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APPENDIX 4

REGIONAL GEOLOGICAL AND GEOCHEMICAL REPORT ON THE HART LAKE PROJECT, VANCOUVER ISLAND, BRITISH COLUMBIA

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REGIONAL GEOLOGICAL AND GEOCHEMICAL REPORT ON THE HART LAKE PROJECT, VANCOUVER ISLAND, BRITISH COLUMBIA ALBERNI AND NANAIMO MINING DIVISIONS

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127°34'E - 50°18'N

Brinco Mining Limited
Exploration Department

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1.0 INTRODUCTION

During the period June 6 to July 2, 1984 a field crew consisting of Brian Hall (geologist), Ted Hayes (prospector) and Nick Pritchard (gumby), conducted a regional exploration program on the Hart Lake property. The purpose of this program was to evaluate the areas outside the known showings for any mineral potential. Previous work in the area has been restricted to the main showing areas (Iron Cop and Wilf), with the exception of one old grid located on the Bozo 4 claim block. In addition, the major streams had been sampled in the early 1970's in the search for porphyry copper mineralization.

The rational behind this program was to sample the smaller streams, traversing midway along the slopes, thus covering ground that had not been previously covered. In addition, any areas of interest were to be evaluated using soil geochemistry.

The work was confined to Mapsheets 1 and 3 and was centered about four fly camps located on the Bozo 2, Bozo 4, London 1 and Reg 1 claims. Timing and bear problems prevented the area surrounding the Bozo 2 and Reg 1 camps from being as thoroughly covered as the other camps.

The claims are presently held in good standing by Brinco Mining Limited of 704 - 602 West Hastings Street, Vancouver, B.C. (Free Miner's Certificate 264303).

The following table lists the claims which comprise the Hart Lake property.

TABLE 1

SUMMARY OF MINERAL CLAIMS

Claim	Number	Units	Expiry Date	Type of Work
Reg I	1637 (12)	20	Dec. 19, 1984	A
Reg II	1638 (12)	20	Dec. 19, 1984	A
Reg III	1639 (12)	12	Dec. 19, 1984	
London 1	1850 (9)	20	Sept. 26, 1984	A, B
London 2	1852 (9)	20	Sept. 26, 1984	A
Spanish	1851 (9)	20	Sept. 26, 1984	A
Voodoo	1853 (9)	12	Sept. 26, 1984	
Kyuquot	1854 (9)	20	Sept. 26, 1984	
Bozo 1	1595 (11)	8	Oct. 19, 1984	A
Bozo 2	1596 (11)	12	Oct. 19, 1984	A, B
Bozo 3	1876 (10)	20	Oct. 19, 1984	A
Bozo 4	1877 (10)	20	Oct. 19, 1984	A, B
Bozo 5	1878 (10)	18	Oct. 19, 1984	A
Patch	2259 (6)	10	June 13, 1985	A
Bev	1758 (6)	4	June 13, 1985	

A = silt sampling, prospecting and geological mapping

B = soil sampling, detailed geological mapping

1.1 Summary of Work Completed

In total 425 silt, soil, and rock chip samples were collected for analysis and over 350 outcrops were mapped, most at a scale of 1:5000. The silt samples totalled 196, soil samples 141, and rock chip samples 88. A total of nine new showings were discovered plus four unmineralized zones of favourable alteration. Several anomalous drainages were also defined through the silt sampling.

Two grids were established. The first consisted of a small grid located on the Bozo 4 claim. This grid consisted of 4 lines 200 metres long and spaced 50 metres apart. Soil samples were taken at 25 metre intervals. The purpose of this grid was to evaluate a small quartz-pyrite vein which contained minor amounts of malachite.

The second grid was established on the London 1 claim and was intended to cover a zone of silicified volcanic rock containing veined pyrite-sphalerite mineralization, plus three small showings of massive-magnetite pyrite. This grid consisted of six lines 300 metres long at a line spacing of 50 metres.

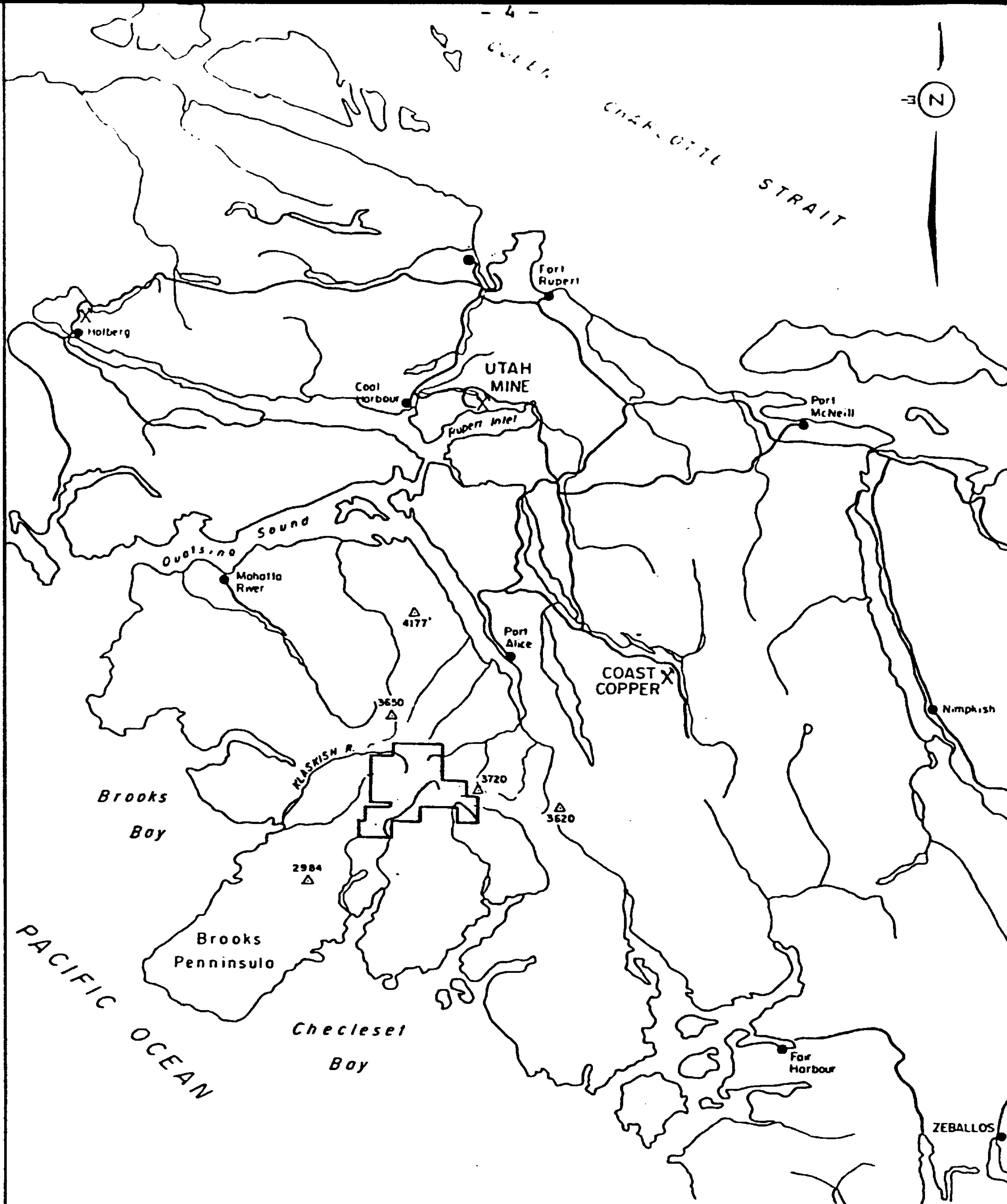
Rock chip samples were routinely collected over all outcrops containing greater than 1% pyrite or exhibited silicification or quartz veining which contained sulphides. Three rock chip samples were collected from the first grid, and 18 from the second. In addition, 17 rock chip samples were collected over showing #5 located on the Reg 1, Patch and London 2 claims.

All outcrops on each of the two grids were geologically mapped with an emphasis placed on mineralization and alteration styles.

1.2 Location and Access

The Hart Lake property is located on the west end of Vancouver Island adjacent to the Brooks Peninsula. Port Alice is located 13 km to the northeast and Port Hardy 50 km to the north.

Access to the property is currently by helicopter from Port Hardy. Logging roads from Quatsino Sound come to within 5 km of the property. Tidewater is no more than 25 km in virtually any direction.



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HART LAKE PROJECT
LOCATION MAP

DRAWN	FIGURE 1
SCALE 1:500,000	DATE Aug./84

2.0 GEOLOGY

In conjunction with prospecting and silt sampling a regional mapping program was conducted. The results of this mapping are presented in Figure 2. In addition, two grids were placed over areas of mineralization and mapped in detail (Figs. 3-5). From the detailed grids it is clear that the outcrop density for the regional mapping is not sufficient to show but general trends.

2.1 Structure

In general, the structure of the Hart Lake property is relatively simple. According to bedding orientations observed in chert beds (4 outcrops) and detailed mapping over two small grids the stratigraphy has a relatively consistent strike to the northeast. Dips varied from northwesterly in the northern portion of the property through vertical to southeasterly in the the south. This is at odds with the regional mapping of Muller et.al.(1974) which has the stratigraphy trending northwesterly.

Block faulting appears to be the only structural complexity of the property. From air photographs two distinot lineament orientations are readily discernable. The dominant set trends north to east-northeast and appears to be offset by a second set, oriented approximately northeast. This premise is substantiated by Muller et.al.(1981) who suggest the northerly trending faults may be as old as early Mesozoic. On Figure 2 only those linements which have an apparent offset have been placed on the map. Further mapping will no doubt necessitate including others.

2.2 Metamorphism

Regional metamorphism to lower greenschist facies has affected the entire claim block. This event has resulted in the formation of epidote ± quartz ± chlorite ± calcite ± pyrite ± chalcopyrite in veins, veinlets (<1.0 mm wide) and the infilling of amygdules. The most conspicuous feature of this event are large pods or veins of epidoizite (a mixture of quartz and epidote). Commonly the veins and amygdules are zoned with quartz and pyrite occupying the centre and epidote the exterior. In some examples the quartz veins are banded, containing vuggy crystals and sulphides. These veins closely resumble the gold-bearing veins at the Iron Cop. In other cases epidote veins which are commonly associated with magnetite skarn mineralization may be confused with the epidote veins resulting from regional metamorphism. In addition, the almost pervasive development of small amounts (<2%) of pyrite in veins and disseminations throughout the rocks may also be a function of regional metamorphism.

2.3 Stratigraphy and Lithology

Underlying the Hart Lake property are three main units: 1) intrusives of the Jurassic Island Intrusions, 2) sediments of the Triassic Parson Bay Formation, and 3) mixed volcanics and sediments of the Triassic Karmutsen Formation.

The Karmutsen Formation is the most widespread of the three, occupying over 90% of the area mapped during this project. Mafic volcanics characterize this formation, although minor chert beds were encountered.

The dominate rock type encountered during the mapping was an aphanetic mafic flow (TR Km). This rock type is characteristically dark to medium green, fine grained, variably magnetic, with minor plagioclase microlites visible on a freshly broken surface. A relatively common variant of this rock type contains amygdules infilled with quartz ± epidote ± pumpellyite ± sulphides (TR Kma). The amygdales average 3-5 mm in diameter and occupy 10-70% of the total rock.

A rock type similar to the aphanetic mafic flow (TR Km) is the porphyritic mafic flow (TR Kmp). This rock type is dark to medium green, variably magnetic with 5-25% plagioclase phenocrysts. The plagioclase phenocrysts average 2-5 mm in length and are randomly distributed.

With increasing grain size the aphanetic mafic flow (TR Km) and amygdaloidal mafic flow (TR Kma) grade into a mafic flow with a faintly diabasic texture (TR Kmd). The crystalline matrix of this rock type predominantly consists of fine laths of plagioclase which are visible only with a hand lens. This rock type may be representative of some of the thicker volcanic flows as both the coarser grain size and lack of amygdales suggest.

Gradational with the mafic flow diabasic texture (TR Kmd) is what has been termed the diabase (TR Kd). This rock type is distinctly coarser grained with the plagioclase laths of the matrix clearly discernable with the naked eye. Plagioclase is the dominant mineral of this rock type, 60-80%, quartz is less than 10% and pyroxene makes up the remainder. The plagioclase laths are generally less than 2 mm long and are set in a subophitic matrix. Another distinctive feature of this rock type is it is uniformly magnetic.

The outcrop distribution of this rock type suggests it is conformable with the stratigraphy. However, the relative coarse grain size and lack of silicification in outcrops B235, B238, B240, and B242 (Fig. 4) whereas the surrounding outcrops are silicified suggest an intrusive origin. An interpretation compatible with the field relationships is a sill, possibly related to the overlying volcanics.

One outcrop (B111) is occupied by a mafic tuff (TR Kt). This rock is dark green, non-magnetic, with distinct clasts of angular volcanic material 1-3 mm in diameter.

Silicified counterparts to the aphanetic mafic flow (TR Km) and porphyritic mafic flow occur in a number of localities (Fig. 2). Two large silicified zones occur on the Patch and London 1 claim blocks. Both the silicified porphyritic flow (TR Ksp) and silicified mafic flow (TR Ksm) are pale green in colour and generally non-magnetic. The plagioclase phenocrysts of the silicified porphyritic flow are characteristically discernable and in some the albite twinning is preserved. Veining and disseminated sulphides commonly accompany this form of alteration.

Sedimentary representatives of the Karmutsen Formation include four outcrops of interbanded chert and porcellonite (TR Kc) (B20, B25, B37 and B177). All outcrops were well banded, containing 2-10 mm thick bands of pale green chert with 1-20 cm thick bands of dark green porcellonite. In addition to being darker the porcellonites have a grainy appearance. In general these sediments appear to be thin and discontinuous. According to Muller et.al.(1981) the upper 3000 m of the Karmutsen Formation consists of "basaltic flows with minor sedimentary intercalations".

Overlying and in fault contact with the Karmutsen Formation are carbonaceous limestones of the Parson Bay Formation (₮ PBl). This rock type is black, argillaceous, and contains abundant quartz veins. It outcrops in three places on the Bozo 2 claim block (B18, B30, and B31) where it appears to be repeated through block faulting. These outcrops may be placed in the Karmutsen Formation since small limestone lenses occur in the upper sections, however the relatively large thickness, $\geq$50 m, suggests they may represent the Parson Bay Formation.

The Jurassic Island Intrusions are represented by three phases and possibly the intrusive breccia (Jbx) located on Grid 2.

The granodiorite (Jg) located on the Bozo 4 claim block is typical of the Island Intrusives. It is melanocratic, medium grained, granular, and consists of 60-80% plagioclase, less than 10% quartz and the remainder hornblende. It is also slightly magnetic.

In contact with the granodiorite (Jg) is a distinctly finer grained granodiorite (Jbp) which is interpreted to be a border phase of the main intrusive (Jg). This rock type is fine grained, leucocratic with 70-90% plagioclase, less than 10% quartz and 2-7% hornblende.

The third intrusive phase is a plagioclase porphyry (Jpp). This rock type is typically leucocratic, medium grained, and porphyritic. Plagioclase phenocrysts account for more than 50% of the rock, minor amounts of hornblende are also present (<3%) with the matrix consisting of plagioclase and quartz.

