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# PROSPECTING, SOIL SAMPLING AND ROCK-CHIP SAMPLING PROGRAM ON THE IMPERIAL GROUP, NEAR VERNON, B.C.

Funded under the Prospectors Assistance Program
Grant #10961-P74

LOCATION: 7.5 kms west of Vernon, south-central British Columbia
Vernon Mining Division.
N.T.S.: 82L/3W and 82L/6W.
Latitude: 50° 15'
Longitude: 119° 22'

CLAIMS: British Empire: 1975(7)
Royal Standard: 1969(7)
Dominion Fraction: 1934(4)

OWNERS AND OPERATORS:
B. Thomae of 302-2196 West 2nd Avenue, Vancouver, B.C.
G. Benvenuto of 302-2196 West 2nd Avenue, Vancouver, B.C.

WORK PERIOD: September 5,6, 1987 and January 12-14, 1988.

MINERALIZATION: At least 18, narrow, high-grade gold-bearing quartz veins occur in a 250 m wide interval of a major shear zone in the Cache Creek Group of meta-sedimentary rocks.

REPORT AUTHOR: Gary Benvenuto.

REPORT DATE: January 27, 1988.

## TABLE OF CONTENTS



### TABLES



### APPENDICES



### FIGURES



.....continued

FIGURES (continued)

# SUMMARY REPORT

## PROSPECTING, SOIL SAMPLING AND ROCK-CHIP SAMPLING PROGRAM ON THE IMPERIAL GROUP, NEAR VERNON, B.C.

LOCATION: The Imperial Group is located 7.5 kms west of Vernon, on the north side of a bay on the east side of Okanagan Lake; south-central British Columbia.

CLAIMS GROUP: The group consists of three adjoining, reverted Crown Grants:
British Empire: 1975(7)
Royal Standard: 1969(7)
Dominion Fraction: 1934(4)

PROPERTY GEOLOGY: The claims are underlain by a complexly faulted, sheared and folded succession of interbedded and intergradational meta-quartzo-feldspathic sandstone, siltstone, quartzite, meta-argillaceous siltstone, argillite and limestone. They comprise part of the Carboniferous and Permian Cache Creek Group.

PROPERTY MINERALIZATION: Three adits and several cuts totalling more than 230 m in length expose at least 18 narrow quartz veins within part of a 250 m wide interval of rock. They are commonly deformed, and vary from 2 to 29 cm thick. The veins contain from 9 ppb Au to 5.5 oz Au/t. The large variation between assays from 1987 chip-samples of veins and those of earlier samples (unpublished), indicates difficulty in obtaining sufficient volumes of sample to overcome the "nugget" effect.

1986-87 WORK PROGRAM: This program included collection of 54 chip-samples across 18 quartz veins and 36 adjoining wall rock intervals (totalling 28m) from three of the four main workings. The program was partially funded by a grant from the Prospectors Assistance Program. The most significant results from the main adit include the following length-weighted averages:

| | | Comprising: | | | |
|---|---|---|---|---|---|
| Average | Width | Quartz Veins | | Wall Rock | |
| (oz Au/t) | (m) | oz Au/t | Width (cm) | oz Au/t | Width (m) |
| 0.05 | 2.97 | 0.945<br>0.209 | 5-12<br>4-12 | 0.008<br>0.034<br>0.006 | 1.0<br>0.8<br>1.0 |
| 0.13 | 3.27 | 0.423 | 2-7 | 1.450<br>0.034<br>0.036 | 0.22*<br>1.0<br>1.0 |
| 0.47 | 1.07 | 0.735 | 4-9 | 0.455 | 1.0 |

*includes 2-5 cm quartz vein.

1987-88 WORK PROGRAM:

Specifications: This program was conducted on September 5,6, 1987 and January 12-14, 1988, and included:

1. Prospecting: within the central area of the claims group.

2. Soil Sampling: 108 soil samples were collected at 15 m x 100 m intervals, covering an area 250 x 500 m centred on the main workings. Both the -80 and the +80 mesh fractions of the 14 samples from the central line were analyzed for 30 elements by I.C.P. and for gold by A.A. The remainder of the samples were analyzed for Ag and As by I.C.P. and for Au by A.A.

3. Rock Chip-sampling: 20 samples, generally from 1.5 to 1.6 m wide, were taken across wall rock in the main adit on the British Empire claim. They cover four, 2 to 9 m wide intervals between 1987 chip-samples of wall rock with anomalous gold. They were analyzed for Ag and As by I.C.P. and by fire-assay for Au.

Results:

1. Prospecting: Two occurrences of quartz veins in outcrop and four in the waste rock from small workings and in float were located and sampled. Samples of the quartz vein material contain from 1 to 2060 ppb Au. Two occurrences add significantly to the east-west dimensions (500 m) of the area containing gold-bearing quartz veins:

a. An outcrop in the north-central Royal Standard claim exposes eight, 2 to 28 cm thick, northwest-striking quartz veins within a 3.17 m wide interval of interbedded sandstone, siltstone and silty argillite. The thickest quartz vein contains 68 ppb Au.

b. A float boulder found in the southeast corner of the Dominion Fraction, contains 69 ppb Au (across 10 cm).

2. Soil Sampling: Soil samples along the line 10 to 25 m west of the main adit all contain anomalous to highly anomalous Au (80 to 6005 ppb) and As (188 to 9098 ppm). The +80 mesh fraction of the samples contain about 15 to 30% of the amount of gold in the respective, -80 mesh fraction.

Log probability plots of analyses from the remaining 93 soil samples suggest anomalous thresholds for gold of 28 ppb, for silver of 1.3 ppm, and for arsenic of 85 ppm.

65% of the samples with anomalous Au, 50% of those with anomalous Ag and 86% with anomalous As, were collected from two lines that bound an area 110 to 180 m wide (east-west) by 200 m long, and encompass the major workings. Assuming there has not been extensive downslope contamination of the soil by gold from waste rock, this distribution of anomalous samples suggests that the main structure(s) controlling the overall distribution of quartz veins may strike northerly, even though the majority of gold-bearing veins in the workings strike east-northeast.

Eight samples with anomalous gold (38 to 1010 ppb) were collected along the most westerly grid line and six (with 38 to 430 ppb Au) along the two most easterly lines.

3. Chip Samples, Main Adit: The 20 chip samples contain from 0.001 to 0.059 oz Au/t over widths of 1.0 to 1.6 m, showing that anomalous Au occurs in wall rock over significant widths within the adit:

1. At 8.4 to 22.2 m from the portal, wall rocks and three, narrow quartz veins contain a length-weighted average of 0.02 oz Au/t over 14.0 m.

2. At 30.1 to 42.2 m from the portal, wall rocks and three narrow veins contain an average of 0.046 oz Au/t over 13.3 m of chip samples.

RECOMMENDATIONS FOR FURTHER EXPLORATION:

1. Soil Sampling: The remainder of the claims to the north and west of the present grid should be sampled at 15 x 100 m intervals. Fill-in samples should be collected along lines between L.100E and 200E and L.100W and 200W to more closely delineate Au anomalies detected along lines 100E and 200W. This would require collection and analyses of a total of 120 samples.

2. Prospecting: The areas surrounding sites of soil samples with anomalous gold should be prospected. In addition, the region outside the area of the main workings requires prospecting.

3. Rock Sampling: The upper adit requires mapping and chip-sampling after the portal has been excavated to provide safe access.

## 1987-88 EXPLORATION SURVEY SPECIFICATIONS

The 1987-88 work program included prospecting, soil sampling and additional rock chip-sampling in the main adit, as follows:

Prospecting: The central part of the claims group was prospected for additional occurrences of quartz veins in the area of the three adits, on September 5 and 6, 1987.

Soil Sample Survey: A total of 108 soil samples were collected from the "B" horizon, at generally 15 m intervals (surface distance) along 6 lines trending 345° and generally 100 m apart and 225 to 285 m long.

Soil samples along Line 0 were collected on September 6, 1987, to determine if the concentration of gold in soil reflects the presence of gold mineralization in bedrock exposed in the main adit located 10 to 25 m northeast of the survey line. The samples were analyzed for 30 elements by I.C.P. and for gold by A.A.. Positive results along Line 0 suggested additional soil sampling was warranted.

Soil sampling was conducted along Lines 100E, 200E, 300E, 100W, and 200W on January 12 and 13, 1988. These lines cover the easterly 200 m and westerly 225 m long, strike-projections of the up to at least 250 m wide gold-bearing interval of rock exposed in the three adits. These samples were analyzed for Ag and As by I.C.P. and for Au by A.A.

Sufficient volumes of soil were difficult to obtain at about 20 sites because of extensive, fine talus aprons down slope from outcrops. Collection of "B" horizon soil samples in January was hampered by a 10 cm thick blanket of snow and solidly frozen soil to a depth of at least 15 cm.

Rock Chip Sampling: 20 chip-samples of wall rock, generally 1.5 to 1.6 m wide, were taken on January 14, 1988, in the main adit in the northwestern British Empire claim. These samples cover four, 2 to 9 m wide intervals between

chip-samples of wall rock containing anomalous gold taken in February, 1987. The samples were analyzed for Ag and As by I.C.P. and fire assayed (with an A.A. finish) for Au.

RESULTS

Prospecting: Prospecting in the area up to 250 m west of the three adits resulted in locating two bedrock and four float and waste rock occurrences of quartz veins with low background to highly anomalous concentrations of gold (see Figure 4). Perhaps the two most significant occurrences comprise:

1. A series of eight, co-planar quartz veins and veinlets, 2 to 28 cm thick, within a 3.17 m wide interval of interbedded meta-quartzo-feldspathic siltstone and sandstone and silty argillite (samples 106, 107 and 108, Figure 4). The veins strike about 120° and dip 85° SW, sub-parallel to slaty cleavage cutting the meta-argillites. The veins appear stratabound within the sandstone and siltstone beds. The thickest quartz vein (28 cm) contains weakly anomalous gold (63 ppb). Two contiguous chip-samples across the interval (1.25 and 1.65 m wide) contain background concentrations of gold (2 and 4 ppb). Although samples of the veins and wall rock do not contain significant concentrations of gold, the presence of these quartz veins 250 m west of those in the main adit significantly increases the strike-length potential of the quartz vein - structure in the workings.

A small boulder of rusty quartz vein material was located (during soil sampling) in a dry creek in the eastern Dominion Fraction 200 m east of the upper adit (L.300E/185N). A chip sample across 10 cm of the 10x25x25 cm boulder contained 69 ppb Au. This float occurrence is significant because it suggests the quartz vein-structure exposed in the upper adit 200 m to the west, may have a significant extension to the east. This area warrants detailed prospecting for exposures of quartz veins.

Soil Sampling:

Line 0 (Orientation Survey Line)

Soil along Line 0, located just west of the main adit on the British Empire claim, contains a high proportion of pebble-size rock fragments. Both the coarser (+80 mesh) and finer (-80 mesh) fractions of these 14 soil samples were analyzed to determine which fraction is more useful for detecting anomalous concentrations of gold in the samples, especially where there is a very low proportion of -80 mesh material.

In general, the concentration of gold in the coarser fraction in these soil samples is about 15 to 30% of that in the finer fraction. However, for lower concentrations (80 to 275 ppb Au in the -80 mesh fraction), the gold in the coarser fraction is about 33 to 60% of that in the finer fraction (Figure 5).

The concentration of arsenic in the coarser fraction generally (10 samples) is about 60 to 85% of that in the finer fraction. In the other four samples arsenic in the coarser fraction is from 95 to 117% of that in the finer fraction (Appendix B).

All soil samples on Line 0 contain anomalous to highly anomalous concentrations of gold (80 to 6005 ppb). Anomalous silver (1.1 to 5.5 ppm) is contained in samples with the highest concentrations of gold (1355 to 6005 ppb) with one exception. Arsenic is highly anomalous in all samples (188 to 9098 ppm). As/Au ratios vary from 300 to 3100, but average 1460.

Soil samples on Line 0 contain background to high background concentrations of copper, lead and zinc, as shown below in Table 1.

TABLE 1: Average concentrations (in ppm) of Cu, Pb, Zn in -80 and +80 mesh fractions of 14 soil samples along Line 0 and the average ratios of -80 mesh to +80 mesh fraction.

| | -80 mesh | +80 mesh | -80/+80 |
|---|---|---|---|
| Cu | 104 | 64 | 1.6 |
| Pb | 24 | 17 | 1.4 |
| Zn | 146 | 123 | 1.2 |

In a general sense, higher concentrations of lead and zinc correspond to more highly anomalous concentrations of gold (and silver in the -80 mesh fraction). Analyses for Cu, Pb and Zn were not performed on the remainder of the soil samples because of the small variation in their concentrations along Line 0 and because of the general lack of association of Cu, Pb and Zn with anomalous gold in quartz veins in the workings.

