FIELD NOTES 1985

896431

1985

Field Notes

NOTE Xeroxed - copies filed by property

1985

— CONTENTS —

page

1. Visit to Goldenlatch, Hannanatch Gold property (with G. Ray + K. Dawson) — 85-1 (85/5/29)

2. Nickel Plate Mine visit (w. G. Ray + K. Dawson) — 85-4 (85/5/30)

3. Hedley Area Tour with G Ray, V. Pacto, J. Monger + N. Mortimer — 85-13 (85/6/18)

4. Nicola Belt Tour Two Days — 85-16 (85/6/19, 20)

WHITEHORSE TRIP

5. Venus Mine Visit — 85-19 (85/7/7)

6. Skookum Mountain Trip — 85-24 (85/7/8)

THEN TO SQUAAM BAY

7. REA Deposit Visit — 85-28 (85/7/10)

8. Homestake Deposit Tour — 85-31 (85/7/10)

9. Burke Ck + Chu Chua — 85-32 (85/7/11)

- DIARY -

85/7/8

Cloudy to Sunny

Travelled Whitehorse via highway southward then along the Wheaton River road past Annie Lake

To get to Skookum, went up Creek.

The Mine tour was led by Bruce McDonald and Monica Pride. Mine Manager was Jim —

We went underground but the raise (350' at +49°) was too dangerous to go up.

Then we went up to the surface showings (Brandy Zone) + looked at drill core.

Photos taken looking to the camp - note orange pyrophyllite - alunite zone near the ridge.

Then we went to Mt Anderson (gold in qtz veins in granite - some gal sphal cpy)

I stayed with Jim Morin & Monica Pride - unfortunately the hub seized so we are sitting here hoping that the others will notice that we are missing. It has been 1½ hours so far

July 11/85

Up at ~6:30, breakfast with Burke, Francoise, Peter + Vic.

Met Alex Davidson, Ian Pirie + helper (Peter) at ~8AM - then drove up through Barriere to Barker Ck road (turnoff near south Barriere Lake). Followed Barker Ck road to just beyond the bridge (~km 10 on signs) + visited the Rainbow + Barker Creek stratabound pyrite deposits (see notes). We lunched at the bridge (near a black hornets' nest) then split up with the Corp Falconbridge crew. Vic and I went to Chu Chua to

look at the newer drill core (holes CC 48 or 49 to 59). Holes 50 to 53 inclusive were missing.

We had an interesting time getting up the hill because we had M228 (2 Wheel Drive) and it is steep and a loose base. The trip down was easier.

We stopped at Burke Creek bridge for a wash + changed clothes.

After driving to Kamloops we dropped the baggage off, went to Pizza Hut for dinner and then went to the airport.

We met Robert Lange at the airport.

— FIELD —

1985

— NOTES —

Ken Dawson comments
early pyrrho
late pyrite as 5 conc
goes up in late rocks

actin rims (replaces?)
garnet masses?

Gold / Silver ≃ 1:1

Contents

page

85/8/16 Travel to Horsefly to visit A Pantelayev

85/8/17 Touring map - area near Shiko Lake & visit to Bullion pit with Andre 85-36

85/8/18 Travel Prince George to Eddontenajon (met D. MacIntyre in Smithers)

85/8/19 Travelled to Mt Klappen camp (Gulf) and toured succession with J. Koo 85-41

Dease Lake To Ranchería

85/8/21 Mt Klappan to Midway 85-48
- Midway Tour
To Watson Lk (met Ron Smyth)

85/8/23 Cassiar Tour & overnight stay 85-62

85/8/24 Erickson Tour 85-69
Travelled to Stewart

85/8/25 Silbak Premier Tour 85-75

85/8/26 Stratigraphy Tour - Stewart Project 85-89

85/9/17 Tillicum Gold 85-90

85/9/18 Alyworn Creek Gold 85-92

HANNANATCH or

85-1
~~84-85~~
85-5-29

GOLDENLATCH Gold Property

Hudson Bay M+S Leo Lindinger
Paul Torreggiani

Skarn gar bio qtz pyrrho - rel
~~g~~ coarse grained - minor cpy

Thinly layered calc silicate chl
actin pyrrho skarn cut by white
qtz - ~~cal~~ - py veins
albite? carbonate?

Biotite skarn with pink (garnet?)
layers - Gerry - sample for xray

Minlzn best in crackle vein zones
with pyrite arsens
gold in altered rock adjac.
to veins

Early qtz sweats in layering is locally
folded + cut by later, undeformed
veins with sulphide-rich borders.
Host rock bleached ~~adjacent~~ in
~~to~~ late crackle vein zones

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

most common rock - black
gray qtz sweats - some look
folded - laminated, slips
pyrrho dissem blebs.

minlzn crackled zone bleached
(bio → ser?) with stockwk
qtz veins that have pockets
of arsens + py + uncommon
flakey sericite pockets. Veins
cut also by sulphide veinlets.

* Skarns have very low or no
gold - stockwork zones
are the gold hosts

Stockworks developed in
skarns + locally in the
CR that is not skarned

local talc schist with local carbonate knots

Qtz MoS_2 py. veins have dissem muscovite flakes + minimal alter halos

- cut by hairline qtz - brown mineral veinlets.

Sulphides in laminae here are converted to pyrite (not magnetic)

- FOLLOWED A POOR, MUDDY ROAD up over the hill & down to their camp - very unpleasant!

Road below camp

Skarns of act → bio → garnet types

Qtz veined - qtz + plag ?

- qtz

- qtz sulphide

sheared qtz - bio schist

Some qtz veins folded on scale

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Work done

mag

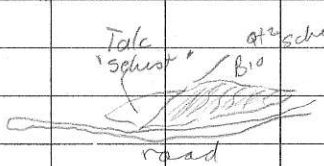
EM 16

soil geochem

6 drill holes

2 in 85

4 Before



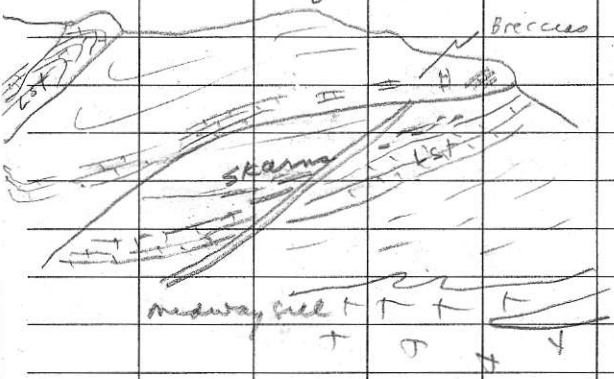
PLAN

R. D. PENHALL LTD.
OUKSBAK WATERPROOF
MADE IN B.C.

84-85
85-3

* turnoff ≈ 2 km east
of Hedley

Other visitors
Larry Meinert Washington State U
Cnt Hettlinger



sill + dyke zone extensive +
continues beyond skarns

85-4
~~84-88~~
85/5/30

Nickel Plate Ron Simpson
Bill Wilkinson

Stratigraphy Nicola
Sunnyside Lst early Norian
Bulldog Portal
Copperfield Lst Bx - Karnian
(a thrust sheet?)
- is on top of everything

Nickel Plate Fmn 1200 - 1500'
units - Bottom Sunnyside Lst
marble line - skarn → lst

Copperfield Bx
matrix tuff. to qtz sandstone
large Lst blocks

Skarning - not necessarily
skarn ~600' thick
* French Mine - no gd but
another skarn gold deposit

Good Hope - similar skarn to
Nickel Plate

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Vanc Id / Charlottes

Na in skarns → protolyth composition

/

interlayered volcs + carbonates

Mg moved around

Ca moved around

Ti - problem - metasomatic sphene + rutile

some '1st' could be altered
vol rock

Skarn High Fe/Mg 19% / 2 to 3%

Sills in drill section ~ 20%
of the section

Sills - all ~ the same

* Midway sill was interpreted
to

Bill - Chert Bx - continued deep
into the Mine - looks both
strateform and injected -
could be a diatreme

- Dykes + sills altered to
endoskarns - diopside
Tremolite + bleached

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Dick interprets the Copperfield Bx as a diatreme -
copperfield not skarned but similar rocks to the south are skarned (Ron the skarned one is a tuff bx)

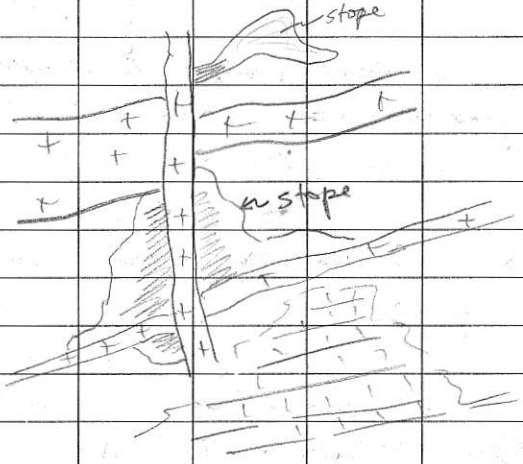
Chert Bx - betwn the upper & lower 'purple' ore zones

Zone on W limb of anticline that trends W of N; plunge 25-30°
ore shoots localized by minor folds, sills & dykes
- prox. to marble/skarn transition
- Dykes common in fold axial planes

Ken similarities to Mexican mantos?
Perhaps - because follow dyke contacts

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Section



ore shoots up dykes & along sills (up to 500')

Hard Garnet pyrox skarn

Ore

Lst transition

ORE IN GARNET PYROX. SKARNS

Have massive sulphide lenses pyrrho cpy spal in calcate pyrox skarn

Ore zones were massive arseno-pyrite

Gold at edges of skarn zone & later ① arseno (local py)
② Gold - surrounded by
③ Bi Telluride (Hedleyite)
④ cpy py pyrrho? spha

Amount of gold not directly related to amount of arseno but they occur together
Gold in & at edges of arseno

Late Dykes - pyrrho bry Brown dykes
Tertiary? - Bleach dykes

R. D. PENHALL LTD. DUKSBURY KEEPPROOF MADE IN B.C.

main skarn - main ore elements

garnet - grossularitic

pyrox Hedenbergite?

Gold Electrum mainly

Manganese = low in analyses -

also calcite pyrox skarn

zones - Bulldog (loc >1% Cu)

- Sunnyside

Assoc Arseno Tellurides

local high Cd

Copper brg horizons to the north

Could be Cu + Ag zoning

Ag with Cpy

Gold Silver ratios

avg 0.4 oz Au

0.04 oz Ag ~10/1 = Au/Ag

Higher Cu seems to be near the edges

Py / Pyrrho - no clear zoning

Sills are bent around folds but cut across at a low ∡ ie some folding before - some after.

Galena - very uncommon

Intrusive stock 189(?) Ma

other choices

Pb in sphal or telluride

Scapolite - Billingsley thought it was an ore indicator

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Plan

in 5600 adit

Down shaft to stopes

Back along 450 level

— Underground Tour —

walked in to top of decline
- rock there is green fg silic.

ALEVEL

STOP 1 Silic skarn - layered green
& white on 1-2 cm scale
shallow dip / pink garnet - rich
layers
0.086 oz Au
0.05 Ag
1.2% As

struct underlying is ~1 m of
more massive garnet skarn
sulphide blebs in layering -
pyrrho
Skarn diopside - rich

STOP 2 Typical LG 0.118 Au
dissem arsenopyrite
in garnet pyrox skarn
sample A04
garnet pods & layers
Higher grade arseno wells
w course calcite
pods

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Generally the stopes
heal up with no
need for backing

Overlooking large stope
standing in 'lower purple'
Chert bx above then
upper purple
at N end of ore zone
~~walked down to the 200 level~~
Chert Bx locally will mineral
but details not known so not
sure if pre or post ore but
apparently pre-ore

Walked down to the 200 level

deep oxidized ore (1 oz Au low Ag)
of the 'Yellow' band
This ore is the lowest
band above the skarn / 1st
contact

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Midway Sill - more bleached?

HG in footwall ~~but~~ and also
fg layered - looking silic
vx at base
possibly chilled base

contact

silic, layered edge probably
an alteration feature related
to dyking.
ORANGE zone - ~ at base of
Midway sill here

STOP
450 level outside border of Nickel
plate zone near S dyke
chert bx & layered skarned
seds and spheroidal
wtd zone
also spheroidal clasts in the
bx (sample)
- one igneous - looking frag
in the bx
- bx stratabound?

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Ottawa

Mario Bonardi

work on Garnets

Mineralogist

Econ Geol + Min.

