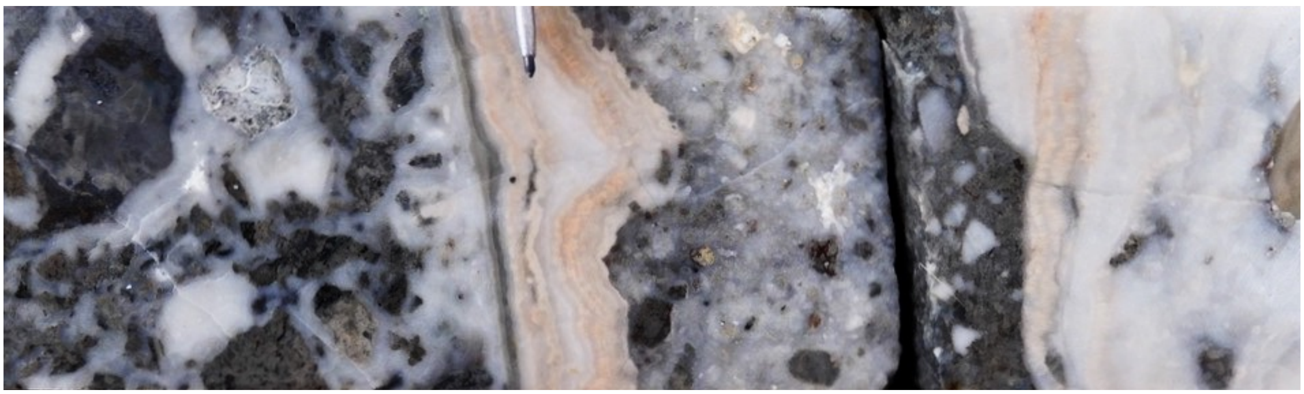
Observations on the Ponderosa epithermal gold prospect, British Columbia, Canada



PD-22-02-22.7 m, 1.27 g/t Au, brecciation cemented by cryptocrystalline quartz, followed by vein formation with colloform banding of colloidal silica plus pink adularia, locally acicular

Report for:

Au Gold Corp

Jeffrey W. Hedenquist

5 September 2022

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Summary

The Ponderosa epithermal gold prospect, southern British Columbia, Canada, consists of outcrop and subcrop of quartz veins that are intermittently present over a northerly (to NNE) trend of ~1 km, from the T-Bone area in the north through the Tomahawk area to Axel Ridge, the latter offset to the east; the offset matches that of a northerly trending ground magnetic low that is spatially associated with Au-in-soil anomalies. The best soil and outcrop-subcrop anomalies of Au are at Axel Ridge, which was drilled in 2007 with five scissor holes that failed to intersected the veins that outcrop at surface. Au Gold tested the Tomahawk surface anomaly with trenching followed by drilling 20 diamond core holes (angled -47 to -78^{o} from horizontal; total ~2393 m in length, 49 to 182 m in length, average 120 m) in 2022. Although shallow veinlet zones with anomalous Au values were intersected in the upper 10s m from the surface, similar to those in surface trenches, deeper portions of holes did not return anomalous Au values. Several intervals of ~0.5 to 1.5 g/t Au over 1 to 4 m were reported, with nine of the 20 holes returning anomalous values of 0.2 to 0.5 g/t Au over 2 to 20 m intervals. Veins are sulfide poor, with Ag:Au ratios low, from 1:1 to 1:5.

Vein samples from the surface and in Tomahawk drill core feature cryptocrystalline quartz and fine colloform laminations in quartz veins and veinlets, the latter indicating colloidal silica deposition; there are also adularia occurrences, locally with an acicular texture. Both features are typical of the epithermal environment, with the former suggestive of a relatively low temperature, shallow depth of formation, consistent with smectite and laumontite at Ribeye, about 1.2 km to the SE. Local illite alteration is present associated with some veins. There is evidence for multiple periods of brecciation, which would have resulted in episodes of pressure release and sharp boiling, consistent with the presence of adularia.

The veins tested in 2022 were drilled from west to east. Although it is possible that the hanging wall is to the east of Tomahawk (the magnetic low, presumably due to alteration, is wider to the east of the drill hole collars than to the west), another possibility is that veins are sub-parallel to the direction of drilling. Indeed, the third orientation of structures indicated from interpretation of the aeromagnetic survey is 305/125^{o}; this direction is sub-parallel to most of the 2022 Au Gold drill holes (99 to 147^{o}; average 117^{o} azimuth). Another possibility is that the upflow zones of structures are not located at Tomahawk (or Axel Ridge, with its 2007 scissor holes at 100/280^{o}); rather, the near-surface zones of silicification, vein development and Au plus As anomalies may be associated with shallow outflow along structures, down the paleohydraulic gradient that existed at the time. Regardless, there must be a feeder zone to the shallow silicified structures that are anomalous in Au; this feeder has yet to be identified.

Recommendations

- Plot on a shaded relief map the approximate area of all known outcrops and subcrops, and note those areas with quartz veins. Change the shading direction of the high-resolution DTM map from the UAV photogrammetry survey to highlight various orientations of lineation trends (valleys, ridges and other lineations)
- Compile all available soil sample locations and results, and fill in any gaps that are present, particularly in the central area between southern Axel Ridge to Flatiron, a few 100s m to the NW; Axel Ridge has some of the highest contiguous soil sample results, and yet the trends cannot be determined due to the paucity of soil samples
- Consider a systematic sampling and SWIR (short wave infrared) analysis of clay alteration halos to veins intersected in drill core (perhaps at 10 cm, and 1, 3 and 10+ m distance above and below vein zones), plus altered zones in deeper drill core even if there are no veins; ~15 samples of about half of the drilled holes, including a couple of the deepest holes, should be sufficient to provide an initial indication of alteration mineralogy. If the results indicate a zonation of temperature-sensitive clay minerals, conduct similar analyses of alteration halos to veins that outcrop; look for clay mineral evidence of paleotemperature inversions, i.e., indications of lateral flow rather than upflow
- Consider a high-resolution ground magnetic survey, with lines perhaps oriented ~NNW-SSE, initially over the area of drilling at Tomahawk, to intersect ~NNE to NE trending outcrops, in order to determine if there is any evidence for mineralized veins sub-parallel to the 99 to 147^{o} (average 117^{o}) azimuth of Tomahawk drilling (~100^{o} at Axel Ridge). If the results warrant, i.e., if there are narrow (10s m) magnetic low trends due to altered halos to the drilled veins, extend the survey to the SSE, over Axel Ridge. Enlist a specialist to assess the new ground magnetic survey data to a few 100s m depth below surface, and also reprocess previous surveys
- Once all information is compiled, including that from new surveys (geochemical, alteration, geophysical), and placed into context, enlist a structural specialist to examine vein outcrops and also review a few core holes to determine why vein outcrops and drill intersections were not intersected in deeper drill holes, incorporating the magnetic indications and the variously illuminated UAV photogrammetry DTM map of structural trends (as well as clay evidence for upflow vs lateral outflow)
- Test targets identified after the integrated assessment of data and structural assessment, using a track-mounted drill and reverse circulation (RC) holes. Initially use scissor holes to intersect vein outcrops at shallow depth (~25 and 50 m), keeping in mind the possibility of cross structures (of veins or offset faults) indicated from magnetic and other information, as well as the consideration that the presently drilled areas represent lateral flow from one or more upflow zones
- Plot grid lines and scale bars on all maps and sections, using a common format; place all spatial data into a GIS format

Introduction

Marc Blythe, President of Au Gold Corp, requested the author to examine the Ponderosa gold prospect in southern British Colombia (BC). Drill core from six of the 20 diamond cored holes from 2022 drilling campaign was examined in Merritt, BC, over two half-days, followed by a one-day examination of the property in the field with Mr. Blythe in August, 2022.

The Spences Bridge Group in the Merritt region is a Cretaceous volcanic belt that hosts a number of epithermal deposits and prospects (Fig. 1), dominated by quartz veins that were the apparent sources of placer gold for gold rushes, the first in the 1800s. The Ponderosa prospect, first identified by Ed Balon, is located ~20 km NW of Westhaven's Shovelnose deposit. Shovelnose consists of several epithermal veins that have a general NW trend and extend over ~4 km. There are good gold-grade intersections at surface and in drill core at Shovelnose, with low sulfide content; vein textures that include colloform banding as well as clay alteration mineralogy indicate a relatively shallow level of erosion.

