



Orion Minerals

ASX/JSE RELEASE: 29 July 2021

June 2021 Quarterly Activities Report

HIGHLIGHTS

- ▶ **Negotiations with potential project financiers for the Company's flagship Prieska Copper-Zinc Project are progressing well, with term sheets expected in the coming months.**
- ▶ **Project execution preparatory work streams for the Prieska Project are advanced including:**
 - **Preparation and negotiation of key supply contracts (including EPCM candidate contractors, bulk power supply and mine operating contractors);**
 - **Ongoing preparation of project management systems (including compilation of the Project Charter and defining the Owner's team requirements); and**
 - **Formulating plans to commence mine dewatering, a critical path item, ahead of full-scale project construction approval.**
- ▶ **Due diligence investigations were progressed to support Orion's proposed acquisition of controlling ownership of the Okiep Copper Project (OCP), an extensive historical copper mining complex located 570km north of Cape Town. This transaction will complement the development-ready Prieska Copper-Zinc Project and marks a major step towards Orion realising its ambition of becoming a major new long-term supplier of 'green' metals to fuel the global energy transformation.**
- ▶ **Positive Scoping Study for the OCP completed, confirming the potential for early cash-flow and 'proof-of-concept' copper production, with results from the study confirming:**
 - **Okiep-style deposits have the potential to be mined at low cost by both open pit and underground mining methods;**
 - **Potential exists to rapidly advance the project to production, with critical permitting processes already underway;**
 - **A 'proof-of-concept'-scale operation requiring low upfront capital investment can provide commercially attractive returns and early cash flows; and**
 - **Potential exists for significant operational synergies with the fully-permitted Prieska Copper-Zinc Project, also located in the Northern Cape Province, which now awaits funding before mine construction commences.**
- ▶ **Memorandum of Understanding (MOU) signed with South Africa's Council for Geoscience (CGS) to collaborate on exploration initiatives to advance the geological understanding of South Africa's Northern Cape.**
- ▶ **First collaboration under Orion/CGS agreement is a 1,827km² regional SkyTEM™ Survey targeting copper sulphide mineralisation hosted in mafic intrusive bodies, with a high-priority focus on the OCP area. This survey commenced in June 2021.**
- ▶ **Orion secured the grant of the Bokspuits North Prospecting Right, with drilling now underway to test a highly-conductive EM anomaly that straddles the boundary between Orion's Masiqhame Prospecting Right and the newly-granted Bokspuits North Prospecting Right.**
- ▶ **IGO progresses exploration in the Fraser Range, WA with the completion of a high temperature Squid moving loop EM survey to assist with prioritising targets for diamond drilling in the September Quarter. Four targets are scheduled to be drilled.**

Orion's Managing Director and CEO, Errol Smart, said:

"The June Quarter has been an extremely busy and productive period for Orion Minerals. During the Quarter, our management team remained focused on negotiating funding arrangements for our flagship Prieska Copper-Zinc Mine (Prieska) while at the same time advancing due diligence investigations into the acquisition of the Okiep Copper Project (OCP).

"The Minerals Corporation (TMC) has been appointed as the proposed lenders' Independent Technical Expert for the Prieska Project and they have been working closely with our technical team to complete their technical due diligence on the Bankable Feasibility Study that we completed in May 2020. This review is now nearing completion and will represent an important milestone to allow the funding process to be completed.

"While work on Prieska has been focused on the funding arrangements, planning studies are also being undertaken for the possible early commencement of dewatering ahead of the completion of overall project funding. This early dewatering strategy has the potential to significantly accelerate the project restart, given that it is a critical path item in the overall project delivery schedule.

"Our due diligence programs at the OCP are also providing plenty of early encouragement for its potential to emerge as a second major base metals production hub for Orion alongside our flagship Prieska Copper-Zinc Project.

"During the Quarter, we completed a successful Scoping Study for a foundation-phase mining operation at the OCP, based on the development of the Flat Mines and Jan Coetzee copper deposits.

"This Study confirmed the economic merits of developing a 'proof-of-concept' mining operation while Orion undertakes the necessary work programs to support our primary aim – which is to re-establish mining operations at a similar level to those sustained by previous owners such as Newmont and Goldfields, who produced 30,000-40,000 tonnes per annum of copper metal over many decades.

"The Study indicated the potential to deliver 102kt of copper in saleable concentrates over an initial 12-year mine life, with the potential for first production within 16 months of the start of construction.

"Importantly, exploration programs outside of the known Resource areas at the OCP, where Orion has made additional applications for Prospecting Rights and for extensions to the rights under option to Orion, are also ramping up, supported by our recent collaboration agreement with South Africa's Council for Geoscience (CGS).

"Our first collaboration with CGS is a district-scale SkyTEM™ airborne electromagnetic survey over the Okiep Copper District, aimed at detecting massive sulphide ore bodies. This survey commenced in June and represents the first airborne electromagnetic survey ever to be conducted in this world-class copper district. Importantly, the survey will provide intensive coverage of Orion's tenure at the OCP, as well as broader regional coverage, to identify the district-scale structural controls on emplacement of the mafic intrusive bodies.

"We expect that the data from the survey will be invaluable in identifying and prioritising targets for our drilling and exploration programs throughout FY2022.

"On other fronts, we are also excited to have drilling underway to test a high-priority electromagnetic conductor that straddles the boundary of our Masiqhambe Prospecting Right and our newly-granted Bokspuits North Prospecting Right, 100km north-west of Prieska. This compelling target has been modelled at 3,000 to 6,000 Siemens – nearly ten times higher conductance than the FLEM target drilled in this area earlier this year, which returned encouraging results. We are looking forward to seeing what this drill program can deliver."

