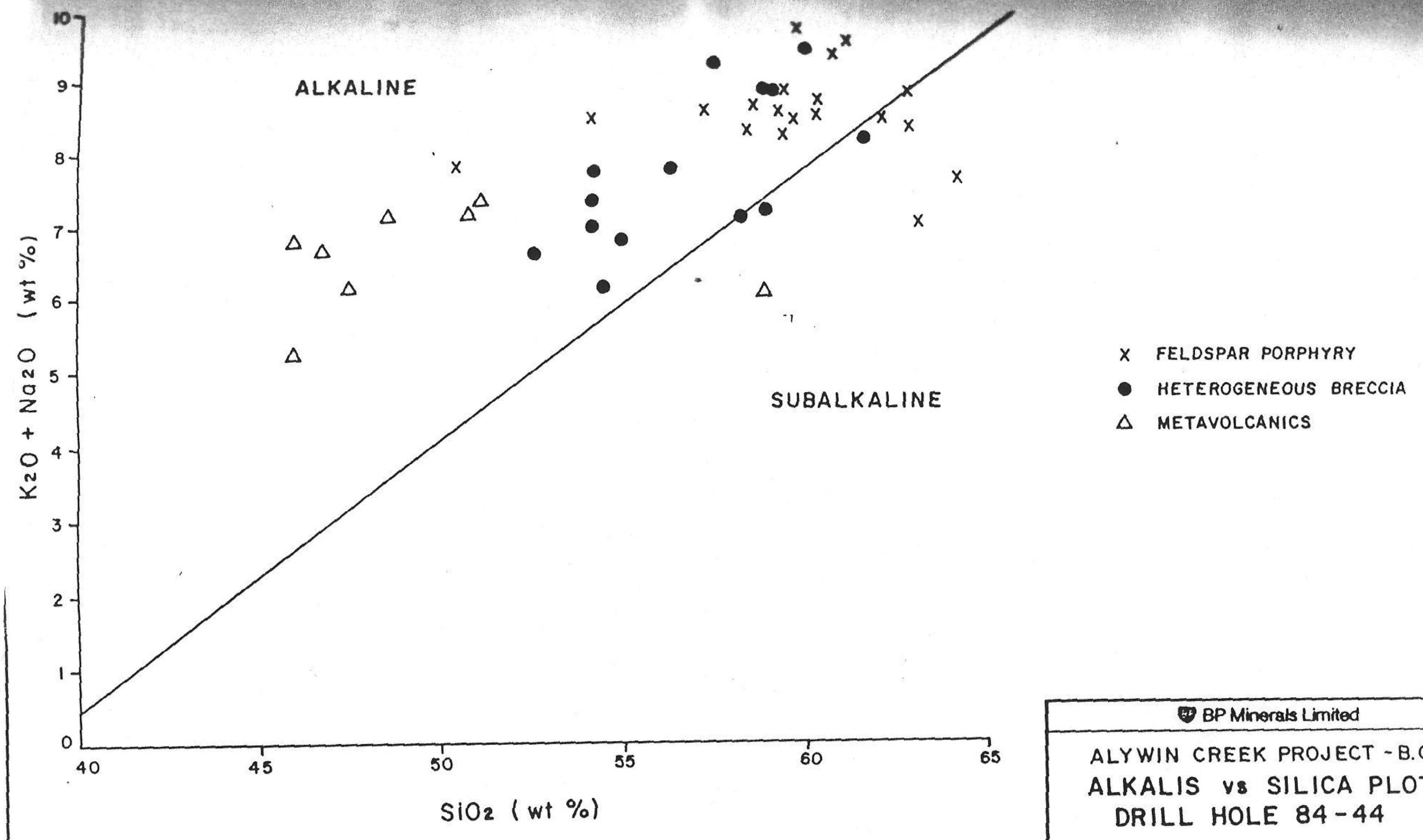
samples constitute two metre intervals taken every six metres beginning at 80 metres and ending at 346 metres. The sampled zone passes from unmineralized feldspar porphyry, into heterogeneous breccia-hosted West Zone mineralization, into unmineralized metavolcanics. Post-mineral faulting has caused repetition of the mineralized zone in this hole.

Figure 16 profiles the major element values down the hole. ICP data for calcium, potassium, sodium, iron, and aluminum is also profiled for comparison with the XRF analysis. In general, despite representing only a partial digestion technique, the ICP analysis shows major element patterns similar to those evident from the XRF analysis. Complete XRF data is included in Appendix IV.

