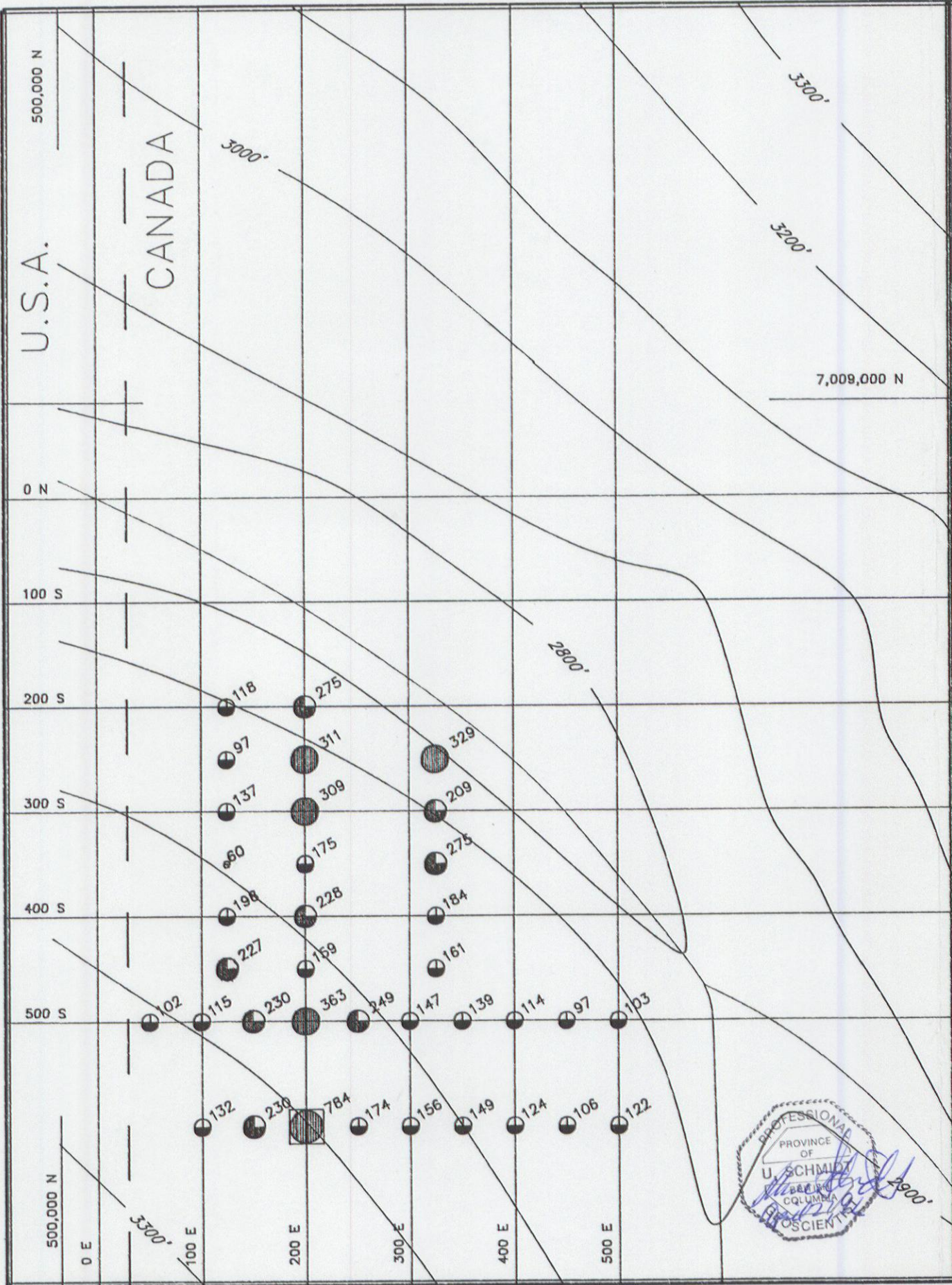
Scaled symbol plots of zinc concentrations are roughly coincident with the lead and copper anomalies.

8. CONCLUSIONS

The 1995 grid soil sampling has outlined coincident geochemical copper, lead and zinc soil anomalies along three soil sample lines. No explanation for these anomalies was observed during a brief examination in 1995. A further evaluation of these anomalies is justified in view of the geological setting and recent discoveries in a similar setting in south-central Yukon. The 1995 soil survey results confirm earlier survey results and indicate that a reexamination of the combined Pub-Bal area is justified.

