021183

1994

Aug 10/94 **Red Dog** area ◊ John Thompson & Vic K.

Comments/observations:

QFhb Porphyry is larger knoll to N of Red Dog sampled for zircon

94AP 1/1-01 - zircon sample

Note Red Dog zone is f.g. diorite ◊ QFP dykes & Tertiary? dykes

this diorite is present as? xenoliths in QFhbP & cut by QFP dikes.

Mineralizatn.

mod sp + chl altd perv. diorite has cp + py **(94AP 1-2/02)** in quarry by DDH 90-6 in large quarry o.c. face

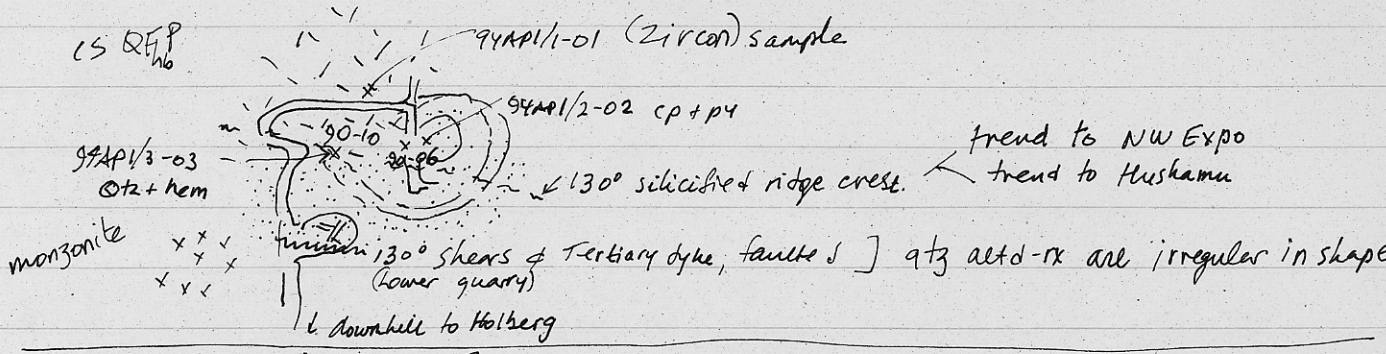
Qtz vns cut ultimately disrupt perv. rock

Qtz vns have qtz + mag ± hem? ; - than cut by qtz+py vns

Clay altn (kaol ± pyroph) must be v. local & structurally controlled

Mass, dense, v.f. granular qtz has ≤5% voids, locally up to 15% filled largely by spec. hematite

- **94AP-1/3-03** @ DDH 90-10.



General impressions: John Thompson altn @ Mt Mc like Temora — bxs, early ∏ trem/act ± mag ± py

These are unusual dyps. Red Dog qtz+ spec hem like Marysvale clays, alun

Environment: Deep acid sulphate closer to ∏ Cu zone; AA is prob. late collapsed hydrothermal overprint ◊ highly acidic & oxidized fluids

JT says — best ↑ comparison - Hush/Red Dog Gold Gield NV, P. Vibre has some new published stuff

Re Lepanto: enargite ~2% NaCl but isotopes say magmatic fluid; poss. vapour condensate ∏ Cu (FSE) is v. high salinity. Fluid interface is knife edge.

maybe Is sericite ± qtz ± py a magmatic? product ?? qtz-sc-py altn is not necessarily meteoric

Whatever, it does overprint all other, including Kspar

Aug 14/94 Quicklook @ EC156 Located on ~P190 Road

to S of W2 DDH.

Trav 5" casing 0 – 17

17 – 274 qtz pebble, highly comminuted clasts to 5mm
Late hydrothermal breccia.

eg) @ 27' tP94 tP4/S-27 - Rock is hyd. altd by leaching to give perv fg porosity & patchy clayey siliceous look. Sugary-granular relict look. Limonitic speckling thru perv cavities.
becoming finer grained → massive silica > 120'
dense silica ("cherty") + vugs ~5% after 150', this has fract-controlled limonite (stringy)

@ 179' tP94 4/S-28 - 'dense' silica rock
> 185 #28 becomes patchy bx'd with clay? matrix? now perv. limonite.
and hydroth bx + clay webs > ~200'
V.S. → intense fract fill limonite > 240'

Contact Crushed zone & black sulphide-clay gouge Contact & basalt.
274 – 278 poss 45° to C.A.
278 – 288 highly fract'd, clay altd.
@ 274 contact & basalt unit med gray → dk & diss hbrdly 1-3mm, 15% 'plag' phenos, now all clay altd.
274 – 379 V.S. smell of sulphide ∴ dusted thruout & pyrite
BASALT
@ 292' 94tP4/S-29 clay altd + dusted pyrite basaltic andesite
> 290 Variably crushed, clay altd & fract'd to pulverized.
Crumbled crap! – all bs
lower contact poss. 70° to C.A.

