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FURTHER COMMENTS ON

RECENT EXPLORATION AT THE

STAVELY PORPHYRY Cu-Au PROJECT,

WESTERN VICTORIA, AUSTRALIA

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SUMMARY

Initial mineral exploration within the Stavely magmatic arc identified a broad phyllic-argillic overprint upon propylitic alteration considered to be associated with a Cu-only calc-alkaline porphyry intrusion system, with an associated chalcocite supergene enrichment zone. Recent analysis by Stavely Minerals has suggested the chalcocite enrichment is derived from D veins formed marginal to a younger satellite porphyry Cu-Au. The Au-rich porphyry represents a preferred target. The drill test of the D veins identified wall rock hosted, weakly mineralised, A and M style porphyry veins, interpreted to have formed at low temperatures above a speculated Cu-Au porphyry source. The attempt to trace the wall rock hosted A and M veins to a source porphyry intrusion has been hampered by dismemberment of the wall rocks by faults categorised as both low angle reverse, and deeper level steep-dipping possibly strike-slip styles. The presence of early prograde quartz-magnetite-chalcopyrite G veins and later D vein pyrite-chalcopyrite within these structures testifies to syn- as well as post-mineral activation.

Many features which suggest the crustal level tested by the current drill program lies above any speculated porphyry intrusion include:

- Propylitic hydrothermal alteration dominated by epidote within the wall rocks, and actinolite-magnetite within veins such as the M veins. This alteration appears to overprint the regional scale phyllic-argillic alteration.
- Abundant aplite dykes which locally evolve to form quartz vein-bearing vein-dykes.
- Epidote veins overprint aplite dykes and some quartz-sulphide veins, which should be have been introduced earlier in the paragenetic sequence, indicate that the intrusion system displays a polyphasal character, important for the formation of economic porphyry mineralisation.
- Porphyry style veins expected to have formed at a low temperature elevated crustal setting include wall rock hosted linear porphyry A style veins with irregular margins and watery quartz as well as commonly sheeted, laminated M style porphyry veins.
- Abundant porphyry pyrite-chalcopyrite D veins include some that have evolved to take on higher sulphidation mineralogy.
- Some A veins in DDH SMD026 with pyrite-chalcopyrite evolve to host low sulphidation carbonate-base metal Au style vein mineralisation characterised by pale Fe-poor sphalerite, and therefore formed at a low temperature in an elevated crustal setting.

Exploration challenges include:

- Estimation of the depth to which the speculated porphyry is buried.
- Consideration of the degree of fault offset or dismemberment of the buried porphyry.

A recommended work program should compile the existing data in a form which might delineate zonation patterns within features such as: metal content and ratios, hydrothermal alteration, dykes, and D vein quantity, which might help to vector towards a buried speculated porphyry source for the A and M style veins recognised to date.

Other projects in the Stavely district should be analysed by collation of the data to hand which might be used to derive suggested exploration programs and priority ranking for receipt of the exploration budget. Additional work might then raise the understanding of these targets closer to that of the Stavely porphyry Cu-Au target.

One magnetic feature has been drill tested and found to contain a magmatic hydrothermal breccia with magnetic clasts and epidote-adularia alteration and so lies within the crustal level between epithermal and porphyry mineralisation. It is not regarded as a target and ranked with a priority C.

INTRODUCITON

In September 2018, 3 days were spent for Stavely Minerals at the Stavely Project in Western Victoria, Australia, in a review of core from diamond drill holes bored since the author's last visit in May 2018 (Corbett, 2018). The assistance in this work is greatly appreciated of the Stavely team: Chris Cairns, Jennifer Murphy, Hamish Forgan, Stephen Johnson, Robert McConnell and Benton Nijhof.

Priority

Exploration projects are rated with priorities to proceed with the planned work program to take them to the next decision point. Any such a grading might include a number of projects at widely differing stages of evaluation, some with substantial data bases, while others might be unexplored, but may display considerable untested potential. Priorities are based upon the data to hand at the time of inspection, and are subject to change as increased exploration provides improved and additional data. Projects are categorised as:

A – Of highest interest such that the proposed exploration program should be carried out immediately. However, early stage projects with untested potential might be rapidly down graded from this stage by completion of the planned work program.

B – Of some interest and should be subject to further work if funds are available, often with smaller components of continued exploration expenditure than higher priority targets.

C – Of only little interest and subject to further work at a low priority if funds are available, but not to be relinquished at this stage.

D – Of no further interest and can be offered for joint venture or relinquished.

STAVELY EXPLORATION MODEL

The Thursdays Gossan porphyry Cu-Au project lies within the Stavely magmatic arc in Western Victoria delineated as a NNW trending, up to 5 km wide, volcanosedimentary package bounded to the east by the structural contact with ultramafic rocks (figures 1-3). Transported rubble of the original Thursdays Gossan exposure lies at the margins of farmed paddocks (photo 1) at the northern end of the magnetic low and phyllic-argillic-propylitic hydrothermal alteration (figures 2 & 4) defined by Spencer (1996). Early drilling has identified low grade porphyry Cu mineralisation, without associated Au in this area, but with a supergene Cu resource in the NE corner of the interpreted porphyry (Cairns et al., 2015). Analysis by Stavely Minerals has suggested the supergene Cu is derived from the weathering of D veins related to a Cu-Au porphyry developed at the northern margin of the main body responsible for the broad alteration zone. As a Cu-Au porphyry is a preferred target to the Cu only porphyry, exploration by Stavely Minerals has then sought to use analysis of those D veins and hydrothermal alteration as vectors to prospect for the source porphyry Cu-Au body at depth (figure 3).

The porphyry exploration program by Stavely Minerals identified weakly mineralised wall rock hosted, commonly sheeted, porphyry style A and laminated M veins. The main vein is cut by a low angle slide, now interpreted with a post-mineral reverse sense of movement (figure 3; Corbett, 2018), although the earlier interpretation of syn-mineral normal movement also seems reasonable. By May 2018 the exploration program had defined propylitic alteration zoned outwards from an unknown buried source which overprints earlier collapsing phyllic-argillic alteration (Corbett, 2018), now interpreted to be part of the larger alteration zone defined by Spencer (1996) related to an earlier buried Cu-porphyry to the south (figures 1-3). Present exploration is therefore focused upon the northern margin of the phyllic-argillic alteration zone in a setting where later satellite porphyry Cu-Au intrusions might be expected to account for the D veins and chalcocite blanket, rather than the larger scale calc-alkaline Cu-only porphyry target to the south.

The study by Spencer (1996) using Hylogger data, defined a broad zone of phyllic-argillic alteration in the centre of, and assumed to be overprinting the marginal propylitic alteration (figure 4) in the normal sequence of porphyry alteration (figure 5; Corbett, 2009, in prep).

