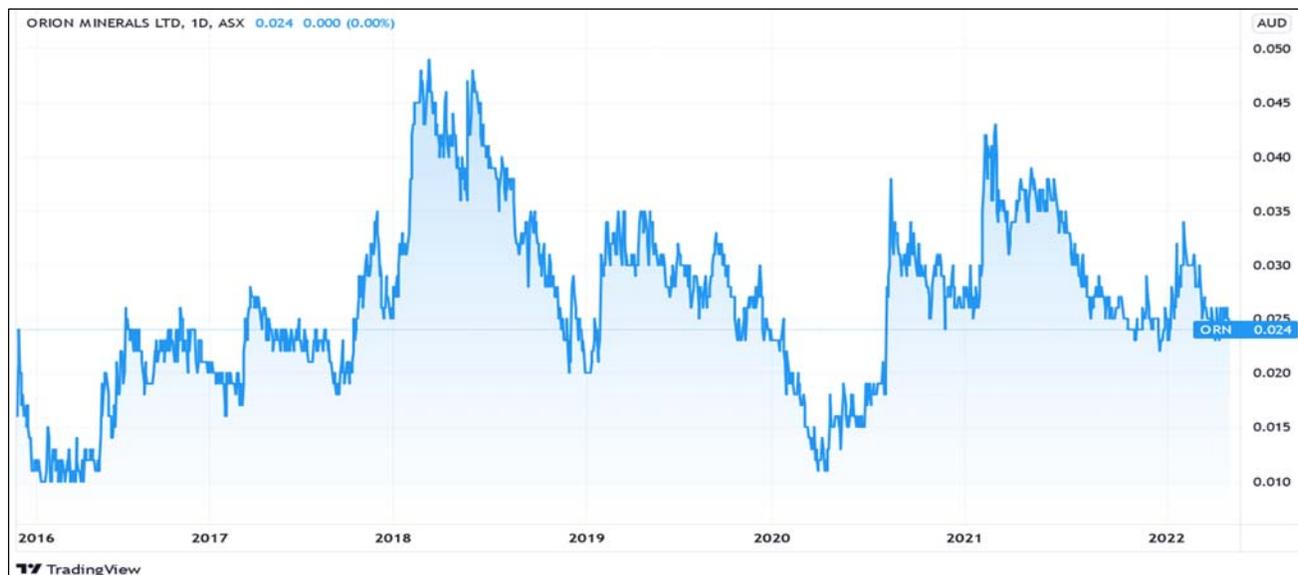


Saturday 30th April, 2022

Portfolio Stock Developments

Orion Minerals - (ASX: ORN, Share Price: \$0.024, Market Cap: \$105m, coverage initiated @ \$0.027 in Oct 2015)



Key Catalyst

Major progress achieved on various fronts during the March Quarter, with the highlight being the move towards accelerated production at the Prieska Copper-Zinc Project in the Northern Cape.

Since our coverage initiation in late 2015 we have witnessed ORN's transformation from explorer to emerging producer, by way of the acquisition and advancement of its Areachap metals projects, followed by the more recent acquisition of the Okiep Copper Project – both located within South Africa's Northern Cape. The Prieska Copper-Zinc Deposit was mined for 20 years from 1971 until its closure in 1991, and ORN completed an updated BFS during mid-2020 that justifies the project's commissioning – and where ORN is now looking to fast-track production. Separately, ORN has consolidated dominant ownership of the Okiep Copper Complex, which represents yet another premier historic copper mining district, which has historically produced more than 2Mt of copper metal. The complementary nature of these two historic projects has the potential to accelerate ORN's journey towards becoming a major copper producer.

Latest Activity

South African Projects Update

ORN has provided an extensive update with respect to exploration and appraisal activity conducted on both its South African emerging production projects, Prieska and Okiep.

Overview

ORN's primary development focus at present is its Prieska Copper-Zinc Project, particularly the decision to fast-track an early production assessment, with investigations currently underway into a phased project development that would bring forward first concentrate production and also evaluate the potential for mining of remnant pillars, with work expected to be completed by Q3 2022.