GSC

601 Booth St

K1A 0E8

(N 7)

85-12

450 level near Sunnyside
450 zone (4563 drift)
marble line - x/line gray - white
marble interlayered with
skarn
no minlyn below this
level unless adjacent
to a dyke where 'Keels'
extend below sometimes

N450A Stope Dyke & HG

Walked up a decline & out
the Sunnyside 4 glory hole

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

85-13

85/6/18

Tour - Hedley area w. J Monger

up Whistle Creek

Loop I saw ~~Spen~~ Nicola argillite

- bedded to massive

then plag ppy andesite -

massive - possibly intrusion?

then flattened ash flow

tuff - Spences Bridge

- apparently cut by pink

qtz eye dykes

Loop 2 Through Ashnola IR 10

Nicola argillite - small scale

faults, graded

- Black argillite with white

wtrg tuffac. layers

give way up the road

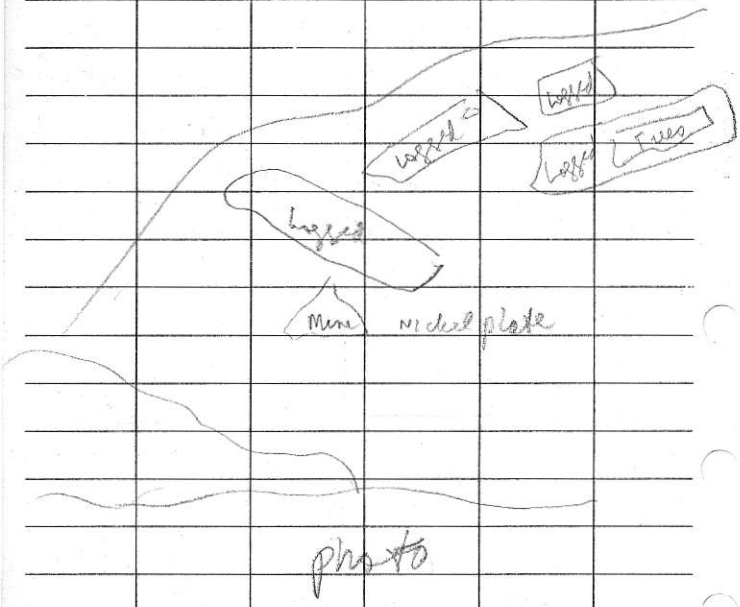
to argillite with pale gray

mottled zones that look cherty

then pale gray 'chert' with

dissem sulphides.

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.



photo

then bleached white wtrg
volc bx with red garnet
in the matrix + some epidote
— garnet skarn —
Rusty wtrg sulphide brg zones

Then dk gray feldspathic lapilli
tuff
clasts aphanitic to ppytic
NOT SKARN — Spences Bridge ?

Top of Hill Microwave Tower
med gray silic looking
feldspathic rock with
fine dissem garnets
+ some biotite

near the top — lots of sped
knots and the rock is
volc bx with mainly
fs ppy frags.
other alt minerals
— actenolite
— biotite ?
Local lot clasts — on thin calc skarn layer

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

also epidote veins on fractures
as well as post - altn (?)
dark gray fs ppy dykes - uneven,
fracture controlled
contacts

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

85/6/19

NICOLA BELT - Vic Preto

1. Unconformity Princeton
Lake seds lap on basic
Nicola Volcs

2. Age 112 Ma Rb/Sr - green
amyg plag andesite, tuff
+ tuff bx
Monger - Spences Bridge
metam grade rel low
- some of the tuffs have
flattened clasts
- possibly subaerial
- barren of sulphides
- epidote uncommon

3 Dacitic Ash flow tuffs -
locally welded nicely

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

4 Analcite trachybasalt
very fresh - looking -
cut by calcite - epidote
veins with minor assoc.
malachite

5. Near ~~Alleyne~~ Messezeula Lake
Tuff Bx - amyg to avg ppy
clasts, many are rounded.
- reddish brown
- relatively fresh

- then to an area adjacent to a
syenite stock to look at
fragmentals with many syenite
clasts - local lst lenses
(Eastern Belt) CONODONT SAMPLES
- lunch -

Miner Lake area to see
Bomb Bx
Lahar
Flows

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

To Kane Valley Road then
to check unit 11

STOP - Tuff - bedded on cm scale

Iron Mtn -
ash flow tuff - rhy +
chl clasts pink
(sample) flow bands
Flattened
photo

Lunch -
Lot locality 1 lower unit
gritty lot
locality 2 upper unit
cleaner lot
CONODONTS ?
CONODONTS ?

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

85-19

85/7/7

Whitehorse - Trip to Venus Gold Mine at Pooly Ck, Windy Arm

Guides Jim Morin

Sarah ___

(used to work with Pete Fox)

Group Me Vic Tom Brent McInnes student McMaster

Doug Rucker student (Edmonton)

Jim Morin LORI WALTON - Tour guide

VENUS - Windy arm of Tagish Lake

Mt Nansen Lat K - Host

lie on Atlin Terrain

Gently dipping and, some bx toward East

Vein dips gently west

Reserves April 85

68000 Tons 0.32 Au

8.9 Ag

2.5 % Pb

1.5 % Zn

.42 Au

10.6 Ag

2.7 Pb

1.3 Zn

2850 Level (upper level) + 15000 Tons added by expln in '84

13400 Tons stockpiled .17 Au 4.3 Ag

R. D. PENHALL LTD. DUKSBAK WATERPROOF MADE IN B.C.

Discovery early 1900

1970 Mill built 300 TPD - too much

1979/80 KENO HILL CAME IN
Mill built in B.C. 100 TPD
Price went down so

Expln best by expln drifting -
drilling very tricky because ore
in small shoots

104 claims - ~25 showings
① Veins Au/Ag ratio lower
VENUS URANUS
× biggest
mineralogy Ag Py
+Base Metals - Sp gal qtz
single, banded, alter halos

② Disconfm Ag - rich - grey ore
gtz argentite tetrahedrite
- small tonnage

Pluton - younger but hosts some polymetallic sulphide veins

Dating of volcs not really done

Thesis - Geostats of Venus - UBC

Gold increases upward silver sporadic

Other components
Cd - in sphalerite
Sb - pyrargyrite
Cu - Tetrahedrite
Th - increases in wallrock with elevation (range 20 to 100 ppm)

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Tour

Vein 35° dip into hill

2850 level → 2

Go in 2700, then up to 2850

2850 - includes new workings

ORE PETROLOGY

① As Py - carries higher gold

② sphal gal - more ag

BUT gal replaces py & in fr. in

~~[illegible]~~ arseno & py

gal with gold!

Gold between arseno grains

VAP - two phases of galena?

Arseno. & py fractured &

smeared, quartz in fracts.

VEIN - banded qtz - sulphide -

cm scale

gal - qtz - ars. layers

Fluid inclusions - small CO_2 brg

Tom - Yukonite - amorphous arsenic mineral

Altn - mainly silicification
- pyritization
- carbonatization
- Coulire area with clay altn

North part of veen - good ore shoots, better grades
South part - oxidized, fetid, discontinuous
OX DN 250 - 300' deep - all gold & silver gone in oxide zones.

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Vein tested for 1300 feet down dip. Au 0.13 oz at depth & not economic

* the rhyolite described in Root's report is a felsic dyke

Veins have wallrock inclusions, sometimes smeared out

2700 level STOP 1 - Main VENUS vein

layers of sulphide coarse cockscomb gtz

vuggy

borders "gradational"

& there is series of veins 1m to 2 cm wide with rock selvedges between

85-22

selvedges pale gray - silic
ified with diss. py

at 2800 level N end there is
clay altn + pods of sulphide

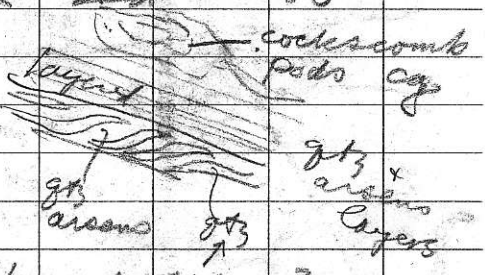
- quartz is missing -
low pH altn?

UP TO 2850 level - head
south then north

south end - vein pinching out
rock shattered fault gouge
stringers of YUKON ITE
slickensides
- oxidized, rusty -
vein qtz arsenopyrite
some py
realgar/orpiment

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

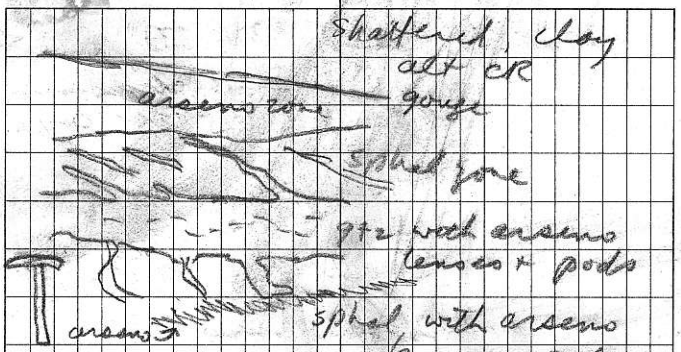
north end 2850



In raise - lens of arsen-py-qtz and sphal qtz are in contact - age relusships ambiguous

Lori arsens-py older generally

vein contact is fault gouge - CR shattered slickensided



N End of workings
qtz arseno sphal
veins
gouge on HW

— END —

Then drove up to the BIGTHING
deposit - hosted by clay
altered granodiorite (Q Mon 2?)
Granite high level, miarolitic
- north of Montana Mtn
Operated in the 60's

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Qtz veining - almost stockwork
assoc ser/clay altn
kaolinite
veins carry py arseno
dissem x/line py in altn zones
striated

sulphides py
arseno
stibnite reported

cpy/pyrrho galena
veins
mos2??
sphal?

Veins of vuggy qtz have
x/line ~~py~~ arseno py
(plate-like x/s)

SKOOKUM MTN TRIP

Guides: Bruce McDonald
85/7/8
Monica Pride

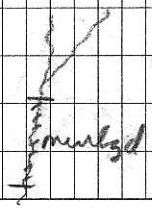
Rhy dykes - flows →
felsic tuffs

Ppytic + pas. andesite

Structure main N14E - dykes
follows fracture set

mainly andesitic 3-400 m
+ and lap + ash tuffs
- more tuffs upward

Orebody 200 m long 80 deep
(so far) 5 m wide



movement - lift
lateral?
probably lots
of vertical

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Distinctive markers rare

3 main zones

① MAIN

148 000 Tons

0.7 oz

BRANDY ZONE

~27 000 Tons

LAKE ZONE

prob small tonnage

Overall 7 are significant

Age relns -

Veins cut dykes - Main Zone

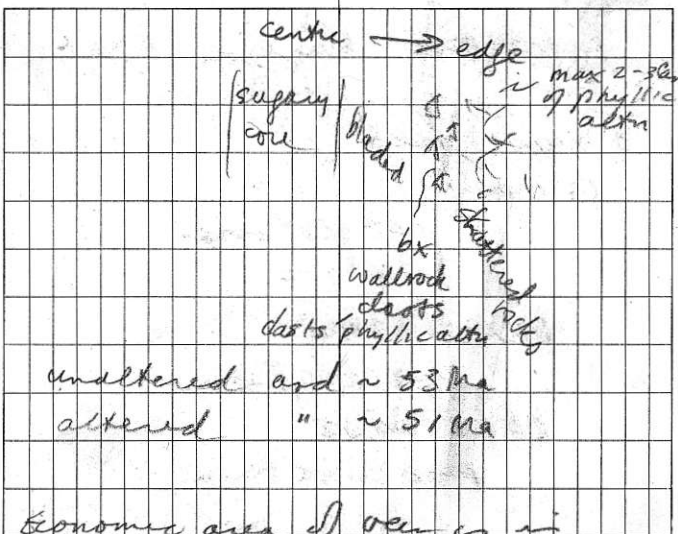
Workings

2200' southward -

just intersected the vein

- now driving a ventilation

raise.



unaltered and ~ 53 Ma
altered " ~ 51 Ma

Economic area of veins is in
pyritic andesite (lower Hubb layers)
- assoc dykes (pre-ore)

calcite 100 - 0%
gold higher with high cal
some dol x anterite

early veins chalcedonic
qtz (mm scale) with sulphides
+ argillic altn

* silica or phyllic in paper

R. D. PENHALL LTD.
DURABLE WATERPROOF
MADE IN B.C.

pyroph / alunite zone -
on strike but not sure
if they fit together

Regional
Vesuvius Hill
couldron subsidence
felsic volcanic rocks

On deposit side - mainly
andesites

Base ↓ epiclastic / pyroclastic
andesitic flows
as well

felsic volcs → rhy.
vent facies andesites - flows
$\boxed{5}$ {diff' compsn
subhorizontal}
and ~~mainly~~ ~~local~~ thick monolithic bx

adit zone in downdropped
fault block

Upper andesites
30% phenos on avg - uniform
lower andesites
more variable in phenos %, etc

(photo) - lake zone / Brandy zone
from adit

Underground
near rare pyritic rhy dyke
cut by early veinlets (barren)

near the vein there is the
rhy dyke then an increasing
number of thin qtz carb
veins + bxtd CR

To BRANDY SHOWING
1½ oz / 40 feet
CR bxtd qtz veins
Qtz veins vuggy cockscomb
texture in prop phyllic and
propyl. alt'n adj to veins

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

monolithic Bx -
cut by early veins
jasper in matrix

local gypsum veins - also
in N-S fractures
Rock is pyrox brg + has
~30%

END

Carbon Hill
rhy phg
veins -
barite jamesonite
stibnite
assoc with rhy.

