











September 2019 Mines and Wines Presentation

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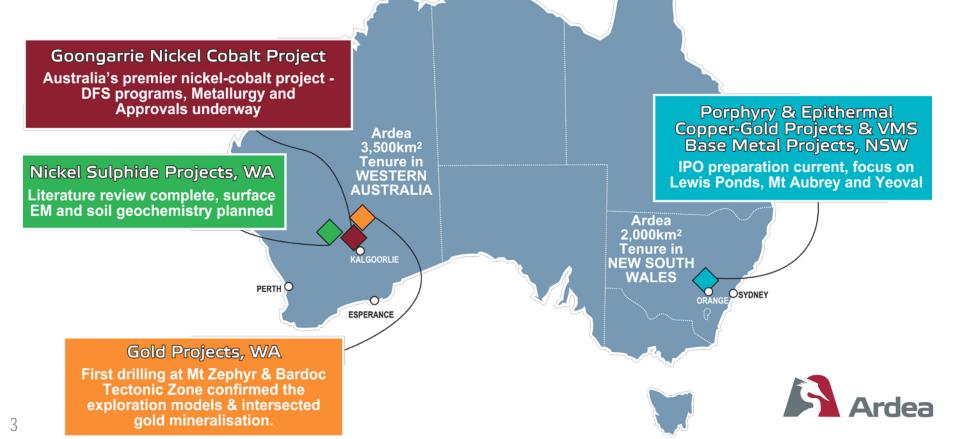
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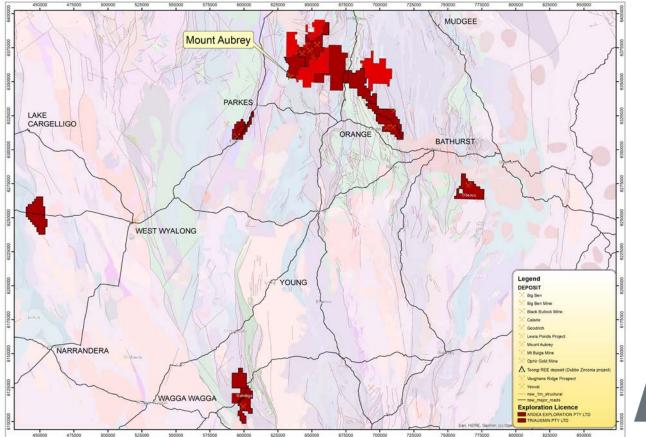




# NSW Project Portfolio

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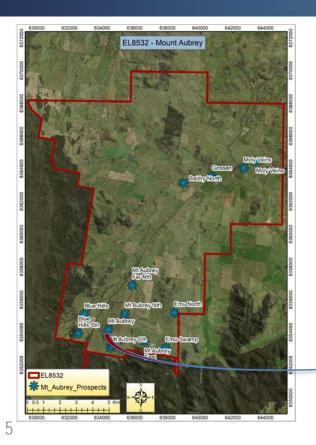


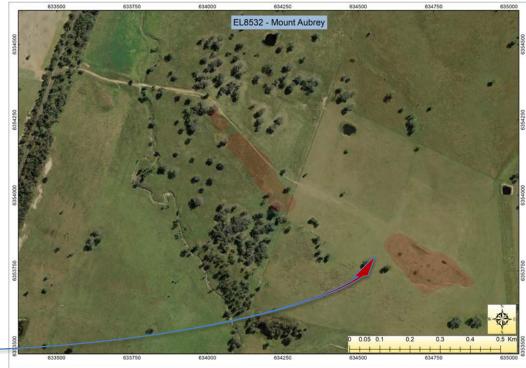




# Mount Aubrey

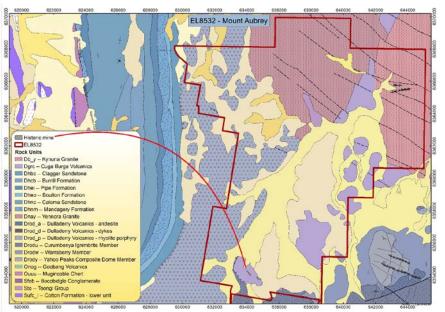












The Mount Aubrey area is located within the Lachlan Orogen in rocks belonging to the;

- Devonian Dulladerry Volcanics and
- Devonian Cuga Burga Volcanics.