Of possible Jurassic age is the intrusive breccia (Jbx) located on Grid 2. This rock type is a matrix supported mixture of rounded to subangular clasts consisting of quartz and volcanic material. The approximate lateral dimensions of this zone are 20 x 20 m with the northern contact truncated by an easterly striking vertical fault. As mentioned previously, the age of this breccia is in doubt. If the TR Kd is a subvolcanic intrusive and therefore part of the Karmutsen Formation, and is unaltered as observed in the field, then the intrusive breccia must also be of Triassic age. However if these relationships are incorrect then the intrusive breccia (Jbx) can be any age from the Upper Triassic up to and including the Tertiary.

2.4 Mineralization and Alteration

A total of nine new showings were located during the course of the program. In addition, four zones of silicification which were unmineralized were outlined.

Four of the showings consist of massive magnetite with 5-15% veined pyrite. Three were located on Grid #2 (Fig. 5) with the fourth situated on the Patch claim block. The thickest zone located on L50E, 50 + 20 N (B195) was approximately 40 cm thick with the footwall obscured by overburden (showing #1). Pyrite veins ranged from 1.0 mm to 3.0 mm in thickness and in general parallel the trend of the main zone 20/78E. Two smaller zones of massive magnetite-pyrite mineralization were located on L50 + 50 E, 49 + 10 N (T 25, showing #2) and L49E, 49 + 75 N (T 26, showing #3). Both these zones contain minor amounts of malachite staining. The mineralization encountered on the Patch claim block (showing #4) was significantly lower in pyrite (1%) than the other showings. This mineralization was encountered in several float samples, but not in outcrop. However, the float samples were traced back to the vicinity of B294, and this outcrop contained several small veinlets of magnetite. In all four zones the contacts were sharp, with no visible alteration affecting the surrounding volcanics.

The two main showings consist of veined sulphides (0-10%) hosted in broad zones of silicified volcanics. The larger of these zones is located at the junction of the Reg 1, Patch and London 2 claim blocks (showing #5). This zone measures in excess of 500 x 500 m with the east, south and west boundaries as of yet undefined. The pyrite content varies from 0-10% with the most intense pyrite development located in outcrops B317 and B318. Veined sphalerite has been found in float B316, along with some brecciated rocks. In this case the brecciation most closely resembles a tectonic breccia, and is probably related to faulting. In addition to the silicification, sericite alteration has affected some outcrops as evidenced by the destruction of plagioclase phenocrysts. To the north of the main mineralized zone the outcrops although intensely silicified contain only trace amounts of pyrite.

The second mineralized zone of silicified volcanics (showing #6) occurs on the London 1 claim block and is partially covered by Grid #2. The approximate lateral dimensions of this zone are 300 x 150 m with a vertical component of 75 m. Both the mineralization and alteration of this zone is very erratic, however, as Figure 5 indicates the two are roughly coincident. Up to 5% veined pyrite has been encountered (B242 and B245) along with 4% sphalerite (T25 and B198), plus trace amonts of native sulphur(?). Centered about L52E, 50 + 00 N is a zone of intrusive breccia (Jbx). As described previously the matrix of this breccia is intensely silicified with the majority of the clasts composed of quartz. The approximate lateral dimensions of this zone are 20 x 20 m with the northern contact truncated by an easterly striking vertical fault. Float sample (B193) located below the main mineralized area consists of quartz-pyrite in a banded colloform texture, closely resembling the mineralization on the Iron Cop showings.

Two outcrops (B82 and T8) were found to contain disseminated chalcopyrite. The rock hosting the mineralization in B82 (showing #7) was an unaltered, aphanetic mafic volcanic (Bozo 3 claim block). The style of this mineralization closely resembles the pervasive pyrite mineralization encountered in many outcrops on the property. Hosting the mineralization in T8 (showing #8, located on the London 1 claim block) is either a leucocratic intrusive or a silicified volcanic. More work is required to determine the field relationships of this outcrop.

The last showing to be discussed consists of a small (3 cm thick) vein of quartz-pyrite-chalcopyrite (B60) which has minor amounts of malachite staining (showing #9, located on the Bozo 4 claim block). A second outcrop (B130) also contained traces of malachite. The orientation of the quartz-pyrite-chalcopyrite in B60 was 122/90.

Four zones of relatively unmineralized silicified volcanics were encountered. The largest was located on the Reg 1 claims (T39, T41, T42 and T43). This zone may be a continuation of showing #5 situated to the east. A second zone was located immediately to the south on the Bozo 2 (B12, B13 and B24), and may be a continuation of the zone discussed above. The third and fourth zones are represented by single outcrops (B181 and T31, both located on the London 1 claim block). In all four zones the pyrite content is less than 1%.

3.0 STREAM GEOCHEMISTRY

3.1 Method

A total of 196 silt samples were collected for analysis. The samples ranged in weight from 0.5 to 2.0 kg and consisted of fluvial material taken from the active portion of the streams. The samples were placed in either plastic bags or kraft high-strength paper envelopes, and field dried for up to 10 days.

The samples were sent to either Chemex Labs Ltd. at 212 Brooksbank Avenue, North Vancouver, B.C. or Acme Analytical Laboratories Ltd. at 852 East Hastings Street, Vancouver, B.C.

At Acme Analytical Labs the samples were dried overnight, then sieved to -80 mesh. For the Ag, As, Co, Cu, Mo, Ni, Pb, Sb, W and Zn analysis a 0.500 gm portion of the -80 mesh fraction was dissolved in a hot (95^{o}C) 3 ml solution of dilute hydrochloric and nitric acid for one hour. The solution was then diluted to 10 ml with deionized water and determined using Inductively Coupled Argon Plasma.

For Au, 10.0 gm of sample that was ignited overnight at 600^{o}C was digested in 10 ml of hot (95^{o}C) hydrochloric and nitric acid. A clear solution was extracted using Methyl Isobutyl Ketone (MIBK) and determined using a Varian Techtron Model 475 atomic absorption unit.

At Chemex Labs Ltd. the samples were analyzed for Ag, As, Au and Cu. After drying overnight the samples were sieved to -80 mesh. For Ag and Cu 0.5 gms of sample was digested for four hours in a hot acid attack consisting of concentrated nitric and perchloric acid. Upon digestion the sample was made up to a volume of 10 ml with distilled water and analysed using atomic absorption.

For As a 0.25 gm portion of the -80 mesh fraction was digested in the same manner as Ag and Cu. From the diluted 10 ml solution a 5 ml aliquot was taken and diluted to 20 ml with distilled water. Then a Hydride Generation Method was used to generate arsine using 5.0 ml of concentrated hydrochloric acid and 1.0 gm of granulated zinc. The resulting solution was analysed using a Spectronic 20 colorimeter.

For Au, a 10.0 gm sample of the -80 mesh was roasted overnight at 550°C. The sample was then dissolved in a 30 ml solution of hot Aqua-Regia. The solution was then made up to 100 ml with distilled water and 75 ml of the solution was extracted using Methyl Isobutyl Ketone (MIBK). The resulting solution was then analysed using atomic absorption.

For the determination of background and anomalous populations a statistical approach was used. Frequency plots were constructed on log-probability paper for As, Co, Cu, Mo, Ni, Pb and Zn (Appendix A). Statistically normal populations should plot as straight lines and points of inflection are generally considered to represent the boundaries between different populations (Sinclair, 1975). Determination of threshold values separating the anomalous populations was made by inspection of the frequency plots. In the case of Ag a relatively large percentage of the data was plotted below the analytical detection limit and was therefore found to bias the results. Consequently these values were removed from the population and the "censored" data plotted. For Au, Sb and W the majority of the samples were at the detection limit, consequently frequency plots were not constructed, and any sample found above the detection limit was considered to be significant, with the top 10% anomalous.

TABLE 2

SUMMARY OF SILT SAMPLE POPULATIONS

	Above Background		Slightly Anomalous		Anomalous		Highly Anomalous	
	A	B	A	B	A	B	A	B
Au					10	90%		
Ag							0.5	96%
Cu	60	68%	83	83%			200	97%
Zn	230	72%	500	86%	720	88%	2200	97%
Pb	6.5	50%			15	91%	21	95%
Mo			3.5	80%			0.5	96%
As	41	60%	140	87%	190	91%	250	95%
Ni					48	90%	58	98%
Co	32	67%			52	92%		
Sb					4	90%		

A = threshold value (Au in ppb, others ppm)

B = percentage of total population

3.2 Results

The silt sampling program confirmed the significance of the areas of interest already outlined through the mapping, plus a number of other areas were located.

For Au a number of high values were encountered. Background values were 5 ppb with the highest value (TS2) 840 ppb. This sample was located on London 1 claim block immediately south of camp #3. This sample was not anomalous for any other element, however due to very high Au value some follow-up work is required. Sample TS5, located 200 m south of TS2, contained 60 ppb, however this sample was quite low for the remaining elements with the exception of Ni.

The second highest sample, TS15 (250 ppb), was also located on the London 1 claim block. This sample was slightly anomalous for Mo, and above background for Zn and Co. In addition, this sample drained an area containing silicified volcanics (T31), thus enhancing the relative significance of this sample.

The remaining value over 100 ppb was N132 (145 ppb). This sample was located approximately 400 m west of TS15 (London 1 claim block) and was only slightly anomalous for Mo.

Located on the Reg 1 claim block were a number of interesting samples, N225 (65 ppb), N245 (95 ppb), N248 (45 ppb) and N249 (75 ppb). All of these samples were highly anomalous for As, N225 (430 ppm), N245 (1714 ppm), N248 (691 ppm), and N249 (536 ppm), and were either anomalous or above background of Sb and Pb. In particular sample N245 had the second highest value for Sb (11 ppm), and the third highest for Mo (11 ppm). Sample 225 was also anomalous for Cu, Mo and Zn. Follow-up work is required on all these drainages.

Although a fair number of the highly anomalous As values correspond with the high Au values a number of other highly anomalous samples for As remain to be discussed. Sample N20 (1330 ppm) located on the Bozo 2 claim block also contains the highest value for Sb (23 ppm) and is only 100 m west of N18, another highly anomalous As sample (303 ppm). For 500 m to the east and west (N14-N26) of sample N20 are predominately anomalous As values for both the silt and the base of slope soil samples.

A second area containing anomalous As values includes the sample interval N223-N228, located on the Reg 1 claim block. The 200 m representing this sample interval drains a large zone of mineralized silicified volcanics and drains the same topographic high as the sample interval N14 to N26. In addition to containing some highly anomalous As values (N224, 355 ppm; N225, 430 ppm; N227, 276 ppm, and N228, 276 ppm) Zn, Pb, Cu, Mo and Sb were also found to be anomalous.

Other significant As values include N206 (371 ppm), located on the London 1 claim block, which was also anomalous for Mo, Cu, and Zn and N63 and N64, located on the Bozo 4 claim block, which were anomalous for Ag.

Sb in general corresponded quite well with As and to a lessor degree with Au, and proved useful in adding confirmation to anomalous samples in these elements. As mentioned previously the two highest samples N20 (23 ppm) and N245 (11 ppm) coincided with the two highest As values.

Zn was found to be the best indicatator of the mineralized silicified volcanics underlying Grid #2 (showing #6). Draining the area of Grid #2 are samples N152 (1137 ppm), N153 (1951 ppm) N154 (3191 ppm) and N155 (2892 ppm). Two of these samples were highly anomalous for Cu (N153 and N154). Sample N153 also contained the highest Pb value (76 ppm) and was anomalous for Mo, Ag, Ni and Co.

A second concentration of anomalous to highly anomalous samples in Zn is represented by the sample interval N206 to N210 (London 1 claim block). This sample drains the same hillside as samples N152 to N155 and is located approximately 200 m north of sample N152, and contains the two highest samples, N208 (3606 ppm) and N209 (3932 ppm). Cu, Mo and Pb were also found to be anomalous in this zone. This strongly suggests that Grid #2 should be extended to the north.

A third concentration of anomalous samples is represented by samples N222 to N227 and has been discussed previously.

Pb attained a high of 76 ppm in sample N153, which was also anomalous for Mo, Cu, Zn, Ag, Ni and Co. Other high value samples, N224, NS225, N204, N208, and N209, which are associated with showings #5 and #6 the sample interval N162 to N165, and N245 which was highly anomalous for Mo, As and Sb and anomalous for Au.

The sample interval N162 to N165 is located on the London 1 claim block, with the samples spanning both sides of a major creek. Since these samples are anomalous for little else they are not considered to be significant.

Ag was not found to be one of the more interesting elements. Scattered high values occurred randomly throughout the property. Two samples (N63 and N64) did coincide with some anomalous As values, which also appear to be of minor significance.

Cu was also found to be not as significant as Au, As, Pb, Sb and Zn, although in some cases highly anomalous samples (N153, 355 ppm; N154, 596 ppm; and N226, 610 ppm) did coincide with high values for other elements and were found to be draining the areas hosting showings 5 and 6. Scattered high values (N8, 264 ppm; N40, 270 ppm; and N49, 313 ppm) occurred as isolated identities within the property.

To a certain degree the areas of high Mo coincide with the higher Cu values, however this relationship only holds true in a regional sense. Two of the highest Mo samples (N206, 14 ppm and N245, 10 ppm) are found with highly anomalous As values (371 ppm and 1714 ppm, respectively). One concentration of highly anomalous Mo values occurs in the sample interval N142 to N144 (located on the London 1 claim block). This cluster of samples drains the same topographic high as showing #5. However, the significance of this relationship is relegated somewhat due to the relatively poor values for the other elements.

High Co values (N8, 92 ppm; N153, 87 ppm; N154, 68 ppm and N226, 99 ppm) often coincided with the highest Cu values, and like Cu was found to be most anomalous draining Showings 5 and 6. However, in general Co was quite erratic.

Ni was also found to be erratic, as was to be expected by the relatively straight line plot of the frequency histogram (Appendix A) which suggests a statistically normal population.

W was uniformly below the detection limit, and consequently of no interest.

4.0 SOIL GEOCHEMISTRY

4.1 Method

Soil samples were collected from two grids (Grid #1, 34 samples and Grid #2, 88 samples) plus one traverse on the Bozo 2 claim block (19 samples) for a total of 141 samples.

The samples were collected from the B horizon using a shovel and placed in Kraft high-strength paper envelopes. After drying for one week the samples were sent to either Chemex Labs Ltd. at 212 Brooksbank Avenue, North Vancouver, B.C. or Acme Analytical Laboratories Ltd. at 852 East Hastings Street, Vancouver, B.C. There the samples were analyzed using the same method as the silt samples.

For the determination of background and anomalous populations the samples of Grid #2 were processed using the same procedure as the silt samples. This data is tabulated in Table 3.

TABLE 3

SUMMARY OF SOIL SAMPLE POPULATIONS

	Above Background		Slightly Anomalous		Anomalous		Highly Anomalous	
	A	B	A	B	A	B	A	B
Au					10	94%	40	97%
Ag					4.5	90%	6.5	9.5%
Cu			70	79%	90	86%		
Zn	190	60%	420	82%	640	90%	840	95%
Pb	12	73%	15	82%				
Mo							7	95%
As	21	51%	32	73%	55	93%		
Ni	11	51%			25	92%	30	96%
Co	26	75%	60	89%	70	91%		
Sb			3	90%	4	93%		

A = threshold value (Au in ppb, others ppm)
B = percentage of total population

4.2 Results

The results for Grid #1 were disappointing (Figs. 8-12). Not one sample could be considered anomalous based upon the statistics generated from Grid #2. Although the soil horizon development in this area was poor, samples immediately adjacent to the mineralized outcrops failed to register above background.