Areas of possible contamination of the soil by down slope dispersion of waste rock from the main adit and upper cut were avoided along Line 0 by sampling well west of the waste rock and by collecting samples from depths of at least 15 to 20 cm.

Remainder of the Grid:

Anomalous Thresholds: The thresholds between background, high background and anomalous concentrations of Au, Ag and As shown below, are based on inspection of log probability plots for the 93 soil samples collected on all the line except Line 0 (all anomalous) (Figures 7 and 8). These are utilized for Au and As as contour intervals in Figure 5 and 6. The 1000 ppb Au and 1000 ppm As contours were arbitrarily chosen to highlight the very highly anomalous samples.

TABLE 2: Thresholds for high background, anomalous, and highly anomalous concentrations of Au, Ag and As for 108 soil samples.

| | THRESHOLDS (Number of samples) | | |
|---|---|---|---|
| | High Background | Anomalous | Highly Anomalous |
| Au (ppb) | | ≥ 28 (14)* | ≥ 100 (26) |
| Ag (ppm) | ≥ 0.7 (22) | ≥ 1.3 (5)* | ≥ 2.1 (5) |
| As (ppm) | ≥ 35 (31) | ≥ 85 (28) | |

*note: not including highly anomalous samples.

Distribution of Anomalous Samples: Contoured concentrations of Au and As in the soil samples (Figures 5 and 6) show that about 65% of the with anomalous Au, 86% of those with anomalous As and 50% with anomalous Ag,

were collected along Lines 0 and 100E. This distribution may result from at least two factors:

1. Even though the majority of gold-bearing quartz veins in the main workings strike east-northeast (065 to 085°), the main structure(s) controlling the overall distribution of the veins may strike northerly parallel to the major veins exposed in the upper cut and uppermost adit.

2. There may be extensive down slope contamination of soil by gold from waste rock from the main workings. This, however, does not appear probable because waste rock is confined to small areas and because gold may be relatively immobile in this area of low rainfall (25 cm or 10 inches/year).

To the west of the main Au-As anomaly, 8 soil samples with anomalous to highly anomalous (4 samples) Au were collected on L.200W, and to the east, 4 samples on L.200E and 2 samples on L.300E. Anomalous As is associated with only 4 soil samples with weakly anomalous Au (all on L.200W). Curiously, no samples on L.100W contain anomalous Au, Ag or As.

The main Au anomaly along the northern L.200W (6 soil samples) occurs just north (55 m upslope) and east (20 m) of a small outcrop with 8 quartz veins, 2 to 28 cm thick, in a 3.2 m wide interval and striking about 300°. The thickest vein contains anomalous Au (68 ppb).

The soil sample with highly anomalous Au (430 ppb) on L.300E occurs 5 m south of (along a creek bank) a float boulder in the creek bottom, of rusty quartz vein material with 0.002 oz Au/t (70 ppb).

Arsenic/Gold Ratios: Along L.0, all 14 soil samples with anomalous Au also contain anomalous As. Along the remaining 5 sample lines only half of the samples with anomalous Au also contain anomalous As (along L.200W and 100E).

As/Au ratios for all 108 soil samples vary from 50 to 69,000 but generally between 500 to 14,000. They have an average of 7500 for all samples, but 1420

for samples with anomalous gold, and 10,000 for samples without anomalous gold.

Comparison of the contour maps for the concentrations of Au and As in soil samples suggests that the concentration of As in soil serves as an imperfect guide to anomalous Au in the soil. Areas with high background to anomalous concentrations of As broadly outline and generally appear to extend down slope from areas with anomalous Au. The variation in As/Au concentration ratios does not define a linear function. Thus, the best guide to gold mineralization in bedrock appears to be the concentration of gold in the soil.

Chip Samples, Main Adit: The 20 chip samples taken between previous chip samples with anomalous gold in the main adit on the British Empire claim contain 0.001 to 0,059 oz Au/t over 1 to 1.6 m widths (Figure 3). Although the concentrations are weakly to locally strongly anomalous, the fill-in chip samples show that anomalous gold occurs over substantial widths with the adit. For example, at 8.4 to 22.2 m in from the portal, wall rock and 3 narrow quartz veins contain an average of 0.02 oz Au/t over 14.0 m. And at 30.1 to 42.2 m in from the portal, wall rock and 3 narrow veins contain an average of 0.046 oz Au/t over 13.3 m of chip samples.

## RECOMMENDATIONS FOR FURTHER WORK

1. Soil sampling: Anomalous concentrations of gold in soil samples from the north ends of Lines 200W, 0 and 100E and along L.200W indicate the remainder of the claims to the north and west of the present grid should be sampled. Sampling should also be done along fill-in lines between L.200W and L.100W and between L.100E and L.200E to more closely delineate the easterly extent of the anomalies detected along Lines 200W and 100E. 120 soil samples are required to complete this survey.

2. Prospecting: The area surrounding the sites of soil samples with anomalous Au should be prospected for bedrock exposures of quartz veins. The Dominion Fraction, western half of the Royal Standard and eastern half of the British Empire claims should be prospected. An attempt to locate the bedrock source of the quartz vein boulder at L.300E/185N should be made.

3. Rock Sampling: The upper adit requires mapping and sampling. However, the portal is nearly completely covered by a considerable amount of sluff and requires clearing.

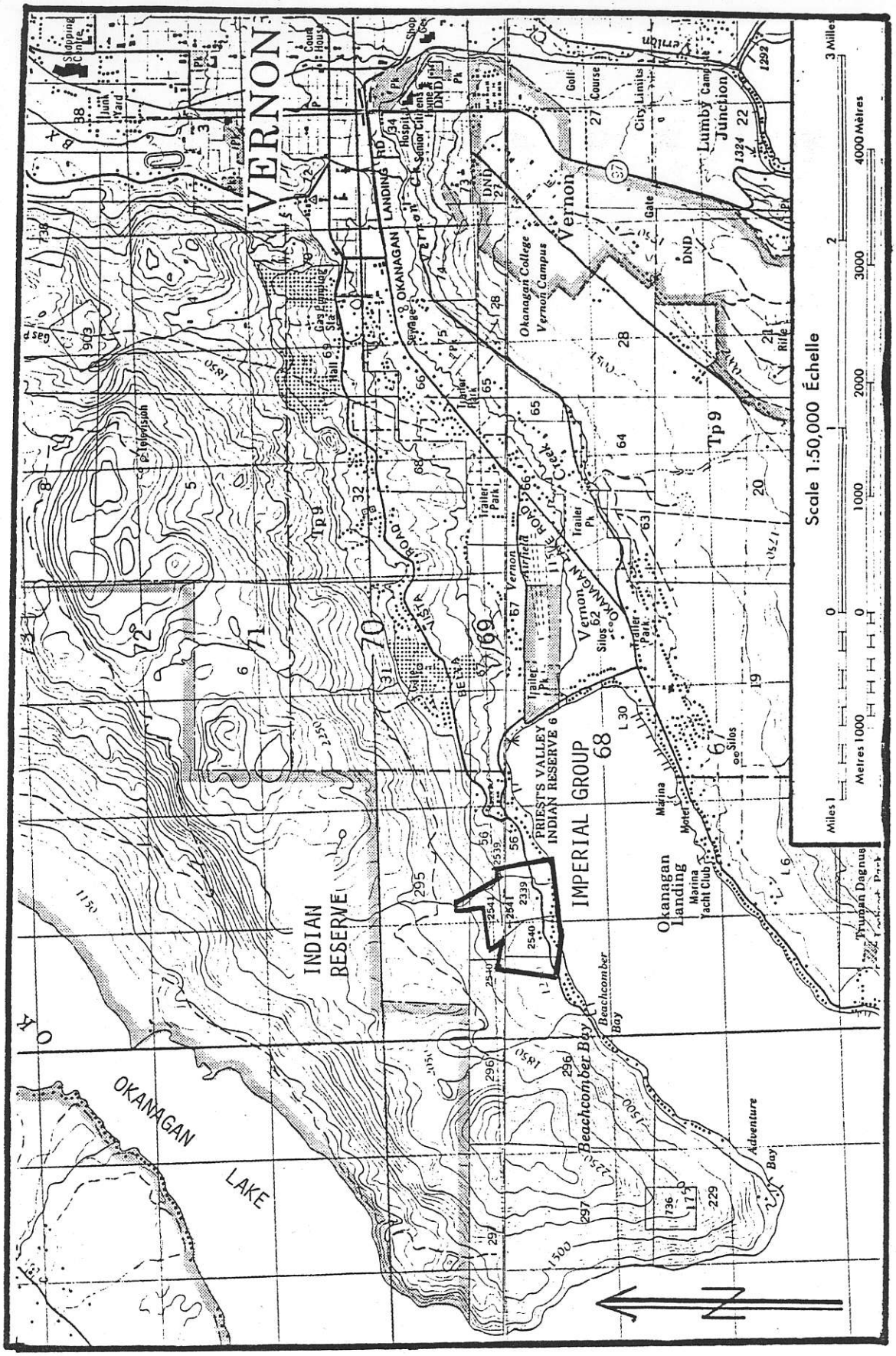



FIGURE 1: 1:50,000-scale, topographic map (N.T.S. 82L/3W and 6W) showing the location of the Imperial Group relative to Vernon, south-central British Columbia. The contour interval is 50 feet.