The deposit is located in a gently south-southwest dipping sequence which is covered by quaternary to *Tertiary gravels and alluvium*.

- Welded *rhyolitic ignimbrite* and more *felsic tuffaceous* rocks occur at the top of the sequence
- Fine grained amygdaloidal basalt host the steeply dipping mineralised veins with carbonate replacement textures.
- *Porphyritic andesitic flows* with *intercalated tuffaceous and basaltic layers* underly the basalt.





Hydrothermal Alteration and Mineralisation

- Regional metamorphism has resulted in an alteration assemblage of chlorite-calcite-epidote-quartz.
- Alteration associated with mineralisation includes adularia-chlorite-sericite-silica-pyrite.
  - Gold occurs in microcrystalline quartz along with fine pyrite.
- Gold is associated with chalcedonic quartz, carbonate replacement textures and quartz veins along with sericite, zoisite, chlorite and pyrite.
  - Multiple vein stages and re-fracture of earlier veins.
  - Gold occurs as bleb-shaped grains from 2-15 microns.
- Basalt appears to be a preferred host rock but based on limited shallow drilling intercepts
- Some gold has been redeposited in response to near-surface weathering processes (supergene enrichment).
  - Presence of fine pyrite in large chalcedonic-siliceous vein zones suggests limited supergene enrichment





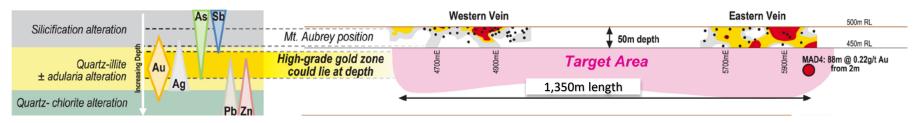
#### Controls to Mineralisation

- At Mt Aubrey the main mineralised vein pinches and swells, often bifurcating into parallel veins and associated stockwork veins and hosted within basaltic rocks.
  - Overlying and underlying lithologies were found to contain lower gold grades and relatively poorly-developed vein systems.
- The lack of mineralised intercepts and major vein system at depth below the surface exposure may indicate potential flat dipping structure offsetting feeder system.
- Fluid inclusion studies support multiple fluid and metal sources with mixing meteoric water being an important mechanism for gold precipitation





#### Mt Aubrey long section looking northeast



#### **Geochemical Signature**

- The high-level mineralisation at Mount Aubrey is associated with coincident Au-As-Sb anomalism, and minor anomalous base metals including Cu-Pb-Zn.
- Mineralisation at Mount Aubrey is Ag poor with speculated increasing Ag with depth.
- The immobility of As and Sb in soils under most conditions is useful for target identification.
  - Ardea soil auger up to 237ppm As and 3.45ppm Sb



# The Past – Exploration Chronology



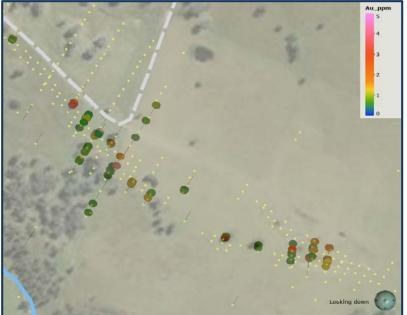
#### Chronological History of Mount Aubrey discovery and exploration