Significant, but somewhat erratic results were obtained from Grid #2 (Figs. 13-24). Sb (Fig. 21) was the best indicator of the pyritic mineralization and silicified zones. Background values were at the detection limit (2 ppm) and any values above that were considered to be anomalous.

Ag (Fig. 15) was the next best, with the anomalous values occurring in a relatively small zone (125 x 100 m) centered about L51 + 50E, 50 + 75N.

Au, Co, Pb and Zn were also good indicators of mineralization. In general the anomaly generated by these elements occurred to north of the baseline and slightly downhill of the mineralization outlined in Fig. 5.

Cu, As and Ni all had concentrations of anomalous values in the general vicinity of the mineralization, but failed to indicate a well defined zone.

Mo yielded the best defined anomaly. Four highly anomalous values outlined an elongate zone centered about L50E, 49 + 25E (Fig. 19). This anomaly did not coincide very well wih the observed mineralization, and may reflect a different form of mineralization not observed during the mapping.

The areas surrounding the massive magnetite-pyrite mineralization (Fig. 5) did coincide with some anomalous values for Cu and Ni, but again no consistency was observed.

In general the erratic soil sample results appear to reflect the 1) erratic nature of the mineralization, 2) steep topography, and 3) relatively poor soil horizon development.

The base of slope sampling conducted on the Bozo 2 claim block indicated a couple of interesting trends. As and Ni were in general very high, with 8 and 12 of the 19 samples considered to be either highly anomalous or anomalous when compared to the statistics generated from Grid #2. This may be a reflection of different bedrock, or a halo effect related to the mineralization encountered to the northwest on the Reg 1, Patch and London 2 claim blocks.

5.0 ROCK GEOCHEMISTRY

5.1 Method

Rock chip samples were routinely collected over outcrops exhibiting greater than 1% sulphides, interesting vein structures or intense silicification. A total of 88 samples were collected.

The samples ranged in weight from 1.0 to 3.0 kg and were collected using a geological hammer. Weathered portions were removed before being sent to the laboratory for analysis.

The samples were sent to either Chemeax Labs Ltd. at 212 Brooksbank Avenue, North Vancouver, B.C. or Acme Analytical Laboratories Ltd. at 852 East Hastings Street, Vancouver, B.C.

At Acme Analytical Labs the samples were pulverized to -100 mesh. For the analysis of Ag, As, Co, Cu, Mo, Ni, Pb, Sb, W and Zn a 0.500 gm portion of the pulverized sample was dissolved in a hot (95° C) 3 ml solution of dilute hydrochloric and nitic acid for one hour.

The solution was then diluted to 10 ml with deionized water and analysed using Inductivity Coupled Argon Plasma.

For Au, 10.0 gm of sample that was ignited overnight at 600° C was digested in 10 ml of hot (95° C) hydrochloric and nitric acid. A clear solution was extracted using Methyl Isobutyl Ketone (MIBK) and determined using a Varian Techtron Model 475 atomic absorption unit.

At Chemex Labs Ltd. the samples were crushed to -100 mesh. Then a 0.500 gm portion of the sample was dissolved in a 30 ml solution of Aqua-Regia ($HClO_4$- HNO_3) for four hours at 95° C. Upon digestion the sample was made up to a volume of 10 ml with distilled water and analysed using Inductivity Coupled Argon Plasma.

For Au a 10.0 gm sample of the -100 mesh was roasted overnight at 550° C. The sample was then dissolved in a 30 ml solution of hot Aqua-Regia. The solution was then made up to 100 ml with distilled water and 75 ml was extracted using Methyl Isobutyl Ketone (MIBK). The resulting solution was then analysed using atomic absorption.

5.2 Results

Although a number of anomalously high values were obtained through the rock chip sampling, no economic mineralization was encountered. The results of the rock chip geochemistry are plotted on Figs. 14-26.

For Au the best sample was T41 (175 ppb). This sample was hosted in some silicified volcanics located on th Bozo 2 claim block. The next highest was B82 (75 ppb) which contained veined chalcopyrite (1438 ppm Cu). This sample, although interesting, appears to be the result of regional metamorphism. Sample T33 was the next highest sample at 50 ppb. This sample was hosted in some silicified mafic volcanics that contained veined pyrite. For the remaining mineralized samples hosted in silicified volcanics the values did not exceed 15 ppb.

For Ag the best sample was B193 (2.2 ppm), a float sample located on the stream which drains Grid #2. This sample contained approximately 10% pyrite which was hosted in a vuggy quartz vein. Other interesting samples include T33 (1.2 ppm) which was also second highest in Au, and B10 (1.8 ppm) a float sample consisting of quartz vein material (located on the Bozo 3 claim block).

Zn was uniformly high in all the samples coming from Grid #2. Sample T25 was the highest (14,673 ppm or 1.46%) and B197 second (10,050 ppm or 1.01%). Sample T25 came from the massive magnetite-pyrite mineralization, and was also relatively high in Cu (609 ppm) and Au (15 ppb). Sample B198 came from the silicified mafic volcanics and was relatively high in Cu (294 ppm) and Ag (0.9 ppm). The samples from the silicified volcanics located at the junction of Reg 1, Patch and London 3 claims were in general not as high as Grid #2 for Zn.

Cu was significantly high in a number of samples, B10 (1211 ppm), B60 (3940 ppm), B82 (1438 ppm), T2S (609 ppm) and T26 (587 ppm). As previously mentioned B10 was a float sample located on the Bozo 3 claim block, having relatively high Ag (1.8 ppm). B60 was a small quartz-pyrite-chalcopyrite vein located on Grid #1, which contained very high Co (191 ppm) and relatively high As (225 ppm). B82 was from a somewhat isolated locatation on the Bozo 3 claim which contained minor amounts of chalcopyrite. Samples T25 and T26 are from two of the magnetite-pyrite showings located on Grid #2.

For Mo there was one very significant sample (T24) which contained 47 ppm and 240 ppm Cu. This sample was located approximately 200 m east of Grid #2 and suggests the possibility of porphyry copper-type mineralization.

6.0 DISCUSSION

The four magneite-pyrite zones (showings 1-4) appear to be similar to the Wilf and other skarn-related deposits which occur on the westcoast of British Columbia. Better known examples include Cominco's Benson Lake Mine, Westfrob's Tasu Mine, and the Texada Island Mine. At the Wilf this type of mineralization returned very low values for Cu and Au (Brinco Mining Limited, 1984). Silver was anomalously high, but still not enough to warrant any interest. However, some magnetite skarns do contain significantly high Au values.

Deposit	Location	Tonnage $x10^6$	Au gm/ton	Ag gm/ton	Cu %
Ertsberg	Indonesia	33.0	1.0	7.1	3.5
OK Tedi	Papua New Guinea	22.7	1.1		2.3

Although the potential exists (data from Bonham, H.F., 1981) for a relatively large size deposit of economic grade, the very limited soil sample response over Grid #2 somewhat negates this possibility. Some potential does exist in the area upslope of showing #4.

The economic potential for the silicified pyritic zones appears to be much greater, although the rock chip samples did not bear this out. Two potential models exist: 1) epithermal mineralization similar to the

Golden Sunlight deposit, Montana, and 2) porphyry copper mineralization. The bulk of the geological evidence suggests an epithermal-type deposit. The rock geochemistry is more in line with a porphyry copper-type deposit.

The geological evidence in favour of an epithermal origin is: 1) the intense silicification, 2) the banded, crustiform float sample B193, 3) the absence of chalcopyrite and molybdenite, 4) the presence of native sulphur, 5) the absence of alteration minerals indicative of porphyry copper-type mineralization (orthoclase, biotite, chlorite, and montmorillonite), plus the very fresh appearance of the plagioclase phenocrysts in the silicified porphyritic mafic flows (T Ksp). 6) the presence of quartz clasts in the intrusive breccia indicating a multi-stage event, 7) the rounded nature of the breccia clasts indicating exploaive activity, and 8) the presence of sphalerite in the intensely silicified and altered volcanic rocks as opposed to the less altered rocks which would be more compatible with a porphyry copper deposit.

Opposed to an epithermal origin are the low Au values (>15 ppb) and rock chip sample T24 which contained 47 ppm Mo. This sample was located approximately 200 m east of Grid #2 and may indicate the more central portion of a porphyry copper system. In addition, wallrock alteration at the Red Mountain porphyry copper deposit, Arizona (Corn, R.M., 1975) approximately 600 m above the ore zone consists of quartz, sericite and pyrite, not unlike the mineralogy encountered in showings 5 and 6. The presence of the intrusive breccia can be argued either way since it is a common feature of both types of deposits.

Although somewhat circumstantial the magnetite skarn mineralization located in close proximity to showings 5 and 6 suggests the possibility of intrusive activity in the immediate vicinity. This is a necessary ingredient for both types of deposits. In epithermal deposits the heat source is often a felsic stock of somewhat restricted volume, such as the Consolidated Cinola deposit, B.C. (Champigny, N., 1981). This type of intrusive activity would not provide the necessary heat to produce the magnetite skarns (425 - 500^{o}C, Einaudi et.al., 1981) over even relatively small distances (<500 m). Intrusive activity such as the Tertiary Catface intrusions or the Jurassic Island Intrusives could. Regional mapping by Muller et.al. (1983) indicates both these intrusions occupy a northwesterly trending belt which may continue onto the Hart Lake property.

The most important ingredient in an epithermal deposit is a zone of boiling for the hydrothermal solutions. At this interface the Au precipitates out of solution. Above or below this zone Au values are typically very low (Buchanan, L.J., 1981, personal communication). At the Wau district, Papua New Guinea (Sillitoe et.al., 1984) the Au mineralization is in an intrusive breccia. The ore zone is discontinuous, lenticular, up to 10 m thick and 300 m long. The intrusive breccia zones are considerably larger. The situation may be similar at the Hart Lake property where the crucial zone of boiling may be at depth in the intrusive breccia.

To evaluate whether the mineralization of showings 5 and 6 are epithermal or porphyry copper-type additional detailed mapping is required, especially to the east of Grid #2. More rock chip samples are required, plus the samples already collected should be analyzed for Hg. Hg was found to be significantly enriched in the Consolidated Cinola deposit and produced a relatively large halo effect (Champigny, N., 1981).

Although not mineralized, the other zones of silicification should be evaluated in more detail. These zones may also represent an epithermal-type system. Commonly the upper portions of epithermal systems are siliceous and low in sulphides (Buchanan, L.J., 1981, personal communication).

7.0 CONCLUSIONS

The regional program of silt sampling, prospecting and geological mapping was successful in locating nine previously undiscovered mineral showings, four additional zones of unmineralized alteration, plus a number of geochemically anomalous stream drainages.

Stream sediment sampling proved to be a viable method in locating the mineralization thus far discovered, as did soil geochemistry in defining these zones.

The four zones of magnetite skarn mineralization (showings 1-4) do not appear to be of economic interest. The two rather large zones of mineralized silicified volcanics may be economically significant, although the rock geochemistry did not confirm this. Further work is definitely required on these zones, plus the four unmineralized zones of silicified volcanics. In addition, follow-up work is required on a number of the geochemically anomalous stream drainages to which no mineralized source has been attached.

8.0 RECOMMENDATIONS

Further work on the Hart Lake property outside of Iron Cop and Wilf showings should be continued. This work should accomplish three objectives: 1) correctly interpret the mineralization of showings 5 and

6, plus the unmineralized alteration zones, 2) follow-up on the geochemical anomalies already generated, and 3) continue the silt sampling, geological mapping and prospecting over the areas outlined in Fig. 27.

The first objective is the most important. The economic ramifications of an epithermal deposit verses a porphyry copper deposit are considerable.

In addition, the exploration approach would be considerably different. At present the data can be interpreted in terms of either model. Additional detailed mapping is required in the areas over and surrounding showings 5 and 6, plus the unmineralized alteration zones. Other models of mineralization should also be considered. Hg is an element commonly enriched in epithermal deposits, as in the case of the Cinola deposit, B.C. (Champigny, N., 1981). Consequently the pulps for all the rock chip samples, plus the soil samples of Grid #2 should be analysed for Hg (176 samples). The silt samples draining showings 5 and 6 (approximately 40 samples) should also be analyzed for Hg, although these results may prove not to be reliable.

Follow-up work on the geochemical anomalies generated by the regional work is crucial to the completion of this phase of exploration. The soil sampling over Grid #2 did not completely enclose the anomalous zone. Four lines should be added to the east at 100 m spacings and the lines extended 500 m to the north. For the extended lines (L49 to 52E) the sampling interval should continue at 25 m. For the additional lines to the east the sampling interval should be 50 m, closer where deemed necessary. The total number of samples involved in enlarging Grid #2 would be 197 samples. This sampling would also cover the area drained by silt samples N206 to N210 (anomalous in Zn, Cu, and Mo), silt sample N155 (anomalous in Zn), rock chip sample T24 (highly anomalous in Mo) and showing #8 represented by sample T8.

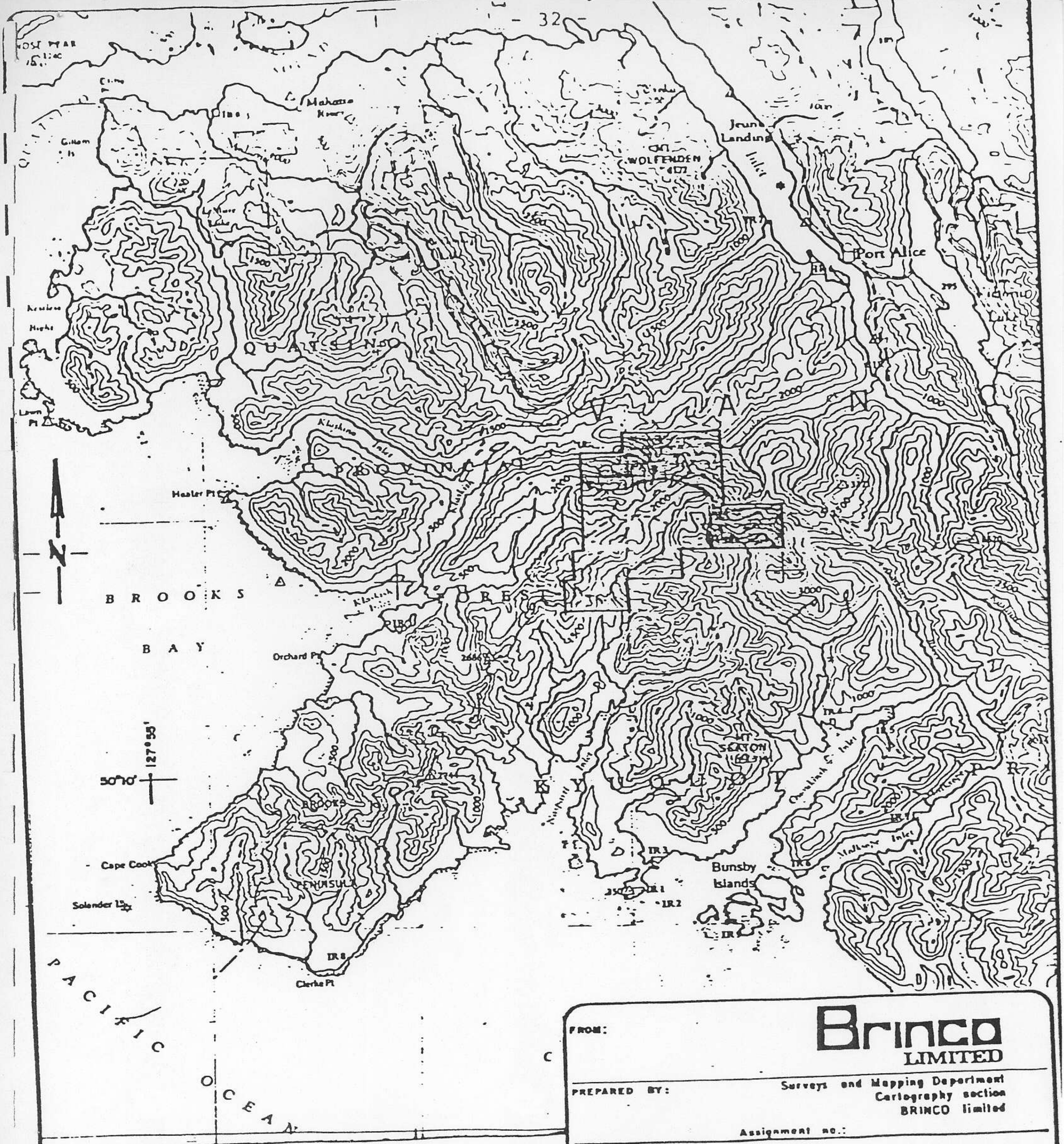
A grid should be placed over the area of showing #5. Prospecting and mapping should precede or accompany the soil sampling. This grid should have a baseline 1800 m long (orientated north-south) and passing approximately 200 m west of camp #4. The line spacing would be 100 m with a sample spacing of 50 m (255 samples). This grid should extend over the hill to south and cover the drainages represented by samples 14 to 26. The drainages represented by samples N245 to N249 should be covered by an extension of this grid (8 lines) spaced at 50 m intervals, and 500 m long (88 samples). The line spacing and sample interval of the larger grid should be decreased to 50 m and 25 m respectively in areas of mineralization.