9. RECOMMENDATIONS

This area should be further explored by additional soil sampling, aimed at reducing the existing line spacing. Soil anomalies should be examined by prospecting and hand trenching. Backhoe trenching should be considered for areas where hand trenching is ineffective.



Analytical Thresholds

Zn Values in ppm	
SOIL B HORIZON	
	<1 - 96
	97 - 201
	202 - 278
	279 - 383
	384 >>>>>>

ATNA RESOURCES LTD.

**Bal Property
Zn Geochemistry**

Work By	U. Schmidt
Date Drafted	04-23-96
Drafted By	
Date Revised	04-23-96
Revised By	
N.T.S. Number	116C/2
File Name	BALZNFN

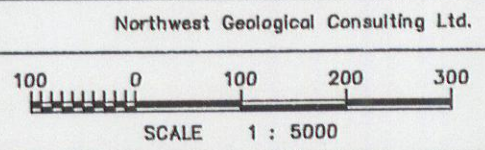


Figure
5



10. BIBLIOGRAPHY AND REFERENCES

Carne, R.C. (1992): Summary Report on 1992 Exploration, Bal and Pub Claims, for YGC Resources Ltd.

Green, L.H., (1972): Geology o Nash Creek, Larsen Creek and Dawson Map-Areas, Yukon Territory; G.S.C. Memoir 364

Johnston, S.T. and Mortensen, J.K.,(1994): Regional Setting of Porphyry Cu-Mo deposits, Volcanogenic Massive-Sulphide Deposits, and Mesothermal Gold Deposits in the Yukon-Tanana Terrane, Yukon. Extended Extracted from: Abstracts and Proceedings of the District 6 CIM 1994 Annual General Meeting

Mortensen, J.K. and Jilson, G.A. (1985): Evolution of the Yukon-Tanana terrane: Evidence from southeastern Yukon Territory, GEOLOGY, v.13 p.806-810

Mortensen, J.K.,(1988): Geology of southwestern Dawson map area, Yukon Territory; in Current Research, Part E, G.S.C. Paper 88-1E, p.73-78

Mortensen, J.K., (1992): Pre-Mid-Mesozoic Tectonic Evolution of the Yukon-Tanana Terrane, Yukon and Alaska, TECTONICS, VOL. 11 NO. 4 , p.836-853

Sinclair, A.J., (1976): Applications of Probability Graphs in Mineral Exploration; The Association of Exploration Geochemists, Special Volume No. 4

Stanley, C.R., (1987): Probplot; The Association of Exploration Geochemists, Special Volume No. 14

