

85-956-14705

09/86

BETTER RESOURCES LTD. MT. WASHINGTON

PROPERTY

NTS 92F/11 and 14

Nanaimo Mining Division

FILMED

Report prepared for

BETTER RESOURCES LTD.

3431 Bowen Drive
Richmond B.C.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

14,705

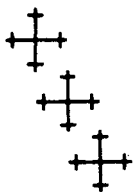
by

K.E. NORTHCOTE AND ASSOCIATES LTD.

Agassiz B.C.

January 5, 1985

K.E. Northcote Ph.D., P.Eng.



K.E. NORTHCOTE AND ASSOCIATES LTD.

- Geological, Mineral Exploration and Mineral Land Use Consultants -

2346 ASHTON ROAD, R.R. 1, AGASSIZ, B.C. V0M 1A0 TELEPHONE (604) 796-2068

K.E. NORTHCOTE, Ph.D., P.ENG.

January 18, 1985

Project 84-2

Better Resources Ltd.
J.F. Bristow
3431 Bowen Drive
Richmond, B.C.
V7C 4C6

Invoice #1075

PROFESSIONAL FEES	\$2 450.00
Nov. 2, 1984 - January 15, 1985 @ \$200/day	\$1 950.00
Petrographic report (Sample description + photos)	500.00

MISCELLANEOUS

Kilometerage	43.75
Assays (MIN-EN)	16.50
Vancouver Petrographics	131.00
Draughting 4 hrs @ 10/hr.	40.00
Report costs Photocopies	17.18
Covers	6.38
Postage	2.76
Typing	50.00
Telephone	16.00
	<u>\$2 773.57</u>

Total (15% bookkeeping charge on out of pocket expenses waived)
\$2 773.57

K.E. Northcote Ph.D., P.Eng.

K.E. NORTHCOTE advised Better Resources Limited that \$973 of the above total is attributable to the collection of samples, background geology, sample preparation, and study of samples, for the petrographic & mineralographic report.

C. G. Bennis, P. Eng.

SUMMARY

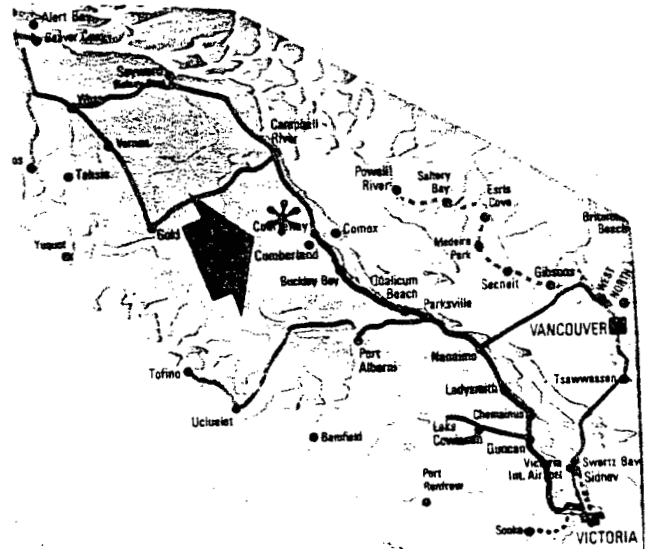
The Mt. Washington property, owned in whole or in part by Better Resources Ltd. is located on Mt. Washington at 49°46'N Latitude, 125°18'W Longitude in the Nanaimo Mining Division, NTS 92F/11 and 14. The property consists of a total of 126 claims, metric units, fractions and Crown Grants. Because this property lies within the E & N Land Grant Better Resources Ltd. have title only to gold and silver values.

Access to the property from Courtenay is by about 22 kilometres of paved and well maintained gravel road and about 6 kilometres of less well maintained logging road.

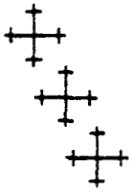
The property is underlain by a sequence of Upper Triassic Karmutsen Formation volcanics unconformably overlain by Lower Cretaceous Nanaimo Group. This succession has been intruded by high level Tertiary plutons, diatreme breccias which also have associated volcanic units. A modified concept of the previous understanding of the geologic framework is developing as new geologic data are being compiled.

Work completed during 1984 by and under supervision of Better Resources Ltd. staff included approximately 1500 feet of diamond drilling, soil and water geochemical surveys, some geological mapping and preliminary petrographic and mineralographic studies.

Most of the gold-arsenic soil geochemical anomalous area of the West Grid remains untested by the 1984 diamond drilling program.



BETTER RESOURCES LIMITED	
LOCATION OF MT. WASHINGTON CLAIMS	
FIGURE: 1	SCALE: 1:125 000
DRAWN BY: PSTOCKLY	DATE: AUG. 84
K.E. NORTHCOTE & ASSOCIATES LTD.	



K.E. NORTHCOTE AND ASSOCIATES LTD.

- Geological, Mineral Exploration and Mineral Land Use Consultants -

2346 ASHTON ROAD, R.R. 1, AGASSIZ, B.C. V0M 1A0 TELEPHONE (604) 796-2068

K.E. NORTHCOTE, Ph.D., P.ENG.

January 5, 1985

James F. Bristow, P.Eng.
President
Better Resources Ltd.
Richmond, B.C.

Dear Jim:

Re: Petrographic and Mineralographic Study of
Rock and Mineralized Specimens from Mount
Washington Property

PETROGRAPHY

Study of thin sections confirmed the presence of biotitic metasandstones which, in outcrop, may have been confused with intrusive sills on the west flank of Mt. Washington ridge. The presence of porphyritic dykes and diffuse impregnations of magmatic material in the sedimentary sequence was confirmed. The lithologic unit overlying the main Domineer zone is a low fragment to matrix ratio breccia of volcanic (Tertiary) origin, possibly a lahar.

MINERALOGRAPHY

Mineralized specimens from the West Grid and Domineer zone have similar mineralogy. Native gold was identified at both zones. Mineralization consists mainly of pyrite, arsenopyrite, with some chalcopyrite, lesser amounts of silver-bearing tetrahedrite/tennantite (generally less than 1%) Traces of pyrrhotite, chalcocite and covellite are also present. West Grid specimens differ somewhat in that bismuth minerals; native bismuth (or bismuth sulphide) and lead-bismuth sulphides were noted as unknowns in polished sections and confirmed as bismuth or bismuth-lead bearing by scanning electron microscope (S.E.M.) Presence of both tetrahedrite and tennantite were confirmed by S.E.M.