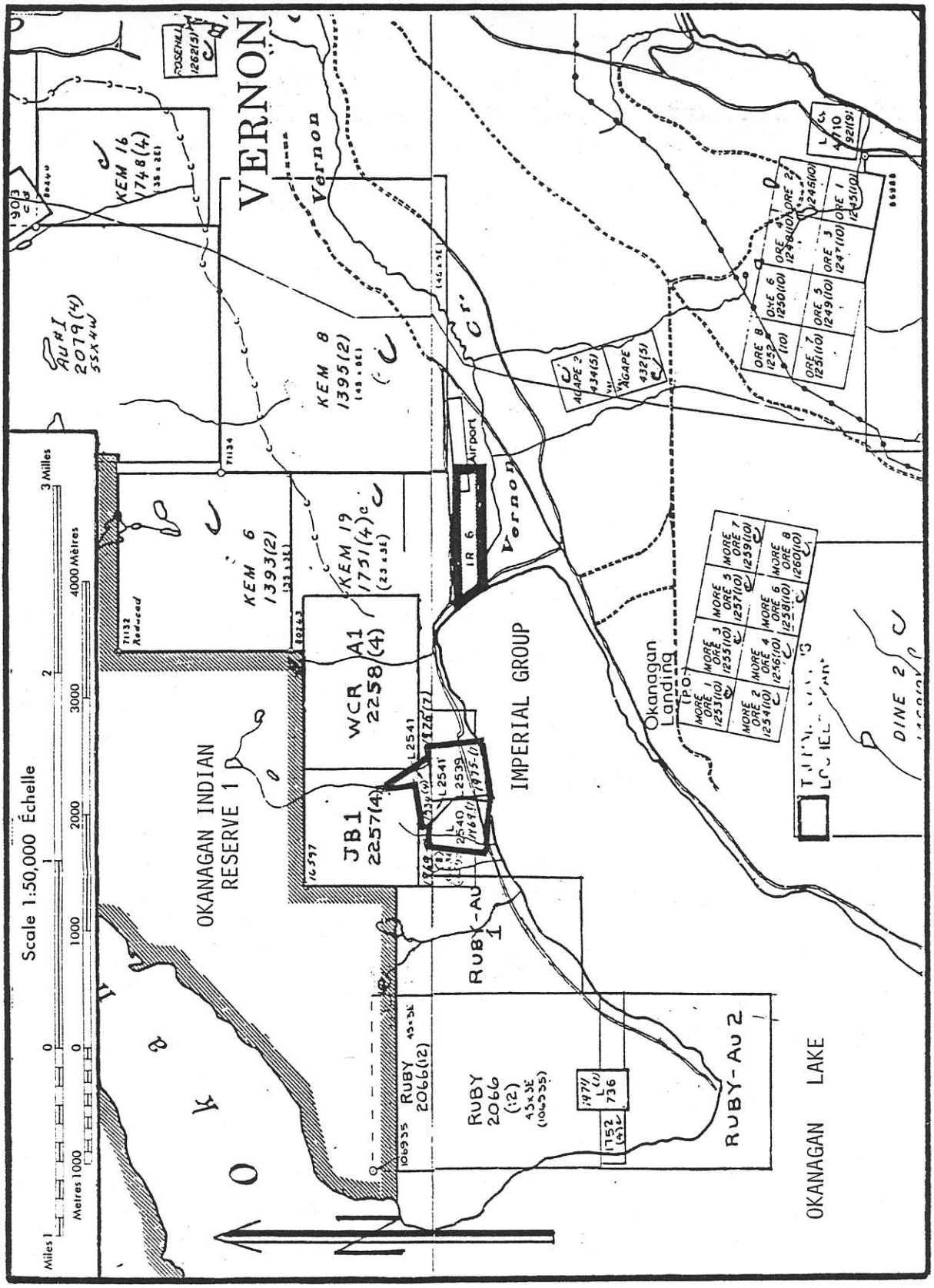
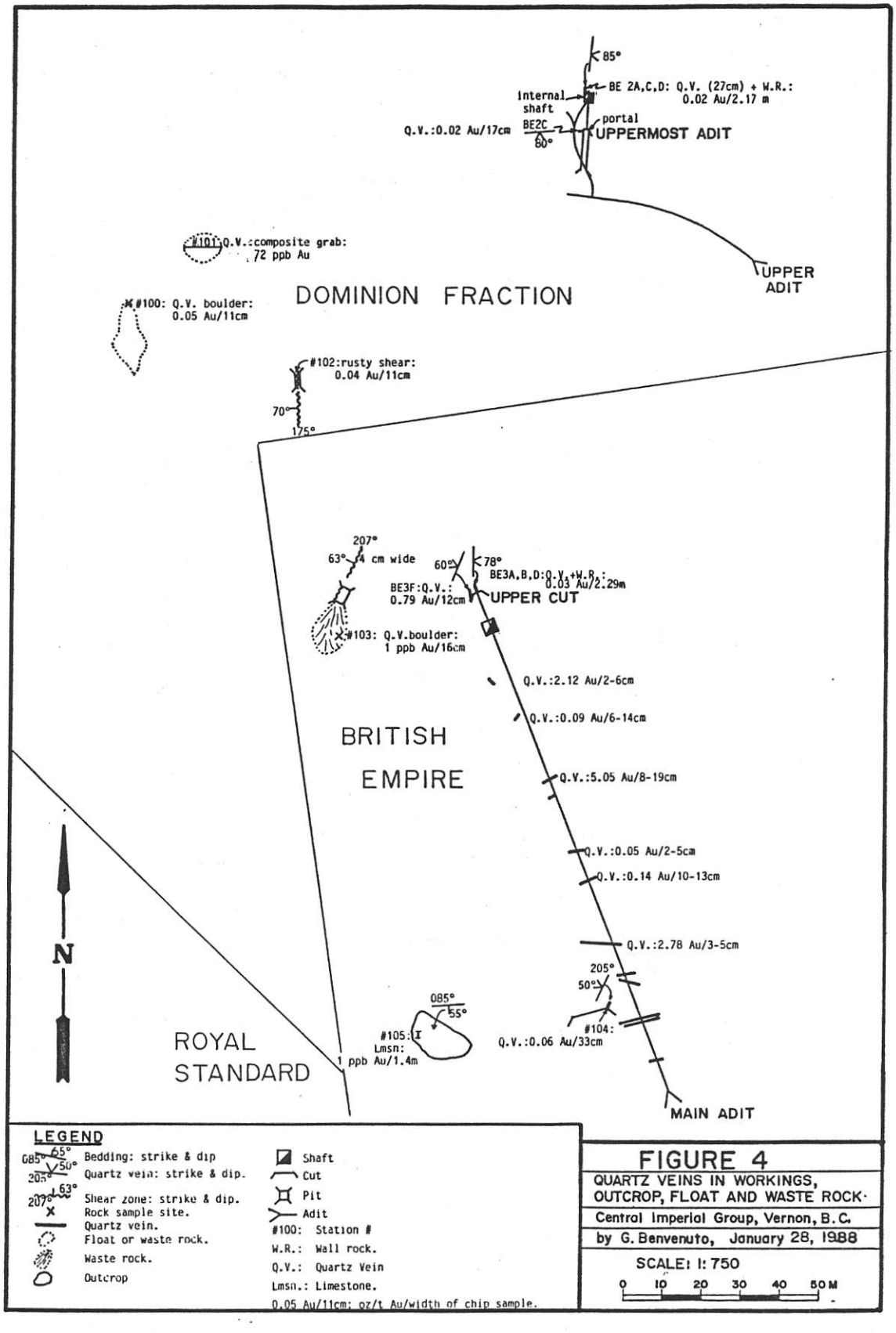
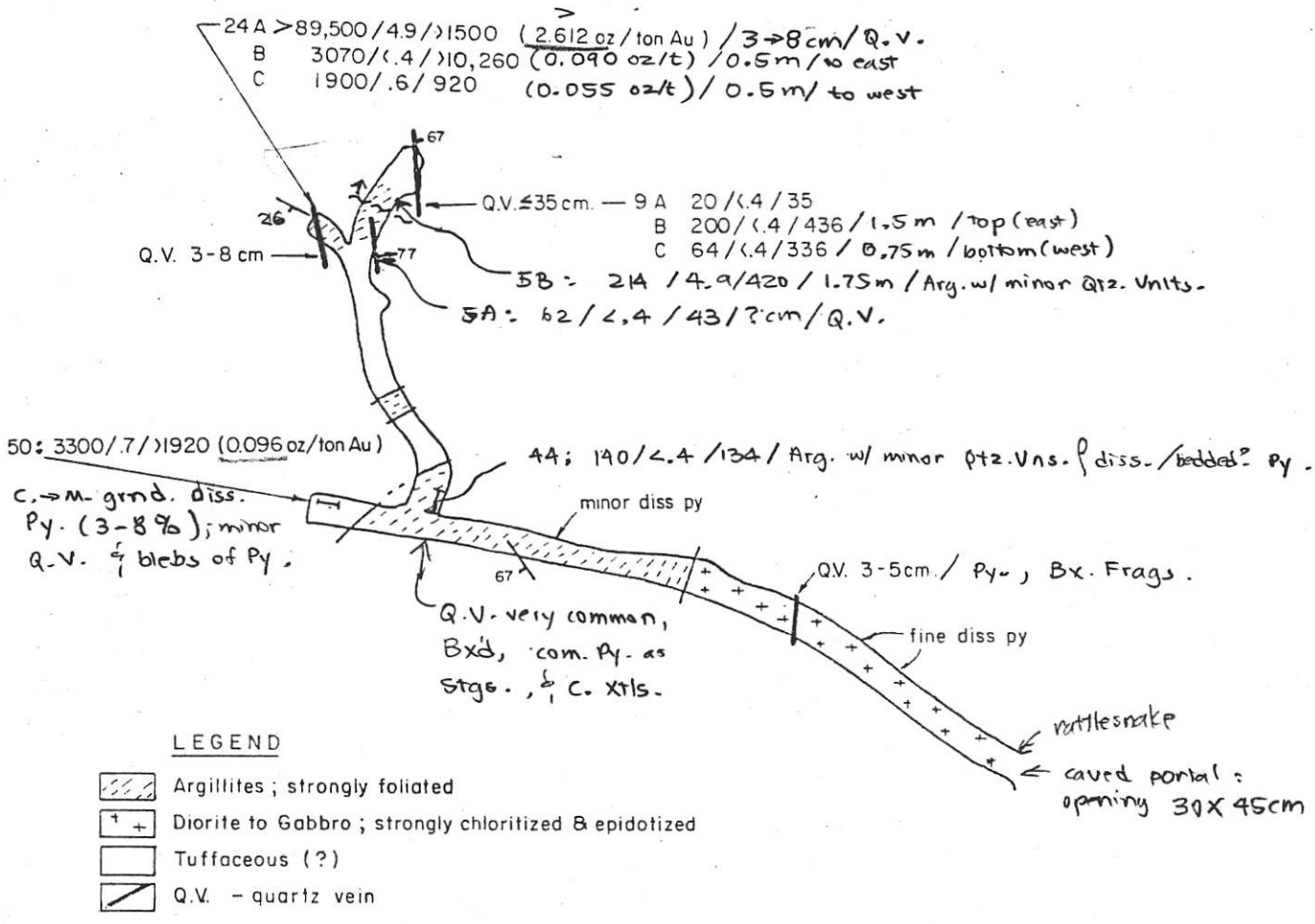



FIGURE 2: Claims map (82 L/3W and 6W) showing the location of the Imperial Group, Vernon Mining Division.


85°
BE 2A,C,D: Q.V. (27cm) + W.R.:
0.02 Au/2.17 m
internal shaft
portal
BE2C
80°
Q.V.:0.02 Au/17cm
UPPERMOST ADIT
#101 Q.V.:composite grab:
72 ppb Au
UPPER ADIT
DOMINION FRACTION
#100: Q.V. boulder:
0.05 Au/11cm
#102:rusty shear:
0.04 Au/11cm
70°
175°
207°
63°
4 cm wide
60°
78°
BE3A,B,D:Q.V.+W.R.:
0.03 Au/2.29m
BE3F:Q.V.:
0.79 Au/12cm
UPPER CUT
#103: Q.V.boulder:
1 ppb Au/16cm
Q.V.:2.12 Au/2-6cm
Q.V.:0.09 Au/6-14cm
BRITISH EMPIRE
Q.V.:5.05 Au/8-19cm
Q.V.:0.05 Au/2-5cm
Q.V.:0.14 Au/10-13cm
Q.V.:2.78 Au/3-5cm
205°
50°
085°
55°
#104:
Q.V.:0.06 Au/33cm
#105:
Lmsn:
1 ppb Au/1.4m
N
ROYAL STANDARD
MAIN ADIT
LEGEND
085° 65° Bedding: strike & dip
205° 50° Quartz vein: strike & dip.
207° 63° Shear zone: strike & dip.
Rock sample site.
Quartz vein.
Float or waste rock.
Waste rock.
Outcrop
Shaft
Cut
Pit
Adit
#100: Station #
W.R.: Wall rock.
Q.V.: Quartz Vein
Lmsn.: Limestone.
0.05 Au/11cm: oz/t Au/width of chip sample.
FIGURE 4
QUARTZ VEINS IN WORKINGS, OUTCROP, FLOAT AND WASTE ROCK.
Central Imperial Group, Vernon, B.C.
by G. Benvenuto, January 28, 1988
SCALE: 1:750
0 10 20 30 40 50 M




LEGEND

- Argillites; strongly foliated
- Diorite to Gabbro; strongly chloritized & epidotized
- Tuffaceous (?)
- Q.V. – quartz vein

24A 89,500/4.9/>1500 Sample Nº. Au, ppb/ Ag, ppm/ As, ppm

A = Vein
B = One wall
C = Other wall

After Cominco Ltd., Feb. 1984

UPPER ADIT

RICH LODE GOLD CORP.

G.A. NOEL & ASSOCIATES INC. VANCOUVER, B.C.

KEM & DONNA CLAIMS

# SAMPLE PLAN

DOMINION FR.

VERNON AREA

N.T.S. 82L-3W,6W VERNON M.D., B.C.