Simultaneously, in-fill Resource drilling has commenced at the 105 Level supergene resource at Prieska in order to support potential early production from open-pit mining. A 6,000-metre underground diamond drilling program is underway, targeting remnant pillars at Prieska, with a Mineral Resource update expected to be released by Q3 2022.

Discussions with banks and financiers regarding the financing for the Prieska Deeps Project are continuing in parallel with the engineering assessment of the early works opportunities. Discussions have also been initiated with potential financiers who have expressed interest in funding the early dewatering and production plan.

With respect to its Okiep Copper Project, the highlight is the ORN's identification of a new copper-nickel discovery with the first drill hole undertaken to test a SkyTEM™ anomaly with coincident magnetic and electromagnetic (EM) anomalies at the Nous Prospect, providing strong validation for ORN's exploration methodology.

Technical Significance

The March 2022 quarter represents a productive period, with several significant developments across ORN's project business, particularly its Prieska Project, which are expected to deliver important outcomes during H2 2022.

Of primary importance is the company's decision to investigate early production at the Prieska Copper-Zinc Project by rescheduling the order of development to bring forward open-pit construction. When combined with the mining of underground pillars, this should allow ORN to produce its first concentrate 14 months earlier than originally envisioned in the 2020 Bankable Feasibility Study.

This could have enormous implications in terms of an investment re-rating that could accompany ORN's transition to production status, especially against a background of strong longer-term metals prices and demand. The reality is that there are very few shovel-ready copper projects in the world today – and Prieska is one of them.

Along these lines, ORN is undertaking an underground drilling campaign to help enhance its confidence in the Mineral Resource estimates for the portion of the Prieska deposit that is planned for open-pit mining, as well as to evaluate the benefits of extracting some of the mineralised pillars left behind from previous mining. Results from the early production study are expected to be released by Q3 2022, which will provide a clear roadmap for the company's future production pathway.

Another crucial component of ORN's strategy to fast-track production at Prieska is its plan to commence the dewatering of the underground workings using a modular configuration. This phased plan would allow ORN to begin dewatering the Prieska Mine shaft during the current calendar year, ahead of the scale-up to the full-scale pumping rate outlined in the BFS-20 plan.

In parallel with its important activity at Prieska, ORN has also commenced work to establish its Okiep Copper Project as a second copper concentrate production hub. In combination, these two operations would accelerate the company's pathway to becoming a significant international base metals mining house, enhance its investment credentials and help minimise risk perceptions associated with its South African mining base.

And the exploration potential at Okiep must not be overlooked. Accordingly, exploration drilling by ORN has led to the exciting discovery of a previously unknown copper-nickel mineralised mafic intrusive at the Nous Prospect. Importantly, this represents the first discovery within the district in more than 40 years – and is directly attributable to the use of modern geophysics, followed by mapping and detailed ground surveys. The discovery underlines the outstanding prospectivity of the Okiep region.

Finally, in terms of regional potential for other metals, ORN has extended an agreement to consolidate ownership of the highly-perspective Jacomynspan Nickel-Copper-Cobalt Project, located 80km northwest of Prieska. The extension provides time to discuss a revised, expanded transaction, affording ORN the opportunity to include additional prospective Southern African nickel prospects into the project.

Copper and Zinc Market Overview

Copper is of course one of the primary commodities of the global economy, but market dynamics for copper are at a crucial level and it's questionable to what extent the global refined copper supply chain can handle the scale of current supply disruption.

News of Russia's invasion of Ukraine, rising inflationary pressures in the developed world and a slowing Chinese economy, have buoyed base metals prices right across the board. Growing concerns about supply disruption and historically low global stockpiles has seen copper touch US\$10,910 per tonne in early March 2022, with the record intraday high coming on the back of historically low global inventories with falling inventories in LME-registered warehouses adding to metal supply fears. Global exchange supplies of copper are at a 16-year low and there are less than 300,000 tonnes of copper sitting in the world's major exchanges, while LME inventory levels are equivalent to just a few days of world consumption, at one stage falling to just 69,825 tonnes during March, their lowest level since 2005.

