

PH01-05

0 -5.86m **OVERBURDEN**

5.86-8.46m **DIABASE DYKE** - Very fine-grained, grey color homogeneous texture; fractured core with rusty fracture surfaces; py along fractures; lower contact 10-20CA

8.46-111.46m **FELSIC VOLCANIC** - Coarse grained qtz rich with sillimanite±biotite, blue qtz eyes; layers of sulfides (py, po, sph, cpy) throughout and parallel to foliation; coarse-grained qtz veins or thick qtz rich layers throughout; sulfide grains are irregular and wrap around qtz grains; also po, py in fractures throughout; sulfide occurrence is both locally uniform throughout and concentrated into thin <1cm wide layers; overall layered; sulfides range from <1 to 20% with po>py>sph>cpy

Botryoidal texture of qtz rich discontinuous layers @ 14.80m

Sulfides also crosscut qtz rich layers and disaggregate them (evidence of sulfide mobilization), in many places foliation is difficult to distinguish

13.50m Layers of qtz and sillimanite @ 60CA

Sulfide layers are variable in thickness (<1cm to > 1m) sulfide-rich (~25% max); layers have variable angles

19.10m folded thin sulfide-rich layers truncated by sulfide-rich layer with coarser grains of sulfides; po-rich at upper contact

22.53m - 15cm wide sulfide-rich layer (~25% sul) 60-70CA; po-py wrapping around qtz crystals, minor sillimanite

23.75m Qtz-rich layer ~1-3cm wide with "intrusions" of sulfide-rich material breaking up the qtz-rich layer

27.00-28.67m Sulfide-rich layer (~20% sul), minor sillimanite and with po, py wrapping around qtz crystals

23.13m 2 cm wide qtz vein @ 30CA with py and possibly biotite±sphalerite

28.78m ~0.3 cm wide sulfide-rich vein (po, py, trace cpy) @ 60CA

29.45m ~10cm wide "bleached" irregular zone of felsic volcanic and with sulfides along the contacts; po, py (~10cm) above the bleached zone

29.80-30.02m po, py>sph>cpy rich zone interlayered with sillimanite and qtz; overall sulfides 15% max; sph layers (~0.5 cm wide max and 60CA); minor dark mineral (possibly cordierite); within sample 22227

30.80m 49CA, thin, 0.5 cm wide sulfide-rich dark layer in qtz rich felsic volcanic

Continuation of qtz rich felsic volcanic with thin layers of diss py, po (±sph); much less sulfides than throughout (deformed veins) and few mylonitized, altered siliceous zones

32.10-32.47m Qtz-rich vein with py along fractures; top contact ~40CA; bottom contact is irregular with muscovite/sericite; brecciated grey felsic volcanic fragments

33.55m 2 cm wide qtz rich vein @ 60CA

33.64m 3 cm wide qtz rich vein @ 70CA

Fractured and broken core throughout (core loss)

~34.74m ~70 cm wide zone of siliceous and altered felsic volcanic (possibly mylonitized); foliation is more distinct and darker bands (~1-3mm wide) with sulfides are closer together; mauve and light colored "bleached" core; very fine-grained po, py along foliation (50CA)

37.43m 7cm wide qtz vein; irregular top contact with dark green alteration (possibly chlorite) and sharper lower contact 50CA; minor diss po throughout (~2%)

38.50m Light green-grey "bleached" qtz vein with dark grey interior (minor py) crosscutting and disrupting foliation of felsic volcanics; evidence of mobilization of fluids

Continuation of felsic volcanic with qtz rich zones (deformed veins) and siliceous layers with thin (<0.5cm average width) layers of po, py and minor sph (but sph is not always present and is significantly less than at the top of the hole), plus trace to nil cpy

Continuation to 43.25m Siliceous, light grey qtz rich felsic volcanic as described above

42.36-43.23m Coarse-grained qtz rich with purple alteration; 1-2mm graphite grain (soft, grey and conductive) along qtz

43.25m Felsic volcanic is darker grey overall (with few lighter more qtz rich felsic volcanic interbeds as above)