Of particular interest is size and association of native gold in two sections, one from Domineer main zone and the second from West Grid zone. Size ranges from $.0025 \text{ mm}$ to $.05 \text{ mm}$ and is not, as was reported by others, found only in gangue but occurs predominantly as minute grains commonly in a number of small clusters unevenly distributed throughout the section within two or three sulphide minerals; pyrite, chalcopyrite and arsenopyrite. See photomicrographs. Other sections of similar mineralogy from the same zone may show no native gold and suggests nugget effect may be significant in small volume assays.

Scanning electron microscope analyses of material from West Grid show that silver values are associated with tetrahedrite/tennantite and amount to an estimated 10% (non quantitative measurement) in native gold. The source of silver values in the Domineer zone has not been confirmed but could be as for West Grid.

The mineralogy of the South Domineer zone differs from the Main Domineer zone in that the former contains more abundant sphalerite and galena. No native gold or silver-bearing minerals (tetrahedrite-tennantite) were positively identified in the one section examined. Study of additional sections of all zones is required.

Suggested Paragenesis

Pyrite	_____	(possibly 2 generations)
Marcasite		_____
Arsenopyrite	_____	
Chalcopyrite		_____	
Tetrahedrite/tennantite			_____
Bismuth or BiS		
Bi Pb S		
Galena			_____
Sphalerite	_____	
Gold		
Chalcocite			_____
Covellite		

K.E. Northcote Ph.D., P.Eng.



MOUNT WASHINGTON
PETROGRAPHY REPORT

DIAMOND DRILL HOLES

DDH 84-8-41.5 Metasandstone, hornfelsed.

Macroscopic

Layered light and medium grey, salt and pepper biotitic. Has a pseudogranitic texture in hand specimen.

Stained slab, no K-spar detected

Microscopic

Grains (-0.1 to 0.5mm)

Quartz; angular to subangular

Feldspar, angular, diffuse outlines, fine granular appearance altered, sericite, biotite, chlorite

Zircon ?

Matrix (-.01 to 0.1mm)

Feldspathic material, very fine granular

Quartz, very fine granular

Biotite- fine fibrous granular, interstitial

Chlorite-fine fibrous, interstitial, radiating bladed, anomalous blue birefringence

Opaques (-.01 to 0.15mm) irregular interstitial and discontinuous along incipient fractures

Texture

Fragmental, angular grains -0.1 to 0.5mm in a very fine granular matrix. The fragmental non granitic nature of the rock is clearly visible in thin section.

DDH 84-11-42

Altered porphyritic impregnation, bleached

Macroscopic

Ghost-like outlines of phenocrysts in a fine altered matrix. Cut by wedge-shaped pyrite vein.

Stained slab shows no K-spar

Microscopic

Phenocrysts/fragments (0.10 to 0.50mm)

Feldspar pseudomorphs-almost completely sericitized, very fine bladed granular appearance

Quartz- few very widely scattered irregular grains. Most quartz present is in form of veinlets.

Matrix

Feldspathic, sericitic, fine granular texture irregular intermixing of the two with some quartz

Opaque (-.01 to .05mm) irregular grains smaller grains are acicular, disseminated

Vein

Pyrite with discontinuous stringers of quartz and sericite.

Texture

Pseudo-porphyritic, sericitized, cut by thin irregular, discontinuous quartz veinlets with some opaques [pyrite]

DDH 84-11-164'

Alteration Zone

Macroscopic

Laminated tightly folded bleached altered rock, very fine grained. Containing a dark (7.0mm) layer in plane of lamination of very fine granular sulphides with other irregular hairline sulphide filled fractures crossing foliation. Porcelainous appearance, hard, dense.

Stained slab no evidence of K-spar

Microscopic

Matrix (-0.01 to 0.02mm)

Sericite and feldspar Very fine granular sericite and feldspar mixture

Quartz- widely scattered slightly coarser irregular grains

Carbonate-very irregular splotches of aggregates of grains

Veins/veinlets-carbonate, diffuse replacement out into wall rock.

Large vein carbonate, minor quartz, mainly opaque (pyrite)

Texture

Very fine bladed/granular mixture of sericite and plagioclase, possible silica, forming a felted groundmass spotted by slightly coarser grained aggregates of feldspar and/or quartz and by aggregates of carbonate grains.

Reflected Light

Pyrite/marcasite intergrowths and colliform banding and composite veining

Pyrite (a) euhedral/subhedral crystals -.01 to .3 mm as isolated crystals and as aggregates of crystals irregularly and disrupted layering by marcasite

(b) very fine "dusty" granular appearance possibly first generation, colliform layering growing out into coarser euhedral to subhedral pyrite/marcasite intergrowths. Some veining or incursions by later generations.

Chalcopyrite (-.01 to several mm) irregular grains and masses

Pyrrhotite (-.01) small blebs in chalcopyrite with sphalerite

Sphalerite traces associated with chalcopyrite

DDH-84-18-9 Porphyritic dyke

Macroscopic

Porphyry, light colored plagioclase phenocrysts 0.5 to 1.5mm in a dark grey fine grained matrix

Stained slab, no K-spar detected

Microscopic

Phenocrysts

Plagioclase; (-0.1 to 1.5mm)

subhedral/euhedral, oscillatory zoning, traces sericite

DDH-84-18-9 (Continued)

Matrix

Biotite; bladed radiating interstitial, brown green
Chlorite; as for biotite, anomalous blue birefringence
Feldspar (-.01 to 0.1)
Quartz- anhedral/euhedral, (0.15mm) clusters of grains
Epidote irregular aggregate masses with chlorite

Texture

Porphyritic, unaltered with probable exception of secondary biotite.

HAND SPECIMENS

84 MW Bx 1 Volcanic porphyritic flow (meta crystal tuff)

Macroscopic

Feldspar and smaller acicular hornblende phenocrysts in an aphanitic brown matrix. Clots of pyrite grains, iron staining
Chalky appearing weathered surface
Stained slab no evidence of K-spar

Microscopic

Phenocrysts

Plagioclase; (-0.1 to 1.5mm), subhedral/euhedral, oscillatory zoning
Hornblende; some alteration to secondary biotite fragmental ragged appearance, corroded margins.
Opaque pyrite, oxidized, scattered

Matrix

Very fine granular (-.01 to .015mm)
Feldspar, very fine anhedral granules
Biotite strong dusting very fine granular biotite

84 MW Bx 1 (Continued)

Texture

Porphyritic- metacrystal tuff? coarser plagioclase phenocrysts with smaller hornblende in a very fine granular (fragmental) matrix of feldspar and secondary biotite.