11. STATEMENT OF EXPENDITURE

I. Field Expenses

1) Labour

U.Schmidt (Project Geologist) Aug. 3, 1995

1 day @\$350/day \$350.00

R.Beauchamp (Field Assistant) Aug. 3, 1995

1 day @ \$200/day \$200.00

R. Moran (Field Assistant) Aug. 3, 1995

1 day @ \$175/day \$175.00

\$725.00

2) Consumables and Supplies \$47.80

3) Camp and Equipment Rental \$78.50

4) Transportation

Truck Rental Aug.4, 1995 (1 day @ \$55/day) \$55.00

5) Geochemical Analysis

36 soils, 33 element ICP analysis \$324.00

II. OFFICE

Data compilation, Interpretation, Data Plotting, Report Writing

U. Schmidt April 24, 27, 1996

2 days @\$350/day.	\$700.00	
		\$1,930.30
	GST	\$135.12
	TOTAL	\$2,065.42

Appendix A

CERTIFICATES OF ANALYSIS

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Tl	Hg
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	%	ppm	ppm	ppm
B 5+00S 0+50E	2	32	43	102	<.3	17	6	222	4.32	17	<5	<2	4	17	.9	<2	3	59	.18	.067	26	37	.79	137	.06	5	1.84	.01	.06	2	<5	<1
B 5+00S 1+00E	1	26	54	115	.3	16	5	238	2.54	14	<5	<2	5	19	1.0	<2	<2	53	.21	.040	22	36	.97	136	.08	<3	1.98	.01	.06	2	<5	<1
B 5+00S 1+50E	1	32	128	230	.3	18	7	329	2.59	13	<5	<2	6	23	1.2	<2	<2	39	.18	.046	24	27	1.14	117	.06	4	1.62	<.01	.05	<2	<5	<1
B 5+00S 2+00E	2	75	275	363	.5	22	3	396	4.54	20	<5	<2	4	21	1.4	<2	<2	53	.11	.044	14	72	1.86	128	.04	<3	2.07	.01	.05	<2	<5	<1
B 5+00S 2+50E	1	31	125	249	<.3	22	10	376	3.49	11	<5	<2	4	19	1.0	<2	<2	58	.19	.040	17	51	1.08	136	.07	<3	1.99	.01	.08	<2	<5	<1
B 5+00S 3+00E	2	39	51	147	<.3	11	12	829	2.87	8	<5	<2	2	19	2.0	<2	<2	44	.13	.038	30	26	.64	175	.06	<3	1.36	.01	.09	<2	<5	<1
B 5+00S 3+50E	1	23	58	139	<.3	15	11	624	3.24	12	<5	<2	5	22	1.0	<2	<2	44	.23	.050	28	32	.90	196	.08	<3	1.69	<.01	.16	<2	<5	<1
B 5+00S 4+00E	2	16	25	114	<.3	10	34	2256	3.87	2	<5	<2	5	18	1.4	<2	<2	41	.19	.060	27	29	1.10	197	.09	<3	1.58	<.01	.25	<2	<5	<1
RE B 5+00S 4+00E	2	16	22	110	<.3	12	32	2178	3.74	9	<5	<2	5	18	1.5	<2	3	39	.19	.061	26	28	1.05	196	.08	<3	1.50	<.01	.24	2	<5	<1
B 5+00S 4+50E	1	19	17	97	<.3	14	13	993	2.80	9	<5	<2	2	18	.6	<2	<2	43	.20	.045	22	31	.83	136	.07	<3	1.56	.01	.11	2	<5	<1
B 5+00S 5+00E	1	13	15	103	<.3	14	9	422	3.06	4	<5	<2	6	17	.2	<2	<2	38	.22	.054	22	27	.96	140	.10	<3	1.69	<.01	.19	<2	<5	<1
B 6+00S 1+00E	1	18	51	132	.4	18	6	306	2.74	8	<5	<2	2	19	.6	<2	<2	54	.18	.027	20	31	1.11	143	.07	3	1.92	.01	.06	<2	<5	<1
B 6+00S 1+50E	1	35	67	230	<.3	16	10	322	2.49	5	<5	<2	7	22	1.5	<2	<2	38	.21	.047	27	26	.89	241	.06	<3	1.34	.01	.04	2	<5	<1
B 6+00S 2+00E	1	159	199	784	.3	103	18	816	4.61	7	<5	<2	5	14	2.3	<2	<2	94	.12	.041	14	296	3.05	86	.05	<3	2.80	<.01	.04	<2	<5	<1
B 6+00S 2+50E	1	29	99	174	<.3	21	6	294	3.22	13	<5	<2	3	19	.7	<2	<2	62	.18	.042	19	51	1.08	134	.06	<3	2.02	<.01	.06	<2	<5	<1
B 6+00S 3+00E	1	23	35	156	<.3	17	11	568	2.91	8	<5	<2	4	21	1.2	<2	<2	45	.20	.039	22	34	.99	167	.09	<3	1.77	.01	.14	<2	<5	<1
B 6+00S 3+50E	1	25	44	149	.3	15	8	374	2.90	7	<5	<2	3	18	.7	<2	3	48	.17	.045	20	35	.98	134	.07	<3	1.89	<.01	.10	2	<5	<1
B 6+00S 4+00E	1	14	25	124	<.3	13	7	407	2.55	4	<5	<2	3	17	.5	<2	<2	40	.18	.048	20	31	.86	123	.08	3	1.58	.01	.13	<2	<5	<1
B 6+00S 4+50E	1	21	22	106	<.3	12	7	538	2.58	8	7	<2	3	16	.6	<2	<2	34	.19	.052	21	26	.74	128	.08	4	1.36	.01	.20	<2	<5	<1
B 6+00S 5+00E	1	31	10	122	<.3	14	11	844	2.92	3	<5	<2	6	21	1.1	<2	2	37	.32	.069	18	28	.98	183	.11	<3	1.55	.01	.35	<2	<5	<1
STANDARD C	17	56	38	126	6.5	65	29	1078	3.65	43	17	7	35	48	16.7	16	17	64	.48	.087	41	56	.88	172	.08	26	1.71	.06	.15	12	<5	1

