

Jervois project - an update

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Introduction

The Jervois project, 380 km by road northeast of Alice Springs in the Northern Territory, has been 100% owned by KGL Resources Limited (KGL) since 2011. Jervois is a Cu-Pb-Zn-Ag polymetallic deposit and one of the largest base metals deposits in the eastern Arunta region. The main prospects of the project are Rockface, Reward, and Bellbird, although several others on the tenement have promising exploration potential (**Figure 1**). During 2018 and 2019, there was concentrated focus on bringing a bulk of the mineral resources from inferred to indicated category, as well as expanding the known boundaries of the mineral deposits. There was also a minor focus on exploration outside the main prospects. In August 2019, KGL announced a mineral resource estimate of 26.6 Mt containing 390 600 t of copper and 21.1 Moz of silver. With strengthened confidence levels, the indicated resource category was increased from 50% to 65% of total copper resources. In 2019, the Environmental Impact Statement was submitted following which the Northern Territory Environment Protection Authority recommended approval of the Jervois project.

Geology overview

Jervois is hosted within the Bonya Metamorphics, a sequence of lower- to mid-amphibolite grade metasediments and metaexhalites in the Aileron Province deposited ca 1.79 Ga (Weisheit *et al* 2019). There are six informal units of the Bonya Metamorphics seen at Jervois: porphyroblastic schists, mica schists, mica-bearing metasandstone, calc-silicate, garnet schist, and quartz-magnetite-hematite rock (Weisheit *et al* 2019). The sequence is intruded by several pegmatite and amphibolite rocks interpreted to correlate with the Attutra Metagabbro.

Three main deformations events have been identified at Jervois:

- D_1 – rarely observed, occasionally preserved as internal foliation within D_2 porphyroblasts (Weisheit 2019)
- D_2 – the dominant structural fabric of Jervois, subparallel to S_0 , forms tight isoclinal folding, boudinage, and shearing
- D_3 – refolded D_2 isoclinal folds, responsible for km-scale drag synform (the J-fold).

The major mineral deposits at Jervois (Reward, Rockface, Bellbird) are hosted within the rocks that form the J-fold. These rocks are typically garnet-chlorite-magnetite schist, which includes thin lateral variations to quartz tourmaline, banded epidotes, and calc-silicates. Mineralised lodes are subvertical at Reward and Bellbird and steeply dip $\sim 80^\circ$ north at Rockface. At the Rockface

deposit, mineralisation is typically massive chalcopyrite-pyrite breccia in magnetite-bearing quartzite (**Figures 2–3**). This chalcopyrite-pyrite-magnetite breccia is also common at Reward and Bellbird; however, these deposits additionally feature galena-sphalerite boudins generally associated with local skarn-like calc-silicates. The boundaries of the mineralised zones can vary greatly from wide (80–100 m), patchy, disseminated zones of low-grade sulfides to sharp contacts into high-grade semi-massive sulfides.

Exploration tools

Exploration targets have been generated using geophysics applied to geological models. For the past 2 years, down hole electromagnetic (DHEM) surveys have been the most successful in identifying continuous conductive sulfide bodies at depth. Gap Geophysics Pty Ltd conduct the surveys, setting out fixed loops and probing holes of significant interest such as new high-grade mineralisation intercepts or greenfield exploration holes. In holes that have intersected sulfides, DHEM generally delineates the conductive ore body from surrounding host rock. It also identifies off-hole conductors that could indicate extensions of high-grade mineralisation. Modelling (by Newexco Services Pty Ltd) combines anomalous responses of the surveys with downhole information collected via logging to produce conductor plates, which are used to generate exploration and expansion targets. The most recent round of DHEM in November 2019 identified five new conductor plates between Reward and Reward South (formerly Green Parrot, **Figure 4**). These new conductor plates represent an exciting potential link between mineralisation at Reward and Reward South.

There are at least 20 mineral prospects outside of the main deposits within the KGL Jervois tenements (**Figure 1**). Since the Jervois tenements are largely underexplored, coincident geophysical anomalies have recently been used to investigate the prospectivity of areas with little to no drilling. For example, the Bellbird South area features at least four mineralised trends; however, drilling to date has failed to intersect economically significant sulfide mineralisation. Each of the four mineralised trends have either copper-bearing outcrop or gossanous magnetite-garnetite as found at the Reward and Reward South deposits. In addition, strong IP anomalies were recorded in the McPhar (1965), MIMDAS (2013), and Orion 3DIP (2015) surveys in the Bellbird South region; a strong chargeability anomaly following lithology was defined along the Bellbird trend for ~ 800 m (**Figure 5**). Coincident magnetic, gravity, chargeability, and conductivity anomalies are also present at the southern end of the Bellbird trend (**Figure 6**). This combined geological and geophysical evidence for massive sulfide mineralisation is encouraging. Given that Bellbird South sits between the Rockface and Bellbird deposits, there is a good chance of discovering another significant deposit in this region.

