REGIONAL SETTING OF THE WEDDERBURN GOLDFIELD



The Wedderburn Goldfield sits near the western margin of the Bendigo structural zone of Victoria.

The Bendigo zone has the greatest gold production, 2049 tonnes, of all Victorian geological structural zones.

It contains most of the state's major historical mining centres such as Bendigo, Fosterville, Ballarat, Castlemaine and Clunes.

Wedderburn is in many ways typical of other central Victorian gold deposits with comparable styles of mineralisation and structural controls.

DEEP CRUSTAL STRUCTURE OF THE WEDDERBURN GOLDFIELD



length of up to 7.5 km.

The stratigraphy beneath Wedderburn is best shown by the results of the 2006 deep seismic survey. The rocks in the upper crust are dominated by a sequence of marine sandstones and mudstones. These turbidites are known as the Castlemaine Group and overlie Cambrian mafic volcanics at depth.

The Castlemaine Group is the main host for orogenic gold mineralisation in the Bendigo Zone. The Stawell Zone, which lies immediately west of Wedderburn, has a very similar stratigraphy, but in the Stawell Zone the turbidites are Cambrian in age.

The Bendigo Zone was deformed by the Benambran Orogeny (~ 445 Ma) which caused all the turbidites to be folded and faulted and initiated a major influx of 'orogenic' gold mineralisation.

Whereas the Castlemaine Group turbidites were deformed mainly by folding and faulting, the deeper mafic volcanics were deformed into a series of imbricated thrust slices (much like tilting books on a bookshelf).

from the Bendigo Zone's western margin, which is defined by the Avoca Fault.

Within the Wedderburn Goldfield there are three groups, or clusters of reefs - the

Western, Central and Eastern Groups, each separated by low-production zones.

Wedderburn has a significant east-west spread of about 5 km and a strike

So it is likely that crustal-scale faults focused gold-bearing fluids into the Wedderburn area during the main mineralising event (probably about 445 Ma).

The 2006 seismic survey revealed several large faults occur at depth in the western Bendigo Zone.

One fault was inferred to splay from the footwall of the Avoca Fault into the area south of Wedderburn - this fault may be one of the fluid pathways that focused gold-bearing fluids into the vicinity of Wedderburn.



EXPLORATION INFORMATION NUMBER TWO – JULY 2022

An explanation of exploration activities at Wedderburn by Wedderburn Goldfields Ltd (WGL) and its wholly-owned subsidiary PSD Minerals Pty Ltd (PSD).

COMPANY OBJECTIVES

Researching the historic Wedderburn Goldfield identifies exploratory diamond drilling targets.

Wedderburn Goldfields Ltd (WGL) sole aim is to re-establish underground gold mining in Wedderburn. The company plans to extract resources identified using modern geological modelling supported by diamond-drill exploration.

Research of Wedderburn's gold mining history concentrated on creating a comprehensive picture of past exploration and mining on Exploration Licence EL6302.

EXPLORATION PLANNING

WGL exploration commenced with historical research conducted by geologist, Clive Willman. His work built on a detailed 1911 Geological Survey Victoria, (GSV) study into the Goldfields of Wedderburn by O.A.L. Whitelaw.

This research uncovered many notable facts about the Goldfields of Wedderburn:

- · A highly faulted field.
- · Much guartz scree scattered on the surface.
- · High grade underground mines reported low tonnage, but high grades - about 25,000 oz of gold recorded.
- Many large nuggets, much alluvial mining -125,000 oz of gold recorded.
- Very little mining below the water table (about 20-30 m).
- Only 89 drill holes in total, only 9 being diamond drill holes, and only three of these are below 50 m.

Clive Willman carried out a detailed on-ground structural mapping campaign within EL6302, which to a great extent ground-proofed Whitelaw's historical mapping, circa 1907.

Concurrently, PGN Geoscience (PGN) was contracted to create a preliminary 3D model of EL6302's underground structures.