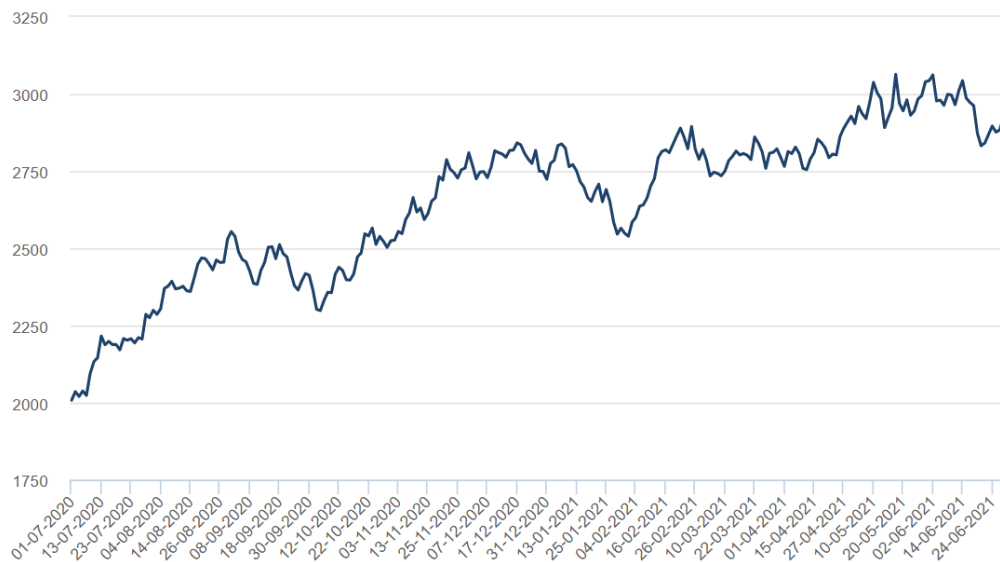
Commodity Markets

Copper prices continued to climb during the June Quarter, reaching a new record high of USD10,720 per tonne on the London Metals Exchange on 10 May 2021. While prices did soften late in the Quarter, the copper price increased by 7% overall during the reporting period to end the Quarter at USD9,385/t. Zinc also moved higher, increasing by 5% over the reporting period to close the Quarter at USD2,945/t.

LME COPPER HISTORICAL PRICE GRAPH



LME ZINC HISTORICAL PRICES GRAPH



Source: London Metal Exchange

During the Quarter, US President Joe Biden declared copper to be a “critical mineral” to the United States due to its important role in the production of green energy batteries and commenced a 100-day strategic review to ensure the US can secure reliable and sustainable supply. The White House Supply Chain Review Report stated that: “Demand for many of these (critical) metals is projected to surge over the next two decades, particularly as the world moves to achieve net zero carbon emissions by 2050.”

Operations Report

Health and Safety, Environmental Management and Community Engagement

Health and Safety

No injuries were recorded during the Quarter. The hours worked for the Quarter and the total for FY2021 are shown below:

Table 1: Hours worked at the Areachap Projects (South Africa).

Category of Work	Hours Worked	
	Quarter	FY21 Total
Exploration	18,163	22,959
Mine Re-Entry	3,328	4,672
Contractors	1,427	4,887
Total	22,918	32,518

The Lost-Time Injury Frequency Rate (**LTIFR**) per 200,000 hours worked is **0** for the 2021 calendar year.

The Company continues to manage the risks from the COVID-19 pandemic in the workplace in line with mandatory and industry guidelines. During the Quarter, the South African Government moved the country from Alert Level 1 to Alert Level 4 by the end of June 2021. Two cases of infection with the SARS-Coronavirus 2 have been reported amongst Company employees or contractors to date. Working from home, social distancing, periodic screening and testing for possible infection are the measures being used to reduce the risks of workplace transmission of the virus.

Community and Stakeholder Engagement

COVID-19 Vaccination Program in Siyathemba

Together with other members of the Siyathemba CSI Collaboration Forum, Orion is playing a leading role in ensuring that the local Siyathemba community benefits from South Africa's national COVID-19 vaccine rollout. As outlined last Quarter, Orion has worked closely with the District Department of Health and the Local Municipality to establish the Bill Pickard Hospital Pharmacy in Prieska as a COVID-19 vaccination centre.

During the Quarter, the Company formally handed over a specialised fridge for vaccine storage to the Bill Pickard Hospital (Figure 1). This has allowed the hospital pharmacy to apply, and achieve, COVID-19 vaccination centre accreditation and, after consultation with the District Department of Health, the pharmacy commenced the roll-out of vaccines to the over-60 age cohort, with a total of 682 doses delivered by 30 June 2021.

Before the pharmacy's accreditation, the closest accredited vaccination centre within the Pixley Ka Seme District was in De Aar, 180km from Prieska. Accredited COVID-19 vaccination centres are eligible to be part of the Government's national vaccination program to administer vaccines to health workers and community members as part of a phased rollout.

The Bill Pickard hospital required refrigeration capacity, shelving and digital infrastructure before it could receive the required accreditation, and Orion played an instrumental role in achieving this positive outcome. Given the logistical challenges in rolling out a mass vaccination program in the remote Northern Cape region, this initiative represents an important community program that will deliver tangible benefits to the entire community, particularly given the significant escalation in COVID-19 infections in South Africa in recent months.

This COVID-19 initiative reflects Orion's commitment to working with the Siyathemba and surrounding communities to improve the welfare of all of those living in the vicinity of the proposed Prieska Copper-Zinc Mine (**PCZM**).



Figure 1: Vaccine refrigeration – donated by Orion (CEO Errol Smart pictured right) to the Bill Pickard Hospital.

Occupational Assessments in Siyathemba

As part of its ongoing commitment to community training and development, Orion recently undertook occupational assessments for potential artisans and operators in the local community. This program had been delayed as a result of disruptions in the Siyathemba community (see below).

The process was open to individuals who had previously completed Orion's "Introduction to Mining" course, and who had expressed an interest in artisan and operator roles. An initial group of 60 individuals from the Siyathemba communities of Prieska, Marydale and Niekerkshoop were invited to participate in the current phase, with 44 individuals eventually taking up the opportunity.