The drainage that sample TS2 was taken from should have a small grid placed over it. Approximately 9 lines, 25 m apart with soil samples every 25 m should provide a sampling density sufficient to locate any mineralization (99 samples). An alternative to the soil sampling would be sample the stream at 50 m intervals using heavy mineral samples. This would confirm the anomalous nature of sample TS2 and help to locate the source of the anomaly.

The drainage hosting silt sample TS15 should also have a small grid placed over it. This grid should also include the zone of silicified volcanics represented by outcrops T27 and T31. Five lines 50 m apart with sample density of 25 m should suffice to cover this area (115 samples).

To complete the follow-up work the source of the magnetite-pyrite float of showing #4 should be located.

The area outlined in Fig. 27 is considered to be of relatively high potential. If nine showings were located by this project, others should be



LEGEND

☐ *Hart Lake Claim Block*

FROM: Brinco LIMITED

PREPARED BY: Surveys and Mapping Department, Cartography section, BRINCO limited

Assignment no.:

FOR:

SUBJECT: HART LAKE PROJECT
RECOMMENDED AREAS FOR
FURTHER SILT SAMPLING

MAP REF.:	SCALE	DRAWING NUMBER	REV.
NTS 92-L	1:250,000	Figure 27	
DWG REF			

RANBLAS 003

present in these areas. A similar approach as this project should be taken. This would result in a relatively consistent data base.

The cost of the follow-up work should be in the order of $30,000. The field personnel should include one senior geologist, one junior geologist or geology student and two assistants.

Respectfully submitted,

Brian V. Hall, M.Sc.

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APPENDIX A

GEOCHEMICAL DATA

CME ANALYTICAL LABORATORIES LTD.
852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: AUG 1 1984

DATE REPORT MAILED: Aug 4/84

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 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.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK CHIPS AU** ANALYSIS BY FA+AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye DEAN TOYE. CERTIFIED B.C. ASSAYER

BRINCO MINING FILE # 84-1880 PAGE

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	AS PPM	SB PPM	CR PPM	W PPM	AU** PPB
B20	1	1438	3	24	.2	12	7	2	16	2	75

Hart Lake
Geochem

CHEMEX LABS LTD.

212 BROOKSBANK AVE
NORTH VANCOUVER B C
CANADA V7J 2C1
TELEPHONE (604) 984-0221
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : BRINCO MINING LIMITED

704 - 602 W. HASTINGS ST.
VANCOUVER, B.C.
V6B 1P2

CERT. # : A8413176-001-A
INVOICE # : I8413176
DATE : 17-JUL-84
P.O. # : NONE
HART LAKE

ATTN:K.S. NEWTON CC: BRIAN V. HALL

Sample description	As ppm (ICP)	Mo ppm (ICP)	Zn ppm (ICP)	P ppm (ICP)	Pb ppm (ICP)	Bi ppm (ICP)	Cd ppm (ICP)	Co ppm (ICP)	Ni ppm (ICP)	Fe % (ICP)	Mn ppm (ICP)	Cu ppm (ICP)	Ag ppm AAS	W ppm (ICP)
84 D 041	<10	<1	84	1170	38	<2	<0.5	10	7	5.01	430	101	<0.2	<10
84 B 044	<10	<1	81	1460	50	<2	<0.5	20	2	6.08	560	44	<0.2	<10
84 D 045	<10	<1	26	345	28	<2	<0.5	<1	<1	4.09	113	24	<0.2	<10
84 B 057	<10	<1	43	3990	14	<2	<0.5	12	<1	4.27	500	18	<0.2	<10
84 P 058	50	<1	50	990	16	<2	<0.5	15	7	5.09	420	122	0.8	<10
84 B 060	225	<1	32	<10	4	<2	<0.5	191	36	4.66	645	3940	<0.2	<10
84 D 061	<10	<1	45	400	9	<2	<0.5	40	72	5.52	715	73	<0.2	<10
84 D 098	<10	<1	34	880	5	<2	<0.5	23	38	3.57	440	115	<0.2	<10
84 D 109	<10	<1	28	1690	4	<2	<0.5	20	2	5.08	455	66	<0.2	<10
84 B 117	10	<1	19	625	4	<2	<0.5	14	10	3.72	305	66	<0.2	<10
84 D 130	<10	<1	20	585	2	<2	<0.5	9	18	2.22	260	136	<0.2	<10
84 B 002	<10	<1	12	240	7	<2	<0.5	12	5	3.22	129	70	<0.2	<10

Certified by ....[signature]........

E ANALYTICAL LABORATORIES LTD.
E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
E 253-3158 DATA LINE 251-1011

DATE RECEIVED: JULY 6 1984

DATE REPORT MAILED: July 13/84

GEOCHEMICAL ICP ANALYSIS

.50 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 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.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-2 SOIL P3-ROCK AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye. DEAN TOYE. CERTIFIED B.C. ASSAYER

BRINCO FILE # 84-1441 B Hall

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
B4-TS-9	4	113	6	139	.2	61	37	89	2	2	5
B4-TS-10	1	33	4	28	.3	11	8	2	2	2	5
B4-TS-11	4	63	4	336	.1	36	27	18	2	2	5
B4-TS-12	3	46	1	147	.1	35	17	7	2	2	5
B4-TS-13	3	47	4	47	.3	136	33	15	4	2	5
B4-TS-14	4	24	8	185	.2	24	51	32	2	2	5
B4-TS-15	4	35	6	262	.1	33	44	11	2	2	[redacted]
B4-TS-16	5	28	8	63	.2	11	46	10	2	2	5
B4-TS-17	4	26	10	46	.1	14	10	16	2	2	5
B4-TS-18	4	13	8	86	.1	13	19	22	2	2	5
B4-TS-19	1	2	9	11	.1	3	3	6	2	2	5
B4-TS-20	5	11	3	18	.1	6	6	2	2	2	5
B4-TS-21	3	25	6	341	.1	39	42	7	2	2	5
B4-TS-22	4	27	4	304	.1	40	23	3	2	2	5
B4-N-201	3	59	5	1893	.2	18	27	65	2	2	5
B4-N-202	2	99	9	635	.3	41	45	71	2	2	5
B4-N-203	2	5	10	77	.1	23	10	15	2	2	5
B4-N-204	3	101	24	350	.2	54	30	31	2	2	5
B4-N-205	4	64	7	289	.1	54	25	55	2	2	5
B4-N-206	14	174	10	1056	.2	45	46	371	2	2	5
B4-N-207	3	53	8	1597	.2	32	21	37	2	2	5
B4-N-208	4	61	17	3606	.2	22	18	30	2	2	5
B4-N-209	4	107	15	3932	.1	29	21	23	2	2	5
B4-N-210	3	57	11	990	.1	33	20	28	2	2	5
B4-N-211	4	37	11	349	.2	31	33	24	2	2	5
B4-N-212	4	13	8	124	.1	27	23	6	2	2	5
B4-N-213	3	28	10	107	.2	27	30	8	2	2	5
B4-N-214	4	20	17	83	.1	17	10	6	2	2	5
B4-N-215	2	40	11	246	.2	36	19	29	2	2	5
B4-N-216	3	6	8	37	.1	15	8	9	2	2	5
B4-N-217	5	62	18	233	.2	27	88	12	2	2	5
B4-N-218	5	76	18	170	.2	22	67	12	2	2	5
B4-N-219	7	22	9	150	.1	19	20	7	2	2	5
B4-N-220	6	33	8	213	.1	36	23	4	2	2	5
B4-N-221	3	53	5	84	.1	20	16	6	2	2	5
B4-N-222	4	83	9	968	.3	17	38	126	2	2	5
B4-N-223	3	60	7	1370	.6	17	19	192	4	2	5
STD A-1/AU-0.5	2	30	40	188	.3	36	13	9	2	2	510

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
B4-N-224	5	158	17	1094	.2	29	42	355	4	2	10
B4-N-225	4	157	15	1090	.1	28	37	430	3	2	[redacted]
B4-N-226	4	610	9	1215	.3	14	99	150	2	2	5
B4-N-227	4	59	3	647	.1	31	30	276	6	2	5
B4-N-228	3	37	6	74	.1	20	29	431	7	2	5
B4-N-229	3	34	10	622	.1	17	18	36	2	2	5
B4-N-230	3	46	7	281	.1	44	25	70	2	2	5
B4-N-231	2	41	4	197	.1	47	23	16	2	2	5
B4-N-232	3	83	11	391	.1	38	36	11	2	2	5
B4-N-233	3	139	9	257	.1	41	50	15	2	2	5
B4-N-234	2	93	11	160	.1	34	21	4	2	2	5
B4-N-235	2	42	5	302	.1	17	20	25	2	2	5
B4-N-236	2	50	5	377	.1	27	23	34	2	2	5
B4-N-237	1	147	12	416	.1	33	29	6	2	2	5
B4-N-238	2	30	6	56	.1	10	13	26	2	2	5
B4-N-239	2	82	10	168	.1	18	38	41	2	2	5
B4-N-240	1	33	12	67	.3	11	15	23	2	2	5
B4-N-241	2	30	8	59	.1	27	12	7	2	2	5
B4-N-242	1	26	10	39	.2	16	9	6	2	2	5
B4-N-243	2	35	14	89	.4	17	13	47	2	2	5
B4-N-244	2	27	9	48	.2	15	8	25	2	2	5
B4-N-245	10	34	30	191	.3	23	15	1714	11	2	[redacted]
B4-N-246	1	19	8	45	.2	25	6	80	2	2	5
B4-N-247	1	32	15	68	.2	24	35	172	3	2	5
B4-N-248	2	45	14	73	.9	21	21	691	3	2	[redacted]
B4-N-249	2	38	10	90	.3	29	18	536	6	2	[redacted]
B4-N-314	2	41	12	117	.1	17	52	30	4	2	5
B4-N-315	2	78	12	200	.1	33	31	61	4	2	5
B4-N-316	2	48	8	253	.1	17	21	24	2	2	5
STD A-1/AU-0.5	2	30	39	186	.3	36	13	10	2	2	520

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
B4-T-27	3	9	2	358	.2	35	22	32	4	2	5
B4-T-28	2	17	5	55	.1	16	11	24	4	2	5
B4-T-29	2	3	2	26	.1	11	8	3	2	2	5
B4-T-30	1	29	1	20	.1	24	9	19	2	2	5
B4-T-32	2	3	4	69	.1	9	6	75	6	2	5
B4-T-33	2	4	2	56	1.2	14	6	1008	48	2	50
B4-T-34	2	83	4	464	.2	2	25	65	3	2	5
B4-T-35	1	9	2	127	.1	2	13	9	2	2	5
B4-T-36	2	6	1	252	.1	1	7	6	2	2	5
B4-T-37	2	2	2	18	.1	1	18	16	2	2	5
B4-T-38	1	60	8	51	.1	7	26	103	8	2	5
B4-T-39	3	136	4	113	.2	28	15	16	2	2	5
B4-T-40	2	154	261	750	.9	7	31	66	2	2	5
B4-T-41	6	43	7	160	.5	3	10	57	5	2	[redacted]
B4-T-42	2	37	7	806	.3	30	11	27	8	2	15
B4-T-43A	2	12	7	91	.5	11	8	59	8	2	5
B4-T-43B	1	5	3	94	.2	4	11	71	8	2	5
B4-T-44	2	156	10	1602	.2	14	24	32	2	2	5
B4-B-271	1	89	1	304	.4	13	7	15	2	2	5
B4-B-288	1	3	1	17	.1	3	3	3	2	2	5
B4-B-291	1	4	2	87	.1	2	1	2	2	2	5
B4-B-294	1	133	1	53	.1	15	8	4	2	2	5
B4-B-295	2	71	6	211	.1	1	16	28	2	2	5
B4-B-311	1	5	3	17	.1	9	19	14	2	2	5
B4-B-312	2	7	1	198	.1	2	11	10	2	2	5
B4-B-313	1	14	4	113	.1	1	9	15	2	2	5
B4-B-315	2	3	1	30	.1	1	3	3	2	2	5
B4-B-317	1	34	4	97	.1	11	7	13	2	2	5
B4-B-318	4	25	4	34	.1	7	29	6	2	2	5
B4-B-319	2	9	6	91	.3	12	6	188	13	2	15
B4-B-321	2	205	1	90	.1	2	2	16	2	2	5
STD A-1/AU-0.5	1	29	39	184	.3	36	13	9	2	2	530

E ANALYTICAL LABORATORIES LTD.
2 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
ONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: JULY 5 1984

DATE REPORT MAILED: July 13/84

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 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.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-ROCK P2-5 SOIL P6-STREAM SED AU# ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye DEAN TOYE. CERTIFIED B.C. ASSAYER