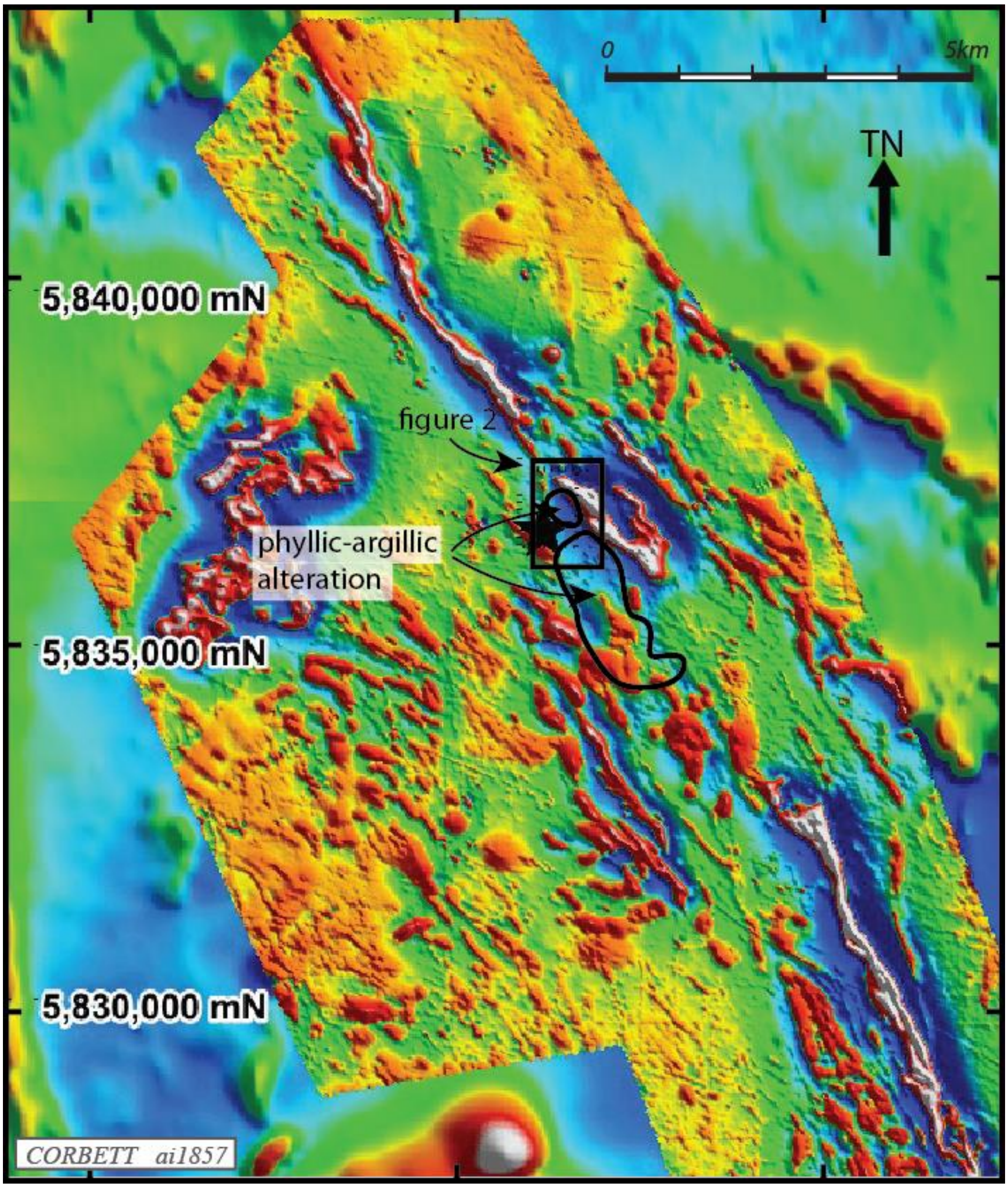

Figure 1 Aeromagnetic data for a portion of the Stavely arc showing the Thursdays Gossan areas as a star, the positions of figure 2 as well as the phyllic-argillic alteration defined by Spencer (1996).

Inspection of the drill core in May 2018 (Corbett, 2018) identified two settings of phyllic alteration:

- Collapsing phyllic-argillic alteration as described by Spencer (1996) and related to an early porphyry south of the current drill area.
- Sericite alteration formed marginal to D veins, especially well developed in the vicinity of low angle faults (figure 3).

Current exploration, stepping back from east to west with drill holes inclined to the east, has been designed to trace the wall rock hosted A and M veins encountered in drill holes such as SMD015 to a porphyry source below the low angle fault. However, this drill program has encountered a steep dipping NS trending interpreted strike-slip structure in the lower plate below the collars of drill holes SMF017 and 024 (figures 2 & 3). Continued investigation initially tested the possibility that mineralisation has been offset to the south by dextral strike-slip offset movement and is now testing for a displacement to the north by sinistral strike-slip displacement. Consequently, current exploration is attempting to identify the continuation of the upper plate M vein package below the low angle structure and west of the NS structure.

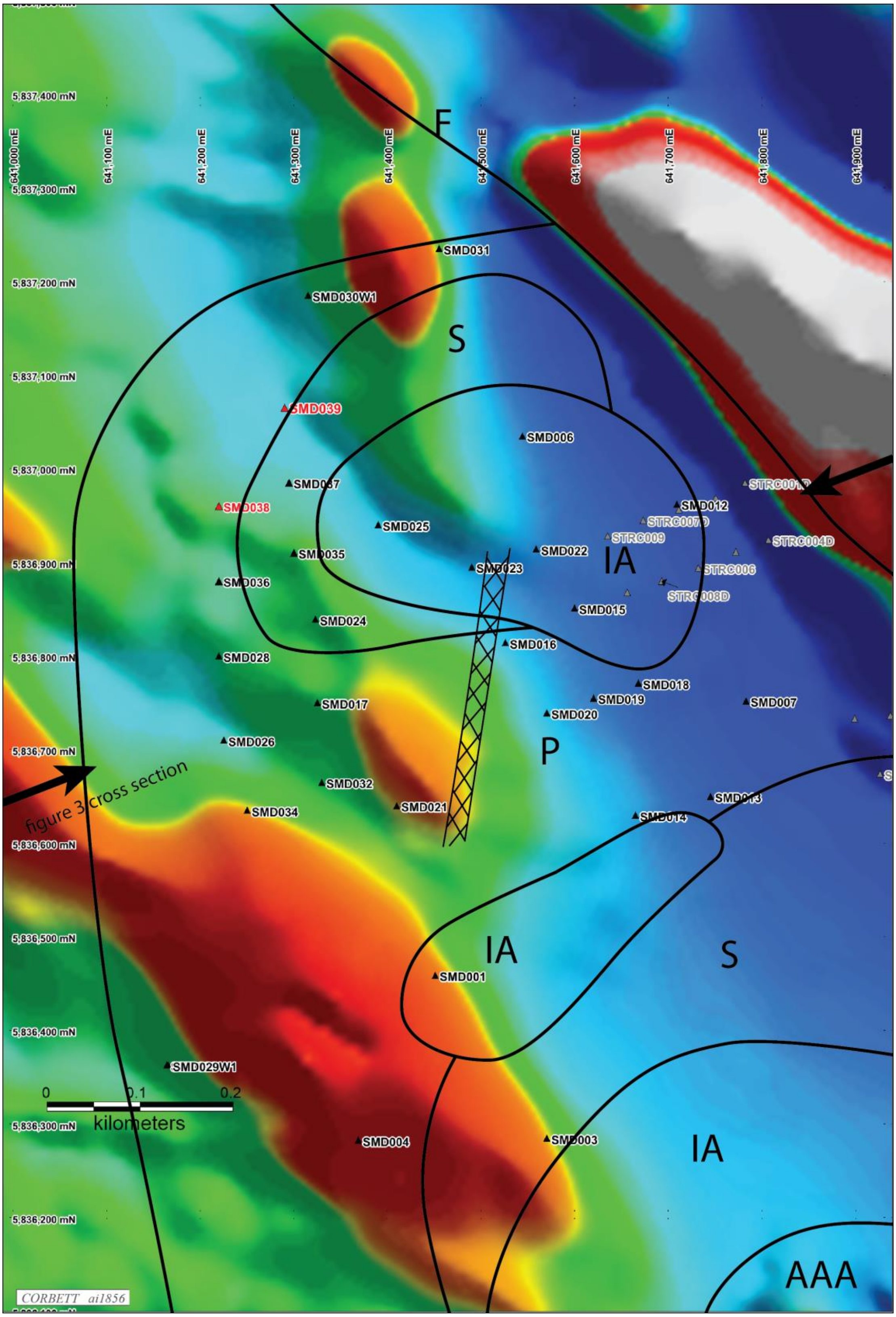

Figure 2 Aeromagnetic image of the Thursdays Gossan area overlain by the phyllic-argillic alteration from Spencer (1996). The position of the NS structure below the low angle structure is also shown as a cross hatched region. Alteration zones of Spencer (1996) are shown as: AAA advanced argillic, IA intermediate argillic, S sericite, P propylitic.