Based on the results of these assessments, training programs will be offered to high-potential participants to prepare them for possible future employment opportunities at the Prieska Copper-Zinc Mine or within the broader South African mining industry.

Additional occupational assessments will be undertaken, and Orion encourages all community members who receive an invitation to participate to do so, as this process will play a critical role in ensuring that local residents are eligible to be considered for employment once work begins on site. Orion is conscious of the urgent need for skills development and employment opportunities in the Siyathemba area and is committed to playing a role in delivering these wherever possible.

Bicycles for Humanity Update

Orion has partnered with Bicycles for Humanity Western Australia (B4H), which donated 420 pre-loved bicycles to Orion's host communities in Siyathemba and Vanwyksvlei. Studies have shown that bicycles transform lives and by extension, communities and economies. With a bicycle, young people can get to school, health care workers get to their clinics and entrepreneurs can kick-start their businesses through improved mobility, thereby creating employment.

With import and shipping costs covered by Orion, a container of 420 donated bicycles arrived in Prieska in April. Following pro-bono container offloading assistance provided by Partzone Prieska and NR Engineering, the bicycles are now being stored in a Department of Roads and Public Works warehouse, from where they will be assembled and distributed.

Expressions of interest solicited from the community in late 2020 resulted in eight individuals undergoing bicycle mechanic training in June 2021 (having been delayed by a month due to disruptions in the Siyathemba community in May 2021). During the training – which was provided by Bicycle Empowerment Network (BEN) from Cape Town – approximately 100 of the bicycles were assembled and serviced, ready for distribution (Figure 2).



Figure 2: Local community members with BEN representatives – learning to assemble and repair bicycles.

Sponsorship of Olympic Athlete

Orion sponsored Prieska sprinter Chederick van Wyk, as he worked towards selection for South Africa's 4x100m men's relay team – and other possible sprint entries – at the Tokyo Olympic Games, which commenced on 23 July. Orion's sponsorship allowed Chederick to travel to Italy in June 2021 for a critical pre-Olympics camp.

This sponsorship forms the first phase of what Orion hopes will be a long relationship between the Company and Chederick, who will become a sports ambassador for the Siyathemba community, especially for the young people of Siyathemba.

Chederick's message to the Siyathemba community is that: "It is important to work hard and use your talents when you follow your dreams. I am inspired by all those in the community who talk to me about what my running means to them, and the impact that I can have on their lives. If I make it to the Olympic relay team in Tokyo, I will be running for all of them, for all of Prieska and Siyathemba – as well as for all of South Africa. All my training, and all the hard work – the results will be for them."

Community Disruptions

During the Quarter, community protests and unrest were experienced at a number of mining operations and various communities across parts of South Africa. In a statement issued during the Quarter, Orion supported the strong stance adopted by the Minerals Council South Africa condemning the unrest. In almost all cases, the protests were led by a small group of individuals who are seeking to disrupt legitimate business operations by subverting procurement and tendering practices.

The Minerals Council issued a statement condemning the unlawful protests and called on the authorities to act swiftly and impartially to protect the safety of communities, employees and private property. The Minerals Council has, in particular, expressed its support for and solidarity with members like Orion, who have taken a firm public stance against corruption and illegitimate demands at the PCZM.

In response to unrest in the town of Prieska, located 68km from the Prieska mine site, Orion obtained an interdict in the Northern Cape High Court in Kimberley, to prevent any interference in its business at PCZM by protesters operating outside the law. While Orion respects the constitutional right of lawful public protest, its support does not extend to intimidatory threats and the possibility of behaviour that will put lives as well as livelihoods at risk.

The High Court also specifically directed the South African Police Service to enforce the terms of its order. The protest action has had minimal impact on progress on the PCZM Project, with most work-streams currently focused off-site.

Orion will continue to engage with all stakeholders, including community representative groups, the Siyathemba Municipality, Northern Cape Provincial Government and the Department of Mineral Resources to ensure that the PCZM project is progressed in a peaceful and sustainable environment benefitting all stakeholders.

Subsequent to the end of the Quarter, the unrest experienced elsewhere within South Africa did not affect the mine or the local community area of Siyathemba and has since subsided. Orion notes the return of order to affected areas and the Government's interventions to ensure that the unlawful events are not repeated.

Prieska Mine Development and Exploration

Prieska Copper-Zinc Project Overview

The Prieska Copper-Zinc Project (**Prieska Project**) continues to be the primary focus of the Company's activities and is now in the financing and pre-development stage following the completion of an updated Bankable Feasibility Study (**BFS**) in the June 2020 Quarter (refer ASX release 26 May 2020). Updates to Environmental Permitting are being finalised and progress continues on selection of the EPCM contractor. Preliminary site works have taken place in readiness for construction.

Following the positive outcomes of the updated BFS, Orion is progressing financing negotiations with a number of Tier-1 institutions. Orion intends to fund the development of the Prieska Project through a combination of debt and equity, with the potential for streaming financing to reduce the equity contribution also being evaluated.

As part of advanced ongoing funding discussions, the proposed financing consortium has appointed The Minerals Corporation (TMC) to undertake an Independent Technical Review of the BFS. This intensive review is now nearing completion and will be an important milestone in progressing financing arrangements.

Discussions with a precious metal streaming company in regard to a stream on the precious metal by-products are also progressing well, with a second due diligence team also reaching an advanced stage on behalf of the streamer.

Prieska Operation Activities Subsequent to the Updated Bankable Feasibility Study

Environmental Management

Water Use Licence (**WUL**) – while a WUL has already been granted for the Project, further amendments to the licence are being sought, to better align the grant conditions to an improved execution strategy for mine dewatering. After consultation with the Department of Human Settlements, Health & Sanitation (DHSHS), which defined the process to be followed on the WUL Amendment, Orion is continuing with work

on updating the water balance during the de-watering phase and revising the historical Tailings Storage Facility (**TSF**) Environmental Management Plan. The Amendment pack is expected to be ready for submission during the September 2021 Quarter.