•1880-1900	- Discovery of gold in ferruginous quartz veins by the <u>Hodges family</u> and exploitation by shallow shaft workings.
•1900-1939	- Exploitation by small-scale mining including Mount Aubrey and Blue Hills.
•1939-1985	- Sporadic exploration and investigation. The Mines Department investigate My Aubrey and Blue Hills as part of their metallogenic and geological mapping programs.
•1985	- Austamax followed up rock chip sampling based on previous work completed at Mount Aubrey and Recognised high level nature of gold mineralisation.
•1986-1989	- BHP start exploring in the area and discover the Mount Aubrey gold deposit.
•1989-1990	- Mount Aubrey gold deposit developed as a small open cut gold mine by BHP Gold. Further prospect extensions discovered.
•1991	- BHP Gold – Newcrest completes a small drilling program looking for extensions and drops the tenement.
•1991-2005	- Various companies explore the area with small and short-lived programs.
•2007-2015	- YTC Resources completes various drilling programs at the Mount Aubrey mine area, eastern extensions, Blue Hills Prospect and Mount Aubrey South.
	•IP completed around the Mount Aubrey Mine area.
•8 March 2017	- Ardea Resources is granted EL8532.



#### The Past - 1987 - 1988





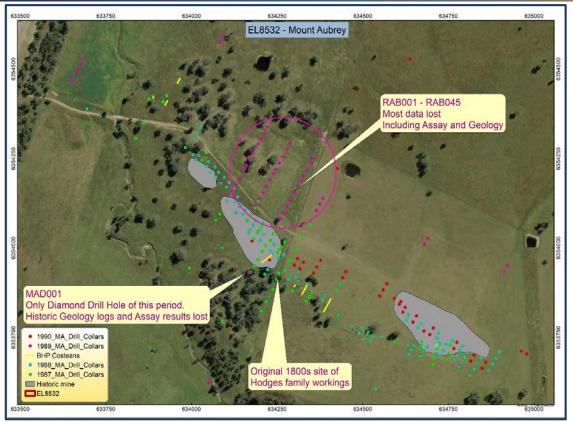
In 1987 BHP gold drilled 65 RC holes along the outcrop and interpreted extent of the mineralised quartz veins mined by the Hodges family.





1988 saw a follow up drill program of 95 RC holes drilled at -60° and an average depth or 50m down hole.

## The Past - 1989

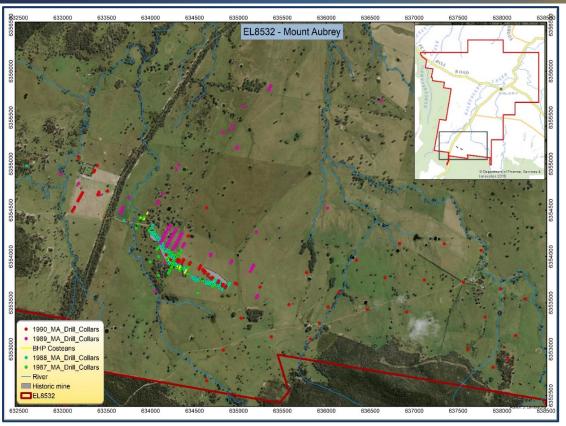




- 1989 saw the first RAB drill program on the Mount Aubrey deposit with the drilling of RAB001 to RAB080.
  - RAB001 to RAB045 sterilisation program to the north of the mineralised zone. (All Data Lost)
  - Four holes (two south-east and two northwest of the Mount Aubrey mineralised system) tested the strike extent.
  - 26 holes tested areas removed from the immediate Mount Aubrey area.
- Eight trenches were also excavated during 1989 for vein mapping and geochemical characterisation.
- 1989 also saw the drilling of the first diamond drill hole on Mount Aubrey. MAD001 was drilled south of what was planned to be the larger of the two satellite pits but was not immediately logged and assayed with only a brief summary log completed. No assay or geological data for MAD001 is available today.



#### The Past – 1990





- 1990 continuation of RAB drilling RAB081 to RAB159. This program targeted three distinct areas.
  - Tested the extent of a second set of mineralised veins and tested the area between what would be the main and first satellite pit.
  - Targeted an area to the north west of Mount Aubrey, but south-east of "Blue Hills" to test potential continuity of the system.
  - Wide- spaced grid east of Mount Aubrey was drilled with roughly 400m spaced holes.



