

013309

Geology colors (my old report)

purple hatch

older plap ppy
matrix → bistrate
younger " "

purple

green

Q=P

orange

Post ore bykes

gray

Harmfels

S-spotted

P-porphyratic

my logs Q 73-12 ✓

Bio → Spotted Hf's 183-400

porphyritic " → EOH (504)

specific spots to check 190 bio Hf's
284 bio Hf's

317-361 massive to spotted
(330, 350) bio Hf's (bio concs)

441-504 ppytic bio Hf's

(403) (438) (500)

≈ 200 bio altm dk colored

* ≈ 230 bio altm bleached

* see 240 bio-bleached adj to fr

(73-12)

~~190~~

(230)

~~284~~

~~284~~

~~330~~

~~350~~

~~403~~

438

500

x check hole 12 for biotite

73-11 Box 49 in 18 - biotite

753 QFP matrix chl mafic

862 Bio HFe bleached adj to veins

977 QFP biotite alt matrix

74-4 Metavolc - 384

Then QFP to 490

ppytic metavolc → crowded

ppj

Query - bedding in 73-14

[220 - 254] 73-8

700, 533 73-9
55H

} ?

74-2

Dyke in HF/s? 300 - 325 appx

73-13 aplite → QFP 143-198

73-9

Frag volc 575

x1 tuff?? 487-541

Spotted

HFe 800

Samples for thin section analysis

Q 73-12 : 190 Bio HfIs
: 200 Sl bleached bio Afes
: 234 Partly bleached bio HfIs
280 Spotted HfIs
358 Bleached Spotted HfIs
406 HfIs crowded ppy
495 Bleached " "

Q 73-11 190 ser kool alt QFP
Q not abundant
234 chl plag ppy (second
after biotite?)
35291 Ppytic Bio HfIs
315 " " " - bleached
865 Bleach HfIs
1003 matrix chl biotite altered
in QFP

Porphyry 81-17

Samples

7B 59.8m Graygreen clay 5-5mm

25% porphyry - matrix has

very fine py (~~5%~~) x is chloritized
(5-20%)

54

fract veins - carbonate,

py - cpy - chl

py - carb - chl

@ 57m becomes bleached

-63

chl slips, carbonate veinlets
to 1cm across

some (at least) carbonate
cuts bleached rock

Box 3 back to chl fs py

Box 4 same rock gray gm → bleached
fs phenocryst - white

Fract py-cpy, py, carb
gtz eye zone @ 67m in yell -
white bleached ppy

Box 5 some gtz fs ppy, tan
color, subaeritic matrix

but also the grn matrix

fs ppy (now with some
gtz eyes)

gtz - cpy veins now

Dissem int. magnetite

Tan alt. of matrix fs but
phenos white

Chalcy (Kashimite ?) alt.

or many fractures

Box 6 little gtz as phenos

now gtz veins

local kool alt. of

plap: phenos

Box 7 QFP variable gtz

var grn \rightarrow tan veins

gtz, carb, gtz-cpy,

kool Pr + some fs alt.

Box 8 fs ppy now like

that in first few

boxes - matrix mafics

\rightarrow chl, perv chl (10%)

& map - matrix

but variable is the key word.

veins - mostly qtz , $pyrite$, $carbonate$

Local carb-cemented bx zones

Box 9 More consistent white (Kool)

(93-97) alt fs phenos in fr ppg -
matrix dk green

Box 10 Kool or ser alt $plag$
in ^{matrix} $plag$ ppg matrix dk green
chloritized.