BRINCO FILE # 84-1414

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU# PPB
84-T-1	1	122	1	23	.1	38	119	10	2	2	5
84-T-2	1	43	1	23	.1	60	16	5	2	2	5
84-T-7	2	10	1	154	.1	14	15	10	2	2	5
84-T-14	1	30	1	16	.1	54	257	12	2	2	5
84-T-15	2	21	2	30	.2	64	29	14	3	2	5
84-T-16	1	2	1	6	.1	8	6	10	2	2	5
84-T-17	1	6	4	44	.1	9	8	4	2	2	5
84-T-18	1	7	1	14	.1	11	8	6	2	2	5
84-T-19	2	280	1	18	.2	6	11	9	2	2	10
84-T-20	1	63	1	233	.2	8	15	48	2	2	5
84-T-21	2	28	2	115	.1	20	28	20	2	2	5
84-T-22	2	36	1	73	.1	60	15	26	2	2	5
84-T-23	3	123	10	3178	.2	36	113	184	2	2	5
84-T-24	47	240	3	77	.2	15	36	9	2	2	5
84-T-25	3	609	8	14673	.7	41	32	43	2	2	15
84-T-26	3	587	1	229	.3	34	52	80	2	2	5
84-B-170	3	38	1	739	.1	101	26	11	3	2	5
84-B-171	1	18	2	66	.1	61	55	3	2	2	5
84-B-180	2	7	1	53	.1	14	30	19	2	2	5
84-B-193	2	507	13	76	2.2	170	142	86	2	2	10
84-B-195	3	348	12	64	.1	67	27	82	2	2	20
84-B-196	2	170	15	1427	.3	62	24	67	2	2	5
84-B-197	2	80	3	1169	.3	9	13	15	2	2	5
84-B-198	3	294	2	10050	.9	45	14	77	2	2	5
84-B-199	2	46	1	161	.3	15	16	7	2	2	5
84-B-200	2	136	2	559	.4	4	16	20	2	2	5
84-B-201	5	354	4	1321	.9	41	41	11	2	2	5
84-B-213	1	24	1	43	.1	16	7	9	2	2	10
84-B-219	1	29	2	455	.1	4	5	3	3	2	5
84-B-222	2	105	1	595	.5	49	25	38	2	2	5
84-B-233	3	29	76	396	.1	7	6	14	2	2	5
84-B-240	3	122	1	686	.5	4	6	15	2	2	5
84-B-242	3	29	13	338	.2	27	10	15	2	2	5
84-B-249	2	26	1	1067	.2	43	9	28	3	2	5
STD A-1/AU 0.5	2	31	39	188	.3	36	13	10	2	2	485

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
B4-N-125	4	20	5	49	.1	35	24	22	3	2	5
B4-N-126	4	60	1	67	.2	60	27	33	5	2	5
B4-N-127	4	38	2	129	.2	49	20	56	4	2	5
B4-N-128	4	63	2	205	.2	33	28	19	2	2	5
B4-N-129	3	7	6	19	.2	20	8	2	2	2	5
B4-N-130	1	3	3	1	.2	15	5	2	2	2	5
B4-N-131	6	10	5	35	.2	54	23	5	2	2	5
B4-N-132	4	16	2	44	.2	27	24	9	2	2	145
B4-N-133	4	11	7	15	.2	18	19	3	2	2	5
B4-N-134	4	10	5	10	.2	21	7	2	2	2	5
B4-N-135	3	26	3	68	.1	66	18	13	3	2	5
B4-N-136	3	16	5	33	.1	37	12	8	2	2	5
B4-N-137	4	27	2	43	.2	28	51	8	2	2	5
B4-N-138	4	19	1	63	.1	30	31	6	2	2	5
B4-N-139	3	50	4	76	.1	46	52	10	2	2	10
B4-N-140	3	21	1	36	.1	36	41	14	2	2	5
B4-N-141	4	85	3	272	.1	31	27	23	2	2	5
B4-N-142	7	44	3	149	.3	42	39	8	2	2	5
B4-N-143	8	75	1	141	.2	46	25	50	2	2	5
B4-N-144	7	57	5	109	.3	44	50	203	2	2	5
B4-N-145	4	86	6	61	.1	34	38	178	2	2	5
B4-N-146	6	69	6	27	.1	34	43	67	6	2	5
B4-N-147	5	133	6	96	.2	56	41	92	8	2	5
B4-N-148	12	16	4	39	.2	18	34	5	2	2	5
B4-N-149	3	48	4	14	.2	35	135	6	2	2	5
B4-N-150	5	76	6	162	.1	49	25	86	3	2	5
B4-N-151	3	20	5	22	.3	24	99	14	2	2	5
B4-N-152	3	82	3	1137	.3	39	25	30	2	2	5
B4-N-153	4	355	76	1951	.9	49	87	105	2	2	5
B4-N-154	2	596	11	3191	.2	26	68	6	2	2	5
B4-N-155	2	61	7	2892	.1	29	19	13	2	2	5
B4-N-156	3	45	7	807	.2	28	26	14	2	2	5
B4-N-157	3	39	1	61	.2	19	47	8	2	2	5
B4-N-158	2	32	3	106	.1	38	48	8	2	2	5
B4-N-159	2	35	6	100	.1	37	58	2	2	2	10
B4-N-160	3	8	1	3	.1	33	15	9	2	2	5
B4-N-161	3	7	1	1	.1	34	9	6	2	2	5
STD A-1/AU 0.5	2	30	38	184	.3	36	13	10	2	2	490

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
84-N-162	2	19	24	78	.1	51	34	11	3	2	5
84-N-163	2	29	30	101	.1	45	41	8	2	2	5
84-N-164	2	36	25	73	.1	23	56	3	2	2	10
84-N-165	4	62	21	278	.1	31	38	100	2	2	5
84-N-166	3	61	8	124	.1	36	18	50	2	2	5
84-N-167	3	30	13	70	.1	37	37	7	2	2	5
84-N-168	3	49	7	128	.1	30	19	78	2	2	5
84-N-169	3	61	14	160	.1	23	22	120	2	2	5
84-N-170	3	70	16	198	.2	23	26	201	3	2	5
84-N-171	2	55	10	147	.1	28	27	83	2	2	5
84-N-172	1	28	2	162	.1	25	12	8	2	2	5
84-N-173	3	62	8	910	.1	28	28	50	2	2	5
84-N-174	3	16	10	205	.1	20	34	2	2	2	5
84-N-175	3	16	6	415	.1	33	17	7	2	2	5
84-N-176	4	72	7	894	.2	38	36	47	3	2	5
84-N-177	3	58	14	1157	.7	14	13	34	7	2	5
84-N-178	1	37	12	237	.4	9	10	2	2	2	5
84-N-179	3	76	27	494	.2	14	33	37	2	2	5
84-N-180	3	36	9	109	.1	12	15	8	2	2	5
84-N-181	1	28	4	130	.2	10	18	9	2	2	5
84-N-182	1	33	2	44	.3	6	46	5	2	2	5
84-N-183	2	21	5	92	.1	9	12	2	2	2	5
84-N-184	1	77	6	176	.1	14	21	29	2	2	5
84-N-185	2	55	8	80	1.8	14	14	37	2	2	5
84-N-186	1	14	9	39	.1	6	9	13	2	2	5
84-N-187	2	1081	12	77	.9	11	11	9	2	2	40
84-N-188	1	54	8	211	.1	13	18	12	2	2	5
84-N-189	3	24	25	103	.1	8	9	30	2	2	80
84-N-190	4	156	27	481	1.1	17	34	98	4	2	40
84-N-191	2	55	11	185	.3	10	46	36	2	2	5
84-N-192	2	48	12	231	.2	15	21	26	2	2	5
84-N-193	2	53	14	291	.2	11	18	49	2	2	5
84-N-194	2	60	17	311	.3	19	25	41	2	2	5
84-N-195	4	65	12	548	.2	13	41	30	2	2	5
84-N-196	4	219	18	1942	.3	26	186	40	2	2	5
84-N-197	3	37	7	247	.2	10	29	9	2	2	5
84-N-198	5	169	16	1470	.4	19	146	13	2	2	5
STD A-1/AU 0.5	2	30	40	186	.3	36	13	10	2	2	495

BRINCO FILE # 84-1414

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU! PPB
84-N-199	5	65	9	949	.2	9	17	49	4	2	5
84-N-200	4	49	11	442	.2	6	11	27	2	2	5
84-TN-250	2	8	12	121	.2	8	4	13	2	2	5
84-TN-251	3	30	20	297	.2	18	27	38	2	2	5
84-TN-252	3	6	4	64	.1	11	10	9	2	2	5
84-TN-253	2	5	4	27	.1	17	27	16	2	2	5
84-TN-254	5	12	5	57	.2	13	12	12	2	2	5
84-TN-255	4	9	6	39	.2	4	5	3	2	2	5
84-TN-256	3	6	1	66	.1	7	12	16	2	2	5
84-TN-257	4	319	39	3037	.5	26	161	92	4	2	5
84-TN-258	2	9	1	124	.1	10	6	17	2	2	5
84-TN-259	1	3	3	32	.1	2	4	4	2	2	5
84-TN-260	1	1	5	15	.1	4	8	3	2	2	5
84-TN-261	3	5	9	59	.1	6	5	6	2	2	5
84-TN-262	2	13	10	51	.3	10	5	3	2	2	5
84-TN-263	2	12	2	142	.1	19	13	11	2	2	5
84-TN-264	2	51	16	467	.3	11	10	23	3	2	5
84-TN-265	3	81	13	734	.3	20	17	28	2	2	5
84-TN-266	1	1	7	61	.1	3	1	4	2	2	5
84-TN-267	2	13	1	139	.1	25	15	5	2	2	5
84-TN-268	2	32	12	166	.3	22	24	12	2	2	5
84-TN-269	4	11	5	65	.1	9	10	12	2	2	5
84-TN-270	2	4	2	-26	.1	17	15	8	2	2	5
84-TN-271	3	281	90	838	.6	43	65	90	4	2	5
84-TN-272	3	61	5	168	.2	32	47	39	4	2	5
84-TN-273	10	22	14	261	.2	17	63	30	2	2	5
84-TN-274	3	202	1	84	.4	25	21	30	2	2	5
84-TN-275	1	25	7	187	.2	9	10	22	2	2	5
84-TN-276	1	2	1	65	.1	9	18	7	2	2	5
84-TN-277	1	48	1	100	.1	46	16	13	2	2	5
84-TN-278	17	236	3	181	.4	18	25	37	2	2	5
84-TN-279	2	83	7	92	.5	15	20	18	2	2	5
84-TN-280	8	56	5	117	.3	23	26	45	2	2	5
84-TN-281	1	20	5	78	.1	15	21	7	2	2	5
84-TN-282	2	30	5	251	.1	9	16	25	2	2	5
84-TN-283	6	126	23	801	.7	11	183	47	2	2	5
84-TN-284	5	75	24	468	.2	14	53	82	2	2	5
STD A-1/AU 0.5	2	29	39	186	.3	36	13	9	2	2	490

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
B4-TN-285	4	52	16	173	.3	21	123	13	2	2	5
B4-TN-286	6	34	6	447	.1	7	21	34	2	2	5
B4-TN-287	5	44	23	453	.4	8	264	20	2	2	10
B4-TN-288	3	63	10	378	.2	6	317	12	2	2	5
B4-TN-289	4	25	8	218	.1	8	40	28	2	2	5
B4-TN-290	3	8	6	108	.2	24	20	16	2	2	5
B4-TN-291	3	2	3	107	.1	29	16	14	2	2	5
B4-TN-292	2	3	7	22	.2	8	11	14	2	2	5
B4-TN-293	3	36	3	23	.2	8	8	12	2	2	5
B4-TN-294	3	35	2	214	.3	10	14	44	2	2	5
B4-TN-295	2	8	1	30	.2	18	18	21	2	2	5
B4-TN-296	3	10	1	45	.3	11	13	22	2	2	5
B4-TN-297	9	107	2	189	.6	18	17	30	2	2	5
B4-TN-298	4	18	1	37	.2	10	16	30	2	2	5
B4-TN-299	3	47	6	60	.2	7	11	22	2	2	15
B4-TN-300	3	84	11	288	.4	7	15	53	2	2	5
B4-TN-301	3	23	4	65	.1	7	10	31	2	2	5
B4-TN-302	4	13	1	37	.1	10	15	19	2	2	5
B4-TN-303	4	28	1	63	.1	11	17	24	2	2	5
B4-TN-304	8	192	7	344	.4	24	39	44	3	2	5
B4-TN-305	3	50	1	114	.4	18	18	18	2	2	5
B4-TN-306	5	285	9	339	.3	34	89	91	2	2	5
B4-TN-307	4	109	14	331	.1	21	17	154	2	2	5
B4-TN-308	5	43	3	185	.1	9	15	31	2	2	5
B4-TN-309	5	63	4	291	.2	7	27	450	2	2	5
B4-TN-310	4	26	1	111	.2	4	10	24	2	2	5
B4-TN-311	3	57	24	821	.3	20	57	16	2	2	5
B4-TN-312	3	25	3	92	.4	28	18	21	3	2	5
B4-TN-313	3	40	4	84	.3	14	24	21	2	2	5
STD A-1/AU 0.5	2	29	40	186	.3	36	13	8	2	2	490

BRINCO FILE # 84-1414

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
B4-T-S1	2	93	10	263	.1	62	29	26	2	2	5
B4-T-S2	2	33	3	59	.1	37	25	8	2	2	5
B4-T-S3	2	25	1	47	.1	40	27	7	2	2	5
B4-T-S4	2	15	5	19	.1	12	50	6	2	2	840
B4-T-S5	1	36	1	44	.1	56	30	11	2	2	60
B4-T-S6	2	10	4	16	.1	16	8	6	2	2	5
B4-T-S7	1	42	5	26	.1	24	56	10	2	2	15
B4-T-SB	1	28	4	52	.1	53	27	4	2	2	55
STD A-1	1	30	39	184	.3	36	13	9	2	2	-

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE (604) 984-0221
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

BRINCO MINING LIMITED

704 - 602 WEST HASTINGS STREET,
VANCOUVER, B.C.
V6B 1P2

ATTN: R.S. HEWTON CC: BRIAN V. HALL

CERT. # : A8413175-001-
INVOICE # : I8413175
DATE : 10-JUL-84
P.O. # : NONE
HART LAKE

Sample description	Prep code	AU-AA ppb					
84 B 041	205	<10	--	--	--	--	--
84 B 044	205	<10	--	--	--	--	--
84 B 045	205	<10	--	--	--	--	--
84 B 057	205	<10	--	--	--	--	--
84 B 058	205	<10	--	--	--	--	--
84 B 060	205	<10	--	--	--	--	--
84 B 061	205	<10	--	--	--	--	--
84 B 098	205	<10	--	--	--	--	--
84 B 109	205	<10	--	--	--	--	--
84 B 117	205	<10	--	--	--	--	--
84 B 130	205	<10	--	--	--	--	--
84 B 082	205	<10	--	--	--	--	--

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by: Hart Bichler

ACME ANALYTICAL LABORATORIES LTD.
5 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: JULY 4 1984

DATE REPORT MAILED: July ...

