

REPORT ON
GRID SOIL GEOCHEMICAL AND RADIOMETRIC SURVEYS
OF THE
CORN PROPERTY

DAWSON MINING DISTRICT

NTS 116B/12

Lat.: 64° 45' N. Long.: 139° 45' W.

BY

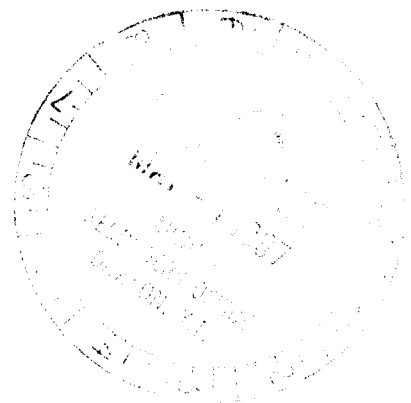
Uwe Schmidt, P. Geo.

FOR

ATNA RESOURCES LTD.

093657

April 27, 1997



This report has been examined by
the Geological Evaluation Unit
under Section 23 (1) Yukon Quartz
Mining Act and is deemed as
representation work in the amount
of \$ 5000.00.

M. B. B.
for Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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SUMMARY

The Corn 1-10 mineral claims were staked 1995 to cover a Proterozoic aged "Wernecke Breccia" target. The claims are located near the headwaters of a tributary of Coal Creek, in the Ogilvie Mountains, approximately 78 km north of Dawson City.

The Corn claims were explored on two occasions in August, 1996. During this time grid soil sampling, a grid radiometric survey, a claim survey and prospecting were carried out. A total of 47 soil samples were collected, over a 40 hectare area, at a line spacing of 200 metres and sample interval of 100 metres.

The claims are underlain primarily by carbonate rocks of the Gillespie Lake Group of the Wernecke Supergroup and younger carbonates of the Pinguicula Group. The Gillespie Lake Group carbonates are intruded by a heart-shaped body of "Wernecke" breccia. Disseminated pyrite is fairly common but significant copper mineralization was only observed in one area.

The 1996 program on the Corn property confirmed the presence of a previously unknown Proterozoic aged breccia pipe. Additional grid soil sampling, an IP survey and a ground magnetometer survey are recommended on Corn 3 to 6, to delimit the pipe and to define possible drill targets.

1. INTRODUCTION

The Corn claims were examined on two occasions in 1996. During the period from August 8 to 14 the writer and field assistant Andrey Schmidt carried out a claim survey, grid soil sampling and radiometric survey and prospecting. This examination confirmed that a Proterozoic intrusive breccia pipe occurs on the property. A second examination was carried out by the writer and geologist Nancy Reardon during the period from August 22 to 26, on behalf of Atna Resources Ltd. During this time additional soil samples were taken, the radiometric survey was extended and additional prospecting was carried out.

2. PROPERTY, LOCATION AND ACCESS

The Corn 1-10 mineral claims were staked by R. Beauchamp of Dawson City for the writer in November, 1995. The claims cover a Proterozoic aged "Wernecke Breccia" target, identified during a visit to the area in 1995. The claims are located near the headwaters of a tributary of Coal Creek, in the Ogilvie Mountains, approximately 78 km north of Dawson City.

The Corn 1-10 claims and the adjacent Harp 1-10 claims are owned jointly by U. Schmidt (85%) and E. M. Jensen (15%). The Corn claims were optioned by Atna Resources Ltd. in December, 1996. The Harp 7 and 9 claims were included in the option agreement because the 1996 field work indicates that there is a significant overlap between some of the Corn and Harp claims.

The property is located within the Dawson Mining District, on NTS map area 116B/12. The coordinates of the approximate centre of the property are latitude 64° 45' N and longitude 139° 45' W.

The details of the claims are as follows:

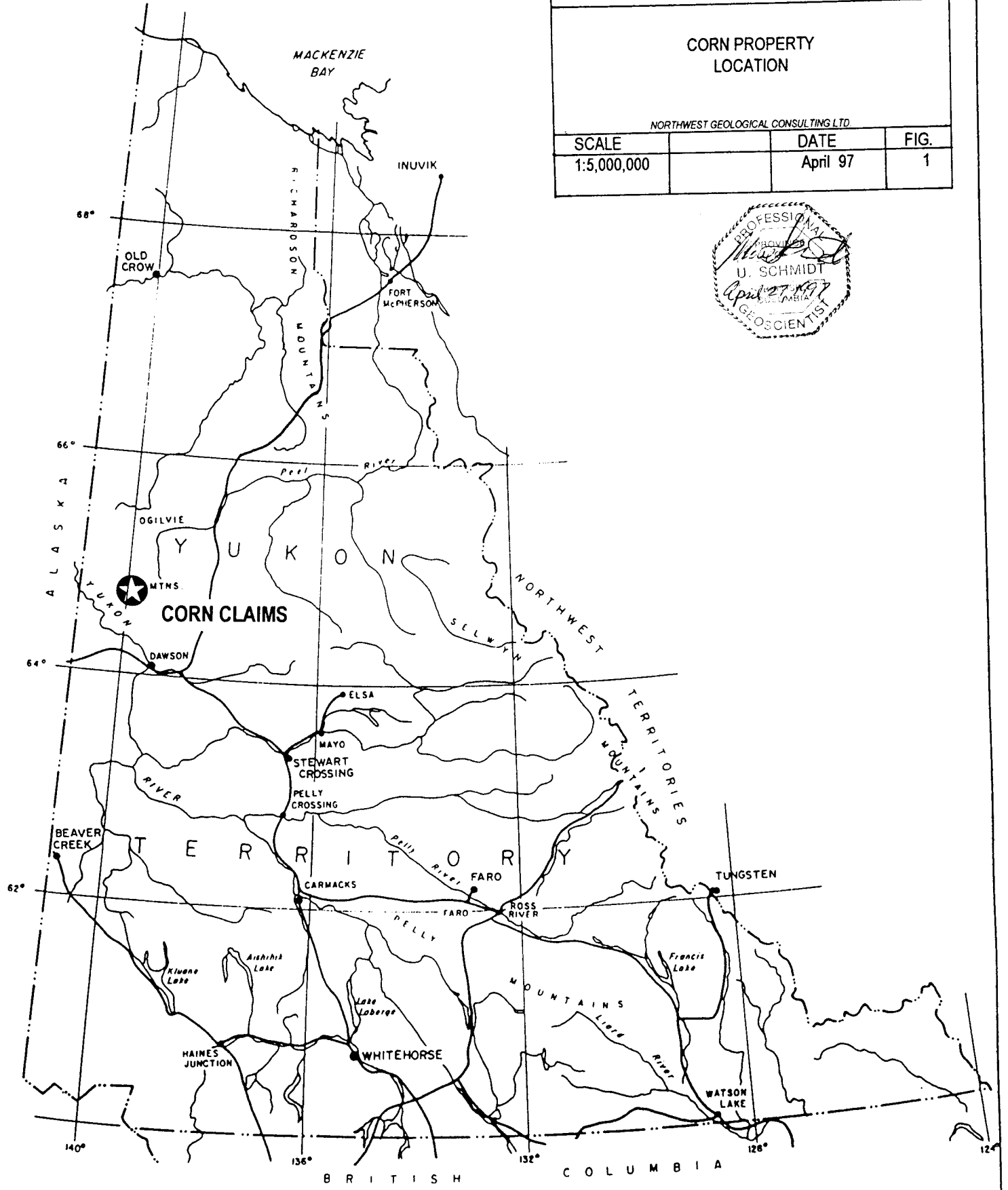
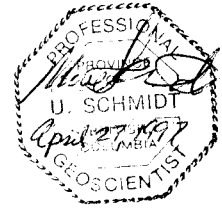
Name	Record Number	Expiry Date
Corn 1-10	YB67631-640	November 2, 1996
Harp 7	YA64914	February 18, 1997
Harp 9	YA64916	February 18, 1997

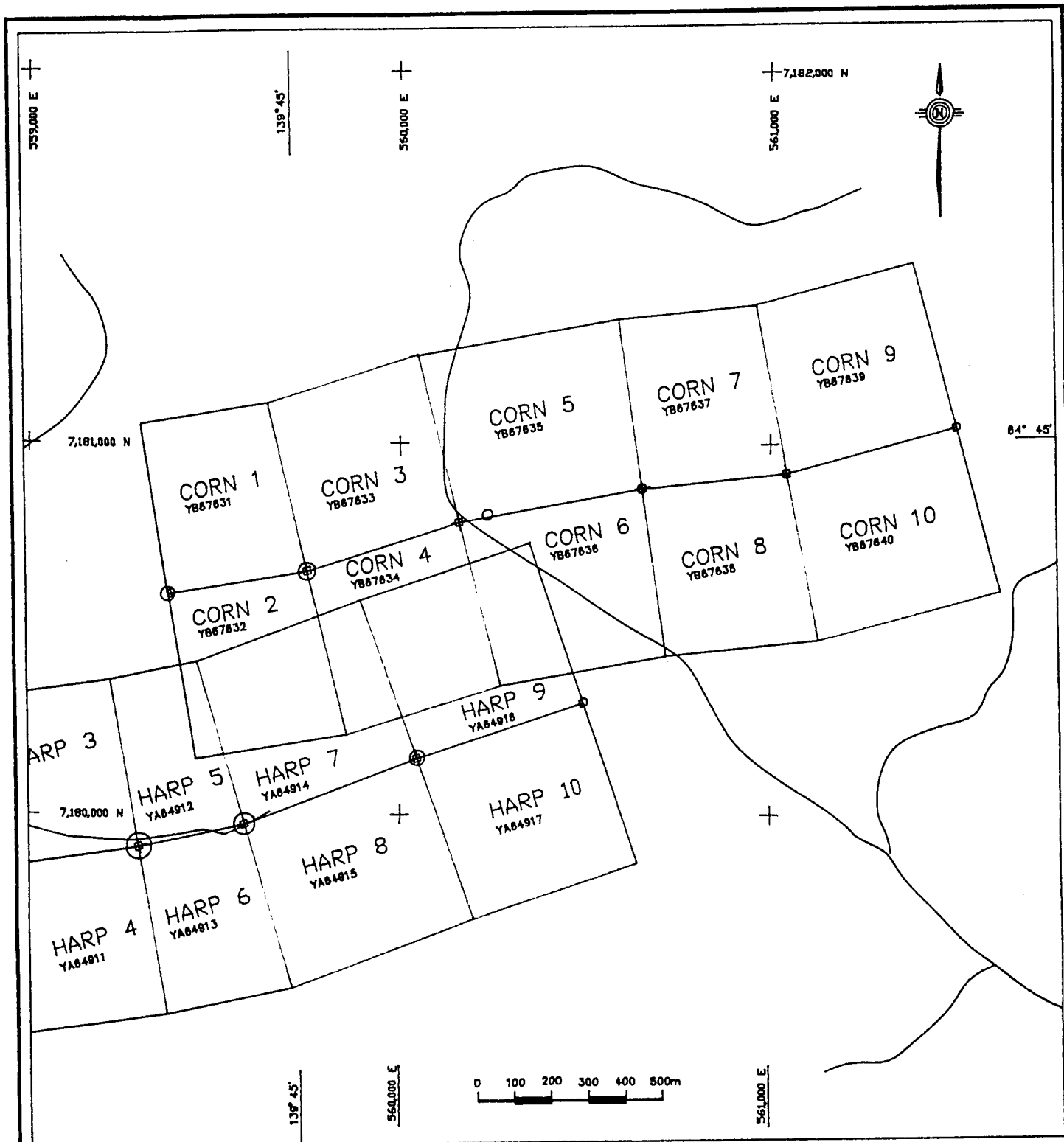
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CORN PROPERTY
LOCATION

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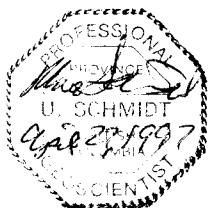
SCALE	DATE	FIG.
1:5,000,000	April 97	1





LEGEND

○ Claim Post Position Error
Indicated by average GPS Position



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Corn Property
Claim Location

NORTHWEST GEOLOGICAL CONSULTING LTD.

SCALE	NTS	DATE	Fig.
1:15,000	116B/12	Apr. 97	2

The property is accessible by helicopter from Dawson City. The Dempster Highway lies 64 km east of the property and Clinton Creek airstrip lies 56 km to the southwest of the property.

3. PHYSIOGRAPHY

The property is located in rugged terrain of the Southern Ogilvie Ranges of the Ogilvie Mountains. This area is underlain predominantly by sedimentary rocks of Precambrian to Lower Paleozoic age. Three periods of alpine glaciation covered the area. The youngest glaciation has a minimum age of 7,510 +/-100 years based on a radiocarbon age of bog deposits in eastern Dawson map-area (Vernon and Hughes, 1966). During glacial periods alpine glaciers covered most of the major valleys while interglacial periods were ice free.

Ridge crests in the area lie at elevations ranging from 1500 to 1800 metres. Valley bottom on the property ranges from 1180 to 1280 m.

The property lies above tree line and only isolated alpine fir or black spruce are found in the area. Typical vegetation cover include mosses, grasses and lichen with patches of dwarf birch and willow thickets in boggy areas.

Valley bottoms are covered by a blanket of till and glaciofluvial deposits. The valley sides are covered to a large extent by anastomosing talus fans. The best bedrock exposures occur along ridges and streams. Soil development is poor and consists primarily of talus fines mixed with organics.

4. HISTORY

The area was first staked as the OZ claims by Dynasty Explorations Limited in August, 1974, to cover lead/zinc mineralization and geochemical anomalies outlined by a regional exploration program. Dynasty Explorations explored the property in 1974 by grid soil sampling, mapping. In 1975, Cyprus Anvil drilled 3 holes totalling 379 m (1245 feet) to test stratabound, disseminated, shale-hosted, Zn-Pb mineralization.

The OZ claims lapsed in 1981 and were restaked as the Harp claims by Enterprise Exploration Limited. The main showing and drill holes are located on the Harp claims to the southwest. The writer acquired the Harp claims in 1982 but did not examine the property until July 1995. During this examination, hematitic and copper bearing "Wernecke" breccia boulders were discovered in the creek at the east end of the Harp claims. The Corn claims were staked to cover the most likely source area for these breccias. Atna Resources Limited optioned the property in December 1996 after a preliminary examination of the claims confirmed the location of an intrusive breccia body.

The program in 1996, covered by this report, consisted of a claim survey, prospecting and a grid soil and radiometric survey. A significant portion of time was spent on surveying the claims and their relative position to the Harp property because the location of the claims in the field varied significantly from locations on government claim maps.

5. REGIONAL GEOLOGY

The Corn and Harp claims are underlain by Proterozoic carbonates, clastics and shales. At the time of the Dynasty staking the only mapping available for the area was that of Green and Roddick (1972). Since then, a clearer understanding of the Proterozoic geology of the Yukon has evolved. Most of this work was carried out in Wernecke and Mackenzie Mountains. Preliminary mapping by the GSC in the Ogilvie Mountains in 1981 and 1982 included the property (Thompson, pers. comm., 1982). This work recognized and separated the Wernecke breccias for the first time in regional mapping. A mapping project specifically aimed at intrusive breccia complexes in the Ogilvie Mountains was published by Lane and Godwin in 1992. This mapping does not extend to the property.

The GSC and other workers have outlined three groups of sedimentary rocks of Proterozoic age in eastern Wernecke Mountains. These are from oldest to youngest: Wernecke Supergroup, Pinguicula Group and Ekwi Supergroup. They are separated by pronounced angular unconformities in Wernecke Mountains but their relationship is less clear in the other areas.

The geology of Coal Creek Dome area north of Dawson is similar to Wernecke Mountains. In

this area equivalents of the three major divisions occur but their boundaries are not as clearly exposed. Mapping by Green and Roddick grouped the three divisions into Units 1 and 2a to 2e.

The oldest rocks, belonging to Wernecke Supergroup, are mapped as Units 1, 2a and 2b. Rocks equivalent to the Quartet Group of the Wernecke Supergroup are included in Unit 1. Overlying carbonates and shales of the Gillespie Lake Group of the Wernecke Supergroup are mapped as Unit 2a and 2b. The Wernecke Supergroup is thought to be of Helikian age. The sedimentary sequences are intruded by heterolithic diatreme breccias which have yielded a variety of ages from around 1.0 to 1.5 BY.

The Fairchild Lake Group, the oldest sub-division of Wernecke Supergroup, is not distinguishable in Green and Roddick's mapping but has been mapped east of the property (Lane and Godwin 1992).

The bulk of Unit 1 in Wernecke Mountains consists of the Quartet Group. A clastic unit of probable turbidite origin which comprises interbedded shale, argillite and quartzite. This sequence grades conformably into the shallow water carbonate beds of the overlying Gillespie Lake Group. Orange weathering carbonates, chert, and minor shale predominate in this group and stromatolites are locally significant constituents.