Box 11, variable dk green to tan
(95 & 108)
(sericite?) matrix in ppg

by 115 look fg - dk ol green alt
(prob ppg)

(124) Chloritic alt - clearly
 ppg

py veins w qtz - ser + bleach
halos

less py

py - chl fr

looks v. l. grade

Box 16

loc red py - cpy veins

not sure if rock is fq or

alt ppy

(134) 17 Prob alt ppy

(150) 17 altered F₂ Ppy
chl in matrix

(157) EOH 157.28

finer plag ppy - rel

crowded

chl alt. look r/grade

- END -

Q 81-2 (473 4) Fish Lake

Box ① 209-216 Bleached rock -

carb ± py, gypsum veining
(orange)

local heavy py pods, qtz

veining, py-cpy fr

few pink carbonates also loc

sheared areas are local. alt

original rock was probably

② - 222 orange-white gyp (anh?)

veins, py veins, py-cpy cut

by qtz-cpy cut by gyp

CR perv altered

Local stumps + concs of
mag (now hem)

carb - py - cpy veins

③ - 227.69 EDH - by 223 rock is

green by 225 dark gray.

Gyp veins cut qtz, cpy, py veins

& py fr

CR sericitized 1-2 mm plaq

py (224.6)

fairly
good
grade

.25?

→ Biotite fr + clots, loc → chl

(check this)

bn - cpy fr cut by gypsum

Qtz - py - minor modr vein

Gyp → EOT

226

was biotitized st pyritic and.

now bio. mostly → chl or ser

cut by map (now horn)

veinlets to EOT

Q81-8 (973-8) Fish Lake

185, 285

start ~ 121 m Rock is bleached

crowded f's ppy - phenos 1-2 mm.

Apd intense kaol altn

→ 140 there is pale gray with

~ 10% diss ppy + qpy (Box 4)

post ore dyke - box 4 is

pers. kaolinite altered (140)

Gray zone is pers ser. altn

(local white patchy zones)

(140)

(140.8)

map - MoS_2 - vuggy milky g/b veinlet

150 Bleached - some rock?

155

" Gypsum ~ 160 onward

165 sericitized CR?

(174)

175

"

Plap ppy

183 altered mottled dk patches

(map? bio?)

(184)

in this area the rock has a dk mottled appearance - almost spotted

H f's but biotite looks altered (to sericite? chl?)

Q81-8

by 200 ser more pervasive
our text. less visible

(210)

sericitized + dessein of
sulphides

225 Same

235 Green, remnant to white
patches (now chl) - low
slie zones

245 Sericitized again 30%
dessein py + cpy

(254)

at least local gte fs ppy
gte monoy - rock
bleached white

265 rel crowded rel
cg plop. ppy

981-2

279-283.5 Post mineral Hb

needle pyrite

K/AR Sample 280-282

rel crowded rel eq mafic
plag py on both sides

285

288 Bleached lg → finely pyrite

veined (pyrite) rock

Qtz - cpy veins

296

Bleached lg rock

pyritic zones + fr

305 EOH bleached finely
feldspathic rock

pyritic fractures

qtz, carb veinlets

(EOH)

Q 81-9 (Q74-9) 95, 295

starts @ 124 in bleached w/
crowded fs ppy

(124) purple what are the black,
sooty veins?

(136) mottled alt bio pods + fr
original rock unknown

(157) Tan alt matrix fs white
fs ppy - phenos 1-2 mm
mag veinlets
(how hematite)

166 Biotite altered fs ppy
(old ppy)

169 QFP starts - matrix tan,
aphanitic fs yell-white

(174) Phenos to 7mm 25% plog
Q2 - 2-3mm 4% matrix
tan vfg py fr + veins

(Young ppy)

left empty by mistake

left empty by mistake

by 184 it is greenish with
chd mafic ~ same size as
quartz grains.