85-27

Mt Anderson

Granodiorite with propy. alt'n and qtz - fluorite veining - pod of sal some cpy ? minor sphal

gold prospect

R. D. PENHALL LTD.
DURABLE WATERPROOF
MADE IN B.C.

Adams Lake

slates phyllites argillites
locally derived immature seds

50 - 75°

Dips N-easterly, faces
westerly

Stockwk
- qtz py arsens
in silic zone

- off to the edge of the M/S
zones

py ocr chl clay? barium rich

barite

MS

Rea Gold

Ian Pirie 85-28 85/7/10

Alex Davidson

graded — argillites / sltstns → gts, pebble egl
xbeds

and. tuff & mafic debris flows

also high Ba

Barite

MS

stockwork mnlzn

chert → graph chert in altered

mafic pyrocl. lap tuff [Lensy]

carb chl ser silica altn

lots of pyrite

thick 'chert' with assoc argillite

mafic pyroclastics (some ag) — much less altn

— some green mica — alt volcs — fuchsite

— Fw pyrite zone essentially barren

Rx B - best stockwork.

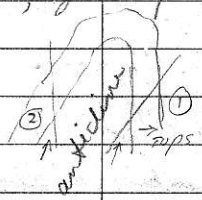
18 - Sh

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

There was probably a fair amount of relief during the volcanic / mineralisn event

- Field Tour

① Arg / siltstone
clear / beds say antiform to N, grading says tops south

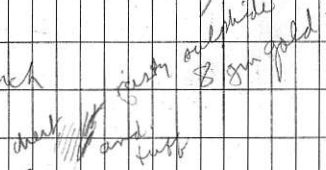


② siltstne sst grit to fine cgl
cleavage beds say antiformal closure to south

③ andesitic cleaved rusty wtrg High Ba High carbonate
Local arg layers (said Ian)

(4) outcrop (3) gives way to
sericitic 'chert' phyllite
* ore horizon at contact
but no sulphide here
stockwork in this unit
unit pyritic
→ black cherty rock

Trench



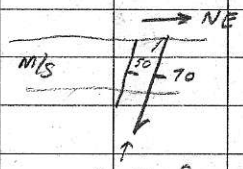
↑
structural ~~FW~~ HW / strateg FW
↳ chert below sulphide

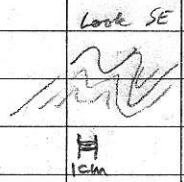
— TRYG — sheared out fold limbs?

DISCOVERY ZONE
M/S - scorodite (arsenic min. - yellow-green
lens dips northerly ~50°
vfg with local coarser
zones
gal cpy arseno py
sphal.

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Higher Trench





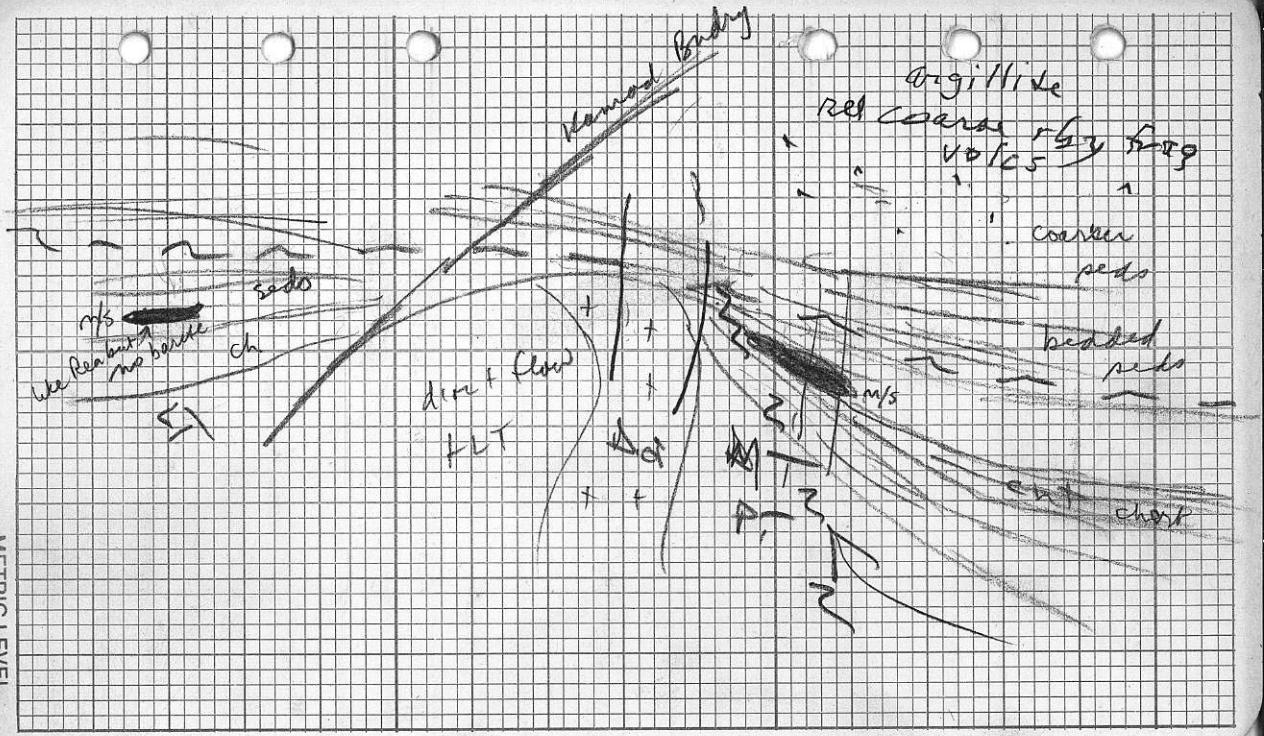
∴ synform to northeast

Well cleaved gray to tan
rusty wtrg sericitic chert phyllite

Uphill a bit
sericite carb silica altered
lesser

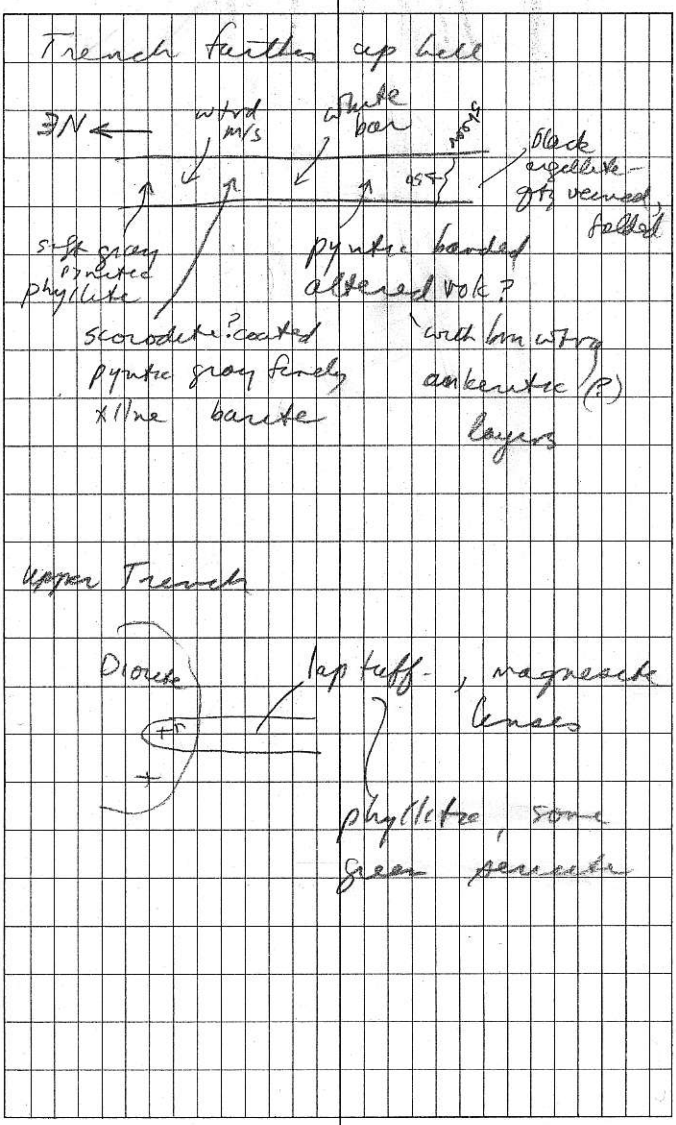
basic volc frag volcs in
strating FW of rock
- sericite apple green → pale
- local very heavy pyrite

→ less altered zone with
20% carbonate - dolomite
+ ankerite



NEWILLE CROSBY INC
METRIC LEVEL

85-30



R. D. PENHALL LTD.
DURABLE WATERPROOF ROOF
MADE IN B.C.

Homestake 85/7/10.

Dump - Barite py tetrahedrite

Near Upper Adit

Stringers of sulphide in silic (cherty?) lenses in crinkled (altered schists - in the (+ rexlld chert?) foliation - up to 5m wide

Bxtd with lumps of pyrite

Some are late, x cutting qtz veins

up the hill sericite paper schist derived from rhyolite tuff? - crinkled (PHOTO)

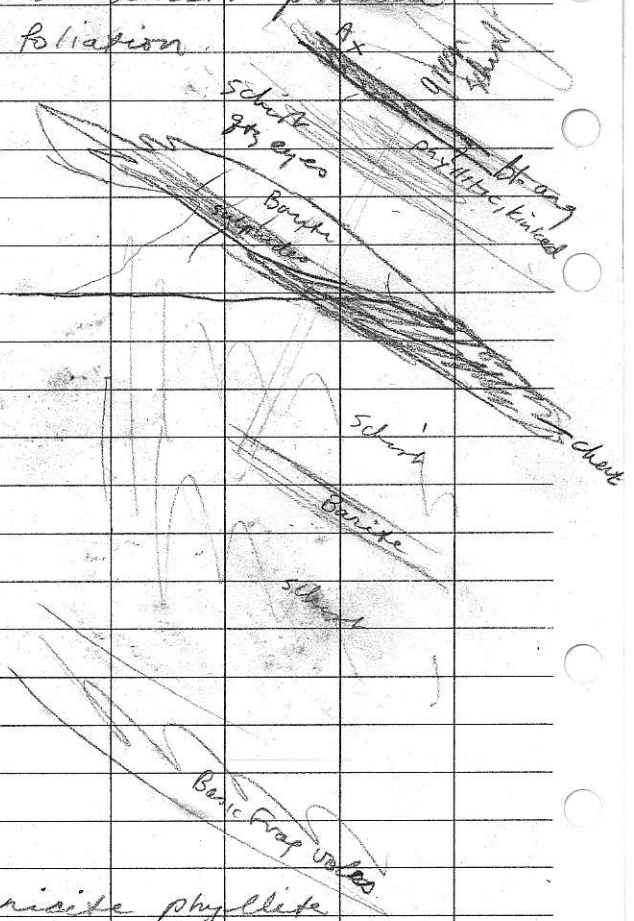
ser qtz pyrite

- barite occurs as pods or boudins in the schist

sulphides - sphal some galena mainly occur as bands & disseminated + in splays

R. D. PENHALL LTD.
DUKSBAK WATERPROOF
MADE IN B.C.

Barite ~ 8 in thick -
lies in schists parallel
to foliation



xA sericite phyllite
with siliceous zones
that look cherty

85-32

85/7/11

Burke Creek

Vic / Alex / Ian / Peter
Pi / Davidson / Petrie /

Rainbow Showing

Lustrous silver phyllite - qtz eyes, locally feldspathic - probably rhyo-dacite tuff - has layers of pyrite and sphalerite with lesser galena

qtz encased in mica - easy to see only if you look along the mineral lineation

map unit EBA?

Host rocks are Eagle Bay

Veins of raggy qtz-py-gal also lie along the foliation.

showing - up the hill ~ 100'
above the creek

chloritic phyllite with
py-sphal-gal (?) layers parallel
to foln - some xcutting py.
veins also

pyrite dominated layer
to ~ 20' thick - has dk green
"massive" chlorite interlayers
(altn) ; local tremolite

Host rock is the lustrous
schist

Face w/rs with smooth and
pitted zones
- chloritic layers & pyritic
layers can both be pitted -
carbonate?

Local bull qtz bosses

note - lustrous phyllite package has black phyllite lenses

Creek showing
s. side of creek
Foln dips gently southward

Drilling to ~~west~~ south missed the zone - may be a fold rollover between

The quartz occurs as ½m veins cutting the foln.

- not well mnlzd

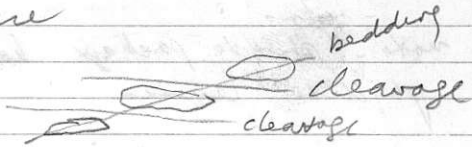
East adit
silic → carbonate rich
bxtd cherty sediment

- possibly folded a boudined?

