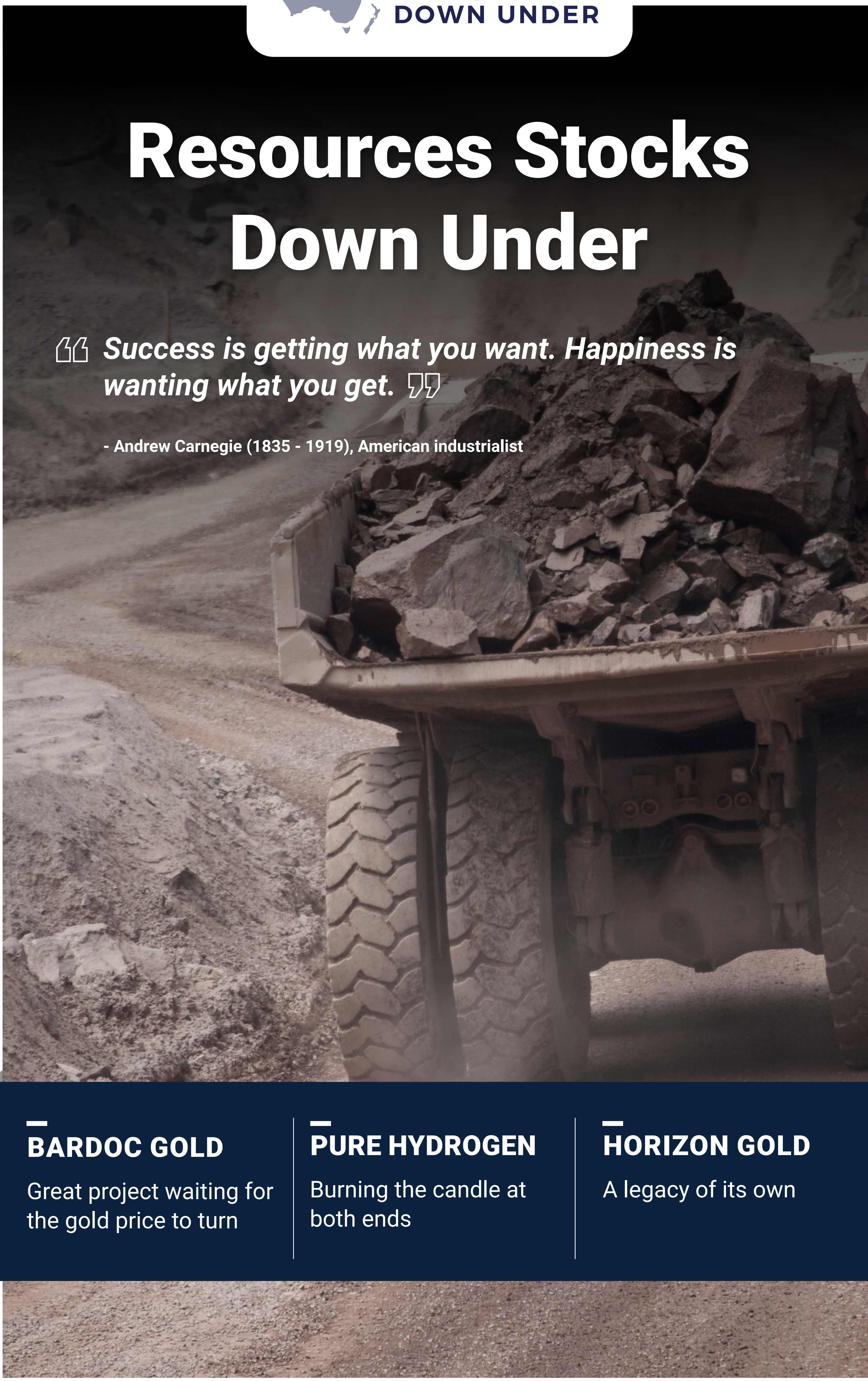
STOCKS DOWN UNDER

21 OCTOBER 2021



Resources Stocks Down Under

> *Success is getting what you want. Happiness is wanting what you get.*
>
> **- Andrew Carnegie (1835 - 1919), American industrialist**

BARDOC GOLD
Great project waiting for the gold price to turn

PURE HYDROGEN
Burning the candle at both ends

HORIZON GOLD
A legacy of its own

BARDOC GOLD

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Stocks Down Under rating: ★ ★ ★ ★

ASX: BDC
Market cap: A$113M

52-week range: A$0.041 / A$0.095
Share price: A$0.065

Formed in 2018 from the merger of Excelsior Gold and Spitfire Minerals, Bardoc Gold has been busy consolidating its growing portfolio of gold projects in Western Australia's Eastern Goldfields. It's on track to develop a new >100,000 ounce per year gold mine on Kalgoorlie's doorstep. The only trouble is that gold has come off the boil in the last few months. And come off in a serious way.