The Wernecke Supergroup is overlain with angular unconformity by the Pinguicula Group. This sequence of clastic and carbonate platformal rocks is marked at its base by a distinctive clastic unit and a green and maroon siltstone unit of variable thickness. These are in turn overlain by buff and orange weathering carbonates. In many areas the unconformity between Wernecke and Pinguicula Groups is not well exposed and the unconformity may not be detected.

In Coal Creek Dome area the Pinguicula Group is mapped as Unit 2c (Delaney, 1981). The age of the Pinguicula is unknown. It lies between the upper Hadrynian Ekwi Supergroup and the Wernecke Supergroup of probable Helikian age.

The Ekwi Supergroup, the youngest of the three pre-Cambrian divisions overlies the Pinguicula Group with angular unconformity. This relationship is only demonstrated in certain localities

in Wernecke Mountains. An area of western Coal Creek Dome, mapped as Unit 2e, has been assigned to Ekwi Supergroup (Delaney, 1981).

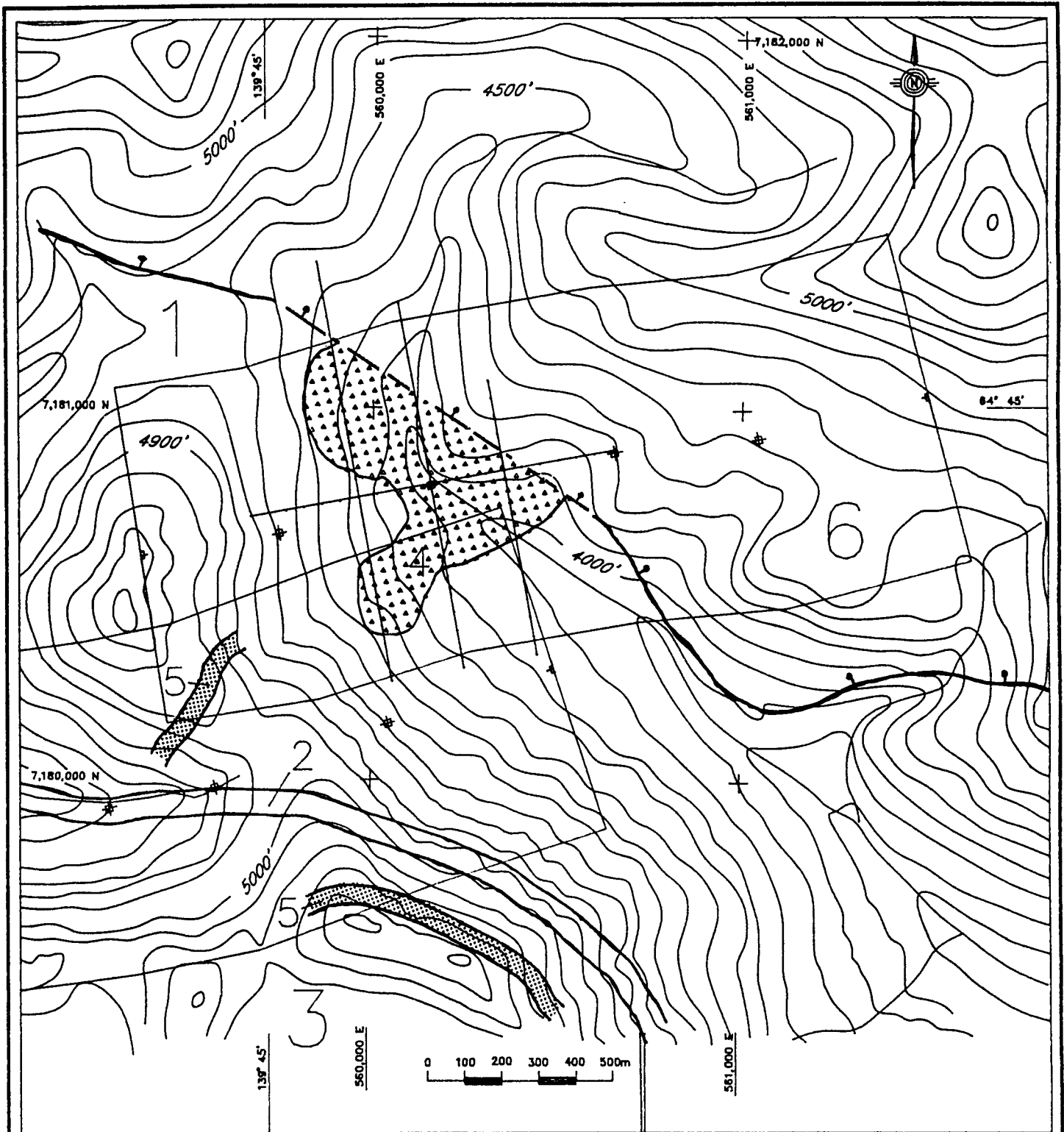
6. PROPERTY GEOLOGY

Previous mapping by Dynasty Exploration was not filed for assessment. Only a small area mapped by Dean in 1974 is available in the assessment records.



The aim of the 1996 program was to confirm the presence of a "Wernecke" breccia pipe and to confirm that it is located on the claims. This was accomplished along with some preliminary prospecting and mapping.

The Corn claims are underlain primarily by carbonate rocks of two ages. The oldest rocks are buff to orange weathering silty carbonates, correlative with the Gillespie Lake Group of the Wernecke Supergroup. These rocks underlie most of the western half of the property. The Gillespie Lake Group carbonates are intruded by a heart-shaped body of Wernecke breccia. The breccia pipe and carbonates are truncated to the east by a steep northwest trending fault. This fault juxtaposes younger, white to pale grey, siliceous carbonates (Pinguicula Group) against the older Wernecke Supergroup lithologies. The Gillespie Lake silty dolomites are overlain to the southwest by a thin horizon of argillites which are in turn overlain by a pale grey variety of the Gillespie Lake dolomite.

The breccia is exposed in a few resistant outcrops, low in the main, north-trending valley which cuts across the centre of the property and in outcrops along the main stream. The limits of the breccia are inferred from breccia outcrops, altered, radioactive carbonate outcrops and by a radiometric survey. The east end of the breccia is terminated by the fault which has displaced Pinguicula Group carbonates downward relative to Gillespie Lake Group rocks. The eastern extension of the breccia likely lies at depth under Pinguicula Group rocks.



LEGEND

- 6 Pinguicula Group Dolomite
- 4  Breccia
- 5  Mafic Dykes
- WERNECKE SUPERGROUP
- Gillespie Lake Group
- 3 Dolomite
- 2 Argillite
- 1 Shaley Dolomite



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Corn Property
Geology

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SCALE	NTS	DATE	Fig.
1:15,000	116B/12	Apr. 97	3



Plate I: View of Corn claims looking north. Breccia pipe outcrops in creek and east side of creek on distant knoll in the centre of the photo.



Plate II: GPS survey of Corn claims. View to the southeast with breccia outcrops on left side of photo.

Mineralization

Large boulders of Wernecke breccia were found south of the Corn claims in 1995. These boulders were traced to creek outcrops and small resistant outcrops on the east side of the creek in 1996. As is the case elsewhere, the breccia types and alteration are highly variable. In Wernecke Mountains, breccia complexes are commonly enriched in Fe, Cu, U, Co and Ba. Breccia mineralization is also enriched in Rare Earth Elements and in rare cases may contain high gold concentrations. Alteration associated with breccia complexes includes hematization, carbonatization, silicification and Na-feldspathization. Alteration is evident within breccia fragments and in metamorphic aureoles surrounding the breccias. Alteration intensity is affected by fragment and host rock lithologies. The most distinctive feature of the breccias is their hematite content. Red hematite alteration of fragments is evident in the most intensely altered breccia varieties. Coarse specular hematite accompanied by Fe carbonate is commonly present in the breccia matrix.

Many of these alteration features were observed in the Corn breccia pipe. Alteration includes bleaching, chloritization, hematization, carbonatization, and K-feldspathization. Intensity of alteration varies over short distances. Disseminated pyrite is fairly common but significant copper mineralization was only observed in one area, south of base line 50+00 N, near station 51+00E. Chalcopyrite occurs as blebby disseminations associated with disseminated euhedral pyrite and as irregular massive veins up to 1 cm wide. Concentrations in hand specimen are estimated to be in the range of 0.3 to 0.5 % Cu.

Rare fragments of coarse to massive galena/sphalerite replacement mineralization in dolomite were also found on talus slopes of Gillespie Lake Group, on the west side of the valley. Numerous dolomite fragments containing iron oxide filled veins were also found on these talus slopes. The oxides are probably derived from weathered Zn-Pb mineralization. No outcrop sources of this mineralization was found on the Corn claims but does occur on the Harp claims to the west.

7. GEOCHEMISTRY

Grid soil sampling was carried out over a 40 hectare area in the centre of the property. A total

of 47 soil samples were collected at a line spacing of 200 metres and sample interval of 100 metres. Samples were also taken at 100 metre intervals along the base line.

Sample lines are marked with orange flagging tape and were established by slope-corrected compass and "hip-chain" surveys. Grid stations are identified at 50 metre intervals by 60 cm high lath pickets and orange flagging tape with grid coordinates and sample numbers marked on the pickets. Samples of B horizon soils were collected when possible, but because of poor soil development most samples consist of talus fines which in some areas are mixed with minor organics. Sample depths ranged from 20 to 40 cm.

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).

STATISTICAL METHOD

Analytical data were 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, Zn, Ag, As and Au analytical data was carried out with the aid of histograms and cumulative probability plots generated by Probplot. Radiometric survey data were also analyzed in the same way. During data analyses the data set was reduced by eliminating analyses which are at the analytical detection limit. Trial graph plots were modified by eliminating isolated high values until the best resolution of sub-populations in the data was obtained. The degree of data truncation varies with each element. 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 were chosen for each element by examining how the statistical parameters for each sub-population could be used to distinguish the sub-populations from each other. The statistical parameters that best represented these sub-population boundaries were assigned to up to six symbol classes for plotting. In most cases fewer than six symbol classes were used and the mean value, plus and minus two standard deviations of the highest sub-populations produced the best anomaly definition. Lower sub-populations were often eliminated because they represent background

metal concentrations. 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. Lower sub-population thresholds are often ignored on symbol plots because they represent background concentrations. The final plots classify the analytical data for each element into ranges of increasing concentration which are assigned symbols of increasing size. Depending on the initial graphs, either log, or arithmetic probability plots were chosen to determine thresholds. Analyses and anomaly interpretation for Cu/Ag, Pb/Zn, and Au/As are plotted at 1: 5000 and appended to this report.

DISCUSSION OF RESULTS

Copper (Fig.6)

Copper concentrations range from 9 to 127 ppm. The log probability plot of the data was divided into three sub populations, with population breaks selected at 25% and 97% of the data. Symbol boundaries were chosen at 29 and 82 ppm Cu. The highest threshold corresponds to the mean plus 2 standard deviations of population 2 and the lower threshold is the mean minus 2 standard deviations of population 1.

Silver (Fig.6)

Silver concentrations range from a detection limit of 0.3 ppm to 23.1 ppm. The data were truncated at the detection limit and above 7.0 ppm before calculating thresholds. Sixty-five analyses lie within this range. The log probability plot of the data was divided into four sub populations, with population breaks selected at 25%, 55% and 95% of the data. An anomalous threshold of 0.8 ppm was selected and symbol boundaries were chosen at 0.8, 3.6 and 6.7 ppm Ag. This corresponds to the mean minus two standard deviations of population 3, the mean minus two standard deviations of population 4 and the mean plus two standard deviations of population 4 respectively.

Scaled symbol plots of the data at 1:4000 scale (Fig.7) outline anomaly trends similar to Pb and Zn with the highest analyses showing a westward displacement compared to Pb and Zn.

Lead (Fig. 7)

A total of 47 analyses lie within the range of 10 to 1181 ppm Pb. No analyses are below the detection limit of 4 ppm and 2 are above the truncated maximum value of 600 ppm. The data were sub-divided into 3 lognormal populations with population boundaries selected at 10%, and 90% of the data. Scaled symbols were assigned thresholds of 15, 70 and 407 ppm Pb, representing the mean plus two standard deviations of population 1, the mean of population 2, and the mean minus two standard deviations of population 3, respectively.

Anomalous lead concentrations trend northwesterly across the grid, terminating on line 50+00 N but extending south, 400 metres, to line 54+00 N.

Zinc (Fig. 7)

The zinc analytical data ranges from 45 to 1704 ppm. Forty-two analyses were included in a data set which was truncated at 800 ppm. This excluded 5 samples from the data analysis. The data were divided into 3 sub-populations, based on an arithmetic cumulative probability plot, with boundaries selected at 40% and 95%. Scaled anomaly symbols were assigned thresholds of 175, 322, 592 and 897 ppm. These thresholds correspond to the mean plus two standard deviations of population 1, mean of population 2, the mean plus 2 standard deviations of population 2, and the mean plus two standard deviations of population 3, respectively.

Gold (Fig. 8)

Gold concentrations range from a detection limit of 1 ppb to 8 ppb. The data were truncated at 1 ppb before calculating thresholds. Twenty-one samples were included in the data analysis which excluded 26 samples. The log probability plot of the data was divided into two sub-populations, with a population break selected at 50%. Symbol boundaries were chosen at 2, and 5 ppb Au. This corresponds to the mean minus two standard deviations of population 2, and the mean of population 2, respectively. Gold values are low but were included in the analysis because gold and copper show a positive correlation.

Arsenic (Fig. 8)

The arsenic analytical data ranges from 4 ppm to 34 ppm in forty-seven analyses. The data were divided into 3 sub-populations with population boundaries selected at 30% and 80%. Scaled anomaly symbols were assigned thresholds of 12, 21, and 34 ppm. These thresholds

correspond to the mean of population 2, the mean minus 2 standard deviations of population 3, and the mean plus two standard deviations of population 3, respectively.

Correlation coefficients were calculated for ten elements. The highest coefficients are those among Pb, Zn, Ag, As and Cd. Low, positive correlations are also evident among Cu, As, Ag and Au.

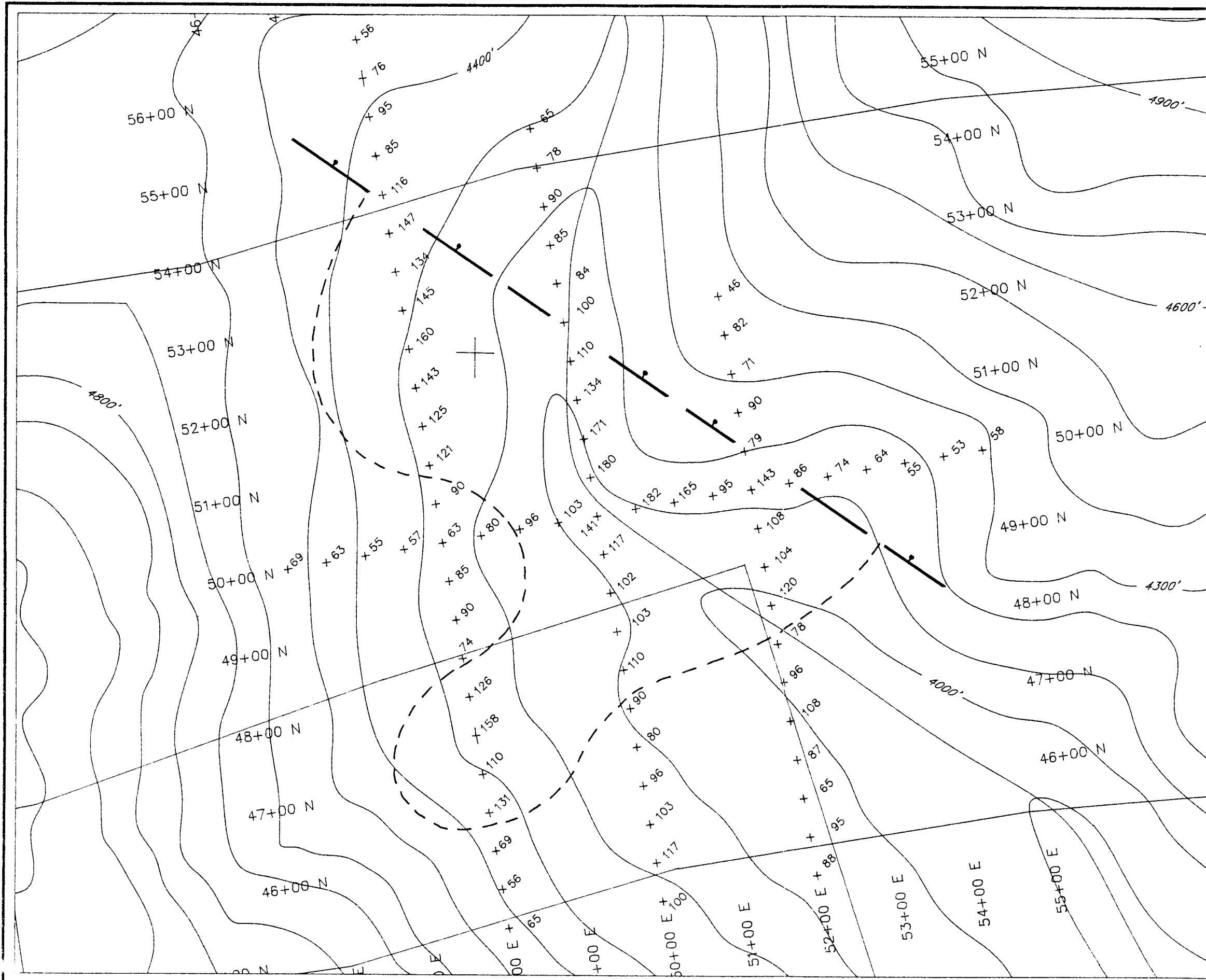
8. RADIOMETRIC SURVEY


A radiometric survey of the geochemical soil grid was carried out during the sampling, using an Urtec UG130 miniscint. This unit is a threshold scintillometer with a 66 cubic cm NaI (TI) crystal. The unit was operated in total count mode using a sample time of 10 seconds. This method gave the greatest range of radiometric backgrounds. The scintillometer was left on during traverses but readings were only recorded at 50 metre stations along grid lines. Thresholds were changed to detect U/Th and Th at radioactive outcrops, but no discrete U or Th sources of radioactivity were detected.