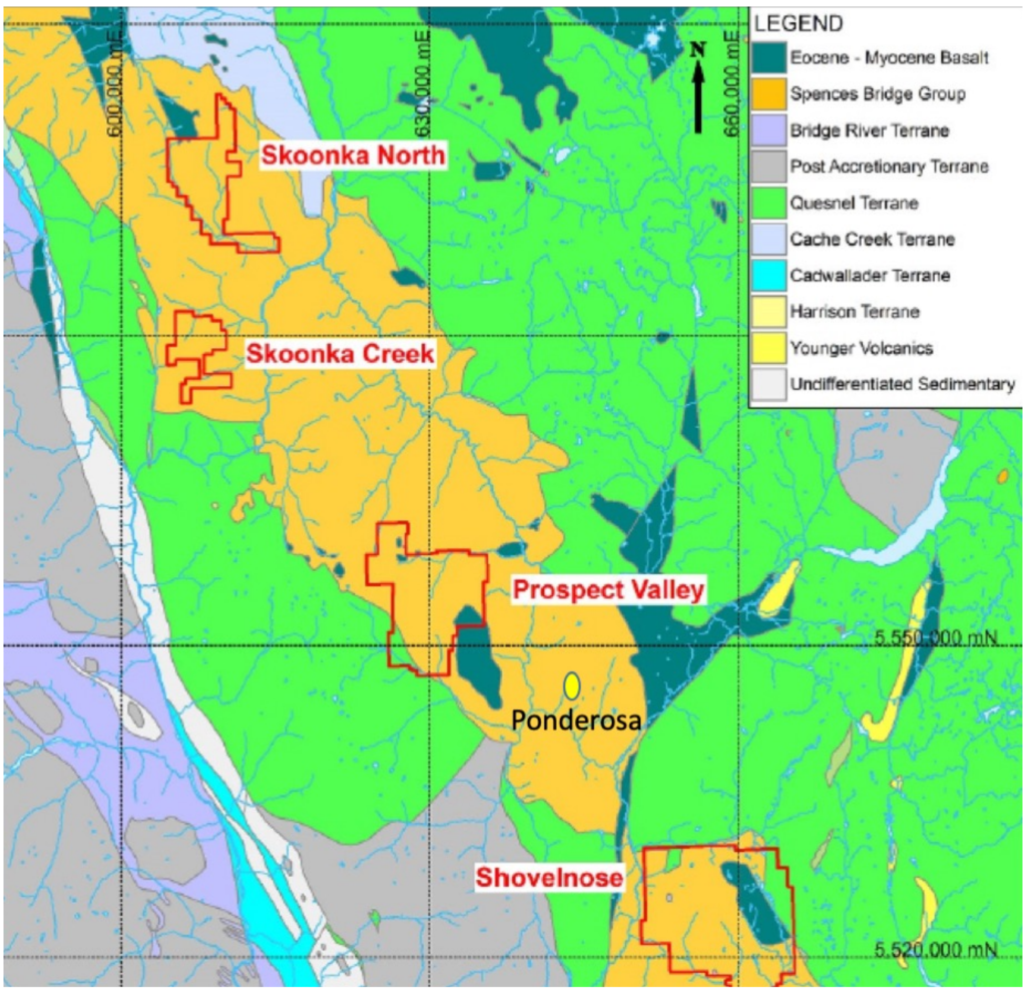


Figure 1. Location map of the Ponderosa property, within the NW-trending Spences Bridge Group that hosts several other epithermal projects, including Westhaven's Shovelnose vein deposit to the SE. Map modified from Westhaven report.

Background information

Au Gold Corp recently prospected the Poderosa property, including two campaigns of soil sampling to complement previous results (Fig. 2). This followed work by previous companies that worked in the area, sampling vein material in outcrop and trenches, with a ground magnetic survey conducted in 2007 (Fig. 3). There is a general association of Au-in-soils (>50 ppm Au) with As-in-soil (>40 ppm As). The strongest anomalies lie on the margins of ponds in the T-Bone and Tomahawk areas, but with the highest values in the undersampled Axel Ridge area. These anomalies follow an offset magnetic low (Fig. 3), consistent with alteration of the andesitic host rocks. The early work culminated in the drilling of several holes, including five in the Axel Ridge area (Fig. 3); these 2007 scissor holes did not intersect surface veins (Fig. 4).

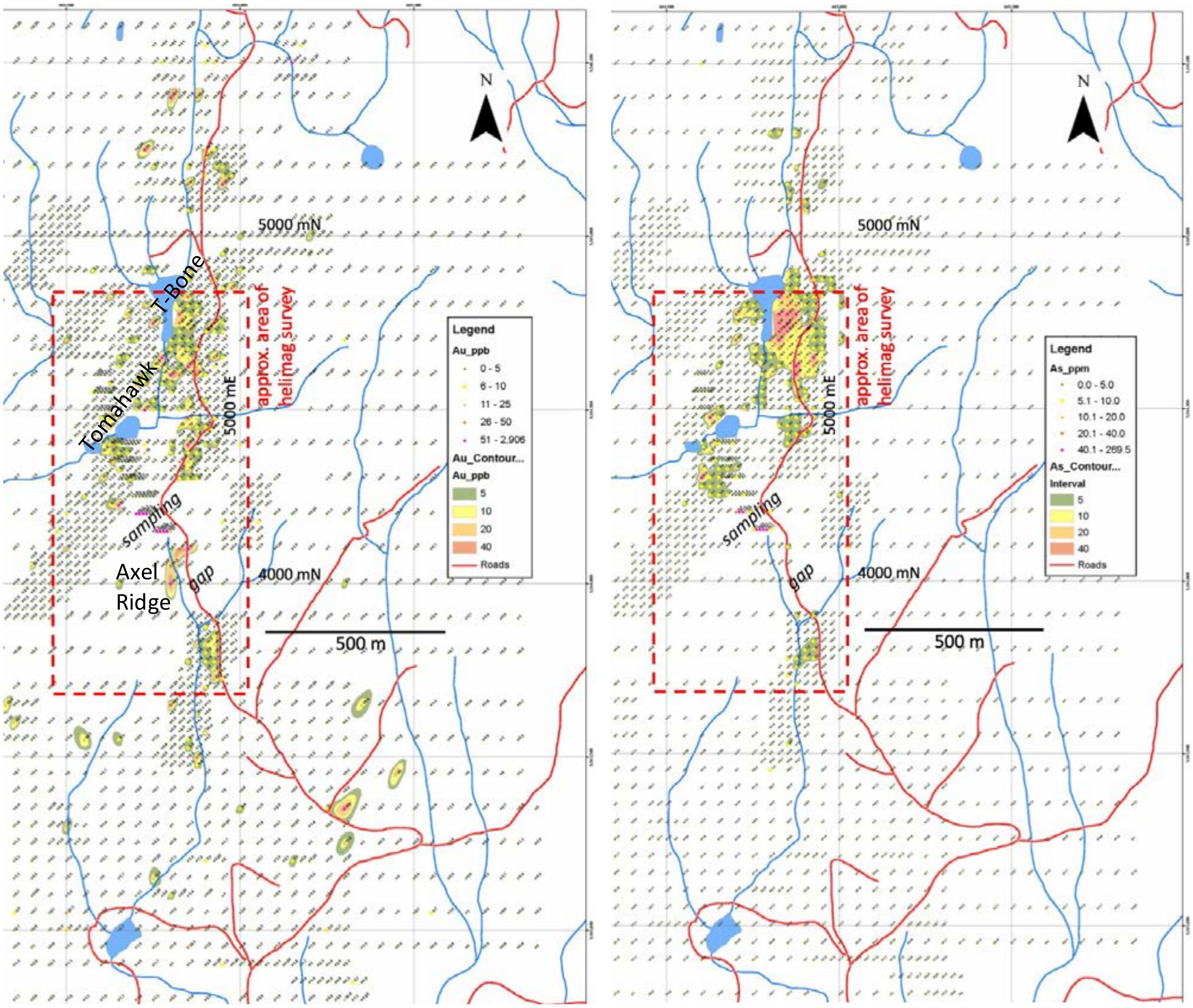


Figure 2. Anomalous a) gold- and b) arsenic-in-soil values at the Poderosa prospect over an area of ~3 km N-S by 1.5+ km E-W, with intermittent vein outcrop and subcrop exposed in a belt ~1 km N-S, from Axel Ridge north to T Bone. There is a gap in the soil sampling at Axel Ridge; the few samples collected returned the highest contiguous Au and As soil anomalies on the property, as well as good outcrop anomalies (up to 8.7 g/t Au in a Au Gold sample). Axel Ridge was tested with E-W drilling in 2007 (Fig. 3), in scissor holes. Much of the property area is covered by glacial till of varying thickness. Approximate area of 2007 groundmag survey outlined by red dashed box (Fig. 3).