Sulfides increase to 2-3% overall with po, py rich layers $\pm$ sph and trace if any cpy; sillimanite and qtz eyes are present locally; deformed and irregular qtz "veins" throughout

Fractured and broken core @ 42.00m (core loss)

43.73-45.50m Darker color intersection with 5% max sulfides of very fine-grained po, py, trace cpy and possibly sph (very small black mineral) wrapping around qtz crystals; brown banded mineral @ 59CA 44.70m-possibly biotite; qtz rich layers throughout

45.40m Gradual contact with qtz-rich felsic volcanic as above with darker bands with minor sulfides

45.75-46.35m Qtz-rich, siliceous with diss po, py along fractures and foliations, light green-white bleaching color; top contact 60CA, bottom contact 50CA, gradual

46.40m Dark layer (~0.5cm wide) with sulfides (po-py) 50CA

Darker color felsic volcanic with 3% sulfides overall (max) po and py between 53.00~56.20m (small intersection @ 53.30 to 53.52m of lighter qtz-rich felsic volcanic, trace sulfides, py along fracture planes

47.00m increasing blue qtz eyes and very fine-grained sillimanite; still have thin dark layers of diss po-py

50.07m 0.5cm wide qtz vein @ 40CA

50.20m large irregular, rounded qtz vein/bleb (~10 cm wide)

Sillimanite increasing and sulfides decreasing ~1-3%

56.20-57.45m Strongly foliated (possibly mylonitized) siliceous felsic volcanic with few qtz veins, garnet ~1-2% overall and bigger garnets in qtz veins; top and bottom contacts 40CA; foliation is parallel to contacts; 35cm of alteration, siliceous felsic volcanic from lower contact above to qtz vein below

57.80m Qtz vein: white, coarse-grained with a few obscure grey colored clasts with (brecciated and assimilated felsic volcanic); upper contact undeterminable, lower contact 40CA; <1% sulfides overall (py); fractured (core loss)

Back into felsic volcanic with silification and qtz veins, alteration increases from 61.16m to ~63.00m (here core is very fractured with core loss)

62.30m 7cm wide light green (sericite, possibly talc) alteration with qtz; sharp contacts 50CA, minor py

62.45m 10cm wide qtz vein with garnet and green alteration (possibly chlorite) 40CA, minor diss py, possibly trace sph

Also seen at 62.00m (60CA) 3 cm wide qtz vein with minor to trace sulfides (py)

Moving downhole, the ore is darker grey colored with minor to trace sulfides; $\sim \leq 1\%$ 1mm rounded

garnets throughout or with thin ~0.5cm wide or less qtz veins (meta sandstone??)

At ~64.50m grades into fine-grained biotite rich meta shales/siltstone with similar garnet and qtz; boudinaged qtz and garnet veins throughout $\pm$ minor py

At 66.06m Coarse-grained qtz-rich with thin interbeds of brown (biotite?-rich) layers ; sharp top contact 70CA; overall sulfides $\leq 1\%$ py with a few localized zones (cm's wide) of more diss py but overall sulfide mineralization is not significant; qtz veining throughout; py along fractures; foliation is variable to indistinct in places but overall 30-60CA

Qtz vein: 69.69m 2 cm wide @ 60CA

Qtz vein: 69.88m 48cm wide coarse-grained with brecciated/assimilated metasandstone; top contact 60CA, bottom contact 40CA; minor py confined to fracture planes and along contacts of breccia and qtz (@73.02m)

Qtz vein: 73.02m 4-5cm wide 60CA with minor diss po (~1-2%) along contact

74.40m Gradual change to more siliceous, "bleached" looking felsic volcanic with minor sulfides (trace) and trace qtz eyes

Samples 22274-22282 are of the qtz-rich felsic volcanic / meta sandstone with thin dark layers (which have an average 1% dis po, sph may also be present)

78.30m Start of coarse-grained irregular qtz veins in the grey-pink metasedimentary rock (with thin dark layers and minor diss py and also possibly sph) see sph as very thin layers ($\leq 1\%$ overall)