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

19



SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Tl	Hg
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	%	ppm	ppm	ppm
B 1+25E 2+00S	1	43	64	118	.5	18	3	296	3.18	9	<5	<2	2	18	.3	<2	3	47	.12	.046	21	48	1.15	90	.05	<3	1.70	.01	.04	<2	<5	1
B 1+25E 2+50S	<1	13	49	97	<.3	14	3	195	1.57	2	<5	<2	<2	14	.9	<2	4	30	.13	.039	14	31	.82	114	.04	4	1.48	.01	.04	<2	<5	1
B 1+25E 3+00S	1	67	383	137	1.1	16	7	381	3.47	8	<5	<2	<2	22	3.1	<2	<2	44	.21	.110	17	27	.59	172	.03	<3	1.23	.01	.04	<2	<5	<1
B 1+25E 3+50S	<1	14	42	60	<.3	11	3	147	1.70	<2	<5	<2	<2	13	.3	<2	2	29	.12	.033	9	25	.47	149	.04	<3	1.00	.02	.03	<2	<5	1
B 1+25E 4+00S	1	39	91	198	.3	19	7	335	3.04	9	<5	<2	4	18	.8	<2	3	51	.18	.043	17	36	1.18	181	.06	3	1.81	.01	.05	<2	<5	<1
B 1+25E 4+50S	1	44	176	227	.5	18	7	276	2.58	8	5	<2	5	23	1.0	<2	<2	41	.16	.045	21	31	.93	127	.05	<3	1.52	.01	.04	<2	<5	<1
B 2+00E 2+00S	1	56	367	275	.8	19	5	361	3.10	13	<5	<2	4	16	.7	2	<2	58	.13	.044	17	47	1.54	171	.05	<3	2.09	.01	.04	<2	<5	<1
B 2+00E 2+50S	1	79	409	311	1.0	18	5	521	3.85	13	<5	<2	3	15	.3	<2	<2	60	.12	.044	12	40	1.58	142	.04	<3	1.92	.01	.03	<2	<5	<1
B 2+00E 3+00S	1	98	316	309	.9	22	9	550	3.38	8	<5	<2	<2	20	1.9	2	<2	60	.16	.053	15	53	1.46	218	.04	3	2.01	.01	.05	<2	<5	1
RE B 2+00E 3+00S	1	100	317	323	1.0	22	10	558	3.48	9	<5	<2	<2	20	1.3	<2	4	63	.16	.054	15	56	1.53	225	.04	<3	2.08	.01	.05	<2	<5	<1
B 2+00E 3+50S	1	42	160	175	.3	20	5	285	3.26	11	<5	<2	2	17	.8	2	3	54	.16	.044	16	44	1.08	173	.06	3	1.93	.01	.05	<2	<5	<1
B 2+00E 4+00S	1	45	179	228	.7	20	5	353	3.11	9	<5	<2	2	18	1.6	<2	<2	47	.16	.055	15	39	.99	124	.05	<3	1.69	<.01	.04	<2	<5	1
B 2+00E 4+50S	1	31	109	159	.5	19	4	255	3.08	12	<5	<2	2	18	.6	<2	<2	50	.15	.049	18	40	1.03	135	.05	3	1.83	<.01	.05	<2	<5	<1
B 3+25E 2+50S	1	105	242	329	.7	23	27	1813	3.22	10	<5	<2	2	18	2.4	<2	<2	48	.22	.054	20	68	1.42	128	.04	4	1.80	.01	.04	<2	<5	<1
B 3+25E 3+00S	1	27	181	209	.6	18	4	336	2.37	7	<5	<2	2	18	.7	<2	4	42	.13	.041	17	51	1.23	97	.04	<3	1.71	<.01	.04	<2	<5	1
B 3+25E 3+50S	1	44	122	275	<.3	40	29	1868	4.17	9	<5	<2	2	15	.5	<2	<2	78	.16	.060	9	99	1.86	124	.04	<3	2.09	.01	.07	<2	5	<1
B 3+25E 4+00S	<1	27	51	184	<.3	31	15	787	3.68	7	<5	<2	4	20	.9	<2	<2	71	.26	.036	11	78	1.69	258	.09	<3	2.25	.01	.19	<2	<5	<1
B 3+25E 4+50S	1	38	33	161	.3	22	22	1314	3.92	9	<5	<2	5	17	.6	2	2	60	.21	.051	28	38	1.08	253	.10	<3	1.82	<.01	.29	<2	<5	1
STANDARD C	17	56	42	125	6.5	67	28	1090	3.74	42	17	7	35	47	16.2	17	18	65	.48	.088	40	57	.89	172	.08	28	1.72	.06	.14	10	<5	6