Radiometric data were also statistically analyzed in the same manner as the geochemical data. Eighty total count readings were included in a data set which ranged from 46 to 182 cps. The data were divided into 3 sub-populations, based on an arithmetic cumulative probability plot. The data analysis was intended to define the surface dimensions of the breccia pipe. A threshold of 95 cps was chosen as the breccia boundary because much of the radiometric survey was located within the pipe, based on field observations. The threshold is therefore an intermediate population boundary. This boundary is best defined by the mean of population 2 and is outlined on Fig. 4.




9. CLAIM SURVEY

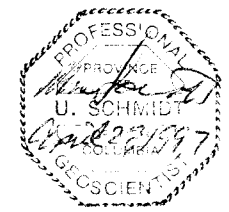
One of the goals of this project was to ensure that the Corn claims cover the breccia target. To achieve this, a GPS survey of all the Corn and Harp claim posts was carried out. The survey used a single Magellan GPS NAV 100 PRO. This technique has a number of limitations over





LEGEND

-  Total Counts/10 seconds CPS
-  Boundary of Breccia Pipe Indicated by Radiometric Survey
-  Fault



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Corn Property Radiometric Survey			
NORTHWEST GEOLOGICAL CONSULTING LTD.			
SCALE	NTS	DATE	Fig.
1:5,000	116B/12	Apr. 97	4

differential GPS surveys but errors were minimized by averaging readings and using only those readings which had low standard deviations of position errors. Although manufacturers often quote position errors of 15 metres these are only theoretically achievable with a single unit. Atmospheric errors and intentionally introduced errors such as Selective Availability (SA) cannot be removed without a reference point and post processing. This technique was beyond the scope of the project. With SA, a position accuracy of 100 metres or better can be achieved 95% of the time. Claim positions based on their GPS positions are plotted on Fig. 2. Circles representing the standard deviation of an average of 32 readings are also plotted. These error circles are intended to show relative instrument error and are not intended to show actual position errors. GPS generated coordinates were used with the exception of Corn 3,4,5,6 common posts which are located on the west side of the creek. The GPS determined location is shown by the error circle on the east side of the creek.

10. CONCLUSIONS

The 1996 program on the Corn property confirmed the presence of a previously unknown Proterozoic aged breccia pipe. The approximate limits of the pipe can be estimated from a statistical analysis of ground radioactivity. The pipe is truncated to the east by fault and is largely covered on the west side by carbonate talus. The combination of prospecting and a grid radiometric survey indicates that the pipe has an irregular heart shape with surface dimensions of around 600 by 700 metres.

11. RECOMMENDATIONS

A more detailed grid exploration program is recommended on Corn 3 to 6. Grid lines should be reduced to a 100 metre spacing on these claims. The completion of a grid soil geochemical survey at 50 metre sample spacing, an IP survey and a ground magnetometer survey are recommended to outline the limits of the pipe and to define possible drill targets.

12. BIBLIOGRAPHY AND REFERENCES

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13. STATEMENT OF EXPENDITURE

I. Field Expenses (Aug. 8-14, 1996)

1) Labour

U.Schmidt (Project Geologist) Aug. 8-10,11(1/2),12-14, 1996

6 1/2 days @\$385.20/day \$2,503.80

A. Schmidt (Field Assistant) Aug. 8-10,11(1/2),12-14, 1996

6 1/2 days @ \$100/day \$650.00

\$3,153.80

II. Field Expenses (Aug. 22-26, 1996)

1) Labour

U.Schmidt (Project Geologist) Aug. 22-26, 1996

5 days @\$385.20/day \$1,926.00

N. Reardon (Geologist, V.P. Atna Resources Ltd.) Aug. 22-26, 1996

5 days @ \$360/day \$1,800.00

\$3,726.00

2) Consumables and Supplies \$827.00

3) Camp and Equipment Rental \$449.40

4) Transportation

Truck Rental \$720.00

Fuel \$123.83

Air Charter \$3,451.81

5) Geochemical Analysis. \$574.76

\$6,146.80

III. OFFICE

Data compilation, Statistical Analysis, Plotting, Interpretation, Report Writing

U. Schmidt during the period from April 14-28, 1997

57 hours @ \$45.00 \$2,565.00

Expenses \$200.00

\$2,765.00

PROJECT TOTAL \$15,7913.60

Appendix A

CERTIFICATIONS OF ANALYSIS



GEOCHEMICAL ANALYSIS CERTIFICATE

Atna Resources Ltd. PROJECT CORN File # 96-5346 Page 1
1550 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Uwe Schmidt

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	Au*
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	%	ppm	ppm
C 50+00N 46+00E	1	28	48	244	.3	11	5	2696	2.08	16	<5	<2	2	20	.9	<2	<2	38	17.43	.032	9	7	10.36	159	.01	33	.40	.01	.02	<2	<1
C 50+00N 47+00E	1	77	393	545	1.4	31	11	3381	4.28	32	<5	<2	5	19	1.8	2	3	50	12.04	.069	14	14	6.94	296	.02	19	.92	.01	.03	<2	1
C 50+00N 48+00E	1	79	348	464	1.0	30	9	3113	3.88	24	<5	<2	5	24	1.7	3	<2	49	13.50	.036	14	15	8.17	327	.03	18	.95	.02	.03	<2	1
C 50+00N 49+00E	1	77	512	500	1.3	36	15	3141	5.30	26	<5	<2	4	18	1.6	2	<2	73	3.83	.061	20	25	2.47	299	.05	10	1.65	.02	.04	<2	1
C 50+00N 50+00E	1	37	305	268	.5	32	12	1676	4.12	14	<5	<2	2	16	.9	<2	5	70	.61	.072	20	32	.78	263	.05	3	1.99	.02	.05	<2	4
C 50+00N 51+00E	4	127	20	86	.6	27	16	1140	4.86	4	<5	<2	3	14	.7	<2	<2	85	.24	.078	12	31	.58	178	.06	<3	2.53	<.01	.07	<2	6
C 50+00N 52+00E	1	15	13	84	<.3	18	9	486	3.45	5	<5	<2	2	14	.3	<2	<2	57	.21	.045	11	27	.54	232	.05	4	2.03	.01	.05	<2	1
C 50+00N 53+00E	<1	17	24	134	<.3	27	9	622	3.10	8	<5	<2	2	18	.4	<2	<2	57	.29	.089	14	43	1.02	159	.04	3	2.07	.01	.06	<2	1
C 50+00N 54+00E	1	15	41	164	<.3	14	5	366	2.12	7	<5	<2	2	44	.2	<2	<2	31	8.94	.101	9	22	5.09	166	.03	4	1.15	.02	.04	<2	<1
C 50+00N 55+00E	1	18	22	102	.3	22	11	733	3.01	8	<5	<2	2	25	.4	<2	3	52	1.98	.162	14	34	1.24	155	.04	4	1.97	.01	.04	<2	4
C 48+00E 55+00N	1	28	80	155	.8	33	19	2127	4.49	14	<5	<2	4	29	1.0	<2	<2	36	6.02	.071	20	18	3.69	256	.04	7	1.21	.01	.08	<2	2
C 48+00E 54+00N	1	39	29	104	.3	29	9	541	3.46	9	<5	<2	3	13	.3	<2	<2	50	.33	.067	19	29	.72	289	.05	4	1.76	.01	.07	<2	8
C 48+00E 53+00N	1	44	14	64	<.3	27	10	432	3.53	7	<5	<2	3	15	<.2	<2	<2	57	.30	.060	13	30	.75	283	.05	<3	1.97	<.01	.05	<2	1
C 48+00E 52+00N	1	27	49	223	<.3	20	13	1172	3.89	16	<5	<2	3	17	.6	<2	<2	77	.84	.113	14	32	.65	1750	.04	<3	2.30	<.01	.04	<2	2
C 48+00E 51+00N	1	64	204	281	1.3	33	14	2112	4.68	21	<5	<2	5	18	1.1	<2	<2	63	5.38	.052	19	25	3.35	289	.04	14	1.58	.02	.05	<2	1
RE C 48+00E 51+00N	1	62	194	270	1.3	31	13	2043	4.55	21	<5	<2	4	17	.7	<2	2	60	5.13	.052	19	24	3.20	279	.04	4	1.52	.01	.05	<2	2
C 48+00E 49+00N	1	53	440	467	.9	34	18	2614	4.71	24	<5	<2	2	15	1.1	<2	7	76	.64	.070	21	32	.79	252	.05	4	1.88	.01	.05	<2	4
C 48+00E 48+00N	1	38	56	153	.5	28	10	844	3.31	14	<5	<2	<2	18	<.2	<2	<2	51	.48	.068	15	21	.55	146	.05	<3	1.54	.02	.05	<2	3
C 48+00E 47+00N	2	57	60	286	.6	31	12	1753	4.44	21	5	<2	<2	13	.7	<2	<2	57	3.36	.071	17	22	2.09	131	.03	9	1.31	.01	.06	<2	3
C 48+00E 46+00N	1	44	277	748	1.3	28	11	2449	3.92	24	8	<2	6	18	1.8	2	5	51	10.49	.043	15	16	6.14	245	.03	23	.98	.02	.04	<2	1
C 48+00E 45+00N	<1	34	430	1041	.7	12	3	2981	2.58	12	<5	<2	4	21	2.0	2	<2	28	17.19	.033	10	8	10.21	116	.01	21	.32	.01	.02	<2	1
C 49+00E 55+00N	<1	12	20	87	<.3	24	7	354	2.80	5	<5	<2	<2	16	<.2	<2	2	51	.44	.092	12	33	.75	161	.03	<3	1.93	.01	.04	<2	1
C 49+00E 54+00N	1	42	48	105	.5	28	8	454	3.41	12	<5	<2	2	17	.4	<2	3	52	.44	.084	21	30	.70	415	.05	<3	1.75	.01	.06	<2	2
C 49+00E 53+00N	1	41	13	59	.5	22	10	626	3.32	8	<5	<2	4	12	<.2	3	<2	60	.18	.055	14	27	.57	440	.05	<3	1.70	.01	.05	<2	2
C 49+00E 52+00N	1	47	10	69	<.3	26	8	333	3.13	7	<5	<2	2	12	<.2	<2	<2	52	.16	.052	14	29	.60	211	.05	<3	1.84	.01	.05	<2	8
C 49+00E 51+00N	1	48	167	158	.8	31	14	1119	4.15	13	<5	<2	3	21	.6	<2	<2	64	.37	.058	17	30	.76	394	.05	<3	1.89	.02	.05	<2	2
C 49+00E 49+00N	1	40	159	344	1.3	43	13	2601	5.06	26	<5	<2	3	12	1.0	<2	<2	94	.92	.060	32	33	.94	172	.04	3	1.93	.01	.05	<2	4
C 49+00E 48+00N	1	53	155	509	.8	30	10	2061	4.63	25	<5	<2	2	15	1.2	<2	2	66	5.29	.060	17	23	3.32	178	.04	9	1.32	.01	.04	<2	2
C 49+00E 47+00N	1	52	55	277	.7	33	11	1033	4.20	20	8	<2	2	14	.5	<2	5	59	.59	.079	18	28	.70	148	.04	<3	1.72	.01	.06	<2	6
C 49+00E 46+00N	1	57	933	1704	1.8	42	17	4019	5.75	28	6	<2	4	14	4.6	2	3	53	6.75	.060	18	19	4.02	486	.02	15	1.17	.02	.07	<2	2
C 49+00E 45+00N	1	47	1181	1684	1.2	23	7	3163	3.72	20	12	<2	4	18	4.1	<2	<2	49	10.64	.045	15	14	6.06	145	.02	16	.73	.01	.04	<2	<1
C 50+00E 55+00N	1	23	48	197	<.3	30	17	876	3.48	8	<5	<2	<2	25	.3	<2	<2	41	4.08	.114	12	29	2.65	112	.03	<3	1.56	.01	.07	<2	1
C 50+00E 54+00N	<1	30	30	156	<.3	32	11	527	3.08	9	<5	<2	3	25	<.2	<2	<2	51	.66	.087	18	32	.88	212	.06	<3	1.78	.02	.06	<2	3
C 50+00E 53+00N	<1	17	51	215	.3	26	9	605	2.98	9	<5	<2	2	19	.4	2	<2	49	.70	.099	15	27	.68	192	.04	4	1.70	.01	.06	<2	1
C 50+00E 52+00N	1	18	10	45	<.3	11	6	542	2.66	4	<5	<2	2	12	<.2	<2	2	61	.17	.035	11	16	.39	137	.07	<3	1.08	.02	.06	<2	<1
STANDARD C2/AU-S	19	54	34	129	7.1	69	35	1160	4.04	36	15	8	34	48	18.2	18	20	67	.52	.096	36	58	.99	182	.08	27	1.96	.06	.13	12	43

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.

THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.