0 10 20 30 Metres

| SCALE 1:500 | JUNE 1984 | FIG. 5 |
|---|---|---|
| H.M. JONES | | |

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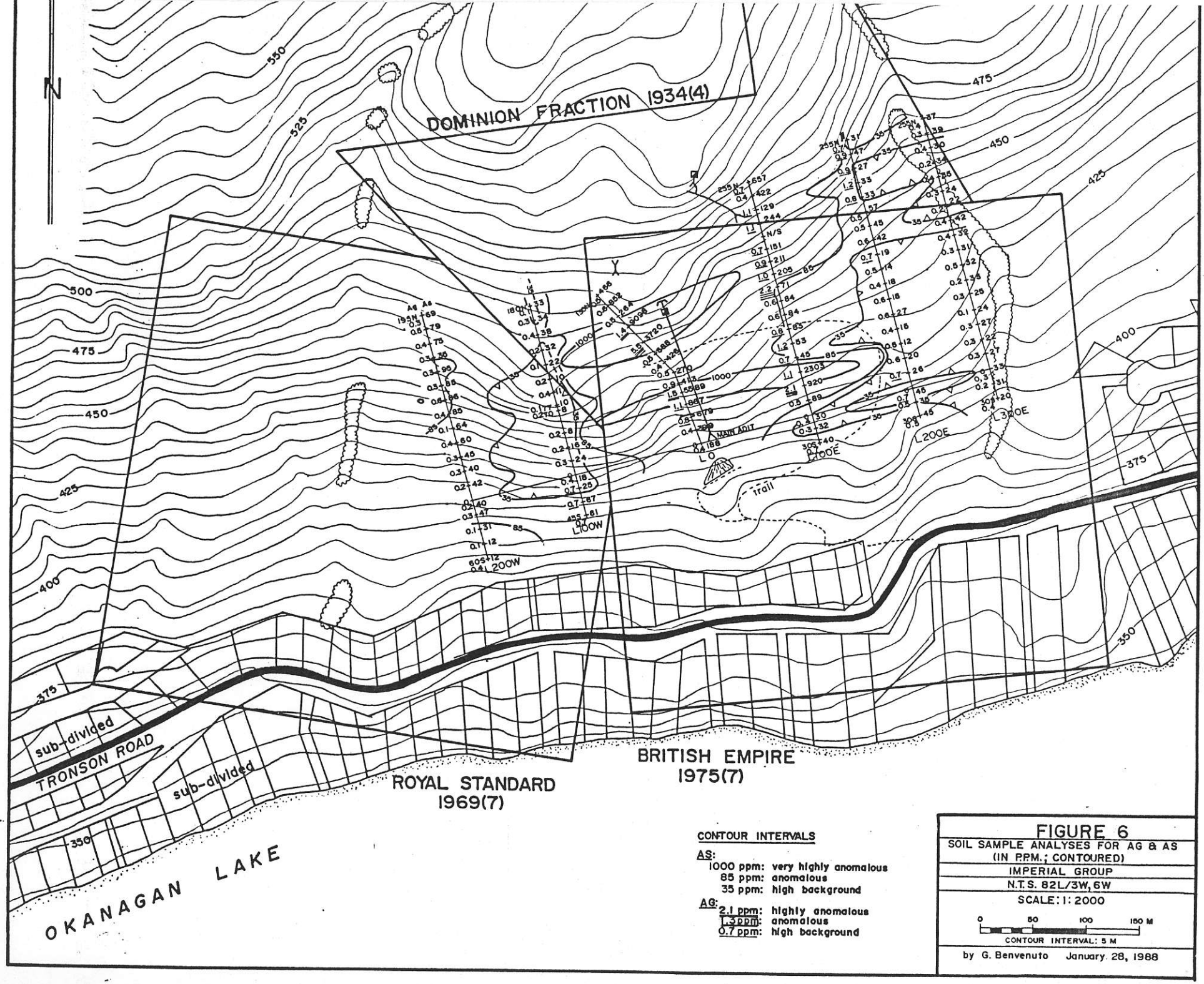



CONTOUR INTERVALS

AS:
1000 ppm: very highly anomalous
85 ppm: anomalous
35 ppm: high background

AG:
2.1 ppm: highly anomalous
1.3 ppm: anomalous
0.7 ppm: high background

# FIGURE 6

SOIL SAMPLE ANALYSES FOR AG & AS (IN P.P.M.; CONTOURED)

IMPERIAL GROUP

N.T.S. 82L/3W, 6W

SCALE: 1: 2000

0 50 100 150 M

CONTOUR INTERVAL: 5 M

by G. Benvenuto January. 28, 1988

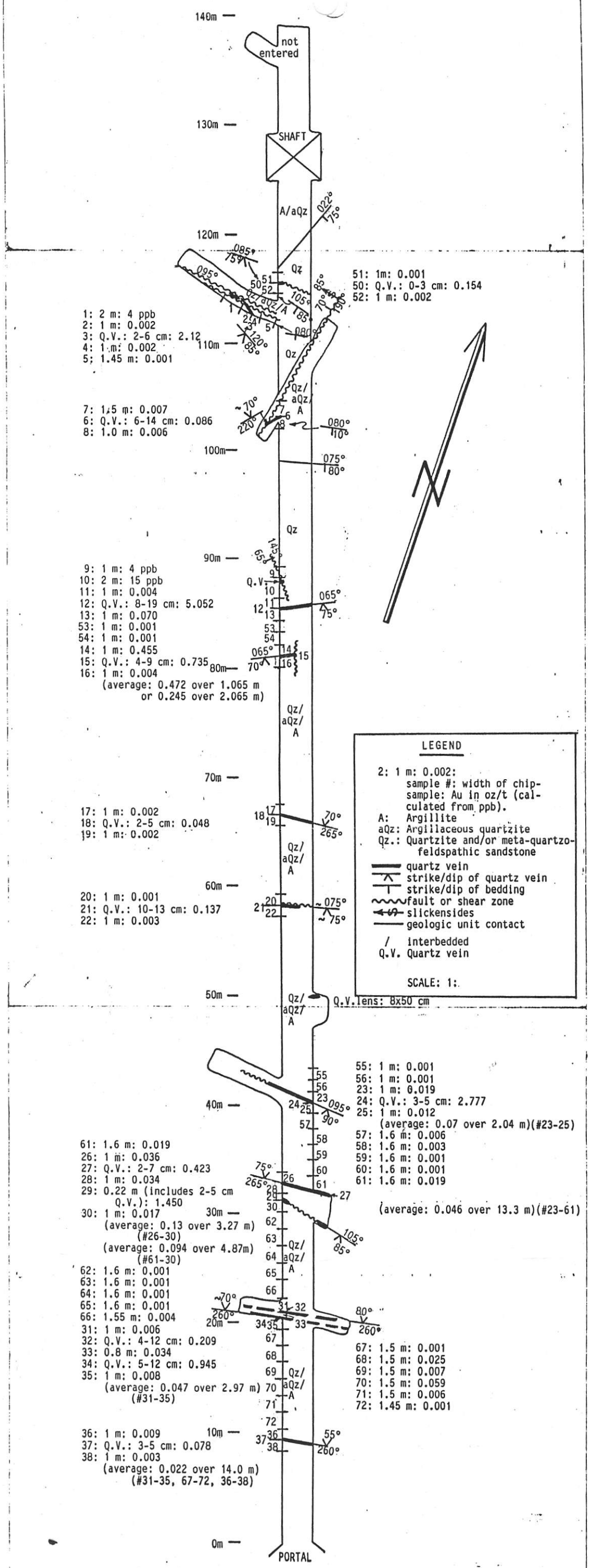



FIGURE 3: Plan map of the main adit on the British Empire claim showing the location of quartz veins and chip samples, and the analyses for gold

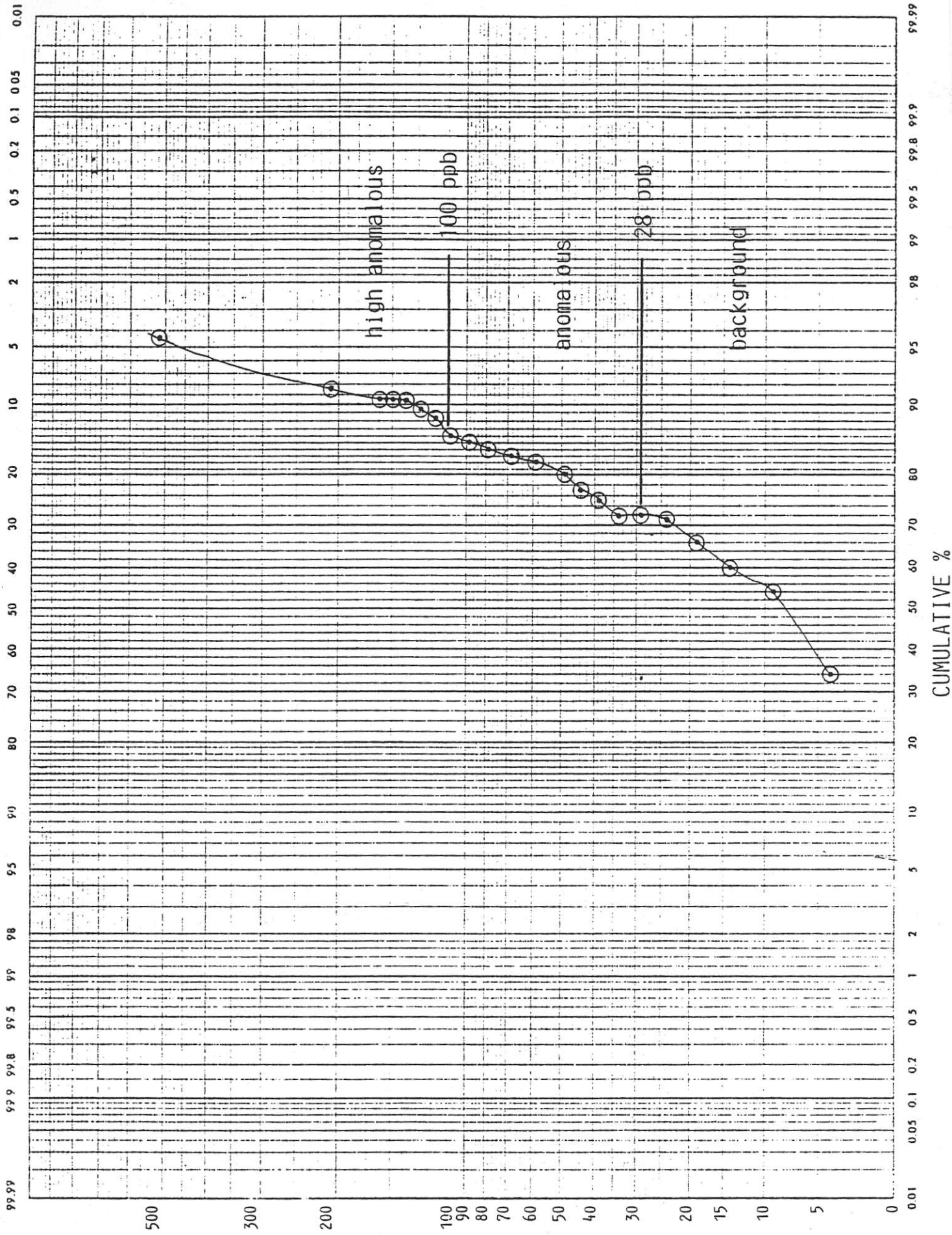



FIGURE 7: Log probability of the concentrations Au (ppb) of Au in 93 soil samples from the Imperial Group.

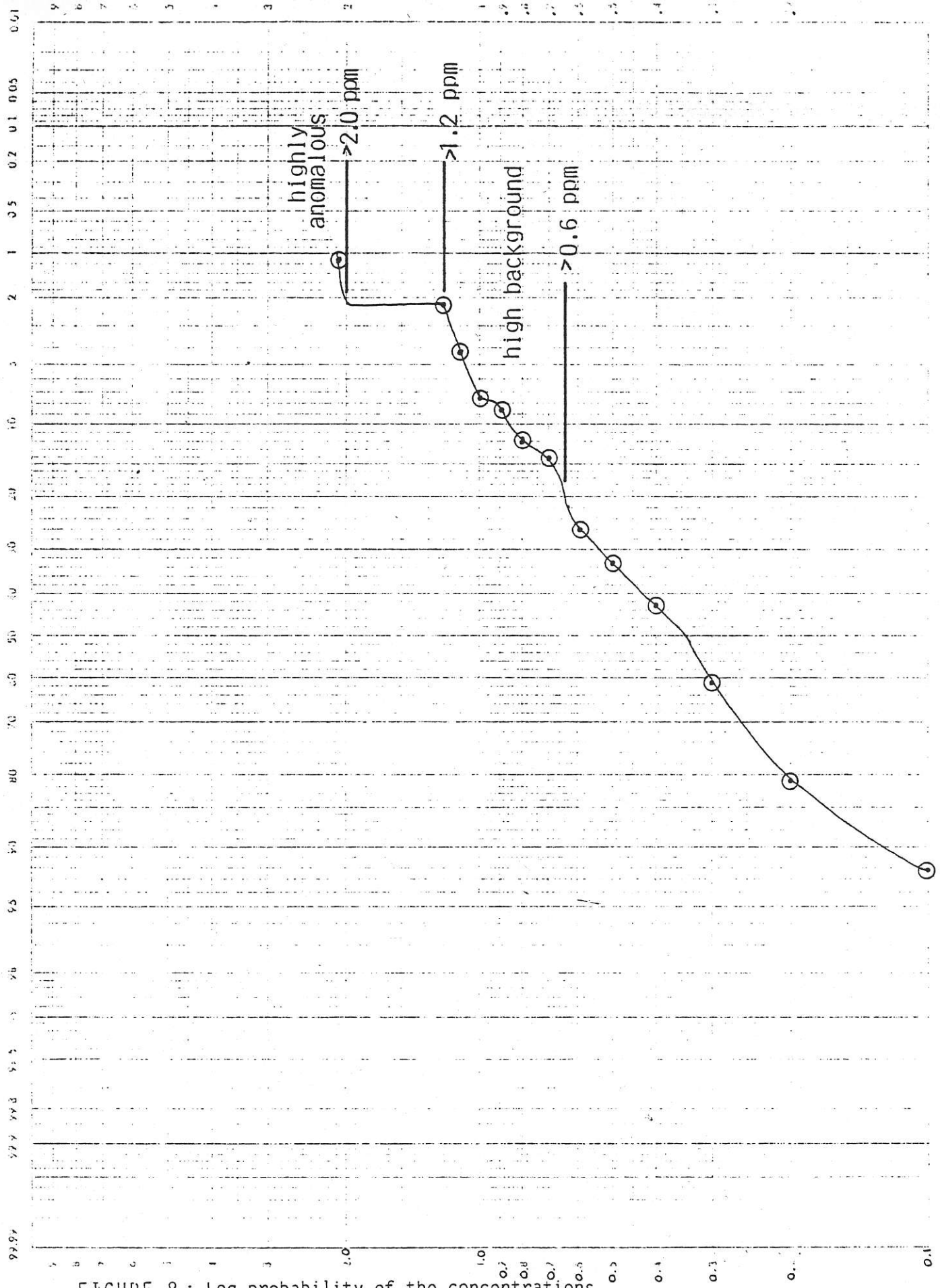



FIGURE 8 : Log probability of the concentrations of Ag in 93 soil samples, Imperial Gp.