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 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.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
SAMPLE TYPE: P1-SOIL P2-ROCK AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: .... DEAN TOYE. CERTIFIED B.C. ASSAYER

BRINCO FILE # 84-1407 PAGE

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU* PPB
84-N-1	1	9	14	25	.1	14	4	2	2	2	5
84-N-2	9	32	1	27	.2	18	10	[illegible]	3	2	5
84-N-3	1	21	5	79	.1	21	8	[illegible]	2	2	5
84-N-4	2	39	9	172	[illegible]	54	18	31	2	2	5
84-N-5	2	7	6	14	.1	16	12	2	2	2	5
84-N-6	2	4	4	11	.1	3	1	2	2	2	5
84-N-7	2	19	3	23	.1	11	12	21	2	2	5
84-N-8	5	[illegible]	5	85	[illegible]	45	[illegible]	[illegible]	4	2	15
84-N-9	2	99	1	11	.1	6	5	25	2	2	5
84-N-10	1	74	1	46	[illegible]	25	15	[illegible]	2	2	5
84-N-11	1	[illegible]	4	120	.1	39	42	35	2	2	5
84-N-12	2	78	6	[illegible]	.1	47	18	74	2	2	10
84-N-13	3	[illegible]	11	88	[illegible]	22	22	[illegible]	2	2	15
84-N-14	2	41	4	58	.1	20	15	[illegible]	2	2	10
84-N-15	5	53	1	56	.1	18	8	[illegible]	3	2	5
84-N-16	6	39	1	68	.3	31	8	[illegible]	3	2	5
84-N-17	7	39	1	67	.3	22	5	[illegible]	2	2	5
84-N-18	2	[illegible]	13	86	.1	46	30	[illegible]	2	2	5
84-N-19	4	46	7	37	.1	25	4	27	2	2	5
84-N-20	2	62	10	112	.1	37	23	[illegible]	[illegible]	2	5
84-N-21	1	79	23	51	.3	28	13	31	2	2	5
84-N-22	1	84	6	84	.2	36	21	55	2	2	5
84-N-23	3	[illegible]	9	151	.1	41	41	[illegible]	3	2	5
84-N-24	2	30	5	49	.4	15	9	[illegible]	2	2	[illegible]
84-N-25	3	59	12	95	.2	24	20	[illegible]	2	2	5
84-N-26	2	37	12	131	.2	21	30	[illegible]	2	2	5
84-N-27	3	25	17	75	.3	14	15	[illegible]	2	2	10
84-N-28	3	20	4	106	.1	21	14	47	2	2	5
84-N-29	2	28	4	111	.1	22	14	36	2	2	5
84-N-30	4	41	1	72	.1	14	8	[illegible]	2	2	5
84-N-31A	2	61	10	146	.1	37	25	67	2	2	5
84-N-31B	2	38	1	66	.1	27	17	57	2	2	5
84-N-32	2	74	4	145	.1	38	29	[illegible]	2	2	5
84-N-33	3	23	2	155	.1	30	20	52	2	2	5
84-N-34	2	71	3	119	.1	43	32	[illegible]	2	2	10
84-N-35	2	22	5	94	.1	27	12	54	2	2	5
84-N-36	3	31	5	58	[illegible]	11	8	54	2	2	5
84-N-37	2	77	14	69	.1	26	62	[illegible]	2	2	5
STD A-1/AU 0.5	2	30	39	188	.3	36	13	10	2	2	480

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	AS PPM	SB PPM	W PPM	AU! PPB
84-B-1	1	92	2	30	.2	81	21	2	2	2	5
84-B-3	1	27	1	24	.2	30	9	3	2	2	5
84-B-7	1	1	3	42	.1	2	7	2	2	2	5
84-B-10	1	[redacted]	5	[redacted]	[redacted]	8	12	49	[redacted]	2	10
84-B-12	1	8	1	38	.1	22	25	21	2	2	5
84-B-18	3	12	7	85	.2	16	2	805	4	2	5
84-B-19	1	178	8	18	.1	21	15	16	2	2	5
84-B-23	2	24	5	81	.1	15	8	405	8	2	5
84-B-24	2	38	1	18	.1	11	4	44	2	2	5
84-B-30	[redacted]	59	3	38	.1	20	11	7	2	2	5
STD A-1	2	30	40	186	.3	36	13	9	2	2	-

CHEMEX LABS LTD.

212 BROOKSBANK AVE
NORTH VANCOUVER, B.C
CANADA V7J 2C
TELEPHONE (604) 984-022
TELEX 043-5259

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

: BRINCO MINING LIMITED

704 - 602 WEST HASTINGS STREET,
VANCOUVER, B.C.
V6B 1P2

CERT. # : A8412971-001
INVOICE # : 18412971
DATE : 5-JUL-84
P.C. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	AS ppm	AU-AA ppb		
84N-38	201	29	0.1	20	<10	--	--
84N-39	201	13	0.1	14	<10	--	--
4N-40	203	270	0.3	29	<10	--	--
4N-41	203	77	0.2	24	<10	--	--
84N-42	201	59	0.2	46	30	--	--
4N-43	203	82	0.2	88	<10	--	--
4N-44	201	48	0.1	10	<10	--	--
84N-45	203	70	0.1	27	<10	--	--
4N-46	203	123	0.1	77	<10	--	--
4N-47	203	198	0.1	33	<10	--	--
84N-48	203	52	0.1	14	<10	--	--
84N-49	203	313	0.1	16	<10	--	--
84N-50	203	97	0.1	20	<10	--	--
84N-51	201	28	0.1	50	<10	--	--
84N-52	201	12	0.1	2	<10	--	--
84N-53	203	96	0.1	5	<10	--	--
84N-54	201	14	0.1	2	<10	--	--
84N-55	201	18	0.1	4	<10	--	--
84N-57	201	8	0.1	2	<10	--	--
84N-58	201	30	0.1	7	<10	--	--
84N-59	203	33	0.1	5	<10	--	--
84N-60	201	42	0.1	50	<10	--	--
84N-61	201	32	0.1	48	<10	--	--
84N-62	201	27	0.2	25	<10	--	--
84N-63	201	41	0.7	200	<10	--	--
84N-64	201	51	0.6	300	<10	--	--
84N-65	201	20	0.1	83	<10	--	--
84N-66	201	22	0.1	53	<10	--	--
84N-67	201	60	0.2	22	<10	--	--
84N-68	201	50	0.1	67	<10	--	--
84N-69	201	72	0.1	3	<10	--	--
84N-70	201	96	0.1	48	20	--	--
84N-71	201	152	0.2	105	<10	--	--
84N-72	201	87	0.2	120	<10	--	--
84N-73	201	77	0.1	115	<10	--	--
84N-74	201	130	0.2	115	<10	--	--
84N-75	201	44	0.1	70	<10	--	--
84N-76	201	33	0.1	50	<10	--	--
84N-77	201	33	0.1	45	<10	--	--
84N-78	201	39	0.1	180	<10	--	--

Certified by ....HartBichler........

MEMBER CANADIAN TESTING

CHEMEX LABS LTD.

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TELEX 043-5259

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CERTIFICATE OF ANALYSIS

: BRINCO MINING LIMITED
704 - 602 WEST HASTINGS STREET,
VANCOUVER, B.C.
V6B 1P2

CERT. # : A8412971-002
INVOICE # : 18412971
DATE : 5-JUL-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	As ppm	Au-AA ppb		
84N-79	203	65	0.1	220	<10	--	--
84N-80	203	34	0.1	7	<10	--	--
84N-81	201	45	0.1	12	<10	--	--
84N-82	203	30	0.1	5	<10	--	--
84N-83	201	67	0.1	55	<10	--	--
84N-84	201	35	0.1	4	<10	--	--
84N-85	203	101	0.1	22	10	--	--
84N-86	203	116	0.1	24	<10	--	--
84N-87	203	32	0.1	22	<10	--	--
84N-88	201	90	0.1	61	<10	--	--
84N-89	201	23	0.1	19	<10	--	--
84N-90	201	97	0.1	71	<10	--	--
84N-91	201	5	0.1	2	<10	--	--
84N-92	201	4	0.1	1	<10	--	--
84N-93	201	6	0.1	1	<10	--	--
84N-94	201	6	0.1	2	<10	--	--
84N-95	201	6	0.1	2	<10	--	--
84N-96	201	3	0.1	1	<10	--	--
84N-97	201	8	0.1	2	<10	--	--
84N-98	201	9	0.1	3	<10	--	--
84N-99	201	8	0.1	3	<10	--	--
84N-100	201	5	0.1	2	<10	--	--
84N-101	201	22	0.1	4	<10	--	--
84N-102	201	7	0.1	2	<10	--	--
84N-103	201	6	0.1	2	<10	--	--
84N-104	203	6	0.1	3	<10	--	--
84N-105	201	8	0.1	2	<10	--	--
84N-106	201	7	0.1	3	<10	--	--
84N-107	201	6	0.1	1	<10	--	--
84N-108	201	6	0.1	2	<10	--	--
84N-109	201	6	0.1	3	<10	--	--
84N-110	201	6	0.1	2	<10	--	--
84N-111	201	8	0.1	2	<10	--	--
84N-112	201	4	0.1	1	<10	--	--
84N-113	201	3	0.1	2	<10	--	--
84N-114	203	5	0.1	2	<10	--	--
84N-115	201	4	0.1	2	<10	--	--
84N-116	201	9	0.1	3	<10	--	--
84N-117	203	11	0.1	5	<10	--	--
84N-118	201	11	0.1	4	<10	--	--

CTA MEMBER

Certified by ....Hart Bichler....

CHEMEX LABS LTD.

212 BROOKSBANK AVE
NORTH VANCOUVER B C
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TELEX: 043-52597

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CERTIFICATE OF ANALYSIS

BRINCO MINING LIMITED

704 - 602 WEST HASTINGS STREET,
VANCOUVER, B.C.
V6B 1P2

CERT. # : A8412971-003-
INVOICE # : I8412971
DATE : 5-JUL-84
P.O. # : NONE

Sample description	Prep code	Cu ppm	Ag ppm	AS ppm	AU-AA ppb		
[illegible]N-119	201	7	0.1	5	<10	--	--
84N-120	201	5	0.1	3	<10	--	--
[illegible]N-121	201	3	0.1	2	<10	--	--
[illegible]N-122	201	6	0.1	2	<10	--	--
84N-123	201	3	0.1	2	<10	--	--
84N-124	201	7	0.1	3	<10	--	--