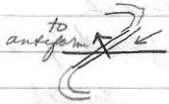
Next adit along creek to east

cobble to boulder sized, elong to oval clasts - clasts are CR + pyrite - probably definite

feature



Look south



plunge dirn
~ 120°

CAUCHUA *did not see
healed fault bx - hole 46, 159m
- Chu Road - turn @
Km 25 marker

*Hole 57 M/S 456 - 463
chloritized atm ~ 1 m 455-6

rill massive pyrite
some cpy, cut by qtz
veins

"below" m/s the rock is
dk green, chl. - HW? -

→ 490 m somewhat bleached
pillow basalt

* @ 300 m there is a ~~basalt~~ diorite
sill ~ 5m wide
- saussuritized / chloritized

* Chua hole CC58 → 335m
mainly somewhat
bleached pillow basalt
— no M/S seen —

* Chua CC59 → 597½ m
mainly bleached pillow
basalt — diorite near EOH
(~580)

* CC54 — 689 m
mainly grnish bleached pillow
basalt — a few diorite
sills

* CC55 — 475m less bleached gray to
green pillow basalt cut
by diorite sills locally.
- near the base - qtz ~~A~~ stringers
carbonate
(calcite)
- pyrite stringers @ 473m

* CC 56 376.4 m
Mainly sl. bleached
pillow lava

---

*CC49 -> 500 m

426 2 m of m/s cut by
gtz veinlets
Bx texture
calcite pods
cpy - py (mainly py)
gtz - cpy stringers
blobs of chalcedonic
gtz
altn - greenish pill bas
before - pinkish / cream
'stockwork' after -> pillow
lava that is alt + cut
by py + gtz - cal veinlets

480 - 490 chloritic bas
with patches + veinlets of
py, pyrrho + some cpy
Carbonate on fr
ends in pillow breach

85-35

*cc 48 → 510 m

chlor alta with ep/cal/

py/cpy stringers

"m/s" zone 446-454 has py cpy some

sphal (~~[illegible]~~) + magnetite (~~[illegible]~~)
'blackjack?
splits are fragmented - looking

dk green, chloritic - clasts are

altered vol c + m/s
samples 446, 447, 448, 450

The m/s zone gradually tapers

out with more + more chl

CR splits

→ dk green pillow basalt (amyg)
with local fr cntld py

stringers

Fault ~~Gouge~~ zone 463 - ~~46~~ 478

another thin m/s layer @ 465
(.5m wide) in bleached, smashed,
serp alt basalt

strongly bleached bas. with
py stringers – endo ~ 485 →
med dk grn pillow basalt

pyrite chert 490 with
local brxtn (chert pebble cgl?)
local laminations → 505
505 - 509 pale green to grey
bleached pillow basalts
– EOH –

85-36

85/8/17

Visit with Andre + John near
Horsefly - Cariboo District
Plan - Shiko Lk
Likely (Bullion Pit)
Dragon Mtn - basal package?

1:50K Spanish Lakes - east of Likely
- Accommod. for camp good -
General setup - Black phyllites

- Central volcanic belt to west, bl. phyll to east

crushed amphib → bl. phyllite → coarser clastic → more + more volcaniclastic → central belt volcs.

Basal aug ppy (olivine bng)
↓ volc gwke
nondesc and + tuff
coarse volcaniclastic
(more feldspathic)
Felsite Bx
Coarse pyrox phy ppy
ag or cgl or bx

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Bxted or pillow top → felsite
package (subaqueous ash
flow ?)
'clasts dio → monz. - lenay

- seds
- pyrox bas - purple / lateric
monotithologic
- pyrox basalts
- analcite basalts
- basalt + bx

Andre 86 4 man crew
work N of Quesnel R
(boat)

Forestry Recreation Camp
Sites - maps from Forestry
- free

Horsefly Penn - Mitchell Bay

① walking out road

ol aug ppytic basalt - massive to amyg to bx (scoriaceous frags)
1st on fr + depsnl?

~~aug~~ augite ppy volc conglomeratic bx
Flow top? bx
~~Rx~~ 1st lense
[calcarenite x 'nondescript' no visited

② coarse volcaniclastic unit
- up section -
frags purple wh orange - plag aug andesite; ¢'r to rounded, matrix supported
`sandy
photo - andu + logged area

③ Very coarse angular breccia of fs pyrox porphyry basalt
- MAIN UNIT -
cut by ~~hb ppy~~ epidote hb monz intrusives (dyke)
coarse pyrox
15% plag laths
calcareous matrix - clasts ~~in~~ rounded to angular

monolithic bx

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

(4) Felsic breccia overlies the fs pyrox bx
- clasts multilithic - matrix look igneous (monzonite) but is locally bedded.

Pyrox Plag Bx → ep altn if hydroth activity around (ep - cpy - kspar seen)

Further along ep knots, white wtrg - cut by dykes (ep knots, along, aligned - hb ppy)

Ep py cpy developed after plag pyrox ppy. Clasts survive - matrix altered - Andre is having it assayed - looks like QR

cut by meandering ep knot Hb plag dykes

goes to augite porp with greenish felsite matrix then to felsite bx - locally sp. altered + locally poorly to well bedded - cut by dykes.

above is thin bedded red (lenses) purple bx - thins to north

photo across contact o/c to Shiko Lake (lower left)

⑤ Purple Bx with brick red ash tuff (mudstone?) layers

walking across ridge

Fine pyrox basalt - local bx texture - quite thick ~500' thick

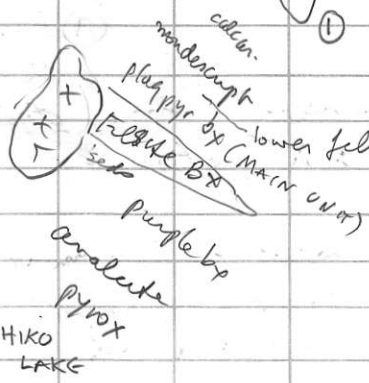
"Golf ball" texture agglomerate?

↓

Anal. basalt - amyg. + bx → Tuff with anal in clasts + as xls in the matrix (sample)

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

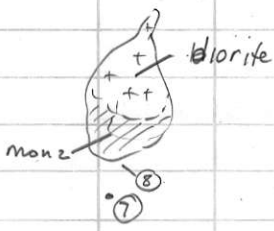
Mitchell Bay
↓
(1)



(6) Bomb or pillow Bx with sharpstone cgl immediately to the west.

(7) Cherty argillite near contact of stock - many dyke - also cut the stock

(8) Pinkish mg qtz monz - bio hb sl. chl altn locally
- cut by kspar + bio sweats
(fract. fillings)



To Mitchell Bay → Likely

NEVILLE CROSBY INC. 48L
VANCOUVER, B.C.

Bullion Pit

① Bottom of road – outcrops of sheared microdiorite
ep chl py loc cct

* Paul Richardson - Barby's work saved them ~$10K

Wide Rusty zone to east is a major west dipping fault - reverse? avg dip 45°

② Area presently being worked mg bio hb diorite in place here because it is fault offset

③ mg diorite cut by pink 'kspar' dykes
veinlets cal ep zeolite

(4) Mg pink rusty wtrg onionjonite - cores the intrusion + offshoots form dykes in the carapace diorite - chl altn locally but mafics not abundant.

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Fold Pattern

85-41

85/8/19

Mt Klappan Visit to JKoo
with DMac Intyre Sunny/cloudy showers
Pit Geologist Bill Carpenter
Summer + other Kurt Foelmer

Helicopter trip - working through section from lowest (oldest) to highest.

photos - ✓ Spatsizi
✓ - North along the little Klappan R.
✓ - Chevron folds SW dipping
/ thrusts
unit 1 - lots of sst

① Summit North (unit 2L) bottom
brown bivalve coquina

② Near Glacier Summit S
sst - plant fossils
coal layers - anthracite
(PHOTO) worm burrows - several generations (near top of cycle)

One cycle sst → fener → claystone → coal
TOP ⟶ BASE
coarsening up

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

PIT 60 on LOST RIDGE
Looks new to it

✓ (P) photo Helicopter step 2 -
[two coal pits in backgrd,
[two coarsening up cycles

(3) Unit 2a 1
enroute - photo of fold
(P) ✓



Photo - Pilot plant/airstrip
camp in backgrd
- two shots of Lost Ridge Pit
- shot of large recumbent
anticline
(P) - shot of << Folded sst
layer

To Mt Klappan unit 2 upper
almost recumb - anti/syn.
overview - gray sst with chert
pebble cgl lenses locally
coals seams below but
seams not thick (trenched)

west of helicopter - pebbly sst
Very Few fossil frags at this locality

✓(P) photo of fold - broken nose

unit 5 - rel even spaced 5-10 m cgl layers

photo up valley - shows cgl unit 3

✓(P)-2 photo of area near landing is unit 4 rock

cgl units have fewer + more open folds

landed on unit 5

5 vs 4 thickness versus frequency used to separate the units

Chert pebble to cobble cgl

mod. indurated

matrix to clast supported

Has interlayers, mainly of SSL

- not many fossils of any kind

✓(P) photo across unit 5 ridge - intrusion in distance on unit 4

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

* Interpretation of environment - esp. for units 3/4/5 is in need of work

Qt pebble - cobble cgl; partly matrix supported; laterally extensive; relatively thick (in some cases); crudely bedded plant fossils in interlayered sands + silts but only locally

Now roll film

(P)
✓ — shot taking off
? — " of hilltop w unit 5/4 contact

✓ — unit 3 on brownish sunny cliff with bl. layers showing
✓✓ - 2 shots across Mt Klappan.

✓ — North along Little Klappan

DRILL HOLES
Three areas - Summit
Lost Ridge Hobbitt

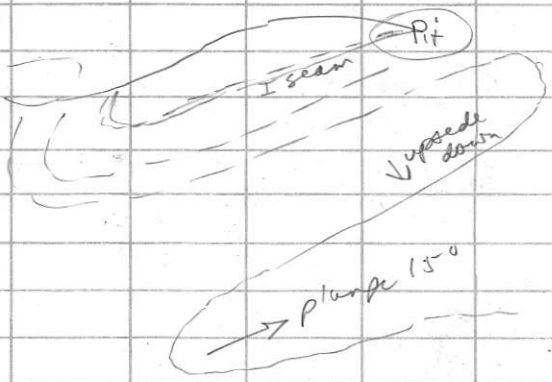
Summit - little explored so far
has lower seams in it

Lost Ridge
seams A to I - lateral variations are sometimes striking - also wedging of units.

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Section Look North

LOST RIDGE



85-45

85/8/20

Visit Lost Ridge Pit

Pit visit - several shots of equipment & pit overview
one shot along past prep plant to airport

Mining will proceed westward across the hill

Mining - blast sst
cut + nipper in coal because it is frozen
Problem - frozen coal falls apart when thaws so prep plant outputs less in >2" product

- walked west of pit - several photos

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

omitted
by accident

omitted by accident

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

problem with frozen coal which disintegrates after passing through or worse during the wash cycle
- to overcome - stockpiling for a time, opening up jaws of crusher, change screen size a bit
- will need more testing

Clean coal 6% Ash
Fine " 8% Ash
Clean coal w/ 8% middlings (higher ash)

- Prep Plant -

Greg Hallewell
Night Shift Foreman

966 looder - grizzly - pan feeder → screen → crusher → wet screen - fines → coal prep package → (50mm)

overflow heavy media sep. (magnetite)
Heavy med 50mm x 6mm
Fines .6" x 6"

Wash - 2 cycles → centrifuge + sed. bins for dewatering

Power & mitsubishi motors
central control centre.

NEVILLE CROSBY INC. 461
VANCOUVER, B.C.

Geologist

Wojtek Jakubowski

Paul Donkersloot

MIDWAY DEPOSIT 85/8/21

McDame separated by fossils into 7 zones

McDame dep (uplifted/karsted - then Sylvester dep during transgressive phase

Cret. Cassiar - heat engine
cave infill of carbonac calcarenite replaced by ore - often the calcar. was matrix to bx.

(?) Hotter fluids @ south - zinc rich cpy more abundant

Barite minimal
Local altered dykes u affected by fluids - some Leisegang rings
Ore pods in highs in McDame surface (contour map of contact)

Dykes were part of the plumbing system.

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Dykes to 15m thick - exposed on surface on Tricorne Mtn (to NW)

General faulting trend
regional - NW
property - prob N-S

McDame faulted pre-Sylvester then reactivated during Cret + cut Sylvester - conduits?