Ppy finer than after 191
is bleached rock (vfg) cut
by py + spec veinlets -

[195] loc massive py ± cpy pods
in the QFP

Gypsum veining

→ kaol on fr common to here

[204] Sericitized vfg rock
pale gray

[205] Massive pyrite veins
± cpy

[219] Bleached, finely felds.
rock (yell - white)

[231] green powdered fine fs
pppy - matrix altered
(older ppy)

(241) White bleached → tan
with py - ch mottling
fine fs py

258 Gypsum, heavy pyrite
diss hem (red) yellow-tan bleached
rock

Kaol on many fractures

(259) Bleached fs py
Heavy pyrite fr + veins

280 similar rock ser + brnch
actn

290 Sericite alt fine fs py

(293) much dissemin vlg sulphide

(303) Similar I think - py cpy fr

303.4 (EDH)

Q81-12

"Detail" (Q73-12)

~~Q73~~ Start 152.5

Box 1 Gypsum veins, cpy/py fr,

CR is mafic plug (1-4mm, 20-35%)

ppg - matrix agh, green to totally biotite altered

Qtz - py - cpy veins

dissem bn / cpy in biotite

check - these are dissem

K/AR Sample 154 - 155.5

✓ veinlets of alt magnetite

"bn" prob tarnished ^{act.} magnetite

Rock beyond 155.5 is chl x sericite altered

Box 2 Rock shattered, basal alt on fract. bleached, sericite altered vfg CR

Box 3 Less shattered Qtz - py veins variable pers bio to tan

165

166

167

bleached alt vfg CR

or an intermediate stage

Fibrous gyp. veinlets

Box 4 167-173 Similar mixed
Hfcs + act Hfcs
Two sets of gtz cpy Jasper
(to och hem) veins cut
by gypsum
Hfcs altn → ser and chl

Box 5 Biot all alt - altn now has
chl patches in gray

176 seritized rock - vfg CR
veinlets + fr of mag → hem

Box 6 181 area Spotted Hornfels

181 → vfg chloritic rock with

183 Heavy dissemin mag + cpy

Box 7 185 Rock is green ser -
altered

veins cpy - cal

gtz - cpy

gypsum

190.5 - new rock type

just before are cpy - bio (chl)
fractures in dk green ser. rock

The new rock is dk green
matrix mafic (chl) plag (25%)
(green-white) porphyry
mafic repl amphibole

Back to the old rock @ 190.8

which is variably altered

191

bio Hf₂O₃ → chl + ser

Box 9

mag cuts ggp veins -
rock tan → dk green alt
- locally porphyritic

Box 10

± cpy
Qtz vein cuts gtz - py vein
chl fr

Ch var alt to grn (chl)
or yell-tan (ser + kfs)

205

Gyp vein follows earlier py vein

211

at 211 there is a contact

POST
MIN
DIKE

R. D. PENHALL LTD.
DIPLOMA IN PROOF
MADE IN B.C.

between pale yell nearly aphanitic
rock and plag porphyritic and-
pppy - the contact is sharp

The ppy coarsens ^{down} ~~away~~
the hole. Matrix pervasively
altered to chlorite (after bio?)

(210)

contact ~ 50-60% core

(211) Contact

(212)

Ppy cut by py-carb veins
with black halos + gypsum

* mntzn v poor after ~ 211

(Box 12) Variably dark gm - tan
matrix acts. Fr gm white

218 cut by post-min gray gm

(218)

dike 60° to core contact

→ 222

(222.5)

then ppy again

* mntzn negligible

(Box 14)

two other narrow post-
min dikes

both the light + dk

pppy could be post-min

23 here.

Box 15 → 232 Mixed porphyries

232 Porphyry that looks pre-min

230 younger-looking ppy

Finally ~ 233 some mineral
is in the ppy + the plg phenos
are variably altered.

The mineral is py/cals
with sericitic gray bleach
halos + cpy-chl fr

235

Box 17) Variably altered plg
ppy again

mod good mineral gtz-pp-
cpy gyp veins

237 Qtz-pp-carbonate

cuts cpy-chl stump

Ppy text clear or diffuse
depending on alt

243 see ppy but loc hard

to see

mag-cpy veinlets

Box 19 250ish ser slips gyp veins

cpy - py chl - och hem fr

(250)

plag ppy still

Box 20 Gray - green chl matrix

plag ppy still

Box 21 Kool on fractures

carb - py veins

dk green var. ppytic rock

(270)

matrix → chl

mag veinlets + clots

Box 22 Rock looks like it has

(273)

pervasive, abundant mag

+ chl as well as mag

(287)

± of fr

grade low?