READ MORE

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ASX: PH2
Market cap: A$102M

52-week range: A$0.071 / A$0.44
Share price: A$0.29

Created from the merger of Real Energy and Strata-X Energy in March of this year, Pure Hydrogen has plans to become the largest hydrogen producer in Australia and has quickly moved to build its hydrogen hub and gas projects. With a valuable unconventional gas business on the side, the company believes its unique hydrogen production technology puts it ahead of other hydrogen plays and plans to use this advantage to service eastern Australia's energy needs.

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Market cap: A$44.8M

52-week range: A$0.26 / A$0.551
Share price: A$0.42

After an illustrious history, the Gum Creek Gold Project in WA's Yilgarn Craton became Horizon Gold's potential company maker in 2016. The company's mission today is to add more ounces to existing Gum Creek resource estimates while working on new prospects, many in previously untouched greenfield areas. As is often the case with historic projects like Gum Creek, a rising gold price means another chance at production.

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Share price chart

Source: Tradingview

A road map to production

Bardoc recently updated its mineral resource estimate for the Bardoc Gold Project, 40 km north of Kalgoorlie, which has provided the company a firm reason to advance development. Back in March, the company released its Prefeasibility Study outlining a Life-of-Mine (LOM) of eight years with an estimated 135,000 ounce per annum at an AISC (All-in sustaining cost) of just A$1,200 per ounce. The project's resource was upgraded in late September, so Bardoc now hosts 3.3 million ounces with an ore reserve of 790,000 ounces. Apart from bringing the company a step closer to 1moz and tier 1 status, the update will inform Bardoc's upcoming Definitive Feasibility Study (DFS) due in March 2021.

In just the last few weeks, the company has made gains at its cornerstone Zoroastrian and Aphrodite deposits and identified multiple new zones of gold anomalies at underexplored deposits, including North Kanowna Star. Bardoc made a great exploration call in October when it found a new high-grade shoot just beyond the underground part of the Zoroastrian deposit, only 600 metres away, which returned an intersection of 11 metres at 4.69 grams per tonne gold. Such an active quarter has shown a real opportunity to expand on the current resource, further reinforcing Bardoc's new 40,000 m drilling program designed to find new discoveries and add some more value to the development.

As it stands before the DFS, the project has a Net Present Value of A$600m (at the usual 8% discount rate) and an Internal Rate of Return of 55% at a gold price of A$2,530 per ounce.

Close to where the action is

That's the trouble for Bardoc Gold right now. Gold was over US$2,000 an ounce in August, but now's it's back near US$1,800, which translates to about A$2,450. Investors have liked what they see in Bardoc, but they don't want to re-engage with this one until gold has a new head of steam behind it. When gold does start running again, Bardoc is well placed because, as a general rule, investors like Eastern Goldfields gold projects better, the closer they are to the capital of the Goldfields, Kalgoorlie.

For the team behind Bardoc Gold – which is made up of former Pilbara Minerals, Norton Goldfields and Barrick Gold management – the tier 1 Kalgoorlie region already holds promise for explorers willing to look for it. Until 2018, the 18 exploration deposits, which now make up the project, were only a series of largely unexplored areas. But now Bardoc has a tenement area of 250 square km and robust PFS metrics from historically worthwhile deposits, mainly the Zoroastrian, Excelsior and Aphrodite deposits.

The next 1moz gold producer…thus speaketh Zarathustra

Zoroastrian? Yes, they named a gold deposit named after an adherent of one the world's oldest continuously practiced religions. The folks at Bardoc have faith that Zoroastrian and the other deposits can deliver for them, because only about a third of its resources were considered as part of the PFS.

The next 40,000 metres of drilling will focus on cornerstone deposits like Aphrodite as well as satellite deposits May Day and Kanowna Star, which could support further expansion and bring Bardoc a step closer to its 1moz reserve target.

The Aphrodite deposit has had issues with refractory ore mineralisation – gold ore that contains ultra-fine particles naturally resistant to standard processing – which is why Bardoc will construct a flotation circuit to provide gold concentrate. At present, only a few big-name Australian operators are conducting gold concentrate sales (most notably Evolution Mining), but Bardoc sees this as a burgeoning market with smelter demand from Asia. While it's a production element that won't come into effect until year two, Bardoc predicts the concentrate will help carry production, which is why it plans on securing offtake agreements in the December quarter.