With the qtz veining the metased? Becomes increasingly altered ("bleached" and silicified) with even less sulfides; qtz veins are more abundant 79.60-81.70m), coarse-grained biotite-rich; overall foliation is 50-60CA

At ~82.25m qtz veins decrease and the felsic volcanic is extremely "bleached" with very thin layers (~1mm wide max) of sph and diss sph and py throughout; biotite here is significantly decreased; pinched qtz veins are still throughout but lesser amounts and still with green alteration at contacts ~88.50m Felsic volcanic is brown-purple colored with fine-grained diss layers of either sph and/or brown mica (?); qtz veins continue throughout

Qtz veins: 88.73m 3 cm wide 60CA

89.24m 1 cm wide 60CA

89.88m 5 cm wide 60CA

93.56m 4 cm wide 60-70CA

Sphalerite layers (max 0.5 cm wide) @ 60CA (parallel to foliation) especially between 90.10-91.25m

At ~93.80m the "bleached", strongly foliated felsic volcanic above becomes even more bleached (whitish color) with grey colored layers

At 94.05m 4 cm wide leucocratic felsic intrusion (possibly tonalite) @ 10CA; 99.00m 1-2cm wide @ 10CA

Qtz veins also continue; core is progressively "bleached" and dark layers are pinched and obscure

Qtz vein: 94.74m 3 cm wide 69CA*

94.87m 18 cm wide 60 CA (bottom contact)*

96.84m 2 cm wide 50CA

97.10m 6 cm wide 60CA

97.45m 7 cm wide 40-70CA

97.95m 10cm wide variable

*At bottom contacts the felsic volcanic is dark with biotite and po/py wrapping around breccia clasts Sph is seen as far as ~98.00m but is very fine-grained and not greater than $<1\%$ overall

At 99.55-100.31m Deep blue brown alteration zone with coarse-grained (phlog), qtz, and sulfides (py, po, trace cpy) in qtz veins wrapping around obscure rounded breccia of altered felsic volcanic (with rims of alteration)

100.34m Continuation of altered, deformed distinctly foliated felsic volcanic with silification and "bleaching" (of variable degrees) throughout; diss py along darker layers and with/without trace sph (<1-1% sulfides overall); few qtz eyes; qtz veins are throughout with/without minor sulfides and dark breccia)

Qtz veins: 101.55m 18cm wide 60CA

104.23m ~15cm wide 20CA

105.03m 10cm wide ~50CA

105.71m ~2 cm wide 10-20CA

106.26m 6 cm wide 40CA

107.45-108.90m abundant qtz veins (0.5-25cm wide) 50-60CA with same dark purple alteration with brown mica

102.20-104.23m very bleached zone, the darker layers are now olive green and discontinuous; the lighter layers are now pink-beige color (possibly sericite); observe qtz vein (50CA, ~0.5cm wide) broken into blocks by the pink-beige material, <1% finely diss py throughout; sph?

Fractured core, particularly between 101.55-106.00m; possibly due to improper handling by helper)

110.66m Foliation 60CA

Bottom contact with intrusion below is sharp and 40CA with chill crosscutting foliation of felsic volcanic

111.46-112.56m **DACITE** - 111.46 to 112.56m Chill margin (30CA) is very fine-grained (aphanitic), black color with trace magnetite and <1% po, py; small (2-3 cm wide) rounded "xenolith"/clast @ 112.00m, thin <1mm wide po-rich veins with trace cpy

112.56-112.88m **FELSIC VOLCANIC** "xenolith"/clast @ 112.56-112.88m; same as above with cpy bleb with py, po (overall 3mm wide band of sulfide) along upper contact; trace po, cpy within, dark mica-rich similar to seen at 99.55m above

112.88-124.00m **DACITE** - unfoliated, homogeneous texture ~15% Kfsp and albite rich porphyry with purple groundmass; trace diss po/py; top contact (20CA) with chill similar to above (~1cm wide max); 3-5% very fine-grained dark mineral (possibly pyroxene)

124.00m **EOH**