(Box 25)

Variably ppytic and

(Box 26) Local tan altm zones

make the rock look

like a different kind

a few Qtz phenos were seen
ser altm along br has less cpy

Box 27

Green to tan fs ppy - some
green areas have hb needles
+ look like post - or dyke.
Fs altm white /

* are mentzld
(poorly)

Box 28 Var. green - tan plaq
ppy - mentzld Qtz - cpy ± py
veins gypsum

300 dessem mag (now hem)
as clumps

305 EOH Tan Ppy, a few
Qtz eyes

Q 81-13

"detail"

Start @ 124 m

gray sl plag ppytic chl
rock

Gyp veins py fr

Similar to 140 after there is

(140)

some yell-white alter

veins gtz - gpy, gypsum
fr py

(155)

loc flakey res zones

A bit coarser near 155

but variably ppytic

~160 changes to gray salt

(162)

& pepper textured chl
alt rock

next two boxes are mixed
gray / green / tan alt
microporphyry

(183)

Box 11

* the gray may be the
primary rock color!

veining @ 180ish is carb +
och hem stained carb + py
+ gypsum
very low grade?

Box 12 / 13 Mostly gray vfg volc

Box 14 veins gyp

(200) fr py, och hem
ck is very finely foldsp.
athic andesite

Box 15-17 Some fairly thick py
veins + gyp veins -
vfg dissemin py + cpy
locally

grade low?

(230)

most of the alt here

is dk green chloritic

(255)

Dissem hem after mag -

CR still vfg and

alt med - dk green,

chloritic

(275) Similar rock + altn
veinlets of gyp + py - chl
py + gyp fr

(294) vein with gyp + carbonate
XRAY check carbonate

(300) Dessen cpy py in green
alt andesite - cut by
gyp - carb - ^{cpy} py veins
cut by rock them - gyp fr

306 GPH Same rock diss cpy +
mag continue

- END -

Start ~95m

chl alt matrix fs ppy -

plag 20%, 1-3mm

1st three boxes rubble

(113) ser or chl alt ch cut by
py ± cpy - carb? veins with
ser alt halos

115 onward to 125

tan altered even grained
vfg rock

125-135

nearly aphanitic tan alt
rock - bleached Hfs?

135-140

arg (chaly waste fs) alt mafic

(chl) gt, plag ppy Plag 3-5mm,
30%.

Then alt/bleached Hfs again

by 140 is almost spotted
Hfcs

Kool on most fr
menlyn - chl fr, py-carb
veins, gypsum veins

160 Honey gap - white

(160)

entry? veins dessem py

(162)

strong ser. altn

(165.7)

menlyn improvement

~170 Fs Py matrix tan
aphanitic (younger py)

190 Sheared gummy kool
alt zone

(200) Fs Porphyry, ser + chl altn

Shortly after 200 is

fg again

(254)

by 249 to variably altered dk
gray vfg and. * Bio - cpy fr

(260)

Gray and - is it lamplined?
THIN SECTION

(300)

Variably all tfls continues
to EOH - * dess cpy x cpy fr.
306 EOH

- END -

7B - 31m

arg altered fine fs ppy
phenos 1-3mm 25%

py fractures

(32)

dissem cpy, py
veins qtz - cpy py
carbonate

by 37 are in bleached yellowish

(39)

vfg rock (alt hfts?) with
remnant fg diss mag (10%)
py-carb veins

(45)

Heavy py (vfg) zones cut
by carbonate veinskaol fr - variably bleached
to some-bleached (mottled)swirly zones of vfg py cont-
inue

60 ish strong carb veining

(60) Bleached rock

62 ppy dyke contact $\sim 25^\circ$
to core to ~ 74 then
back to var. bleached
frnfls

(75)

carb - bio(?) veins

ftz - epy

black carb - py

chl zones + fr

Box 10 another Pool Man dikes

$\sim \frac{1}{2}$ box

" finely ppytic to vfg rock
bleached yell - white

(12)
(13) Fg bleached

Grade looks mod. good

14 Lots of carbonate & pyrite
veining CR vfg bleached
gray - white

(100)

Silic. adj to some py
veins

py - or epy - ser fractures

(107) Fairly typical bleached
aphanitic CR.