379 – 394 Rhyolite-clast (felsic) Lapilli Tuff
angular cream-colored → pink rhyo clasts & dk v.f.g sulphide rims & stylolite to fmlts & dk pyritic stuff
locally V.S. as vuggy, limonite crusted patches

@ 384' 94tP4/S-30 felsic lapilli tuff fining downward to ash → dust tuff ~ 390 & bx'd patches

and SOS onward with variaits in texture

c394 - (450) Hydrothermal bx of original Lapilli Tuff reworked
-503'

vuggy, qtz-pebble/sharpstone clast hyd melee bx

contact @ 20° to C.A. contact has gypsite? patches

distinct patchy, cs vuggyness & leached - residual silica look

this has patchy (layered) original lapilli-ash sequence

Still evident with patchy vuggy residual silica aeh zones

layers ~ 65° to CA

c424' - 9424 4/5-31

450 - 451 gouge in faunt

450 - 460 Felsic lapilli tuff, monomictic autobx'd rhyolite

Strong clay alt + 'clunkey' silica & S. limonite

but more homogeneous than above, Rock all SOS but

autobx'd?

>460 much dike above but patchy intense limonite - goethite in

vuggiest sections. Locally thin pebble-bx hyd streams

a few inches wide, sinuous

~480 grey clasts are hyd alt ∴ patchy hyd bx with

original remobilized lapilli clasts.

some euhedral x/s pyrite, clay vnlts & seams

more subtle alt, less silica residual vuggyness

dark minerals - v.fg earthy hematite?

~505 NQ → BQ downsizing of core

patches of lithic - xl to xL (feeds) ash tuff

& vnlts/fracts + py having bleached alt envelopes.

— seems like ∴ lapilli size decreases downhole

503 - 508 Alt? Felds. Plc (not basalt?) dyke - more felsic

bottom @ 50° to C.A in ash lithic tuff - all clay alt'd

+ limonite v.s.

dyke has fract + py core with bleached selvage

1994 Aug 14

EC 156 cntd.

508 - 610 Lapilli polylithic → (ash Tuff ~~layers~~, lenses)

v.s. limonite in vugs/pits. + perv clay alt'n

Lots of irregular fingers & rhyolite 2 - 8', patches to bands of v.f-g/gy clasts are polylithic rhyo → felsic → porphyritic felsite

No clast size diminishing, angular lithic lapilli Tuff.

Clasts + matrix webs. have earthy hematite.

alt'n predom. clay, silicification is weak residual type. - matrix has v.f.g. patchy matrix pyrite

- perv. patch replacement/webs of clay + clast-clay alt'n is chalk white to pinkish (hematitic) & stockworks of pits & limonite

tr supergene covellite @ 608

- lapilli tuff has sl. compacted-clast elongation

∴ cs. ashflow / compaction deposits

eg @ 588 - 94AP4/5-32

600 - 610 finer grained, denser few clasts visible, basal ash → dust tuff, compacted flow base.

610 - 639 (Flow-banded) rhyolite to lithic ash tuff

Pale cream, homogeneous, clinkery perv. fine-vuggy, porous rock

f/w bands 50-55° to CA.

~~then~~ ~620' more silica frags evident + vuggy residual silica patches

with overall strong clay alt'n look (+ silica residuum)

x̄ clast 5 mm in dust matrix

eg @ 630' - 94AP4/5-33 - ash (lithic) tuff & clay + fg xline silica + alunite? alt'n

630-639 - v. qtz clast rich, s. bleached

639 - 684 Grey, pyritic lithic ash tuff ~80 & rare clast to 5 mm

ash flow?/ash fall - salt & pepper look & 10% layer

lots of qtz & py & sulph patches

Clasts in ash (→ dust) matrix. ~~flow~~ layering except locally

ash → lapilli ~ 670, in gradual coarsening downward

wells ~~6661~~ @ 6661 - 94AP4/5-34 cs ash (lithic) felsic tuff

679 - layered ash → dust @ ~70° to CA ash flow?/ash fall??

above 684 - grey unit is py-rich.
below 684 - clay alt'n ± silica (much less py, proto ✓ vuggy silica = stronger leaching

684 - 727.5 Qz clast lithic tuff (to hyd bx?)

v. Pale, bleached clay alt'd massive lithic fine ash ± qtz clast T

v.s. clay + f.g. vuggy residual silica

710± Δ to Lapilli (lithic) felsic (rhy clast) tuff with persistent clinkery porosity

eg @ 725' 94 ± 4/5 - 35

f. ~727.5 - ±729 Dk grey pyritic crush/gouge - clay alt'n fault gouge

~729 - 750 Lapilli tuff - dk grey ø lots a f.g. dis. pyrite

→ mass. py replacements to 6", siliceous patches in between

much SO4 bloom in core box

→ Pyritic replacement gouge

750 - 751 Fractd Rhyolite (Lapilli Tuff)?