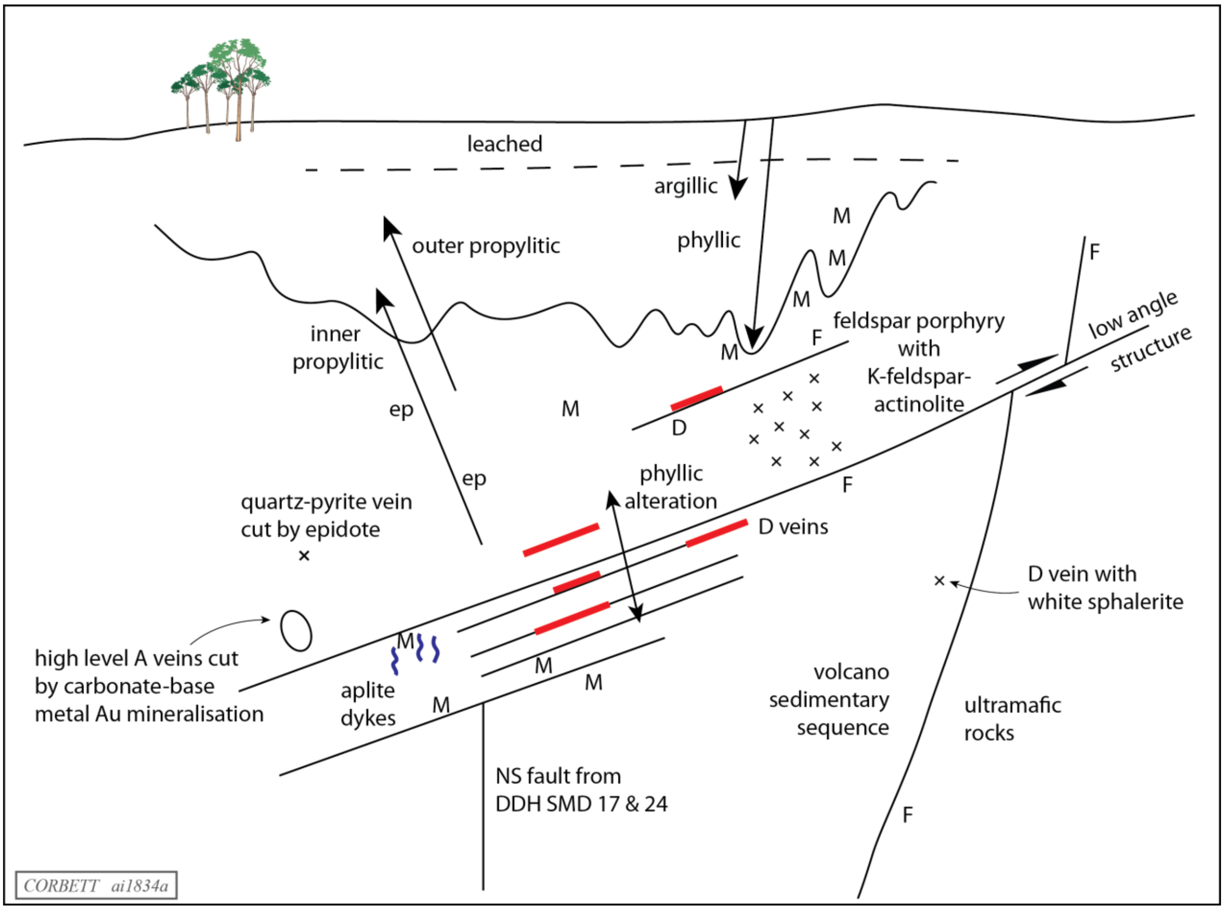

Figure 3 Update of the conceptual model shown in Corbett (2018).

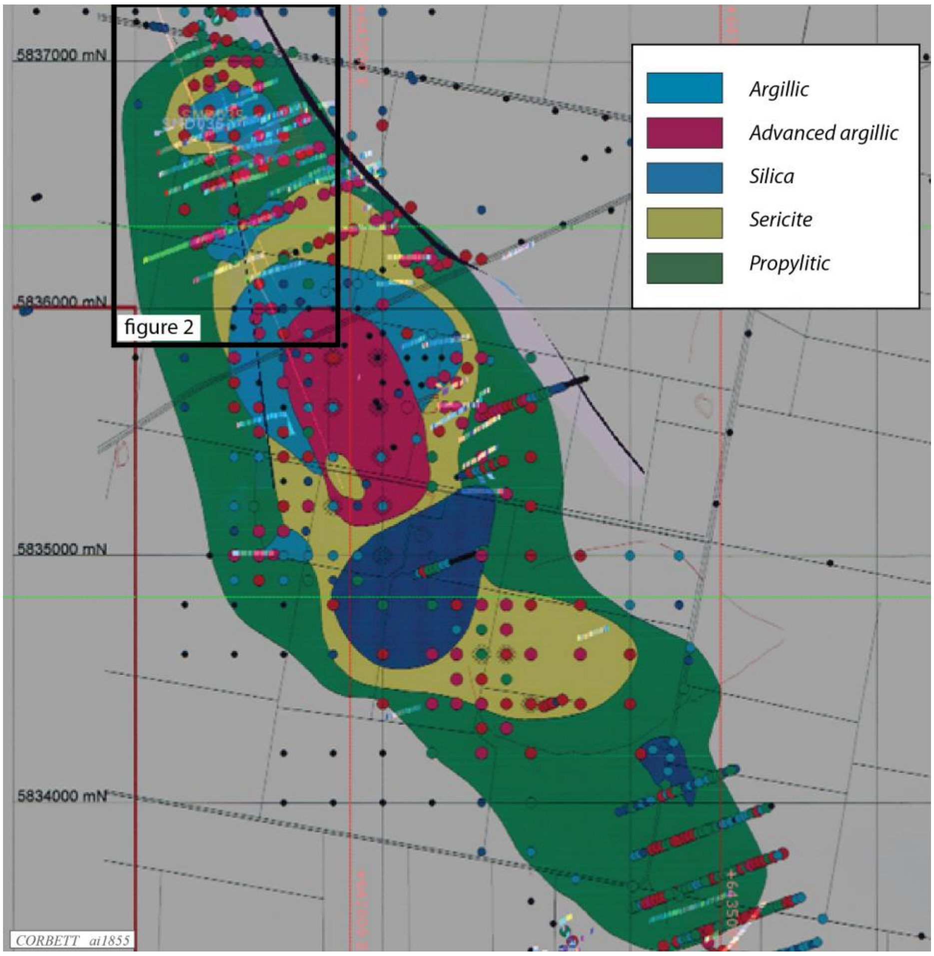

Figure 4 Hydrothermal alteration defined by Spencer (1996).

MINERALISATION

Mineralisation and hydrothermal alteration must be considered in the light of the current model that a major early calc-alkaline porphyry Cu to the south of the current exploration accounts for the broad zone of early alteration documented by Spencer (1996, figure 4) and some mineralisation (Cairns et al., 2015), while much of the alteration and mineralisation considered herein is speculated to have been derived from an unseen buried porphyry Cu-Au intrusion at the northern margin of that earlier alteration zone.

The boulders of Thursdays Gossan examined in the area of current drilling (photos 1 & 2) are interpreted to have been derived from in situ weathering of phyllic-argillic alteration related to the southern early calc-alkaline porphyry Cu intrusion, delineated by Spencer (1996, figure 4) and identified in the upper portions of current drill sections (figure 3). The presence of linear quartz veins suggests not all the iron oxide is transported (photo 2). These quartz veins no doubt correlate with the zone of stockwork quartz which extends south from the site of current exploration (Cairns et al., 2015), and may include early veins as well as D-veins related to the speculated unseen porphyry source.

The NS structure appears as a fundamental feature active over a protracted period of time. Most drill intersections contain thick sulphide veins dominated by pyrite and chalcopyrite with substantial sericite selvages and so are likened to D veins (photos 3 & 4). While this mineralisation suggests these D veins are derived from a quality magmatic source, the Au:Cu ratios may provide an indication of the Au prospectivity of that porphyry.

At least one intercept of a NS structure (DDH035, 330m; photo 5), below or within the low angle fault, contains prograde mineralisation as banded quartz-magnetite-haematite-pyrite-chalcopyrite likened to G veins recognised within wall rocks marginal to other speculated porphyry source rocks (Corbett, in prep). The prograde wall rock alteration is consistent with the timing of these veins early in the porphyry development at the same time as the main event of mineralisation, possibly as feeder structures for epithermal mineralisation developed at a higher crustal level (figure 5).

The transition from porphyry Cu-Au to epithermal Au veins is discernible in bore hole SMD026, above the low angle thrust (figure 3). Here, low temperature porphyry A veins characterised by watery quartz with pyrite-chalcopyrite host Cu-Au and evolve into veins with additional white low temperature sphalerite and galena regarded as low sulphidation epithermal carbonate-base metal Au style mineralisation (photos 6 & 7). This carbonate-base metal Au mineralisation with low temperature sphalerite grades up to 5.68 g/t Au with only 777 ppm Cu. In this zone the quartz-pyrite veins are regarded as low sulphidation epithermal quartz-sulphide Au $\pm$ Cu style, typically developed as the initial stage of carbonate-base metal Au, as they lack the distinctive sericite selvages which categorises D veins, and locally display prograde alteration selvages (photos 8-11). While the quartz-pyrite veins contain anomalous Cu, some in contact with rhodochrosite, indicative of fluid mixing as a mechanism of Au deposition (Leach and Corbett, 2008), display anomalous Au (photo 12). Thus, in this interval in DDH SMD026, Au and Cu anomalism are separated in three Cu-Au geochemical patterns:

- Cu only typical of the mainly D veins as recognised elsewhere at Stavely, and in vein-dykes.
- Cu-Au within the low temperature A veins characterised by watery quartz and pyrite-chalcopyrite which locally evolve to carbonate-base metal Au veins.
- Au dominates within quartz-pyrite veins in contact with rhodochrosite or the carbonate-base metal Au veins.