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

17

Appendix B

STATISTICS

COPPER STATISTICS

PUB BAL SOIL GEOCHEMISTRY

LOGARITHMIC VALUES

=====

VARIABLE = CU

UNIT = ppm

N = 93

N CI = 20

POPULATIONS

=====

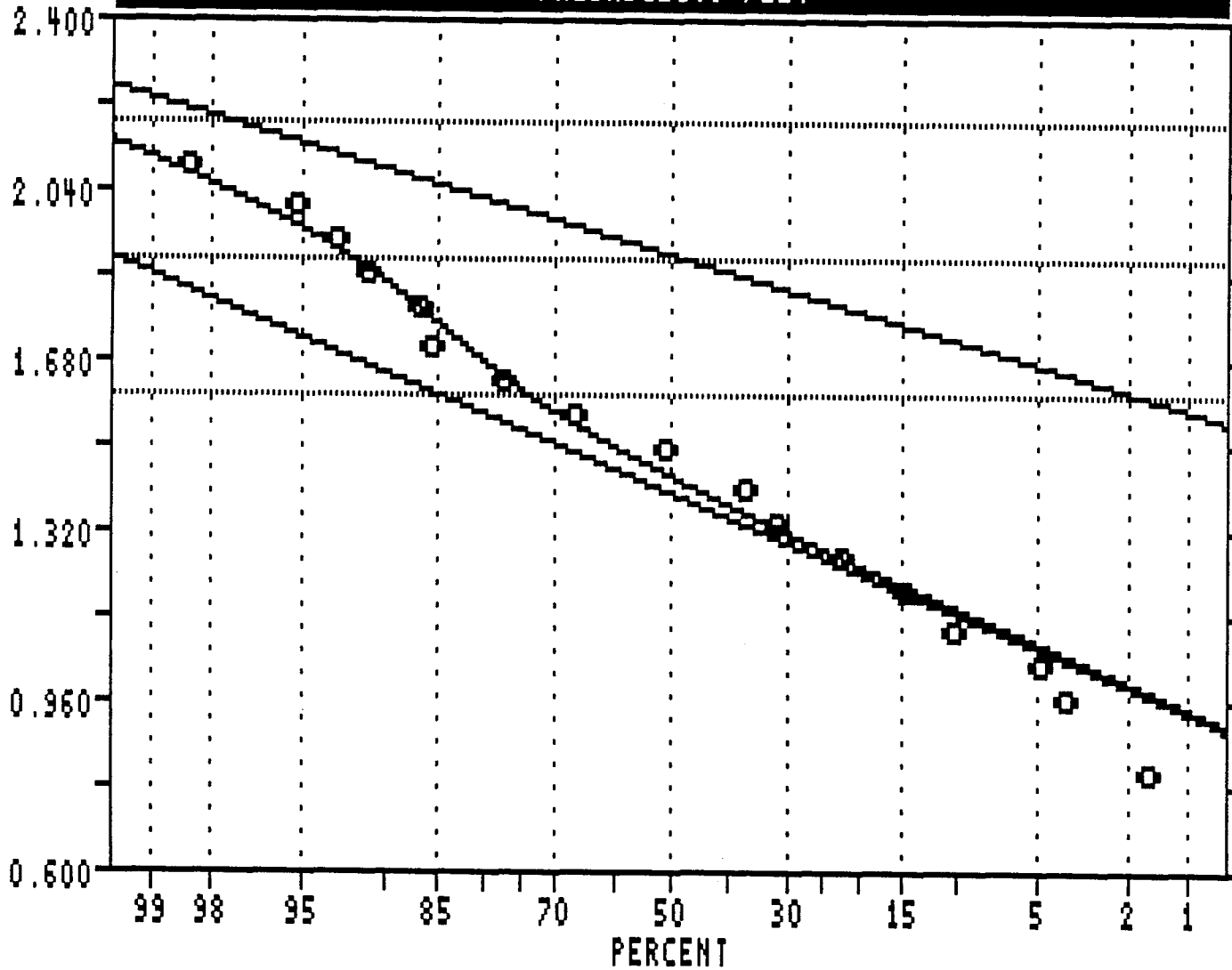
Pop.	Mean	Std.Dev.	%
1	1.3911	0.1982	85.0
2	1.8933	0.1428	15.0