# The Past – 1990 - Mining

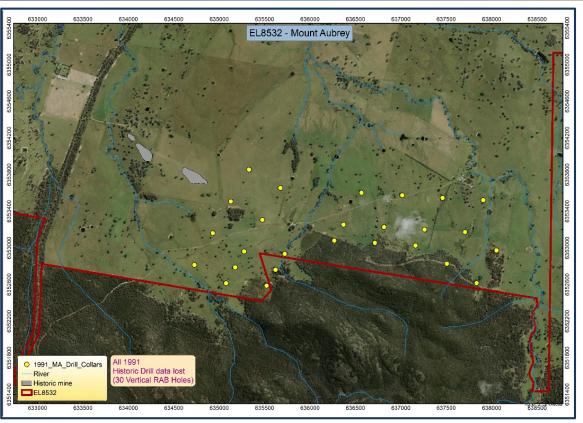




- Mining commenced September 1989 and concluded in February 1990 (120,000t at 3.3g/t for around 12,000 ounces)
- No blasting was completed during the production phase of the Mount Aubrey mine.
- No mine cut-off grade was used with all exposed quartz material being mined as ore and carted to London Victoria.
- The small satellite pit in the north-west was mined to a depth of between 10 and 15.
- The larger satellite pit was slightly deeper at about 20m.
- The main pit in the south-east was mined to a depth of 40m below surface.



### The Past - 1991





- BHP Gold-Newcrest Mining completed a small drilling programme looking for extensions and later relinquished the tenement.
- The geological and assay data of this drill program has also been lost over time.

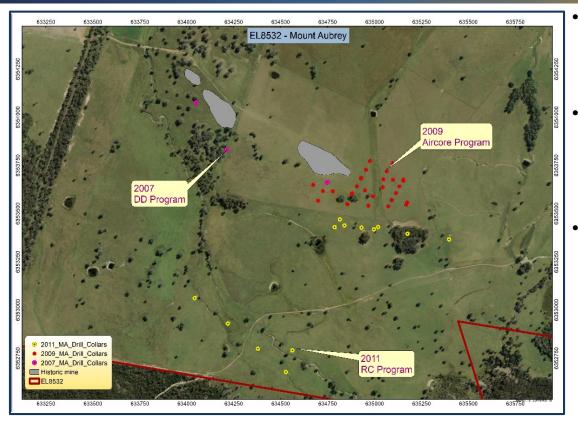
#### 1991-2005.

Various companies explore the area, but no drilling or major projects were completed.



#### The Past – 2007 - 2015



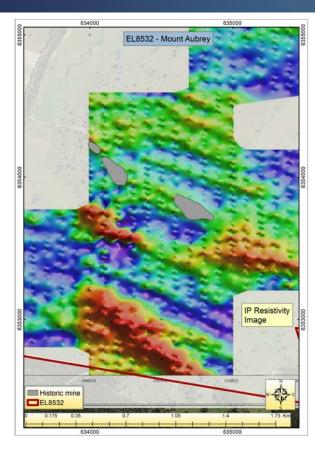


- In 2007 three diamond drill holes were completed south of the historic pits testing the depth extent of the mineralisation. The holes failed to intersect any significant mineralised veins.
- In 2009 an aircore program was drilled south and south-east of the main pit, testing strike extensions. Many of the aircore holes were terminated at shallow depth due to refusal (quartz veins and hard lithologies).
- 2011 saw the completion of 13 RC holes testing two distinct areas.
  - An area 1km south of the historic open pit mine. No major gold mineralisation. Major fault with abundant sulphide and high water flows.
  - MARC005-012 tested an area 250m south of the main pit based on IP anomalism and found only one intercept greater than 0.5g/t.