The low temperature A veins characterised by watery quartz with pyrite-chalcopyrite and commonly diffuse margins and the vein-dykes are typical of features which might be expected within the wall rock environment above a Cu-Au porphyry (photo 6), while opal within the G vein style feeder structure is also typical of a low temperature elevated crustal setting of formation (photo 5).

Some veins intersected in the lower plate by bore hole SMD24 on the eastern side of the NS fault are characterised as AM veins (photo 27), formed as A veins evolve to M veins. Linear A veins are classed as generally massive to locally saccharoidal quartz with disseminated and fracture-fill variable pyrite, chalcopyrite, bornite or molybdenite and local K-feldspar alteration selvages, which typically cut potassic altered intrusions and may extend into the wall rocks (Corbett, in prep). These veins contrast with the typically barren ptygmatic A veins categorised by Gustafson and Hunt (1975) as having formed while the intrusion is cooling and so display ptygmatic forms with anhydrite-quartz dominant mineralogies in which high temperature vey saline fluid inclusions have been identified. In the definition used herein (Corbett, in prep), M veins initially form as laminated quartz and magnetite, typically within dilatant structural settings, which might be reactivated to facilitate the later introduction of sulphides by a reopening of the partings between the laminated quartz and magnetite (photo 28). Consequently, much of the sulphide is deposited after the quartz-magnetite with the laminated bands and cross cutting-brittle quartz, so these veins may locally host elevated Cu-Au grades, although barren quartz-magnetite veins are also recognised. The vein shown in photo 27 is similar to other transitional AM veins (photo 29).

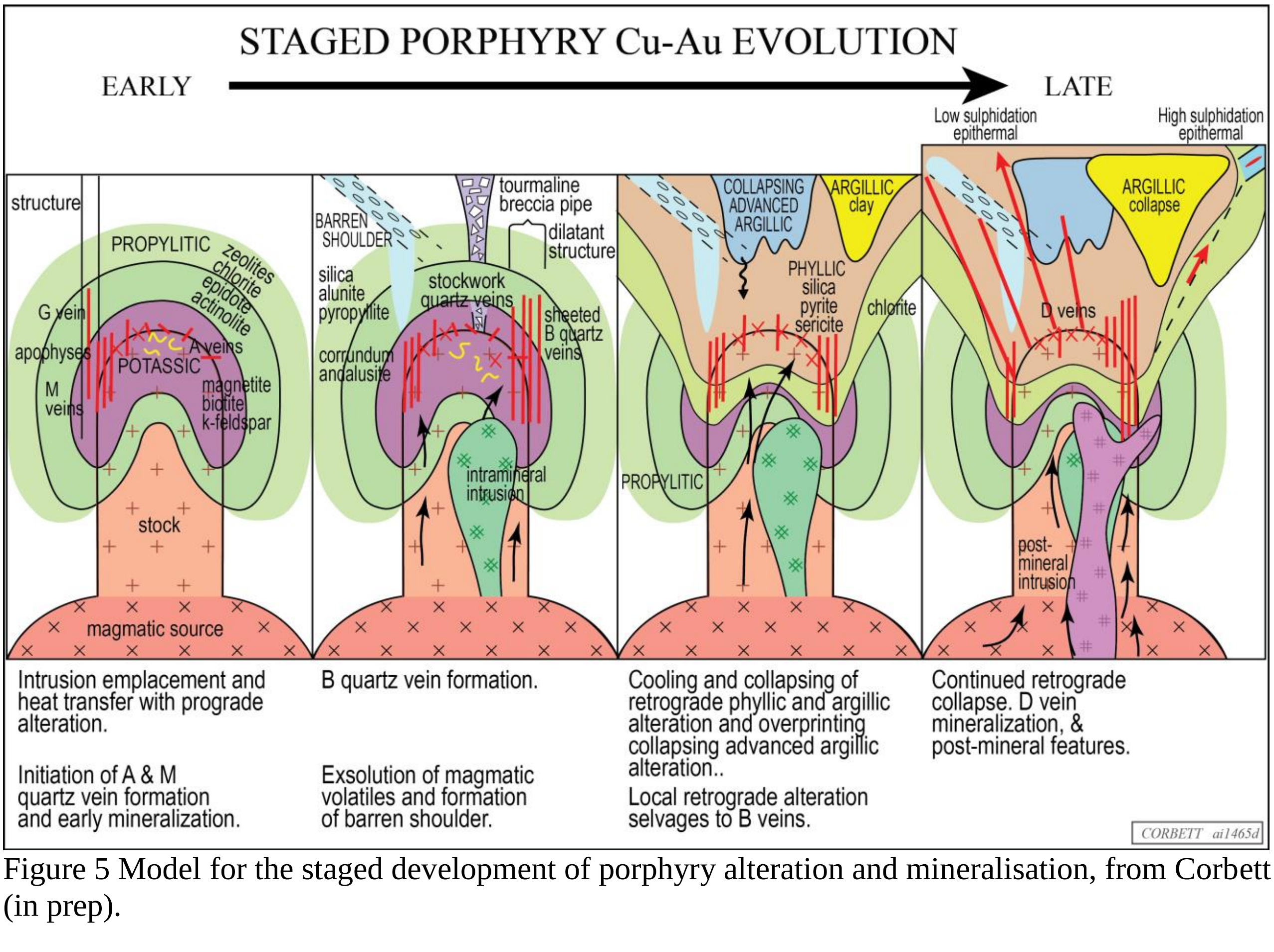

Figure 5 Model for the staged development of porphyry alteration and mineralisation, from Corbett (in prep).

STRUCTURE

As outlined above, the portion of the Stavely magmatic arc currently under investigation displays a protracted history of deformation. Early extension is expected to have provided a depression into which the volcanosedimentary sequence was deposited west of the contact with the ultramafic rocks. This regional scale contact no doubt also displays a protracted history of activity. The ultramafic contact is cut by the low angle fault with a reverse sense of movement, although syn-mineral normal fault activity is likely (Cairns et al., 2015). Many of the laminated M veins at

Stavely trend roughly NS suggesting the emplacement of the source intrusion at depth may have been triggered by a transient episode of EW extension, possibly partly manifest as a relaxation of subduction-related compression. A similar pattern is recognised at Goonumbla where NS trending sheeted A veins are aligned along a NS structure (Corbett, in prep).

Current exploration is yet to clarify the timing relationships between the NS and low angle faults, although it appears to low angle fault cuts the NS structure. Both structures were present during mineralisation as each contains D vein mineralisation including an earlier G lode in the NS structure (photo 5). The older NS structure also contains epidote, not recognised to date in the later low angle structure. The NS structure projects well as a steep dipping fracture between individual drill intercepts on the drill sections which contain drill holes SMD17, 24 and 35 (figures 3 & 4). The presence of the G lode and epidote within the NS structure suggest it was active during early prograde alteration and mineralisation, whereas the low angle structure is associated with later retrograde alteration.

ALTERATION

Current exploration contributes towards further development of the alteration model in use by Stavely Minerals that an unseen porphyry in the current drill area overprints earlier broad scale alteration with a 2 km long zone of phyllic-argillic alteration overprinting a 4 km long zone of propylitic alteration defined by Spencer (1996). Porphyry intrusions intersected in this drill program vary from fresh to hosts for syn-intrusion potassic-propylitic alteration.

The earlier sense of zoned wall rock propylitic (Corbett, 2018) continues to be apparent in this drill core inspection (photo 9) locally overprinting earlier vein development (photo 13). Here, overprinting porphyry intrusions could easily be responsible for such polyphasal vein and alteration development. Note in photo 13 the quartz-pyrite vein with a narrow sericite selvage would have developed as either a deep epithermal quartz-pyrite vein during prograde alteration (stage I in figure 5) or less likely as a D vein during retrograde alteration (stage IV in figure 5), both of which post-date prograde propylitic hydrothermal alteration. Consequently, a later unseen buried intrusion must be responsible for the epidote alteration which overprints the quartz-pyrite vein. Epidote also cuts an aplite dyke in DDH SMD032 (photo 14). Similarly the wall rock epidote alteration in photo 9 may be related to this same intrusion. Polyphasal porphyry emplacement is an essential element of economic porphyry deposits, here speculated to be buried at depth, as evidenced by the epidote-dominate propylitic alteration.