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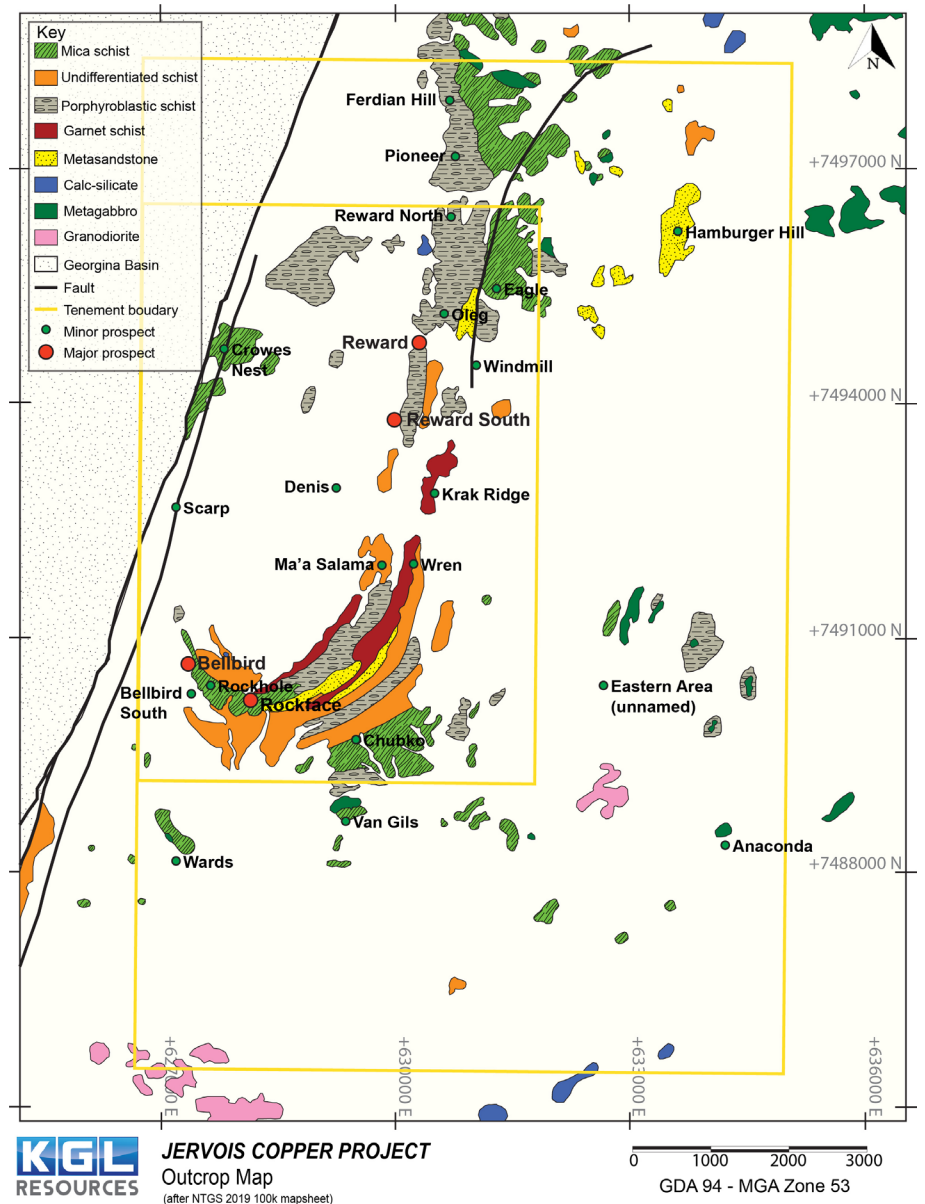


Figure 1. Outcrop and mineral prospects within the KGL Jervois tenements.



Figure 2. Bornite and chalcopyrite mineralisation from KJCD358 at ~358 m depth (assayed at 34% Cu).



Figure 3. Chalcopyrite and pyrite mineralisation from KJCD273 at ~586 m depth (assayed at 11% Cu).