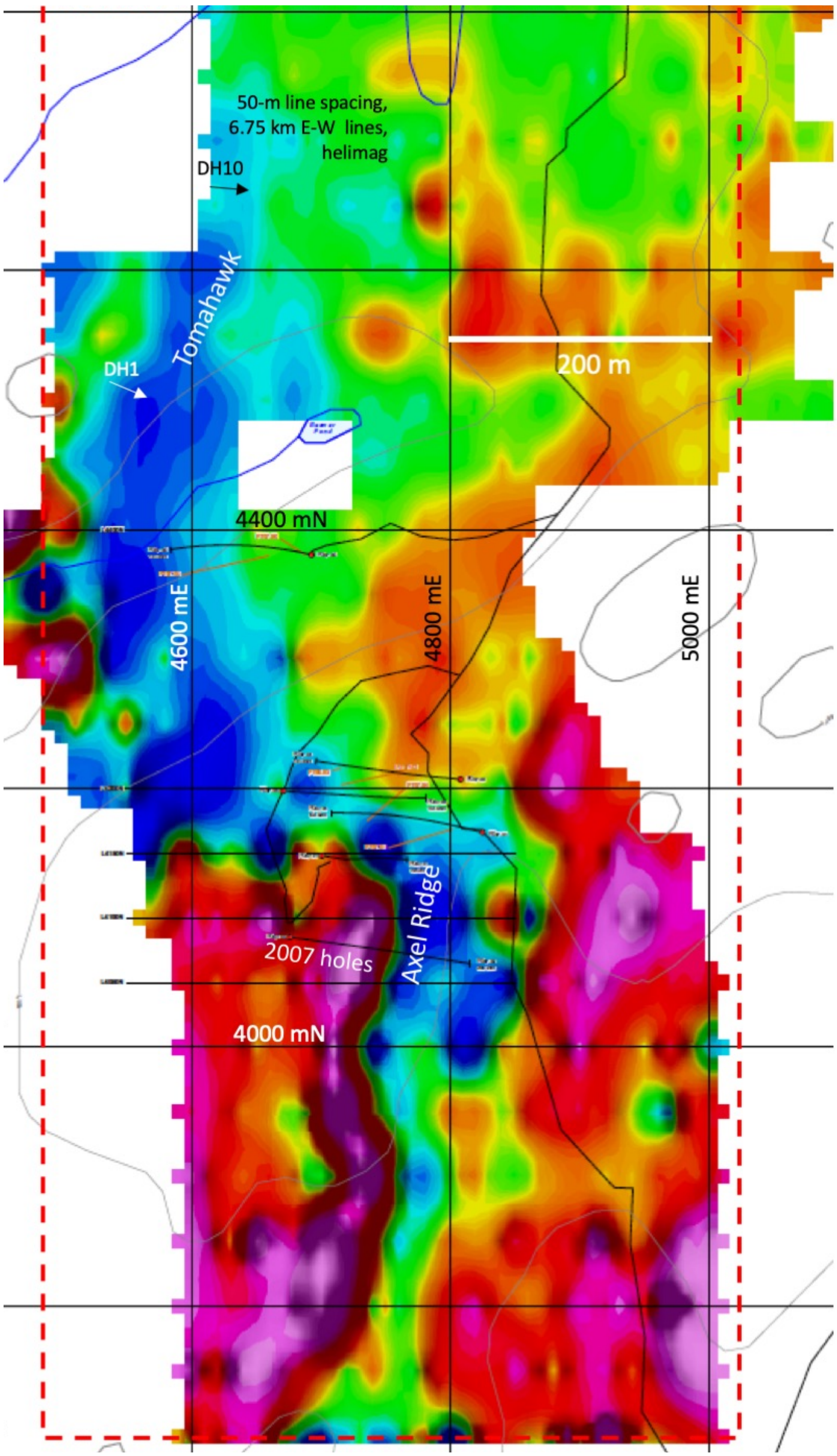
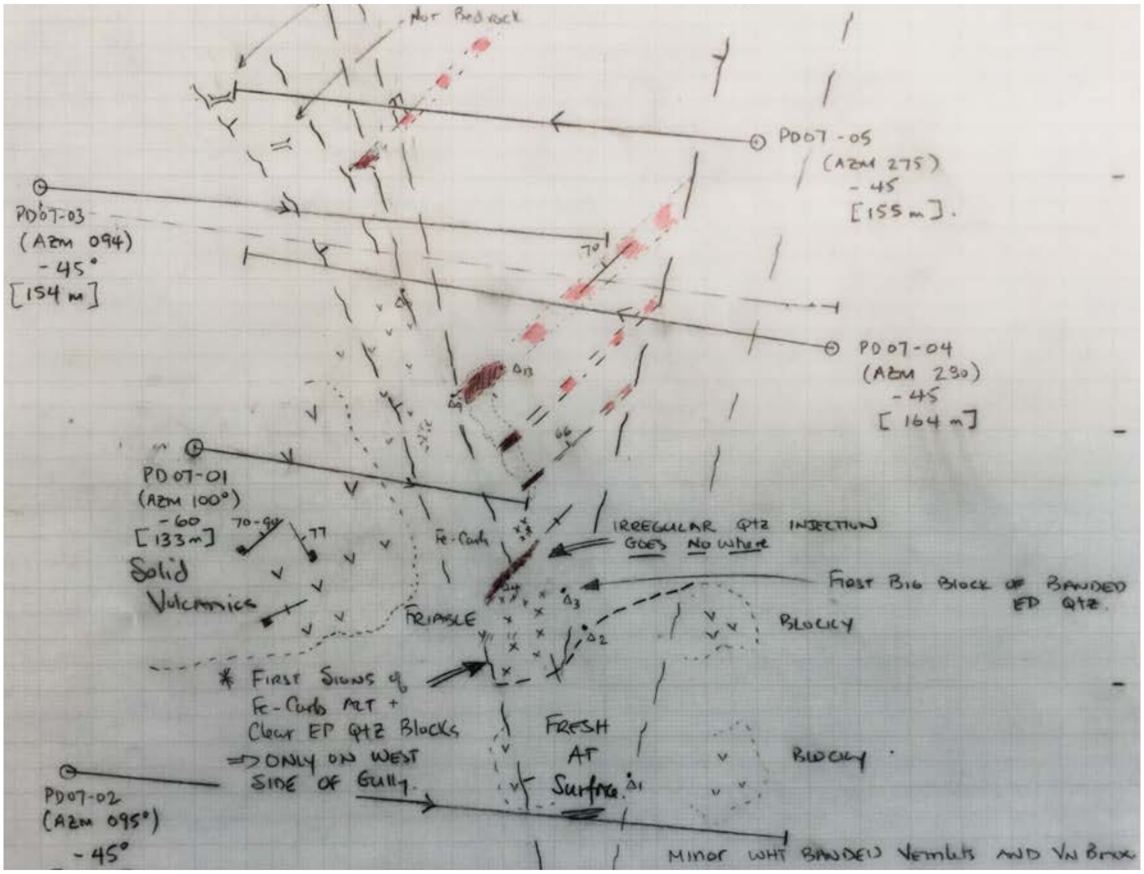


Figure 3. Reduced-to-pole derivative map (groundmag survey on 50 m-spaced E-W lines, 6.75 line km) over the Ponderosa property (for Strongbow in 2007). Most Au Gold drilling in 2022 located between DH1 and 10; traces of 2007 scissor holes shown in the Axel Ridge area over a ~N-S magnetic low.