Drill hole SMD031, bored into a spot magnetic anomaly (figure 2) intersected a magmatic hydrothermal breccia dominated by variably K-feldspar (adularia) altered dacite porphyry clasts within a matrix of intrusion and deformed sedimentary material with local magnetite-actinolite-epidote clasts (photo 15). Vein epidote is also common cross cutting the breccia matrix (photo 16). Thus it is concluded, a magmatic hydrothermal breccia pipe was derived from an explosive eruption of a magmatic source, and both are magnetic. The epidote alteration within the pipe is indicative of a level above that where any porphyry mineralisation might be expected to develop, and at a deep level below potential epithermal Au mineralisation. Consequently, although this target required a drill test, no further exploration is necessary and it is provided with a priority C for further short term exploration.

Aplite dykes and wall rock hosted quartz veins are used in mineral exploration as vectors towards blind porphyry deposits (Corbett, 2009 & in prep). Although many typical high crustal level low temperature A veins, locally with Cu-Au mineralisation (photo 6), have been intersected in recent exploration, the distinction is commonly less clear between veins and high level aplite dykes (photo 17), and so these are termed vein-dykes. Some examples are associated with mineralisation and so worthy of additional consideration (photo 18), while in other examples quartz veins can be seen developing within or adjacent to the dykes (photo 19).The aplite dykes, with or without associated quartz veins, continue to represent important manifestations above speculated blind porphyry intrusions at depth.

Evolution of the ore fluids in the porphyry-epithermal epithermal transition continues to be discernible as an aspect of the formation of a variety of D vein compositions. The near-neutral fluid responsible for chalcopyrite-pyrite deposition at depth progressively evolves during the rise to higher crustal level to eventually take on a low pH character typical of high sulphidation epithermal Au deposits, characterised by the deposition of enargite as the main Cu-Au sulphide in association with zoned advanced argillic alteration, including a core of vughy or residual silica. Consequently, vughy silica alteration hosts enargite within drill hole SNDD1 (photo 20), which grades outward to pyrophyllite then dickite and kaolin alteration. Curiously, down-hole the high sulphidation epithermal event overprints earlier low sulphidation quartz-pyrite mineralisation, as a reflection of either the fluid evolution from low to high sulphidation, or the polyphasal nature of these structurally controlled veins (photo 21). Elsewhere, such as at the Resolution Porphyry USA, the marginal alteration coalesces to form what is regarded by the workers on site as a lithocap, based upon the dickite-topaz wall rock alteration assemblage (Hehnke et al., 2012). The intermediate covellite-chalcocite stage of sulphide deposition is recognised in several instances at Stavely (photos 22 & 24) locally overprinting earlier quartz-pyrite deposition (photo 23).
Fluid evolution is apparent as:
Shallow

enargite-pyrite
chalcocite-covellite-pyite (photos 22 & 24)
bornite-chalcopyrite-pyrite
chalcopyrite-pyrite (photo 4)

Deep

Elsewhere at Stavely, low pH waters responsible for sericite alteration have leached Cu from disseminated chalcopyrite which has been rapidly redeposited nearby as a chalcocite patina on pyrite and separate covellite or bornite overgrowing magnetite (photo 25).

D veins intersected in recent drill holes contain more anhydrite (photo 26) than has been previously recognised as a feature typical of D veins formed marginal to porphyry intrusions. Curiously both anhydrite-rich D veins and the epithermal Au mineralisation are recognised in drill hole SMD026 as a possible indication of a different porphyry source in this region.

CONCLUSION

Many features identified in the recent drill holes continue to be consistent with a setting above a buried intrusion source. These include:

- Propylitic alteration dominated by epidote and local or actinolite, the latter commonly with magnetite including quartz-magnetite M veins.
- A style porphyry quartz veins with watery low temperature quartz and local irregular margins, locally with pyrite-chalcopyrite.
- Aplite dykes which locally host pyrite-chalcopyrite and evolve to include quartz vein material and so form vein-dykes.
- Abundant pyrite-chalcopyrite D veins with well developed sericite selvages, some of which evolve to covellite-chalcocite and local enargite mineral assemblages, typical of above porphyry settings. Abundant anhydrite has been recognised in the most recent drilling.

In the epithermal-porphyry transition recognised in DDH SMD026 high crustal level A veins pass to low temperature carbonate-base metal Au mineralisation, possibly indicative of considerable syn-mineral uplift and erosion.

Major structures present during mineralisation host features such as D and G style veins but may also account for the post-mineral dislocation of the porphyry Cu-Au source from the near porphyry manifestations within the wall rocks. The geometry of the steep dipping NS structure has seriously complicated the attempt to trace the wall rock hosted M veins, such as in DDH SMD015, below the low angle shear towards a source intrusion. The NS structure appears to predate the low angle fault and projects well below that structure between 3 drill sections (figure 2).

A spot magnetic high tested by drill hole SMD031 may be derived from a magnetic magmatic body at depth which no doubt represents the source for the overlying magmatic hydrothermal breccia characterised by magnetite clasts and cross cutting epidote veins. This body has formed at too high as crustal level to host Cu mineralisation and so is not regarded as a current exploration target. It is provided with a priority C for continued exploration at this time.

RECOMMENDATIONS

Careful analysis of the existing data will assist to plan deep drilling in the current area of exploration for a porphyry Cu-Au intrusion source for wall rock hosted veins. This work might include the preparation of a series of plans and cross sections to define 3 dimensional zonation patterns typical of porphyry environments. A series of plans and sections should be developed as:

- Plan maps above and below the low angle structure,
- Long and cross sections such as along the NS fault,

These should consider the:

- Geochemistry including Mo, as halos of Mo anomalism rims many porphyry Cu-Au intrusions (Caspiche, Chile in Sillitoe et al., 2013; Corbett, in prep), as well as Cu and Zn. Cu:Au ratios may prove useful.
- Actinolite and epidote occurrences should also be noted on plan maps above and below the low angle structure. Ideally it might be possible to contour the first appearance of epidote moving inward towards the speculated porphyry intrusion and the transition from epidote to actinolite in a higher temperature regime.
- Distribution of aplite dykes.
- D veins possibly as total thickness in order to reflect the quantity and size of D veins as well as a continuation of the existing categorisation of different types of D veins.

A priority A is allocated to this work.

No further work is recommended for the magmatic hydrothermal breccia intersected in drill hole SMD031 which is provided with a priority C for consideration of further work.

Other targets in the Stavely region should be:

- Categorised according to style of mineralisation and crustal level,
- Provided with proposed exploration programs,
- Prioritised for allocation of exploration expenditure,

so that they might be prepared for further investigation. A priority AB is provided to this work.

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Photo 1 Boulders of gossan at the margin of a wheat field at Thursdays Gossan.

Photo 2 Detail of the gossan exposure above, as an indication that FeO overprints porphyry-related stockwork veins.

Photo 3 Sulphide-rich structure with sericite alteration selvage which plots close to the project of the NS fault on the cross section, DDH SMD036, 553-5m.

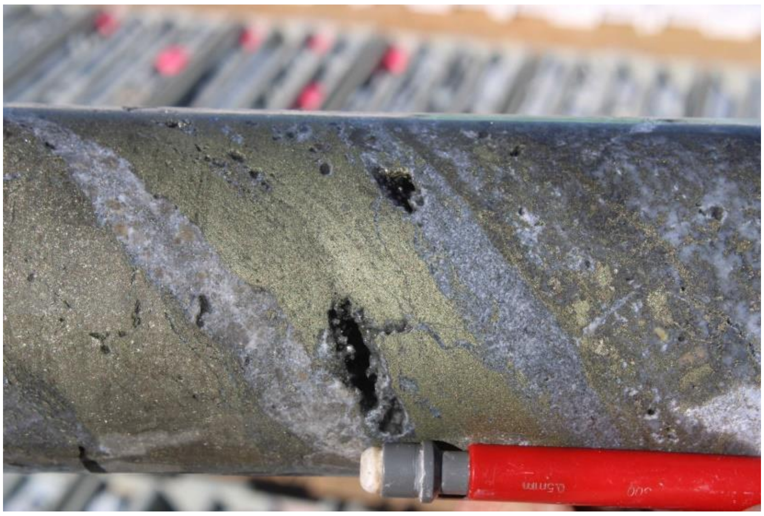

Photo 4 Close up of the sulphide-filled structure in photo 3 showing banded pyrite and chalcopyrite interpreted as a fault-fill D vein, DDH SMD036, 553m.