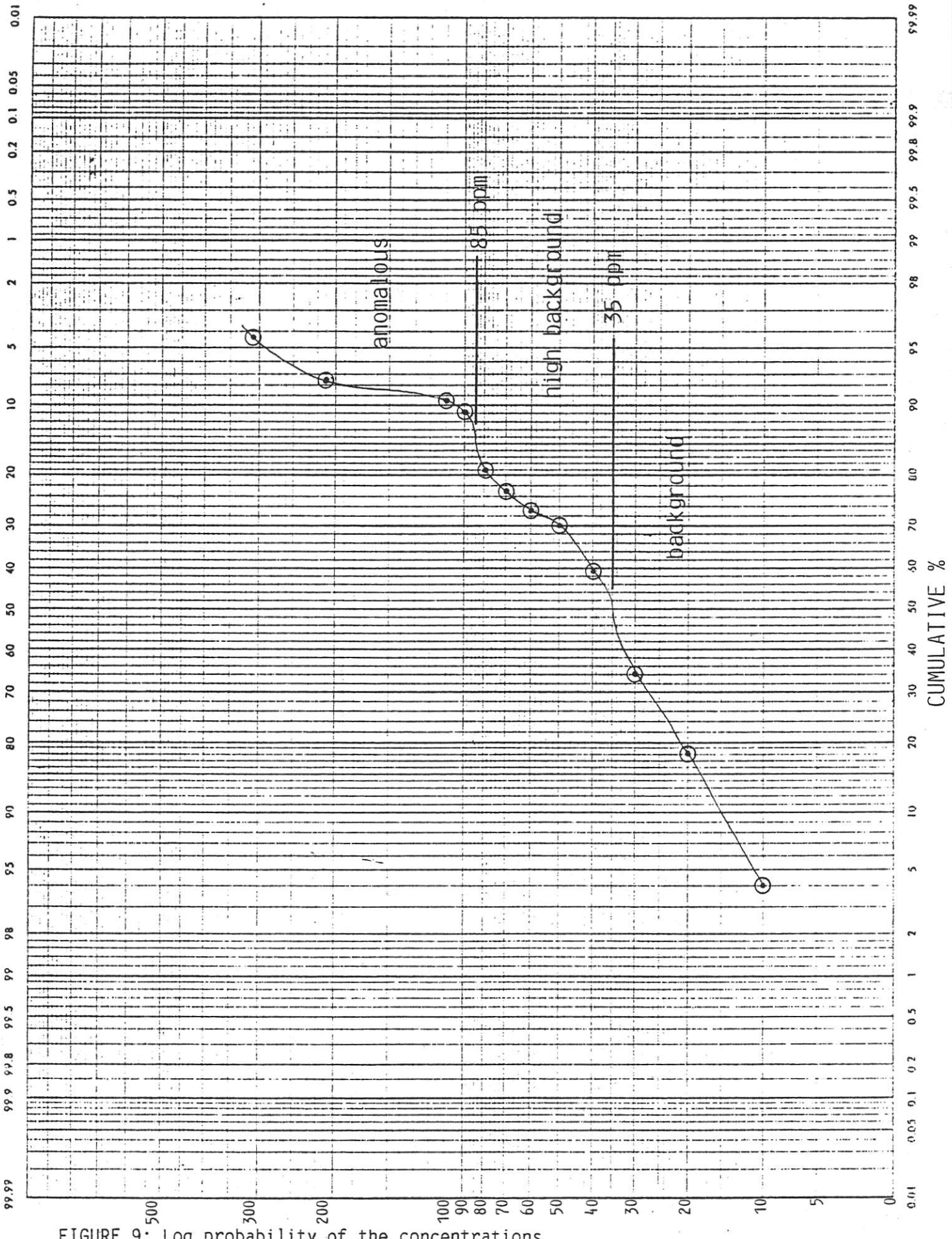



FIGURE 9: Log probability of the concentrations of As in 93 soil samples, Imperial Group, 1988.

# APPENDIX A

## ROCK SAMPLE DESCRIPTIONS

SAMPLE #: LITHOLOGY AND ANALYSES*

100: Quartz boulder; chip across 20 cm wide boulder at north end of area of waste(?) rock near trenches. Quartz is milky white, somewhat vuggy, cut by limonitic fractures; no visible sulphides. Boulder is 20 cm wide x 23 cm x 30 cm. Western Dominion Fraction.
1780 ppb Au, 0.1 ppm Ag, 33 ppm As

101: Quartz cobbles and pebbles; composite of grab samples to 3 cm wide, from area of waste rock. Quartz is milky white, with limonitic fractures. Largest piece of waste rock in area is 8 x 10 x 20 cm. Western Dominion Fraction.
72 ppb Au, 0.1 ppm Ag, 133 ppm As

102: Rusty shear zone cutting quartzo-feldspathic sandstone. Chip sample across 11 cm wide shear exposed in 3.5 m long trench. Vuggy, white quartz waste rock in trench suggests quartz vein occupied a portion of the shear zone, which strikes 175°/ dips 70°W. Southwestern Dominion Fraction.
1480 ppb Au, 0.6 ppm Ag, 4678 ppm As

103: Quartz boulder in waste rock from pit (4.3 m x 2.6 m wide). Chip sample across 16 cm wide (x17 x 38 cm) boulder. Quartz is milky white, with limonitic fractures. Northwest corner of British Empire claim.
1 ppb Au, 0.1 ppm Ag, 11 ppm As

104: Quartz vein; chip across 33 cm thick vein, striking approximately 205°/ dipping 50° NW (irregular), exposed in a cut. Vein is 15 to 33 cm thick, composed of milky white quartz with limonitic fractures. Vein cuts medium grey, meta-quartzo-feldspathic sandstone with rusty spots (oxidized pyrite?); sandstone locally foliated. Northwest corner of British Empire claim.
1950 ppb Au, 0.2 ppm Ag, 261 ppm As

105: Limestone: chip across 1.4 m (perpendicular to bedding). Limestone is dark grey to white with light grey-white laminations and bands, weathers light grey with tan to buff patches, and very finely crystalline (sugary). It contains graphitic, argillaceous? lenses, whispy laminations and styolites. It is cut by coarsely crystalline calcite veinlets and limonite-stained fractures, and appears strongly sheared. Northwestern British Empire claim.
1 ppb Au, 0.2 ppm Ag, 4 ppm As

106: Quartz vein cutting meta-quartzo-feldspathic siltstone, sandstone and silty argillite. Chip across 28 cm thick vein, forming easternmost and thickest vein of 8 quartz veins in 3.17 m wide zone. North-central Royal Standard claim.
68 ppb Au, 0.1 ppm Ag, 6 ppm As

*Note: Au analyses by fire assay with A.A. finish; Ag and As by I.C.P. analyses.

(Rock sample descriptions, continued)

107: Quartz veins and veinlets cutting sandstone: chip across eastern 1.25 m of zone bounded to east (and not including) #106. Sample includes, from east to west: 63 cm of wall rock, 2.5 cm thick quartz veinlet, 22 cm of wall rock, 4.5 cm thick quartz vein, and 40 cm of wall rock. Location same as #106. Quartz veins appear stratabound within siltstone and sandstone intervals.
2 ppb Au, 0.1 ppm Ag, 4 ppm As

108: As #107; chip across western 1.65 m of zone. Sample includes, from east to west: 7 to 13 cm thick quartz vein, 23 cm of wall rock, up to 12 cm thick quartz vein, 13 cm of wall rock and 2 cm thick quartz veinlet. Location as #106 and #107.
4 ppb Au, 0.1 ppm Ag, 4 ppm As

L. 300E/185N: Quartz vein float. Chip across 10 cm of 10 x 25 x 25 cm boulder of rusty quartz vein material in dry creek. Southeast corner of Dominion Fraction.
0.002 oz Au/t, 0.3 ppm Ag, 31 ppm As

# APPENDIX B

## ROCK AND SOIL SAMPLE ANALYSES

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

# GEOCHEMICAL ICP ANALYSIS

.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 CA P LA CR MG BA TI B W AND LIMITED FOR NA AND K. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-ROCK P2-SOIL P3-SOIL REJECT AU** ANALYSIS BY FA+AA FROM 10 GM SAMPLE.