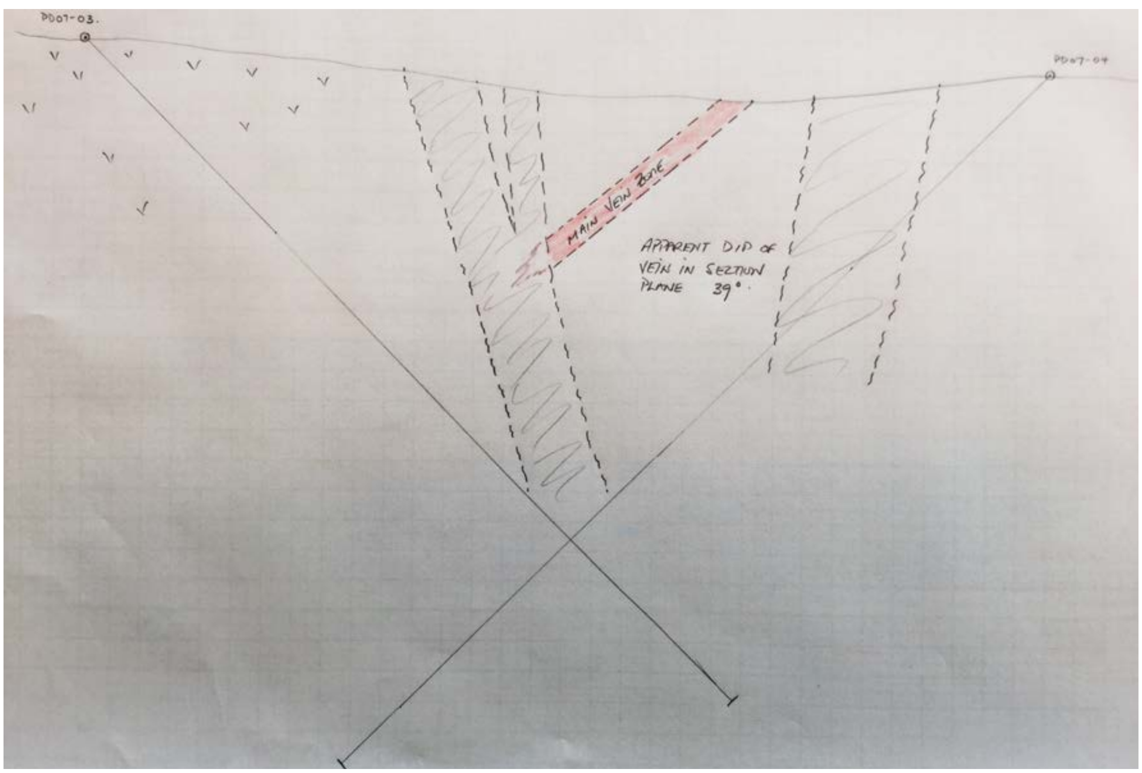


Figure 4. Plan of Axel Ridge area, showing outcrops as well as traces of 2007 drill holes. b) ~W-E cross section looking north; 2007 PD-003 (154 m) and 004 (164 m) scissor holes (-45° dip), which did not intersect the vein that outcrops at surface. Geological sketches by Bill Wengzynowski.

Au Gold Corp commissioned a helimag survey in 2021 (218 line-km at 50 m spacing on E-W lines; Fig. 5a). Condor analyzed the structural features from this magnetic survey and identified three sets of structures (355, 056 and 305 azimuths; Fig. 5b). These structures were placed into an interpretive framework (Fig. 6a), and compared to the structural features apparent from a shaded DTM, generated from UAV photogrammetry (Fig. 6b).

The more obvious feature is a northerly trend, with magnetic lows associated with elongate areas of soil anomalies (Fig. 2), similar to the that noted for the earlier ground mag survey (Fig. 3). Northeast features have been suggested with strike slip movement (but little apparent offset of the N-S features), as well as less significant NW features (Fig. 6a).

The NW features (125/305°) have a low angle to early drill holes (~100/280°), and are sub-parallel to most of the 2022 Au Gold drill holes (99 to 147°; average 117° azimuth, i.e., average of ~10° from the interpreted NW-SE trend; Fig. 7). Drill holes by Au Gold returned highly anomalous grades, ~0.5 to 1.5 g/t Au over 1 to 4 m, with nine of the 20 holes returning anomalous values of 0.2 to 0.5 g/t Au over 2 to 20 m intervals. However, most of these anomalous intervals were in the upper 15 to 50 m drill depth (below the glacial till; Fig. 8 sections). The values are similar to the range of anomalies in trenches cut on structures with quartz veinlets, which reported a few to several m of 0.1 to 1 g/t Au (each over ~1 m samples), with values in trench and grab samples locally returning higher values.

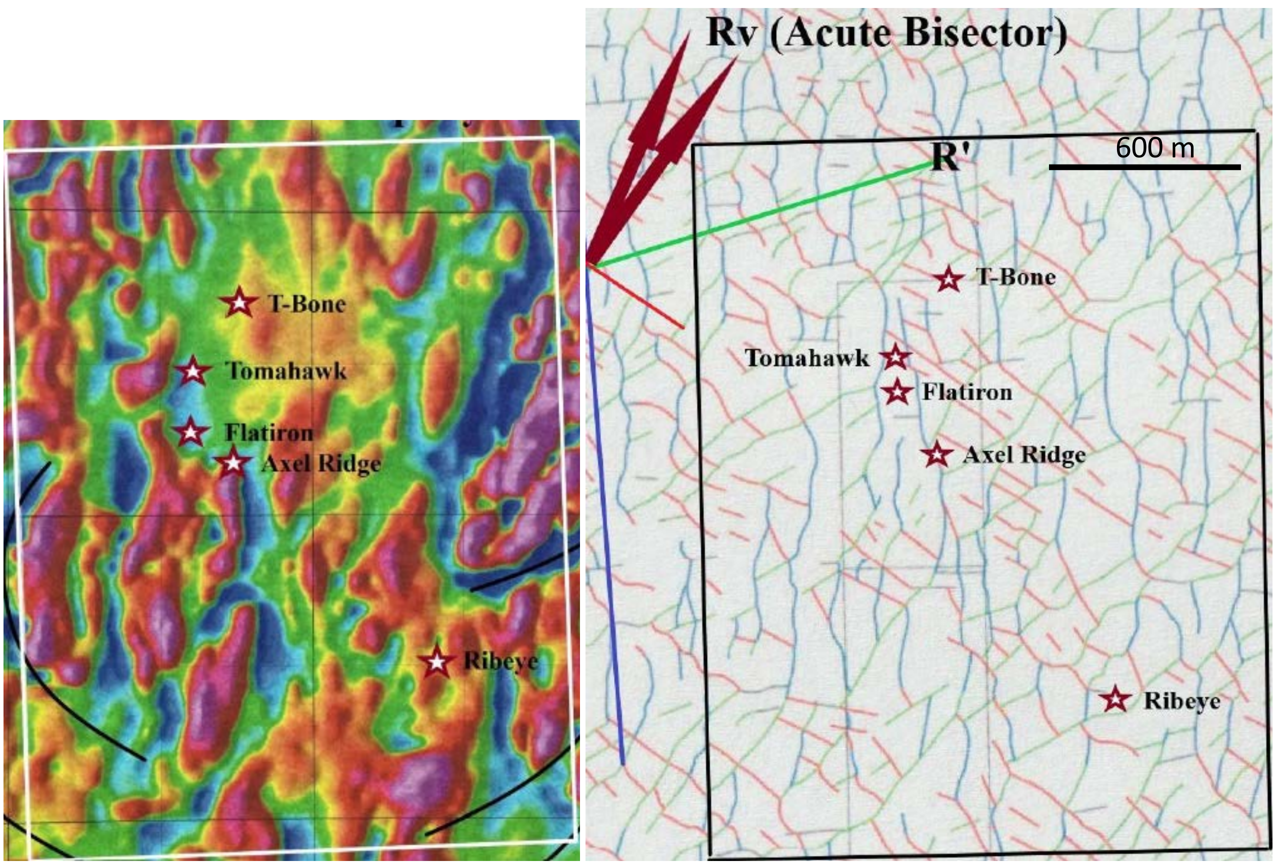


Figure 5. a) Reduced-to-pole derivative map (Precision 2021 helimag survey on 50 m-spaced E-W lines, total 218 line km) over the Ponderosa property (outlined in white). b) Structural interpretation (Condor, 2022) based on an examination of the 2021 magnetic survey. Three main fault sets were recognized; northerly 355 faults and 056 structures, and lesser 305 faults.