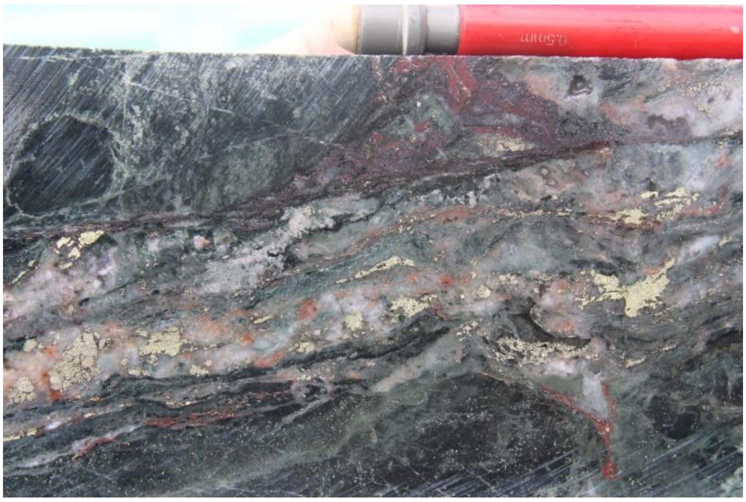

Photo 5 Banded vein at an low angle to the core axis and so more likely to be steep than shallow dipping and plots close to the projection of the NS structure on the cross section data, to which it is correlated. It is characterised by magnetite, haematite, pyrite and chalcopyrite with opaline quartz indicative of a relatively low temperature high crustal level of formation, likened to a G vein in Corbett (in prep), DDH SMD035, 330m.

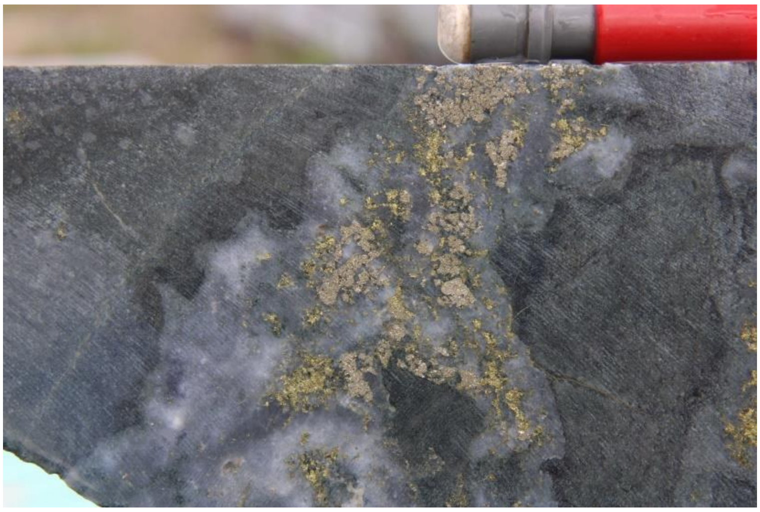

Photo 6 A style wall rock hosted porphyry vein with diffuse margins and watery low temperature quartz with pyrite-chalcopyrite typical of formation at an elevated crustal setting above a speculate porphyry source, DDH SMD026, 365.4m, 0.65g/t Au & 0.61% Cu.

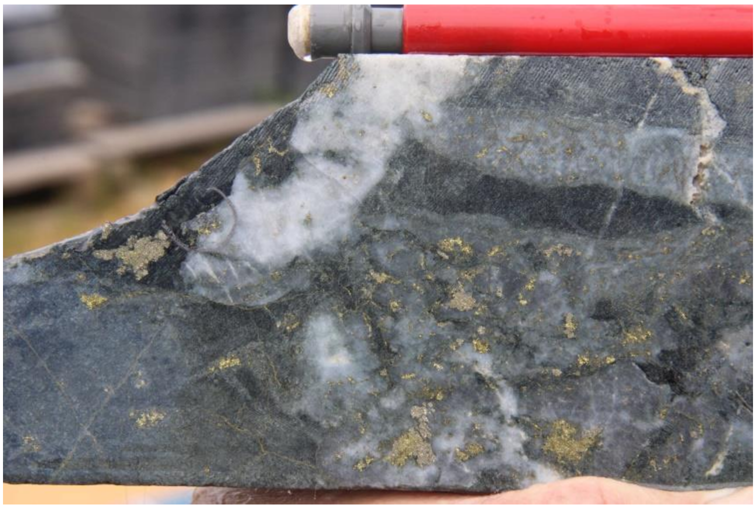

Photo 7 Porphyry A vein with porphyry pyrite-chalcopyrite overprinted by pale Fe-poor sphalerite, typical of carbonate-base metal Au mineralisation, DDH SMD026, 364.9m, 0.78 g/t Au & 0.43% Cu.

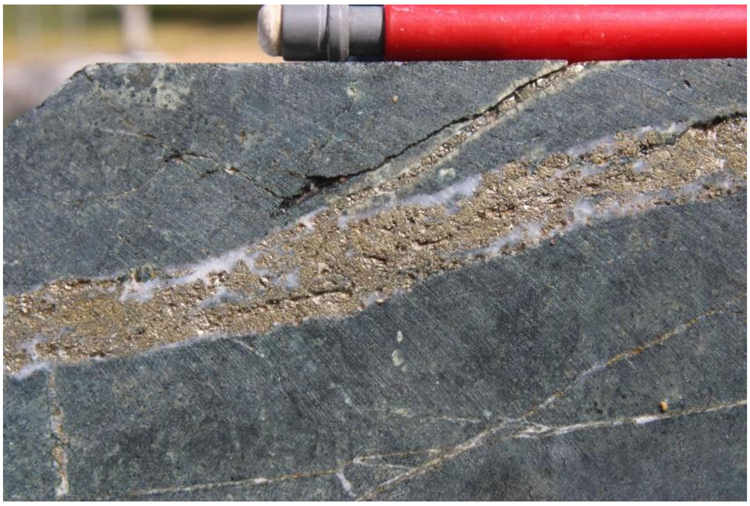

Photo 8 Low sulphidation epithermal quartz-pyrite vein without the sericite selvage typical of porphyry D veins, DDH SMD026, 240.1m, 0.1% Cu.

Photo 9 Low sulphidation epithermal quartz-pyrite vein with prograde chlorite alteration selvage cuts epidote wall rock alteration, DDH SMD026, 198m.

Photo 10 Porphyry style D vein with sericite selvage cuts A vein, DDH SMD026, 599.1m.

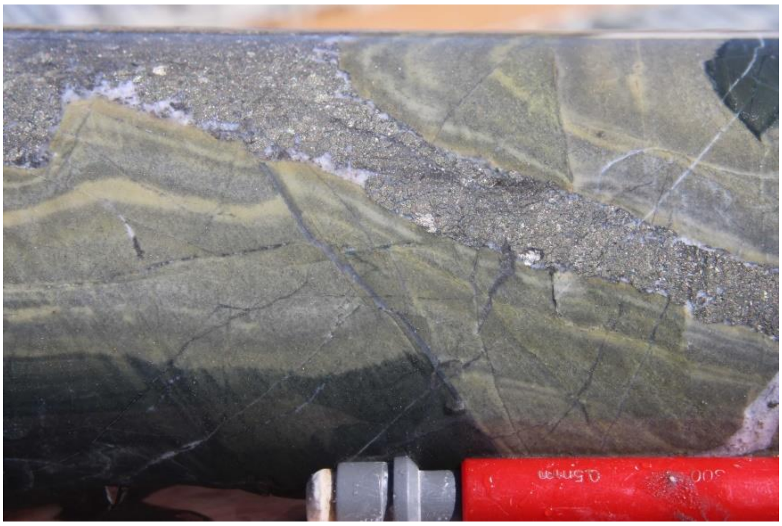

Photo 11 Pyrite D vein with sericite-pyrite alteration selvage, DDH SMD035, 315m.

Photo 12 Low sulphidation Au mineralisation developed by the mixing of a rising pregnant magmatic fluid which deposited quartz-pyrite, with bicarbonate waters evidenced by rhodochrosite, DDH SMD026, 243.5m, 0.56 g/t Au.

Photo 13 Quartz-pyrite vein with a narrow sericite selvage cut by an inner propylitic quartz-carbonate-epidote vein, DDH SMD028, 293.3m.