~ 110 more heavy pyritic
swirls + zones

Box 17 ~ 120 Locally quite a lot
of disseminated sulphide
in ser? alt CR - most
is pyrite

(123)

~ 125 rock changes to alt QFP

(126)

with tan aphanitic groundmass.
- 137 dyke - Post-ore - Kaol.
altn

137 - 150 + Dark pyritic (ulf, dens)
rode - loc few chl altn
local bleaching
minyl'd py-chl
qtz-py
Gypsum veining

(147) Variably bleached

(150) Box 23 biotite "hornfels"

Box 24 Heavy carbonate
pyrite local sphalerite
with py

(155) cut by gypsum

(175) Box 27 Var. bleached

Hflo mag ± cpy veins
cut by gypsum

188 ~ 191 Post ore tan bleached
dyke

Box 31 Hflo + Post-ore dyke

(199) clots of chl thru matrix

Box 32 Spotted Hflo

(215) Box 34 " "

by 225 is "normal" Hflo

var bleached + ser.

dissem cpy, py

248 -

chl mafic xls

(250)

in green matrix

by 270 have local pyritic
zones (finely pyrite) & alt
Hb needles pretty well gone

(275)

Hb needles back but com-
pletely altered to biotite

- possibly a series of Hb
plag ppy dikes? because

local zones - box 46 are

also Hb needle ppy

fr have local py clots

with chl halos

Box 46/47 mostly fg

Box 48

(300)

Fg "hornfels" - grayish with
py-cored chl clots &
fractures

305 Vfg nearly aphanitic rocks
locally spotted hornfels -
possibly tuff - one area looked

like frag rocks.

Box 53 ~ 321 1 1/2 m post main
dyke

Box 54 fg - spotted HfPs

325

pyrochle clots abundant

345

347

} fg aphanitic to salt
+ pepper tuff →
andesite?

352

ETH

- END -

FL 81-18 "detail"

* late in day *

9/B 83m

Box 1 Rubbly

Box 2 dk gray gm vfg chlouty red
rock (was bio Hfcs?)
fr chl/pty; magnetite?

(93)

by 96 rock is finely plag
ppytic

(101) Ser. alt Hfcs?

Box 5) Rubbly partly ^{finely} spotted Hfcs
6)

7 ~ 114 Mixed Hb(chl) plag
ppy (muntz) and bleached
version of it

Box 8 120 sh Plag chalky wh albain

" 9

(125)

Tan Bleached fs ppy
dissem py clots

Box 12 Variably porphyritic
phenos u 1-3mm
10-30%

(151) matrices mostly dk
green, bio or chd

Too dark to see well now

(175) Pl. ppytic bio HfEs (?)

183-221 Post ore Hb

Box 20
21 Plag ppy dyke

(188)

Get
TS

22
↓
26 - Possibility for
K/Ar date -

(225) Gypsum veined disseminated
sulphide bio. HfEs (?)

ppytic by 230

coarsening down hole

(240)

matrix v dk green - black

(259)

Same

Post ore dyke 271-274

then back to "Hflos"

ppytic after 280

(284)

Dk green plag ppytic
rock - chlorite matrix

coarsens down hole

to 287 where post ore
dyke starts (note gyp
veins still)

(301)

Bleached arg alt zones
in post-ore dyke

(340)

Bleached
dyke to 341

(345)

"Hornfels" NOT ppytic

346-347 Bleached & alt

347

QFP matrix aphanitic,
not alt (u young ppy)

(348)

* minled though

(352)

EOH QFP has dk green matrix

- END -