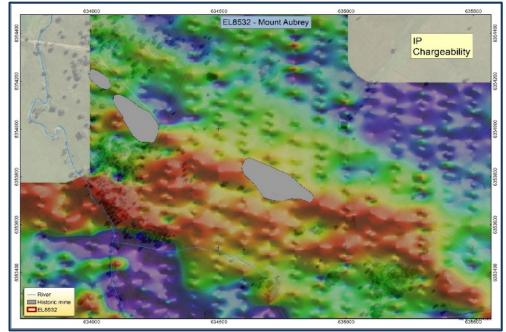
# The Past - 2007 - 2015





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The RC program of 2011 targeted IP anomalies southeast of the main pit.





### The Present







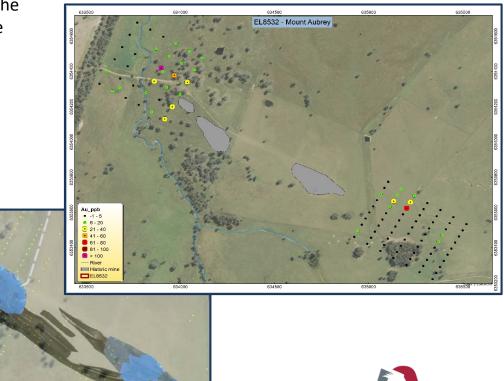


# The Present - Soils



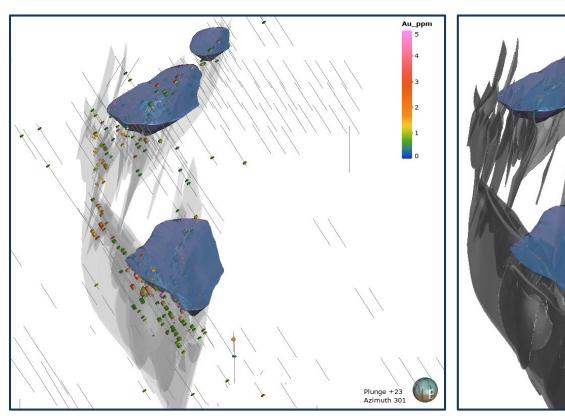
A soil auger program was conducted along strike of the historic Mount Aubrey pits to test for potential strike extensions.

- The next step was to investigate the depth of mineralisation using the existing data gathered since 1987.
- SRK Consulting was contracted to model the mineralised veins.
  - This clearly outlined the nonoutcropping veins and confirmed their interpreted strike and dip characteristics.
  - It also highlighted the potential for depth extension by identifying the depth to which the mineralised veins had been tested.



# The Present - Model



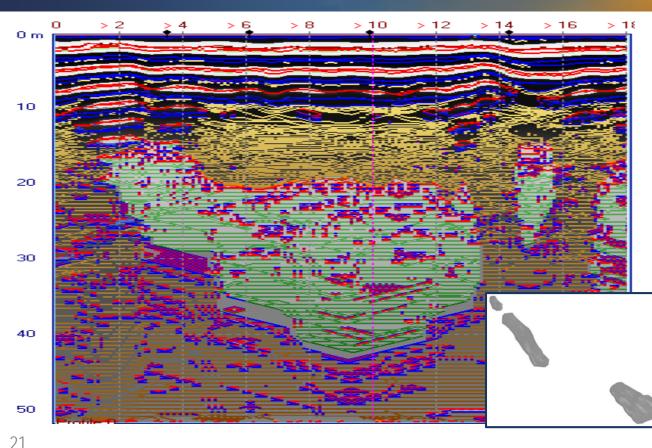


- The results from the modelling project were very encouraging.
- The project had only been tested down to a depth of 40m.
- It identified the physical vein characteristic that helped explain the offset soil anomalies.
- It showed significant economic grade mineralisation still in situ.
- A resource would clarify the potential size and follow-up drilling requirement.
- Comments made by BHP confirm that mine reserves were not fully extracted.



# The Present – Deep Radar





- An obstacle to generating a resource estimate was the lack a pit survey to reconstruct a pit shell and deplete the resource.
- DGPR showed potential for identifying the mineralised quartz veins in addition to the pit volume.
- To test the theory, 15km of survey lines were designed for the DGPR from 500m northwest to 750m southeast of the historic pits.