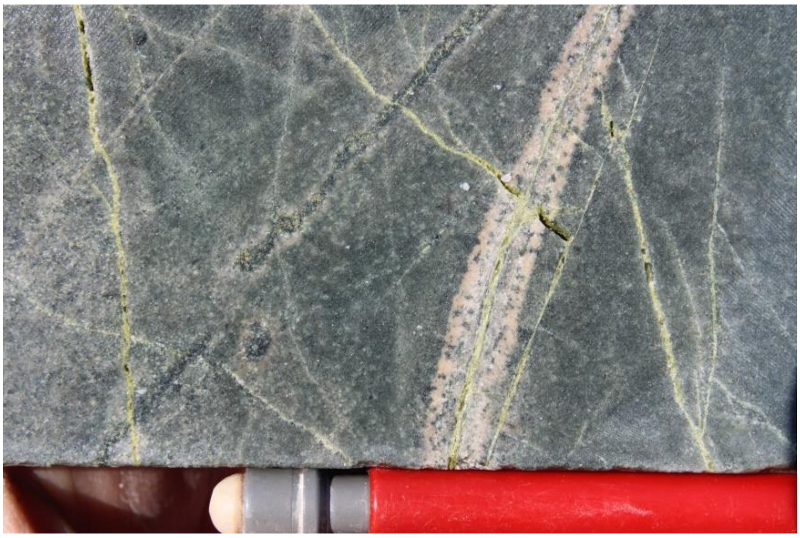

Photo 14 Aplite dyke cut by inner propylitic alteration epidote veins, DDH SMD032, 278.4m

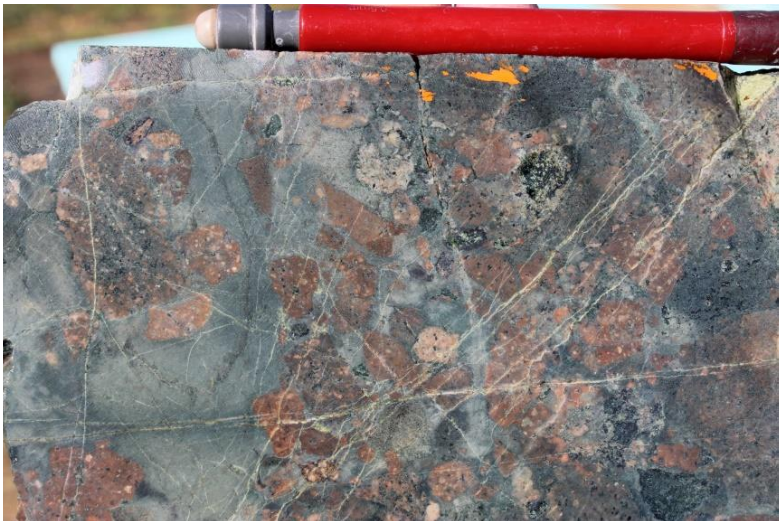
Photo 15 Magmatic hydrothermal breccia characterised by milled dacite porphyry and minor magnetite clasts in a mudstone-dominate matrix, DDH SMD031, 80m.

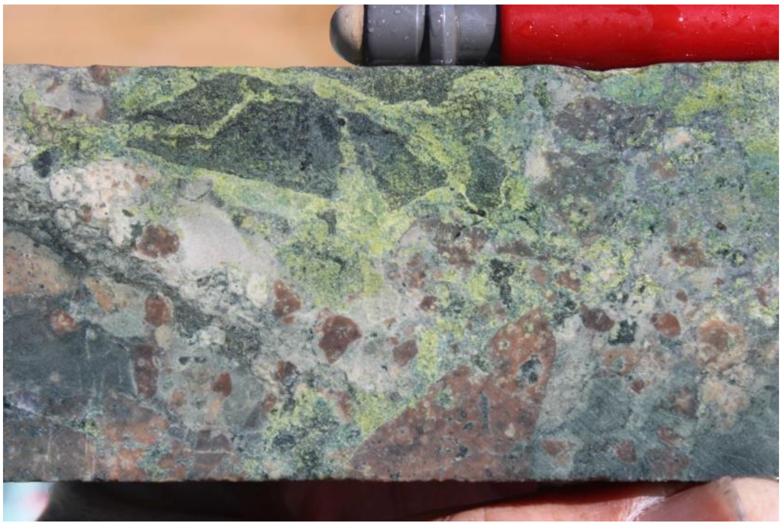
Photo 16 Magmatic hydrothermal breccia cut by epidote veins, DDH SMD031, 102.9m.

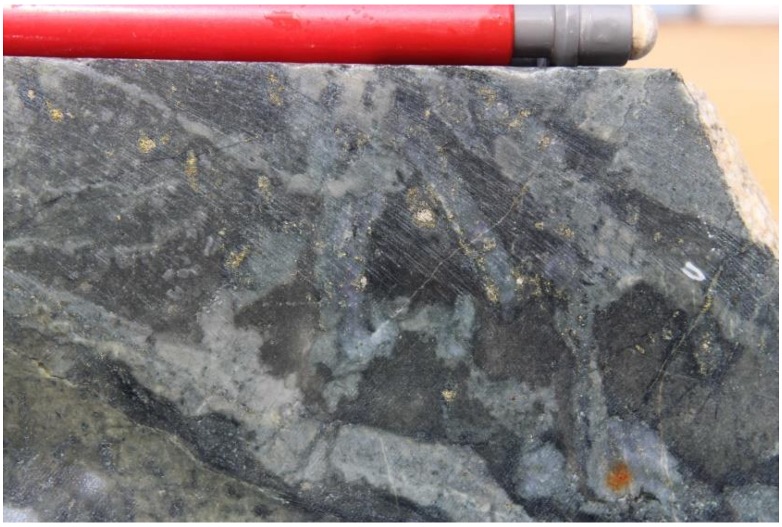
Photo 17 Vein-dykes characterised by the difficulty in distinction between aplite dykes or A style porphyry quartz veins, DDH SMD026, 373.3m, 0.46% Cu.

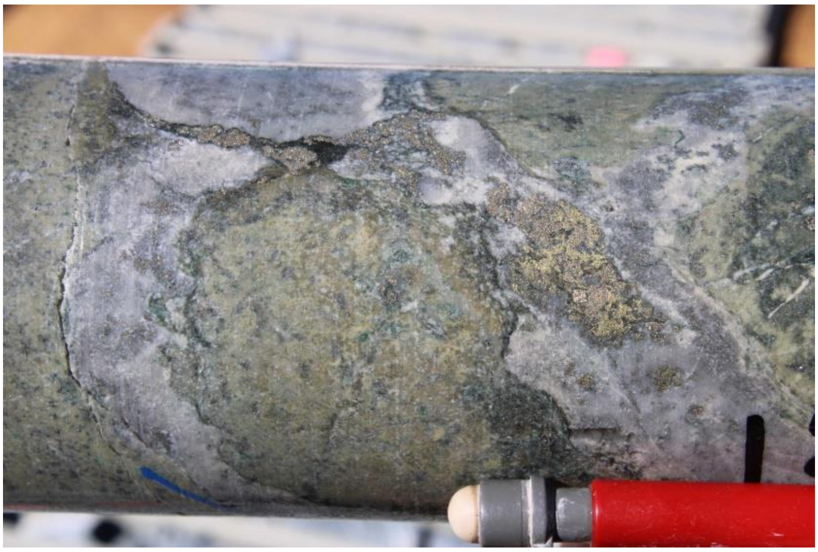

Photo 18 Porphyry vein-dykes with pyrite-chalcopyrite, Stavely DDH SMD036, 234m.

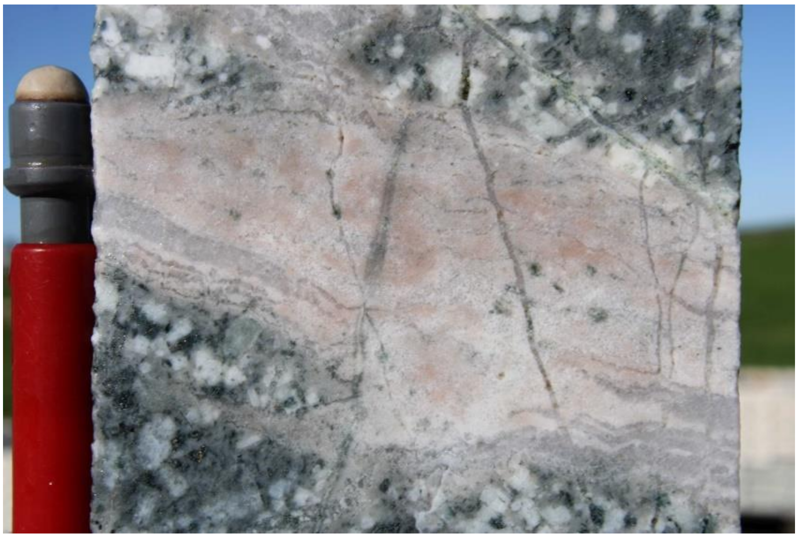

Photo 19 Vein-dyke characterised by fine grained pink aplite in which the early development of quartz veins is discernible, DDH SMD032, 455m.