DATE RECEIVED: SEPT 10 1987 DATE REPORT MAILED: Sept 21/87 ASSAYER. D. Toye ..DEAN TOYE, CERTIFIED B.C. ASSAYER

GARY BENVENUTO PROJECT-IMP. File # 87-4041 Page 1

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 1 | 3 | 3 | 3 | .1 | 3 | 1 | 39 | .27 | 33 | 5 | ND | 1 | 1 | 1 | 2 | 2 | 1 | .02 | .001 | 2 | 4 | .01 | 3 | .01 | 2 | .01 | .01 | .01 | 1 | 1780 |
| 101 | 1 | 3 | 2 | 15 | .1 | 2 | 1 | 67 | .36 | 133 | 5 | ND | 1 | 3 | 1 | 2 | 2 | 1 | .07 | .001 | 2 | 2 | .02 | 5 | .01 | 2 | .02 | .01 | .02 | 1 | 72 |
| 102 | 2 | 29 | 14 | 56 | .6 | 2 | 9 | 787 | 5.48 | 4678 | 5 | ND | 7 | 57 | 1 | 8 | 2 | 15 | .82 | .173 | 16 | 1 | .07 | 38 | .01 | 11 | .41 | .06 | .07 | 1 | 1480 |
| 103 | 1 | 3 | 2 | 2 | .1 | 2 | 1 | 36 | .32 | 11 | 5 | ND | 1 | 1 | 1 | 2 | 2 | 1 | .01 | .001 | 2 | 2 | .01 | 3 | .01 | 2 | .01 | .01 | .01 | 1 | 1 |
| 104 | 1 | 4 | 2 | 5 | .2 | 3 | 1 | 224 | .66 | 261 | 5 | ND | 1 | 22 | 1 | 2 | 2 | 1 | 1.09 | .003 | 2 | 3 | .42 | 5 | .01 | 2 | .02 | .02 | .01 | 1 | 1950 |
| 105 | 1 | 4 | 4 | 6 | .2 | 2 | 1 | 188 | .19 | 4 | 5 | ND | 1 | 195 | 1 | 2 | 7 | 1 | 30.09 | .009 | 2 | 1 | .16 | 18 | .01 | 2 | .01 | .01 | .01 | 2 | 1 |
| 106 | 1 | 4 | 2 | 2 | .1 | 3 | 1 | 38 | .33 | 6 | 5 | ND | 1 | 1 | 1 | 2 | 2 | 1 | .13 | .001 | 2 | 2 | .01 | 3 | .01 | 2 | .01 | .01 | .01 | 1 | 68 |
| 107 | 1 | 30 | 6 | 47 | .1 | 2 | 4 | 431 | 2.47 | 4 | 5 | ND | 2 | 26 | 1 | 2 | 2 | 7 | 3.10 | .052 | 6 | 2 | .28 | 25 | .01 | 4 | .49 | .05 | .02 | 2 | 2 |
| 108 | 2 | 21 | 5 | 55 | .1 | 3 | 4 | 591 | 2.57 | 4 | 5 | ND | 2 | 22 | 1 | 2 | 2 | 7 | 1.62 | .049 | 7 | 1 | .39 | 36 | .01 | 2 | .56 | .05 | .02 | 1 | 4 |
| STD C/AU-R | 19 | 57 | 40 | 132 | 6.8 | 66 | 26 | 1024 | 3.87 | 38 | 20 | 8 | 38 | 48 | 17 | 18 | 18 | 55 | .47 | .086 | 36 | 57 | 1.04 | 171 | .08 | 30 | 1.76 | .07 | .13 | 14 | 520 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1+30N (-80) | 2 | 97 | 19 | 118 | .5 | 34 | 18 | 1004 | 4.04 | 466 | 5 | ND | 3 | 52 | 1 | 3 | 2 | 55 | .84 | .107 | 13 | 42 | .91 | 176 | .08 | 16 | 2.17 | .04 | .39 | 1 | 355 |
| 1+20N (-80) | 2 | 87 | 24 | 132 | .6 | 26 | 18 | 1930 | 4.42 | 852 | 5 | ND | 4 | 54 | 1 | 2 | 2 | 50 | .74 | .100 | 22 | 30 | .72 | 209 | .09 | 4 | 2.65 | .04 | .30 | 1 | 805 |
| 1+10N (-80) | 2 | 106 | 17 | 94 | .5 | 29 | 17 | 916 | 3.62 | 264 | 5 | ND | 3 | 50 | 1 | 3 | 2 | 53 | .77 | .087 | 12 | 34 | .89 | 160 | .08 | 14 | 1.95 | .04 | .33 | 1 | 80 |
| 1+00N (-80) | 2 | 69 | 36 | 177 | 1.4 | 24 | 23 | 1930 | 7.45 | 9098 | 5 | 2 | 6 | 112 | 1 | 6 | 2 | 38 | 1.36 | .112 | 24 | 25 | .47 | 136 | .05 | 8 | 2.00 | .04 | .18 | 1 | 6005 |
| 0+90N (-80) | 2 | 95 | 36 | 206 | 5.5 | 23 | 25 | 2710 | 7.45 | 3720 | 5 | 17 | 4 | 81 | 1 | 2 | 2 | 42 | 1.11 | .122 | 17 | 19 | .48 | 145 | .05 | 11 | 1.88 | .04 | .19 | 1 | 4100 |
| 0+80N (-80) | 2 | 105 | 21 | 134 | .5 | 37 | 19 | 1465 | 4.34 | 588 | 5 | ND | 4 | 57 | 1 | 4 | 2 | 44 | .73 | .092 | 15 | 31 | .64 | 140 | .07 | 5 | 2.14 | .04 | .26 | 1 | 2005 |
| 0+70N (-80) | 2 | 111 | 15 | 113 | .4 | 37 | 18 | 923 | 3.82 | 426 | 5 | ND | 4 | 54 | 1 | 2 | 2 | 52 | .64 | .089 | 13 | 39 | .89 | 145 | .08 | 13 | 1.88 | .04 | .31 | 2 | 370 |
| 0+60N (-80) | 2 | 102 | 26 | 120 | .5 | 38 | 18 | 1089 | 4.07 | 270 | 5 | ND | 5 | 42 | 1 | 2 | 2 | 57 | .53 | .091 | 16 | 44 | .90 | 182 | .10 | 10 | 2.48 | .04 | .38 | 1 | 220 |
| 0+50N (-80) | 2 | 117 | 22 | 143 | .9 | 56 | 22 | 1185 | 4.30 | 413 | 5 | ND | 6 | 54 | 1 | 2 | 2 | 52 | .57 | .099 | 22 | 38 | .77 | 196 | .10 | 9 | 2.93 | .04 | .34 | 1 | 410 |
| 0+40N (-80) | 2 | 126 | 32 | 180 | 1.5 | 105 | 38 | 1122 | 7.73 | 5589 | 5 | ND | 11 | 96 | 1 | 5 | 2 | 65 | .97 | .107 | 35 | 69 | 1.06 | 96 | .03 | 3 | 2.32 | .04 | .13 | 1 | 3680 |
| 0+30N (-80) | 2 | 114 | 26 | 180 | 1.1 | 87 | 34 | 1611 | 5.72 | 867 | 5 | ND | 9 | 53 | 1 | 2 | 2 | 64 | .67 | .104 | 32 | 67 | 1.02 | 163 | .07 | 14 | 3.05 | .04 | .21 | 1 | 1355 |
| 0+20N (-80) | 3 | 107 | 22 | 181 | .8 | 72 | 30 | 1605 | 4.57 | 679 | 5 | ND | 6 | 64 | 3 | 2 | 2 | 47 | .77 | .109 | 20 | 48 | .77 | 170 | .06 | 6 | 2.33 | .04 | .22 | 1 | 275 |
| 0+10N (-80) | 2 | 114 | 21 | 152 | .4 | 51 | 24 | 1312 | 4.03 | 399 | 5 | ND | 4 | 54 | 2 | 2 | 2 | 47 | .86 | .114 | 17 | 39 | .71 | 170 | .07 | 5 | 2.08 | .04 | .25 | 1 | 129 |
| 0+00N (-80) | 2 | 109 | 18 | 113 | .4 | 35 | 20 | 1055 | 3.63 | 188 | 5 | ND | 3 | 46 | 1 | 2 | 2 | 53 | .58 | .090 | 14 | 39 | .77 | 178 | .09 | 13 | 2.10 | .04 | .36 | 1 | 112 |
| STD C/AU-S | 19 | 58 | 42 | 133 | 7.3 | 69 | 27 | 1038 | 4.01 | 38 | 23 | 7 | 39 | 50 | 19 | 18 | 22 | 57 | .48 | .088 | 38 | 59 | .89 | 179 | .08 | 37 | 1.85 | .08 | .14 | 12 | 51 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1+30N (+80) | 1 | 58 | 14 | 98 | .3 | 25 | 13 | 708 | 4.13 | 366 | 5 | ND | 3 | 35 | 1 | 2 | 2 | 58 | .58 | .094 | 12 | 37 | 1.06 | 114 | .06 | 17 | 1.81 | .04 | .23 | 1 | 77 |
| 1+20N (+80) | 2 | 55 | 19 | 121 | .4 | 20 | 14 | 1196 | 4.92 | 715 | 5 | ND | 5 | 36 | 1 | 2 | 2 | 52 | .51 | .105 | 21 | 25 | .82 | 126 | .05 | 2 | 2.01 | .04 | .18 | 1 | 1605 |
| 1+10N (+80) | 1 | 64 | 13 | 89 | .3 | 24 | 12 | 660 | 4.05 | 202 | 5 | ND | 3 | 33 | 1 | 2 | 2 | 60 | .55 | .080 | 12 | 36 | 1.05 | 99 | .06 | 3 | 1.73 | .04 | .20 | 1 | 26 |
| 1+00N (+80) | 2 | 40 | 22 | 122 | .7 | 16 | 14 | 1154 | 5.34 | 5861 | 5 | ND | 5 | 72 | 1 | 3 | 2 | 32 | 1.02 | .103 | 20 | 21 | .47 | 87 | .02 | 4 | 1.24 | .04 | .11 | 1 | 1580 |
| 0+90N (+80) | 2 | 56 | 20 | 151 | .5 | 15 | 15 | 1381 | 6.05 | 2333 | 5 | ND | 5 | 47 | 1 | 2 | 2 | 40 | .66 | .108 | 18 | 15 | .55 | 87 | .02 | 3 | 1.31 | .03 | .10 | 1 | 1140 |
| 0+80N (+80) | 2 | 61 | 16 | 119 | .2 | 29 | 14 | 892 | 4.92 | 553 | 5 | ND | 5 | 32 | 1 | 2 | 2 | 59 | .41 | .090 | 15 | 29 | .91 | 82 | .03 | 5 | 1.79 | .03 | .13 | 2 | 285 |
| 0+70N (+80) | 2 | 73 | 14 | 103 | .3 | 32 | 13 | 689 | 4.12 | 497 | 5 | ND | 4 | 39 | 1 | 2 | 2 | 55 | .48 | .085 | 13 | 40 | 1.02 | 108 | .06 | 9 | 1.72 | .04 | .20 | 1 | 74 |
| 0+60N (+80) | 2 | 80 | 21 | 108 | .4 | 33 | 15 | 841 | 4.31 | 276 | 5 | ND | 5 | 33 | 1 | 2 | 2 | 64 | .47 | .095 | 14 | 42 | 1.05 | 136 | .08 | 7 | 2.18 | .04 | .28 | 1 | 132 |
| 0+50N (+80) | 2 | 78 | 18 | 131 | .4 | 47 | 16 | 864 | 4.92 | 394 | 5 | ND | 6 | 37 | 1 | 2 | 2 | 65 | .41 | .088 | 19 | 50 | 1.08 | 130 | .07 | 3 | 2.40 | .04 | .23 | 1 | 95 |
| 0+40N (+80) | 2 | 70 | 18 | 133 | .6 | 73 | 20 | 652 | 5.88 | 3118 | 5 | ND | 9 | 57 | 1 | 2 | 2 | 64 | .76 | .080 | 26 | 69 | 1.22 | 53 | .01 | 2 | 2.04 | .03 | .08 | 1 | 1120 |
| 0+30N (+80) | 2 | 66 | 21 | 145 | .4 | 68 | 19 | 836 | 5.78 | 527 | 5 | ND | 8 | 29 | 1 | 2 | 2 | 75 | .42 | .087 | 24 | 72 | 1.39 | 79 | .03 | 6 | 2.52 | .03 | .11 | 1 | 335 |
| 0+20N (+80) | 3 | 64 | 16 | 163 | .4 | 65 | 18 | 835 | 5.29 | 579 | 5 | ND | 6 | 34 | 2 | 2 | 2 | 61 | .40 | .088 | 19 | 72 | 1.26 | 88 | .03 | 2 | 2.22 | .03 | .13 | 1 | 128 |
| 0+10N (+80) | 3 | 64 | 12 | 137 | .3 | 42 | 14 | 684 | 4.62 | 306 | 5 | ND | 5 | 30 | 1 | 2 | 2 | 59 | .46 | .087 | 14 | 50 | 1.16 | 89 | .04 | 3 | 2.01 | .03 | .15 | 1 | 57 |
| 0+00N (+80) | 1 | 67 | 14 | 101 | .3 | 29 | 14 | 675 | 4.07 | 147 | 5 | ND | 4 | 29 | 1 | 2 | 2 | 59 | .42 | .081 | 11 | 43 | 1.13 | 102 | .07 | 12 | 1.87 | .04 | .21 | 1 | 21 |
| STD C/AU-S | 19 | 58 | 42 | 133 | 7.3 | 69 | 27 | 1038 | 4.01 | 38 | 23 | 7 | 39 | 50 | 19 | 18 | 22 | 57 | .48 | .088 | 38 | 59 | .89 | 179 | .08 | 37 | 1.85 | .08 | .14 | 12 | 53 |

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6
PHONE(604)253-3158 FAX(604)253-1716

DATE RECEIVED: JAN 15 1988
DATE REPORT MAILED: Jan 21/88

# GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEC. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN FE CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-3 SOIL P4 ROCK CHIPS AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: C. Leong. D.TOYE OR C.LEONG, CERTIFIED B.C. ASSAYERS

GARY BENVENUTO File # 88-0117 Page 1

| SAMPLE# | AG PPM | AS PPM | AU* PPB |
|---|---|---|---|
| L200W 195N | .3 | 69 | 1 |
| L200W 180N | .5 | 79 | 6 |
| L200W 165N | .4 | 75 | 153 |
| L200W 150N | .3 | 84 | 56 |
| L200W 135N | .3 | 95 | 102 |
| L200W 120N | .3 | 85 | 38 |
| L200W 105N | .6 | 88 | 40 |
| L200W 90N | .4 | 85 | 69 |
| L200W 75N | .1 | 64 | 17 |
| L200W 60N | .4 | 60 | 9 |
| L200W 45N | .3 | 45 | 1010 |
| L200W 30N | .3 | 40 | 8 |
| L200W 15N | .2 | 42 | 11 |
| L200W 0N | .2 | 40 | 5 |
| L200W 15S | .3 | 47 | 4 |
| L200W 30S | .1 | 31 | 15 |
| L200W 45S | .1 | 12 | 1 |
| L200W 60S | .4 | 12 | 117 |
| L100W 180N | .1 | 33 | 8 |
| L100W 165N | .3 | 34 | 6 |
| L100W 150N | .4 | 38 | 5 |
| L100W 135N | .2 | 32 | 3 |
| L100W 120N | .1 | 22 | 1 |
| L100W 105N | .2 | 10 | 1 |
| L100W 90N | .4 | 11 | 1 |
| L100W 77N | .1 | 10 | 2 |
| L100W 70N | .2 | 8 | 1 |
| L100W 45N | .2 | 8 | 1 |
| L100W 30N | .2 | 16 | 3 |
| L100W 15N | .3 | 24 | 3 |
| L100W 0N | .4 | 18 | 6 |
| L100W 15S | .7 | 25 | 13 |
| L100W 30S | .7 | 67 | 16 |
| L100W 45S | .7 | 61 | 21 |
| L100E 255N | .7 | 657 | 670 |
| L100E 240N | .4 | 422 | 95 |
| STD C/AU-S | 7.1 | 39 | 50 |