Square Kilometre Array – The Prieska Project is located within the Square Kilometre Array Radio Telescope Project (**SKA**) area, in which special licencing is required to undertake mining operations. For existing on-site equipment, PCZM is exempt from requiring a permit as the Project site falls outside the 30km declared area to the nearest SKA infrastructure. For the new mine's planned equipment, Orion only needs to show that there will be no radio interference from the planned equipment. This study will start once the detailed design stage commences and suppliers for the relevant equipment are selected.

EPCM Contract

A site visit for the four short-listed companies, which had been delayed due to COVID-19 travel restrictions, took place during the Quarter. The four companies that were short-listed have since been reduced to three after further consideration of their proposals. Legal and technical clarifications have taken place with the three companies and work is proceeding on the final selection, which is expected to be made during the September 2021 Quarter.

Project Execution Preparations

Work is progressing on formulating an early water pumping plan, to be commissioned sometime before the main project construction is approved to start. This early pumping would serve to test feasibility study concepts and commence mine dewatering, albeit at a lower pumping rate, ahead of the full-scale pumping being commissioned. A plan has been prepared that will be presented to the DHSHS for approval before proceeding with the implementation of the pumping plan.

A three-day, multi-disciplinary Project Execution workshop was conducted during the Quarter which outlined the various work-streams that are now continuing and will provide input for a Project Charter document. The Project Charter will provide a high-level description of the Project execution including the strategies that will be adopted around the key Project areas such as stakeholder engagement, contracting and procurement, HR, SHEQ (Safety, Health, Environment and Quality) and risk management as examples.

Process Plant Operations

Discussions are continuing with Minerals Operations Executive (Pty) Ltd (**Minopex**) with respect to contract operations of the processing plant. Discussions are also continuing regarding the plant's Operational Readiness plan which has been proposed by Minopex, including a detailed program for plant commissioning. A full agreement is expected to be signed later in CY2021.

Underground Mining Contract

A set of pre-selection criteria is being formulated in order for Orion to determine which potential contractors will be taken forward into a Request for Proposal process. Work is progressing on the Project-wide automation strategy as outlined in the previous Quarterly Report, and this is expected to be completed by the September 2021 Quarter. The agreed mining automation strategy will feed into the contracting discussions and scope. Selection of a preferred underground contractor is expected to be made during Q2 2022.

Infrastructure

Power Supply – following 15 MVA Feeder Bay design approval from Eskom, the Self-build agreement has been signed. Final review of the Electricity Supply Agreement is almost concluded, and this document will be signed during the September 2021 Quarter. Eskom granted Orion a six-month extension for payment of the Connection Charge fee for the 40 MVA power to July 2021. The step-up to 40MVA is required at the end of year two in the construction phase.

Water Supply – The Siyathemba Municipality has given formal approval for the Water Supply Agreement for the Project and the agreement document was signed during the Quarter. The Alkantpan Water Pipeline Agreement has been reviewed and approved by all parties and execution is imminent.

Extension of juwi Renewable Energy Collaboration

The Memorandum of Understanding entered into by the Company with juwi Renewable Energies Pty Ltd (**juwi**) was further extended to October 2021.

Orion intends to collaborate with juwi on establishing a hybrid wind and solar renewable energy facility that will supply 52% of the Prieska Project's power requirements. The extension provides the parties the opportunity to explore additional project development options currently under consideration.

Prieska Copper-Zinc Mine Permitting

The PCZM is fully-permitted as a result of the following key milestones:

- Mining Right granted to PCZM in September 2019;
- Mining Right granted to Vardocube in August 2020;
- Environmental Financial Provision in place fully capitalised;
- Environmental approval notices received for both PCZM and Vardocube; and
- Water Use Licence granted in August 2020.

Potential for Early Commencement of Dewatering

An investigation is underway into the potential to initiate work on the dewatering program, ahead of the expected draw-down on debt facilities. The dewatering of the historical mine working is on the critical path for the project development and any early commencement could have a positive impact on the project timeline.

Near-Mine Exploration

The near-mine projects are those projects within prospecting rights held by PCZM (**Dooniespan**), Vardocube and Bartotrax (Pty) Limited (**Bartotrax**). Volcanogenic Massive Sulphide (**VMS**) deposits worldwide tend to occur in clusters and, apart from the giant Prieska Deposit, five smaller deposits have previously been discovered on the near-mine project areas.

These deposits include Annex, explored by Anglovaal between 1969 and 1981; the PK1, PK3 and PK6 deposits on Dooniespan (**Kielder Prospects**), explored by Newmont South Africa (**Newmont**) between 1976 and 1979; and the Ayoba mineralisation discovered by Orion in 2018 (Figure 3).

During the Quarter, the Company continued its drilling campaigns across the Near-mine and Regional projects to assist in prioritising the pipeline projects supporting the potential to expand or extend the Prieska Project.

For the Near-Mine areas, drilling was completed at the K3 and K6 prospects within the Kielder Project, located 15km north-west of the planned PCZM (Figure 3). The drilling program was designed to test outcropping VMS-style mineralisation, where historical shallow drilling by Newmont SA in the 1970s returned results of up to 4.8m @ 0.46% Cu, 6.18% Zn and 15g/t Ag. A total of 105 samples were submitted to ALS laboratory.

Mineralisation similar to that at the Prieska Project was intersected at less than 200m from surface at both K3 and K6. Finalisation of the results and interpretation is pending.