- SAMPLE TYPE: P1 TO P2 SOIL P3 SILT AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)

Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 16 1996 DATE REPORT MAILED: *Oct 25/96* SIGNED BY: *C. Leong* .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS



ACME ANALYTICAL



ACME ANALYTICAL

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	Au*
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppb	
C 50+00E 51+00N	1	28	10	86	<.3	32	14	676	3.49	10	<5	<2	4	17	.2	<2	2	55	.34	.046	13	33	.62	294	.07	<3	2.36	.01	.06	<2	2
C 50+00E 49+00N	<1	32	89	202	.3	28	10	656	3.90	18	<5	<2	<2	16	<.2	<2	<2	65	.37	.065	13	34	.68	209	.05	<3	2.27	.01	.06	<2	1
C 50+00E 48+00N	1	29	20	112	.3	29	9	393	3.21	10	<5	<2	3	16	<.2	2	<2	53	.31	.037	18	32	.71	195	.06	<3	1.96	.01	.05	<2	2
C 50+00E 47+00N	1	61	578	1581	.9	45	18	3643	5.93	34	<5	<2	<2	18	3.3	2	<2	80	2.76	.091	21	32	1.82	513	.04	<3	1.94	.02	.06	<2	2
C 50+00E 46+00N	<1	23	591	1316	.5	26	11	3028	4.98	20	<5	<2	<2	18	3.1	<2	<2	66	1.85	.075	22	30	1.17	274	.04	<3	1.99	.01	.07	<2	1
C 50+00E 45+00N	<1	33	224	356	.7	35	15	1582	4.76	16	<5	<2	2	22	1.0	<2	<2	62	3.82	.072	18	36	2.75	196	.05	<3	1.80	.02	.08	<2	1
C 52+00E 52+00N	1	16	81	291	.7	22	8	588	3.17	10	<5	<2	2	43	.7	<2	<2	33	5.93	.072	8	23	3.52	315	.03	5	1.26	.02	.24	<2	1
C 52+00E 51+00N	1	9	39	151	<.3	19	7	269	3.02	8	<5	<2	2	15	<.2	<2	<2	51	.31	.075	12	33	.60	271	.03	4	2.37	.01	.09	<2	<1
RE C 52+00E 51+00N	<1	9	42	152	<.3	19	7	270	3.05	9	<5	<2	2	14	<.2	<2	<2	51	.31	.075	13	34	.61	272	.03	3	2.38	.01	.10	<2	1
C 52+00E 49+00N	1	24	19	349	.3	29	11	624	2.90	13	<5	<2	<2	26	.9	<2	<2	44	1.09	.101	14	36	.78	448	.04	5	1.86	.02	.08	<2	1
C 52+00E 48+00N	1	47	212	609	.8	22	9	2247	3.44	28	<5	<2	<2	22	1.1	<2	<2	47	13.65	.049	12	16	8.26	153	.03	16	.82	.02	.03	<2	<1
C 52+00E 47+00N	1	31	491	783	1.0	31	13	1423	3.86	15	<5	<2	2	24	2.0	<2	<2	40	11.06	.055	13	28	6.89	183	.03	4	1.08	.02	.08	<2	<1
C 52+00E 46+00N	1	34	223	435	.7	32	16	1878	4.23	23	<5	<2	<2	25	.8	<2	<2	53	9.67	.050	11	27	6.15	284	.03	5	1.41	.02	.07	<2	1
C 52+00E 45+00N	1	68	74	182	.3	30	14	2108	4.46	19	<5	<2	<2	17	.5	<2	<2	74	1.13	.100	18	36	.97	216	.04	3	2.21	.02	.08	<2	1
STANDARD C2/AU-S	19	55	40	135	6.7	71	35	1160	4.10	44	15	8	35	50	20.0	18	18	69	.52	.104	38	63	.95	188	.08	27	2.04	.06	.15	16	48

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



SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
US96CO-001	<1	22	55	246	<.3	25	8	790	3.37	8	<5	<2	<2	20	.4	<2	3	40	2.60	.125	14	26	1.69	562	.03	6	1.48	.01	.11	<2	1
US96CO-002	1	19	39	352	<.3	28	8	628	2.99	5	<5	<2	<2	35	.7	2	<2	29	7.49	.080	7	20	3.95	274	.02	4	1.09	.01	.12	<2	3
RE US96CO-001	1	22	42	224	<.3	22	9	767	3.32	5	<5	<2	<2	20	.2	<2	<2	41	2.57	.124	15	27	1.67	540	.03	5	1.46	.02	.10	<2	2

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

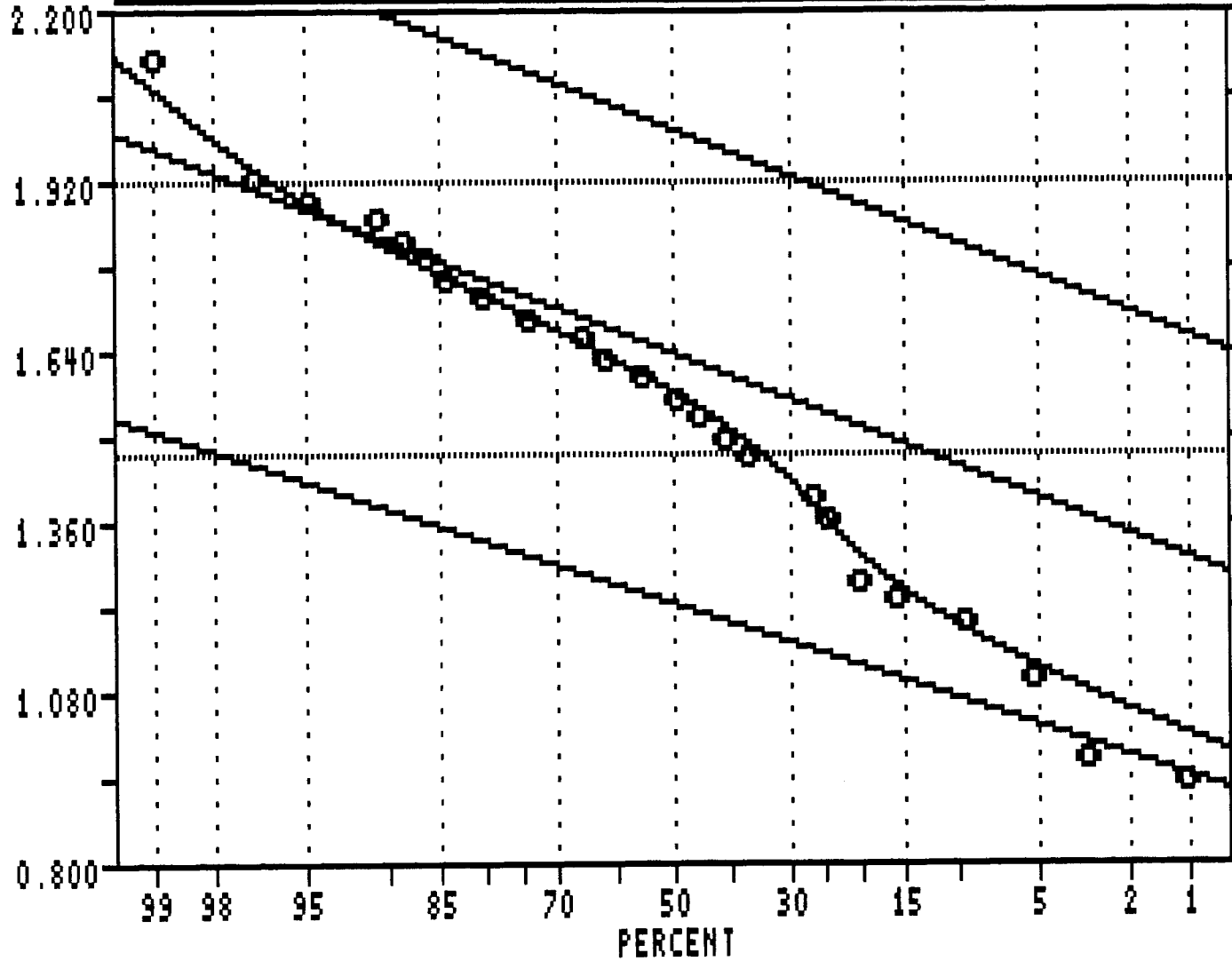
Appendix B

STATISTICS

COPPER STATISTICS

Corn Property

PROBABILITY PLOT



LOGARITHMIC VALUES

===== =====
 VARIABLE = Cu
 UNIT = ppm
 N = 47
 N CI = 36

POPULATIONS

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Pop.	Mean	Std.Dev.	%
1	1.2221	0.1218	25.0
2	1.6287	0.1428	72.0
3	2.0007	0.1458	3.0

THRESHOLDS

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1.9143	1.4656
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USERS VISUAL
 PARAMETER ESTIMATES

SILVER STATISTICS

SUMMARY STATISTICS and HISTOGRAM ARITHMETIC VALUES

Variable = Ag Unit = ppm N = 35

Mean = 0.749 Min = 0.300 1st Quartile = 0.350

Std. Dev. = 0.388 Max = 1.800 Median = 0.700

CV % = 51.776 Skewness = 0.725 3rd Quartile = 0.975

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=====
%   cum %   cls int   (# of bins = 16 - bin size = 0.100)
-----
0.00  1.39    0.250
22.86 23.61    0.350   *****
0.00 23.61    0.450
14.29 37.50    0.550   *****
5.71 43.06    0.650   **
14.29 56.94    0.750   *****
11.43 68.06    0.850   ****
5.71 73.61    0.950   **
5.71 79.17    1.050   **
0.00 79.17    1.150
2.86 81.94    1.250   *
11.43 93.06    1.350   ****
2.86 95.83    1.450   *
0.00 95.83    1.550
0.00 95.83    1.650
0.00 95.83    1.750
2.86 98.61    1.850   *
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                                0           1           2           3           4
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 SUMMARY STATISTICS and HISTOGRAM LOGARITHMIC VALUES
 #####

Variable = Ag Unit = ppm N = 35

Mean = -0.1843 Min = -0.5229 1st Quartile = -0.4674
 Std. Dev. = 0.2337 Max = 0.2553 Median = -0.1549
 CV % = 126.8271 Skewness = -0.1215 3rd Quartile = -0.0114

Anti-Log Mean = 0.654 Anti-Log Std. Dev. : (-) 0.382
 (+) 1.121

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%	cum %	antilog	cls int	(# of bins = 16 - bin size = 0.0519)
0.00	1.39	0.283	-0.5488	
22.86	23.61	0.318	-0.4969	*****
0.00	23.61	0.359	-0.4451	
0.00	23.61	0.404	-0.3932	
0.00	23.61	0.456	-0.3413	
14.29	37.50	0.514	-0.2894	*****
0.00	37.50	0.579	-0.2376	
5.71	43.06	0.652	-0.1857	**
14.29	56.94	0.735	-0.1338	*****
11.43	68.06	0.828	-0.0819	****
5.71	73.61	0.933	-0.0300	**
5.71	79.17	1.052	0.0218	**
0.00	79.17	1.185	0.0737	
14.29	93.06	1.335	0.1256	*****
2.86	95.83	1.505	0.1775	*
0.00	95.83	1.696	0.2293	
2.86	98.61	1.911	0.2812	*

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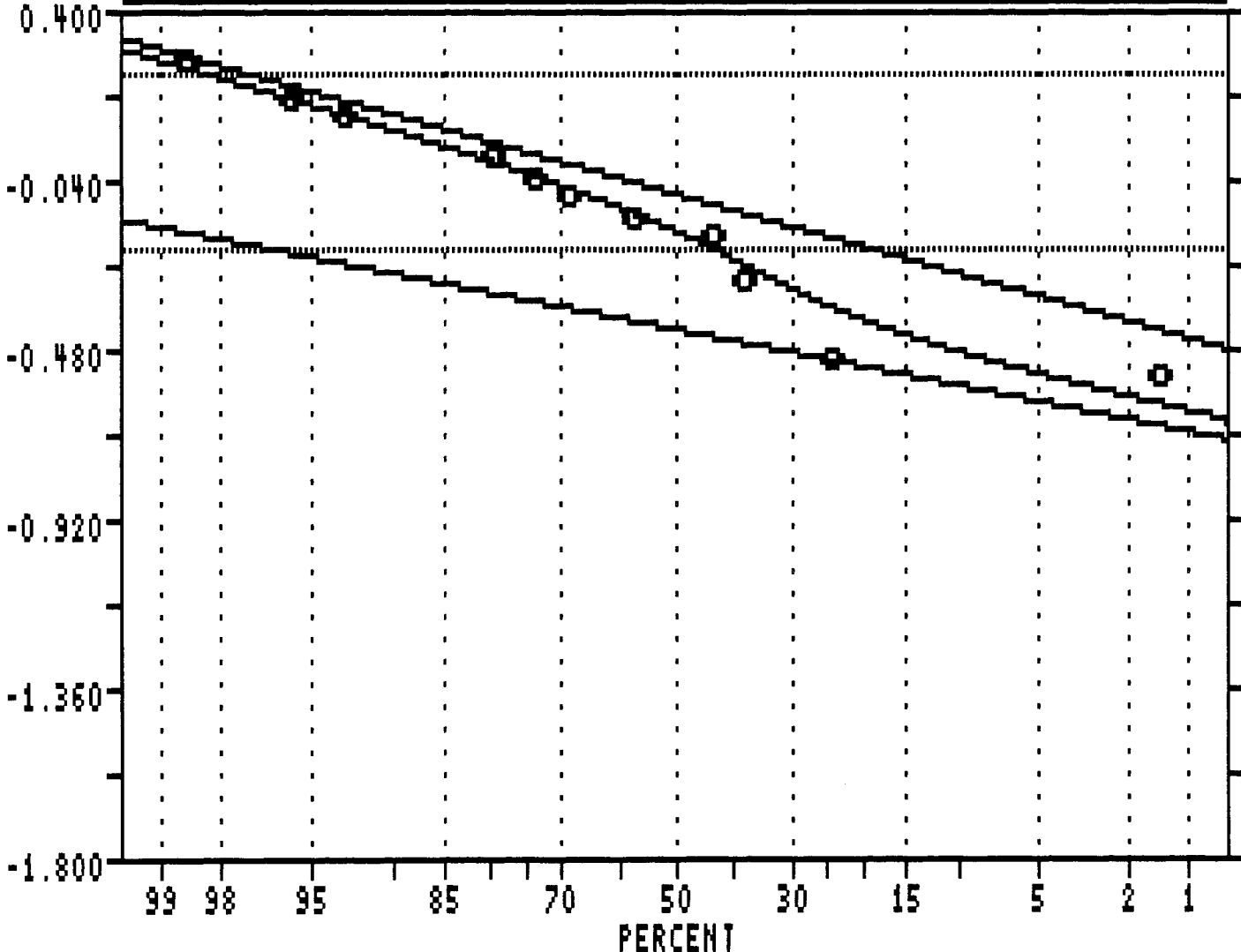
0 1 2 3 4

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Corn Property

LOGARITHMIC VALUES

PROBABILITY PLOT



===== =====
 VARIABLE = Ag
 UNIT = ppm
 N = 35
 N CI = 16

POPULATIONS

=====

Pop.	Mean	Std.Dev.	%
1	-0.4376	0.1123	30.0
2	-0.0839	0.1603	70.0

THRESHOLDS

=====

0.2366 -0.2199

USERS VISUAL
 PARAMETER ESTIMATES

LEAD STATISTICS

SUMMARY STATISTICS and HISTOGRAM ARITHMETIC VALUES

Variable = Pb	Unit =	ppm	N =	45
Mean = 150.711	Min =	10.000	1st Quartile =	23.500
Std. Dev. = 172.440	Max =	591.000	Median =	55.500
CV % = 114.418	Skewness =	1.241	3rd Quartile =	214.750

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=====
```

%	cum %	cls int	(# of bins = 17 - bin size = 36.312)
0.00	1.09	-8.156	
26.67	27.17	28.156	*****
26.67	53.26	64.469	*****
8.89	61.96	100.781	****
0.00	61.96	137.094	
6.67	68.48	173.406	***
2.22	70.65	209.719	*
6.67	77.17	246.031	***
2.22	79.35	282.344	*
2.22	81.52	318.656	*
2.22	83.70	354.969	*
0.00	83.70	391.281	
2.22	85.87	427.594	*
4.44	90.22	463.906	**
2.22	92.39	500.219	*
2.22	94.57	536.531	*
0.00	94.57	572.844	
4.44	98.91	609.156	**

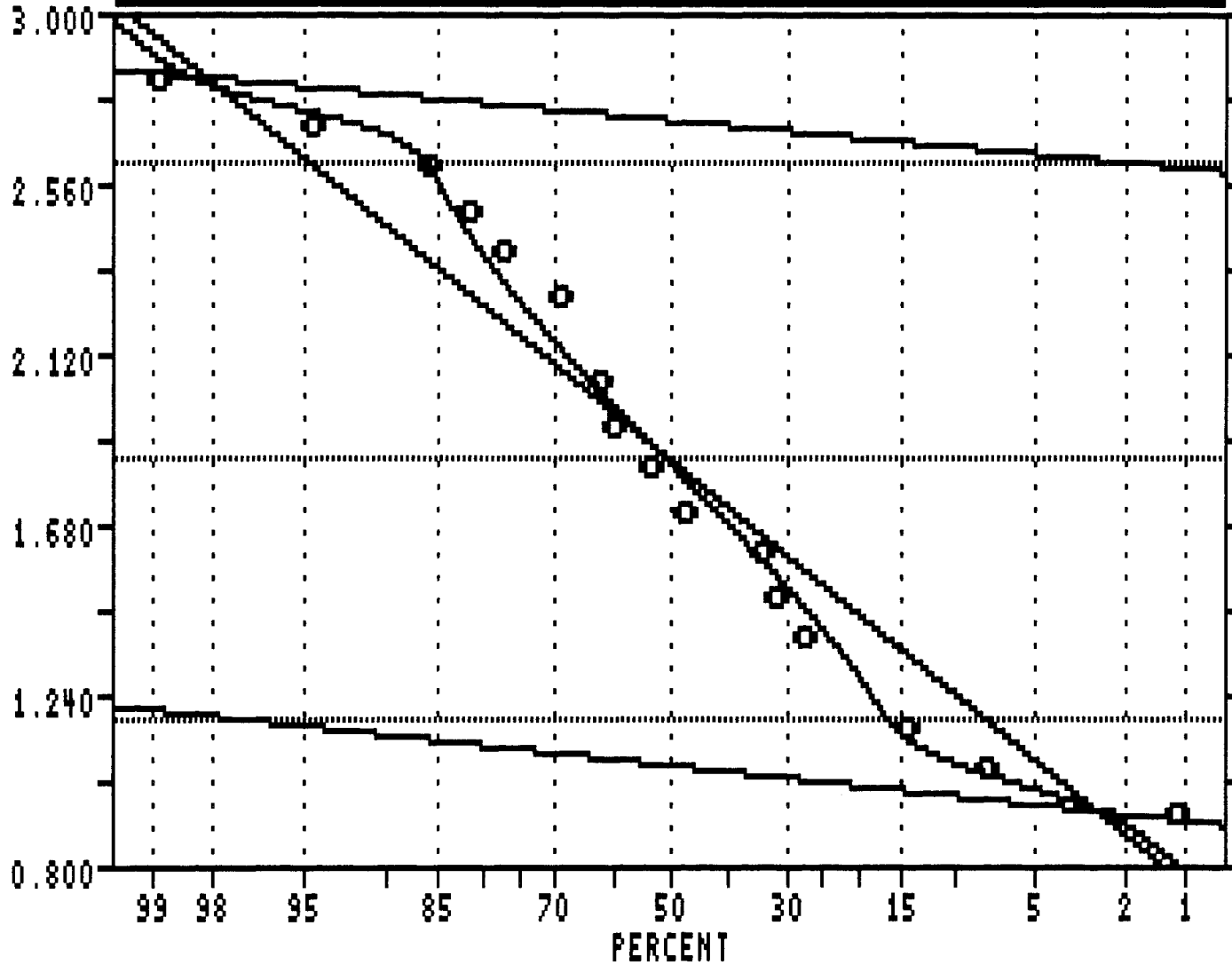
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	0	1	2	3	4
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Corn Property

PROBABILITY PLOT



LOGARITHMIC VALUES

===== =====
 VARIABLE = Pb
 UNIT = ppm
 N = 45
 N CI = 17

POPULATIONS

=====

Pop.	Mean	Std.Dev.	%
1	1.0456	0.0624	10.0
2	1.8434	0.4713	80.0
3	2.7155	0.0527	10.0

THRESHOLDS

=====

2.6100 1.8434
 1.1704

USERS VISUAL
 PARAMETER ESTIMATES

ZINC STATISTICS

SUMMARY STATISTICS and HISTOGRAM ARITHMETIC VALUES

Variable = Zn Unit = ppm N = 42
Mean = 258.310 Min = 45.000 1st Quartile = 104.500
Std. Dev. = 188.177 Max = 783.000 Median = 202.000
CV % = 72.850 Skewness = 1.128 3rd Quartile = 346.500

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=====
% cum % cls int (# of bins = 17 - bin size = 46.125)
-----
0.00 1.16 21.937
7.14 8.14 68.062 ***
21.43 29.07 114.187 *****
14.29 43.02 160.312 *****
9.52 52.33 206.437 ****
7.14 59.30 252.562 ***
11.90 70.93 298.687 *****
2.38 73.26 344.812 *
4.76 77.91 390.937 **
2.38 80.23 437.062 *
4.76 84.88 483.187 **
4.76 89.53 529.312 **
2.38 91.86 575.437 *
2.38 94.19 621.562 *
0.00 94.19 667.687
0.00 94.19 713.812
2.38 96.51 759.937 *
2.38 98.84 806.062 *
-----
0 1 2 3 4
```