EOH

1/1

1994 ICMine Quicklode EC 157

Aug 14/94 High up on Rhy dome at Loughpan A.

See Pete Peredo report, V sections.

This is due N of EC 158 - by the Schlossmacherite.

Casing: 0 - 12

Rhyolite: White → cream, SL clinkery & chalky, SL porous look
∴ some 'plaster' alter. V. porous rock, water absorbed quickly.

EC 23' - 94AP4/4-20 - typical.

Perv. + wk frac-filling clays = ? kaolinite, V. homogeneous
earthy fract-filling Limonite + pervasive lim 'wash' >100'
@ thick limonite crusts + contorted flow banding ~ ∓ 20-25° to CA
- ~150-155± more vuggines, some residual silica patches + bx'n.

164-176 Strongly vuggy, residual granules silica, leached zone
brecciated = hydroth bx monolithic bx'd wallrock + leaching &
residual clay + remobilized clay matrix to clasts.

eg) EC 168' - 94AP4/4-21

>176 - SOS, clinkery, chalky pin-prick porosity rhyolite (as above)
but rare fract'd, bx'd patches, suggestive of qtz remobilization
vuggy qtz coating by qtz xls to 0.1 mm tr. black xls. enargite
and overall v fg. sugary recrystd texture pervasive 250'±
Could this be + alunite to give 'recrystd' look + ? zunyite patches??

EC 272' - 94AP4/4-22 - atypical of interval but good ex. of alter (patchy) zone.
Then SOS > 295' but strong perv + fract-fill limonite 328
(V)s. Limonite >300 → strong >325, intense limonite to 367 then SOS
- Strongest limonite ~345-365 coincides & bx'd rock but not silicified

EC 328' 94AP4/4-23 - limonite alter.

bx >365-487 bx'd zones ± residual v open vugs + rare grey silica
remobilization to 487 - S. limonite zone again - bx like #21 @ 168'

>487- SOS cream rhyolite

>487' patchy vugginess over 5' intervals eg) 574-579' in SOS
Cream rhyolite

>487 SOS rhyolite, cont'd

>529' s.bx'n, fract/crackling + clay 'webs' for matrix
to 576' – again v.s. limonite, but clays become much more abundant & chemical bxn + patchy ruggy rhy + clay matrix
← bxn/patchyness becomes common
eg. @ 574' 94SP4/4-24 – most 'bxd' then >575 SOS v. chalky, clay alt'n
massive rhyo + limonite rem

@ 608'-620 start of vf-g. pyrite veins & seams, mostly ~ 20° to CA.
sinuous, patchy & embayment/cusps into wallrock
then have $CuSO_4$ salts on old core py + ? enargite
eg @ 610' -94SP4/4-25 – typ. vf-g. grey py + ? vein/replacement.

>620 SOS mass cream rhyolite but more chalky/clay alt'd.
-642

642 – 675.5 patchy sulphides in bx zone @ bizarre (new) crusts from acid spray of canary yellow salts = jarosite?
+ xl'line growths of honey brown xl'ine jarosite XRD/melanterite?
eg @ 650' 94SP4/4-26 – bagged for jarosite? + check vf-g. med grey pyrite rich + ? veins/replacement.

657.5 – 665.5 @ 40° to CA.
massive vf-g sulphide + gyp's? comminuted/bxd semi massive crusted pyrite zone

665.5 – 669.3 Rhyolite.

669.3 – 670.3 Sulphide zone @ 20° to CA, as above 657.5 – 665.5

then >670.3 SOS rhyolite but vf-g., locally bxd and ? flow-banded, same 2-4 mm limonite-accentuated bands of dk-pale limonite pervasive wash in rhyolite f-granular, homogeneous rock.

~675 – more crusted, clayey + perv. v.s. limonite + grey patches
looks more patchy silicified, stockworked & thin py fracts bxl/crushed
@ 719 @ 40° to CA f-g. tuff bedding? contact
grey/brown colour contrast, grey = dark SSS tuff/bxd flow top? (probably)
brown = ? flow banded rhyo then SOS clay alt'd rhy (flow banded) perv clay alt'd to @ 737.