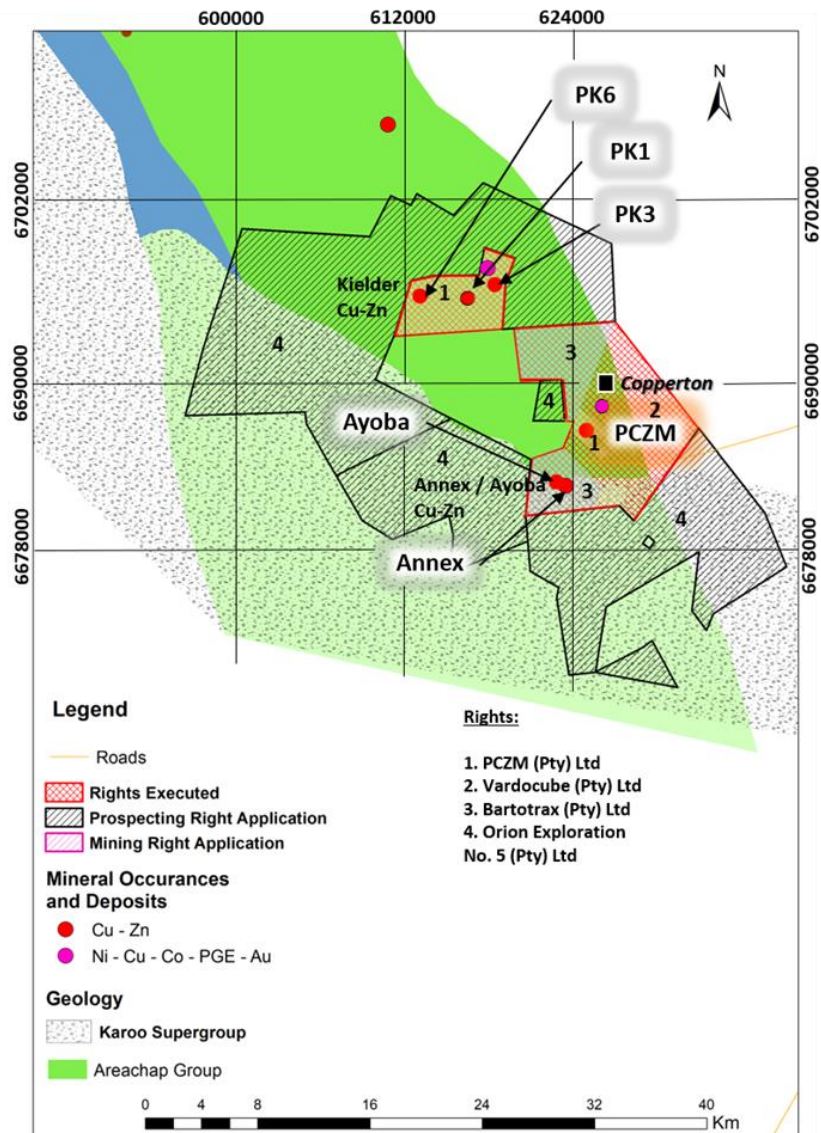


Figure 3: Surface plan showing the prospecting rights over and adjacent to the Prieska Project and the location of the Annex, Kielder (PK1, PK3 and PK6) deposits and Ayoba Prospect.

Regional Exploration

Surrounding the Near-Mine Exploration Project, the Company holds a substantial and prospective land holding in the Areachap Belt (Figure 4). The Areachap Belt is analogous to other Proterozoic mobile belts hosting major VMS and magmatic Ni-Cu-Co-PGE deposits.

In addition to the Near Mine VMS Project, the Company is also prospecting for VMS deposits on the Masiqhame Prospecting Right (Figure 4). The Kantiengan (Zinc-Copper-Silver-Gold) and Boksputs (Copper-Gold) Deposits are the two most prominent known VMS deposits on the Masiqhame Prospecting Right.

Similarly, world-class intrusive nickel deposits also tend to occur in clusters both on prospect and regional scale in orogenic belts along geological plate margins similar to the Areachap setting. Several mafic intrusive bodies with nickel and associated metals are located on the Namaqua-Disawell Prospecting Rights. The setting of mineralisation has been confirmed to be analogous to other orogenic-hosted, deep-seated magma conduit complexes such as Kabanga (Tanzania), Nova (Australia), Akelikongo (Uganda),

and Limoeiro (Brazil). Conduit-style mineralisation is currently the top priority global target for magmatic Ni-Cu-PGE sulphide exploration.

