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The Eureka Gold Deposit: Latest Gold Discovery in an Emerging Gold District in the Northern Zone, Damara Belt, Namibia: Alteration, Mineralization and Structural Controls

Wynand Slabbert[1], Dave Underwood[2]
1. Osino Gold Exploration and Mining, Windhoek, Namibia, 2. Osino Gold Exploration and Mining, George, South Africa

Eureka is interpreted to be an orogenic gold deposit in the northern zone of the Damara belt. The host rocks belong to the Okonguarri Formation which also hosts the mineralization at the Otjikoto Gold Mine, 150km to the northeast. The formation comprises interbedded marbles and siliciclastic turbidites (calcareous sandstones, siltstones, and shales) metamorphosed to the greenschist facies within the northern zone.

During a target generation workshop in 2019, the Osino team identified this part of the Damara belt, where it bends sharply from northward strike to eastward, as a priority structural target. After systematic mapping, soil and rock chip sampling, a small outcropping gold anomaly was located in association with large garnet porphyroblasts and hematite staining in turbidites. The first drill hole was completed in late 2022. The exploration team has since drilled 36 additional diamond holes primarily into the main outcropping southern shoot. Detailed district work has identified numerous additional targets.

The coarse-grained gold at Eureka is associated with multiple fluid pulses emplacing quartz+carbonate+sulphide (pyrrhotite, pyrite and chalcopyrite) veins. Early bedding parallel quartz veins are often brecciated and displaced by later carbonate and sulphide-rich fluids, which carry higher gold grades. The early quartz veins are controlled by flexural slip between lithological units with competency contrasts that occurred during the D1 and D2 regional shortening events of the Damaran orogeny.

Wall rock alteration is dominated by an assemblage of porphyroblastic garnets and grunerite amphibole, which forms a prominent halo around the mineralization. There is no mapped intrusive body near the mineralization to explain this unusual alteration as skarn related and the source of iron to produce this iron-rich assemblage is also not evident. This provides a challenge in determining fluid source, ligand and chemical controls for the multiple fluid pulses that precipitated the gold mineralization at Eureka.