At the recent World Copper Conference, global commodity forecaster CRU predicted that the annual copper supply deficit would be 6 million tonnes per annum for the next decade, with an estimated investment of US\$100 billion required in new mine developments to meet the new demand requirement – much of which is driven by the renewable energy sector and global de-carbonisation push.

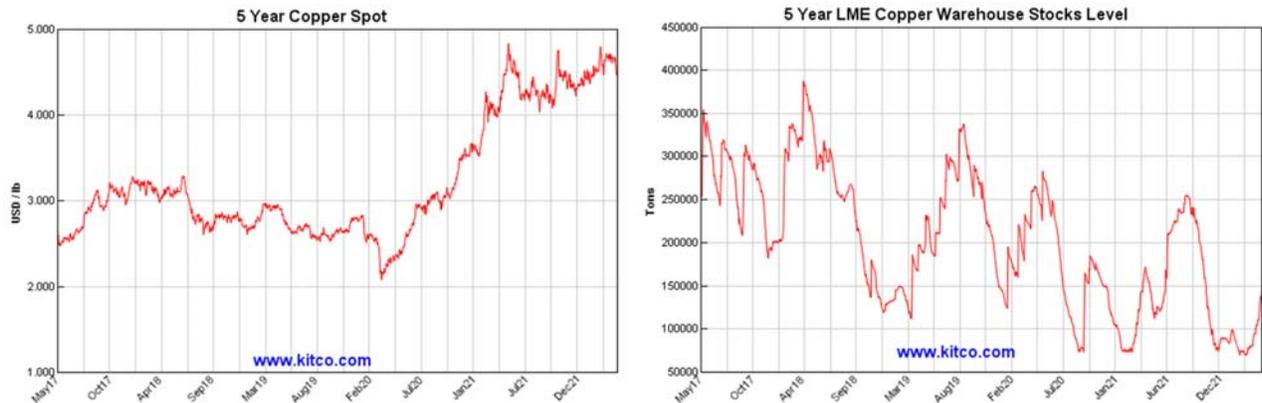


Figure 1: Graphics of rising LME spot copper prices and declining warehouse inventory levels over the past five years.

The squeeze on the LME has also seen a significant drop in zinc inventories. Disruption of zinc concentrate supplies due to the suspension of large zinc mines because of the COVID-19 pandemic and persistent environmental restrictions in China, has helped drive the price higher. Simultaneously, commodity trader Trafigura and other firms are preparing to take large amounts of zinc out of LME-approved warehouses in Asia. We’ve already seen the chaos caused in the LME’s nickel market, and markets are becoming uneasy with respect to zinc. A raid on LME zinc stocks has seen available tonnage fall to two-year lows. Overall zinc inventory levels have fallen by 40% since December 2021.