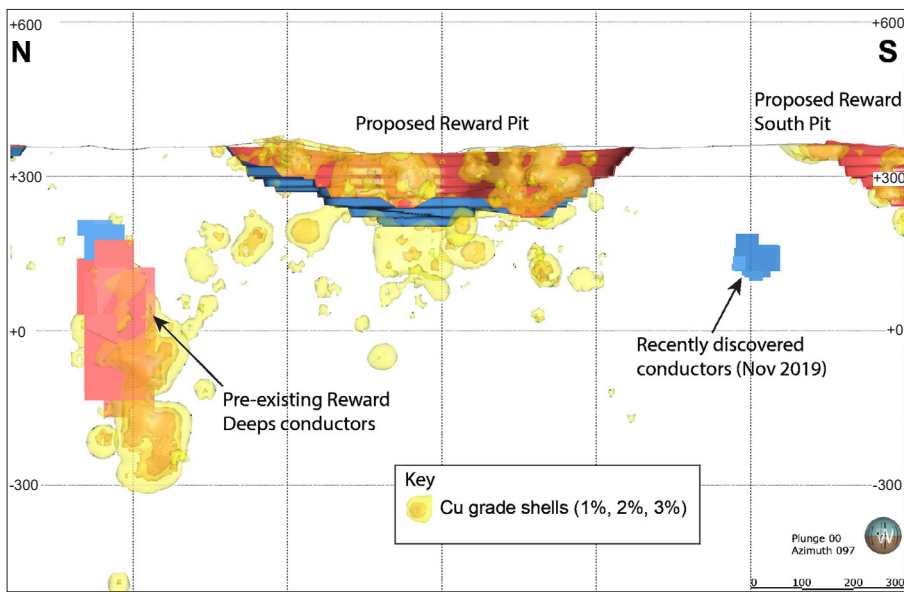


Figure 4. Longitudinal section of Reward showing proposed pit outlines, Cu grade shells and conductors.

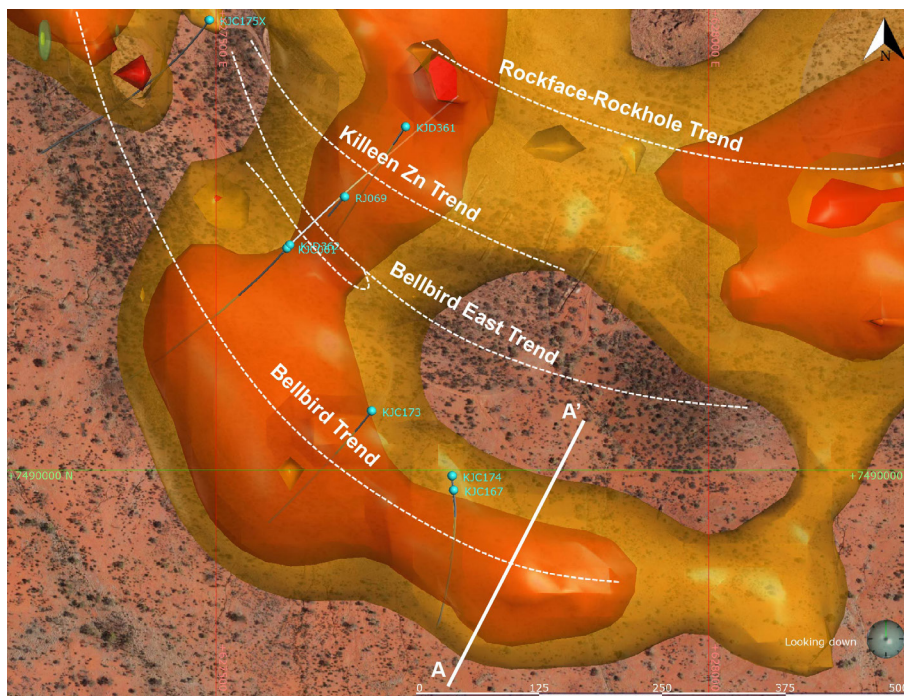


Figure 5. Orion 3DIP chargeability isosurfaces and drillholes at Bellbird South.

Resource drilling

The updated mineral resource statement published in August 2019 was based on the drilling results obtained from 2016–2019. The total mineral resource estimate now stands at:

- 26.6 Mt at 1.47% Cu and 24.7 g/t Ag
- containing 390 600 t of copper and 21.1 Moz of silver
- including indicated category resources containing 255 000 t of copper and 12.7 Moz of silver.

The main goal of the 2018 and 2019 drilling campaigns was to upgrade the bulk of the resource from inferred to indicated category, as well as expand the boundaries of the high-grade ore zones. During 2018 and 2019, two rigs

drilled 213 holes for a total of 76 215.7 m. This drilling achieved the objective of increasing the confidence levels of the mineral resources to allow conversion of a portion of the inferred resources to indicated category. In addition, the copper resources of Reward and Rockface were increased by 240% and 34% respectively (**Figure 7**).