#####

SUMMARY STATISTICS and HISTOGRAM LOGARITHMIC VALUES

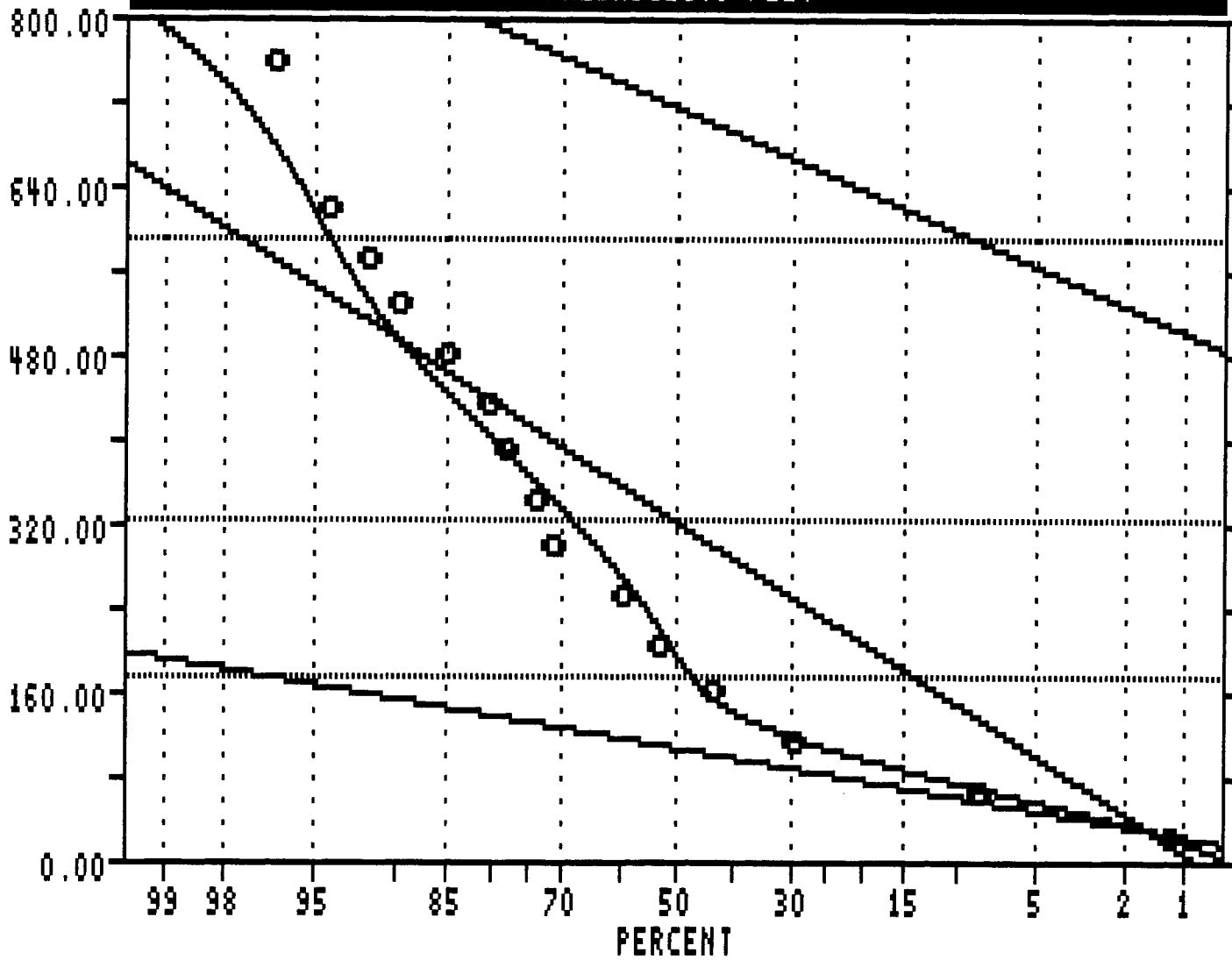
Variable = Zn Unit = ppm N = 42
Mean = 2.3013 Min = 1.6532 1st Quartile = 2.0191
Std. Dev. = 0.3207 Max = 2.8938 Median = 2.3054
CV % = 13.9339 Skewness = -0.0170 3rd Quartile = 2.5397
Anti-Log Mean = 200.104 Anti-Log Std. Dev. : (-) 95.632
(+) 418.708

```
=====
% cum % antilog cls int (# of bins = 17 - bin size = 0.0775)
-----
0.00 1.16 41.157 1.6144
2.38 3.49 49.202 1.6920 *
0.00 3.49 58.819 1.7695
7.14 10.47 70.315 1.8470 ***
2.38 12.79 84.059 1.9246 *
7.14 19.77 100.489 2.0021 ***
9.52 29.07 120.130 2.0797 ****
2.38 31.40 143.610 2.1572 *
14.29 45.35 171.680 2.2347 *****
7.14 52.33 205.236 2.3123 ***
7.14 59.30 245.351 2.3898 ***
11.90 70.93 293.307 2.4673 *****
4.76 75.58 350.637 2.5449 **
2.38 77.91 419.171 2.6224 *
9.52 87.21 501.102 2.6999 ****
4.76 91.86 599.046 2.7775 **
2.38 94.19 716.135 2.8550 *
4.76 98.84 856.109 2.9325 **
-----
0 1 2 3 4
=====
```

#####

Corn Property

PROBABILITY PLOT



ARITHMETIC VALUES

===== =====
 VARIABLE = Zn
 UNIT = ppH
 N = 42
 N CI = 17

POPULATIONS

=====

Pop.	Mean	Std.Dev.	%
1	103.059	35.827	40.0
2	321.750	135.186	55.0
3	713.333	92.034	5.0

THRESHOLDS

=====

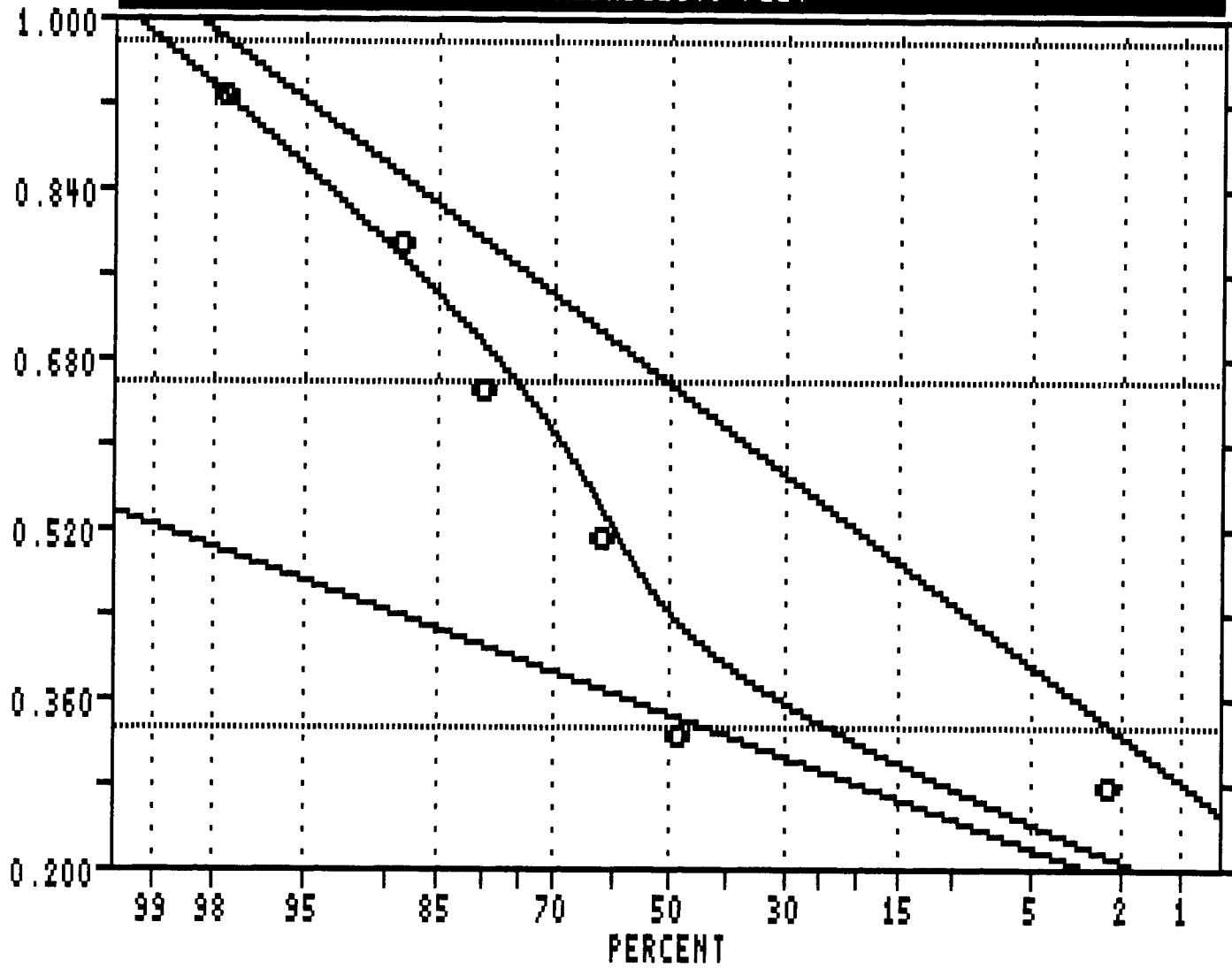
592.000 322.000
 175.000

USERS VISUAL
 PARAMETER ESTIMATES

GOLD STATISTICS

Corn Property

PROBABILITY PLOT



LOGARITHMIC VALUES

===== =====
 VARIABLE = AU
 UNIT = ppb
 N = 21
 N CI = 14

POPULATIONS

=====

Pop.	Mean	Std.Dev.	%
1	0.3417	0.0772	50.0
2	0.6547	0.1611	50.0

THRESHOLDS

=====

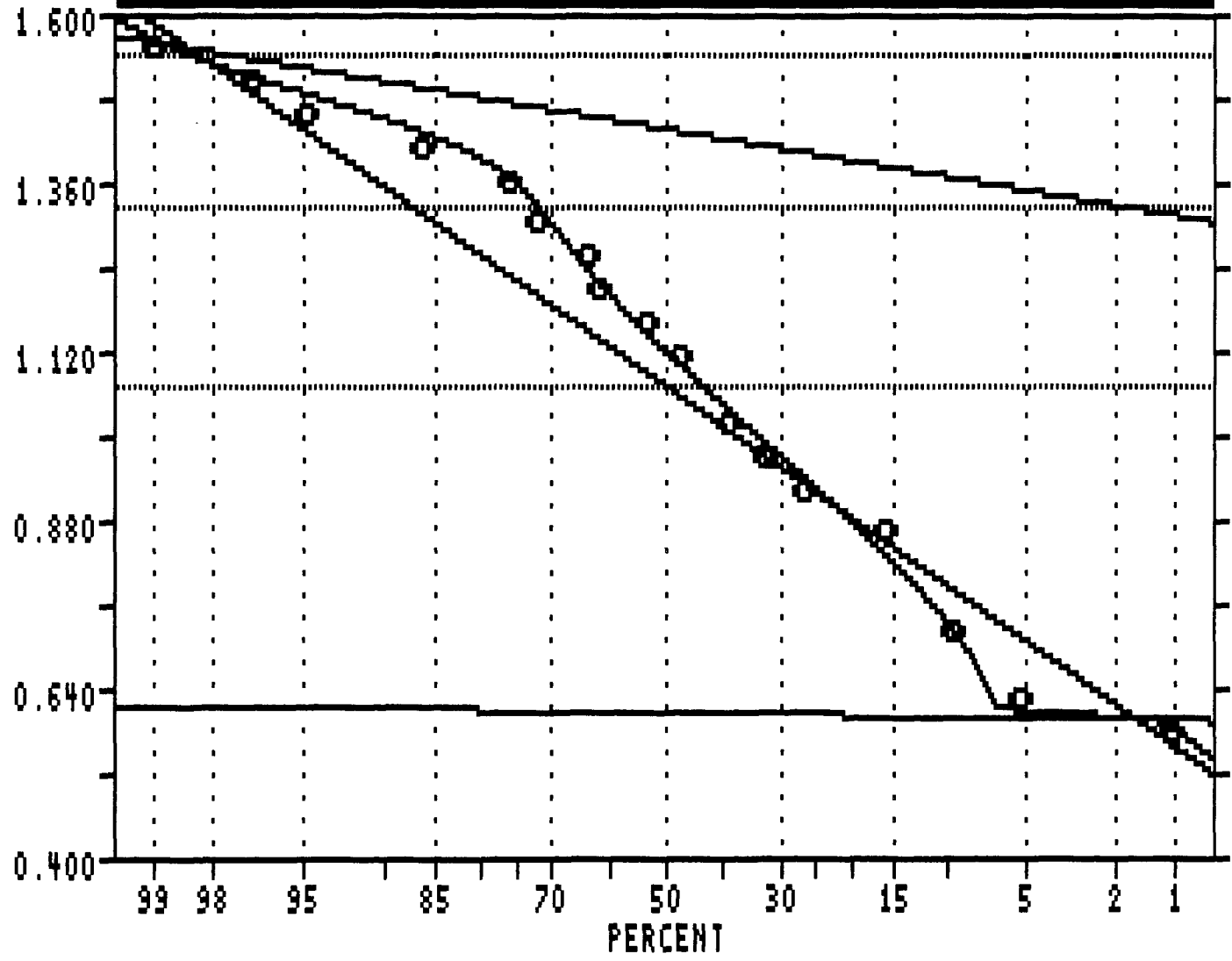
0.9770 0.6547
 0.3325

USERS VISUAL
 PARAMETER ESTIMATES

ARSENIC STATISTICS

Corn Property

PROBABILITY PLOT



LOGARITHMIC VALUES

```
=====
VARIABLE = As
UNIT = ppm
N = 47
N CI = 20
```

POPULATIONS

```
=====
```

Pop.	Mean	Std.Dev.	%
1	0.6021	0.0050	5.0
2	1.0678	0.2198	75.0
3	1.4299	0.0532	20.0

THRESHOLDS

```
=====
1.5363 1.3236
1.0678
```

USERS VISUAL
PARAMETER ESTIMATES

DATA CORRELATION ANALYSIS

NORTHWEST GEOLOGICAL CONSULTING LTD.

