RIDGEWAY: A FRESH LOOK IN A MATURE DISTRICT

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ABSTRACT

Newmont's Cadia Valley Operation hosts world-class porphyry-style mineralisation across three main deposits (Figure 1): the active Cadia East underground, the historic Cadia Hill open pit and Ridgeway underground, which is currently on care-and-maintenance. Collectively, these deposits and associated stockpiles have a combined mineral reserve of 1Bt @ 0.42g/t Au for 13.5Moz and 0.29% Cu for 2.9kt Cu, estimated December 2025. Ridgeway production ended in 2017, with a total production of 87Mt @ 1.67g/t Au and 0.62% Cu for 3.9Moz of gold and 487kt of copper. Mineralisation remains open at depth, with evidence for local high-grade, including 16m @ 10.8g/t Au and 3.4% Cu in UR333 (Figure 2). Despite the exploration upside, Ridgeway had not been drilled for 15 years, and fundamental questions remained regarding the geological controls on high-grade mineralisation at depth.

The Ridgeway deposit is a subvertical body of quartz–sulphide vein stockwork mineralisation with an elliptical, pipe-like geometry, elongated along a northwest-striking axis. Stockwork dimensions are approximately 400 m east–west, 250 m north–south and the deposit extends to a depth in excess of 1,000 m. High-grade mineralisation at Ridgeway occurs within dense quartz vein stockworks and sheeted arrays developed in and around small (50–100 m diameter), early-, inter- and late-mineral monzonite to quartz-monzonite intrusions. These monzonite dykes exploit early pyroxene- and plagioclase-porphyritic dykes that themselves intrude along broader structural discontinuities. The deposit is located at the intersection of multiple regional fault systems and is localised at the contact between the reactive Forest Reef Volcanics and underlying, less-reactive Weemalla Formation. The Weemalla Formation consists of thinly bedded siltstone with less common sandy marl interbeds and mafic lavas.

Newmont's acquisition of Newcrest in 2023 and the formation of a new site exploration team in 2024 created an opportunity to revisit Ridgeway and evaluate its remaining exploration potential. Building on previous exploration, the team designed and executed a 10,000 m drill program testing the remaining potential at Ridgeway. The work program included relogging 6,000 m of historic Ridgeway drill core. Newly drilled core was also scanned using Veracio's Truscan 2 unit to generate a real-time multi-element geochemical dataset. The relogging and drilling program was undertaken to better understand the controls on mineralisation at depth and to refine the characterisation of early-, inter- and late-mineral porphyry and country rock.

Integrated drilling, relogging and lithogeochemical datasets indicate that the early-, inter- and late-mineral porphyries at Ridgeway are distinguishable geochemically by degree of hornblende fractionation (V/Sc) and evolved from a common parental magma. Mineralisation at depth remains strongly focussed along the margins of the Ridgeway intrusive complex within the less-reactive Weemalla Formation, with lithogeochemistry assisting to identify two preferentially mineralised units: 1) sandy and silty marl interbeds within the Weemalla Formation that locally host skarnoid (Mt-Kfs-Act-Chl-Cp-Bn) mineralisation, and 2) pyroxene-porphyry dykes and sills that act as a rheological contrast between high-K igneous units and the low permeability, comparatively unreactive thinly-bedded Weemalla siltstones. Veracio's Truscan predictive logging was utilised to rapidly identify marl stratigraphic horizons and mafic sills and dykes amongst otherwise uniform and less-reactive bedded siltstones. Our interpretation is that these stratigraphic horizons and dykes were instrumental in the development of high-grade, localised mineralisation during prolonged injection of porphyry magmas through the Weemalla Formation

along structural discontinuities, until reaching complete devolatilisation in the overlying Forest Reef Volcanics.

The integration of multi-element geochemistry with relogging and recent drilling has refined the understanding of the geological controls on mineralisation at Ridgeway and identified new vectors for targeting extensions to the existing resource within country rock historically viewed as less prospective. This work highlights the value of revisiting mature deposits using new technologies, integrated datasets and modern workflows to generate new geological insights and uncover previously unrecognised exploration opportunities.