THRESHOLDS

=====

2.1789 1.8933
1.6076

PROBABILITY PLOT

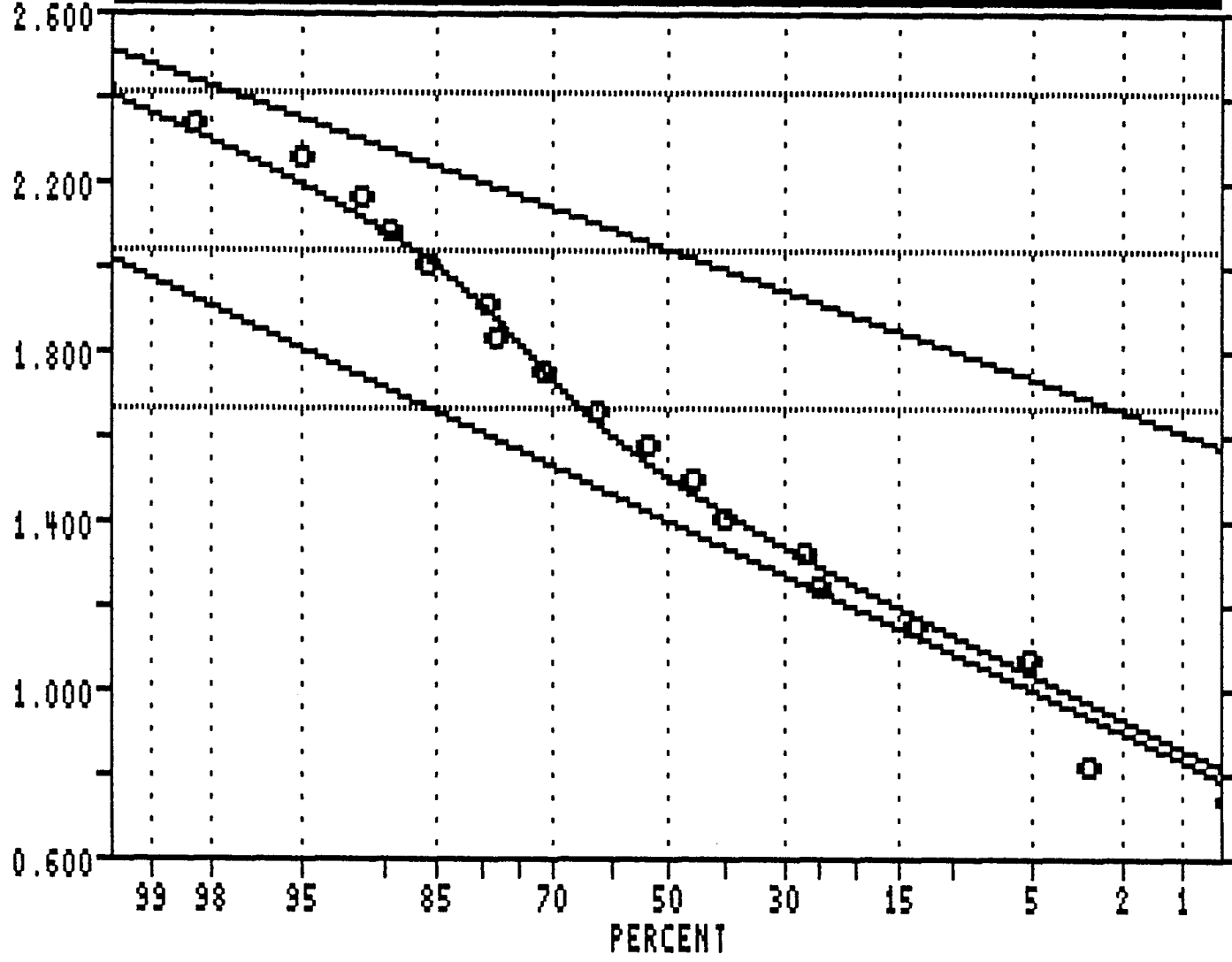


USERS VISUAL
PARAMETER ESTIMATES

LEAD STATISTICS

PUB BAL SOIL GEOCHEMISTRY

PROBABILITY PLOT



LOGARITHMIC VALUES

===== =====
 VARIABLE = Pb
 UNIT = ppm
 N = 87
 N CI = 20

POPULATIONS

=====

Pop.	Mean	Std.Dev.	%
1	1.3994	0.2455	75.0
2	2.0353	0.1848	25.0

THRESHOLDS

=====

2.4049 2.0353
 1.6657

USERS VISUAL
 PARAMETER ESTIMATES

PUB BAL SOIL GEOCHEMISTRY

 SUMMARY STATISTICS and HISTOGRAM LOGARITHMIC VALUES

Variable = Pb Unit = ppm N = 93

Mean = 1.6078 Min = 0.6021 1st Quartile = 1.3169

Std. Dev. = 0.4318 Max = 2.6117 Median = 1.5798

CV % = 26.8575 Skewness = 0.3563 3rd Quartile = 1.8383

Anti-Log Mean = 40.533 Anti-Log Std. Dev. : (-) 14.997
 (+) 109.554

```

=====
%      cum %      antilog  cls int  (# of bins = 20 - bin size = 0.1058)
-----
0.00  0.53      3.541   0.5492
1.08  1.60      4.518   0.6549  *
0.00  1.60      5.764   0.7607
2.15  3.72      7.353   0.8665  **
0.00  3.72      9.381   0.9723
2.15  5.85     11.968  1.0780  **
10.75 16.49     15.269  1.1838  *****
7.53  23.94     19.479  1.2896  *****
