

## EXPLORATION INFORMATION – MARCH 2023

This is an update on the exciting and successful project work carried out by Wedderburn Goldfields Ltd (WGL) via its wholly-owned subsidiary PSD Minerals Pty Ltd (PSD) on its 100% 47 sq.Km. Exploration Licence 6302 (EL) within the geological area of Central Victoria known as the “Bendigo Zone”.

Modern exploration techniques are being utilised on the EL for the first time. Exploration targets are being delineated by using geological outcrop mapping, diamond core structural

logging and geophysics, including magnetic susceptibility and conductivity measurements together with X-ray fluorescence (XRF) analysis.

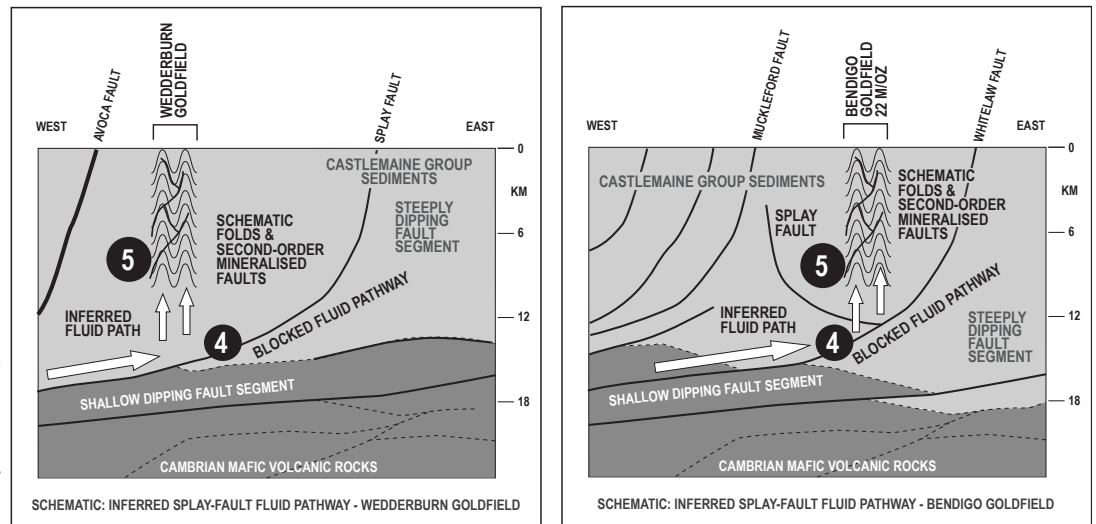
The EL has unique features being;

- A series of major structural features including a deep seated splay-fault, indicative of fluid-flow for “orogenic” gold (plumbing system) (Willman *et al.* 2010).
- Distinct magnetic signatures for each lithology.

## WEDDERBURN’S GOLD-BEARING PLUMBING SYSTEM

Figure 1 shows: -

- 1 The position of the 2006 seismic survey line crossing Victoria (red line) geological Stawell and Bendigo Zones (Bendigo Zone, deformed by the Benambran Orogeny -445Ma. This event is regarded as the main source of orogenic gold to the Bendigo Zone, other later gold flows may have occurred.)
- 2 The interpreted position of a splay fault under the EL at Wedderburn
- 3 The position of the splay fault under the Bendigo Goldfield, which produced 22 million oz of gold.
- 4 Inferred gold-bearing fluid pathways (white arrows) from the Cambrian Mafic Volcanics that underlie the Castlemaine Group Sediments (the main source of orogenic gold in the Bendigo Zone). The fluid pathways to the surface are blocked by the “steeply dipping” segments of the Whitelaw fault at Bendigo and the inferred splay fault at Wedderburn (Willman *et al.* 2010).
- 5 The vertical pathway of the orogenic gold fluids to the surface at both Bendigo and Wedderburn, through the Castlemaine Group Sediments via a series of folds and second-order mineralised faults (Willman *et al.* 2010).