84 MW VBx 2 Lithic and crystal tuff breccia, metavolcanic

Macroscopic

Lithic and crystal fragments in a medium to dark grey fine matrix
Stained slab, no evidence of K-spar

Microscopic

Fragments (-0.1 to +1 cm)

Lithic fragments, psuedo-porphyritic crystal tuff with plagioclase fragments in a very fine feldspathic matrix

Plagioclase subhedral/euhedral/fragmental, oscillatory zoning

Quartz angular fragments

Matrix (-.01 to 0.1mm)

Feldspathic grains

Quartz

Biotite, very fine felted interstitial groundmass with feldspathic grains, secondary

Texture

Lithic and crystal fragments in a very fine granular groundmass flooded with very fine felted biotite.

84 MW DOM HW Metavolcanic breccia Crystal, lithic tuff breccia

Macroscopic

Lithic, crystal fragments with lithic fragments to several cms in a dark grey matrix, which appears to be hornfels.

Stained slab, no evidence of K-spar.

84 MW DOM HW (Continued)

Microscopic

Fragments (-0.1mm to several cms)

Lithic fragments; psuedoporphyrific crystal tuff with plagioclase crystals/fragments in a very fine feldspathic matrix

Plagioclase; subhedral/euhedral/fragmental oscillatory zoning

Amphibole- few scattered ragged aggregates associated with opaque

Quartz; angular fragments

Matrix

Feldspathic grains

Quartz

Biotite

Opaques- anhedral irregular grains disseminated throughout matrix

Texture

Lithic and crystal fragments in a very fine granular groundmass flooded with felted very fine granular secondary biotite.

84 MW DOM FW Silicified breccia zone Mineralized

Macroscopic

Quartz breccia, altered fragments of wall rock, pods of chalcopyrite and pyrite/arsenopyrite

Stained slab, no evidence of K-spar

Microscopic

Groundmass

Felted swirled mixture of very fine grained feldspar and sericite with slightly coarser anhedral quartz

Scattered segregations of coarser quartz and sericite with associated opaques

Vein

Subhedral to euhedral quartz, (-.01 to 1.0mm) minor sericite

Opaques aggregates of coarse grains interstitial to quartz

MINERALOGRAPHY

84. DOM FW

Minerals Present: Polished thin section consists of approximately 35 to 40% sulphides. In quartz sericite gangue. Percentages indicate percent of total sulphides. Grain-size is measured by calibrated ocular and objective lenses.

Minerals present:

Pyrite 40% (-.01 to several cms), irregular grains to euhedral
Arsenopyrite 50% (-.01 to several cms) euhedral to irregular
grains, inclusive in and interstitial to pyrite
Chalcopyrite -10% (-.01 to 0.8mm) Irregular grains in gangue
and included in arsenopyrite and pyrite
Tetrahedrite/tennantite (-.01 to .05mm) irregular grains with
chalcopyrite. Veining arsenopyrite
Sphalerite (?) (-.01 to .03mm) minute blebs in chalcopyrite
and pyrite
Covellite very small amounts, rimming and veining chalcopyrite
Gold, unconfirmed fleck in gangue (.0075mm), poor polish,
anomalous reflectance

84 LVT - 1 (West Grid)

Minerals Present: Section consists of 80% (+) sulphides. Percentages indicate % of metallic minerals in the section. Grain sizes are measured by calibrated ocular and objective lenses.

Pyrite; 65% (-.01 to several mm) euhedral to anhedral crystals, aggregates of crystals forming irregular masses.

84 LVT -1 (Continued)

Arsenopyrite; 25%, (-.01 to 0.2mm) irregular grains to subhedral crystals, encloses irregular blebs of chalcopyrite and small blebs of bismuth-bismuth sulphide-bismuth lead sulphide.

Chalcopyrite; 5%, (-.01 to 1.0mm) irregular grains in gangue and enclosed in arsenopyrite and cutting arsenopyrite as minute veinlets.

Sphalerite; -5% (-.01 to .05mm) irregular grey blebs darker than tetrahedrite, giving internal reflections.

Tetrahedrite/tennantite; -1% (.01 to .05mm) light grey, isotropic, blebs in arsenopyrite and mutual contacts with arsenopyrite and chalcopyrite. Silver-bearing; confirmed by SEM

Pyrrhotite; traces (-.01 to .03mm) minute pinkish cream, anisotropic blebs in arsenopyrite

Bismuth-lead-sulphide; trace, (.01 to .03mm) anisotropic, light grey blebs in arsenopyrite and chalcopyrite SEM confirmed.

Bismuth (bismuth sulphide?); trace, .02mm. irregular blebs in arsenopyrite

Covellite; trace (.01 to .05mm) irregular masses commonly in gangue or fringing other sulphides

Gold

(a) minute grains in pyrite (-.0025 to .01mm)

(b) minute grains in pyrite (-.01mm) associated with tetrahedrite? BiPbS?

(c) minute grains (.01 to .02mm) in arsenopyrite

(d) minute grains (.01 to .05mm) in chalcopyrite

Note

No silver minerals were noted other than silver bearing tennantite and gold which carries an estimated 10% silver. Non quantitative SEM analyses.

84 LVT-2

Minerals Present: Section consists of composite vein approximately 35% sulphides. Grain size measured by calibrated objective and ocular lenses

Pyrite; 65% (-.01 to several mm) euhedral/anhedral, massive
Arsenopyrite 30% (-.01 to several mm) subhedral/anhedral,

crackled veined by gangue and covellite

Chalcopyrite minor amounts (-1%) (-.01 to 0.8mm) cutting pyrite, associated with tetrahedrite, (tennantite) and chalcocite

Tetrahedrite/tennantite, traces (-.01 to .05mm) interstitial to arsenopyrite and pyrite, in veinlets in pyrite

Covellite; traces irregular stringers and masses in gangue in association with chalcopyrite, arsenopyrite and chalcocite

Chalcocite; (to 0.5mm) irregular masses in and veining pyrite

No gold was identified in this section. Tetrahedrite/tennantite might carry silver values.