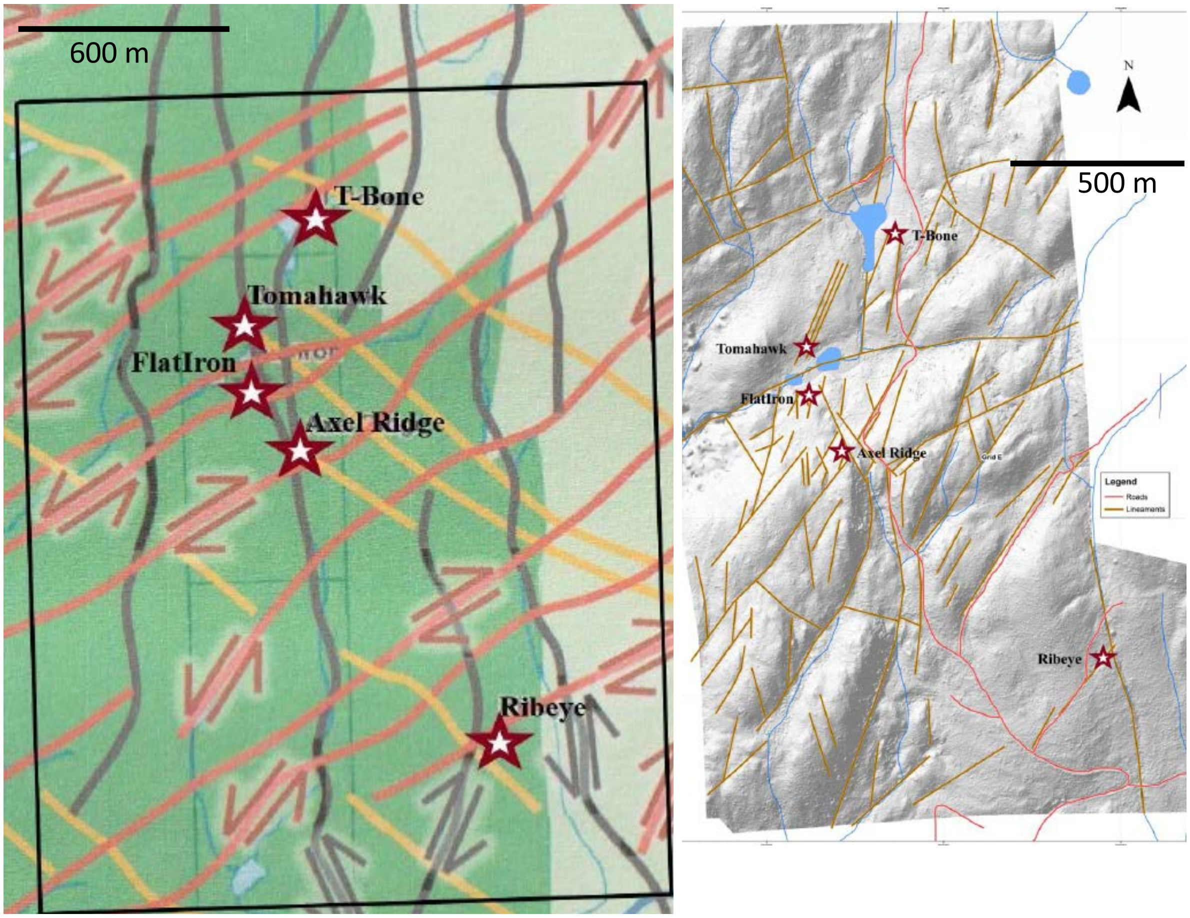


Figure 6. a) Condor (2022) model of lineation trends from magnetic anomalies, and structural interpretation over the Ponderosa property, outlined in black (Fig. 5). b) Condor (2022) interpretation of lineation trends from UAV photogrammetric survey (red lines are roads).

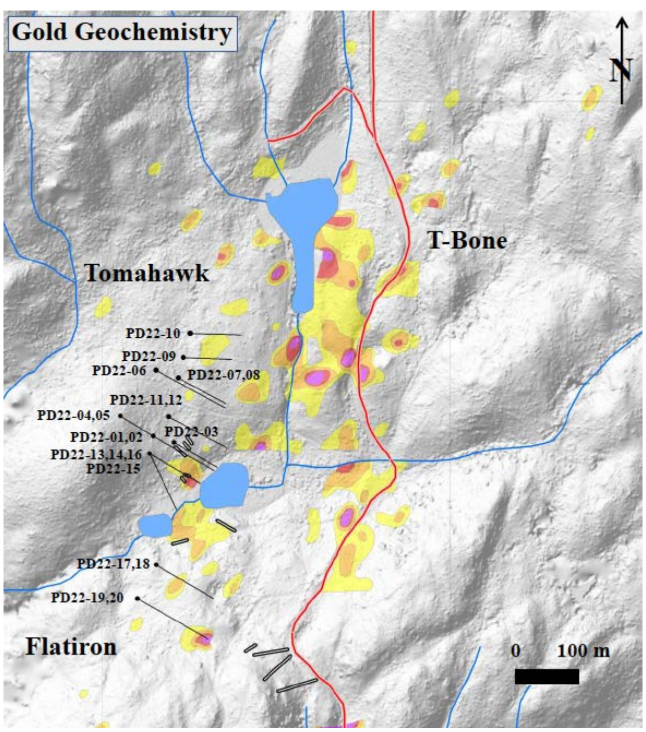


Figure 7. a) Map of Au-in-soil anomalies, showing the trace of Au Gold 2022 drill holes (drilled on average 117o azimuth).

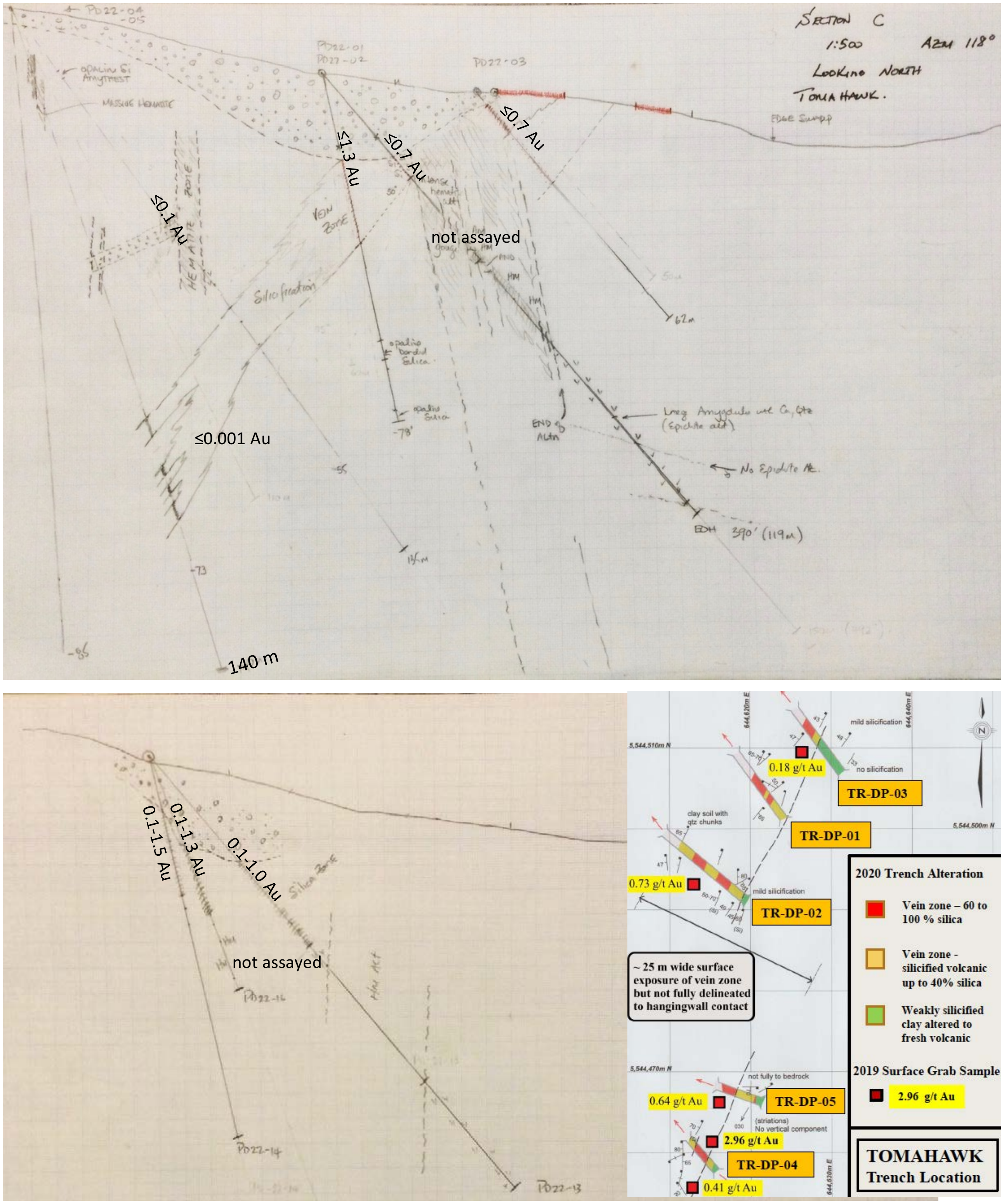


Figure 8. a) Section (118° azimuth) through PD-01, 02, 03, 04 and 05 at Tomahawk, all drilled to the east; the deepest hole, PD-05, is 140 m long. b) Section W-E, looking north, through PD-13, 14 and 16. Logging and geological section by Bill Wengzynowski; most highly anomalous samples, >0.1 g/t Au, from shallow depths (core lengths <45 m). c) Inset: trench results in Tomahawk south, near the intersection of PD-01 to 05.