Most of the resource drilling has been done using a combination of reverse circulation (RC) and diamond drilling (DD) – generally with RC pre-collars and DD tails through the mineralised zones. DD has excellent recovery through the mineralised zones and provided the most reliable data for resource modelling. RC drilling provided a lower-cost method for drilling deeper targets, which initially came with the trade-off of lower accuracy. Due to the highly deformed nature of the ground, holes tended to deviate greatly depending on the angle the hole relative to the dominant structural fabric of the rock. Given that

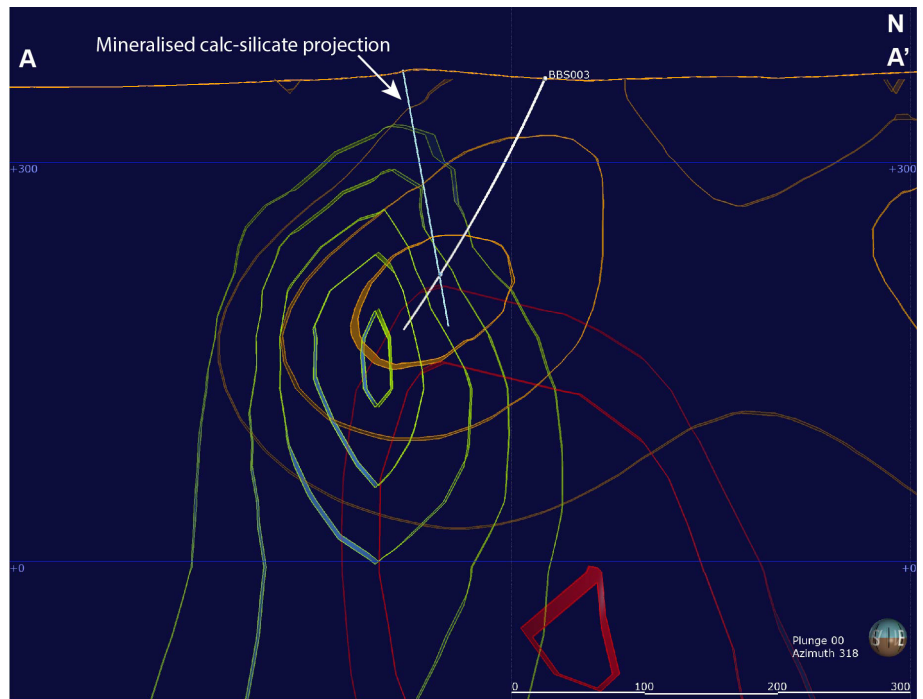


Figure 6. Cross section of Bellbird South featuring coincident magnetic (green), gravity (red), chargeability (orange) and conductivity (white) anomalies. Planned drillhole BBS003 is designed to intersect a mineralised calc-silicate unit along strike of the Bellbird deposit.

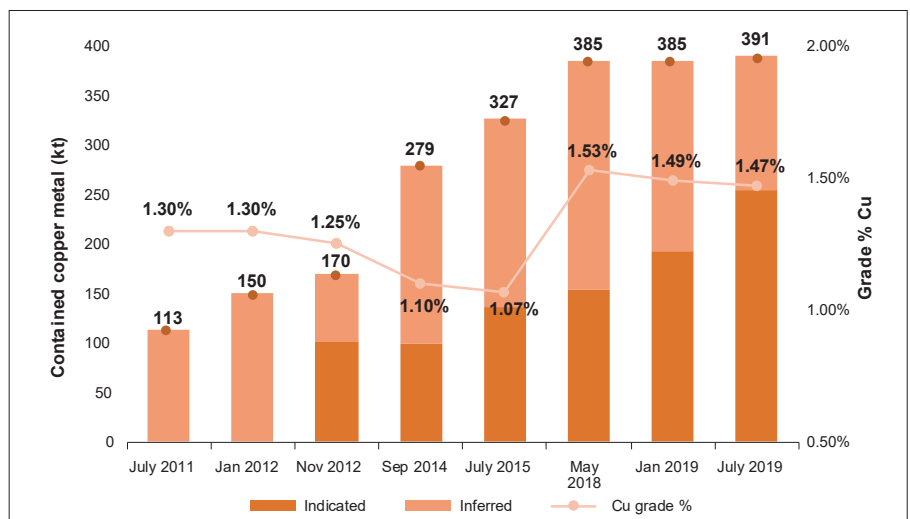


Figure 7. Copper mineral resource history at Jervois.

most of the drilling had tight target spacing (25–30m), directional drilling techniques such as navigational drilling and wedging were commonly employed to ensure greater accuracy. This was achieved through constant collaboration with our drilling contractor and analysing the behaviour of previous holes drilled nearby.

Future work

During 2020, KGL plan to submit the mine management plan (MMP), continue the infill drilling program to generate a measured resource, and invest more time into exploration of new prospects within the Jervois and larger Unca Creek tenement areas.

Acknowledgements

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