The DeGrussa Project; A new generation of Exploration in the Bryah Basin

Shannan Bamfire
Sandfire Resources

Sandfire Resources NL's wholly owned DeGrussa Copper Gold Project is located 150km north of Meekatharra in the Bryah Basin. Since initial greenfields discovery in April 2009 the project has advanced through numerous milestones within a tight timeframe through to the completion of the Definitive Feasibility Study (DFS) in June 2011. The ability to clearly identify and delineate the four main Massive Sulphide lenses that underpin a very profitable life of mine plan has been a melding of good science, economic and operational directives, built into a rapidly-growing organisation moving from an exploration-focused junior to a mid-cap resource company.

The DeGrussa VMS deposit is high in copper and gold mineralisation with minor zinc and minor lead. There are varying amounts of the dominant iron sulphides which comprise chalcopyrite and pyrite, in abundance with minor pyrrohtite, magnetite, sphalerite and galena. There is little evidence of a pervasive stringer zone beneath the deposit although minor zones have been detected in drilling. The alteration at DeGrussa is primarily chlorite, quartz, and sericite that is more pervasive in the footwall contacts.

In the near surface parts of the DeGrussa and Conductor 1 lodes there is a zone of enriched supergene chalcocite mineralisation (containing direct shipping copper – gold ore in the DeGrussa lode) which transitions into a complex zone of copper oxide "plume" mineralisation. The oxide copper minerals noted to date include major chrysocolla, malachite, azurite, cuprite, native copper and minor tenorite, cuprous neotercite and other exotic copper oxide species.

The host rocks are a sequence of sediments, mafic volcaniclastics, dolerites, gabbros and minor local quartz carbonate breccias (mineralised), jasper beds and banded iron formation. The setting is structurally complex and dominated by the Shiraz Fault zone which offsets the ore bodies and is a significant local structure with varying widths of highly broken material. The Merlot and Pinot faults also have a local interaction with the massive sulphide lenses though are of a lesser impact than the Shiraz Fault.

A mixture of geophysics, drilling, mapping, and structural modelling have helped in the development of a robust geological model that is continuously expanding into the regional perspective. Ongoing work at DeGrussa, most specifically mapping in the Open Cut and Underground mines, is expected to add clarity to the geological setting.

The Bryah Basin is an area of renewed exploration vigour, and potentially the host of a significant new VMS camp for Western Australia.