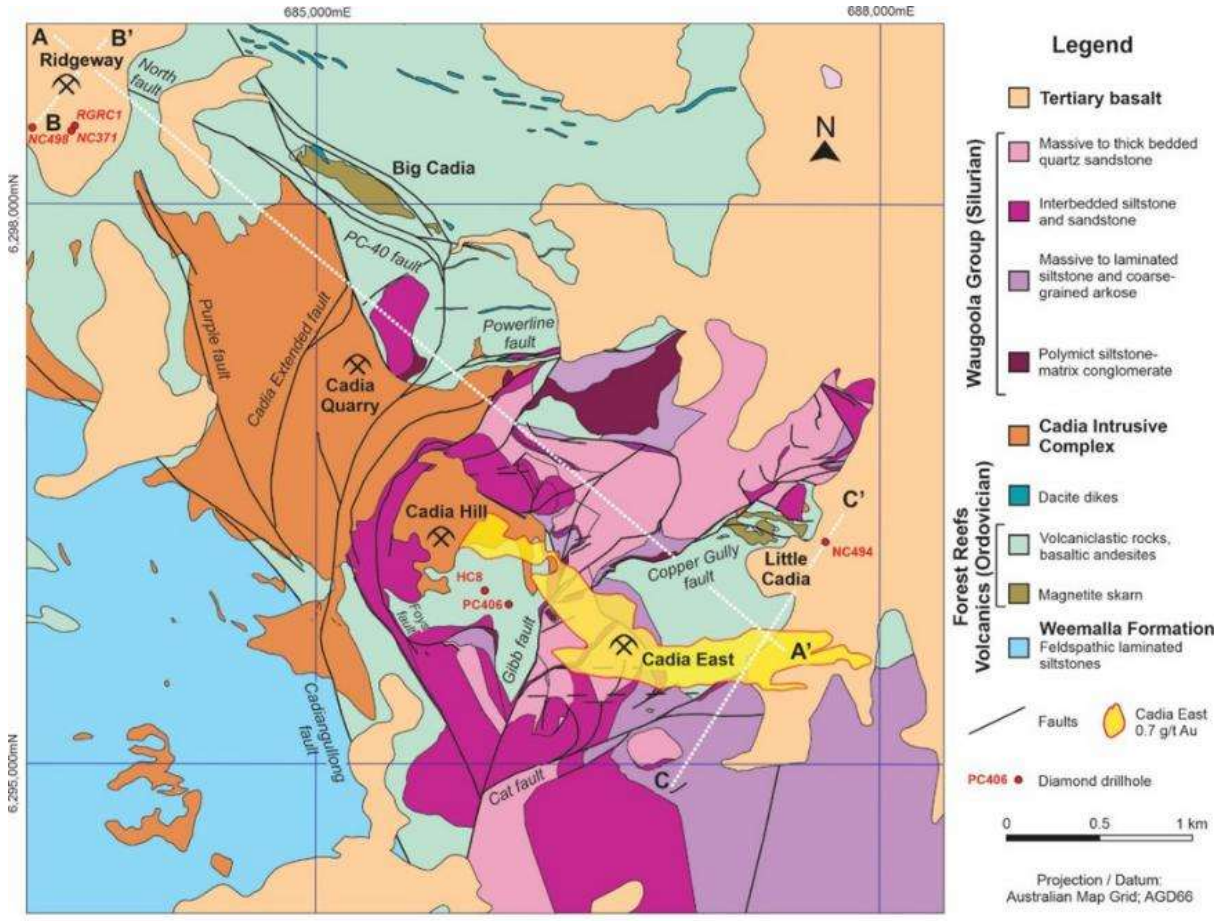

Figure 1 – Geology and deposits of the Cadia District (Harris et al., 2020).

Figure 2 – Example of vein-hosted and disseminated sulphide mineralisation within a locally brecciated pyroxene porphyry dyke. Image of UR333 showing subsection of 16m @ 10.8g/t Au and 3.4% Cu.

REFERENCES

HARRIS, A., COOKE, D., CUISON, A. L., GROOME, M., WILSON, A., FOX, N., HOLLIDAY, J., & TOSDAL, R. (2020). Geologic Evolution of Late Ordovician to Early Silurian Alkalic Porphyry Au-Cu Deposits at Cadia, New South Wales, Australia (Version 1). University of Tasmania.