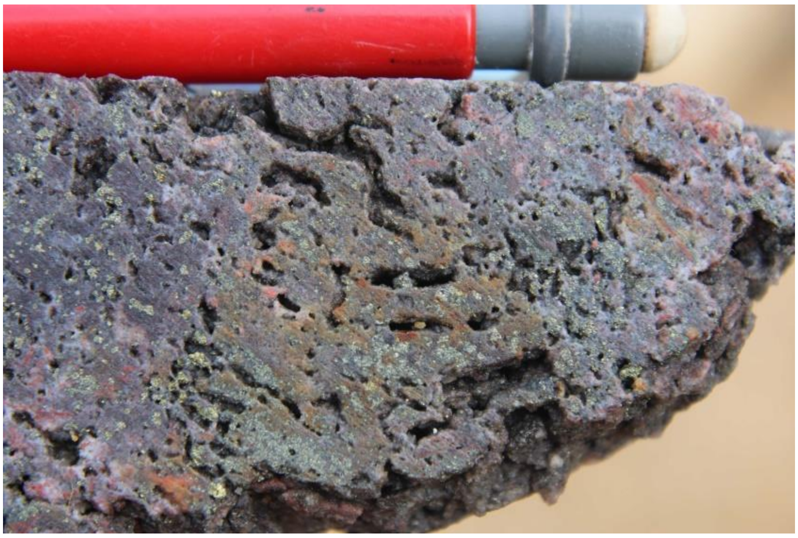

Photo 21 Vughy residual silica formed as part of the advanced argillic alteration associated with an enargite-pyrite bearing D vein, DDH SNDD1, 100.2m.


Photo 21 Low sulphidation quartz-pyrite vein overprinted by vughy residual silica, DDH SNDD1, 163.2m.

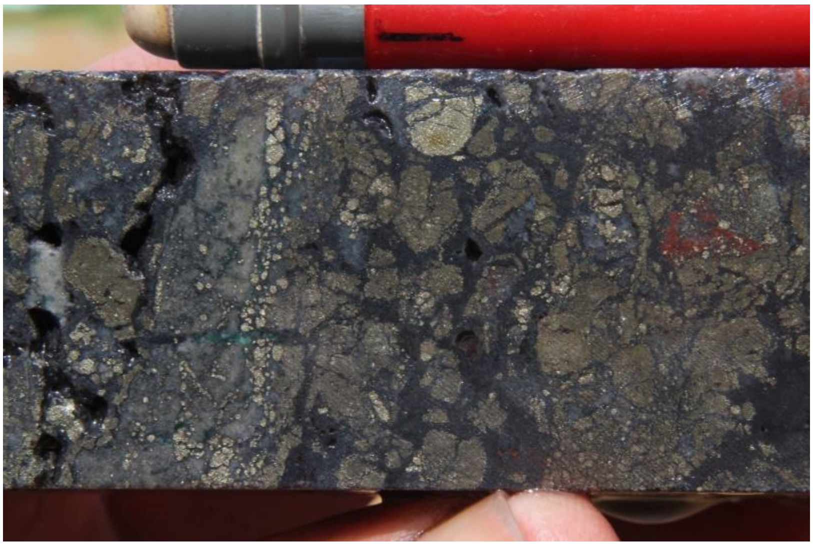
Photo 22 Fault fill chalcocite matric breccia, DDH STRC19D, 151.4m.


Photo 23 Quartz-pyrite fault fill adjacent to the chalcocite matrix breccia at the left, DDHSTRC19D, 151.2m.

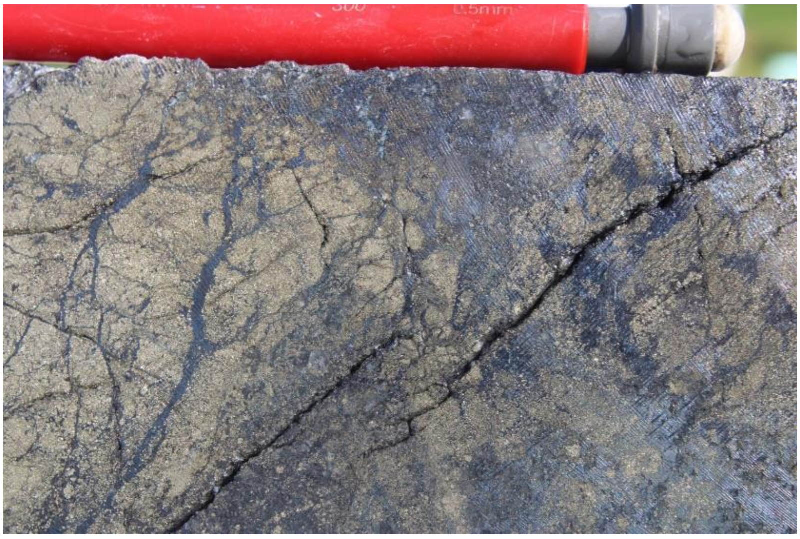

Photo 24 Pyrite-covellite-chalcocite fault fill, DDH SMD032, 542.9m.

Photo 25 Disseminated chalcopyrite is remobilised from the sericite selvages to fractures, DDH SMD031, 116m.

Photo 26 D vein with pyrite-chalcopyrite and anhydrite, DDH26, 628.5m, 0.8 g/t Au & 2.3% Cu.G

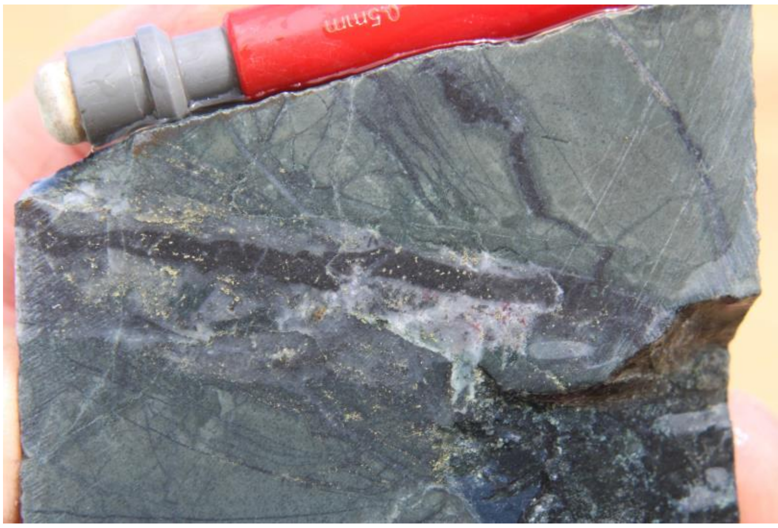

Photo 27 Transitional A-M vein of quartz and magnetite but without a laminated form, DDH SMD24 437m.

Photo 28 M vein from Copper Hill NSW showing chalcopyrite deposition within partings between quartz-magnetite laminations, DDH64, 120.2m, 15.2 g/t Au & 3.03% Cu.

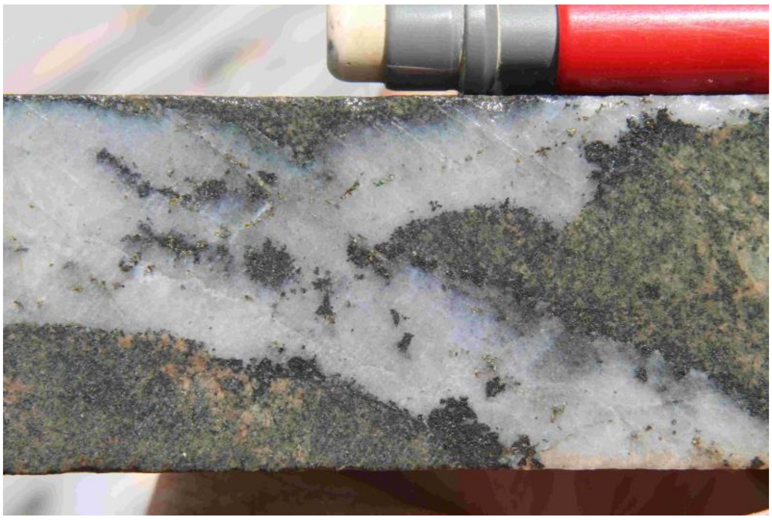

Photo 29 AM vein from Ridgeway, NSW, within the mineralised interval, DDH NC498, 701.5m.