# The Present – Deep Radar



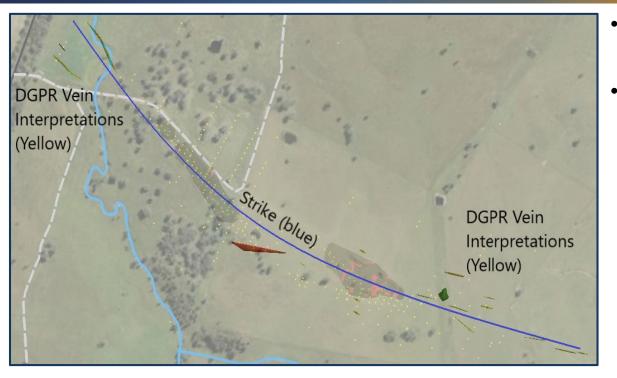


- The result of the DGPR was the best 3D an volumetric representation of the depleted pits without the availability of historic survey records.
- The validation of the DGPR shapes also placed them in the correct geographical space with correct dimensions.



# The Present – Deep Radar



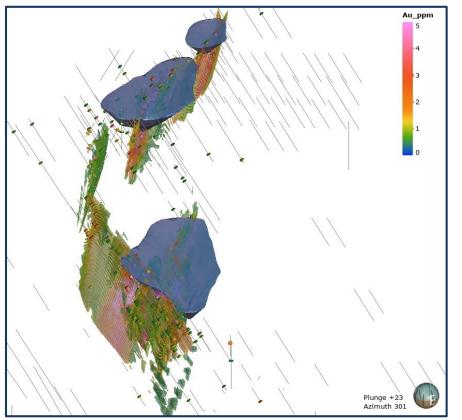


- The DGPR identified several vein arrays along with defining the backfilled pit shapes.
- Importantly the veins to the northwest are not parallel to the those in the southeast.
  - This is crucial:
  - The mapped veins, the soil sample results, modelled veins and DGPR veins all indicate a change in strike in the middle of the deposit from around 313° to 285°
  - The fact that the DGPR was able to identify this increases the confidence in the results.



#### The Present – Resource



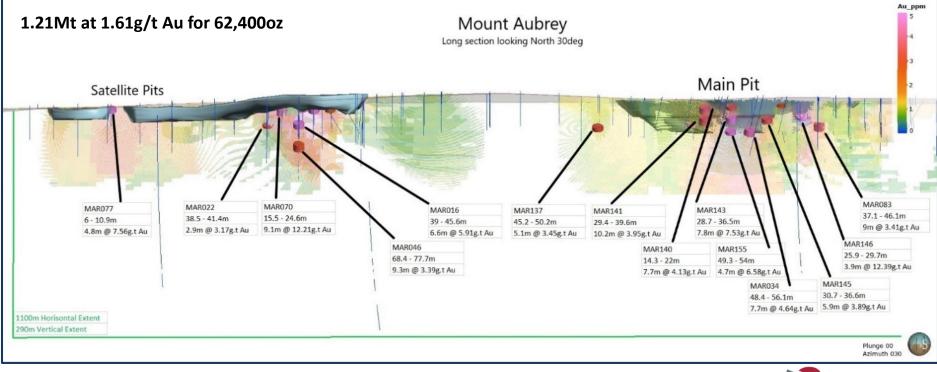


- Once a volume for the pits was determined, we were able to differentiate between what was extracted in 1990 and what mineralization remains by way of an Inferred Mineral Resource estimation.
- Using the geological vein model and the validated historic drill database, a depleted inverse distance estimation was generated.
- The resource extends
  - 100m Southeast of the main pit
  - 20m Northwest of the historic satellite pits
  - Max 120m below surface.