With our powers combined…

The next twelve months are bound to be crucial for Bardoc now that multiple works are in the pipeline before first gold production by late 2021. While the next step is the DFS, including a binding offtake for gold concentrate and resource infill drilling at Zoroastrian and Aphrodite, most of the company's attention will be at Mayday North, El Dorado and North Kanowna Star. These deposits have not yet been included in the mine plan. As Bardoc is fully funded on the path towards its DFS with $29.4m in cash after a further $24m capital raising in July, $5m of that will be put towards both brownfield and greenfield exploration.

While Bardoc has a massive drill campaign ahead of it, the tenacity in its detective work will probably get the company to its target ore resource. Most of the deposits have been hit before – Zoroastrian has been mined in some form since the 1890s – but Bardoc's strategy of acquiring and developing the project into one standalone operation looks likely to pay off. With plenty of new finds likely before the FID, we think this one has a good future, so it's four stars from us.

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Share price chart

Source: Tradingview

Paint the town green

Pure Hydrogen has five hydrogen projects under development in Queensland, including Project Jupiter in Gladstone, and three gas projects, including the Windorah Project in the Cooper Basin, Project Venus CSG (coal seam gas) in the Surat Basin and the Serowe Project CSG in Botswana. The company's gas portfolio gives it a prospective resource of 11.8 TCF (trillion cubic feet) and 2C contingent gas resources of 472 PJ. With fewer COVID-19 restriction in the state, Pure Hydrogen has begun a 6-well appraisal program in Botswana and flow-testing at Venus. So far, Serowe's Well 3 has successfully drilled to the total depth of 477 metres, while Venus 1 presented an encouraging breakout result at 85,000 CFSD.

As hydrogen demand is expected to increase 10-fold (in excess of 500 million tonnes) by 2050, Pure Hydrogen is targeting three potential markets in transport, power generation and exports as these industries look for low-cost low-emissions fuel substitutes. While Pure Hydrogen is relying on building relationships with a number of customers and companies in the development of its east-coast hub strategy, it is also looking into new and innovative ways to produce hydrogen as a cleaner, lower-cost fuel. The end game is for hydrogen product to be produced locally, reducing the need for imported fuels at fluctuating prices.

A real game-changer

While Pure Hydrogen's gas portfolio is growing, its hydrogen energy business has many growth options as more companies join the zero-emissions scene. Since producing green hydrogen via electrolysis is very expensive – currently only 2% of all hydrogen is made through this practice – this company plans to deploy another method, called 'methane pyrolysis', to produce hydrogen. If you've heard of 'turquoise' hydrogen you've come across methane pyrolysis before. Turquoise is a blue-green colour and turquoise hydrogen is so-called because it's not quite blue hydrogen (that is, derived from methane in natural gas), but not quite green either. Methane pyrolysis uses methane to produce hydrogen and solid carbon products like soot, graphite and graphene, but, like green hydrogen, it can be stored with zero emissions.

Pure Hydrogen's turquoise hydrogen is being led by Andrew Thompson, an engineer with 30 years' experience, including Senior roles at Arrow Energy and Santos. Pure Hydrogen is looking to have a demo plant near Miles and is looking to produce turquoise hydrogen at Venus targeting 1300 kg per day, but that could become a moving target. While turquoise technology is relatively new, good progress has been made in designing a modular unit to generate hydrogen at each hub.

To keep up with supply, Pure Hydrogen will produce and buy supplies from other companies, but in the long-term the company wants at least four large-scale production hubs at ports at Mackay, Gladstone, Newcastle and Port Arthur in Victoria in order to produce quality hydrogen for the domestic and export markets.

While the Venus Project is closest to production, there is also an opportunity to build a hub in Botswana now that the company has signed another deal with Australian oil and gas supplier BotsGas. Botswana is energy short with no natural energy sources and, as the Serowe gas field is very large (6.08 TCF total prospective resources), there is potential to reduce the country's import reliance on neighbouring South Africa. On the Australian export side, the chosen locations put the Asian market in sight – specifically Japan and Korea – as hydrogen fuel cells increase in popularity.

Roving technology

After a capital raise was undertaken in the March quarter raising $9.2m, Pure Hydrogen finished with $10m in cash at the end of June, enough to advance work at its upstream gas fields. As all of the company's projects are in the pre-commercial phase, it is continuing its efforts to lock-in agreements and JVs with suppliers and hydrogen companies. As the Morrison government backs natural gas as 'transition' fuel, there is the ability to attract government funds, but in the meantime the company has announced it will secure a 19% IPO stake in BotsGas (which is pursuing an IPO later in the year). Pure Hydrogen retains a 30% interest in Serowe, which is free-carried.