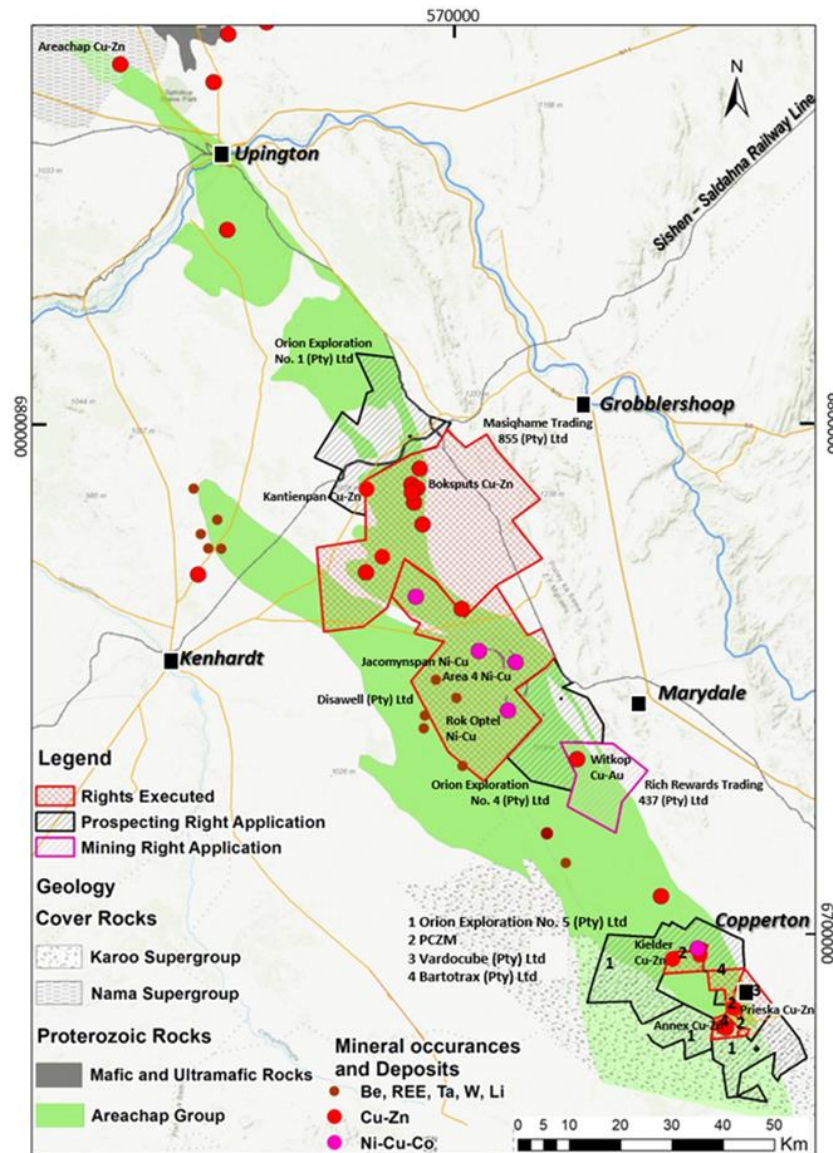


Figure 4: Regional geology map of the Areachap Belt showing prospecting rights held and under application by the Company and noted mineral occurrences as per published data from South African Council for Geoscience.

Orion secured the grant of the Bokspits North Prospecting Right late in the Quarter and immediately commenced diamond drilling on a high-priority target detected by a fixed loop electromagnetic (**FLEM**) survey on the boundary of Orion's existing Masiqhame Prospecting Right and the newly-granted Bokspits North Prospecting Right.

The Bokspits Prospect, which is located on the northern boundary of the Company's Masiqhame Prospecting Right, has recently delivered very encouraging copper-gold intersections on the 600s B4 FLEM conductor, including a best section of 5m at 1.09% Cu and 0.13g/t Au, including 1.00m at 2.38% Cu and 0.29g/t Au (refer ASX release 25 January 2021).

A follow-up FLEM survey of the B1 conductors previously detected with two small survey loops located 2,500m to the north of B4 – on the boundary of the prospecting right (**PR**) and continuing north of the Prospecting Right – has now confirmed a very strong (3,000s – 6,000s) continuous conductor, DP1, that presents a compelling drill target (Figures 5 and 6).

The strike extension of this target is also now accessible to Orion after receipt of the grant notice for prospecting right NC12197PR, covering the northern extension of the target (Figure 7).

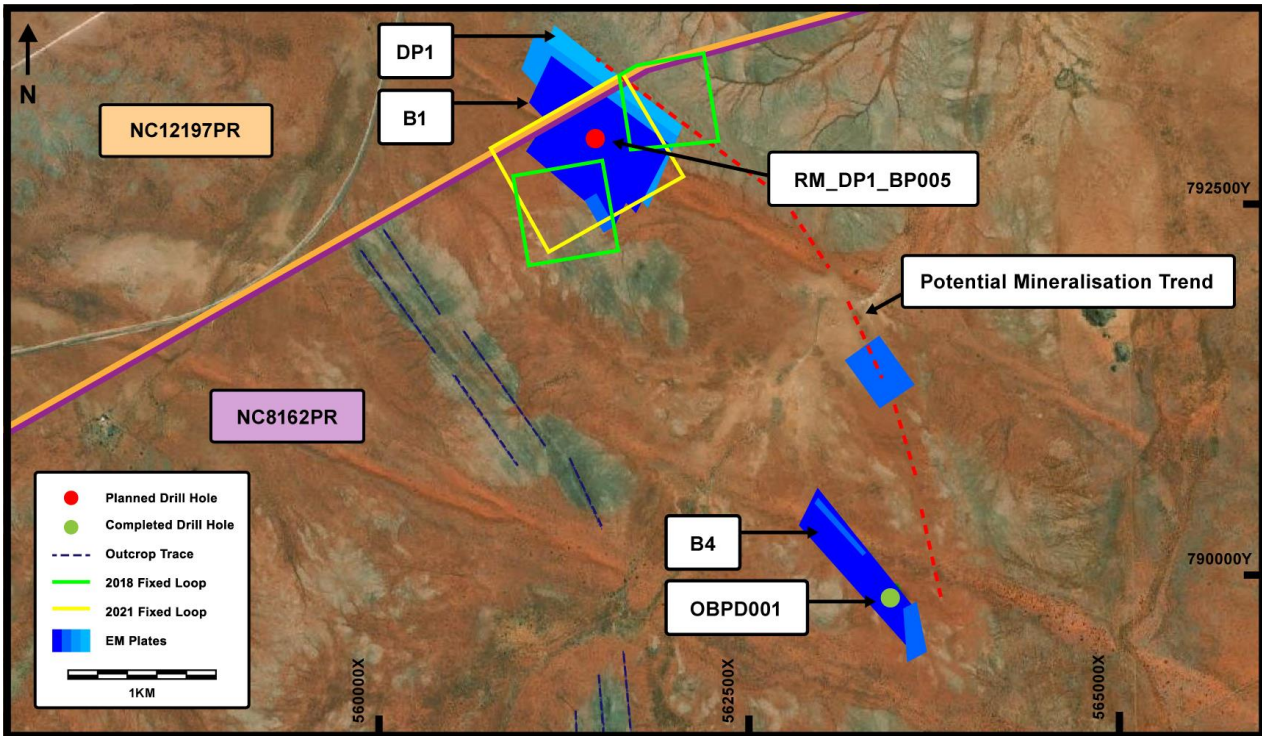


Figure 5: FLEM targets at Bokspits Prospect.