11.83 35.64     24.851  1.3953  *****
7.53  43.09     31.704  1.5011  *****
10.75 53.72     40.447  1.6069  *****
12.90 66.49     51.602  1.7127  *****
6.45  72.87     65.832  1.8184  *****
4.30  77.13     83.986  1.9242  ****
5.38  82.45    107.147  2.0300  ****
4.30  86.70    136.694  2.1358  ****
1.08  87.77    174.390  2.2415  *
5.38  93.09    222.482  2.3473  *****
2.15  95.21    283.835  2.4531  **
1.08  96.28    362.107  2.5588  *
3.23  99.47    461.965  2.6646  ***
-----
                                0          1          2          3          4
    
```

#####

ZINC STATISTICS

PUB BAL SOIL GEOCHEMISTRY

#####

PARAMETER SUMMARY STATISTICS FOR PROBABILITY PLOT ANALYSIS

Data File Name = A:PUBBAL.DAT

Variable = Zn Unit = ppm N = 92
N CI = 20

Transform = Logarithmic Number of Populations = 2

of Missing Observations = 0.

0 Observations Were Below the Minimum Value of 4.0000
1 Observations Were Above the Maximum Value of 400.0000

=====

Users Visual Parameter Estimates

Population	Mean	Std Dev	Percentage
-----	-----	-----	-----
1	96.366	- 57.754	90.00
		+ 160.793	
2	277.634	- 236.482	10.00
		+ 325.946	

=====

User Defined Thresholds.