84 DOM MS (Domineer Zone)

Minerals Present

Pyrite 55% veined by tetrahedrite, chalcopyrite

Tetrahedrite/tennantite -5% (-.01 to 0.2mm) veining and interstitial to pyrite and arsenopyrite

Chalcopyrite 15% (-.01 to 2.0mm) irregular grains interstitial to pyrite and arsenopyrite. Veins in arsenopyrite

Arsenopyrite 25% (-.01 to +1 mm) euhedral/subhedral, contains blebs of chalcopyrite

Sphalerite; -1% (-0.1 to .5 mm) anhedral, associated with chalcopyrite, exsolution blebs of chalcopyrite, internal reflection and slightly darker than tetrahedrite

Covellite; -1% (-.01 to .3mm) associated with chalcopyrite in gangue as irregular interstitial masses

Gold;

- (a) (3 grains) (.0025 to .015mm) in pyrite, associated with chalcopyrite and arsenopyrite All in the same pyrite grain.
- (b) (1 grain) in pyrite (.0025mm)
- (c) (7 grains) (-.0025 to .01mm) in pyrite with [PbBiS] blebs; associated with chalcopyrite and gangue
- (d) (2 grains) in pyrite (-.0025mm)
- (e) Gold (.03mm) in chalcopyrite, associated with arsenopyrite
- (f) Gold in pyrite, blebs -.0025 to .0075mm, Associated with pale arsenopyrite or PbBiS unidentified
- (g) Gold (.0025 to .005mm) associated with chalcopyrite in and in contact with arsenopyrite
- (h) 8 Gold grains (-.0025 to -.01mm) rounded blebs in pyrite and chalcopyrite associated with arsenopyrite (but not in arsenopyrite)
- (i) 7 small gold grains in pyrite
- (j) 1 Gold fleck (.01mm), isolated irregular grain in arsenopyrite

Texture

Euhedral to anhedral masses of pyrite enclosing euhedral/subhedral arsenopyrite with fracture filling and veining of arsenopyrite by chalcopyrite and to lesser extent pyrite. Tetrahedrite/tennantite rims chalcopyrite, and veins pyrite and arsenopyrite. Includes chalcopyrite. Minor sphalerite with exsolution chalcopyrite

Section contains numerous (+50) minute grains of gold ranging from (-.0025 to 0.1mm) generally as isolated grains in pyrite and to lesser extent, few grains in chalcopyrite in contact with arsenopyrite and less frequently in arsenopyrite

84 DOM S

Microscopic Percentage of sulphides approximately 60% of section

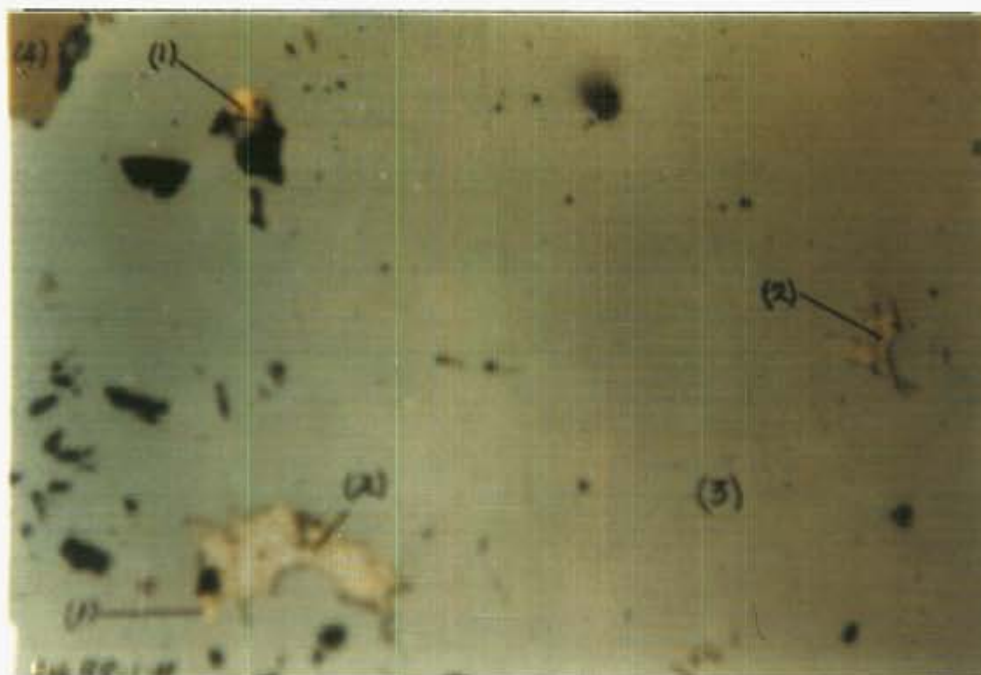
Minerals Present % of total sulphides

Pyrite 65% (-.01 to several mm) subhedral to anhedral grains and large irregular masses composed of aggregates of grains
Arsenopyrite 10% (-.01 to +1.0mm) as free grains and enclosed in and interstitial to pyrite
Sphalerite 15% (-.01 to several mm) irregular masses, exsolved blebs of chalcopyrite interstitial to pyrite, arsenopyrite, galena
Galena -5% (-.01 to 0.6mm) irregular grains and small blebs in sphalerite and pyrite
Chalcopyrite -5% (-.0025 to 0.1mm) as exsolved blebs in sphalerite
Pyrrhotite (?) (-.01 to .03mm) small pinkish cream anisotropic blebs occurring in sphalerite

No native gold or silver minerals (tetrahedrite) were positively identified

(

MS



4 BR-1-11

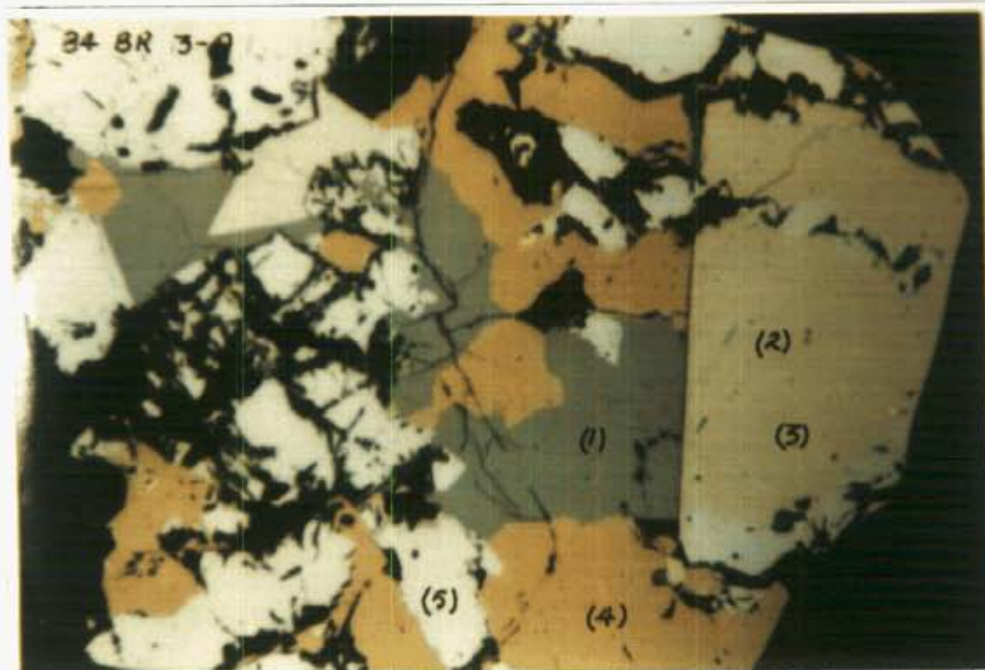
Scale:

0.1mm

X40 objective

West Grid Trench 5

(1) Gold and (2) bismuth (Bi+S?) in (3) arsenopyrite with associated (4) chalcopyrite



84 BR-3-0

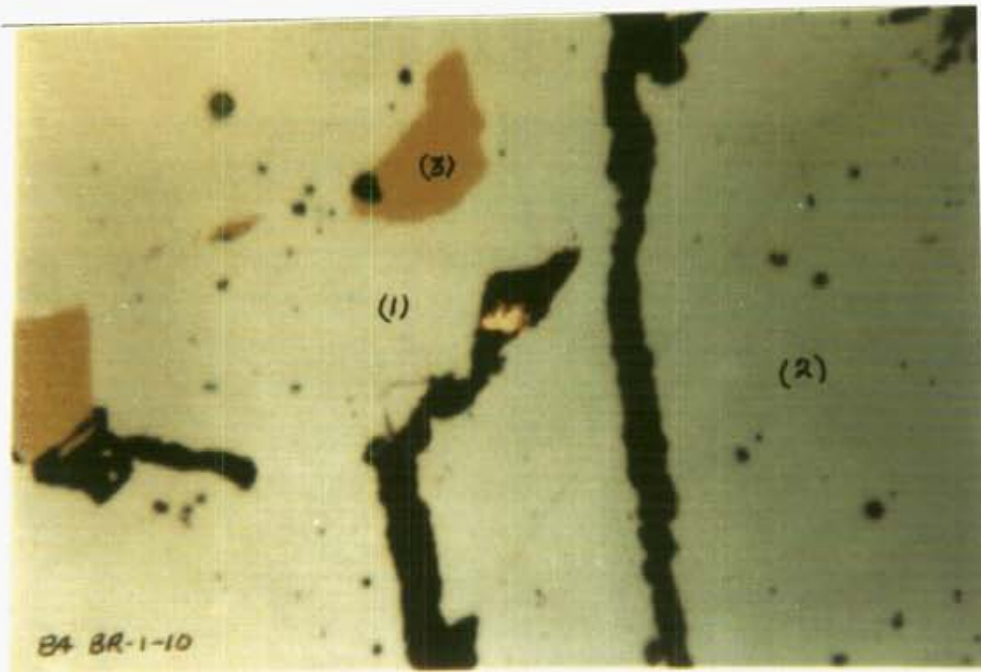
Scale:

0.1mm

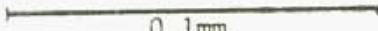
X40 objective

West Grid Trench 5

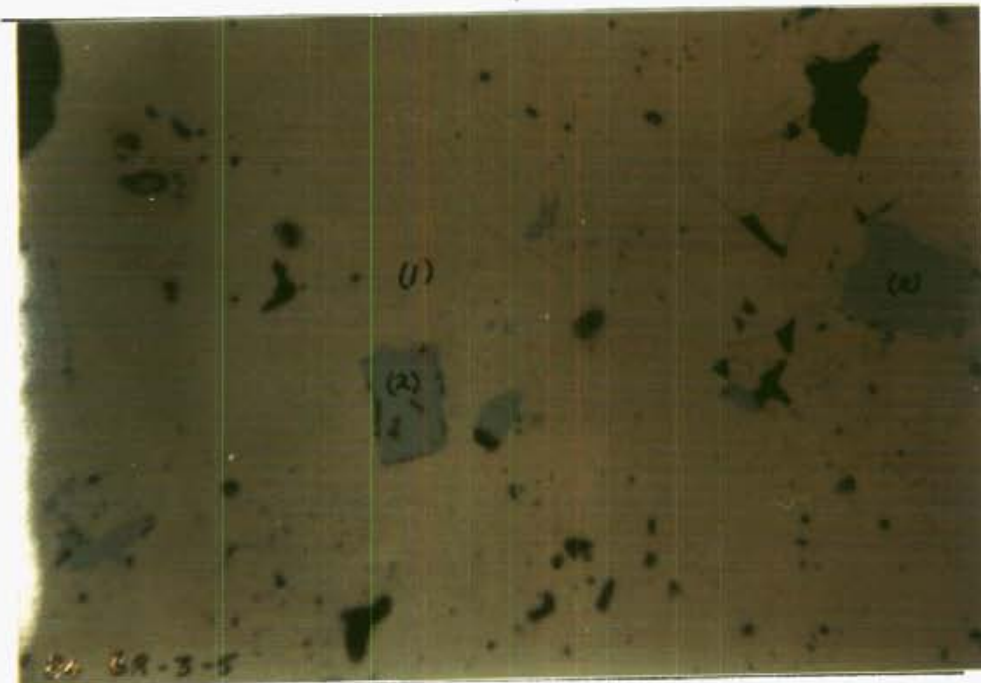
(1) Argentiferous tennantite, in association with (2) pyrite containing blebs of (3) PbBiS (unidentified), associated with (4) chalcopyrite and (5) arsenopyrite. Argentiferous tennantite SEM confirmed.