GARY BENVENUTO FILE # 88-0117 

| SAMPLE# | AG PPM | AS PPM | AU* PPB |
|---|---|---|---|
| L100E 225N | 1.1 | 129 | 23 |
| L100E 210N | 1.1 | 244 | 46 |
| L100E 180N | .7 | 151 | 124 |
| L100E 165N | .9 | 211 | 107 |
| L100E 150N | 1.0 | 205 | 730 |
| L100E 135N | 2.2 | 71 | 320 |
| L100E 120N | .6 | 84 | 42 |
| L100E 105N | .6 | 84 | 18 |
| L100E 90N | .8 | 83 | 6 |
| L100E 75N | 1.2 | 53 | 38 |
| L100E 60N | .7 | 45 | 9 |
| L100E 45N | 1.1 | 2303 | 1310 |
| L100E 30N | 2.1 | 920 | 430 |
| L100E 15N | .5 | 89 | 51 |
| L100E 0N | .4 | 30 | 8 |
| L100E 15S | .3 | 32 | 3 |
| L100E 30S | .7 | 40 | 5 |
| L200E 255N | .7 | 31 | 19 |
| L200E 240N | .9 | 47 | 21 |
| L200E 225N | .9 | 27 | 14 |
| L200E 210N | 1.2 | 33 | 38 |
| L200E 195N | .8 | 33 | 25 |
| L200E 180N | .5 | 57 | 9 |
| L200E 165N | .5 | 45 | 24 |
| L200E 150N | .6 | 42 | 11 |
| L200E 135N | .7 | 19 | 7 |
| L200E 120N | .5 | 14 | 2 |
| L200E 105N | .4 | 18 | 3 |
| L200E 90N | .6 | 18 | 6 |
| L200E 75N | .6 | 27 | 21 |
| L200E 60N | .4 | 15 | 3 |
| L200E 45N | .5 | 12 | 1 |
| L200E 30N | .6 | 20 | 78 |
| L200E 15N | .7 | 26 | 46 |
| L200E 0N | .7 | 45 | 270 |
| L200E 15S | .5 | 35 | 13 |
| STD C/AU-S | 7.3 | 40 | 49 |

GARY BENVENUTO FILE # 88-0117 

| SAMPLE# | AG PPM | AS PPM | AU* PPB |
|---|---|---|---|
| L200E 30S | .5 | 45 | 1 |
| L300E 255N | .4 | 37 | 8 |
| L300E 240N | .3 | 39 | 1 |
| L300E 225N | .4 | 30 | 83 |
| L300E 210N | .2 | 34 | 3 |
| L300E 195N | .4 | 35 | 12 |
| L300E 180N | .3 | 24 | 430 |
| L300E 165N | .2 | 22 | 2 |
| L300E 150N | .4 | 42 | 6 |
| L300E 135N | .4 | 32 | 1 |
| L300E 120N | .3 | 31 | 5 |
| L300E 105N | .5 | 32 | 1 |
| L300E 90N | .2 | 33 | 1 |
| L300E 75N | .3 | 25 | 1 |
| L300E 60N | .1 | 24 | 1 |
| L300E 45N | .3 | 27 | 1 |
| L300E 30N | .3 | 22 | 3 |
| L300E 15N | .3 | 27 | 4 |
| L300E 0N | .3 | 33 | 1 |
| L300E 15S | .2 | 31 | 1 |
| L300E 30S | .4 | 20 | 4 |
| STD C/AU-S | 6.9 | 39 | 51 |

GARY BENVENUTO FILE # 88-0117 Page 4

| SAMPLE# | AG PPM | AS PPM | AU** OZ/T |
|---|---|---|---|
| E 53 | .4 | 247 | .001 |
| E 54 | .2 | 236 | .001 |
| E 55 | .4 | 192 | .001 |
| E 56 | .2 | 1177 | .003 |
| E 57 | .3 | 788 | .006 |
| E 58 | .7 | 120 | .003 |
| E 59 | .4 | 139 | .001 |
| E 60 | .3 | 73 | .001 |
| E 61 | .3 | 1362 | .019 |
| E 62 | .2 | 116 | .001 |
| E 63 | .3 | 49 | .001 |
| E 64 | .2 | 76 | .001 |
| E 65 | .2 | 99 | .001 |
| E 66 | .2 | 122 | .004 |
| E 67 | .3 | 65 | .001 |
| E 68 | .6 | 120 | .025 |
| E 69 | .4 | 2493 | .007 |
| E 70 | 1.0 | 27929✓ | .059 |
| E 71 | .5 | 1449 | .006 |
| E 72 | .3 | 1920 | .001 |
| L300E 185N | .3 | 31 | .002 |
| STD C/AU-R | 7.2 | 38 | - |

✓ ASSAY REQUIRED FOR CORRECT RESULT -

## APPENDIX C

## SUMMARY OF EXPENDITURES

Prospectors Assistance Program
Grant #10961-P74
Gary Benvenuto

WORK AREA: Imperial Claims Group, Vernon, B.C.
WORK PERIOD: September 5,6, 1987, and January 12-15, 1988.

TRANSPORTATION:

| | | | | |
|---|---|---|---|---|
| Mileage: | Sept. 5 and 6, 1987: | 1,068 kms | | |
| | Jan. 12-15, 1988: | 1,200 kms | | |
| | | 2,268 kms total | x $0.24/km = | $544.32 |
| Highway toll, Coquihalla: | | | | $10.00 |
| | | | sub-total: | $554.32 |

FOOD:

| | | | | |
|---|---|---|---|---|
| Sept. 5: | breakfast: | $9.25 | | |
| | groceries: | $6.78 | | |
| | supper: | $22.90 | | |
| Jan. 12: | breakfast: | $7.19 | | |
| | supper: | $10.00 | | |
| | groceries: | $39.33 | | |
| Jan.13: | supper: | $11.55 | | |
| Jan. 15: | lunch: | $6.10 | | |
| | | $113.10 | sub-total: | $113.10 |

ACCOMMODATION:

| | | | | |
|---|---|---|---|---|
| Sept. 5: | campground: | $10.00 | | |
| Jan. 12-14: | motel: | $81.00 | | |
| | | $91.00 | sub-total: | $91.00 |

ANALYSES:

1. 9 rock and 14 soil samples: 30 element I.C.P., F.A. + A.A. finish for Au (for soil samples, analyzed both -80 mesh fraction and +80 mesh fraction); Sept. 21, 1987 invoice: $451.25
2. 21 rock and 93 soil samples: 2 element I.C.P. (Ag, As), A.A. for Au (soils), F.A. + A.A. finish (rocks): $987.75

$1439.00

sub-total: $1439.00

.....continued

(Summary of Expenditures, page 2)

MISCELLANEOUS (Supplies; reproduction):

| | |
|---|---|
| Rock and soil sample bags, flagging: | $25.00 |
| Copies of subdivision and topo. maps: | $4.24 |
| Blow-up of topographic map: | $12.47 |
| Sepia mylars and prints of topo. map: | $46.86 |
| | $88.57 |

sub-total: $88.57

WAGES:

| | | |
|---|---|---|
| Sept. 5 and 6, 1987: | G. Benvenuto: | 1 day |
| | B. Thomae: | 1 day |
| Jan. 12-15, 1988: | G. Benvenuto: | 4 days |
| | | 6 days total |

6 days x $200./day = sub-total: $1200.00

REPORT PREPARATION:

Writing, typing and drafting: G. Benvenuto: 5 days

5 days x $200./day = $1000.00

Reproduction: $50.00

$1050.00

sub-total: $1050.00

TOTAL EXPENDITURES: $4,536.00

## APPENDIX D

### STATEMENT OF QUALIFICATIONS

I, Gary L. Benvenuto, of the City of Vancouver, hereby certify that:

1. I am a consulting geologist with an office and residence at 302-2196 West 2nd Avenue, Vancouver, B.C., V6K 1H6.

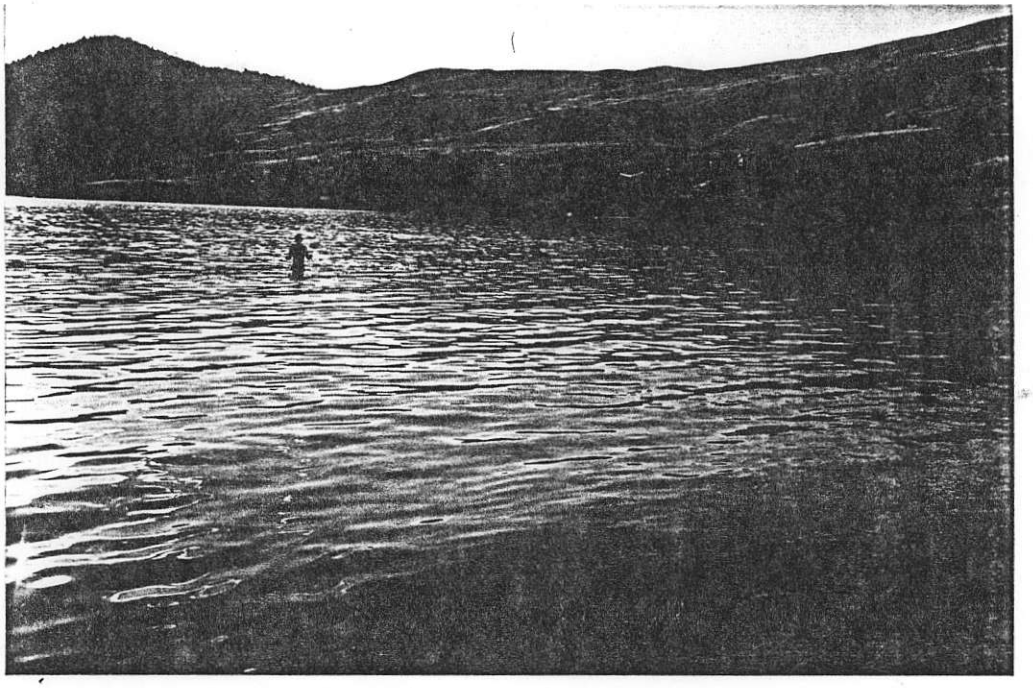
2. I graduated with a B.Sc. degree in geology from California State University at Los Angeles, California in 1972, and with a Ph.D. degree in geology from Queen's University at Kingston, Ontario in 1978.

3. I am a fellow of the Geological Association of Canada.

4. I have practised exploration geology with Cominco Ltd. from May to October, 1979, and with Westmin Resources Ltd. from January, 1980 to April, 1985, and have practised as a consulting exploration geologist from May, 1985 to present.

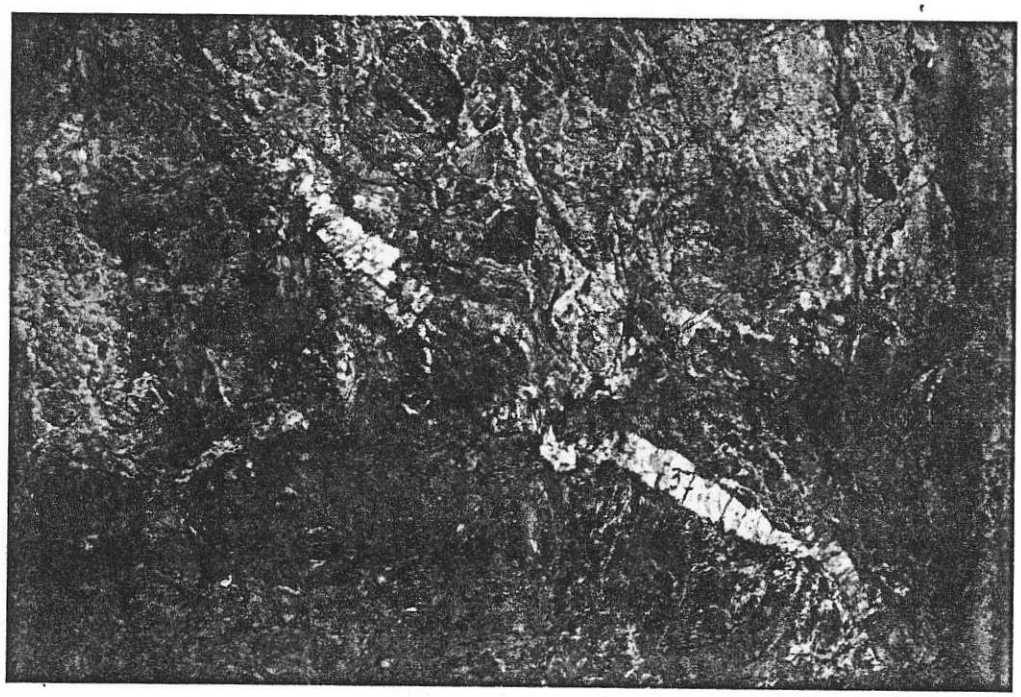
January 27, 1988
Vancouver, B.C.