## D1 FAULTS INTERPRETED TO A DEPTH OF 1 KM

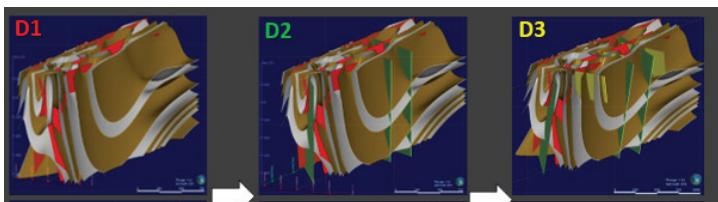


Figure 2: PGN Geoscience (PGN) has interpreted D1 faults to a depth of 1km, with later stage D2 and D3 faults being interpreted as well. These D1 faults may well connect with the deep splay faults that carried gold-bearing fluid faults as depicted in Figure 1.

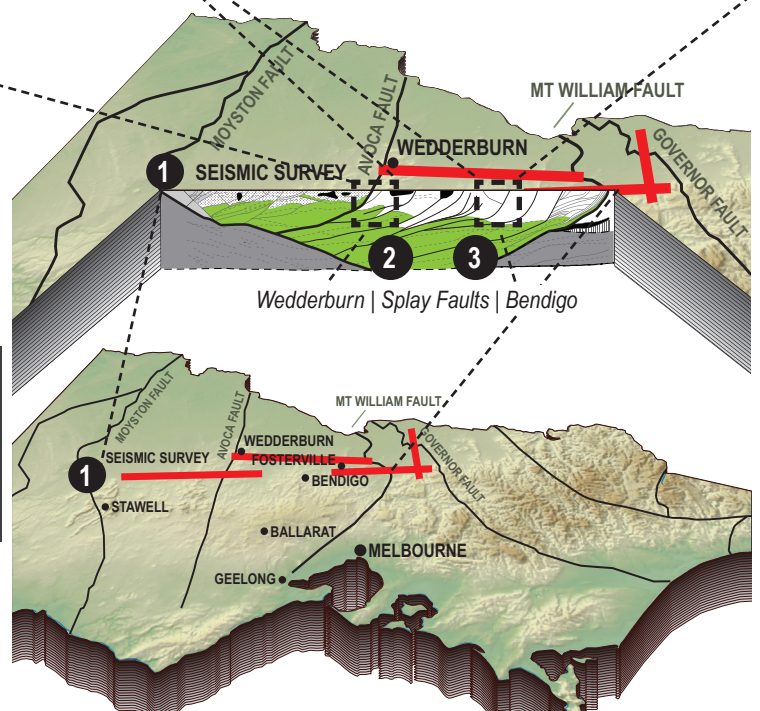


Figure 1: Bendigo Zone - gold-bearing fluid pathways.

# MAGNETICS

The Castlemaine Group sedimentary rocks of the Bendigo Geological Zone in Central Victoria, which host significant gold mineralisation, are a suite of rocks deposited in deep water, which are now represented by subtle variations of siltstones, shales and sandstones that are individually quite difficult to identify visually.

The magnetic susceptibility work by PGN has shown that at Wedderburn, different lithologies (rock types) have their own distinct magnetic characteristics, potentially allowing for a more accurate interpretation of each lithology (Figure 3).

We believe this is a very important geological breakthrough that has potentially major ramifications for the understanding of the structural setting and prediction of major mineralised dilation zones.

Sandstones have the lower magnetic susceptibility; shale has an order of magnitude higher magnetic susceptibility; and siltstones have the highest magnetic susceptibility due to the presence of fine pyrrhotite.

The magnetic susceptibilities for the same lithology decrease as the structures move north in Lanes Corridor.

**PGN note:** “Where the magnetic response decreases along strike (N-S) we interpret this indicate plunging hinge zones or transition into synclinal hinges.”

“N-S trending aeromagnetic lows correspond to regional synclines where the siltstones rich horizons are structurally lower producing a more subdued magnetic response due to increased source-to-sensor distance. This will require validation through structural logging”.

The magnetic susceptibilities will be used to help define geological structure and lithology, which PGN will incorporate in the 3-D model it’s updating.

Note: Structural diamond core logging and X-ray fluorescence (XRF) analysis are continuing as the respective contractors complete their tasks.



Figure 4: Geologists conducting XRF analysis of diamond drill core at the company’s core farm near Wedderburn.