Observations

Ponderosa epithermal veins

Several trenches (Fig. 8c) have been cut on silicified structures, locally with quartz veins (Fig. 9), both historic as well those by Au Gold since 2019. Samples from trenches reported a few to several m of 0.1 to 1 g/t Au (each over ~1 m samples; Fig. 8c), with values in trench and grab samples locally returning higher values. The quartz veins in outcrop and trenches are typically cryptocrystalline in appearance (Fig. 10a), locally with banding that includes colloform textures (Fig. 10b, 11) across the property, from T-Bone south through Tomahawk to Axel Ridge.

Figure 9. a) Tomahawk area, near PD-22-13 and 15 collars. Silicified andesite, up to 3 g/t Au in nearby trench, non-magnetic. b) Andesite, chlorite altered, with magnetite.

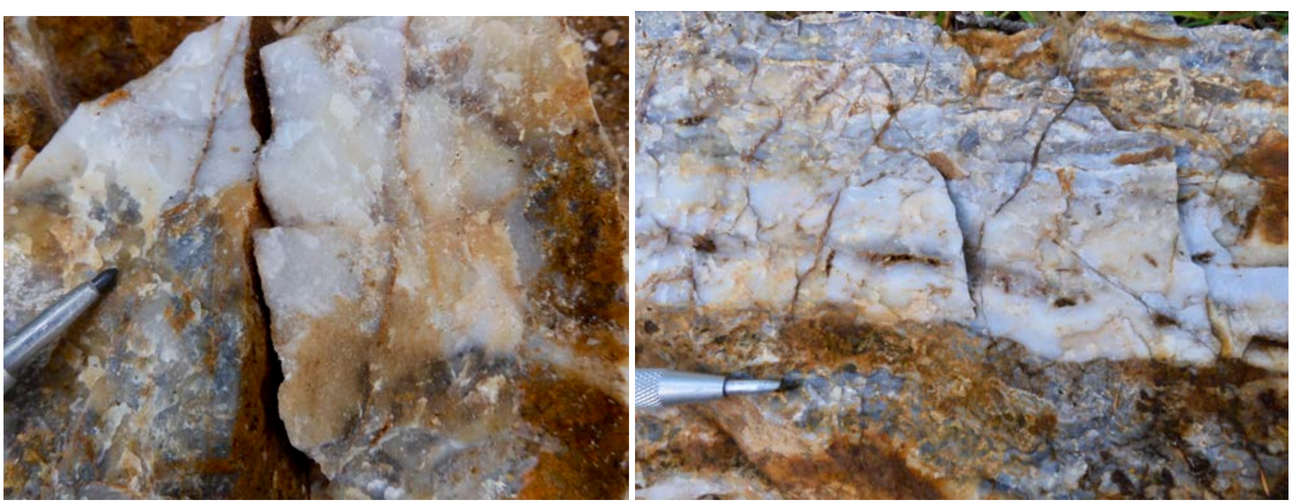


Figure 10. a) Tomahawk area, near Strongbow trench with 25 m at 0.8 g/t Au. Brecciated andesite, cryptocrystalline, banded. b) T-Bone, vein with cryptocrystalline banding, colloform textures.

Figure 11. Axel Ridge outcrop, ~1250 m elevation. a) 60 m north of N-S linear Axel Ridge Au-in-soil anomaly, 40-cm wide vein with dendritic marcasite on vein margins. b) Well-banded, colloform vein, then brecciated and coated with adularia followed by banded quartz and fine pyrite.

Au Gold tested the Tomahawk surface anomaly by drilling 20 diamond core holes (angled -47 to -78° from horizontal; total ~2393 m in length, 49 to 182 m in length, average 120 m) in 2022. Although shallow veinlet zones with anomalous Au values were intersected in the upper 10s m from the surface, similar to those in surface trenches, the values were not more anomalous than those found at surface; in addition, the deeper portions of holes (below ~50 m in core length, ~30-40 m below surface) did not return anomalous Au values.

Nine of the 20 holes returning anomalous values of 0.2 to 0.5 g/t Au over 2 to 20 m intervals, with intervals of ~0.5 to 1.5 g/t Au over 1 to 4 m reported.

Vein samples from the surface and in Tomahawk drill core are sulfide poor (minor pyrite and marcasite), with Ag:Au ratios low, from 1:1 to 1:5, and at most a few 100s ppm As. The quartz veins feature fine colloform laminations (Fig. 12a, c) that indicate colloidal silica deposition; there are also adularia occurrences (Figs. 12a, b, 13), locally with an acicular texture (Fig. 13a). Both features, colloform laminations and adularia, are typical features of the epithermal environment, with the former consistent with a relatively low temperature, shallow depth of formation; this agrees with the presence of smectite and laumontite at Ribeye, about 1.2 km to the SE (XRD identification). Local illite alteration is present associated with some veins. There is evidence for multiple periods of brecciation in vein structures (Figs. 12b, d, 14).

The apparently west-dipping veins at Tomahawk were not intersected by the east-directed holes below several 10s m depth (Fig. 8a, b). At Axel Ridge, historic drilling on the outcropping surface anomaly (Fig. 4a) did not intersect any silicified structure or grade at depth, even when scissor holes were drilled to the west (Fig. 4b).