84 BR-1-10

Scale:  0.1mm
X40 objective

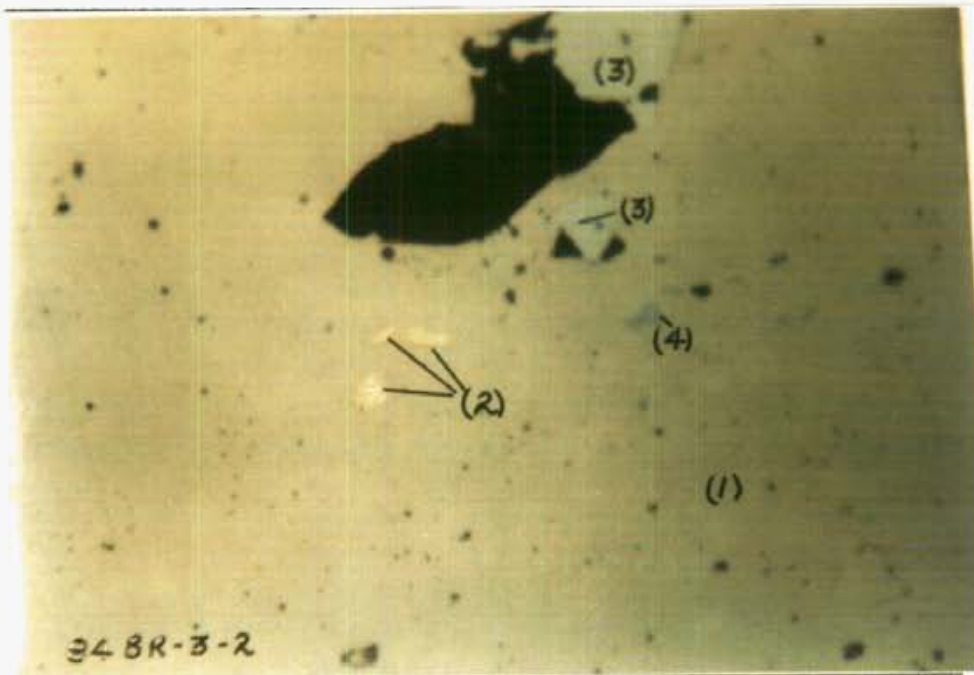
West Grid Trench 5
 (1) Gold in gangue veinlet cutting (2) arsenopyrite
 containing blebs of (3) chalcopyrite.



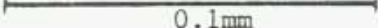
84 BR-3-5

Scale  0.1mm
X40 objective

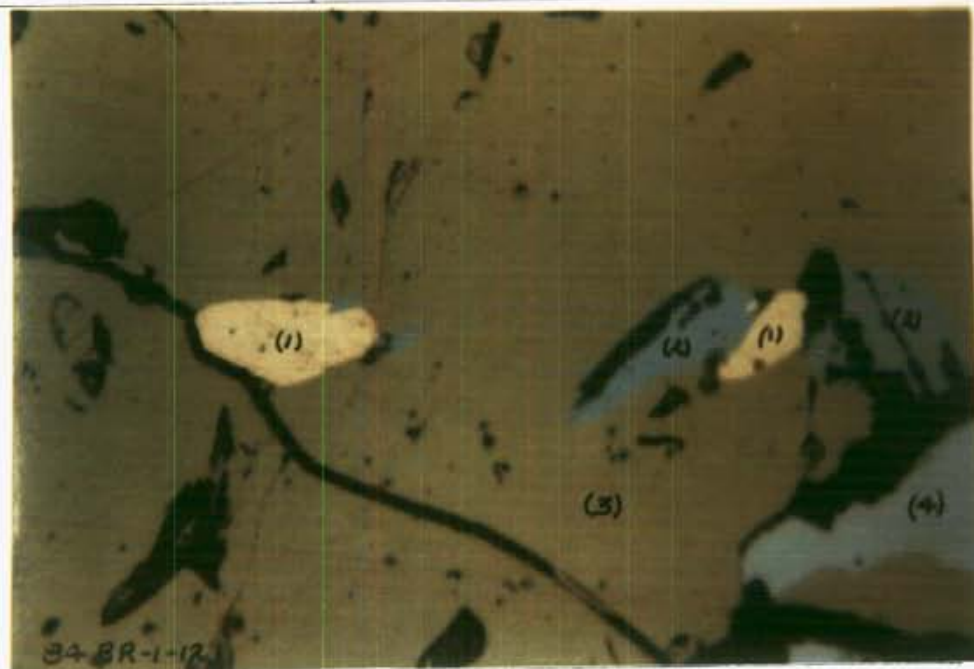
(1) Pyrite groundmass containing (2) PbBiS (unidentified)
 blebs




84 BR-3-2

Scale:  0.1mm
X40 objective

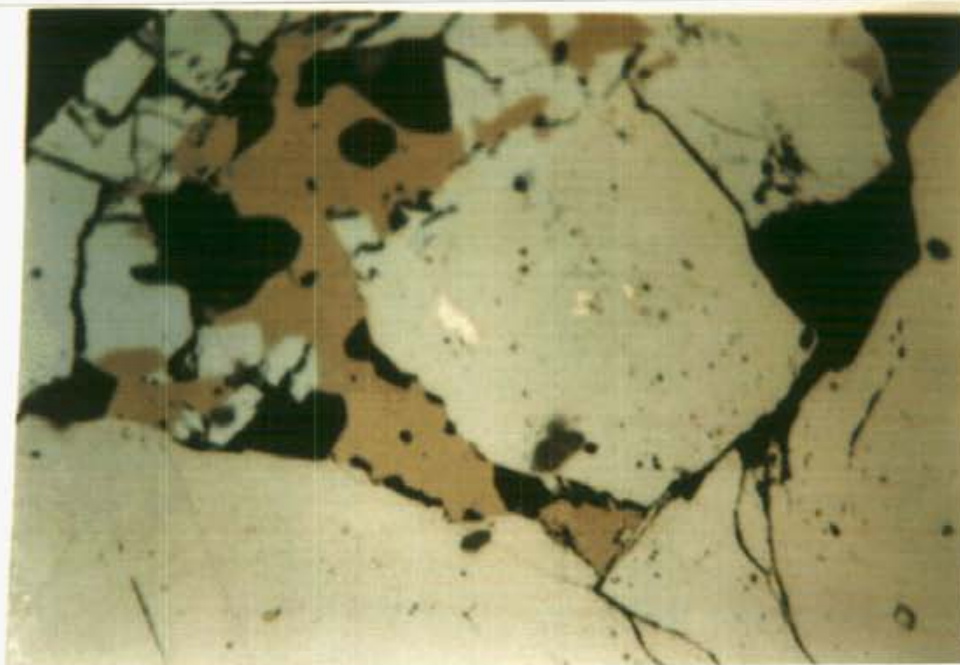
West Grid Trench 5 (84Lu-1)
 (1) Pyrite groundmass containing (2) gold flecks,
 (3) arsenopyrite and (4) BiPb S mineral, (unidentified)
 [SEM confirmed]