Mineralized heterogeneous breccia contains higher CaO, S and Fe_2O_3, and lower Na_2O, Al_2O_3 and SiO_2 relative to feldspar porphyry. Breccia contains higher Na_2O but lower CaO relative to metavolcanics.

CaO displays the best correlation with mineralization. Where feldspar porphyry is mineralized, CaO content is elevated from a background of 3-4 weight percent to



BP Minerals Limited

ALYWIN CREEK PROJECT - B.C.

ALKALIS vs SILICA PLOT
DRILL HOLE 84-44

SCALE AS SHOWN		NTS 82F/14W	FIG 19
	DATE NOV. 84	PROJ. 10410	
To accompany report: BPVR 84-46			

over 5 weight percent. Similar enrichment in the adjacent metavolcanics is not evident, perhaps masked by the inherently high CaO content of the metavolcanics. K_2O and SiO_2 display very narrow enrichment zones at the contact between mineralized breccia and metavolcanics. Al_2O_3 and Na_2O display no obvious zonations with respect to the mineralization.

In general, dispersion of major elements laterally away from the mineralized zone is very restricted and therefore not of significance as an exploration tool.

A plot of total alkalis versus silica for drill hole 84-44 samples is shown in Figure 19. Almost all metavolcanic samples fall within the alkaline field, while feldspar porphyry and heterogeneous breccia samples straddle the alkaline-subalkaline line. This suggests that the intrusive phases represent a system that is bordering on the alkaline copper-gold classification.

B. <u>Platinoid Group Analysis</u>

Because breccia-hosted, copper-gold-silver ores are known elsewhere to contain significant contents of platinoid group metals (eg. 100-170 ppb Pt metals in ores of the Allard Stock, LaPlata Mountains, Colorado (Werle, et al, 1984)), select samples of West Zone mineralization were submitted for platinoid group analysis.

Samples were sent to X-Ray Assay Labs in Toronto. Because all samples contained abundant iron sulphides, a nickel sulphide fire assay preconcentration was utilized.

Results, which are as follows, indicate no significant content of platinoid group metals in these gold-copper-silver-bearing samples.

SAMPLE NO.	DRILL HOLD	INTERVAL FROM-TO	INITIAL ASSAY g/t Au/% Cu/g/t Ag	PLATINOID GROUP Pt (ppb)	Ir (ppb)	Os (ppb)	Re (ppb)	Pd (ppb)	Rh (ppb)	Ru (ppb)
840182	84-33	284-286m	5.28/0.64/7.9	<10	0.1	<3	<50	5	<1	<5
840385	84-36	300-302m	46.42/1.45/35.0	10	0.1	<3	30	<5	<1	<5
840405	84-36	340-342m	18.45/3.00/36.0	<10	0.1	<3	25	9	<1	<5
841620	84-39	282-284m	9.10/0.81/13.0	10	<0.1	<3	18	<5	1	<5
841945	84-44	226-228m	6.40/2.15/30.2	10	0.2	<3	<50	<5	<1	<5
841970	84-44	276-278.3m	11.20/1.17/19.9	<10	0.4	<3	41	<5	1	<5

Detection limits are:

Pt	5 ppb
Ir	0.1 ppb
Os	3 ppb
Re	5 ppb
Pd	5 ppb
Rh	1 ppb
Ru	5 ppb

11) REVISIONS TO GEOLOGY

The 1:500 scale surface geologic map (Figure 3) was revised based mainly on additional information from 1984 drilling.

A) Lithology

The main lithologic revision concerns the feldspar porphyry/heterogeneous breccia relationship in the area south of 10,0000N, The feldspar porphyry "plug" is now divided into two main portions separated by a band of heterogeneous breccia. The southern portion, although of significant areal extent, is not deeply-seated and is underlain by metavolcanics at a shallow depth. The northern portion is completely encircled by heterogeneous breccia and it is this morphology which, to a large extent, has controlled distribution of West Zone mineralization.

B) Structure

Recognition of the West Zone as a continuous feature has made it possible to recognize post-mineral faulting which has offset this "marker unit." Post-mineral faults have commonly been intruded by lamprophyre dykes up to several metres in width. The main fault which displaces mineralization is subvertical, strikes northwesterly (parallel to Aylwin Creek), and was cut by drill holes 84-32, 84-33, 84-36, 84-39, 84-45 and 84-46.