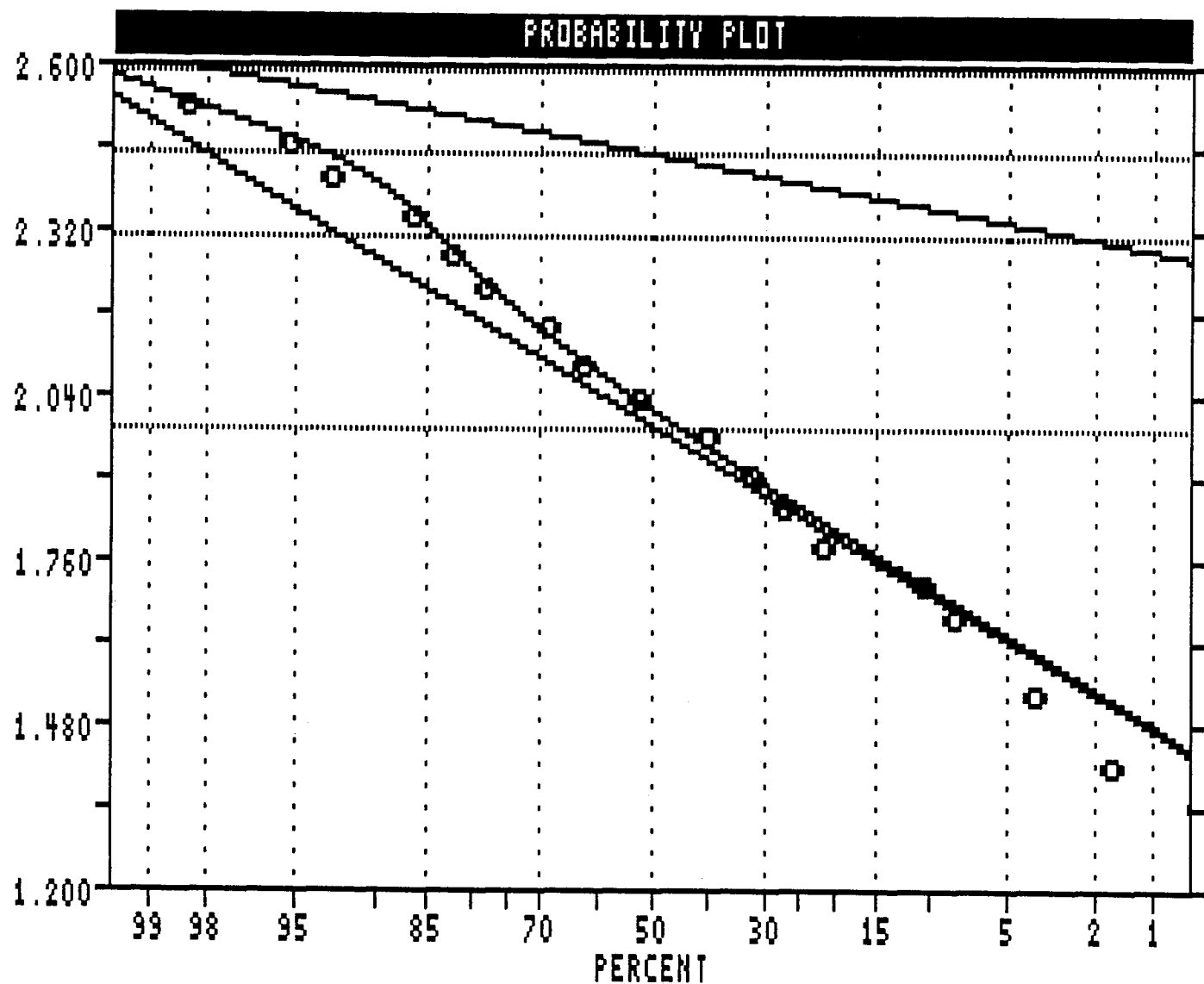
Thresholds

382.648
277.651
201.419
96.361

#####

PUB BAL SOIL GEOCHEMISTRY

PROBABILITY PLOT



LOGARITHMIC VALUES

=====

VARIABLE = Zn

UNIT = ppm

N = 92

N CI = 20

POPULATIONS

=====

Pop.	Mean	Std.Dev.	%
1	1.9839	0.2223	90.0
2	2.4435	0.0697	10.0

THRESHOLDS

=====

2.5828	2.4435
2.3041	1.9839

USERS VISUAL
PARAMETER ESTIMATES

PUB BAL SOIL GEOCHEMISTRY

 SUMMARY STATISTICS and HISTOGRAM ARITHMETIC VALUES

Variable = Zn Unit = ppm N = 92
 Mean = 124.826 Min = 24.000 1st Quartile = 69.000
 Std. Dev. = 73.147 Max = 363.000 Median = 106.000
 CV % = 58.599 Skewness = 1.150 3rd Quartile = 156.000

=====

%	cum %	cls int	(# of bins = 20 - bin size = 17.842)
0.00	0.54	15.079	
2.17	2.69	32.921	**
7.61	10.22	50.763	*****
15.22	25.27	68.605	*****
8.70	33.87	86.447	*****
16.30	50.00	104.289	*****
10.87	60.75	122.132	*****
6.52	67.20	139.974	*****
8.70	75.81	157.816	*****
5.43	81.18	175.658	*****
1.09	82.26	193.500	*
4.35	86.56	211.342	****
2.17	88.71	229.184	**
3.26	91.94	247.026	***
1.09	93.01	264.868	*
2.17	95.16	282.711	**
0.00	95.16	300.553	
2.17	97.31	318.395	**
1.09	98.39	336.237	*
0.00	98.39	354.079	
1.09	99.46	371.921	*

0 1 2 3 4

#####

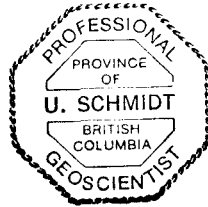
Appendix C

STATEMENT OF QUALIFICATIONS

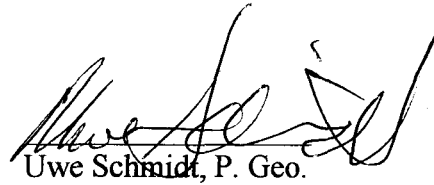
STATEMENT OF QUALIFICATIONS

I, Uwe Schmidt, of 656 Foresthill Place, Port Moody, B.C. do hereby declare:

- (1) I am a consulting geologist and controlling shareholder of Northwest Geological Consulting Ltd.
- (2) I am a 1971 graduate of the University of British Columbia with a B.Sc. degree in Geology.
- (3) I am a member of The Association of Professional Engineers and Geoscientists of British Columbia and a Fellow of the Geological Association of Canada.
- (4) I have practised my profession continuously since graduation.
- (5) This report is based on work carried out by me or by workers under my supervision.



April 27, 1996
Vancouver, B.C.


Uwe Schmidt, P. Geo.