CORN PROPERTY

NORMAL DATA CORRELATION ANALYSIS
 BASED ON PEARSON CORRELATION MATRIX

using data for years >> 96,
 using all traverses

PRIMARY FIELDS
 ALL DATA

	Cu	Pb	Zn	Ag	As	Cd	Ca	Mg	Ba	Au
	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme
Cu	1.000									
# SAMPLES	47									
Pb	0.283	1.000								
# SAMPLES	47	47								
Zn	0.197	0.919	1.000							
# SAMPLES	47	47	47							
Ag	0.320	0.654	0.542	1.000						
# SAMPLES	35	35	35	35						
As	0.459	0.601	0.624	0.554	1.000					
# SAMPLES	47	47	47	35	47					
Cd	0.192	0.934	0.958	0.566	0.486	1.000				
# SAMPLES	37	37	37	31	37	37				
Ca	0.128	0.428	0.450	0.347	0.417	0.364	1.000			
# SAMPLES	47	47	47	35	47	37	47			
Mg	0.127	0.412	0.431	0.332	0.405	0.342	0.998	1.000		
# SAMPLES	47	47	47	35	47	37	47	47		
Ba	-0.003	0.016	0.053	0.067	0.122	0.034	-0.145	-0.158	1.000	
# SAMPLES	47	47	47	35	47	37	47	47	47	
Au	0.216	-0.146	-0.171	-0.108	-0.141	-0.120	-0.244	-0.234	-0.086	1.000
# SAMPLES	40	40	40	31	40	32	40	40	40	40

DATE : 04-19-97

TIME : 20:26:41

NORTHWEST GEOLOGICAL CONSULTING LTD.

CORN PROPERTY

LOG-TRANSFORMED DATA CORRELATION ANALYSIS
BASED ON PEARSON CORRELATION MATRIX

using data for years >> 96,
using all traverses

PRIMARY FIELDS
ALL DATA

	Cu	Pb	Zn	Ag	As	Cd	Ca	Mg	Ba	Au
	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme
Cu	1.000									
# SAMPLES	47									
Pb	0.421	1.000								
# SAMPLES	47	47								
Zn	0.317	0.913	1.000							
# SAMPLES	47	47	47							
Ag	0.121	0.405	0.181	1.000						
# SAMPLES	35	35	35	35						
As	0.538	0.798	0.792	0.216	1.000					
# SAMPLES	47	47	47	35	47					
Cd	0.132	0.528	0.304	0.436	0.291	1.000				
# SAMPLES	37	37	37	31	37	37				
Ca	0.203	0.685	0.735	0.446	0.602	0.499	1.000			
# SAMPLES	47	47	47	35	47	37	47			
Mg	0.214	0.633	0.664	0.476	0.523	0.492	0.968	1.000		
# SAMPLES	47	47	47	35	47	37	47	47		
Ba	0.131	0.088	0.078	0.020	0.223	0.023	-0.113	-0.168	1.000	
# SAMPLES	47	47	47	35	47	37	47	47	47	
Au	0.099	-0.129	-0.094	-0.099	-0.063	-0.150	-0.354	-0.341	-0.018	1.000
# SAMPLES	40	40	40	31	40	32	40	40	40	40

DATE : 04-19-97

TIME : 20:26:42

NORTHWEST GEOLOGICAL CONSULTING LTD.

CORN PROPERTY

LOG-TRANSFORMED DATA CORRELATION ANALYSIS

PRIMARY FIELDS

SLOPE AND INTERCEPT PARAMETERS

ALL DATA

Y-AXIS ==>	Cu	Pb	Zn	Ag	As	Cd	Ca	Mg	Ba	Au
	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme
X-AXIS										
M---> Cu	0.000									
B---> Cu	1.000									
M---> Pb	2.794	0.000								
B---> Pb	0.171	1.000								
M---> Zn	2.514	-2.934	0.000							
B---> Zn	0.187	1.333	1.000							
M---> Ag	3.897	5.583	6.208	0.000						
B---> Ag	0.427	1.680	0.988	1.000						
M---> As	2.189	-0.565	2.129	-0.675	0.000					
B---> As	0.524	1.921	1.305	0.090	1.000					
M---> Cd	3.661	4.951	5.895	-0.375	2.784	0.000				
B---> Cd	0.300	1.395	0.972	0.311	0.451	1.000				
M---> Ca	3.516	4.156	5.322	-0.537	2.497	-0.359	0.000			
B---> Ca	0.074	0.614	0.450	0.145	0.224	0.257	1.000			
M---> Mg	3.492	4.014	5.224	-0.580	2.454	-0.416	-0.263	0.000		
B---> Mg	0.118	0.862	0.619	0.234	0.296	0.389	1.471	1.000		
M---> Ba	2.734	3.062	4.692	-0.442	1.175	-0.176	2.334	2.342	0.000	
B---> Ba	0.149	0.247	0.150	0.003	0.259	0.006	-0.351	-0.345	1.000	
M---> Au	3.483	4.656	5.692	-0.395	2.680	-0.091	0.778	0.677	5.556	0.000
B---> Au	0.217	-0.473	-0.369	-0.071	-0.114	-0.157	-0.899	-0.587	-0.061	1.000

DATE : 04-19-97

TIME : 20:26:41

NORTHWEST GEOLOGICAL CONSULTING LTD.

CORN PROPERTY

NORMAL DATA CORRELATION ANALYSIS
PRIMARY FIELDS

SLOPE AND INTERCEPT PARAMETERS
ALL DATA

Y-AXIS ==>	Cu	Pb	Zn	Ag	As	Cd	Ca	Mg	Ba	Au
	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme	Acme
X-AXIS										
M---> Cu	1.000									
B---> Cu	0.000									
M---> Pb	0.025	1.000								
B---> Pb	35.290	0.000								
M---> Zn	0.010	0.545	1.000							
B---> Zn	36.038	-21.377	0.000							
M---> Ag	22.404	456.447	649.099	1.000						
B---> Ag	28.800	-96.312	-8.326	0.000						
M---> As	1.278	19.062	33.359	0.024	1.000					
B---> As	20.315	-104.360	-127.162	0.315	0.000					
M---> Cd	5.244	236.782	410.583	0.216	4.315	1.000				
B---> Cd	36.439	-50.561	-28.939	0.500	11.980	0.000				
M---> Ca	0.572	21.736	38.582	0.024	0.669	0.075	1.000			
B---> Ca	37.719	102.619	232.882	0.630	12.739	0.824	0.000			
M---> Mg	1.005	37.009	65.372	0.040	1.147	0.123	1.766	1.000		
B---> Mg	37.349	91.635	214.231	0.622	12.379	0.805	-0.671	0.000		
M---> Ba	-0.000	0.017	0.094	0.000	0.004	0.000	-0.003	-0.002	1.000	
B---> Ba	40.069	184.631	360.848	0.729	14.302	1.159	4.810	3.144	0.000	
M---> Au	2.995	-22.870	-46.189	-0.022	-0.779	-0.063	-0.799	-0.445	-12.249	1.000
B---> Au	35.237	224.451	468.609	0.791	17.441	1.262	4.973	3.183	321.448	0.000

RADIOMETRIC SURVEY STATISTICS

 SUMMARY STATISTICS and HISTOGRAM ARITHMETIC VALUES

Variable = TC Unit = cps N = 80
 Mean = 99.225 Min = 46.000 1st Quartile = 76.000
 Std. Dev. = 32.647 Max = 182.000 Median = 95.000
 CV % = 32.902 Skewness = 0.635 3rd Quartile = 120.000

```
=====
% cum % cls int (# of bins = 20 - bin size = 7.158)
-----
0.00 0.62 42.421
1.25 1.85 49.579 *
6.25 8.02 56.737 *****
6.25 14.20 63.895 *****
8.75 22.84 71.053 *****
6.25 29.01 78.211 *****
10.00 38.89 85.368 *****
10.00 48.77 92.526 *****
7.50 56.17 99.684 *****
8.75 64.81 106.842 *****
6.25 70.99 114.000 *****
6.25 77.16 121.158 *****
2.50 79.63 128.316 **
3.75 83.33 135.474 ***
2.50 85.80 142.632 **
6.25 91.98 149.789 *****
0.00 91.98 156.947
2.50 94.44 164.105 **
2.50 96.91 171.263 **
0.00 96.91 178.421
2.50 99.38 185.579 **
-----
0 1 2 3 4
```

#####

 SUMMARY STATISTICS and HISTOGRAM LOGARITHMIC VALUES

Variable = TC Unit = cps N = 80

Mean = 1.9738 Min = 1.6628 1st Quartile = 1.8808

Std. Dev. = 0.1418 Max = 2.2601 Median = 1.9777

CV % = 7.1862 Skewness = 0.0204 3rd Quartile = 2.0792

Anti-Log Mean = 94.154 Anti-Log Std. Dev. : (-) 67.920
(+) 130.522

```

=====
%   cum %   antilog   cls int   (# of bins = 20 - bin size = 0.0314)
-----
0.00  0.62   44.365    1.6470
1.25  1.85   47.695    1.6785  *
0.00  1.85   51.276    1.7099
3.75  5.56   55.125    1.7414  ***
5.00 10.49   59.264    1.7728  ****
3.75 14.20   63.713    1.8042  ***
5.00 19.14   68.496    1.8357  ****
3.75 22.84   73.638    1.8671  ***
7.50 30.25   79.166    1.8985  *****
8.75 38.89   85.109    1.9300  *****
10.00 48.77   91.499    1.9614  *****
7.50 56.17   98.368    1.9929  *****
8.75 64.81  105.752    2.0243  *****
6.25 70.99  113.691    2.0557  *****
6.25 77.16  122.226    2.0872  *****
3.75 80.86  131.402    2.1186  ***
5.00 85.80  141.267    2.1500  ****
6.25 91.98  151.872    2.1815  *****
2.50 94.44  163.273    2.2129  **
2.50 96.91  175.531    2.2444  **
2.50 99.38  188.708    2.2758  **
-----
0 1 2 3 4

```

#####

Corn Property

ARITHMETIC VALUES

```

=====
VARIABLE = TC
UNIT = cps
N = 80
N CI = 30
    
```

POPULATIONS

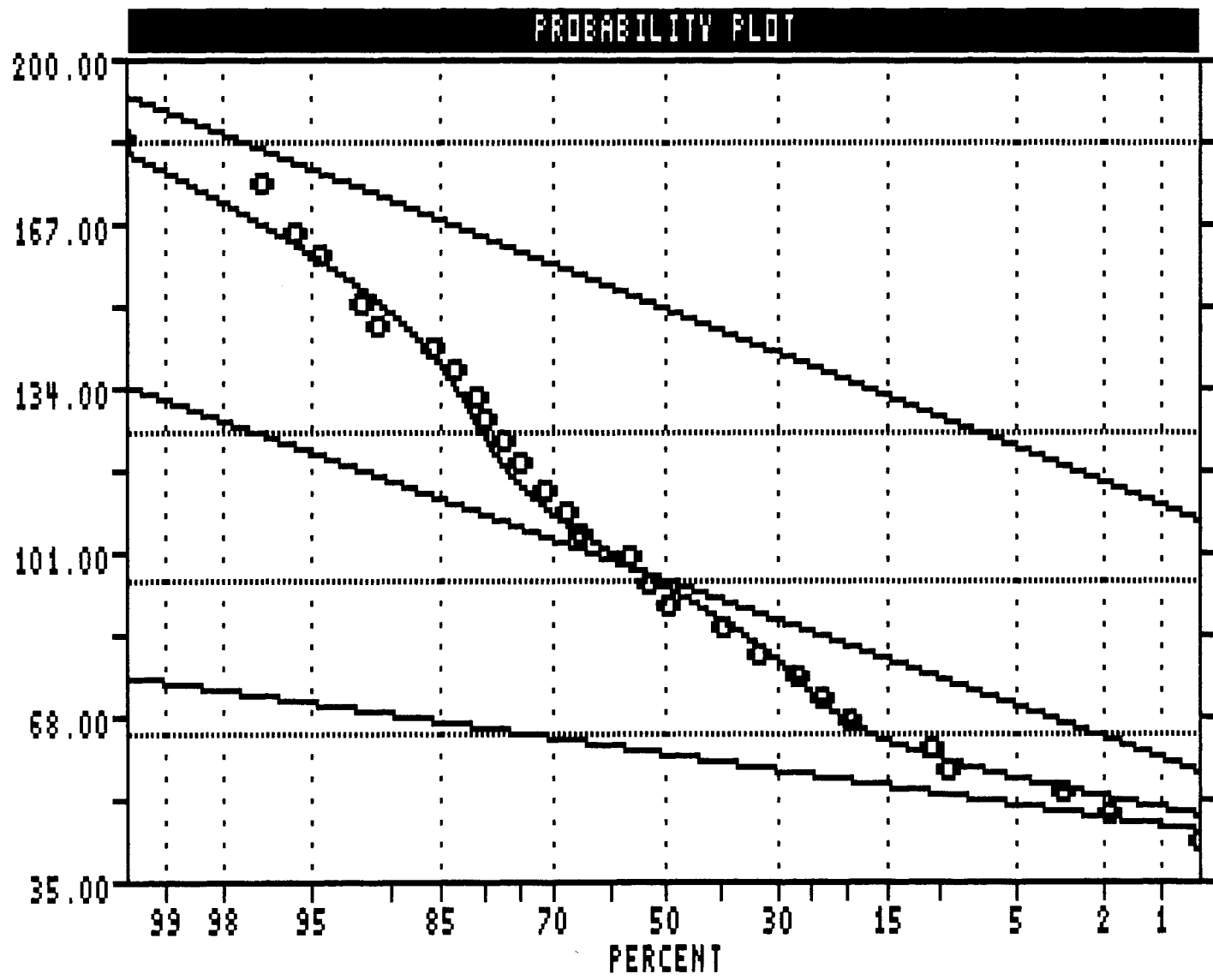
```

=====
Pop.  Mean  Std.Dev.  %
-----
1     60.118  6.224    20.0
2     94.612  15.354   60.0
3    149.647  16.852   20.0
    
```

THRESHOLDS

```

=====
183.000  125.000
95.000   64.000
    
```



USERS VISUAL
PARAMETER ESTIMATES

Appendix C

TECHNICAL SPECIFICATIONS

Magellan NAV 1000 PRO™

Specifications and Characteristics.

Physical characteristics

Size:	8.75" x 3.50" x 2.13" (21.5 cm x 9.0 cm x 5.0 cm) excluding antenna
Weight:	30 ounces, (0.85 kg) with batteries
Specific gravity:	0.8 (it floats)
Display:	4-line, 16-character alphanumeric, lighted LCD 6.5 cm x 4.5 cm
Power:	6 AA alkaline batteries 10 to 15 volts DC with interface 115 volts AC \pm 10% with adapter
Operating temp:	-10° to 60° C
Storage temp:	-40° to 70° C
Casing:	Dust-proof, waterproof, shock-resistant
Exterior GPS antenna (optional)	
Weight:	14.2 ounces (0.4 kg)
Operating temp:	-40° to 70° C

Operational characteristics

General:	Fast sequencing, single-channel GPS receiver
Update rate:	2.5 seconds (2D)
Time to first fix:	Less than 2.5 minutes (2D); less than 3.0 minutes (3D), typical.
Almanac collect:	12.5 minutes, typical
Accuracy*:	(HDOP < 2, C/N ₀ \geq 47dB-Hz, 2D) POS (Single fix): 25 meters RMS in 2D 30 meters RMS in 3D POS (with averaging): 15 meters RMS in 2D 20 meters RMS in 3D 25 meters RMS (altitude) Differential: 3 meters RMS (horizontal) 5 meters RMS (spherical) VEL: 0.3 knots RMS Max. velocity: 400 kn (740 km/hr) Max. acceleration: 0.5g.
Operating life:	AA batteries—6-7 hours External power—continuous
Power consump:	260mA
Antenna:	Integrated: quadrifilar Remote: quadrifilar

Software capabilities

- Download point data to an IBM PC or compatible, either in real time or after collection.
- Convert data to 6 coordinate system formats and dozens of datums.
- Differentially adjust data collected for increased accuracy.
- Allows for use with other manufacturer's base station units in differential mode.
- Interface reformatted data to a variety of software packages including GIS systems, database, and spreadsheet packages.
- Statistically analyze quality of data and plot data graphically.
- Complete mission planning.

MAGELLAN. THE LEADER IN ADVANCED GPS TECHNOLOGY.