Estimated vertical displacement is approximately 50 - 80 metres (see Figures 11, 12, 13). Strike-slip displacement is not recognized and appears improbable.

The possibility of similar fault displacement along Aylwin Creek was investigated. Moderately well-developed, post-mineral clay-gouge zones in drill holes 80-1, 81-12 and 83-29 define a general west-northwest trend along Aylwin Creek for approximately 50 metres. Numerous "cave" zones and associated poor core recovery in drill holes 82-22 and 83-23 suggest continuity of this feature 80 metres further to the northwest. No displacement is recognzied, due mainly to lack of a distinct marker in this area. Southeast of the Aylwin Creek bridge, no evidence of faulting is evident either in outcrop along the creek or in drill holes passing below the creek. This suggests that either the structure northwest of the bridge is very local in extent, or that this structure has been terminated in the vicinity of the bridge. The trace of the northeast-trending Willa shear coincides with this apparent termination.

Occurrence of either post-mineral shears and/or lamprophyre dykes is noted in drill holes where they intersect the vertical projection of the Willa shear (drill holes 80-5, 82-24, 83-27, 83-26, 81-11, 80-1, 83-25, 81-10 and 81-12). Tectonic flattening is common in these zones. As with the Aylwin Creek feature, displacement has not been recognized across the Willa structure.

Stereographic techniques were utilized to derive general trends of well-developed, consistent foliations observed in drill core. The metavolcanics provided the best structural data; foliations generally marked by alignment of medium to coarse-grained brown biotite. Metavolcanic foliation was concluded to strike approximately east-west and dip 35°-60° south. Foliations measured from heterogeneous breccia and feldspar porphyry are quite variable in orientation, probably representing local structurally-controlled deformation or possibly primary flow fabric.

12) CONGO CREEK ZONE

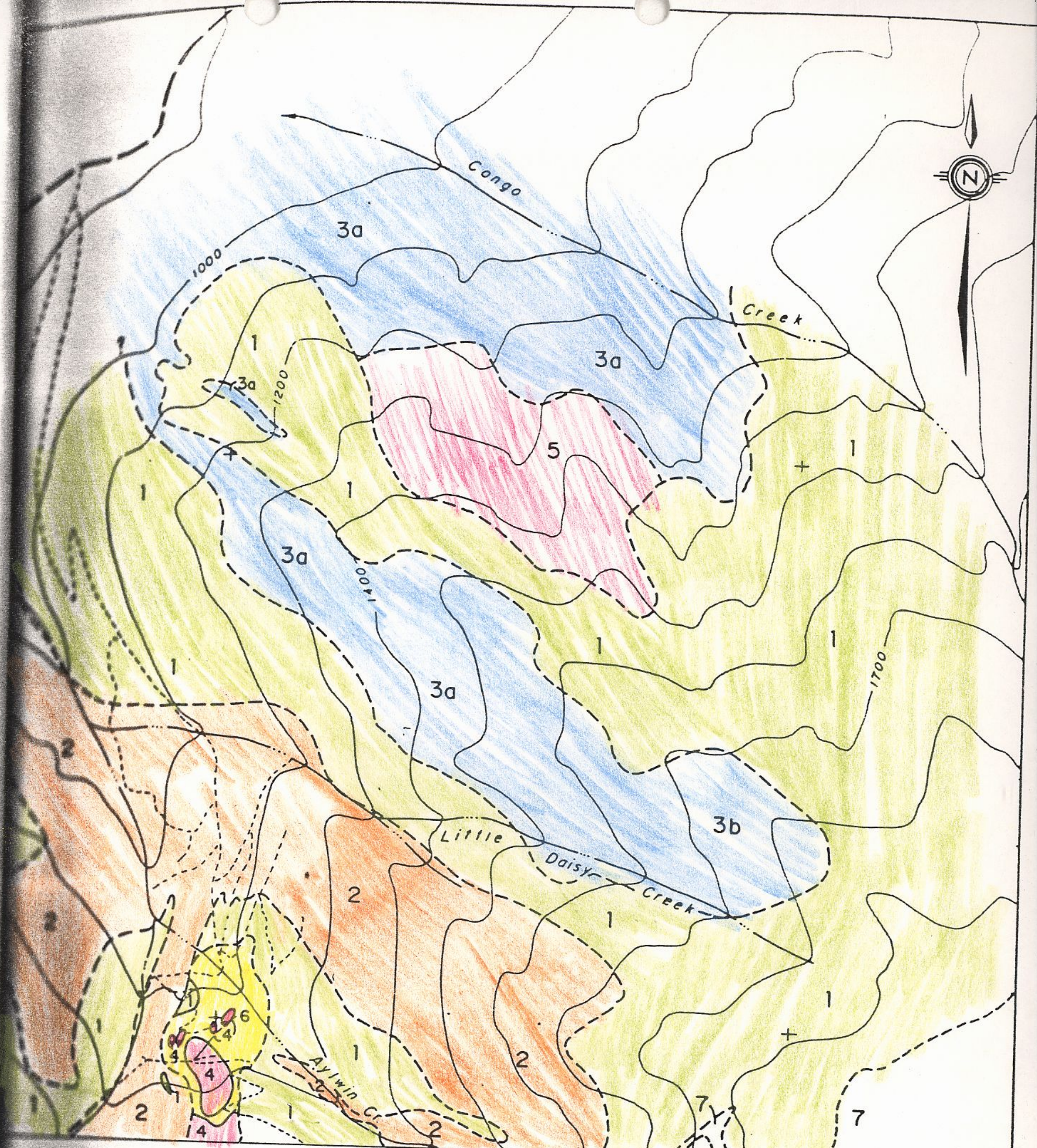
Following recommendations from the report of work in 1983 (Wong, 1984), the Congo Creek area was further investigated in order to determine if an intrusive ring structure similar to that evident in the Aylwin Creek zone exists and if so, does it host intrusive breccia and/or gold-copper-silver mineralization. Lacking an option on the Andaurex claims, field work was confined principally to the BP-Riocanex portion of the Congo Creek area.