### The Present – Resource







# The Future

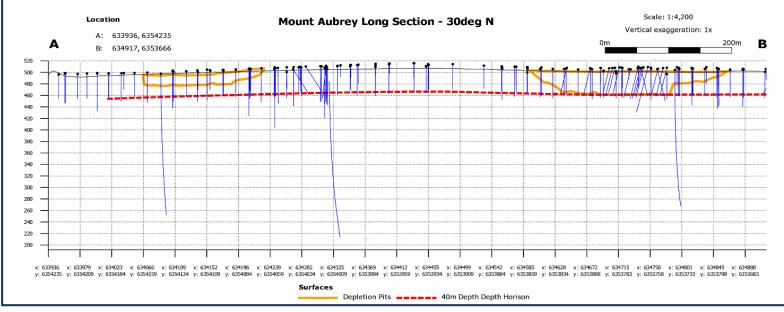






# The Future – Depth

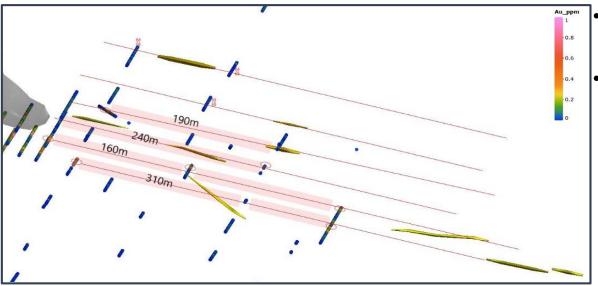




- Three holes were drilled below the pit in 2007.
- In an epithermal system the expectation would be a feeder system below the mined shallow deposit.
  - This feeder was not intersected by deep drilling...where did it go?
  - Regional geological maps identify reverse faulting in the area.
- Grade plunge is unexplored



# The Future – SE Strike



- The existing drilling in the area
  - Does not penetrate to the fresh protolith.
  - Leaving this target untested below the weathered zone.

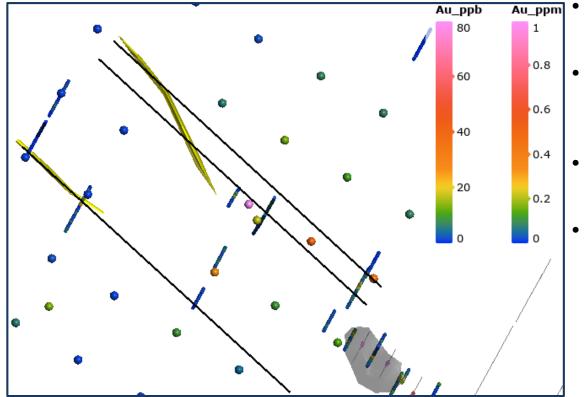


- The DGPR survey identified several potential vein structures which represent drill targets.
- In 2009 YTC completed an aircore program in the area which we have analysed along with the new DGPR shapes.
  - Some grade intersections align with the DGPR shapes to form linear features.
  - Several holes were drilled in the barren area between veins.
  - No holes were drilled to the east, where veins were identified by the DGPR.
  - The northern-most DGPR vein was tested immediately along strike but no significant grade intercepts were recorded.



# The Future – NW Strike



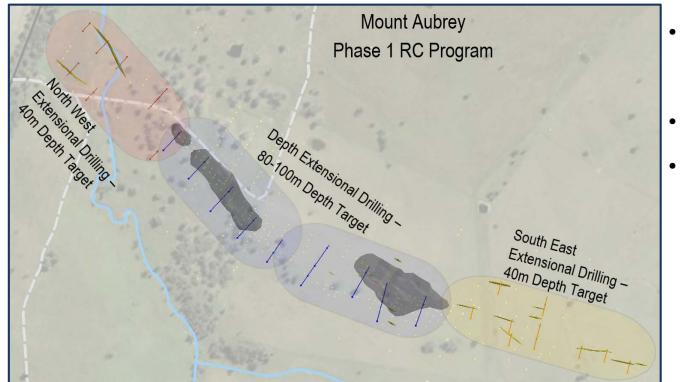


- The transported cover sequence in this area is much deeper than in the south eastern area.
- It also has a seasonal drainage stream which may interfere with soil auger samples and DGPR.
- Targeted RC drill testing into fresh rock will be a vital source of information here.
- Reconnaissance holes have been drilled historically,
  - Increased grade from this drilling aligns with the DGPR vein sets
  - Also with the higher-grade intercepts from the 2019 soil auger results.