Underground
Main mB&E drift - 'tubes'
- follow semi-elevation
15-20 m across rel HG.
up to 30-40 oz

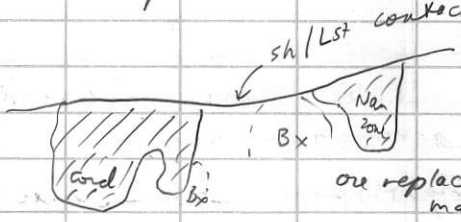
Dolomites - early - not related to ore
also primary dol near Sandpile
secondary throughout
section dk gray mg

85-49



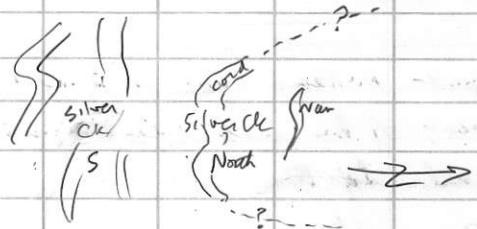
N

Drill sections 20 m apart



SECTION

Minizn – replaces lst + replaces bx bodies



Discovery

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

will be trying down the hole
geophysics

Altn - almost no halos -
rexild 1st at borders of zones
of replaced 1st.

Reserves will change with the
new 'tube' theory - not ready
yet

Water - not much problem andergrd

Exhalites - original targets -
"Discovery Trench"
in Sylvester - in 1st fining up
section of the shales - unit 2a -
· silica / barite / pyrite / PbS / ZnS
Fit puts McDame against Sylvester
just west of the exahalites - possibly
upgraded by the

Tradit
Discovery Trench
Exhalites - * are slightly
calcareous
McD. Sylvester

Lead isotopes are the same in ore zones + exhalites

- also have some chimneys which are Hg + could be very good - like Santa Uralia - Mexico

---

Underground
only units 2 + 3 exposed

Computer Program
CDC - Plotcael
/ Golden Software
Vancouver / Hastings nr Burnard
1066

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Underground
near portal
Lst cut by pyritic
veins - cut off by
collapse (?) bx with siltstone,
lst + m/s clasts

- mottled white zone -
stromatoporoids (sponges?)
concentric layers - Dev.

- horsetail carb veins +
carb vein cement bx's
— barren
- can be very coarsely
crystalline
sample ① local
massive py clasts

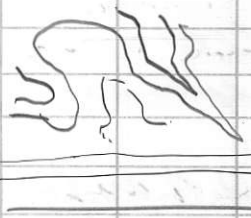
sample 2
stromatolitic + 'pellet'
bearing lst

- vug lined by gypsum crystals
- near a heading

M/S layer has vugs in it of gypsum
Bx → M/S

- over to B drift (all cord' manta)
Traced ~260 m
sample(s) 4 M/S - some sulphosalts ?

layers of pyrite / galena (very coarse) / sphal (blackjack)
- look almost swirled



sample(s) 5 - Sulphosalts + Bx

NEVILLE CROSBY INC. 48L
VANCOUVER, B.C.

8x and very coarse galena - pyrite dom sulphide
Clasts - shale
also rel hy gal/py

coarse zones form 'pods' lesser sphalerite in calcite lenses with py + gal.

samples 6
'Tube filling' lst replaced partially by pyrite - gal - sphal M/S

Local flts shear + lost sulphides

- Near end 1 drift - sulphides contact Sylvester
sample 7
Dismembered py - gal

vein extends up into the Sylvester.

——— End of Undergrd ———

Back in office
- deepest zone below McDame -

Sylvester contact is ~ 30m,

- may be some thrusting

- Monitored on B drift defined by a series of holes drilled at 25m intervals

- stages of bxtn -
  clastic bxtn
  crackle bxtn - tectonic
  crackle due to shrinkage during dolomitization

- distribution likely to be complex & following McDame joint pattern unlikely to be successful

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Collapse bx's usually have veins in the roof also

- Bedding 15-20° ESE

- stromatoporoids look like conglomerates but have been confirmed by a paleontologist.

- distinctive feature of infilling lst - no fossils, carbonaceous

- all McDame core relogged last year.

- feather marcasite usually with the HG - open space filling

Midway —
phone 662-0162 (Vancouver)

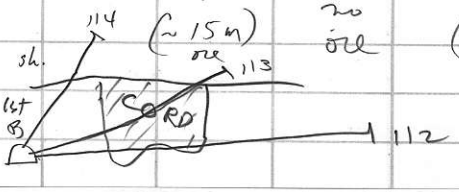
Jack Patterson -
Muddy Lake
Helmut Woker wants to
see 10 men talk at
Round Up - 3rd day

Our Round Up - Tom.
Tordoff Gore

80.7 Turnoff
95.0 Rancheria
14.3

86.4
14.3
100.7

Holes 113 114 112



Back 8

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Hole 111 } near end
215 } NAN A'

85-
DDH 113 Midway underground

Box 1 Vuggy 1st with Vugs partly infilled by sphal + pyrite
Starts ~5 m
5.79 m shale chip bx partly infilled by qtz then py to 11.5 m then strongly impregnated with py silicified + qtz veined (minor diss. galena) - some pyrite is open space filling (two generations?)
qtz (xfs) pyrite in vugs
~15 m galena picks up - seems to be open space fill with calcite in a matrix of pyrite ie pyrite early - bxtd - infilled
- bladed 'marcasite' with galena between blades
galena x6 to 7 mm size
23.01 → crackled stylolitic white carbonate veined dk to lt gray partly rex 11-2d 1st
23.3 gray + bl lam siltstone/shale w. local silty layers to 1/4" (graded?)
35° to core mostly + fairly pyritic laminae (coarser ones) locally
minor fold? core ~ 70° by 25.6 EOH

Midway 85-112 DDH Underground

vuggy lst to 5m then mud chips
bx with qtz/py vuggy infilling.
Shale chips heavily pyritized (disseminated)

Lst pyrite zones rexl'd white cal + gray zones

one crackled vuggy lst zone in the shale chip bx (pyrite more abund in more porous (emirac a looked bedded)

7.5 mud chip bx with matrix qtz py + central anhedrite (?) - open space filling texts (x lo with terminations)

chips very angular + tend to be elongated ← 1-3 cm →

16.48 lst again - rexl'd, med. gray, stylolitic

19.5 heavy pyrite - locally bx'd (py clasts) local gal + calcite

py cut by veins with qtz x/s lining & infilled by cal cite (cg) white

32.1 black, graphitic shale bx → Lst (recrill'd etc) → Lst bx (yellowy matrix, vuggy, looks tectonic) - 1st there recrill'd gray f-mg ~35 → graphitic shale chip bx → EOH 51.05 m.

DDH 85-114 Midway undergd

Gray rexl'd 1st - py veins + pods
white cal veins
2.4 shale chip bx - pyritic
qtz - py - carbonate in matrix
clasts rotated, diss. +
lamination-rich pyrite
vein matl in matrix only
locally developed
becomes graphitic near
EOH @ 19.51 m.

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

DDH
~~Hole~~ 111

The ruggy H. gray rex/ld pyritic

lst (as in 112) to 6.86 then shale
chip pyritic bx to 12.8 then
med gray stylolitic white cal
veined lst with local
white spar-cemented bx
zones
22.5 – 25.6 yellowish wtrg
matrix, tectonic bx of lst?
to 27.13 gray stylolitic fossil.
limestone
27.13 graphitic zone 5cm
then yellow wtrg bx then
to 29.9 (with local mg gray
marble zones (mainly fossil
trash?)

DOH 121 Sphal-gal → 1.25
then Lst with ~~clear~~ easily seen
cigar shaped to oroid fossils
or pedestone?
wether the lst are 'pods' of
mineralogy py-gal (gal as
stringers — pyrite

fossils 3/8 to 1" long
Light gray 'globs' to several
inches look vaguely layered
— stromatoporoids?
Marble continues to 47.5 (with local
tectonic bx zones)
Then gray lst with white cal vein
to ~49 where the lst becomes
graphitic & lenticular to
graphitic bx - alt lst &
graphitic zones to ~~52~~ ~52
where lst clast bx with graphitic
pyritic ~~lst clast~~ matrix → 53 where
other rock type clasts appear
(mainly graphitic shale

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

~55 galena is starting to show up on the box, which is vuggy - by 56 the grades look pretty good

- Helicopter arrived -

History (John Stollery)

Silver Tip Hill 30 yrs ago — by 4 prospectors

55/56 Conwest went underground on Silver Tip

2 adits 1200 - 1800'

Surf. + underground drilling.

Comox Placer / Bralorne + many juniors worked in the area

Drilled in wrong place or lost the holes in the shale

Promotion — late 60's - Silver Knife Mines - on soil anomalies got out of control - soured interest in the area.

Regional came in here in 1976 - found a deposit of W in the Yukon

1980, Fall, looking for shale hosted massive sulphides - found sulphides in shales (midway from Cirque to MacMillan Pass)

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

1981 6 holes/Soil Geochem

DDH 3 through shale → limestone
hit some values
#7 in 1982 through shale
— no massive sulphides in shales
but good intersections in the
lot

spending now >$13M
— this camp in in Oct/Nov 84

GRADES { Pb/Zn 20-25% combined
Silver 15-17 oz
Gold 0.03 gold

· Drilling
surf. >100 >100000'
undergrd 140 so far

This deposit may be a
manto-type (a new type for
Canada?)

Undergrd Silver Ck N
only tested so far
~ ½ MT

Zones of Interest Silver Ck N
" " S
Discovery
— may be interconnected -

Reserves
Drill proven - perhaps ½ M tonnes (Silver Ck N)

Will probably spend $25M to complete the assessment.

- Production decision - minimum one year - likely two

Wojtek's story to Murioka -

Cassear bath. heating - fluids cycle up to shale - dessalve 1st to produce 'rivers'

Tubes 10 - 25m across
Dip of strata 15° south
B drift - some .12 gold.

NEVILLE CROSBY INC. 46L VANCOUVER, B.C.

possible single, large tonnage ore would have to be a chimney.

- caves filled by sediments, then replaced by ore.

Higher T indicated by iron copper & silver levels.

- near drift E & B junction the Nan & Cord tubes have come together - possibly there is a feeder nearby

western two sections show chimney ore zones - related to a N-S fault?
- chimneys sl. higher grade

- Silver Ck S - more zinc, lower gold --- closer to heat source?
- Gold avg .03 ounces/ton
- Comp at ~1100 m elevation

- mentzn has been intersected over a wide area - the present work tests only a very small area

- deepest ore 100 m below the contact (so far)

* will drill off Silver Ck S from the E drift (drilling down through the shales into the ore)

Rocks. tour w Wojtek

Stramatoporoids - photo

filled by spar

a very specific horizon } oral uposa CR-1 corals

Tiny septa



stromatoporoids

Types: tabular bulbous dendroid

Thamopora (other coral)

- other good ones

Euryamphopora

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Hole 52
contact depth
~40m

N

McDame } up in Sylvester

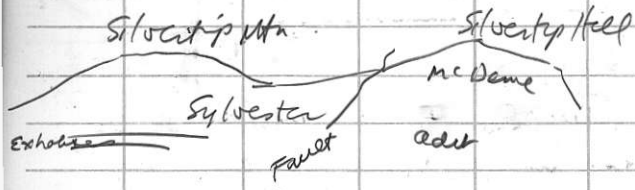
Discovery Trench
Py - honey sphal - galena
- second Au mins on face

upper zone package
8% 4oz Ag

Discovery Trench
in Sylvester
8% Pb+Zn 2oz Ag

Midway on Silvertip Mtn

Thrust faulting may have occurred in the exhalites



— PHOTO —

Core

DDH 229
bx - McDame + Shale clasts → bx with sulphide clasts cut by later white cal veins + locally tectonically bxtd

DDH 180 ~35m

next/d stylolitic gray lst with veins of py gal sphal - looks like replacement in part, open space fill in good part

DDH 161 ~~[redacted]~~ 49mm

lam. to thin bedded gray + dk gray lst that may be 'karst infilling'

---

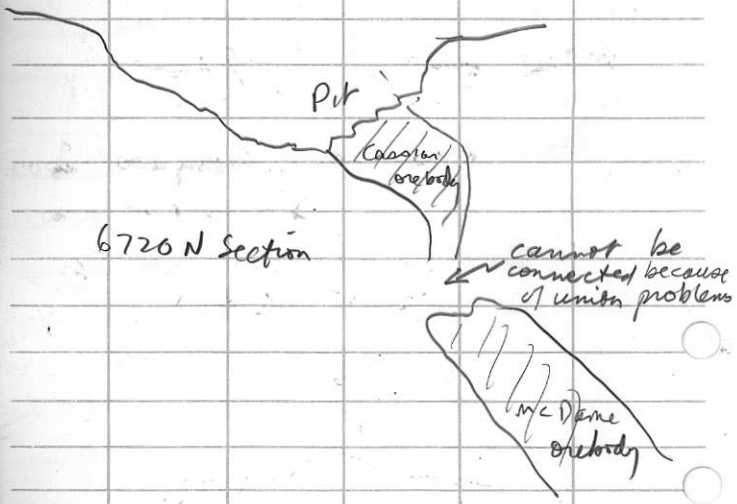
problem

McDame → Sylvester contact does not always go from the same stratigraphic level. argues for strategy or tectonic removal of McDame section.