A) Geology

A. Findlay spent eleven days mapping the area. Helicopter support was required for approximately half of the traverses and amounted to 4.5 hours total flying time. A total of 22 rock chip samples were collected during traverses.

The following is a brief summation of Findlay's mapping (Figure 21). A more complete report, including petrologic descriptions and a detailed geologic map, is forthcoming and will be appended to this report.

Metavolcanics (Unit 1) within the Congo Creek map area are predominantly plagioclase and hornblende phyric flows with no discernbile bedding. They are typically siliceous and hornfelsed, and contain ubiquitous, often moderately abundant pyrite and pyrrhotite.



LEGEND

- 7 NELSON QUARTZ MONZONITE
- 6 INTRUSIVE BRECCIA
- 5 HORNBLENDE FELDSPAR PORPHYRY
- 4 FELDSPAR PORPHYRY
- 3 3a-WHITE FELDSPAR PORHYRY; 3b-APLITE INTRUSIVE
- 2 QUARTZ LATITE PORPHYRY
- 1 METAVOLCANICS

SELCO DIVISION - BP RESOURCES CANADA LIMITED

CONGO CREEK
AYLWIN CREEK PROJECT - B.C.
GEOLOGY

SCALE 10,000		DRAWN BY:	FIG. 21
DATE DECEMBER 1984		DRAFTED BY: L.G.	
N.T.S. 82 F / 14w	PROJ. 10410	REPORT BPVR 84-46	

White feldspar porphyry (Unit 3a) forms two elongate bodies of somewhat different lithology and unknown relative age and contact relations. Both are composed of rather variable, "crowded" plagioclase-hornblende porphyry: the southern body contains somewhat less plagioclase (typically 20-30% as compared to 30-35%) and less hornblende (5-8% compared to 10-15%). Both white feldspar porphyry bodies are commonly altered with variable destruction of hornblende and replacement of plagioclase by fine-grained quartz, and contain ubiquitous disseminated pyrite. The southernmost body contains generally more abundant pyrite and is, overall, more altered, often to a notably leucocratic rock with very little mafics..

Alaskite (Unit 3b) forms an equant body 300 metres across, composed of fine-grained, generally equigranular highly siliceous material, which typically contains several percent disseminated pyrite but no significant mafics. Contacts between alaskite and white feldspar porphyry are generally obscure, but alaskite locally contains small inclusions or dykes of the coarser-grained white feldspar porphyry. Where sampled, alaskite contains between 40 and 185 ppm arsenic (3,901 ppm arsenic in one sample), but precious and base metal values are low.