#### The Future – Extension



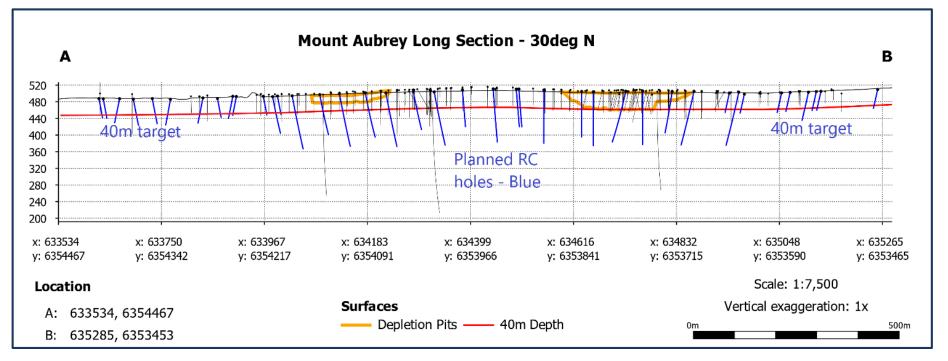


- First phase of RC drilling to commence late 2019 following the listing of Godolphin.
- Planned to be between 2500 and 3000m,
- Targeting depths of
  - 40m for strike extension
  - 80-100m for depth extension



### The Future – Extension

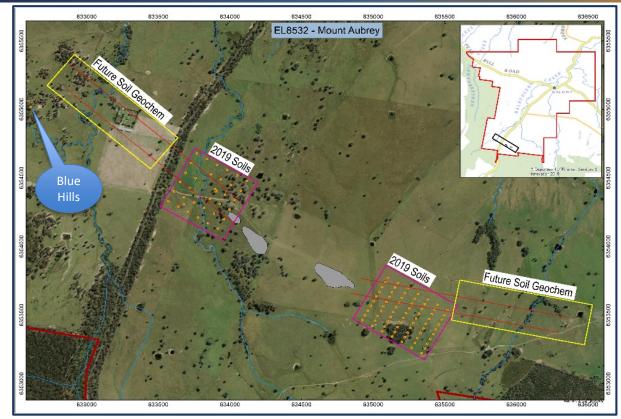






# The Future – GeoChem





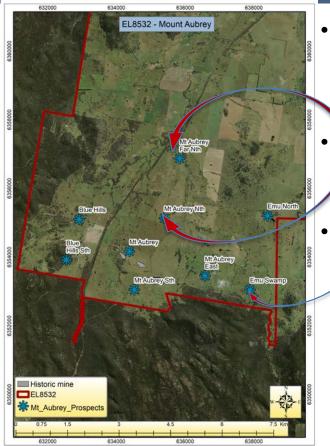
Multi-element geochemistry is planned for 2020 as the first step of target vectoring work.

- "Blue Hills" may not be a major zone of mineralisation but rather an off-shoot from the main system.
  - Historic drilling in the area did not intersect any significant gold values.
- The trend currently points to a location north of "Blue Hills" and along strike of the modelled veins.
  - Historic drilling intersected minor gold grades.



# The Future – Final Frontier





- Depending on the outcome of the first phase of drilling, additional more detailed definition style drill programs are planned to push the project into the final Resource Definition phase for the "near mine" area.
- Further from the current exploration footprint additional expansional studies are planned in the form of soil geochemical grids leading to the next step in exploration depending on the results obtained.
- The 2019 soil program also identified a prospect called Emu Swamp.
  - It coincides with the projected strike of Mount Aubre.
  - Has a few mapped chalcedonic veins with gold and molybdenum grades.
  - The area also has probable presence of mineralised sub volcanic intrusions related to the Dulladerry Volcanics or the Yeoval Batholith and has mapped felsic intrusive dykes further north.



### The Future – Final Frontier