Gary Benvenuto, Ph.D.

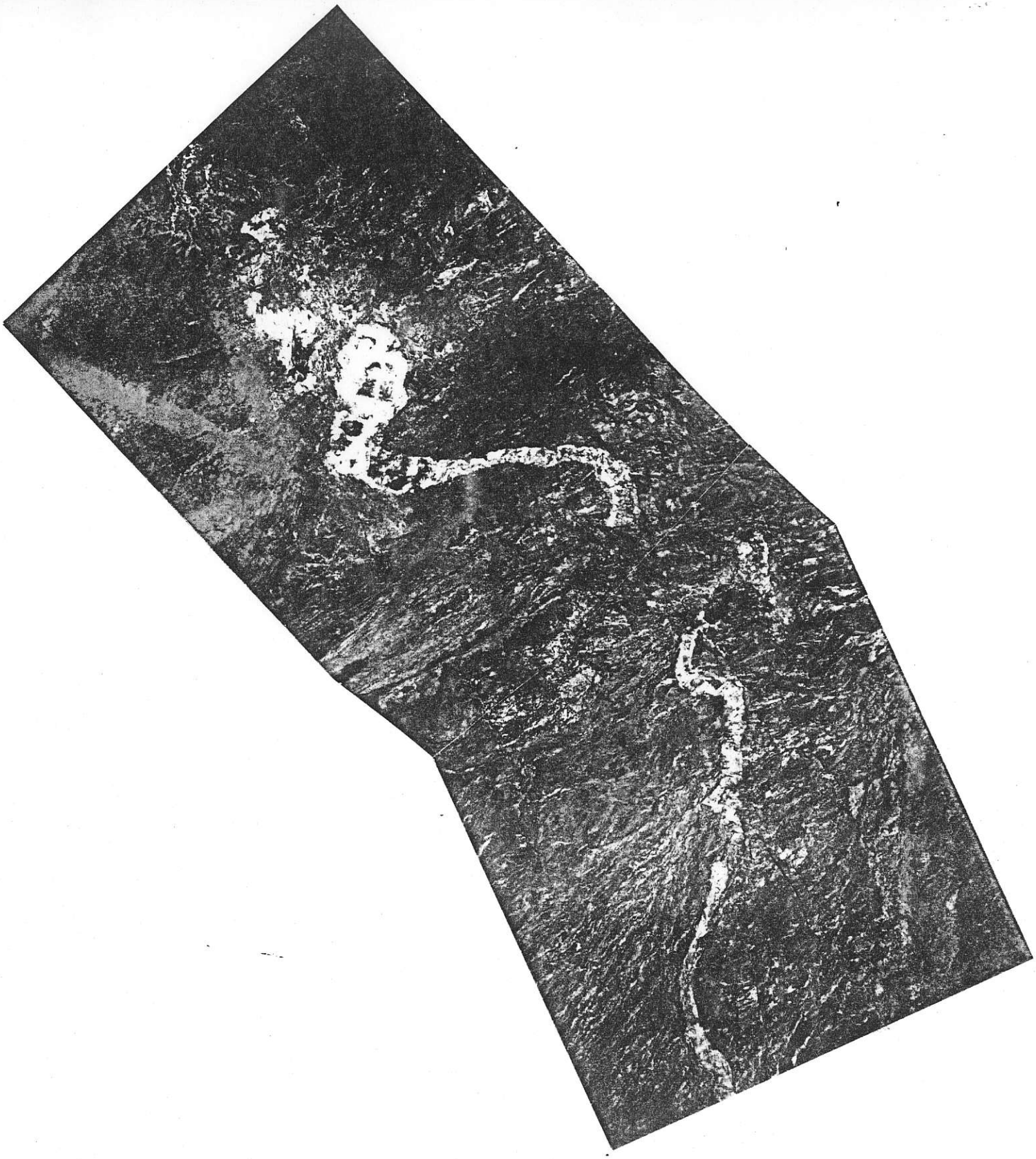


Looking westerly from the east end of "Vernon" bay on Okanagan Lake, at the south-facing slope on which the Imperial Group is located. The claims lie in the area between the centre of the photograph and the main saddle on the right side of the peak in the upper left corner.

Looking southeast from the portal of the main adit, across "Vernon" bay on Okanagan Lake to Okanagan Landing. Note the sub-division on Tronson Road in the southern British Empire claim.



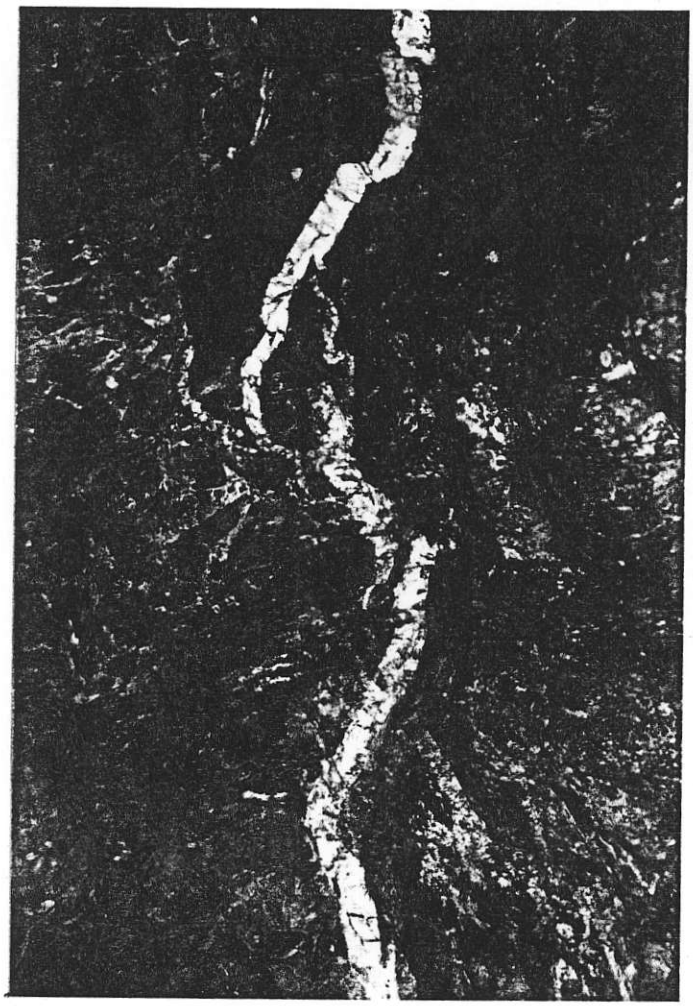
VEIN #37: In the main adit (west wall) at 9.5 m in from portal. The vein is 3 to 5 cm thick and strikes about 260° and dips 55° N. It contains 0.08 oz Au/t and 744 ppm As. Note that the vein is offset along numerous small scale faults (suggesting north (right) wall is up relative to the south wall — opposite sense of that for veins #12, 27 and 29). The vein cuts the gently dipping, "crenulated" bedding contact between meta-quartzo-feldspathic sandstone and the underlying meta-argillaceous siltstone, at a moderate angle.



VEIN # 32: In the main adit, on the northerly wall of a short drift to the east, at 21 m in from the portal. The vein is about 4 to 12 cm thick and contains 0.21 oz Au/t. It strikes 260° (at a low angle to this wall) and dips about 80° N. Note the deformation styles: asymmetric folds, pinch and swell, and fault-offsets.

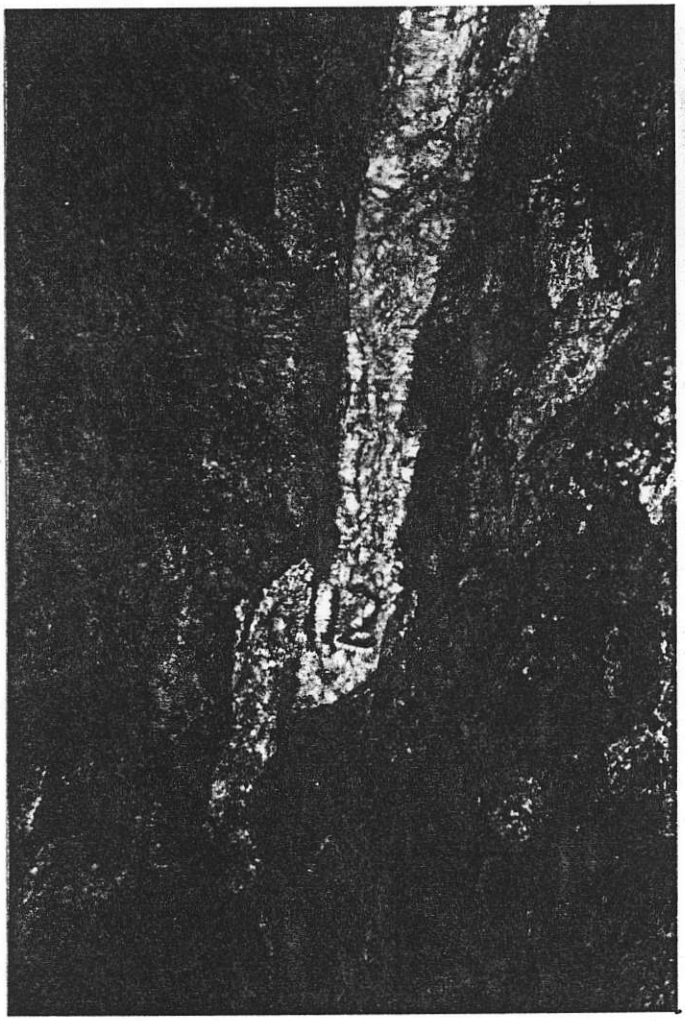
VEINS #32 and 34: Located in the main adit (back) at 21 m in from the portal. The veins are 4 to 12 cm thick, about 0.8 m apart, and both strike about 260° and dip about 75° N. Vein #32 (to north; right) contains 0.21 oz Au/t and 464 ppm As over 4-12 cm. Vein #34 contains 0.95 oz Au/t and 2264 ppm As over 5-12 cm. Wall rock between the veins contains 0.03 oz Au/t and 13,164 ppm As over 0.8 m.


VEIN #29: In the main adit (west wall) at 31 m in from portal and 1.2 m south of Vein #27. The vein is 2 to 5 cm thick, and strikes 105° and dips 85° SW. The vein and about 20 cm of wall rock to the north (right) contain 1.45 oz Au/t and 2940 ppm As (over 0.22 m). The wall rock adjoining the vein to the south (left) contains 0.02 oz Au/t over 1 m. A 3.27 m wide interval containing veins #27 and #29, contains an average of 0.13 oz Au/t (4 chip-samples). Note that the fault offset of the vein (below centre of photo.) indicates the north (right) wall is down relative to the south wall (consistent with deformation of veins #12 and 27).



VEIN #27: In the main adit (west wall) at 33 m in from portal. The vein is 2 to 7 cm thick and strikes 265° and dips 75° N. It contains 0.42 oz Au/t and 2146 ppm As. The 1 m wide interval of wall rock to the north of the vein (to the left) contains 0.03 oz Au/t. Note the branching of the vein, and that asymmetric "Z" folds and fault offsets in general indicate that the north side of the vein is down relative to the south side (consistent with Vein #12).


VEIN #15: Located in the main adit (west wall) at 81 m in from the portal. The vein is 4 to 9 cm thick and strikes about 065° and dips 70° SE. It contains 0.74 oz Au/t and 1475 ppm As over 4-9 cm. The 1 m interval of rock in the hanging wall (to right) of the vein contains 0.46 oz Au/t and 6074 ppm As. Note that there appears to be three veins: two en echelon veins (dipping to the left) that crosscut bedding at a high angle, and a third, irregular, offset vein dipping to the right that forms a low angle to bedding (tan layer is meta-quartzo-feldspathic siltstone bed).



VEIN #12: Located in the main adit (west wall) at 85 m in from the portal (and 4.4 m north of vein #15). The vein is 8 to 19 cm thick and strikes 065° and dips 75° SE. It contains 5.50 oz Au/t, 10.6 ppm Ag and 2100 ppm As. 1 m wide chip-samples to the right and left of the vein contain 0.004 and 0.07 oz Au/t, respectively. Note that the "Z" drag fold and the vein-parallel shear offsetting the hinge of the fold indicate the north (right) wall is down relative to the south wall.