

## **PATHFINDER EXPLORATION TECHNIQUES TO TARGET PORPHYRY AND EPITHERMAL STYLE ALTERATION SYSTEMS IN THE TEMORA COPPER-GOLD BELT**

*Bruce Hooper<sup>1\*</sup>, Damien Stephens<sup>2</sup> and Mathew Peacock<sup>3</sup>*  
*Sandfire Resources NL, [bruce.hooper@sandfire.com.au](mailto:bruce.hooper@sandfire.com.au)<sup>1</sup>, Sandfire Resources NL, [damien.stephens@sandfire.com.au](mailto:damien.stephens@sandfire.com.au)<sup>2</sup> Sandfire Resources NL, [mathew.peacock@sandfire.com.au](mailto:mathew.peacock@sandfire.com.au)*

The Temora project lies in the Lachlan Fold Belt between West Wyalong and Temora in the central-west of NSW. A number of mineralised systems are defined within the Late Ordovician Gidginbung Volcanic Complex including the mined Gidginbung high sulphidation gold mine and a number of mineralised porphyry prospects.

Mineralisation is related to narrow intrusive dykes within a coeval volcanic pile of volcanoclastics, sediments and lavas. Quartz-magnetite-feldspar-pyrite-chalcopyrite veins are associated with a chlorite-magnetite-carbonate alteration. A later quartz-sericite-pyrite alteration postdates the mineralization (Mowat, B & Smith S. 2006).

Sandfire Resources targeted the district considered to retain excellent potential for large economic discoveries and purchased 100% of the project in 2015, commenced a detailed review prior to field exploration drilling starting in late 2016. Availability of historical drill pulps, chip samples and drill core facilitated re-analysis of numerous holes with multi-element geochemistry and by Short Wave Infrared (SWIR) analysis using an Analytical Spectral Device (ASD). The white mica compositions, eg illite, sericite and muscovite and their spectral wavelengths, provided a zonation of alteration minerals highlighting potential vectors towards higher temperature fluids.

Priority targets were highlighted across the belt, including targets at depth associated with the Gidginbung high sulphidation epithermal gold system and the northern and eastern margins of the Rain Hill monzodiorite intrusive centre (Internal reports, Kitto 2016).

Drilling during the 2016-2017 field season in the Rain Hill has encountered a new prospect with porphyry style mineralisation at the Donnington prospect, (Sandfire Q March 2017).