Sulphide band 728 – 732

Aug 14/94 v. quicklook © 1994 DDH EC 211 (Mt McIntosh)

D Pawliuk Log.

Casing 0 – 6.71m

6.71 – 48.93m Siliceous bx

48.93 – 50.9 " pyrophyllite bx.

50.9 – 59.28 Late siliceous bx

59.28 – 66.55 Late bx fault 66.55 – 71.81

71.8 – 81.03 Late bx

81.03 – 84.0 Silic. Kaol. bx

84.0 – 86.0 Fault gge

86.03 – 90.44 Silic. Kaol. Bx

90.44 – 95.64 " Cpymph "

95.64 – 96.3 Fault

96.3 – 104.1 Late Bx

104.1 – 111.4 Silic. pyroph. bx

111.4 – 112.8 Late bx

112.8 – 134 Silic pymp bx.

131.9 – 132.7

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134 – 165.85 Andesite (Basalt) volc. Bx

165.85 – 172.7 Late bx.

172.7 – 198.2 And. bx

198.2 – 271.58 and Lapilli Tuff (?) ⇒ andesite Tuff

e.o.h.

AP Log

@ 132.5m Distinct white lapilli rhyolite clast, pervasive Kaol-acted with patchy f-g pyrite replacement.

132.5 – 94sp 4/6 – 36

fault @ 2" clay/py gouge ~ 132.7m

Δ to different rock = "andesite" + actn Δ, more drab grey/grn with brown/tan actn

Rock is massive andesite a pymp/mottling 137.5 – 140

Real 140 – 141.m

grey/green actn 141 – 143

pervasive clay + py 4/5 143 – 145 / like '93 Gnt AX site.

> 145 grn/buff actn

EC 211 Quicklook at bottom of hole in 'andesite'

Andesite is int & ext of auto bx & CS bx clasts → typical

Overall dk grn = chl ± act ± magnetite alth

eg @ 149m - 94AP4/6-37 - act

the green is interspersed @ 2m sections of xl/lithic py + sc + clay bleaching with 5-10% diss py, peas to patchy buff = sc?

eg @ 159m - 94AP4/6-38 - act

locally grn is cut by sections 1-2m of 'late alteration bx' ± clayey/gouge zones

overall v. coherent core & good recovery. (Quite homogeneous rock protolith)

late bx's are polylithic & rhy + and clasts ± colls & internal sericite between clasts

eg @ 171m - 94AP4/6-39 this passes down into clay altd/gouge zone ~178.5 - 178.9m.

> 159m ± quick homogeneous alth buff pervasive → pinkish tan & diss py cut by short more clay-altd (white chalky) kaolinitic sections 0.3 - 1m across, rare greenish patches as relict alth eg 212 - 212.4m

Strong diss > vnlts py to 3-4% throughout, some CuSO4 in acid blown ∴ Cu here. (work).

all as in East '93 AX site.

clayey patches have py vnlts, stockworks more abundant.

7200m v. homogeneous, lots of slicks on frac. faces

typ @ 222m - 94AP4/6-40 py in thin to 1cm diffuse 'bands'

@ 245m more hematite ± clay ± green drab olive patches of relict low grade montmorillonite? through to 252m

then > 252m patchy pink pervasive albite? ± dk hematite SOS mottled grey qtz-sct py pervasive advanced type alth

no magnetite v.s. hematite + py vnlts

@ 253m - 94AP4/6-41 mottled pink = albite ± hem ± ? alth

then > 255 - SOS as ± 40.

EC 211 Mt McIntosh

> 255 SOS as #40, more typical actn, Pyrite vnlts, stockworks start to be noticeable.

eg @ 265m - DyAP 4/6 - 42

after 265m SOS, v. typical

> 267 m more crushed, clay altd (gouge) and hole ends in crushed zone (fault) @ 271.58m

EOH.

Aug 13/94

QUICKLOGS 1994 EC DDH-214 / from Bottom up. EC 214 (Hushamu Mt McIntosh 1994 Drilling)

I have copy of log. working back up hole

EOH 365.76m — 337.3 'QFP'

but QFP is f.g. sericite + py altd + qtz vnlts in f.g. qtz diorite - looking rock. To me NOT QFP but rather altd qtz diorite stock.

fg @ ± 364.5m — 94AP 3/2-09

Bs dykes look sub|| CA, contact ~ 75° to C.A.; contact has calcite + gyps vnlts to 3 mm

"QFP" at 329.3m in bs dyke zone 94AP 3/2-10

Note altn green perv. chl → altd mag is cut by py+sc vnlts + perv. sc + py bleaching

~317m bs contact @ ~ 50° to CA. 50 to 60° to CA. all contacts sl. sheared & gyps vnlts.