Founded in 1986, Magellan Systems Corporation was built with an entrepreneurial and visionary drive. From the outset, Magellan believed that GPS was the ultimate navigation and positioning tool, able to travel the earth and provide accurate information at any given moment.



After three years of intensive research and development, Magellan introduced the highly affordable, extremely versatile GPS NAV 1000 series of receivers for marine, military and professional use. Magellan is the only manufacturer of GPS receivers to successfully integrate gallium arsenide

(GaAs) technology, making the NAV 1000 PRO the smallest, lightest and lowest power-consuming receiver available.

Magellan is the only GPS receiver manufacturer to be selected by ten nations of the NATO alliance. In addition, Magellan provides GPS receivers to the U.S. Geological Survey, National Geographic Society, U.S. Navy, U.S. Coast Guard, Central Intelligence Agency, Smithsonian Institute, Federal Aviation Administration and UNICEF. Magellan GPS receivers are sold in over 40 countries throughout the world.

External antenna with bracket-mount kit (sold separately)

- Quick-release holder
- U-bracket
- External antenna
- Magnetic mount
- Adapter hardware for rangepole and tripod mounting
- DC/antenna interface box, cigarette lighter adapter

NOW AVAILABLE ON GSA

Made in the U.S.A.

All Magellan products are made in the U.S.A. and are warranted for a period of one year from date of purchase. See warranty for full details.

For more information, please contact:
Magellan Systems Corporation
260 E. Huntington Dr., Monrovia, CA 91016
Phone: (818) 358-2363
Fax: (818) 359-4455

Magellan™, PowerSaver™ and NAV 1000 PRO™ are trademarks of Magellan Systems Corporation. *Position and velocity accuracies subject to change under Department of Defense imposed Selective Availability (SA). Positioning in differential removes SA position error, as well as other minor errors.



MAGELLAN
WE BRING GPS DOWN TO EARTH™

URTEC UG130 miniscint

TECHNICAL SUMMARY

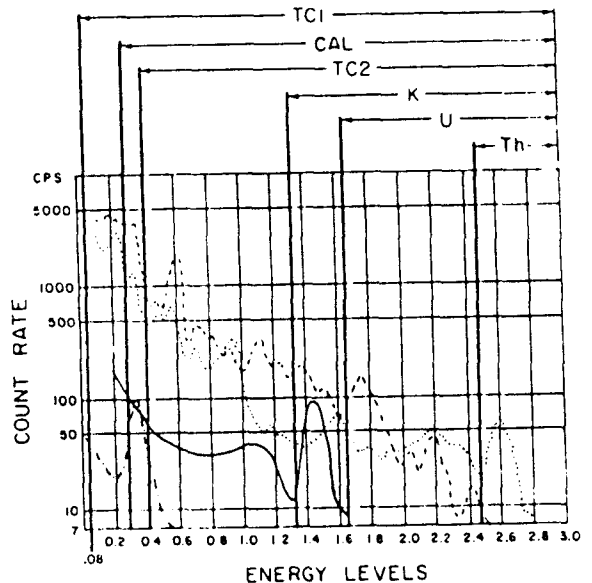
Selectable energy levels:	
CAL - Calibration	All energy above 0.30 MeV
TC1 - Total count I	All energy above 0.08 MeV
TC2 - Total count II	All energy above 0.40 MeV
KUT - Potassium + Uranium + Thorium	All energy above 1.36 MeV
UT - Uranium + Thorium	All energy above 1.66 MeV
T - Thorium	All energy above 2.46 MeV
Detector:	
	Nal (TI) crystal; Volume, 66 cm ³ (4.0 cu in.), Mechanically ruggedized.
Spectral shift as a function of count rate:	
	3% or less from 0 CPS to 15000 CPS, Integrated over an energy interval from 80 keV to 1500 keV
Energy response linearity error:	
	Less than 2%
Visual display:	
	Ruggedized low temperature version five digit liquid crystal display. Readout in CPS regardless of selected sample rate. Excellent visibility in direct sunlight.

TECHNICAL SUMMARY (Cont)

Display overflow:	When count exceeds 99999, two dots will indicate count rate overflow.
Sample rate:	1.0 or 10.0 seconds, auto recycle, for all energy levels, except the 'CAL' position
Power:	Three 'C' size alkaline batteries provide 40 hours continuous operation at 23°C ambient without audio.
Battery test monitor:	Three indicators provide battery charge status when required. When batteries are nearly discharged, a keyed audio alarm is activated, overriding count rate audio.
Audio:	The count rate may be monitored in a continuous mode or may be adjusted to monitor above any background threshold.

TECHNICAL SUMMARY (Cont)

Audio response:	0.5 seconds from 0 CPS to 2500 CPS
Temperature range:	-10°C to +60°C (+14°F to +140°F)
Dimensions:	21 cm. (8.3 in.) long, 10.7 cm (4.2 in.) wide, 52 cm (20 in.) high
Weight:	1.5 kg (3.3 lb) including batteries and handle.
Rate meter output: (optional)	100 mV/100 CPS, available through a miniature connector.
Altitude:	To 3500m (12000 ft) maximum.



Legend

- - Thorium
- - Uranium
- - Potassium
- · - · - - - - - Barium

Gamma Ray Spectrum

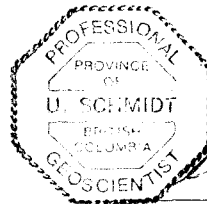
Appendix D

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

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

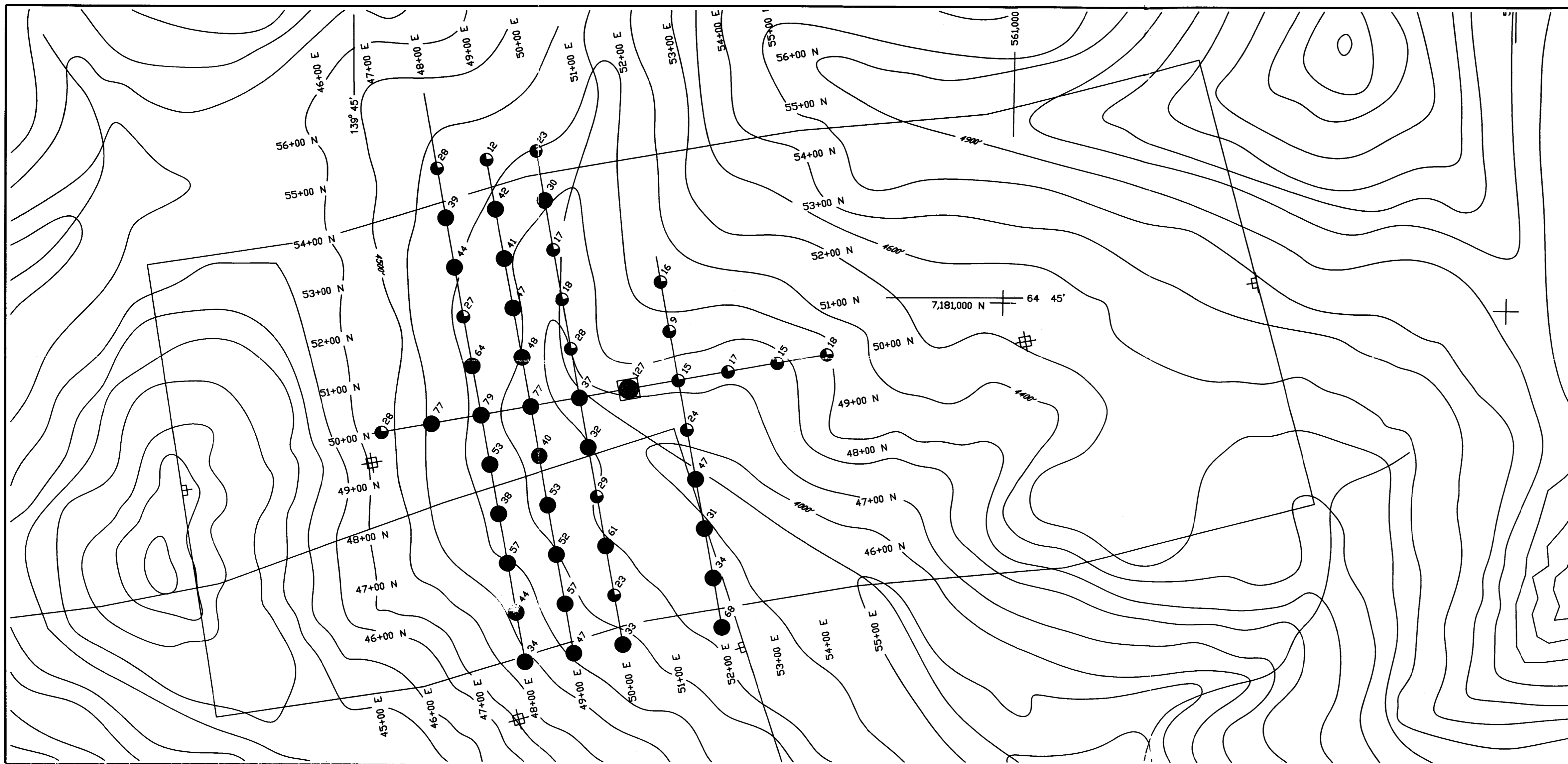
- (1) I am a consulting geologist and controlling shareholder of Northwest Geological Consulting Ltd.
- (2) I am a 1971 graduate of the University of British Columbia with a B.Sc. degree in Geology.
- (3) I am a member of The Association of Professional Engineers and Geoscientists of British Columbia 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.



A handwritten signature in black ink, appearing to read "Uwe Schmidt".

Uwe Schmidt, B. Sc., P. Geo.

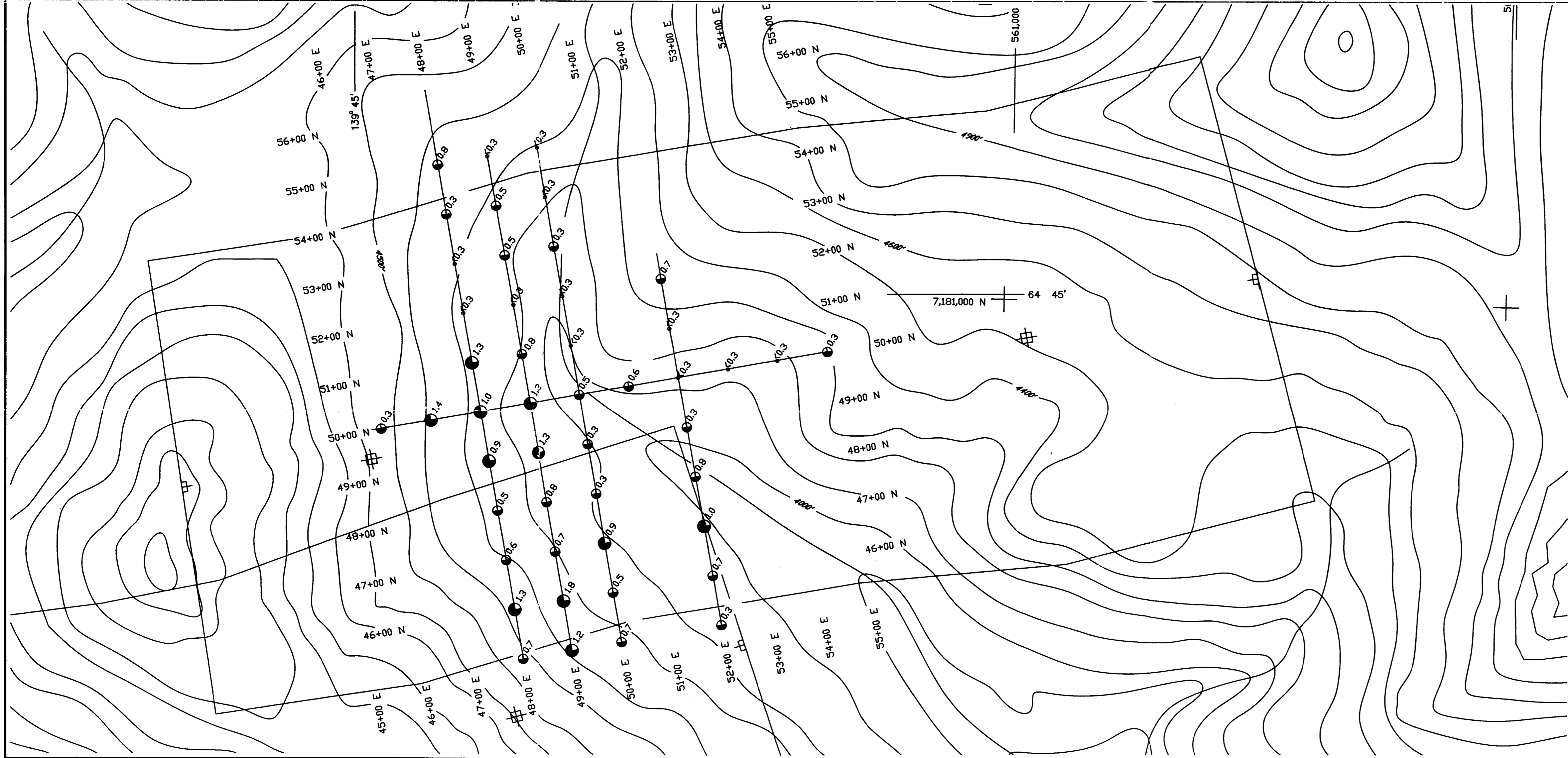
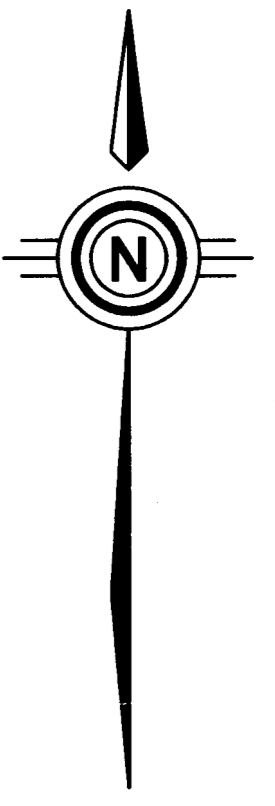
April 27, 1997
Port Moody, B.C.