$\bar{X} = 41.0$ $S = 46.7$

$2S = 93.4$

anom = ~~130~~ 130

Certified by .... Hart Bichler

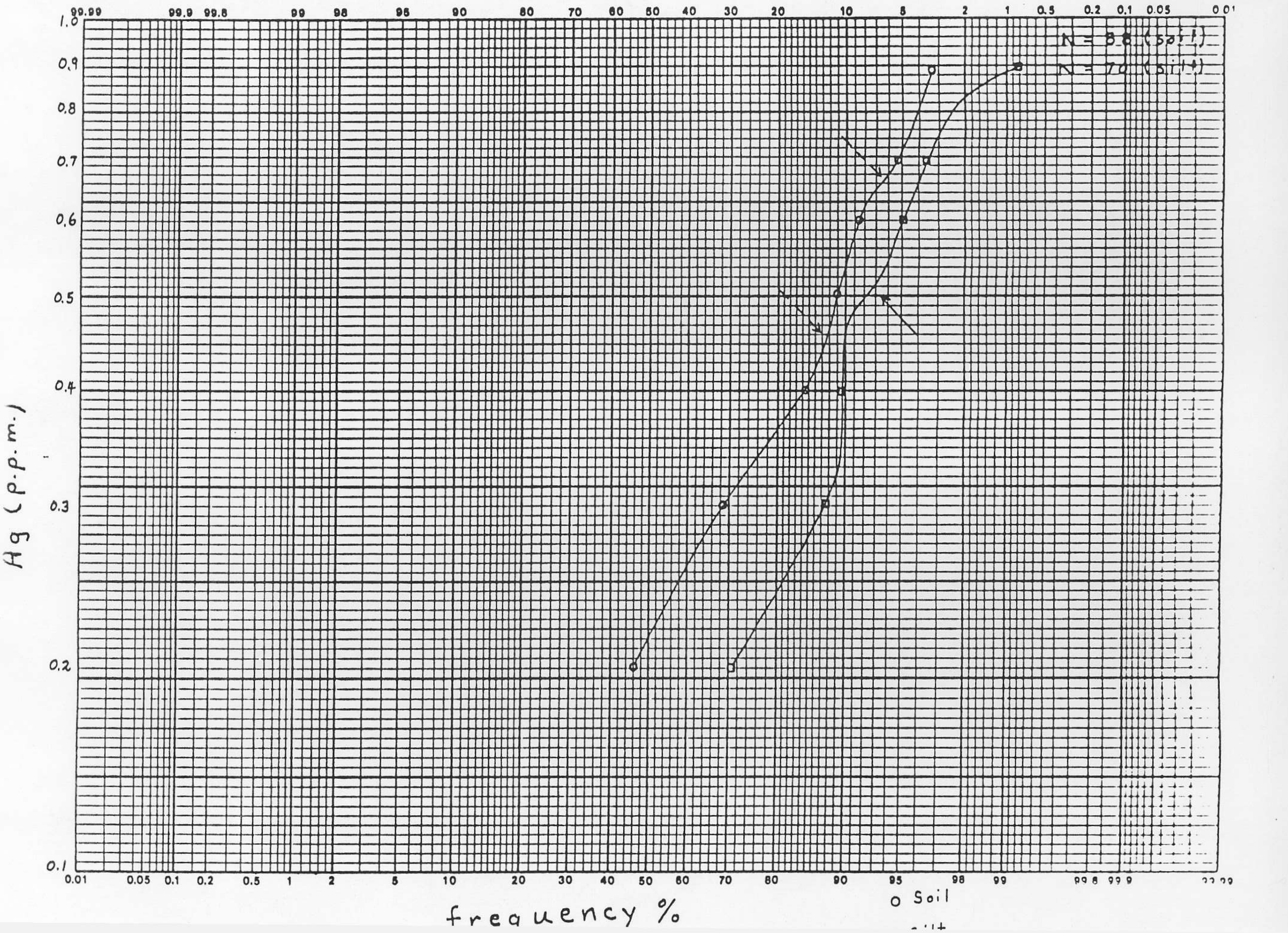
MEMBER CANADIAN TESTING

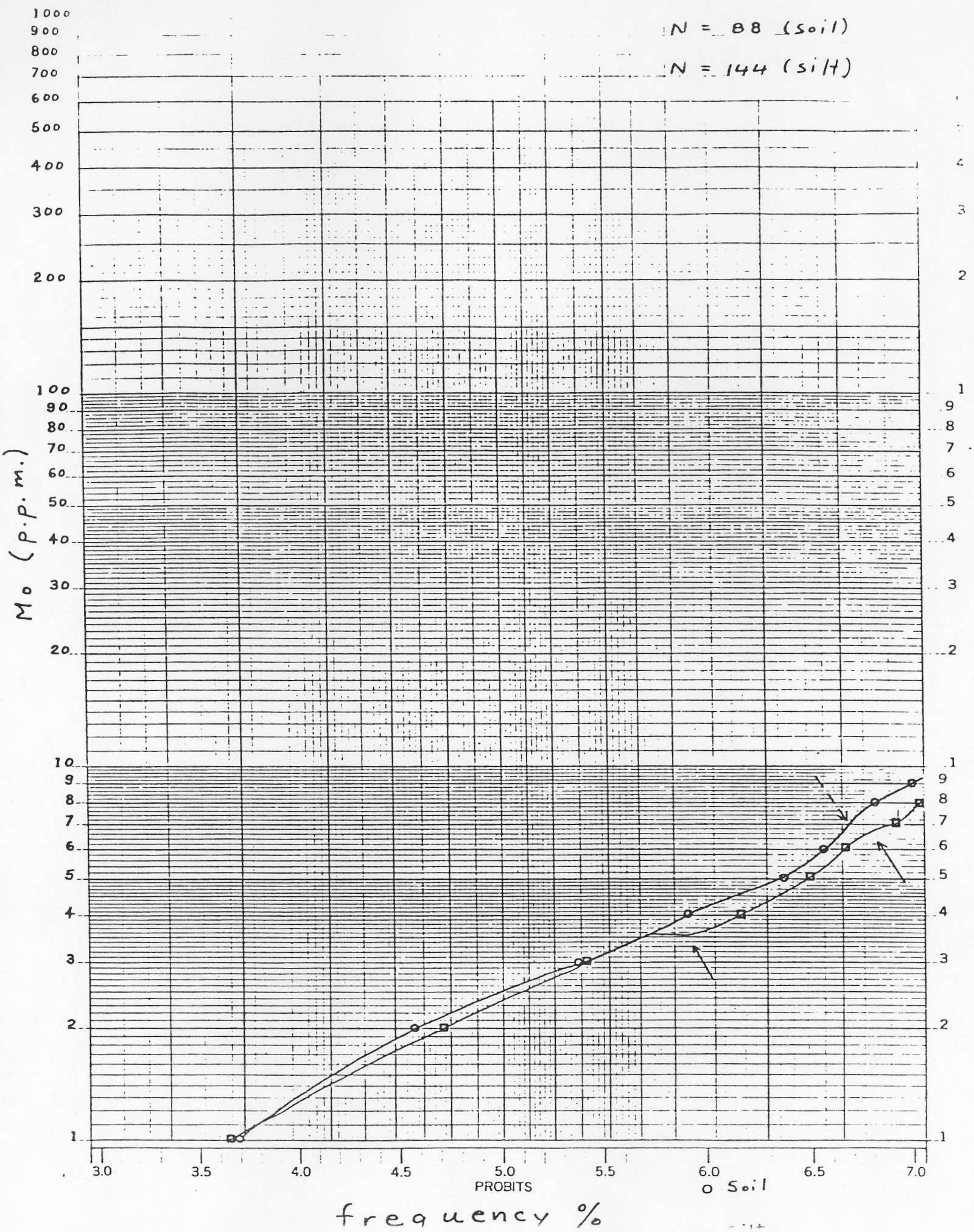
APPENDIX B

SOIL AND SILT SAMPLE HISTOGRAMS

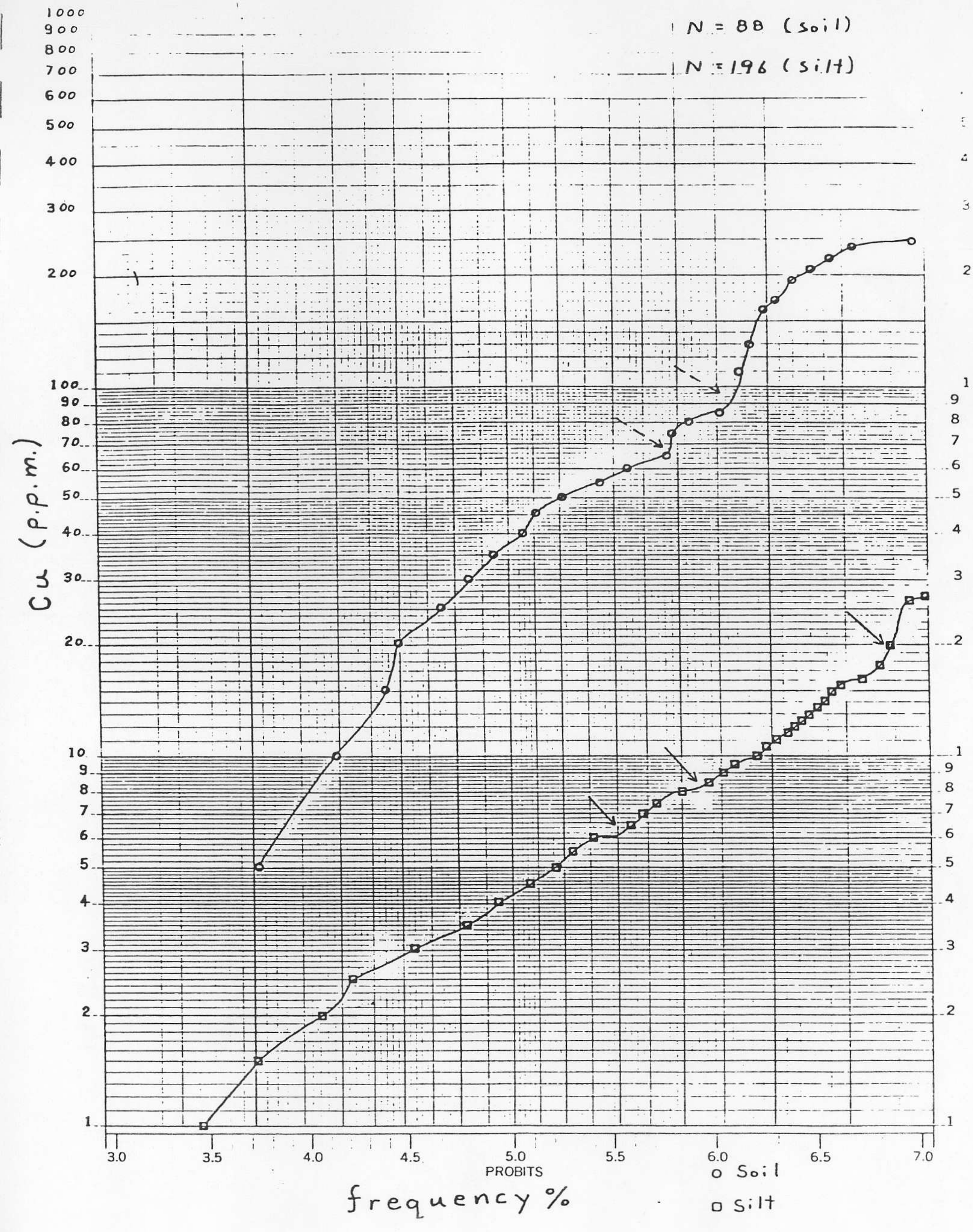
GRF G-23 PROBABILITY
SPECIFY TRACING OR DRAWING PAPER

GRAPHIC CONTROLS CANADA LTD.
MADE IN CANADA

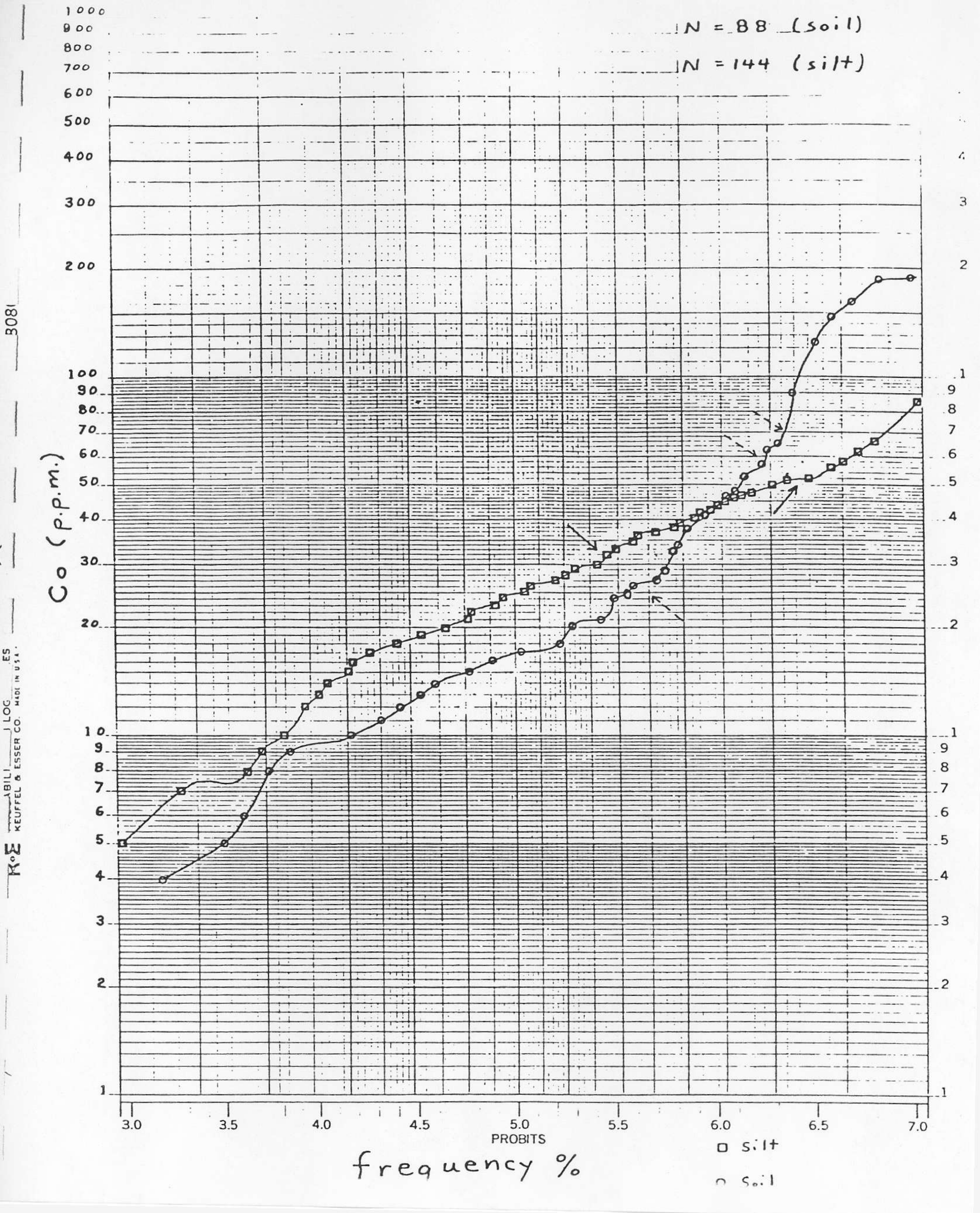




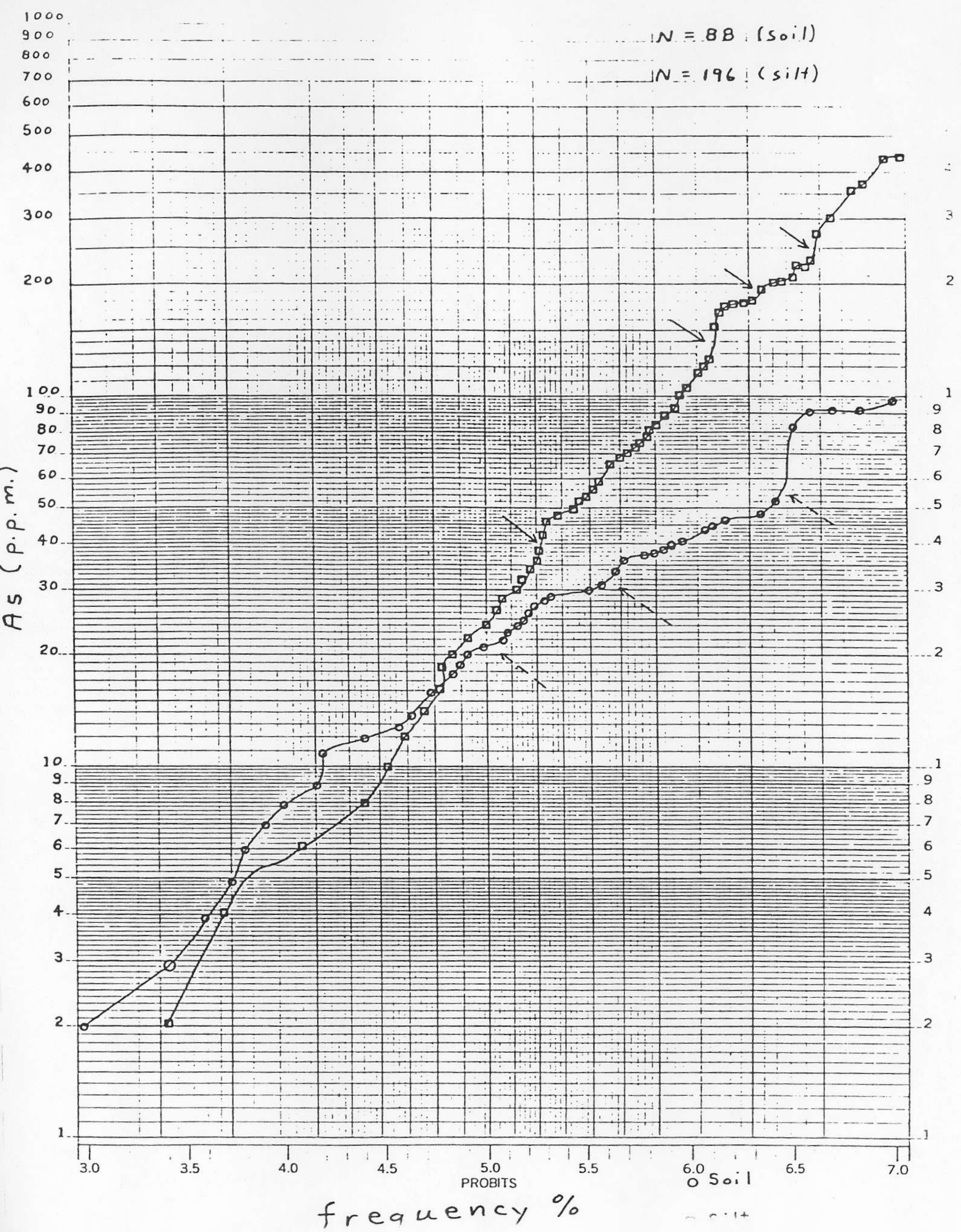
N = 88 (soil)
N = 144 (silt)
Mo (p.p.m.)
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
PROBITS
o Soil
frequency %
K&E
KEUFFEL & ESSER CO.
MADE IN U.S.A.

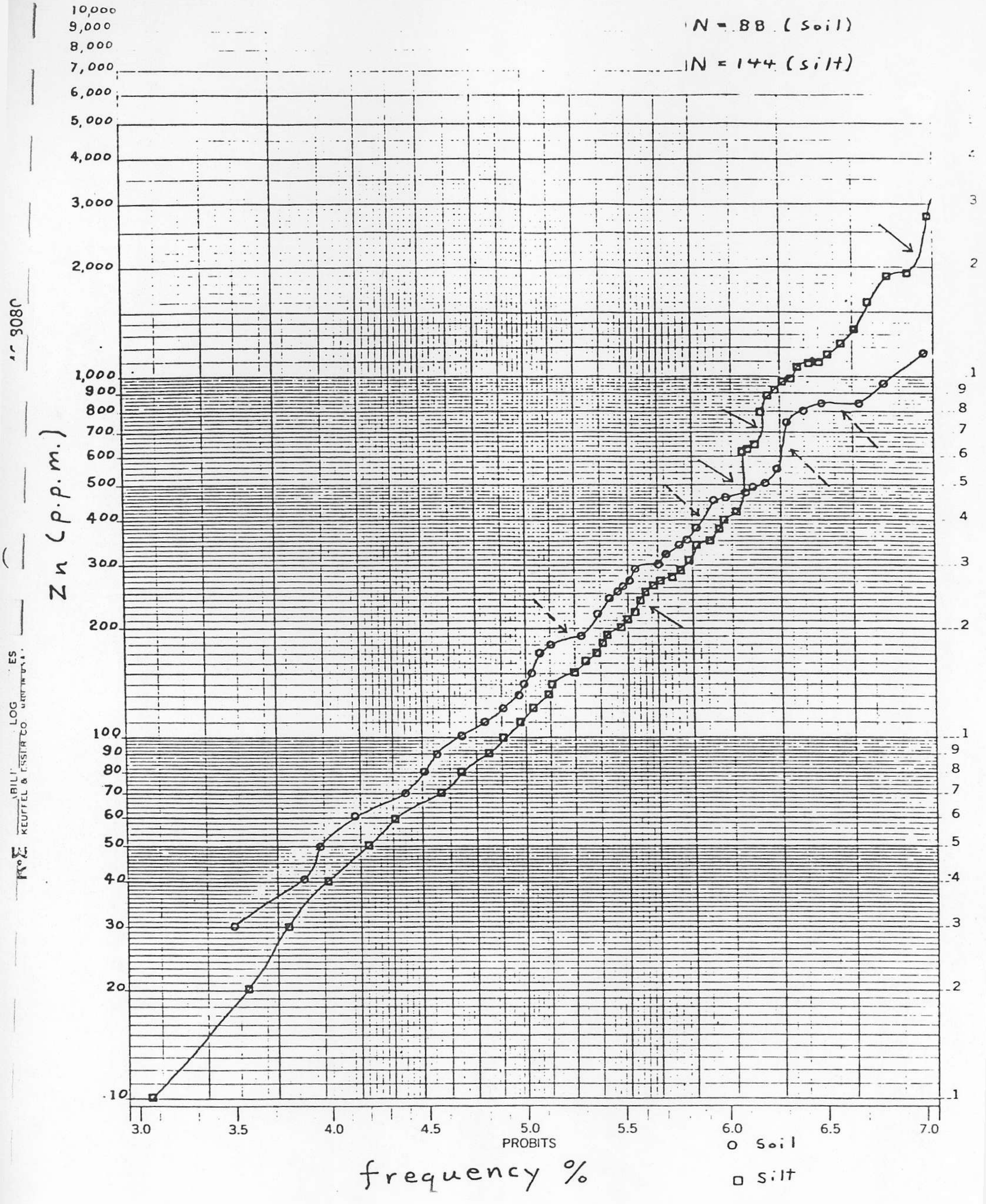


N = 88 (soil)
N = 196 (silt)
Cu (p.p.m.)
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
PROBITS
frequency %
o Soil
□ Silt