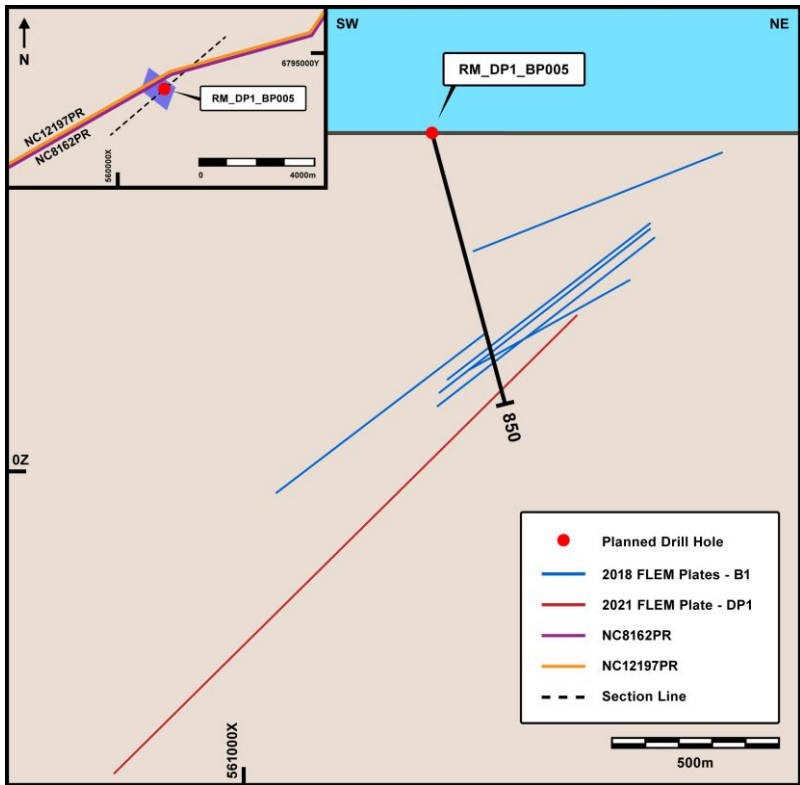


Figure 6: Planned diamond drill hole to target new high priority FLEM target.

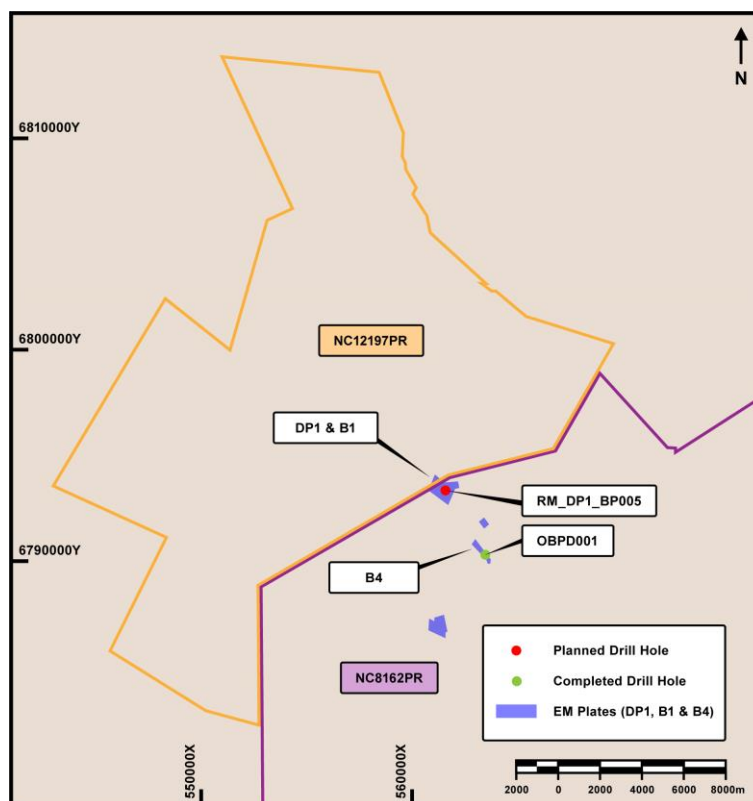


Figure 7: New Prospecting Right, NC12197PR, covering the Bokspuits North target area.

Marydale Gold-Copper Project (Witkop)

No exploration was carried out on the Marydale Gold-Copper Project during the Quarter.

Regional Collaboration Potential

The base metals' prospectivity of the Northern Cape Province, in general, continues to be of strategic importance to the Company's activities.

The activities of other explorers and mine developers in the region may offer the potential for collaboration in many areas, such as, sharing of support infrastructure, logistics, labour sending areas, community and social responsibility initiatives, technical data and operational experiences to mutual benefit. The Company has continued to actively investigate the progress of various mineral development projects in the region and is assessing the potential areas for collaboration.

Okiep Copper Project

Option Agreement

During the March 2021 Quarter, Orion entered into an agreement giving it exclusive rights and a clear pathway to acquire and consolidate a significant interest in an extensive copper mining complex, the Okiep Copper Project (**OCP**), located approximately 570km north of Cape Town in the Northern Cape Province of South Africa (Figure 9).

Under the agreement, Orion has an exclusive option to undertake due diligence and acquire a 56.25% interest in Southern African Tantalum Mining (Pty) Ltd (**SAFTA**) – alongside Industrial Development Corporation of South Africa Limited (**IDC**) with 43.75%, 100% of Nababeep Copper Company (Pty) Ltd (**NCC**) and 100% of Bulletrap Copper Company (Pty) Ltd (**BCC**).

These entities hold the mineral rights to the majority of the large historical mines of the Okiep Copper Company, which historically produced more than 2Mt of copper metal from a significant copper-producing district in the Northern Cape Province, ~570km north of Cape Town.

Scoping Study

Orion completed a foundation phase Scoping Study for the development of the Flat Mines and Jan Coetzee copper deposits at the OCP during the Quarter, as part of its due diligence programs.