Analytical Thresholds

Cu Values in ppm

- 1 - 29
- 30 - 82
- 83 >>>>>

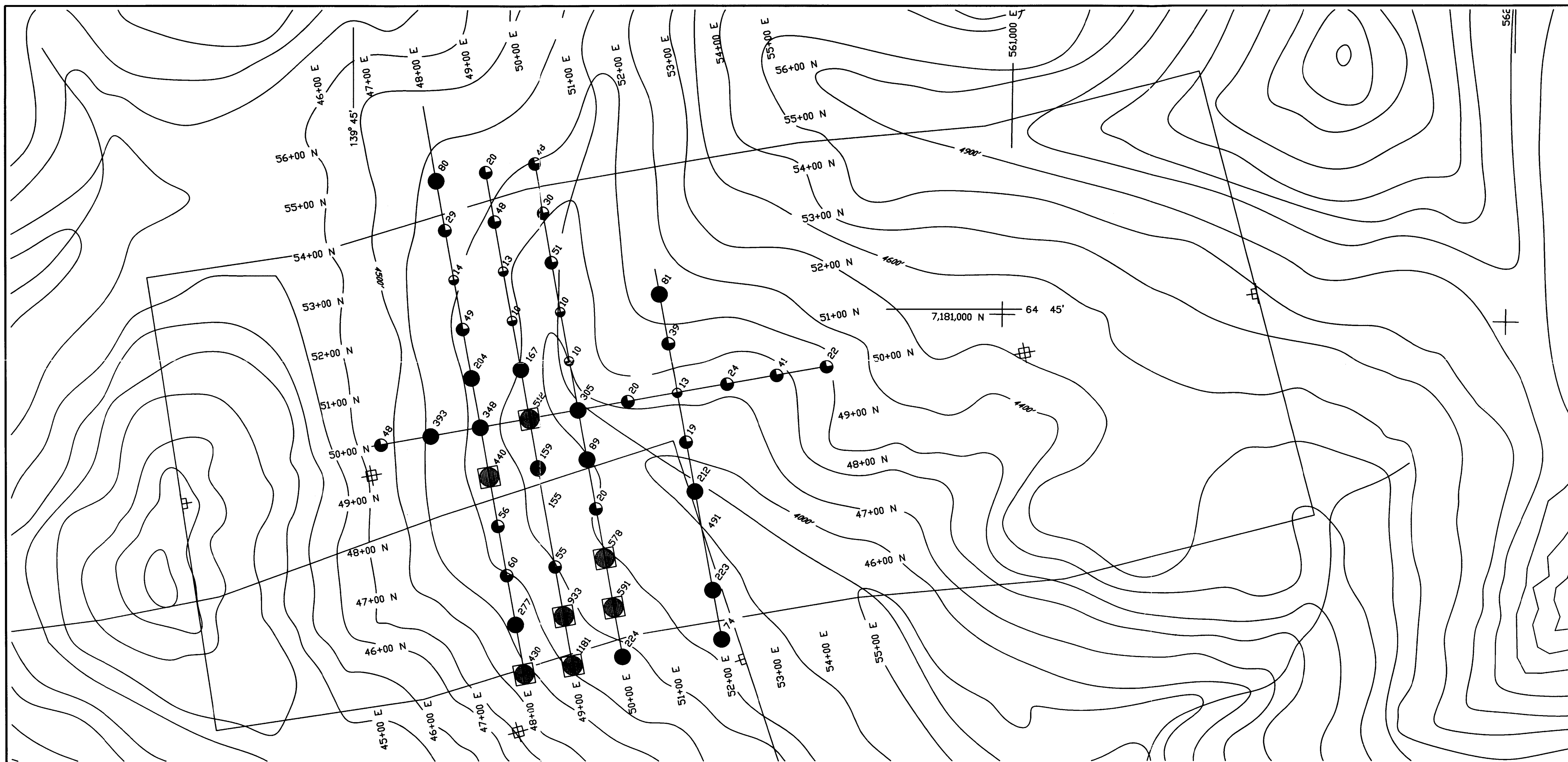


Ag Values in ppm

- <0.3
- 0.3 - 0.8
- 0.9 - 3.6

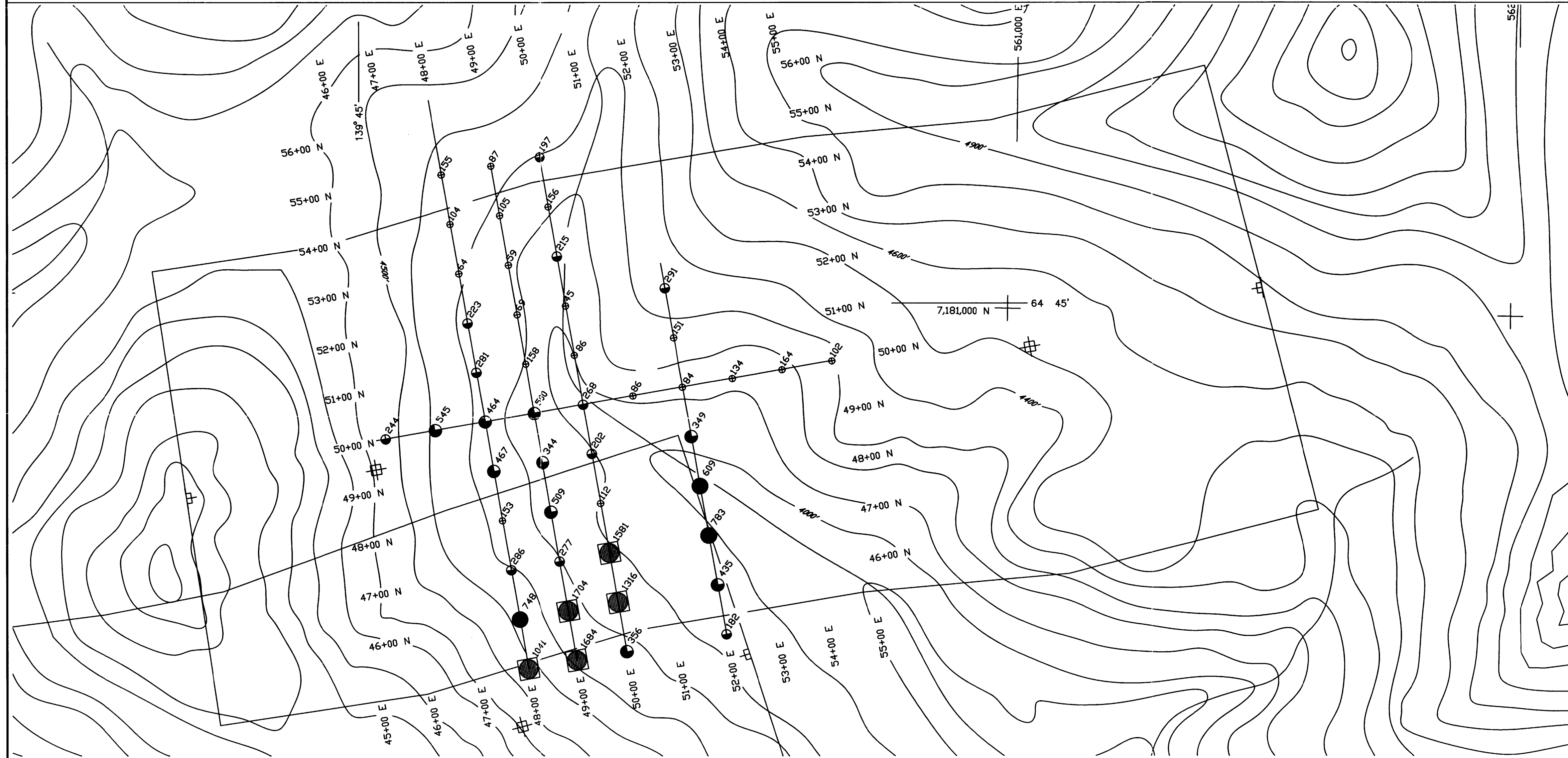
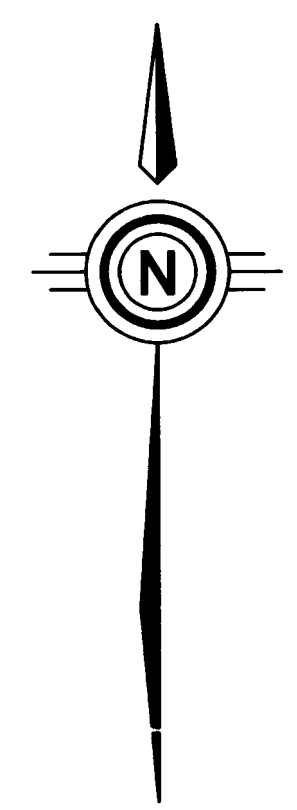
093657

Atna Resources Ltd.	
Work By U.Schmidt Date Drafted 04-30-97 Drafted By U.Schmidt Date Revised 04-30-97 Revised By U.Schmidt	CORN PROPERTY Cu-Ag Soil Geochemistry Northwest Geological Consulting Ltd.
N.T.S. Number 116B/12 File Name CUAGFIG5	SCALE 1 : 5000 Figure 5



Analytical Thresholds

- Pb Value in ppm**
- 1 - 15
 - 16 - 70
 - 71 - 407
 - 408 >>>>>

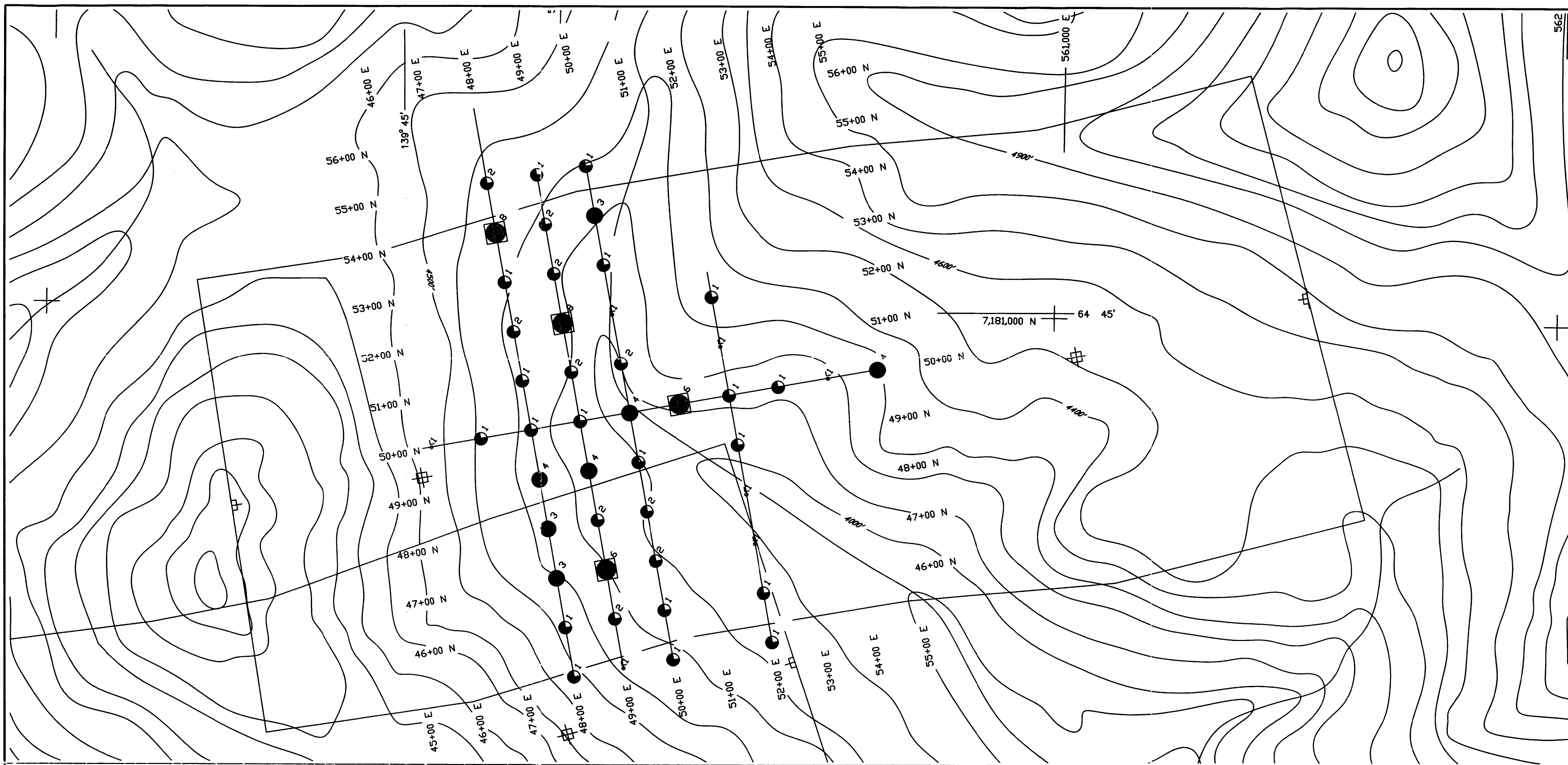


Zn Values in ppm

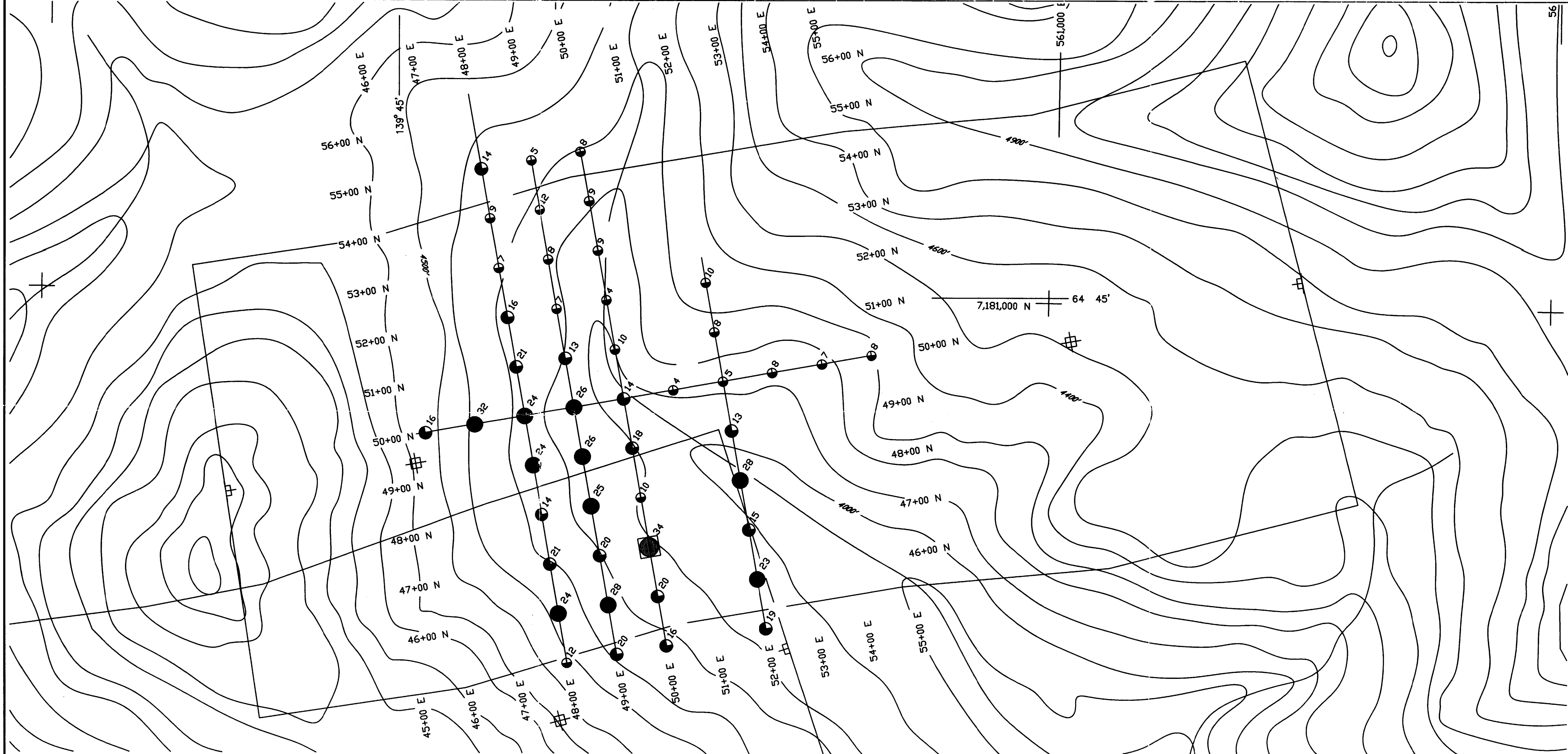
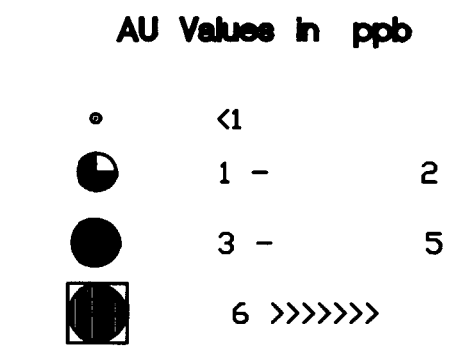
- 1 - 175
- 176 - 322
- 323 - 592
- 593 - 897
- 898 >>>>>

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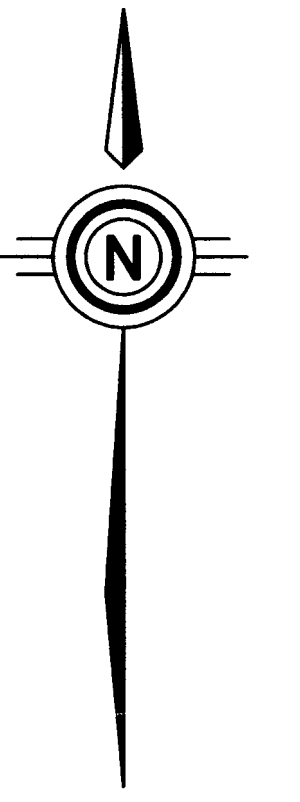
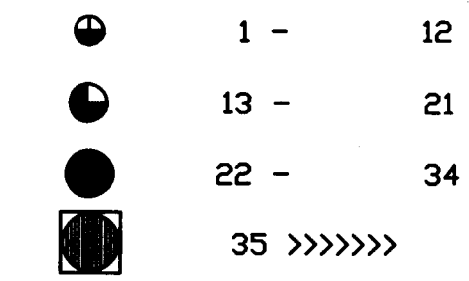
Atna Resources Ltd.	
Work By U.Schmidt Date Drafted 04-30-97 Drafted By U.Schmidt Date Revised 04-30-97 Revised By U.Schmidt N.T.S. Number 1168/12 File Name PBZNFigs	CORN PROPERTY Pb-Zn Soil Geochemistry (3)
Northwest Geological Consulting Ltd.	
 SCALE 1 : 5000	Figure 6



Analytical Thresholds



AS Value in ppm



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Work By U.Schmidt Date Drafted 04-30-97 Drafted By U.Schmidt Date Revised 04-30-97 Revised By U.Schmidt N.T.S. Number 1168/12 File Name PBZNF1G6	CORN PROPERTY Au-As Soil Geochemistry 2
Northwest Geological Consulting Ltd.	
100 0 100 200 300 SCALE 1 : 5000	Figure 7

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