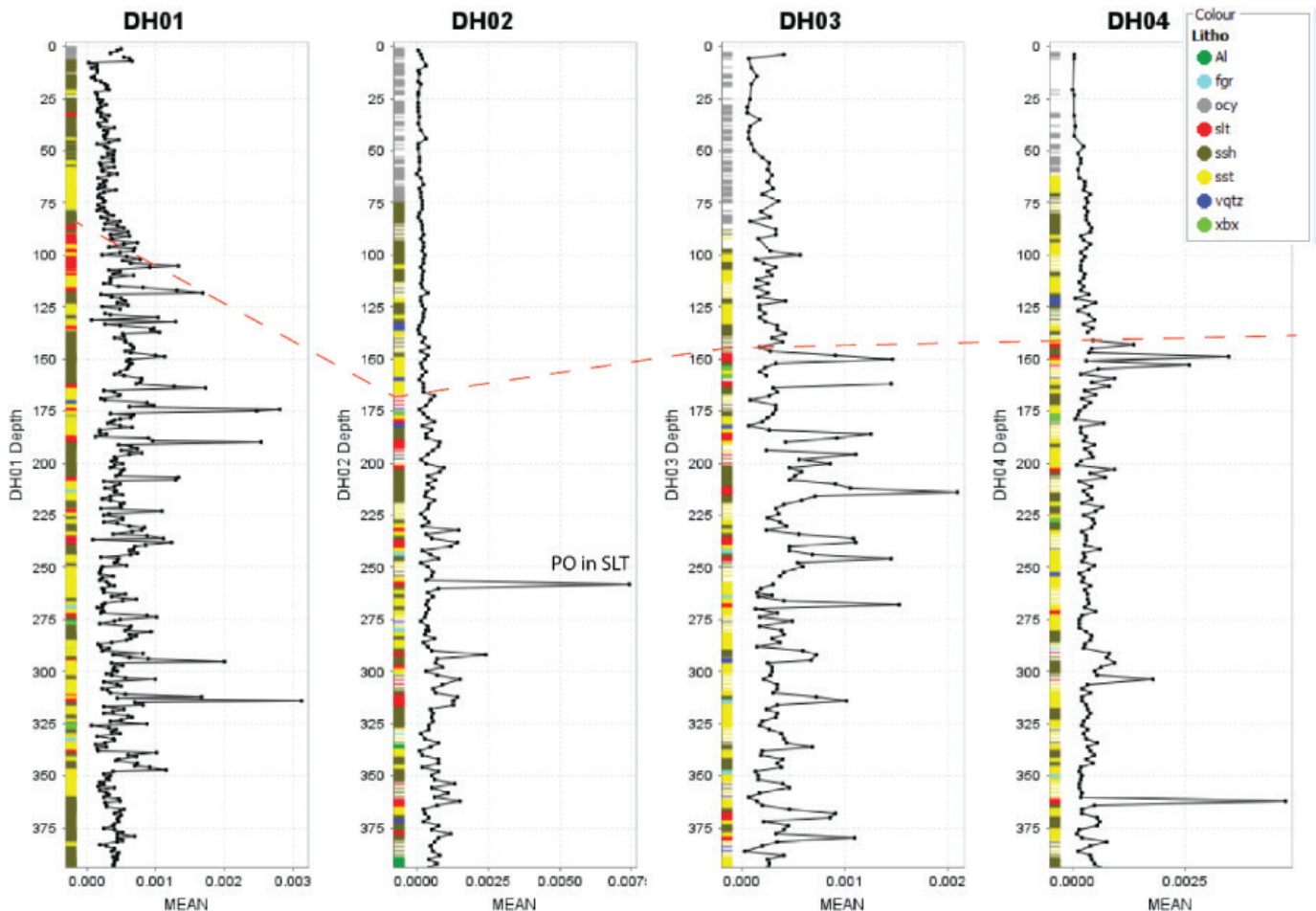


Figure 3: PGN Geoscience image – Downhole plots of the 8 lithology groups (see colour coded legend insert) with mean magnetic susceptibility values per interval.

## REFERENCE

WILLMAN C. E., KORSCH R. J., MOORE D. H., CAYLEY R. A., LISITSIN V. A., RAWLING T. J., MORAND V. J. & O’SHEA P. J. 2010. Crustal scale fluid pathways and source rocks in the Victorian Gold Province, Australia: insights from deep seismic reflection profiles. *Economic Geology* 105, 895–915.

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