NEVILLE CROSBY INC. 461
VANCOUVER, B.C.

Mine Mgr Keith Jones

Bmco taken over by
Dorsey Res. now
new pres
Adam Smith



85-62

85/8/23

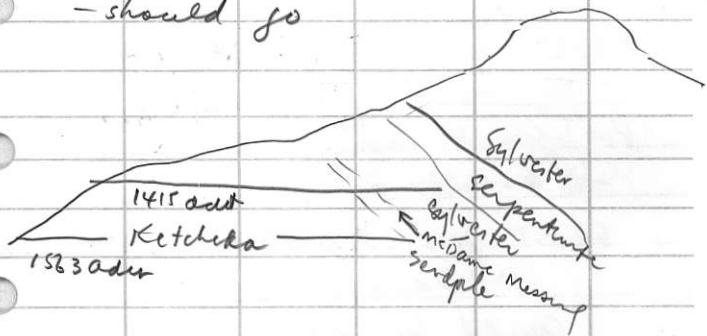
Cassiar Visit

Geol - Ian Lyn
Cooper
George

Tanya ultramafic
soil sampling
aeromag
ddh + pc drilling earlier

Basic Pit Geology
McDame just South of present pit

2000 m drill hole - bottom 500' in ore
McDame Exploration adit now being driven to intercept ctn
(collared in Ketchika)
- should go



Phase 9 ~ 18 mos more than phase 8
waste removal then one again

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

asbestos in core zone — serpentinite → Diorite
arg + volc

Sylvester argillites (siliceous)

McDame

Sandpile

Ketchika - wsty bl arg

Atan

Good Hope

many minor thrust faults

Regional dip 60° NE

major N + N.W faults cut the ore

Pit/offset ~~from~~ orebody to produce McDame ore by the south fault

62 MT poss + probable in McDame orebody

Could be double

serp contact both tectonic + passive against argillite (replaces it locally)

against Cassiar Pluton

aten hornfelsed W + Sn skarns

McDame Lst → Black argillite (basal Sylvester)

but conodonts say is autochthonous (N. Am.)

Sylvester oceanic, allochthonous

serpentenite has diorite above usually

Tanya is NNE of Cassiar Pit

serpentenite - ~~blobs in thin~~ sheets ~300 m for Tanya.

limb

sheet exposed Tanya ~~limb~~

Tanya ultramafic = Zeus Mtn sheet

Cassiar horizon.

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Thrusting probably mid J

Expln -
drilling magnetic trends

PIT GEOLOGY

argillite

altered arg (qz)

Hangingwall serp

serpentinite ..... dyke-like diorite cuts serpentinite?

black arg

ultramafic (serpentinite)

Ht. arg. or ribbon chert arg

sandpile

Ron - Hb fineness - typical early obduction feature - hot grade to greenschist

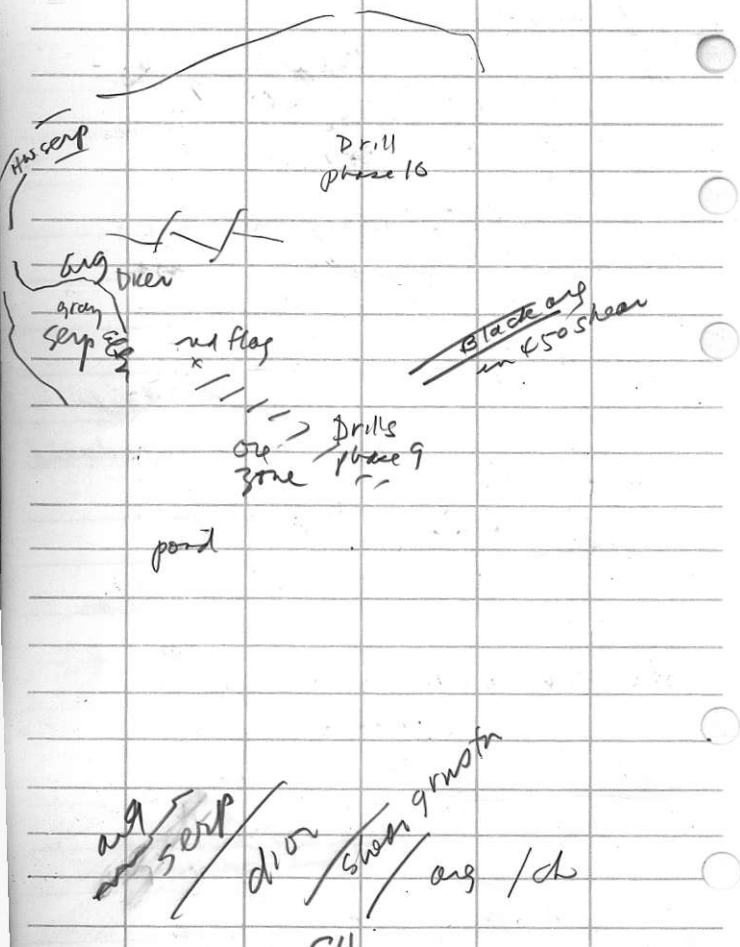
Basal Thrust
sheet
Thrust (argillite)
↓ sheet
up Thrust
Sheet Hanging wall

Bay Vert UM
Ore in lowest thrust sheet –
where more (~~are~~) water introduced

Cassiar –
best ore straddles the shear
that has the arg in it

Tanya showing
shallow dipping chert + volc
→ serpentinite (some rodingites)
↓ Fish scale green serpen.
up ↓
peridotite w. serp. jnts
Fibre in rock + soil (in joints)
local dunite or peridotite
– get more dunite to north
diorite (plag pyrox rock)

NEVILLE CROSBY INC. 48L
VANCOUVER, B.C.



Pst Tour

① contact fetid qtzy dol (sandpile) against Sylvester (photo)

② several photos from overview sample of Sylvester * note ribbon chert + volcs ~~app~~ are in Sylvester here (C1)

③ Bottom of pit - ~~arg~~ serp + veins of fibre.

④ South wall - Syl (C3-1) contact (C3-2) - cal + brucite? veins serpentinite (C3-3)

⑤ Mylonitized syl. arg + gneiss in the serpentinite then (C4) there is diorite

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

(6)

(C5) ↑ argillite
more sil/c zone
altered arg (?) with
thin serp. lenses
↓
non-mag serpentenite
magnetic "
- actn zone with jade
lenses

altered zone may be after
greenstone ? argillite ?
- mylonitic zones but
possibly remnant beds also
phot Ron + Ian on
bench alt zone behind

—— TO ADIT ——

Collared in hornfelsed
Ketchika[k?]

To Tanya showing

① Dunite (smooth) with pyroxenite (rough) layers 1-2cm thick + orthopy. rich layers

② serpentinized rock with minor fibre development assoc with roedingite (sp?) = white rock zois / albite / resuvianite / ± garnet

sample taken for T.S.

other rocks sequence | diorite, layered gabbro, ~~diorite~~ serpentinite, dunite

✓ photo - serpentinite below talus slope

walking across talus - rocks are cataclastic textured dunite / pyroxenite

photo back at Sylvester contact

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Through fish scale serpentinite

to rusty wtrg Lustwanite

to Sylvester chert
(thin altn halo)
steep at contact -
nearly flat a few metres
away
Below as argillite

OT-68

NEVILLE CROSBY INC. 48L
VANCOUVER, B.C.

Veins - dip N in south

Veins dips are S near carbonate structure

Moira 60°
Allison 30-45°
Jennie 85° - Flattens up dip
Bear 70°S
Suzy 85°

Veins trend 60°-105°

ERICKSON MINES

Matt Ball
(Mine Geologist)

Exploration Eric Dussell
"office" down below

Jennie Vein
39 Level = 1390 m
28 level = 1280 m
etc

Veins
Jennie / Allison / Moira /

veins are distinctive

will go in on 28 level

Colliform banded ferroan dol vein
with assoc gtz (0.7002)

Bear Vein - mining at now
Moira Being drilled now

14 level most recent -

NEVILLE CROSBY INC. 45L
VANCOUVER, B.C.

siltstone local sst

argillite overlies mine sequence to south

East of Erickson Ck is all argillite

~~pill~~ volcs + chert to sil arg
pillow to flowbanded ribbon
local tuff

veins terminate @ contact or ~~sft~~ refract + follow it

Contact could be a fault

Vollaug 1 mile avg 1m
30 - 50°N at volc/arg contact - assoc with Listwanite at or below contact
Pinches out? ~ 1000'
down the dip

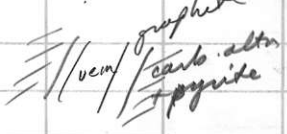
~ 50 000 Tons mined from Vollaug avg 0.27 Au

Au/Ag ~ 1:1 or sl. more Au

McDame Valley – argillite outliers

volc/arg contact ~~gener~~ closely related to veining

Expln – Cusac, other properties with contact as target

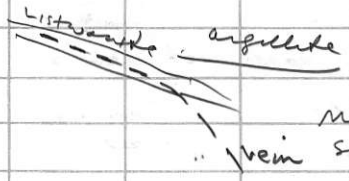
altn 

Listwanites do not run but can carry small hg qty stringers

major west dipping fault ~~trend~~ attitude varies MOIRA WEST FAULT

NEVILLE CROSBY INC. 46
VANCOUVER, B.C.

marker unit - Mine sequence argillite

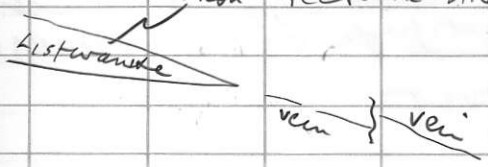


Mine sequence argillite
- marker - dips west consistently overall at flat lying

Rocks - deform ductile + brittle (late)

Dykes
assoc with Lennie - cut veins, diabase + lamprophyre

veins - fair amt of sericite



veins at deflections in Moira west fault?

---

28 level — arg contact (tuff, volc, dyke) → Listwanite
(serpentenite → talc carb → qtz magnesite)

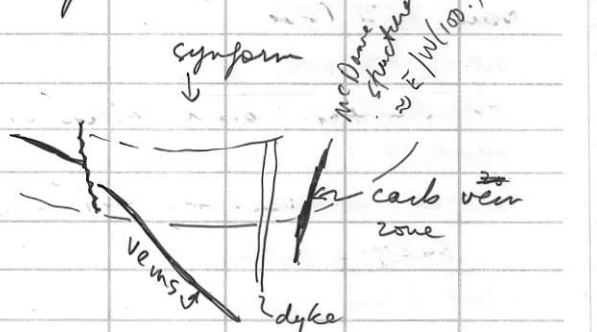
Moira (wide/bx) — Lennie Banded — Allison (carbon altn)
Suzy veins

Mine seq. arg → (isoclinally folded)

Allison

NW fault drags or displaces fault (semi-ductile → brittle)

veins near where Listwanites pinch out, roll or are displaced

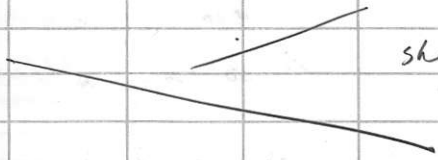


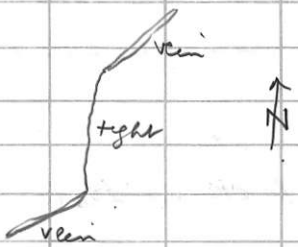
Moira - goes thru the Erickson Pit to the west

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Andrés data - veins older than Cassiar batholith ?