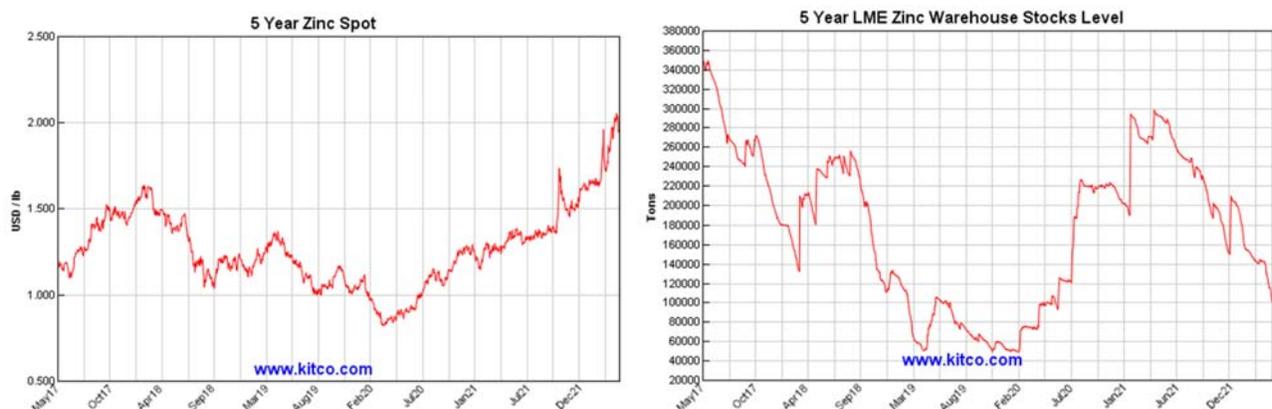


Figure 2: Graphics of rising LME spot zinc prices and declining warehouse inventory levels over the past five years.

Prieska Project Overview

The Prieska Copper-Zinc Project is the centrepiece of ORN’s asset portfolio. Historically mined between the 1970s and 1990s, Prieska is one of the world’s Top-30 volcanogenic massive sulphide (VMS) base metal deposits, with a recorded historical production of over 430k tonnes of copper and 1Mt of zinc from 46.8Mt of sulphide ore milled.