Hornblende feldspar porphyry (Unit 5) contains 25-30% plagioclase phenocrysts, up to 7% K-feldspar megacrysts and 15-20% hornblende, and is relatively unaltered. It is apparently the youngest major intrusive within the Congo Creek map area. Stockworks or sheetings, up to several tens of metres across, of sharp-bordered narrow quartz veins cut hornblende feldspar porphyry at several localities. They lack significant sulphides (except for minor galena in spatially associated aplite dykes) and are not obviously geochemically anomalous.

Findlay's mapping uncovered no additional areas of heterogeneous or crackle breccia. Outcrops examined by him provided no obvious evidence for underlying gold-copper-silver mineralization. He concluded that further interest in the area would be dependent on positive results from the accompanying soil geochemical survey.

B) <u>Geochemistry</u>

i) <u>Sample Collection and Analysis</u>

A total of 123 soil samples and three stream sediment samples were collected in conjunction with the geologic mapping. An additional 28 soil samples were collected in the Aylwin Creek area as part of a geochemical orientation survey (see Soil Sample Locations - Figure 22).

difficult in view of the paucity of sampling over many of the areas and sampling is too limited at Aylwin Creek proper to describe regional variations in this area although these are likely for strontium, titanium, phosphorus, barium and probably other elements. Figure 25 summarizes the following patterns:

(1) A manganese-zinc-calcium northwesterly trend following the approximate northern contact of a metavolcanic unit intruded by both hornblende feldspar porphyry and white feldspar porphyry.

(2) A vanadium-titanium pattern having a similar orientation as (1) above but more closely parallelling the metavolcanic unit.

(3) A nickel-cobalt-chromium-potassium-magnesium-barium-titanium pattern having undefined northern, western and southern limits associated with metavolcanic units. Local variations amongst suite elements probably reflects local variations in underlying bedrock.