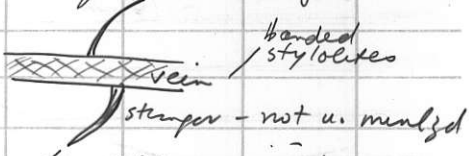
CHECK





NOW 250 TPD
out of reserves presently
now drilling Moira below 21 K
above 14 - will also drill
PATRICIA intersection 507 Mine
Suzy - subbing + raising
(last 2 mos, prod was from
Allison above 28 level)

Veins have assoc. stringers
- symoidal qtz tension gashes



- arg / mine seq contact prob. a thrust

CWSAC
Listwanite
arg / volc contact
Veins

Listwanite - originated as intrusives (i.e. textures locally).
— were they tect. emplaced on sills later deformed?
— pre-vein in any case
TEST minerals should be high pressure if thrust into place

Undergrd

Listwanite (mariposite)

Qtz veined silic volc rk

sl. silic argillite (upper sequence)
arg sheared / small dismembered qtz veins

2 Diabase - sharp contact but local veins + qtz-carb alter

3 Bxtd carbon altered tuff

4 Pyritic alt volc

5 Intense silic zone
ribbon chert
Locally bxtd

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

big diabase dyke - loc
intense carb - clay altn
- locally amyg

6 Serpentinite
local amphibole fibre
talc fr.
contact low & dip
sheared & bxtd
7 Greenstone

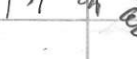
Mine geols call it least alt. Listwanite

Vein - narrow
carb altn of CK

visitor's pillow lava

Bearing left / complex
jn - tennie vein
Pillow Volcs - bleached
8 Suzy vein

vein	carbon	carb alt



Suzie
banded
vuggy
opal
wall rock clasts
multicycle
graphitic pyritic ¢R

10 Jennie vein - lamprophyre

Pinches out going into
histwanite 11, 12

Moira vein
banded qtz - sulphides
cpy sphal tetrahed.
+ gold

14 Mine seg argillite

Allison vein - coal mine

pink altn - angel's kiss -
with tetrahedrite

Found a stock north
of Allan Lake - cuts
Sylvester

85-25

SILBAK PREMIER VISIT 85/8/25

Paul Wodjak

Texas Ck gd coeval with Hazelton ~100 ma (Alldrick)

Dykes + sills from Texas Creek
Premier Ppy - closely assoc with ore

Orebodies
Northern Light - dips sh → mod not exposed
Premier Orebody - Glory Hole zone - NW dip

BC Silver Orebodies

Granite Dykes - swarms - late
Main Elements
Green andesite, some fragmental not dividable
Maroon volcaniclastic seds + bx's

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

— Erickson —

Allison — v. graphitic rich,
many stylolitic surfaces,
— cut by closely spaced
late chalcedonic veinlets
& late carbonate
associated stringers
adj to vein
sim. to Vollaug
- graphitic shears &
stringers
- controlled by Moira Fault?
- westerd pinches out? but
fractures continue

85-76

Silbak Premier Vish (Western)

Paul Wodjak/Harlan Meade

Contact irreg - faults, altn

Porphyries -

4a From Texas Ck — kspar (rare) — more mafic — flow? texture

subtle changes

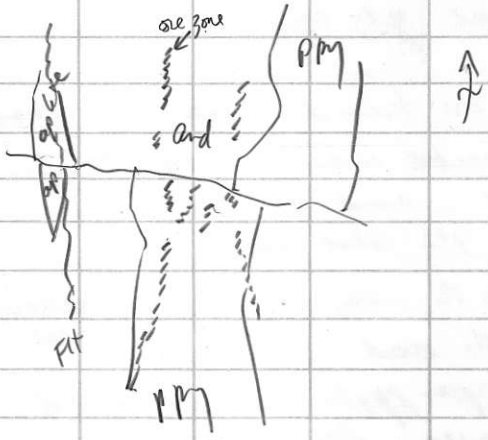
4 Premier Ppy

4b maroon " "

Contact 45°W/ frag vs massive andesite

Ppy conformable

Silic Bx - ore type silic + veined section @ ppy/and contact or either either



NEVILLE CROSBY INC. 461
VANCOUVER, B.C.

Prev. Prodn
4.7 MTons .384 Au
8 oz Ag

Tour
① Foliated dk green chl and cut ? by sl. more massive pyritic dk green ppy (massive to plag ppytic - plag aligned - local blocky ksper and cut by qtz py veinlets

- up the road - ppy has 1 - 1½ cm ksper xls - 3% - subaligned - local qtz eyes

② West one trend crosses the road pyritic intense adj to "ore" - and to south
Mineralogy qtz sphal galena
- Across the valley westward to Woodbine Portal
up the road
ksper ppytic less aligned
Premier ppy dyke

vertical control of west end

③ maroon purple + green fragmental andesite
- Foliated - almost penal cleavage
Clasts to 5" x 1½"
mainly volc clasts
Feldspar porphyritic

- Two level
mainly andesite - carb. altn
altn ↓
Premier Ppy (Kspar xls)
gtz veining etc at contact
andesite
↓
And / Ppy contact - Ppy contact lacks Kspar then get large Kspar xls - veins show x cut. relationships
Kspar big in cores

Ore zone - banded veins
gtz py sphal cpy
photo Bx texture

(P)

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

sulphides rim fragments

— after 'stalling' truck in
-mud on road - walked

up the road is a trench
med gray fol rock w.
qtz veining wispy +
sub-// to foln + clear +
sharp space fillings
(younger)
C/R Premier Ppy

Trench overlooking Glory Hole
Granitic clasts with and. xenos
lie in the ppy matrix - Texas
Ck Ad?
are these ignimbrite dykes?
Some may also be extrusive
Did the large kspars grow in place
[Paul Gilmour - Tuscon based
consultant]

kspar - some is nearly ⊥ to
foliation

Mnlzd zone - rock silicified
& qtz veined

Trench up to N a bit -
qtz pyrite - silver rich zone
(7-10 oz Ag)
altn silica/sericite
Bx tn + rebx tn critical
~~silver~~ silver as argentite ?
called silic. bx
↓
med gray veined and
reticulate network

Drill road - Andesite with
network of fine ser & qtz
veinlets -> pseudo bx
or primary bx with altered
matrix (more likely)

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

near the duel - CR is Andesite
near N end of Glory Hole

Remember ppy plunges to north
& ore zones get deeper

HW of frag and - altn produced
coarse euhedral pyrite

Trench in silic bx and above
ppy overlooks Glory Hole
local sulphide veins.

(photo) S along N Trend
in Glory Hole

Big Missouri -
Photo of Mt Dillsworth
Sequence and
and vole seds
maroon + green tuffs
up ↓ acid sequence
black lap-tuffs
Bowser

85-89

Stewart 85/8/26

with Alldrick - Helicopter Dropoff
on Mt Dillworth

Texas Gd - Kspar xls near
contact
- full of ~~ER~~ sl. more mafic xenoliths (dyke itself?)
Gd sheared + foliated @ contact
- Dyke - Premier Ppy
- chilled contacts

upslope Hazelton / Bowser contact

arg
srt
coquinoid gritty lst } intraformal cgl, mud chip bx

volc / lime cgl → bx (sed)
ash flow w. coarse pumice

Cleavage goes through
Contacts look conformable

photos - Dan on 'vent bx'
clasts are kspar megacrystic
plag ppy
- local large ∡'n clasts - max
3m ∅

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

photo of cliff with purple ash + dust tuff unit overlain by green felsic unit
— icefield in background —

near Grandue Bend Vein
py pyrrho arseno
25000 Tons 1 oz
in andesite c/R

Xerox 90-97

85 Notes

Xerox please

P. 85-41

to 85-89

WJM

Xerox 90 → 97

(NO RUSH)

85-90

Tillicum

85/9/17

Tom Patterson surveyor

Yashi contractor

Tom Drown

Dave Heinz

Dnft

metawalk

metased, hornfels skarn

qtz vein, minor calcite

calcite minor qtz veins

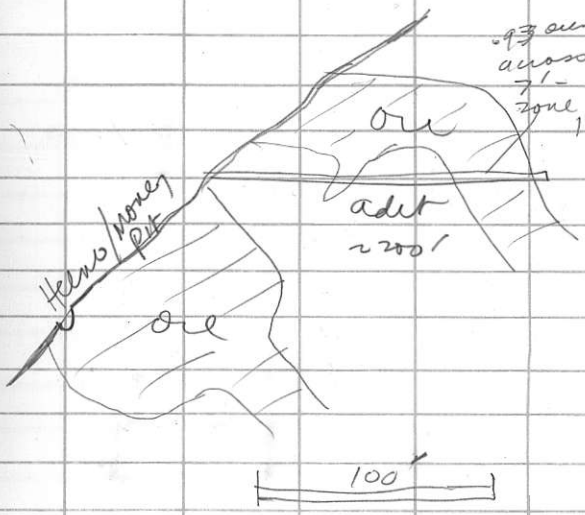
Fols subparallel to dnft

Faults N, NE, NW

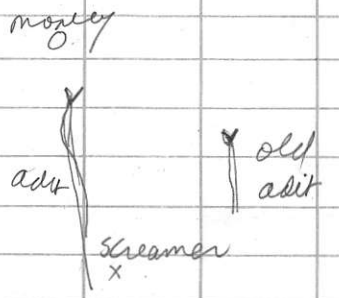
basic dyke

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

N → S



Plan



Now have 3 raises & are collering a new adit

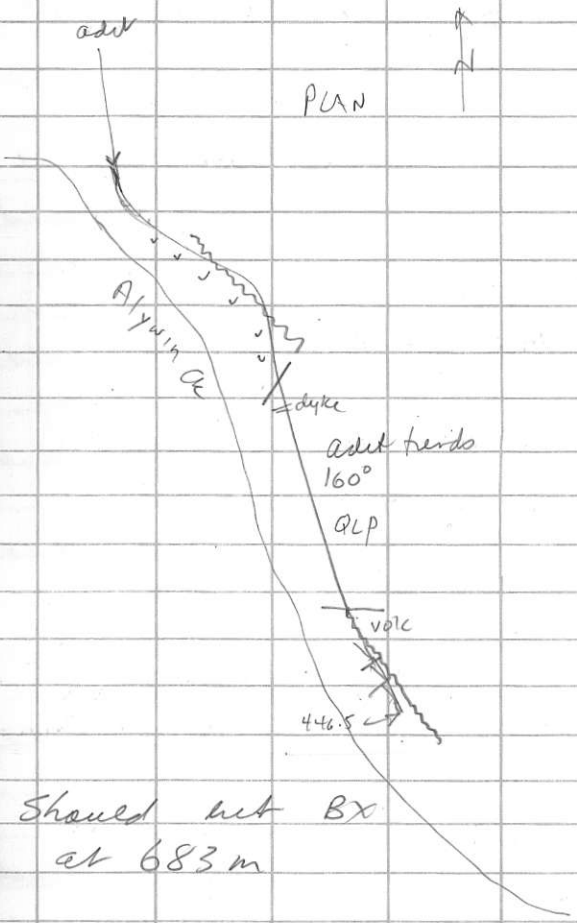
OK Tour - road cuts
Rocks metavolc metased (arg) - quite pyritic - cut by diorite (leucocratic or bio. hornfelsed matrix) sills & large intrusive body.
Prob tightly folded but few closures seen.
closures from bed/clear & changes in 'tops'

Mnlzn in Skarn zones - gold with qtz - chl banded "veins"

- locally meta vol flows are amygdaloidal
- most are dk green & chloritic

Mnlzn w. qtz, garnet, arsenic, pyrite, py, sphal, local galena

NEVILLE CROSBY INC. 46 L
VANCOUVER, B.C.



Should hit BX
at 683 m

85-92

85/9/18

Aylwin Creek, Silverton area

Geol Len Werner
Contractor for Northair

Now drilling ahead of the adit

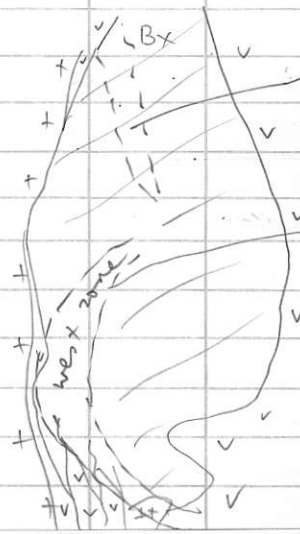
Drift in 446.5m -

metavolc

QLat. Ppy

Metavolc

fault + bad ground



main zone
bottoms ~ 1100m
(not there anymore at 1025m)
top ~ 1250m
West zone
start ~ 1108m
(my sketch at 1025m)

NEVILLE CROSBY INC. 46L
VANCOUVER, B.C.

Menlyn - in unit 4
fs ppy 6 Bx, metavolc
CK NOT the Qtz Latite ppy
says Len but loc on plan shows wex
zone in Qtz Latite Ppy
whole bx zone plunges
steeply north

Age QLP cut by fs ppy

FS ppy intrudes the bx
(according to BP)

QLP
FS Ppy - pink - no qtz eyes
White FS ppy
- Len has not seen it
off property?

Bx - QLP + metavolc clasts

Intrusives - dissem + vein sulphides

Bx - sulphides in matrix but qtz-MoS2 veins in clasts - any other minfzd clasts?

Fs ppy - post Qtz MoS2, pre-copper gold

- garnet in bx matrix - also vuggy

Altn Minerals

garnet diopside (?)

actin chl tremolite

magnetite

Hole 84-36

punches thru west zone

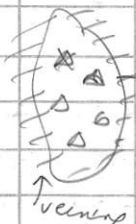
gold 2-10M at cpy or pyrrho borders (polished section)

~~Ag~~ Ag/wen - arsens. rare -

LH (Andorex) has lots

NEVILLE CROSBY INC. 486
VANCOUVER, B.C.

approaching ~~or~~ bx
oxidized → reducing



Incipient bx+n in CK
away from the bx -
local zones have bx
with py/pyrrho cement
but no cpy
(new drill hole)

* needs note to ✓BP + Northair

WILLA

Peter Vander Heyden. Zircon.

⊙ Alguin 194 ±203 (minimum) + a bit of error ie coeval with the Rossland

Xenocrystic cores
upper intercept ~1700 Ma ±100

• may be derived from preE mat'l

OR passed through it (not preferred interpretation).

other option - melted preE sediments?

⊙ ie Rossland tied to NA by Early Jurassic

Question - What underlies the Rossland?