~306m "bs" might be lamprophyre & calc. vnlts ~ 40° to CA.

@ 306m typ "bs" = lamprophyre 94AP 3/2-11 @ 306m.

general Δin altn / also? rock type?

> 313 m to end (qtz)+py+sc alters green perv. altn

< 313 m perv. grey - grey/grn cast ± crushing & montmorillonite clays, much less qtz vn/ no stockworks.

? magnetite altn - perv speckling ± hem overtones ✓ or chalcazite? interstitial

(qtz)-py-sc patch 289-292 cuts perv. (magnetite) ± chl speckled 'alt' rock to me is ?ric (qtz) diorite

@ 274m 94AP 3/2-12 typ ?ric "diorite" texture

this is grey/grn blotchy sc+chl altn ± mont/mixed layer stuff "clots" + qtz granules in qtz diorite

General Δin altn < 242 m

crushed zone ~60' to ~ 248 m

< 248 m pyritic and siliceous altn

qtz diorite (cont'd)

< 262 clay alt'n patchy waxy montmorillonite clay etc to 237m

< 237 Siliceous, pyritic alt'n

Qtz diorite continues as faint relict textures in clay alt'd zones to Δ in rock type @ 237!

note ~ 238.5m contact with v.f.g / m.g diorite @ 45° to C.A.
Chilled margin internal to contact @ 237m.

≤ @ 237m hard grey, dense 'cherty' siliceous rock @ wk/m py + sc - still ? SOS qtz diorite, now highly qtz+py+sc pervasively altered.

@ 209 m 94AP3/2-13

to 196m Ironstic wash + (wk) frac fill & clay discolouration
b x'd, crushed zone or ash tuff, compact clast-supported
all stained by limonites + drill oils.

195-189 Covered

~169 m Still patchy magnetite as speckled alt'n

Rock type ? @ 163.15 Cs ash → Lithic Clasts in alteration siliceous ± py + sc alt'n ∴ tuff section here.
Some strong pyritic dis + 'worny' short fracts, vnlts

Contact? definitely ash tuffs here alt'n is still splotchy, patchy colour-mottled sc + py type

~143m 1st suggestion of f.g 'mottling' of mottled pyrosph bx' type

@ 149m 94AP 3/2-14 typ. sc + py alt'd ~~(grey)~~ greenish) = sc? Lithic ash Tuff

faults + gouge @ cave in hole 136.25 → 130 ± m
is this siliceous-clast, ie felsic tuff?

DDH 214.

< 130m (above chalky, cave zone)

V. homogeneous boxes, dense f- pale grey core & rare limonite in fracts. siliceous, hard Si >> clays,

all Rhyolite? (felsic) "vl. ash taff" - felsic or perv. SC + residual silica alt.

⊙089m 94AP 3/2-15 typ. of dense grey rock, fracts/matrix/ interstitial clay ± alunite?

<80m strong limonite & jarosite in fracts.

'textured' patchy grey siliceous rock = 2ndary clays ± alunite becoming f-g. mottled.

strong py as f-g. matrix to ~ 10% angular rhyolite/ felsic clasts to 1"

@ 42.1m — 43.5m & CS bx clasts in pyrite matrix

typ hostrock is f-m.g. pink/tan mottled felsic rock/ mottled pyroph. bx

eg @ 041m 94AP 3/2-16

@ 29.2m - 6" @ 15% to CA pebble bx - clasts are wallrock melted to 1cm in f-g. pyritic matrix.

f-g mottled to 17.5m

15.24m @ Collar to 17.5m CS pyritic matrix mottled bx ("late bx")

clays are punky, white grey kaolinite

Note: No vuggy, residual silica in hole.

V.S. pyrite + SC throughout hole to lower part where magnetite cuts in + then

then bottom has py/ + py ± mag stockworks.

all bxs are at top of hole.!

Casing 0 - 15.24m

(over)

EC 214 Impressions

TOP is oxidized

" " Mottled + late py-matrix bx

("Rhyolite" = felsic tuff
now Sil/sericite, py + sc alt ± Kaol

This grades downward into Qtz diorite (= QFP')
this is pervasive Qtz-ser-py alt ± kaol
flat x cuts pervasive mixed layer clay + magnetite ± chl
(greenish) alt
Kaol below is Qtz stockwork ± py, mag to
bottom of hole.

Rare bx = lamprophyre dikes
Some huge faults.