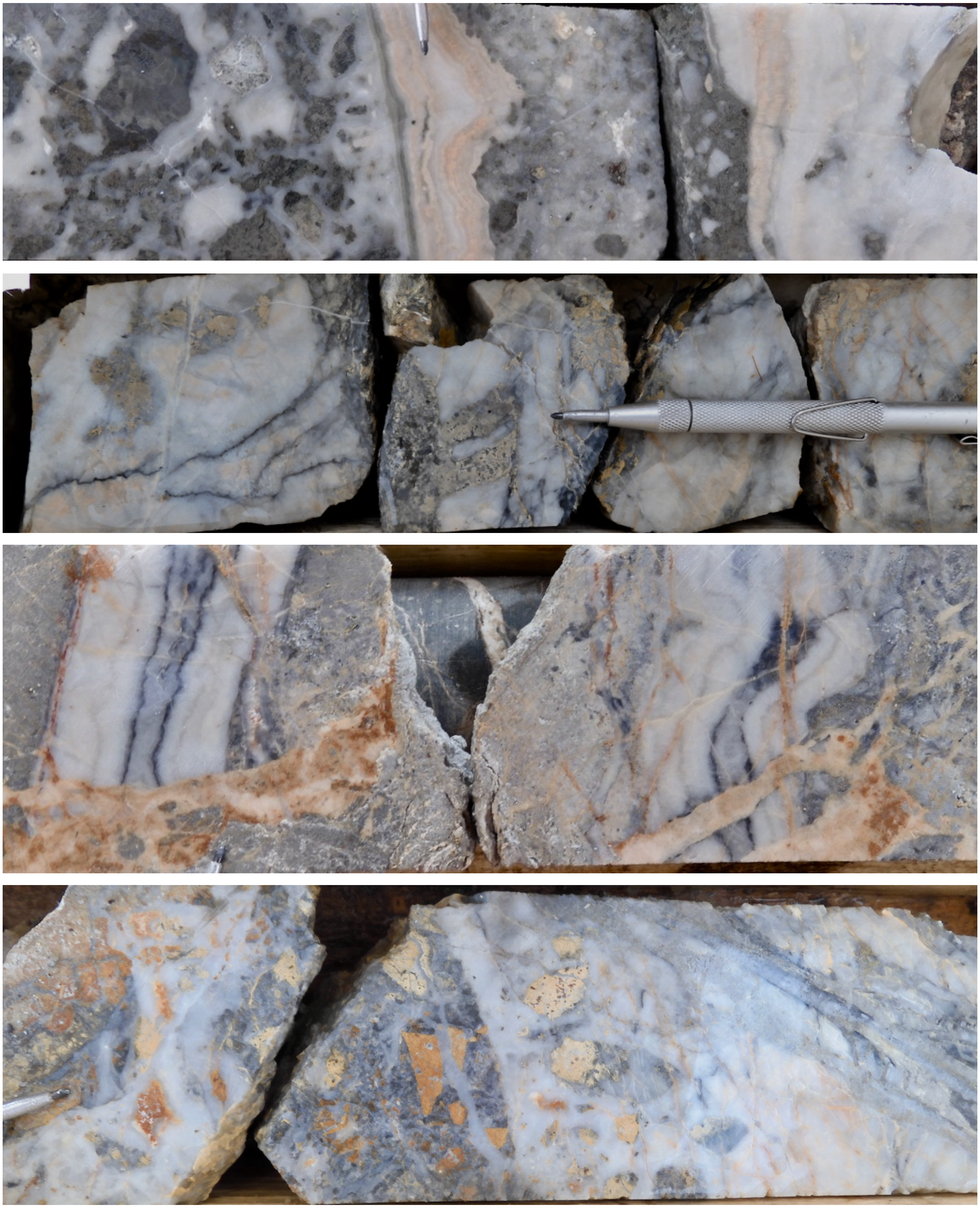


Figure 12. Vein textures in 2022 drill core. a) PD-22-02-22.7 m, 1.27 g/t Au, brecciation followed by colloform banding with pink adularia, locally acicular. b) PD-22-13-26.9, brecciated quartz + adularia veins, 1.0 g/t Au. c) PD-22-13-46.9 m, 0.24 g/t Au, colloform veinlets with fine dark Fe sulfide. d) PD-22-15-34.8 m, 0.9 g/t Au; 3+ events of veining and brecciation.

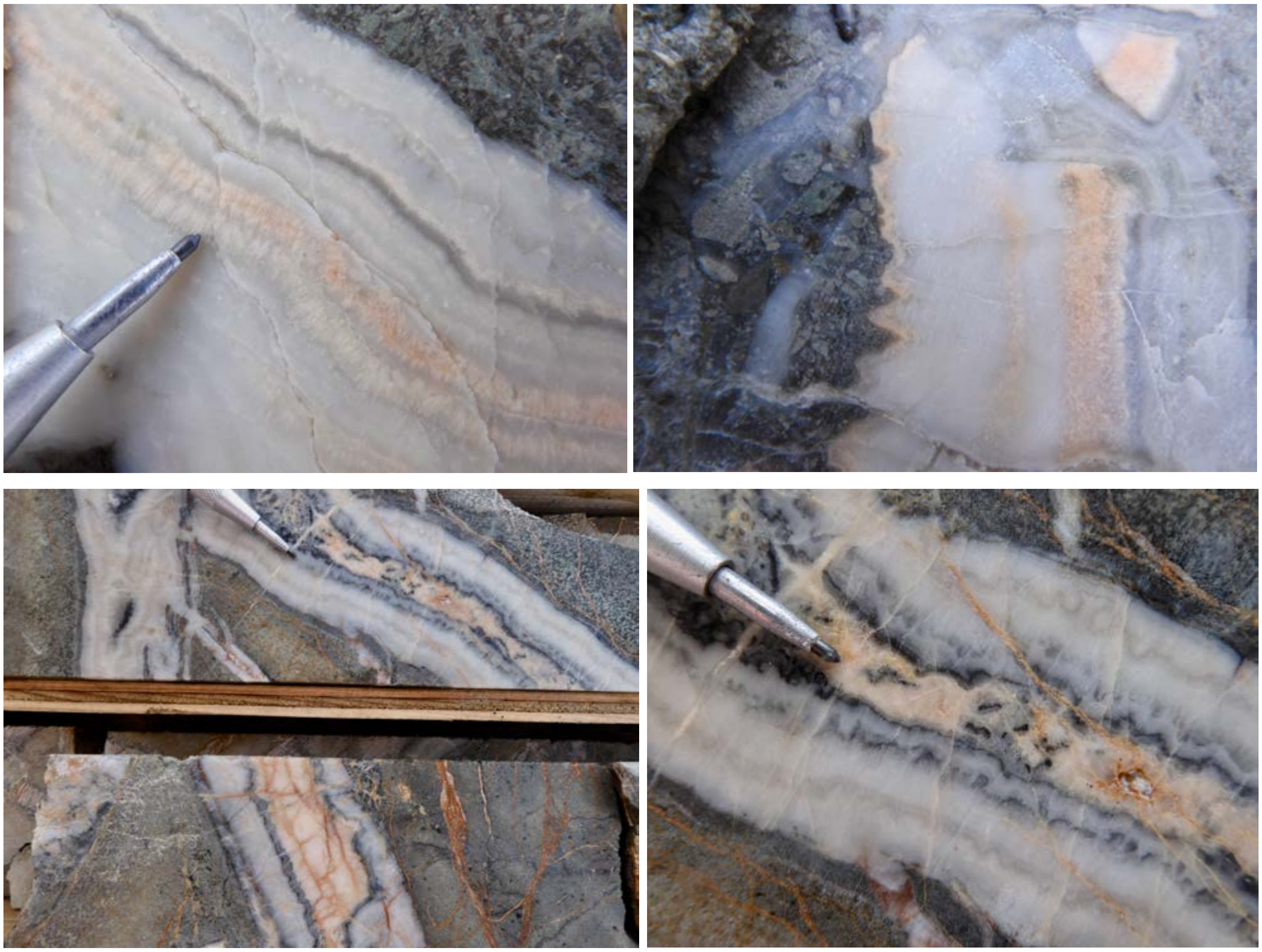


Figure 13. PD-22-02 a) 22.7 m, 1.27 g/t Au, acicular adularia with colloform bands. b) 24.3 m, 0.26 g/t Au, brecciation followed by colloform to massive vein with adularia bands.

PD-22-13 c) 43.7 m, 0.7 g/t Au, and 44.5 m, 2.2 g/t Au. d) Detail of 43.7 m, colloform laminations, later dark sulfide material (102 ppm As, arsenian marcasite?), and late fill by pink adularia.

Figure 14. PD-22-07 a) 18.7 m, 0.42 g/t Au, brecciation cut by quartz veinlet with centerline adularia. b) 27.8 m, brecciated interval with grey cryptocrystalline silica matrix, late clay; 32 ppb Au.

Discussion

The Ponderosa prospect has features at the surface and in drill core indicating that it is epithermal in nature, similar in style to the veins now being drilled to the SE at Shovelnose. The cryptocrystalline nature of silica deposition at surface and in drill core, as well as initial indications of clay mineralogy (smectite and zeolites at Ribeye) are consistent with a shallow level of erosion, perhaps <100 m. However, paleosurface features were not observed in the area.

Epithermal veins may extend to the paleosurface (e.g., McLaughlin, California; Fig. 16), marked by silica sinters that formed around hot spring discharges, and/or steam-heated blankets of steam-heated acid sulfate solutions that form kaolinite, accompanied by horizons of opal silicification at their base, being the paleowater table. Nevertheless, the more typical situation is where the tops of mineralized veins lie ~100 to 200 m below the paleowater table, even though low-grade veins may extend to a shallower depth (Fig. 16). Within this context, and consideration of early exploration at Shovelnose, the present depth of drilling may have been insufficiently deep to intercept well-developed quartz veins with higher grades of Au.

The present quandary, however, is the extension of outcropping and shallow veins, as vein roots were not intersected by deeper drilling, both in 2022 (Fig. 8a, b) and in 2007 (Fig. 4b),

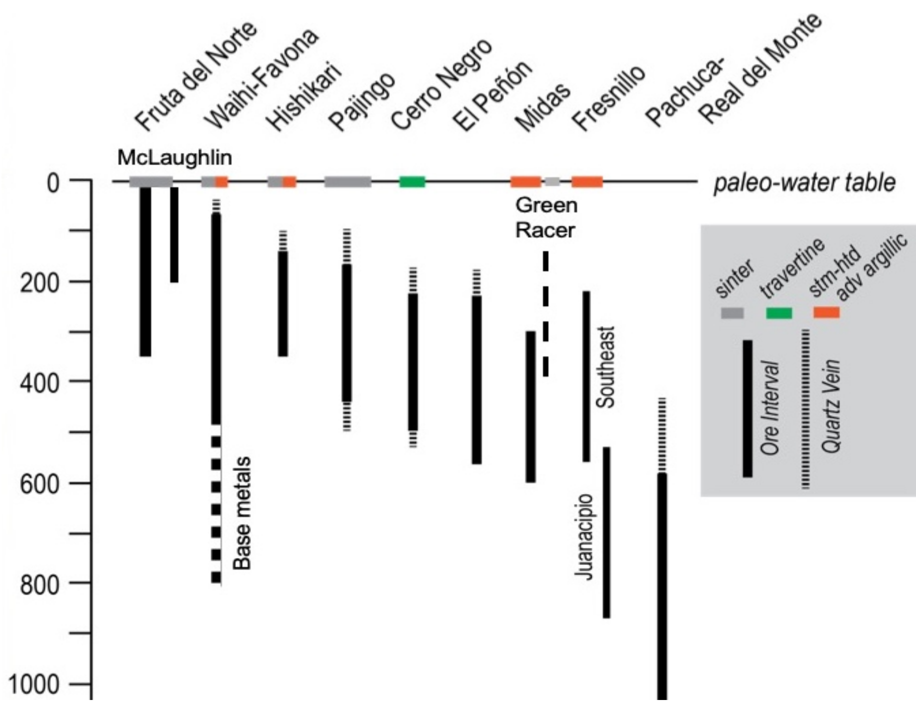


Figure 16. Depths below paleosurface to the tops of quartz vein-hosted ore intervals at typical epithermal vein deposits; vertical ore intervals of ~200 m interval (± 100 m) is common. First and last two deposits, intermediate sulfidation, others low sulfidation, latter typically with smaller vertical (<100-300 m) ore intervals, with tops closer to the paleowater table (~100-200 m deep). Modified from Simmons, 2017.