The 3D map incorporated features built up from an interpretation of existing geophysics (gravity and magnetics), and Willman's structural mapping, and included:

- linking D2 and D3 faults.
- D1 faults corresponding to large structure anticlines.

PGN Geoscience processed the regional aeromagnetic and gravity data sources from the Geological Survey of Victoria. These processed datasets were used to produce a lithological





Geologist Clive Willman BSc (Hons). MSc "walked the ground" at Wedderburn to confirm (ground-proof) historic field observations documented by O.A.L. Whitelaw. Image depicts a reverse fault.

and structural interpretation of the Wedderburn area. This interpretation highlights an overall increased magnetic response with respect to the Bendigo zone east of the Whitelaw fault.

A series of north-south trending magnetic lineaments and NW-SE trending cross structures correlate with known cross structures in the Bendigo Zone.

Research into the source of this unusual magnetic character is ongoing, but initial investigations by PGN Geoscience, using unoxidised drill core, have shown that some Wedderburn sandstone strata have a high magnetic reading.

PSD and PGN will conduct further research into this interesting magnetic character using the new drill core from Lane's Corridor diamond-drilling. program.



PGN Geoscience model of the 3D anatomy of fault structures at depth in the central zone of Wedderburn area. D1 = Red, D2 = Green, D3 = Yellow.

PRE-DRILLING EXPLORATION

Pre-drilling exploration of EL6302 exposed basic Bendigo Zone geological, dilation-zone targets.

Clive Willman recorded the location and geological features of Wedderburn's historic workings in Victoria's Bendigo Zone using handheld GPS. His data was later entered into a digital mapping system to produce detailed geological maps of many of Wedderburn's historic workings.

Interpretation of Mr Willman's data reveals:

- Lane's Reef cross-cutting bedding interpreted to displace the "centre country" of Lane's anticline. This structure could represent a dilation zone.
- The ability for Lane's Reef to cross from syncline to anticline, possibly involves a dilation zone where gold-bearing fluids that were formed deeper may have been deposited.

Dilation zones are voids or spaces underground where gold-bearing fluids may have been deposited during folding and faulting.

DRILLING EXPLORATION

100 m

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The Lane's Corridor diamond drilling campaign of 3,400 metres

SCHEMATIC OF DILATION ZONE TARGETS

concentrates on the eastern boundary of the Lane's corridor for a strike length of 1.2 km between the north-plunging Lane's anticline in the south and Edward's and Symon's south-plunging shoot in the north.

A two-part 3,400-metre diamond drilling campaign was designed:

- · A circa 1700-metre, 12 diamond-drill hole campaign, designed to explore under the historically mined, eastern boundary of Lane's corridor to establish its position.
- This has been achieved by holes 1–4 which followed the structure for a strike length of 200 metres. Widths of the Lane's Reef vary from 0.1 metre to 1.5 metre and contain styliolitic quartz, and minor associated sulphides.
- · Holes 5-9 explored the presence of Lane's reef, on the eastern boundary of the Lane's corridor.
- · Holes 10-12 explored under the historically mined, southplunging, Edward's & Symon's shoot.

A second 1,700-metre, four diamond-drill hole campaign is designed to gather deeper geological information beneath the initial drilling program. This data can be used to construct geologic structural cross-sections on Lane's corridor more confidently. The cross-sections will be interpreted to enable prospective dilationzone targets provisionally established at the corridor's southern end to be explored along its 1.2 km strike length.



EXPLORATION LICENCE EL6302 - LANE'S REEF AREA



Total gold production in Victoria since 1851 is estimated to be 2500 tonnes with most deposits found in the Bendigo Zone. These deposits are characterised by free gold in quartz veins which is the dominant type in the Bendigo zone. Gold-quartz veins usually occupy dilation zones associated with faults and fold axes.

Individual guartz veins can be up to several metres thick and can be traced for many metres both along strike and vertically. The cross section opposite shows similar structures present in the Lane's and Scotch Jock's Reef dilation zone targets.

ANTICLINE OFFSET