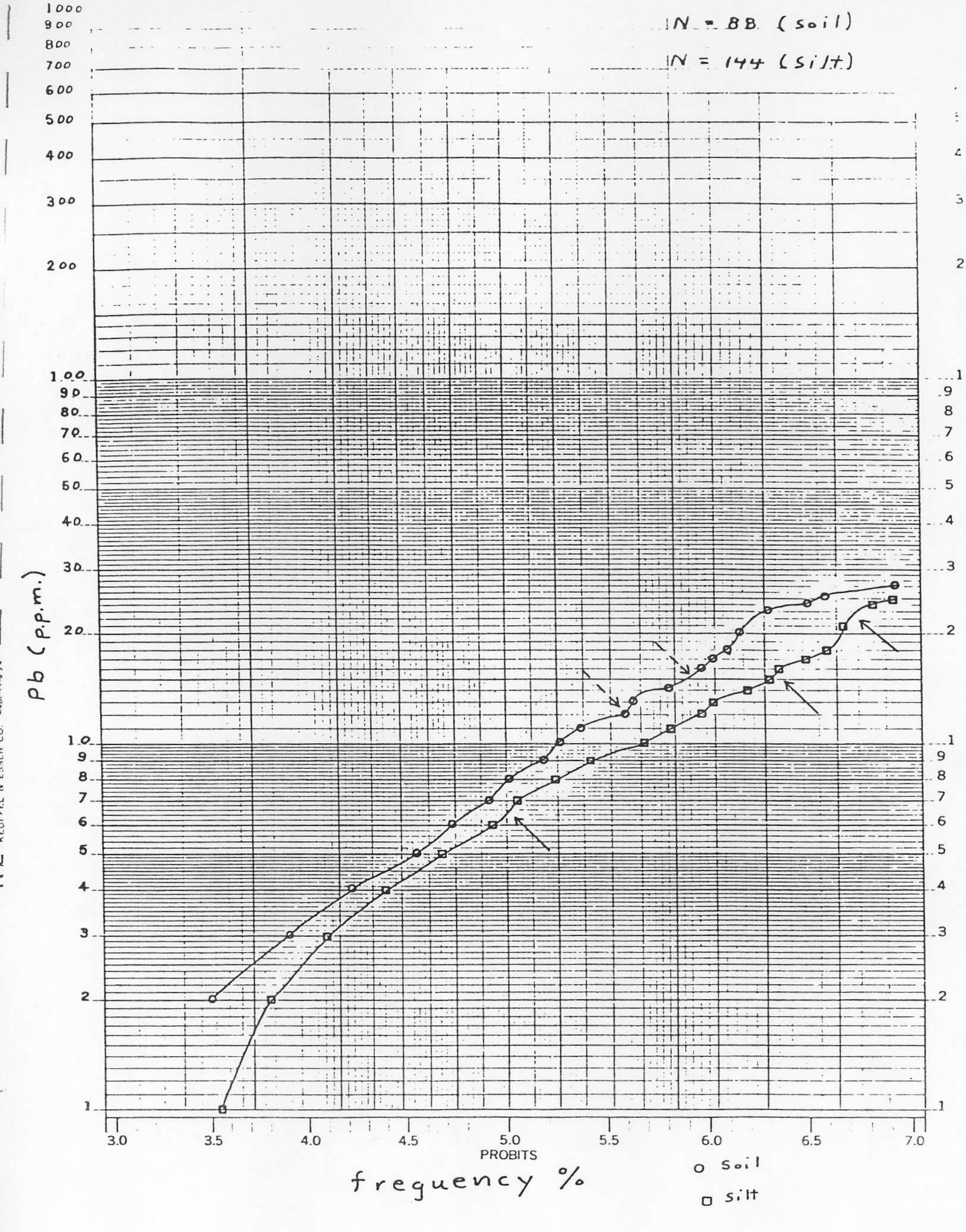


N = 88 (soil)
N = 144 (silt)
Co (p.p.m.)
PROBITS
frequency %
□ silt
○ Soil
K+E KEUFFEL & ESSER CO. MADE IN U.S.A.

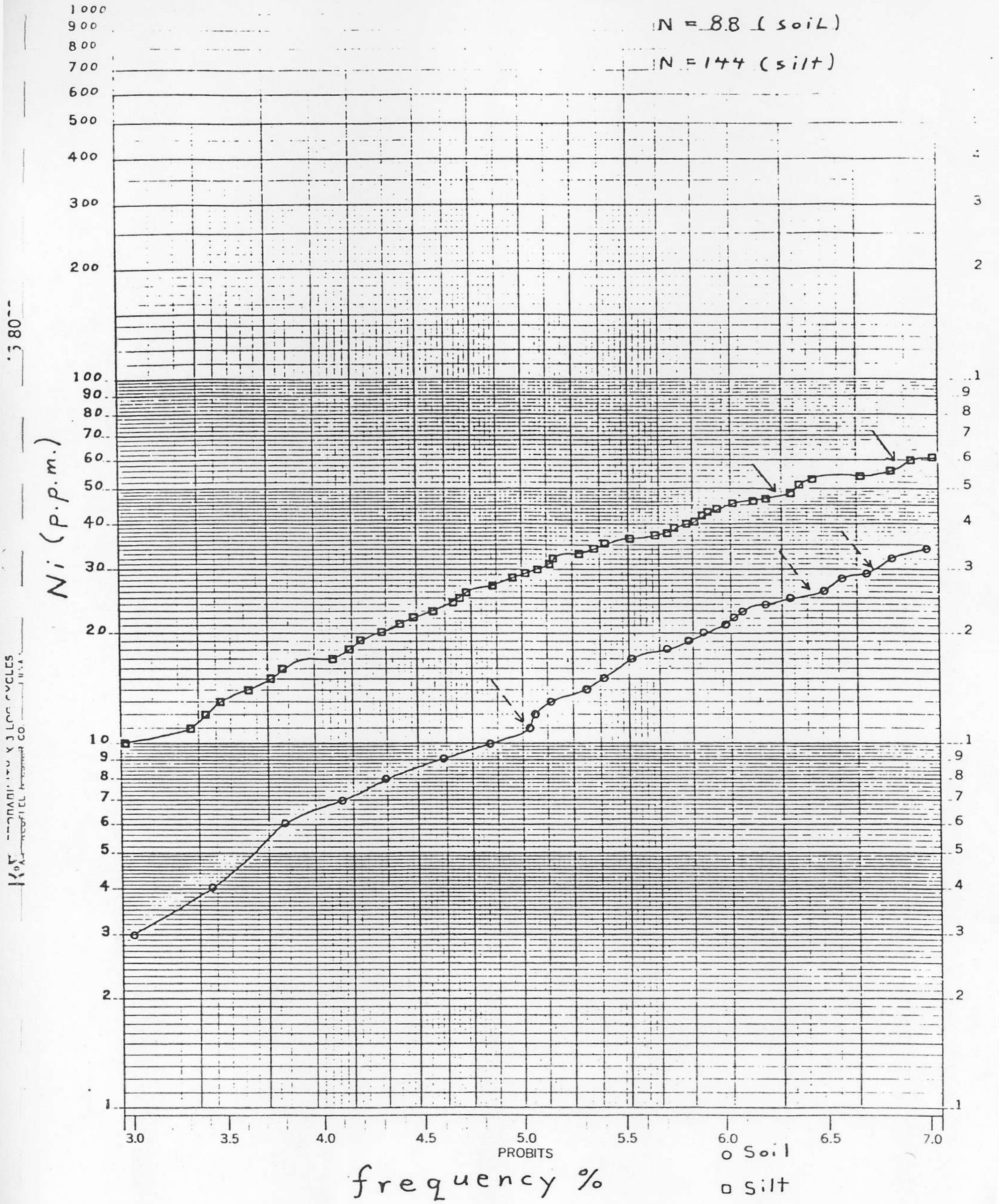

N = 88 (soil)
N = 196 (silt)
As (p.p.m.)
PROBITS
o Soil
frequency %



N = 88 (Soil)
N = 144 (silt)
Zn (p.p.m.)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
PROBITS
frequency %
o Soil
□ Silt
KEUFFEL & ESSER CO.



N = 88 (soil)
N = 144 (silt)
Pb (p.p.m.)
PROBITS
frequency %
o Soil
□ silt


N = 88 (soil)
N = 144 (silt)
Ni (p.p.m.)
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
PROBITS
frequency %
o Soil
□ Silt

APPENDIX 5

STATEMENTS OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, William Robert Epp, with residential address in Nanaimo, British Columbia do hereby certify that:

1) I am a mineral exploration geologist with a B.Sc. degree from the University of Waterloo, 1977.

2) From 1977 to 1979 and from 1980 to 1983 I was employed by Australia Anglo American Corp. and worked in the Fiji Islands.

3) From September 26, 1983 to the present I have been under temporary employment with Brinco Mining Limited as a project geologist.

4) I possess a Bachelor of Education degree from the University of Toronto and possess a valid B.C. teaching license with a specialty in teaching geology.

5) The field work presented in this report was conducted by me and I have personally prepared this report.

William R. Epp, B.Sc., B.Ed.

STATEMENT OF QUALIFICATIONS

I, Brian V. Hall do hereby certify that:

1) I am a geologist presently residing at R.R.#1 Bowen Island, British Columbia, VON IGO.

2) I am a graduate in geology of the University of British Columbia, B. Sc. (1975) and of the University of Waterloo, M. Sc. (1978).

3) I have practiced my profession for 13 field seasons.

4) I have no beneficial interest in the property discussed in this report, nor do I except to receive any in the future.

5) I am presently a Fellow of the Geological Association of Canada.

Brian V. Hall, M. Sc.
August 9, 1984

APPENDIX 6

STATEMENT OF COSTS

ITEMIZED EXPENDITURE

EXPENDITURE ITEM	$Total Cost	$ Geology	$ Geochemistry	$ Geophysics
Salaries	31,162.00	22,844.00	7,728.00	590.00
Food & Accommodation	4,926.49	3,241.63	1,576.47	108.38
Transportation (Helicopter, Truck, Travel)	19,070.18	12,548.18	6,102.46	149.54
Map Making	5,600.00	5,600.00		
Assaying/Geochem	19,552.85		19,522.85	
Field Equipment	1,434.45	943.86	459.02	31.56
Drafting	1,936.45	1,274.18	619.66	42.60
Maps Purchased	92.29	60.72	29.53	2.03
Field Freight	234.07	186.92	90.90	6.25
Avaition Fuel	433.07	284.96	138.58	9.53
Administrative Costs	4,633.95	3,049.14	1,482.86	101.95
TOTAL	89,125.76	50,033.59	37,780.33	1,311.84

A) # of Geochemistry samples taken = 1322 :. cost/sample =$28.58

B) # of line Km of Geophysics 14.8 line Km = $88.64/line km

DAYS AND SALARIES ATTRIBUTED TO

Geology, Geochemistry, and Geophysics

	Cost Geology	Cost Geochemistry	Cost Geophysics
W. Epp - Total Days Worked = 55			
@ $141/day Geology 45 =	6345		
Geochemistry 10 =		1410	
H. Holm - Total Days Worked = 49			
@ $118/day Geology 38 =	4484		
Geochemistry 6 =		708	
Geophysics 5 =			590
N. Pritchard-Total Days Worked=58			
@ $165/day Geology 31 =	2015		
Geochemistry 27 =		1755	
R. Wahl - Total Days Worked = 31			
@ $ 80/day			
Geochemistry 31		2480	
B. Hall - Total Days Worked = 42			
@ $200/day Geology 37 =	7400		
Geochemistry 5 =		1000	
I. Hayes - Total Days Worked = 15			
@ $125/day Geology 12	1500		
Geochemistry 3		375	
R. Hewton-Total Days Worked = 5			
@ $220/day Geology 5	1100		
TOTAL MAN DAYS = 255	22844	7728	590

STATEMENT OF DAYS WORKED

W. Epp - Total Days Worked = 55 @ $141/day = $7755

28/3 - 12/4 = 15
1/5 - 30/5 = 30
5/6 - 8/6 = 4
15/8 - 17/8 = 3
20/8 - 22/8 = 3

H. Holm - Total Days Worked = 49 @ $118/day = $5782

28/3 - 12/4 = 15
1/5 - 30/5 = 30
5/6 - 8/6 = 4

R. Wahl - Total Days Worked - 31 @ $ 80/day = $2480

N. Pritchard - Total Days Worked = 58 @ $ 65/day = $3770

28/3 - 12/4 = 15
1/5 - 20/5 = 20
5/6 - 2/7 = 28

B. Hall - Total Days Worked = 42 @ $200/day = $8400

5/6 - 2/7 = 28
27/7 - 10/8 = 13
13/8 = 1

T. Hayes Total Days Worked = 15 @ $125/day = $1875

18/6 - 2/7 = 15

R. Hewton - Total Days Worked = 5 @ $220/day = $1100

TOTAL MAN DAYS = 255
TOTAL WAGES = $31,162

TOTAL DAYS Geology 168 = 65.8%
Geochemistry 82 = 32.0%
Geophysics 5 = 2.2%

INDIVIDUAL CLAIM ASSESSMENT DOLLARS

CLAIM NAME	$ GEOLOGY	$ GEOCHEMISTRY	$ GEOPHYSICS	TOTALS	MINING DIVISION
Spanish	2501.67	457.28		2958.95	Alberni
Kyuquot	2501.67	314.38		2816.05	Alberni
Reg 3	500.06			500.06	Nanaimo
Reg 2	1501.00			1501.00	Nanaimo
Reg 1	2001.34	314.38		2315.72	Nanaimo
Bev	8005.37	6201.86	362.31	14569.54	Nanaimo
London 2	8005.37	6230.44	362.31	14598.12	Alberni
London 1	6004.23	9402.82	195.74	15602.79	Alberni
Patch	6004.23	5456.35	195.74	11656.32	Nanaimo
Bozo 1	1000.67	85.74		1086.41	Nanaimo
Bozo 2	6004.24	5373.04	195.74	11573.02	Nanaimo
Bozo 3	1501.00	1228.94		2729.94	Alberni
Bozo 4	3002.01	2286.40		5288.41	Alberni
Bozo 5	1000.67	400.12		1400.79	Alberni
Voodoo	500.06	28.58		528.64	Alberni
	50033.59	37780.33	1311.84	89125.76	