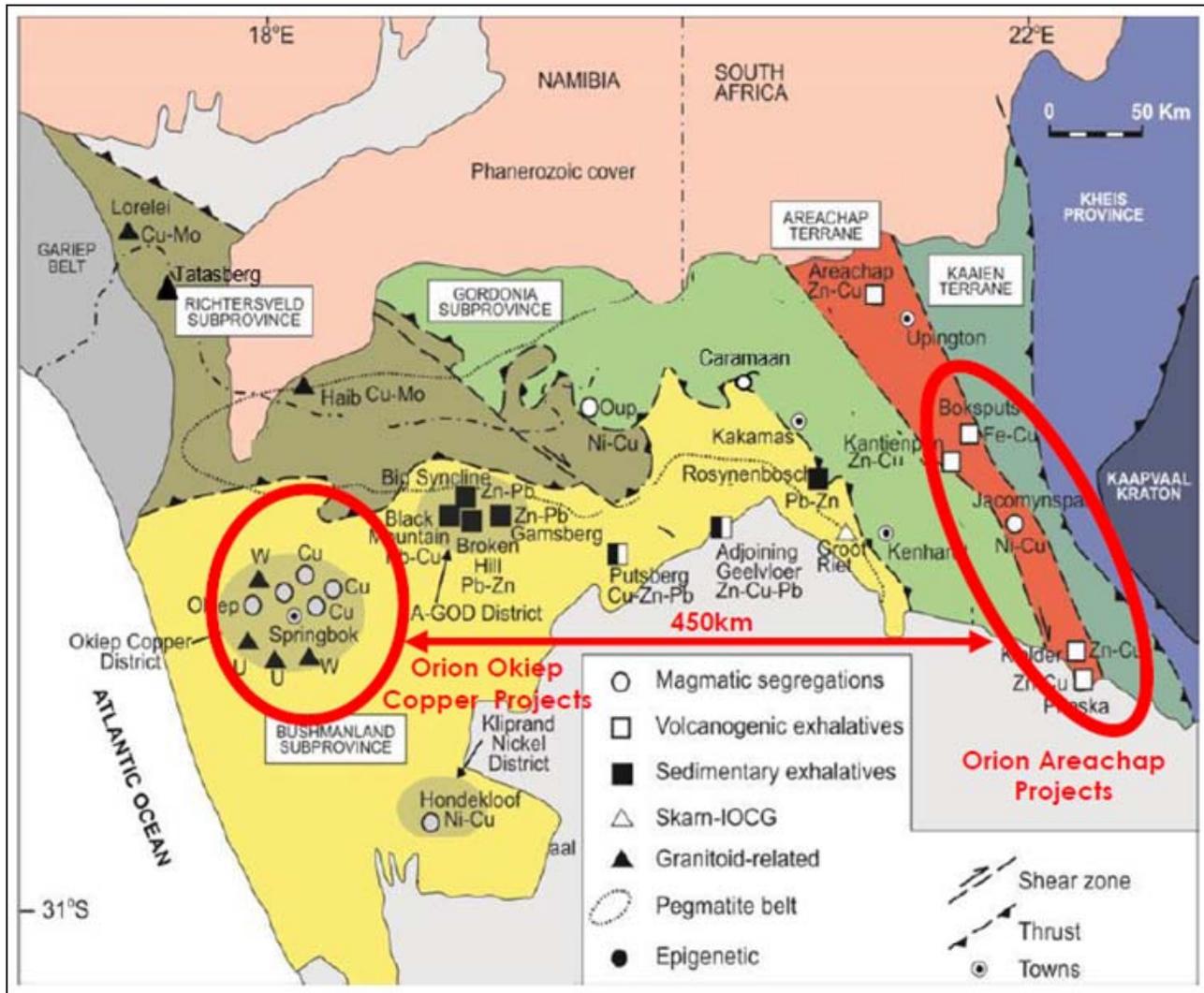


Figure 3: Location of the Areachap (containing Prieska) and Okiep projects in South Africa’s Northern Cape.

ORN completed an updated Bankable Feasibility Study (BFS) for the Prieska Project development during May 2020, based on a 12-year “Foundation Phase” 2.4Mtpa underground and open-pit mining operation, delivering total payable metal production of 226kt of copper and 680kt of zinc in differentiated concentrates.

The updated BFS was based on an Ore Reserve of 14.5Mt at 1.1% Cu and 3.2% Zn for u7y153kt of contained copper and 462kt of contained zinc, with the mine schedule comprising 57% Probable Ore Reserves, 10% Indicated Mineral Resources and 33% Inferred Mineral Resources.

The updated BFS delivered numerous improvements on the previous study completed in June 2019, including:

- 43% increase in undiscounted free cash flows to A\$1.6 billion, pre-tax (A\$1.2 billion post-tax)
- 36% increase in NPV (at an 8% discount rate) to A\$779 million, pre-tax (\$552 million post-tax)
- 5-month reduction in the capital payback period to 2.4 years
- 6% decrease in all-in-sustaining costs to US\$3,531/t (US\$1.60/lb) of copper equivalent metal sold
- 3% increase in all-in-sustaining margin to 47%
- 5% increase in pre-tax IRR to 39%
- 9% increase in peak funding requirements to A\$413 million to cater for operational improvements
- Peak annual production of 23kt of copper and 88kt of zinc in concentrate.

The Prieska Project contains a globally significant VMS resource totalling 30.49Mt at 1.2% Cu and 3.7% Zn - including Indicated Mineral Resources of 19.13Mt @ 1.18% Cu and 3.59% Zn. Importantly, the Resources remain open - with both strike extensions and up-folded limb extensions identified by downhole geophysics.

Fast-Track Option

ORN has to this point been focused on the development of the Deep Sulphide Resource, currently comprising 28.73Mt at 1.2% Cu and 3.8% Zn, which underpinned the May 2020 BFS. However, ORN is now seriously examining a fast-tracking of production at Prieska, based on a background of robust copper and zinc prices that could support production earlier than planned in the 2020 BFS. This early-start option is being investigated, simultaneous with the baseline 2020 BFS plan.

Of primary significance to ORN's fast-track strategy is the shift towards mining of open-pit material rather than the Deep Sulphide Resource, in combination with assessment of the exploitation of remnant pillars remaining from historical mining operations.

ORN's investigations are also assessing the merits of staggering the construction program, such that full-scale production is reached in phases, which would also ensure that peak funding requirements to achieve full production are significantly reduced. Such a scenario would help minimise both project and funding risk for ORN.