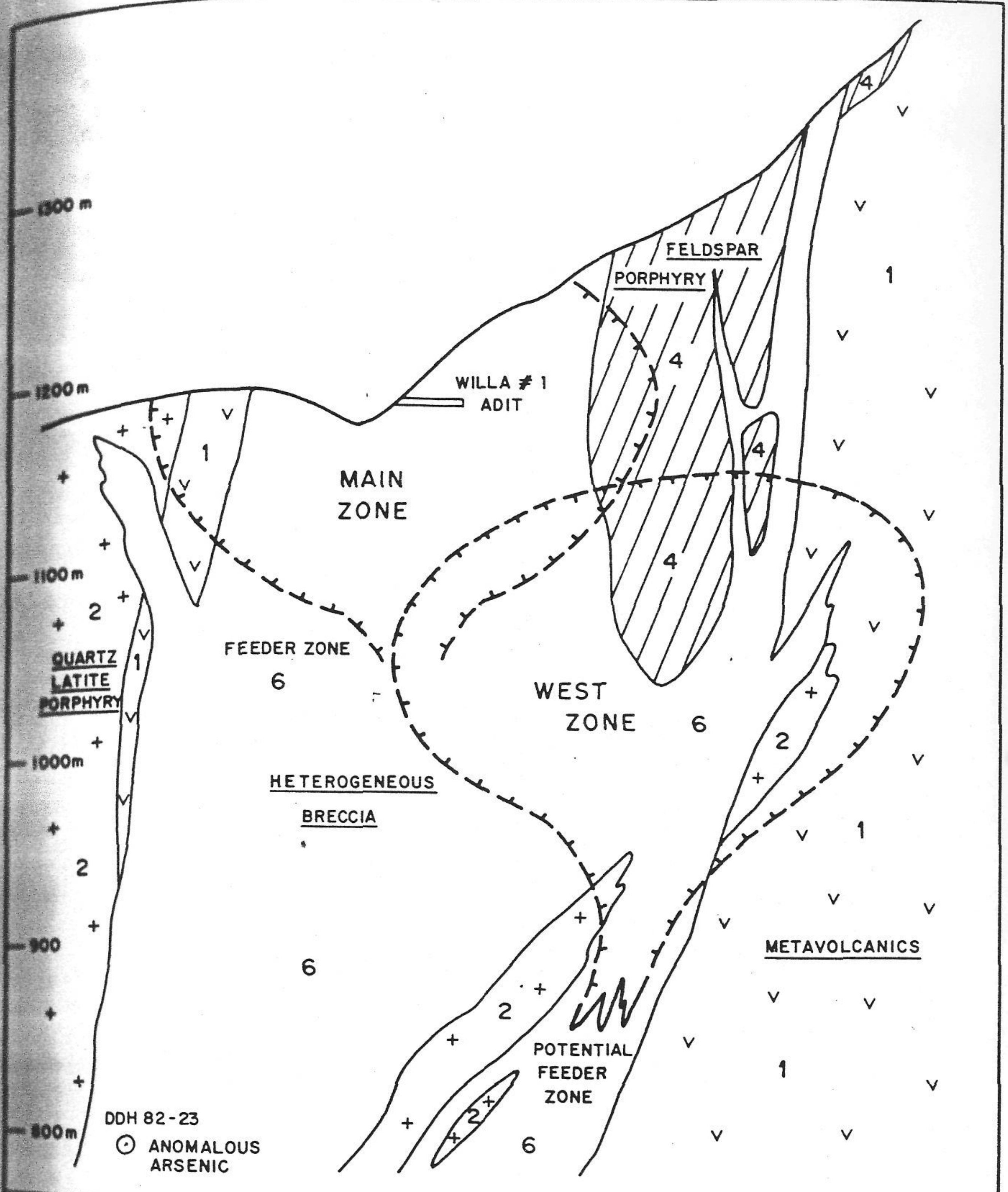
13) CONCLUSIONS

The near surface Main or Willa Zone contains approximately 3.36 million tonnes grading 1.34 g/t gold, 0.32% copper, 4.8 g/t silver. Assays of bulk samples from the Willa No. 1 adit show good correlation with drill hole assays. Potential for the zone to continue at depth, or to increase in gold grade with depth, appears minimal. A higher grade (approximately 3 g/t gold) core exists directly below the Willa adit which may represent a feeder zone that tapped the northern end of the underlying West Zone.

West Zone, as delineated to date, is continuous along an arcuate strike length for approximately 300 metres. Geologic control for the mineralization appears to be a circular fracture zone developed in a roughly symmetrical manner around the main plug of feldspar porphyry. While mineralization is hosted predominantly within heterogeneous breccia, high grade fracture-controlled mineralization also occurs within adjacent metavolcanics and quartz latite porphyry. Estimated reserves to date are approximately 1.8 million tonnes grading 2.93 g/t gold, 0.66% copper, 9.3 g/t silver. This includes a higher grade core of approximately 0.56 million tonnes grading 6.25 g/t gold, 0.94% copper, 13.4 g/t silver. Geologic data suggests that the other segment of this arcuate zone exists. This would increase reserves to approximately 3 million tones of the lower grade and 1 million tonnes of the higher grade material.

Potential for additional reserves in West Zone lies in the delineation of additional fracture zones outboard of the breccia pipe and in delineation of a conceivably higher grade feeder zone. The most logical area for such a feeder zone to exist would be below the "relict" quartz porphyry radial dyke (Figure 28). Drill hole 83-30 was lost shortly after penetrating weak breccia-hosted sulphides on the footwall of this dyke, while drill hole 82-23 yielded highly anomalous arsenic (up to 600 ppm) down-dip along the dyke. Because this postulated feeder zone may possess a very limited cross-sectional area, albeit a potentially large vertical dimension, surface drilling for this feature would be impractical.

Northwesterly-trending faulting has vertically offset a portion of West Zone. Similar displacements are conceivable although not yet recognized, along poorly-defined northeasterly-trending structures.



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AYLWIN PROJECT - B.C.

AYLWIN CREEK
SCHEMATIC LONGITUDINAL SECTION
LOOKING EAST

SCALE As Shown	DRAWN BY: R. WONG	FIG. 28
DATE NOV. 1984	DRAFTED BY: L.G.	
N.T.S. 82 F/14	PROJ. 10410	REPORT BPVR 84-46

LEGEND FOR ALTERATION DESCRIPTIONS

ALTERATION MINERALS

L - Limonite
[illegible] - Chlorite
E - Epidote
Q - Quartz
S - Sericite
C - Clays
B - Secondary biotite
K - K-feldspar
[illegible], Ab - Albite
G - Gypsum
Z - Zeolite
Ga- Garnet
Gs - Green silicates
Cc - Calcite
Ah - Anhydrite

ALTERATION ABUNDANCE

I - Irregular, minor
A - Irregular, abundant
W - Pervasive, weak
M - Pervasive, moderate
P - Pervasive, strong

ALTERATION OCCURRENCE

D - Disseminated
V - Veinlets
F - Fracture envelopes
M - Mineral envelopes
S - Shears
C - Contact zone
A - Amygdules