84 BR-1-12

Scale:  0.1mm
X40 objective

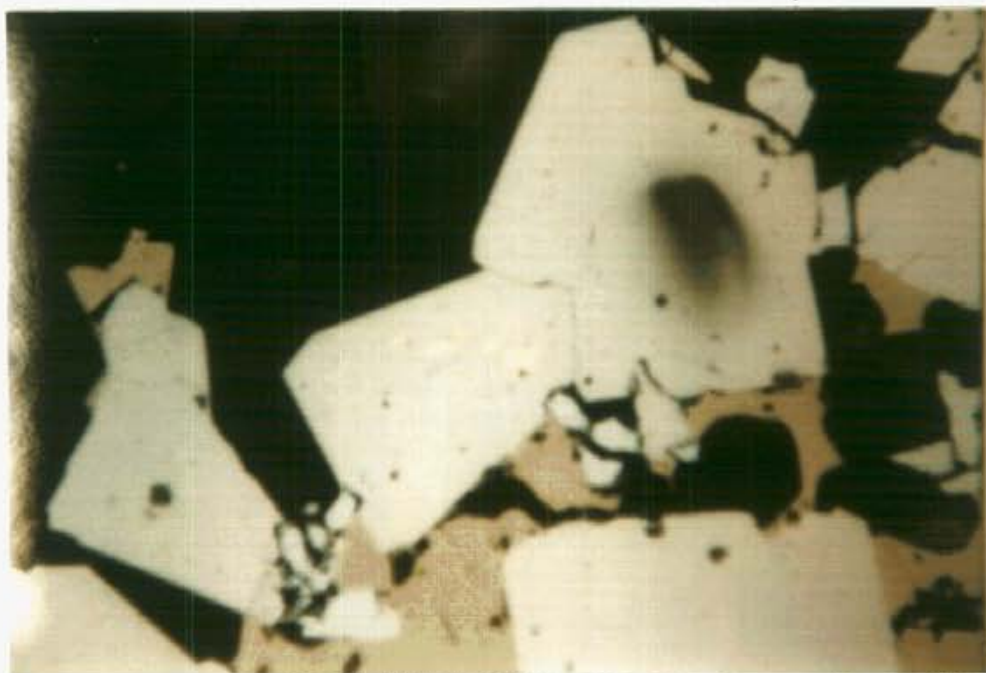
West Grid Trench 5
 (1) Gold (10% Ag) and (2) PbBi S (unidentified) in
 (3) chalcopyrite in association with (4) arsenopyrite




85 KN1-8

Scale  0.1mm
X40 objective

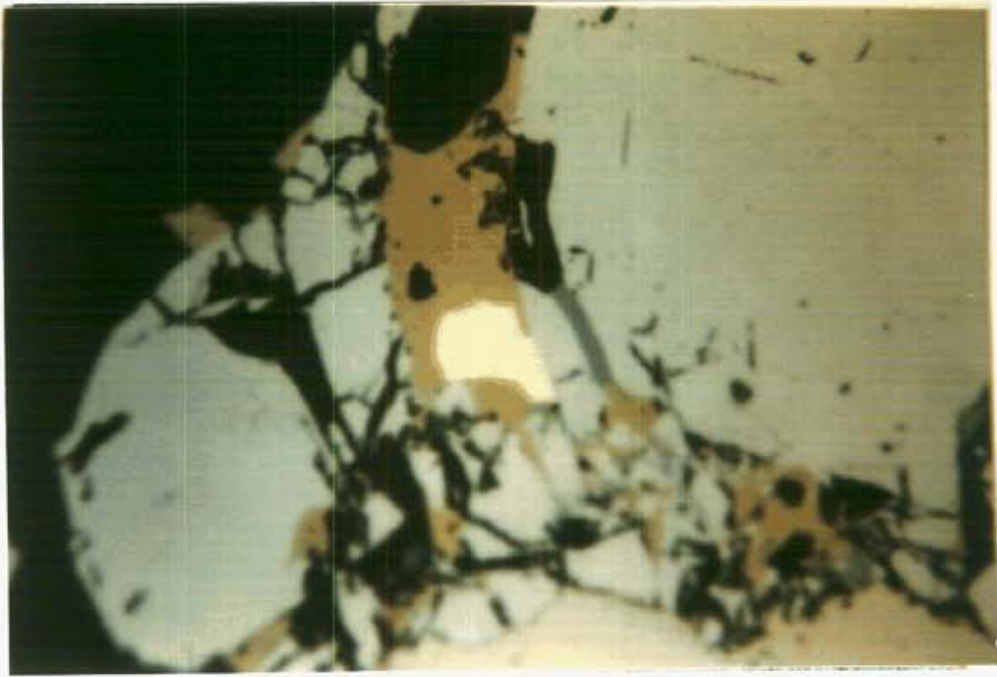
Domineer Massive Sulphide
Three grains gold in pyrite associated with chalcopyrite and
arsenopyrite



85 KN1-9

Scale  0.1mm
X40 objective

Domineer Massive Sulphide
Seven grains of gold in pyrite associated with PbBiS blebs;
with chalcopyrite (arsenopyrite) and gangue



85-KN 1-10

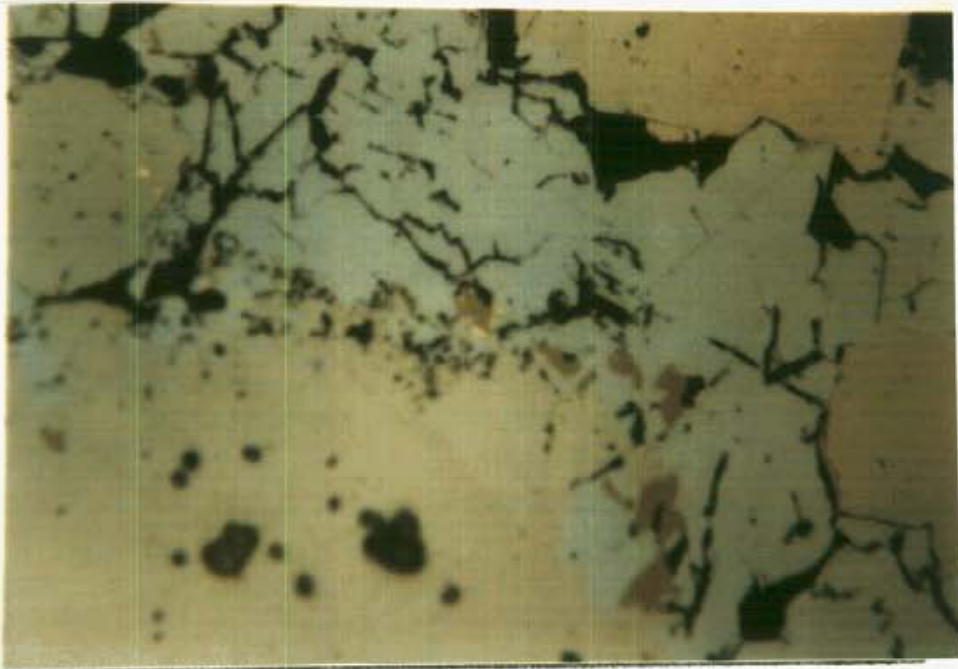
Scale

0.1mm

X40 objective

Domineer Massive Sulphide

Gold grain .03 mm in chalcopyrite associated with arsenopyrite cut by tetrahedrite.