In summary, the early-start scenario assessment includes the following possible primary workstreams:

- re-planning for upfront mining of the open-pit (already included in the 2020 BFS plan to occur at the end of the mine schedule)
- assessment of the remnant pillars remaining from historical mining operations for potential opportunistic early extraction

- preparation of a plan to commence the dewatering of the underground workings using a modular configuration, with the first modules to be commissioned during CY2022, ahead of the scale up to the full-scale pumping rate proposed in the BFS-20 plan
- Maintaining the core elements and material assumptions of the Prieska Deeps 202 BFS plan, with work expected to be completed by Q3 2022.

Open Pit Extraction

Open-pit extraction of the shallow supergene sulphide ore is already included in the 2020 BFS plan, however it is only scheduled to commence from Year 13 of the mine life, when the tonnage milled from underground steps down from the 200,000 tonnes per month to 100,000 tonnes per month. As part of the early-start scenario, a feasibility level study is underway to assess the merits of bringing forward the open-pit mining to the start of the Prieska Project mine plan.

This would allow concentrate production via the earlier commissioning of the first mill facility, while the second planned mill is being installed and other long-lead time capital projects for commencement of the Prieska Deeps Mine are completed. This would see the sulphide ore processing plant commissioned by Month 19, approximately 14 months ahead of the original 2020 BFS schedule.

A high-priority underground drilling program on the +105 open-pit has commenced to provide sample density sufficient to upgrade the Mineral Resource classification in accordance with JORC Code (2012) reporting guidelines. The program is expected to be completed by August 2022 and updated Mineral Resource and Ore Reserve estimates available shortly thereafter.

Remnant Pillar Evaluation

ORN's examination of mine records and plans has confirmed that previous underground mining at Prieska was undertaken using long-hole open-stopping methods - without the use of any form of backfilling to stabilise the remaining voids. Accordingly, a grid of pillars was left in place to provide geotechnical mine stability. Based on positive preliminary assessments, ORN has commenced a detailed study to assess whether the insertion of cemented paste fill in the surrounding voids would allow for some of these remnant pillars to be extracted without negatively impacting long-term geotechnical stability.

Along these lines, a 4,000-metre underground diamond drilling program, aimed at confirming the historical survey records and providing sufficient data for resource estimation, is underway. This program will target the pillars above the current water level (300 metres below surface), with subsequent resource estimation expected to be completed during Q3 2022.

Mine Dewatering

Early commencement of mine dewatering through the adoption of a modular approach is being investigated so that the dewatering setup, including water treatment, can be established in a phased and scalable configuration. Studies currently underway aim to confirm the capital and operating costs of

commissioning an initial phase of dewatering during CY2022, capable of dewatering at one-third of the full-scale capacity. This primary setup is to be designed in a manner that retains the option to scale-up to full capacity dewatering at the opportune time. Results of the assessment are also expected during Q3 2022.