with the earlier drill program including scissor holes in the search for the depth extension of trenched veins that are anomalous in Au.

The veins tested in 2022 were only drilled from west to east, without scissor holes to the west (Fig. 7). Although it is possible that the hanging wall is to the east of Tomahawk (the magnetic low, presumably due to alteration, is wider to the east of the drill hole collars than to the west; Fig. 3), another possibility is that veins are sub-parallel to the direction of drilling. Indeed, the third orientation of structures indicated from the airmag survey is 305/125°, are sub-parallel to most of the 2022 Au Gold drill holes (99 to 147°; average 117° azimuth, i.e., average of ~10° from the NW-SE trend interpreted from magnetic data). Another possibility is that the upflow zones of structures are not located at Tomahawk (or Axel Ridge, with its 2007 scissor holes to 100/280°), and that the near-surface zones of silicification, vein development and Au plus As anomaly was related to shallow outflow along structures, down a paleohydraulic gradient.

In addition to a detailed structure survey, possibly assisted by a ground magnetic survey that is not on E-W lines, a survey of alteration mineralogy at surface and in shallow drill core may help to identify lateral paleothermal gradients, in particular based on the distribution of clays such as smectite, interstratified illite-smectite or chlorite-smectite (with or without kaolinite), to illite (Fig. 17), with more crystalline illite (higher ISM, illite spectral maturity) indicating higher temperature.

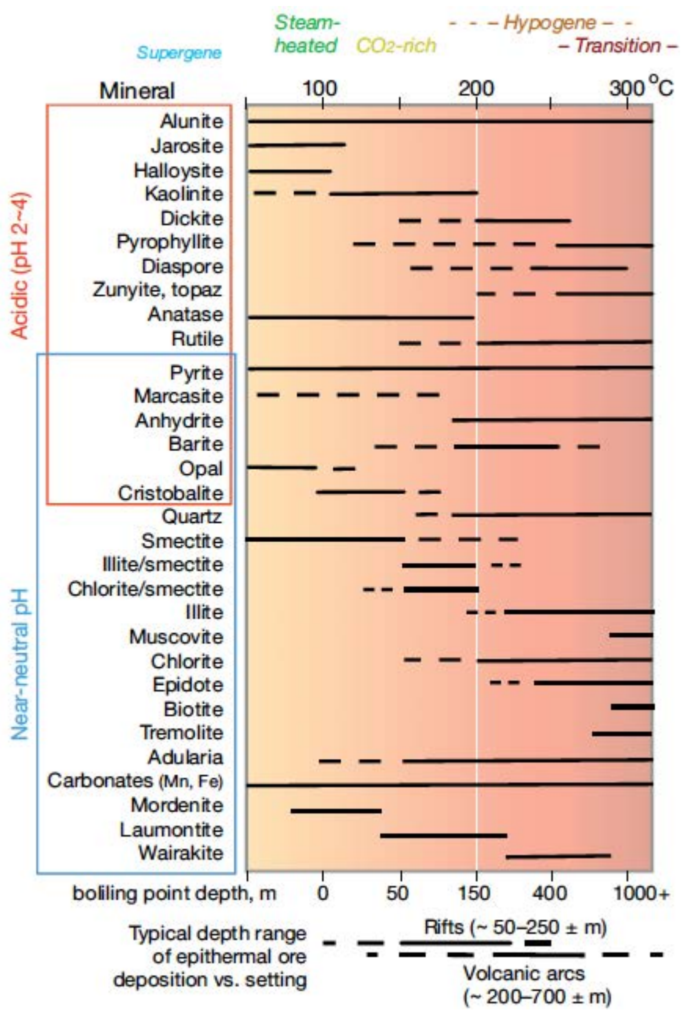


Figure 17. Temperature stability of common epithermal minerals, both acid- (red box) and neutral pH (blue box)-stable. Smectite through interlayered clays to illite and chlorite indicate a progressive temperature increase, from <150°C to >200-220°C. Zeolites, which are stable under low CO2 conditions, also are temperature sensitive, with laumontite stable at ~150 to ~220°C. Kaolin minerals (halloysite, kaolinite) have a lower temperature of formation (<100 to ~200°C) than dickite (~200-250°C) and pyrophyllite (>250°C), the latter commonly occurring with diaspore and locally corundum. Alunite has a wide stability range, although Na-rich natroalunite forms at a higher temperature than K-alunite under magmatic-hydrothermal conditions. From Hedenquist and Arribas (2022).

Qualifications

I, Jeffrey W. Hedenquist, of Ottawa, Canada, hearby certify that:

- I am President of Hedenquist Consulting, Inc., incorporated within the province of Ontario. I am an independent consulting geologist with an office at 245 Kent Street, Suite 501, Ottawa, Ontario, K2P 0A5, Canada; telephone 1-613-230-9191.
- I am a graduate of Macalester College, St. Paul, Minnesota, USA (B.A, Geology, 1975), The Johns Hopkins University, Baltimore, Maryland, USA (M.A., Geology, 1978), and the University of Auckland, Auckland, New Zealand (Ph.D, Geology, 1983). I have been awarded the degree Doctor *honoris causa* from the universities of Turku (2006) and Geneva (2014).
- I have practiced my profession as a geologist continuously since 1975, working as a researcher for the U.S. Geological Survey (4 years), the New Zealand Department of Scientific and Industrial Research – Chemistry Division (10 years), and the Geological Survey of Japan (10 years) until the end of 1998. I have published widely in international peer-reviewed journals on subjects related to epithermal and porphyry ore-deposit formation and exploration, as well as active hydrothermal systems. I have consulted to the mineral industry and various governments as a New Zealand government scientist from 1985 to 1989, and as an independent consultant since January, 1999, submitting over 350 assignment reports to over 120 clients in over 40 countries.
- I am a Fellow of the Society of Economic Geologists and served as an executive officer for six years, including President. I am a member of the Society of Resource Geology of Japan, the Society Applied to Mineral Deposits, and the Geochemical Society. I was Editor of the 100th Anniversary Publications of *Economic Geology*, am Associate Editor of the journal *Economic Geology*, and am an editorial board member of *Resource Geology*; I have previously served as editorial board member of *Geology*, *Geothermics*, *Journal of Geochemical Exploration*, *Geochemical Journal* and *Mineralium Deposita*, all international peer-reviewed journals.
- I have received the Kato Takeo Gold Award from the Society of Resource Geology of Japan (2011), the Duncan Derry Medal from the Geological Association of Canada, Mineral Deposits Division (2005), the William Smith Medal from The Geological Society (London) (2004), and the Silver Medal (2000) and Marsden Award (2013) from the Society of Economic Geologists.
- This report was requested by Marc Blythe, President of Au Gold Corp, and is based on information provided to me by Au Gold Corp, previous reports, discussion with company personnel, and personal observations in the core shed and field during a 2-day examination of the Ponderosa prospect.
- I have no direct or indirect interest in Au Gold Corp or in any other companies involved in the region, in the property described in this report, or in any other properties in the region.
- I hearby grant permission for the use of this report in its full and unedited form in a Statement of Material Facts or for similar purpose. Written permission must be obtained from me before publication or distribution of any excerpt or summary.

Hedenquist Consulting, Inc.

Jeffrey W. Hedenquist

Jeffrey W. Hedenquist, Ph.D.

Date: 5 September, 2022

Ottawa