→ Guichon 209 Ma by zircon
no inherited old lead

* run another fraction - abrade ~ ½ hour
with

~~TRYG / DANI remaining samples needed~~ ASAP ✓
(1) (4)

WILLA

Undergrd
stn 7/8 - contact QLP
intrudes C/R
sample volc ck ~stn 7
stn 8 is QLP

stn 11 Zircon Sample - QLP
aplite dykes 1 - 5 cm across
- has qtz sweats with
sulphide + to borders
- hematite laminae
local clear qtz in cores

ZIRCON
~300 m in from the portal

- further on -
pyrrho veins cut by reverse
fault
- water ~~can~~ came in from the
bottom of the drift

just before stn 14 (395 m from
portal)
contact w metavoles - chl-
ep stringers, sulphide rich
HFTS bleached (sample)
near veins
minor endoskarn in the QLP
(epidote)

Near the face -
Laumontite? fractures
(430)
on metavolc - QLP
on rt side of portal
~~on~~ near the end -
making lots of water
at the face - fault
on the left

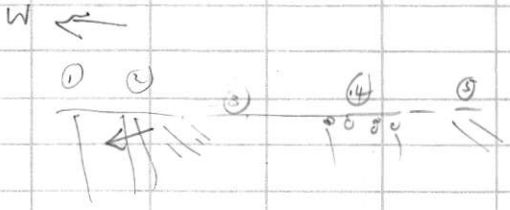
85-95

moved up to the Willa Adit area

Bx heterolithic - volc + QLP
- shears have cu stain + caused the old timers to drive the adits

In Adit
sulphide cement
rx rims on volc frags
some sulphides out frags
some are in frags + do not pass out into the matrix (according to Vic Preto)

NEVILLE CROSBY INC. VANCOUVER, B.C. 46 L



to gravelly
matrix argillite, loc
pyritic + laminated
also chert bag ?
pebble cgl clasts
clasts rounded to
subangular

Hedley area

Whistle Creek road - branch left (Henry Ck?)

① Turbidite with laminated siltstone
could be xl lithic tuffs

② Turbidites (AE?) sand → silt graded beds - tops west
dip v steep east
layers 1-3 cm thick
- second branch left

③ Hedley Hornfelsed sed (thin) onto argillite/turbidite CR - minimal contact effects here - still not obviously chilled, little affect on CR
matrix supported

④ conglomerate - clasts 1 cm to 3 metres comp - lst (massive to bedded, lst with organic debris) siltstone (these are the layered clasts), some gwke (photos)
matrix supported
some lst clasts are crystalline (biogenic + fossil debris?)
Pyrite in fractures

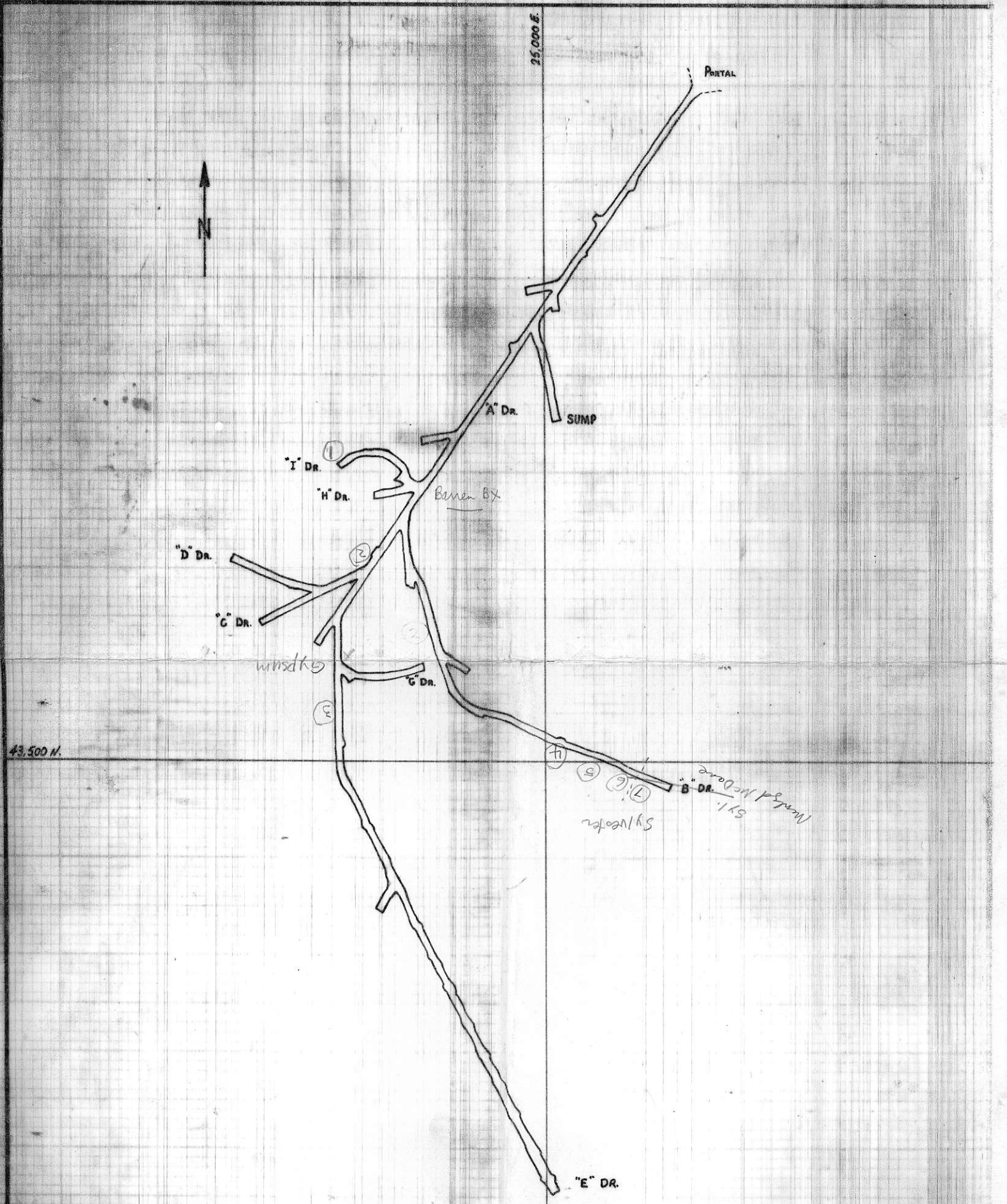
(5) Near Henry Ck - 1 - 8 cm layers of arg, gwke, bl. lst + sandy lst
across o/c layers thicken eastward
goes to turbidite (gwke, diss py.)
dips east, may young east here

· Distal turbidites?

(6) Granodiorite

(7) Gd sill with narrow diopside - garnet skarn halo developed in the bedded arg / calc arg
CR (photo)

(8) Old Showing - Gold leaf? Gold Coin?
massive py, vuggy qtz
vcg. calcite w minor sphal.
cal / py veins - narrow diop qtz halos
metased / ~~Hb~~ Hb dior sill contact
(photo) tectonic? bx ?



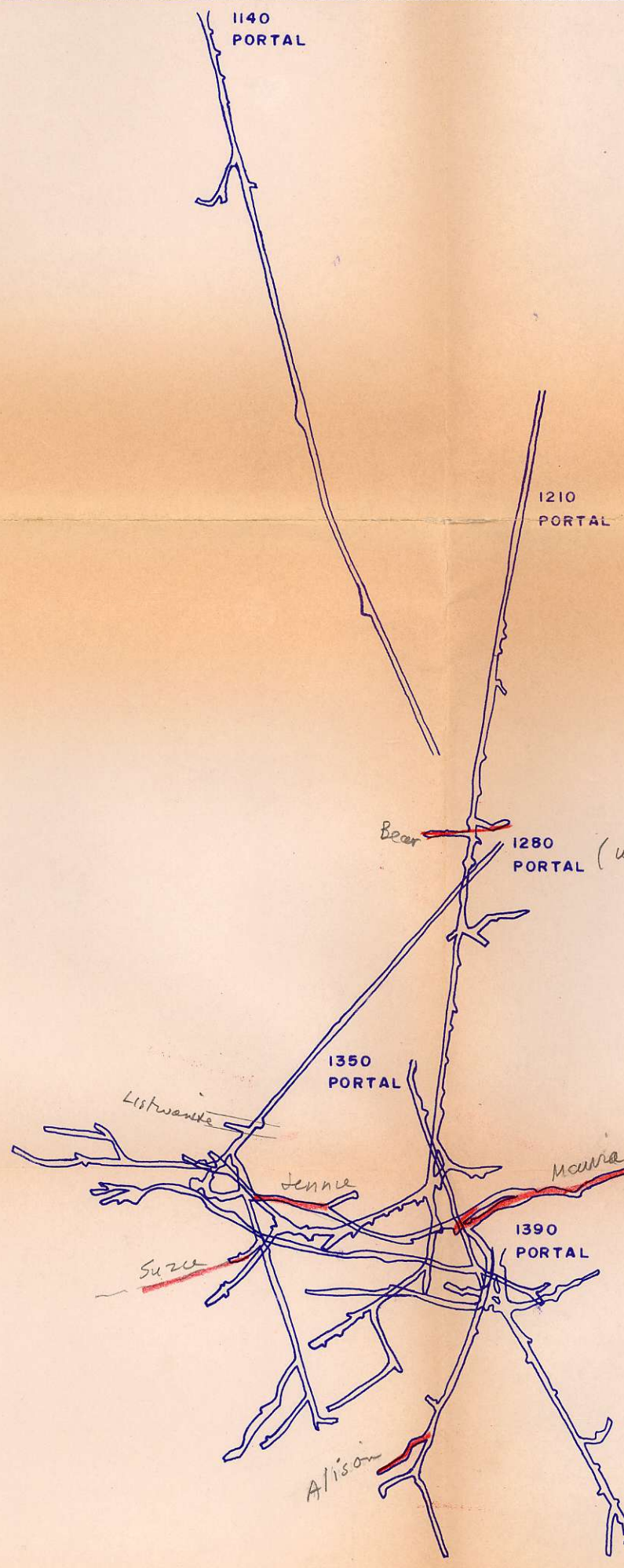
MIDWAY PROPERTY

SCALE 1:3000

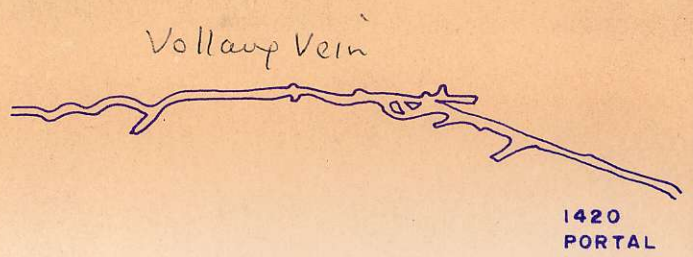
REV.: AUG/85, KPF

DR. BY: BT.

DATE: APRIL 9,



ERICKSON GOLD MINE



TROUTLINE MINE

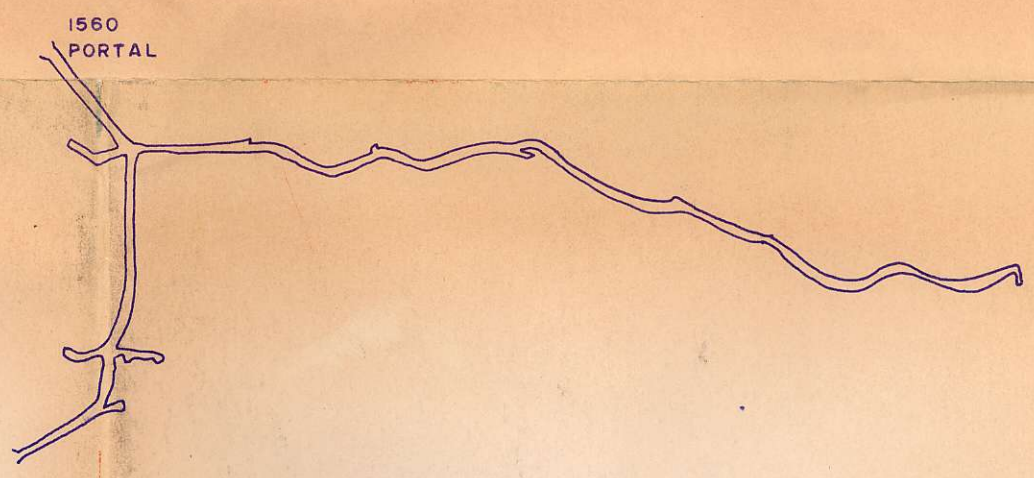


TABLE MOUNTAIN MINE

E.G.M.	TITLE: ERICKSON GOLD MINES LTD. U/G MINES					BLOCK NO.	
DWN. BY: J.F.R.	DATE: JUNE 1984	SCALE: 1:5000	MAP NO.	PLATE NO.	DWG. NO. S 163	REF. TO:	

NCI - 537