85-KN 1-11

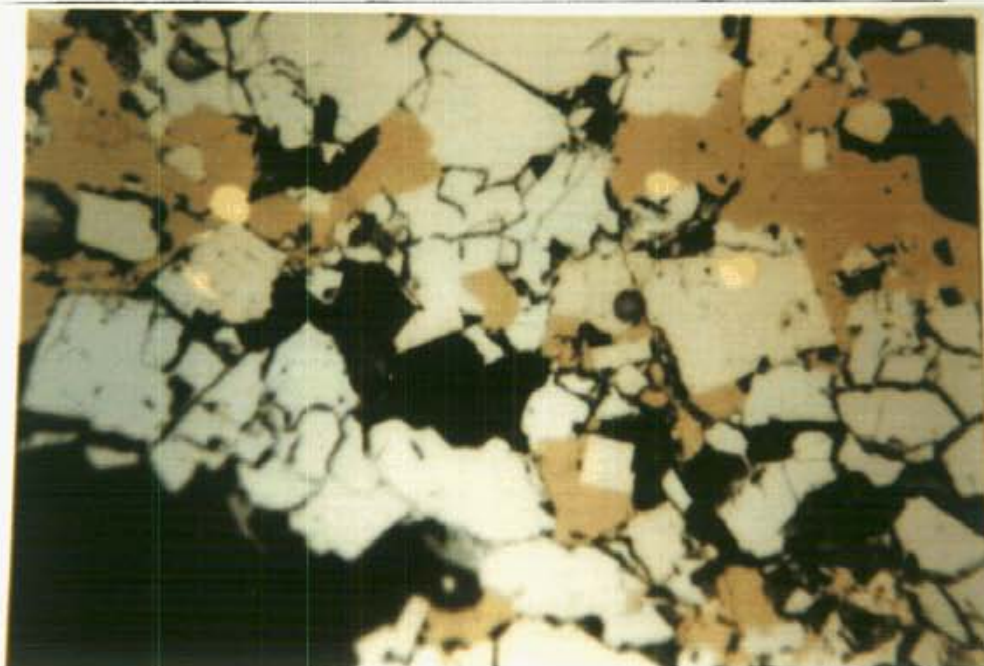
Scale

0.1mm

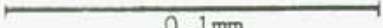
X40 objective

Domineer Massive Sulphide

Gold grains .0025 to .005 mm in pyrite and in association with chalcopyrite and arsenopyrite.

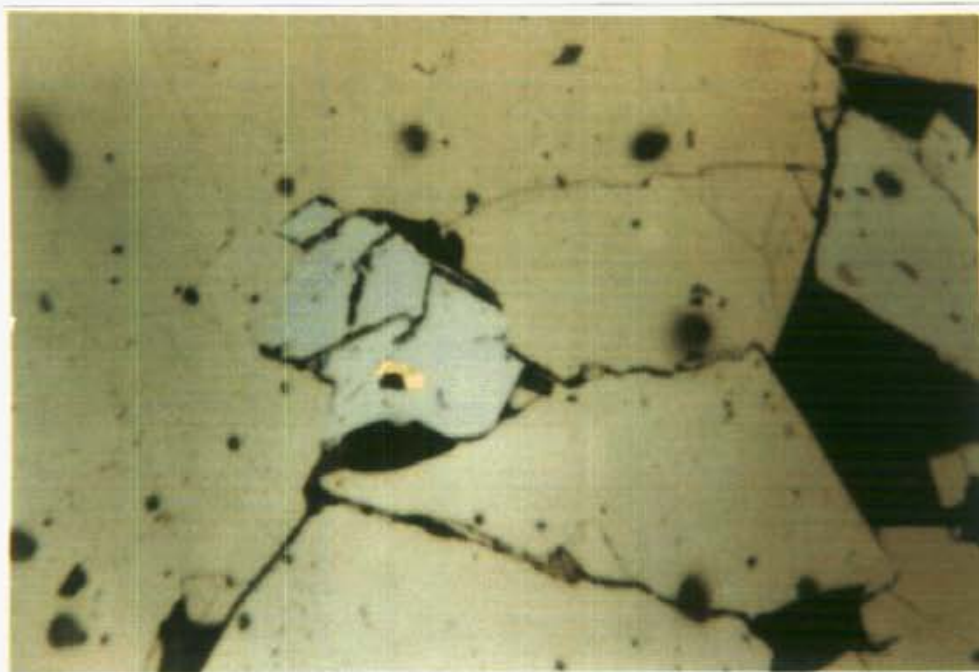


85 KN 1-12


Scale  0.1mm
X40 objective

Domineer Massive Sulphide

Gold grains \sim .01 to 0.01 mm in pyrite and chalcopyrite,
associated with but not in arsenopyrite



85 KN 1-13

Scale  0.1mm
X40 objective

Domineer Massive Sulphide

Gold grain .01 mm as isolated grain in arsenopyrite

CERTIFICATE

I, Kenneth E. Northcote of 2346 Ashton Road, R.R. #1, Agassiz B.C. do hereby certify that:

- 1] I have been practising as a professional geologist for a period of approximately 25 years for petroleum exploration companies, mining exploration and consulting companies, federal and provincial agencies.
- 2] I obtained a Ph.D. in geology from U.B.C. in 1968 and qualified for registration with the Association of Professional Engineers of B.C. in 1967.
- 3] This report is a result of my personal knowledge of the geology of the Mt. Washington Area acquired since 1968 and as a result of four days September 17 to 20, 1984 spent examining the property. All pertinent data obtained by Better Resources Ltd. pertaining to the Mt. Washington property has been reviewed by me and in addition 1984 diamond drill core was examined October 10 and 11, 1984.
- 4] I have not now nor expect to obtain any interest in properties or securities of Better Resources Ltd.
- 5] I consent to the use of this report in, or in connection with, a prospectus relating to the raising of funds.

Dated at Agassiz, B.C. this 16 day of January, 1985

K.E. Northcote Ph.D. P. Eng.