The company's share price reached $0.38 in March during the merger, but is now down to around $0.29 despite the strong news at Serowe and Venus. Even if methane pyrolysis technology works out to be a lower cost alternative to green hydrogen, Pure Hydrogen is keen to explore other production formats, like emerald hydrogen, which works by converting waste to hydrogen.

Given its nomadic strategy, such work could inform future production scalability and new revenue from carbon by-products. The company has a view for first hydrogen production as soon as 2022. Four stars from us.

Pure Hydrogen is a research client of Pitt Street Research, our parent company. You may be interested in their research initiation report available here.

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Share price chart

Source: Tradingview

Gold on the horizon

Horizon's share price received a boost at the end of August after it returned high grade gold results from ongoing RC drilling at Gum Creek, located 640 km northeast of Perth. Some of the best results included 1.1 g/t Au at 77 metres, pushing the share price to $0.395. The assays come from 33 RC holes at the southerly Howards prospect, one of a long list of prospects the company has included in its 40,000 metre drill program for the year. Horizon updated its total mineral resource estimate for Gum Creek in February to 18.6 million tonnes at 2.3 g/t Au for 1.36 million ounces of contained gold, but expects to continually add resources at numerous prospects.

So far, the company has mineral resource estimates for nine deposits throughout the 620 sq km tenement area, but there are many new potential targets along the project's 80 km continuous strike as well as a few greenfield targets within the largely underdeveloped Gum Creek Greenstone Belt. Outside the Howard prospect, Horizon also found gold intercepts at its Swan and Swift deposits, and continues its infill program at potential resource targets at Eagle and Kingston Town. Many of these deposits reside near the old Gidgee Gold Mine, which is currently on care on maintenance.

Prospective rocks

Situated around big-name gold mines, including Mt. Magnet, Big Bell and Wiluna, Gum Creek has a legacy of its own with over 1.1 million ounces mined between 1987 and 2005, with all production discontinued by Legend Mining (ASX: LEG) when the yellow metal fell to miserable A$560 per ounce. Because of the project's previous operational status in that time, Gum Creek is surrounded by well-established infrastructure, including an airstrip, tailings storage facilities and the 600,000 ktpa Gidgee gold processing plant, although this could use some refurbishment.

After Legend Mining placed the operation on ice, both gold producers Apex Mining and Panoramic Resources (ASX: PAN), which owns the Gidgee mine) spent considerable time on the ground upgrading the Wilsons, Swan-Swift, Howards and Shiraz deposits. Panoramic also conducted a scoping study in 2016 supporting an 800,000 ktpa CIL operation producing 290,000 ounces over six years. Horizon may or may not go with what Panoramic proposed back then.

Gum Creek's current owner counts 37 historic open pits and three underground gold mines as all having leftover potential to add gold resources. As a result, Horizon has its own list of 48 greenfield and brownfield targets at various stages of exploration. Although Horizon envisions Gum Creek as a standalone operation, it's strategically positioned near five functioning processing plants in the region – a handy advantage while the company carefully considers the future. After its efforts in the first half of the year, the company raised $6.6m at $0.35 a share in June (in a 1:4.4 rights issue) to undertake multiple drill programs on brownfields and new discovery targets, with infill and extension work to continue at eight deposits starting in September to add ounces to the MRE.

Narrowing down the field

Horizon is optimistic about the 200,000-ounce Howards prospect in particular, which remains open in all directions and has potential to be the core of Gum Creek's mining hub. In the meantime, the company will continue to look at Swan/Swift and Wilsons underground potential. It will also look at starting new programs at smaller targets at Camel Bore, Wahoo, Snook and Orion, to name a few. The variety of free-milling open-pit and underground mineralisation styles at the project offers a lot of choices, especially as 65% of drill holes are less than 50 metres deep. For now, Horizon is hoping its long list of choices will provide the discovery it needs to rebuild Gum Creek.

Horizon stock has trended back since the mid-2020 peak, in part because of the recent rights issue. We think, given the steady flow of good news on the drilling front, that the stock may stabilise sooner rather than later, particularly with the Gum Creek resource currently trading at an Enterprise Value of only about A$20 per resource ounce.

Managing Director Leigh Ryan is optimistic about his company's prospects of adding to that resource base. On 1 September he was an on-market buyer of stock. We're with Leigh. Four stars.

Pitt Street Research Pty Ltd

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