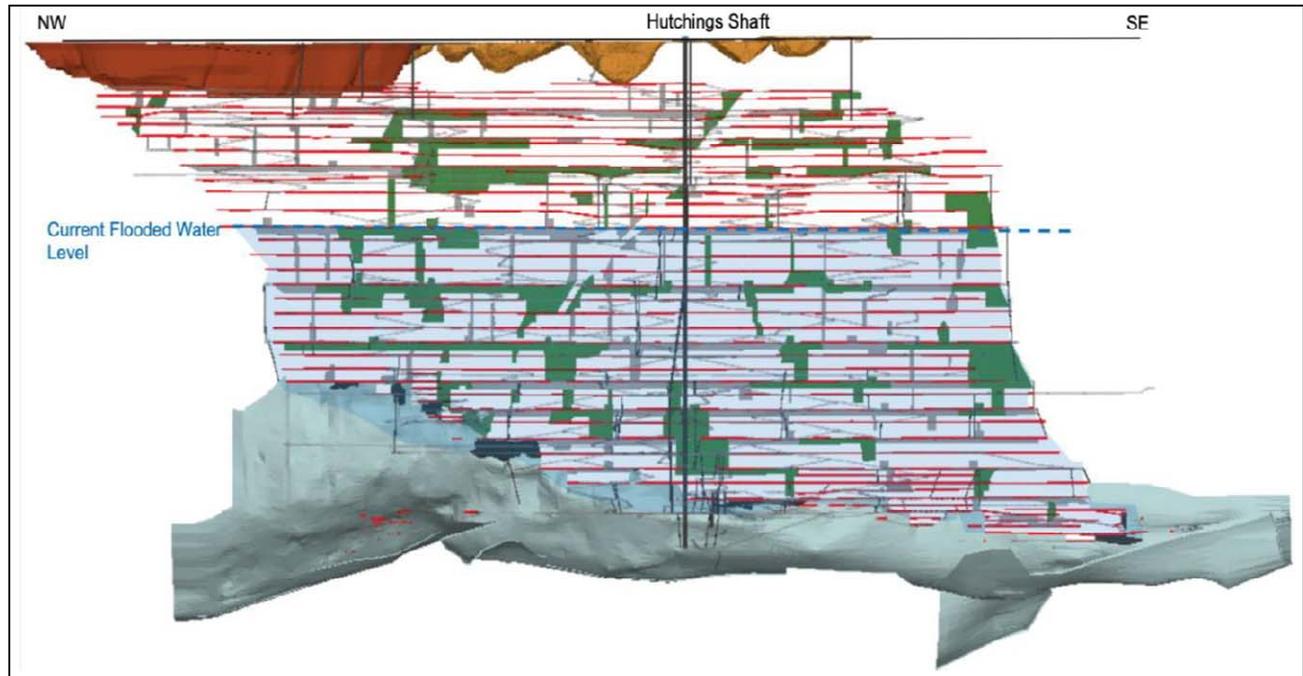


Figure 4: Isometric view showing the historically mined stopes and remaining pillars.

Okiep Project Overview

In parallel with ORN’s activity at Prieska, it has also commenced the work to establish the Okiep Copper Project (OCP) as a second copper concentrate production hub 450km to the west. The complementary nature of these projects has the potential to accelerate ORN’s journey towards becoming a major copper producer in South Africa’s Northern Cape Province.

The OCP hosts the majority of large historical mines within the district, which has produced more than 2Mt of copper metal over a 150-year period through to 2003. The mineral rights include numerous existing drilled copper orebodies with decline mine access and services in place. A vast database, including approximately 150,000 technical reports and data for 26,000 drill-holes (surface and underground), is available and will assist in fast-tracking the estimation of mineral resources on the property.

Much of the unmined, drilled mineralisation is adjacent to, or down-dip of historic mines with good quality underground access via shafts and ramp declines. The district is infrastructure-rich with good roads, grid power, and a water pipeline from Orange River.

Summary

ORN's strategy is based on creating a South African-focused base metals company through the re-development of two significant and historic mining operations that boast sizeable resource upside. The nature of such a strategy requires diligence and patience, however the potential payoff is sizeable, as these sorts of assets are typically impossible for junior companies to come by. Along these lines, ORN has been in the right place and time to enable it to secure both the Prieska and Okiep assets.

The rapid, ongoing shift towards renewable energy and electric vehicles means that copper, already a key commodity of the world economy, will be in even greater demand. This means that shovel-ready projects like Prieska and Okiep are growing in terms of their attraction. ORN has recognised that market circumstances are favourable for a fast-tracking of the production timeline at its Prieska project, which is why it is examining accelerated exploitation by open-pit mining of the oxide Resource, complemented by possible extraction of remnant pillar mineralisation.

Discussions with banks and financiers regarding the financing for the Prieska Deeps Project are continuing in parallel with the engineering assessment of the early works opportunities. Talks have also been initiated with potential financiers who have expressed interest in funding the early dewatering and production plan. Importantly, the proposed phased development at Prieska helps reduce upfront funding requirements, in turn reducing project and financial risk.

We are following ongoing development with great interest, and ORN remains firmly within our coverage Portfolio.

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