The Scoping Study indicated the potential to establish a financially robust foundation-phase copper mining project with:

- First production possible within 16 months of the start of construction;
- Average annual undiscounted free cash flows of \$32 million post-tax;
- All-in-sustaining costs of USD4,478/t (USD2.03/lb) of copper sold;
- All-in-sustaining margin of 40%;
- Break-even grade of 0.8% Cu for both un-optimised open pit and underground mining operations. This is well below the Mineral Resource grades of the deposits considered in the Scoping Study and the historical head grades typical of the Okiep Copper District;
- Peak funding requirements of \$58 million (including 15% contingency); and
- Peak annual production of 9kt of copper-in-concentrate, potentially supplementing the 22kt a year of copper production planned from Orion's flagship project, the Prieska Copper-Zinc Project.

The Study evaluated the commercial merits of a foundation phase mining operation, with a production level in line with the pending Mining Right Application applied for by the project vendors (760ktpa plant throughput). Orion's primary interest in the district is in the long-term potential to re-establish mining operations at a level similar to that delivered by Newmont and later Goldfields, who produced 30,000 - 40,000 tonnes of copper metal per annum over several decades.

The foundation-phase Scoping Study investigated the commercial viability of establishing mining and mineral processing operations that would produce saleable copper concentrates from the exploitation of Mineral Resources delineated within a sub-area of the Okiep Project, referred to herein as **the Flat Mines Project area**. The concept-level Study was prepared to a capital cost estimation accuracy of $\pm 25\%$ and targets a production scale that is manageable to test mine operating practices best suited to exploiting the numerous copper deposits identified within the region and are being considered in future production expansion scenarios (hence '**proof-of-concept**' scale).

The Scoping Study demonstrated that potential exists to establish foundation-scale mining operations as per the scale of processing included in the Mining Right Application. These foundation scale operations could be in production within 16 months of the commencement of construction, requiring a low upfront capital expenditure commitment of \$53 million (including a 15% contingency allowance), whilst providing substantial early cash flows averaging \$32 million annually, high operating margins (40% all-in-sustaining margin, 37% IRR, post-tax) and attractive overall commercial returns, with a project Net Present Value (**NPV**) of approximately \$114 million (post-tax) at a 10% discount rate, using a copper price of @ USD7,600/t.

The proposed foundation scale mining operations could run for 12 years at a design processing plant throughput of 760,000 tonnes per year, resulting in 9,000 tonnes per year of copper sold in marketable concentrates. Both underground and surface mining methods would be used in conjunction with mineral processing by conventional froth-flotation concentration to produce the copper concentrates for export.

This 'proof-of-concept' phase of the planned operation targets the mining of only those Okiep Project copper deposits for which Orion has verified and reported Mineral Resources during the early phase of the due diligence period.

The resulting Production Target is therefore supported by 33% Measured Mineral Resources, 46% Indicated Mineral Resources and 21% Inferred Mineral Resources. In compliance with disclosure requirements, note that there is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target or financial forecast information outlined in this document will be realised.

Key assumptions and project performance parameters resulting from the Scoping Study are presented in Table 2 below:

Executive Dashboard							
Price and Forex Assumptions	Unit	Value	Financial Performance	Unit	Value	Unit	Value
Metal price - Cu	USD/t	7,593	NPV (pre-tax) approximated @10% discount rate	ZAR (M)	1,896	AUD (M)	170
Metal price - Au	USD/oz	1,889	NPV (post-tax) approximated @10% discount rate	ZAR (M)	1,267	AUD (M)	114
Metal price - Ag	USD/oz	24	IRR (pre-tax)	%	44%		
Exchange rate	ZAR : USD	17.2 :1	IRR (post-tax)	%	37%		
Exchange rate	ZAR : AUD	11 .1: 1	Payback from first production	years	3.25 years		
Production Metrics	Unit	Value	Undiscounted free cash flow (pre-tax)	ZAR (M)	4,607	AUD (M)	413
Life of Mine (Proof-of-Concept Phase)	Years	11.8	Peak funding	ZAR (M)	643	AUD (M)	58
Treatment plant capacity	ktpa	780	Project Cost Metrics	Unit	Value	Unit	Value
Proof-of-Concept Phase tonnage - RoM	kt	9,011	Average cash operating unit cost (C1)	ZAR/t	781	AUD/t	70
Proof-of-Concept Phase tonnage - RoM U/G	kt	7,479	All-in-sustaining cost per unit RoM t	ZAR/t	873	AUD/t	78
Proof-of-Concept Phase tonnage - RoM O-Pit	kt	1,531	All-in-sustaining cost per unit Cu t sold	USD/t Cu	4,478	AUD/t Cu	6,904
RoM Plant Feed Grade - Cu - U/G	%	1.29%	Price received (net of NSR) - Cu	USD/t Cu	7,441	AUD/t Cu	11,473
RoM Plant Feed Grade - Cu - O-Pit	%	1.28%	All-in-sustaining margin	%	40%		
RoM Plant Feed Grade - Au	g/t conc	2.2	Operating breakeven grade - Cu	%	0.83%		
RoM Plant Feed Grade - Ag	g/t conc	34	Project Cash Flows	Unit	Value	Unit	Value
Overall Plant Recovery - Cu	%	87.4%	LoM net revenue	ZAR (M)	12,712	AUD (M)	1,142
Concentrate tonnage - Cu	kt	386	LoM operating costs (plus State Royalty)	ZAR (M)	7,320	AUD (M)	657
Concentrate grade - Cu	%	25.8%	Project Start-up Capital Expenditure	ZAR (M)	595	AUD (M)	53
NSR as % of metal price - Cu	%	96.9%	Sustaining Capital Expenditure	ZAR (M)	188	AUD (M)	17
Metal sold (in concentrates) - Cu	Tonnes	102,329	Income Tax	ZAR (M)	1,368	AUD (M)	123
Total Cu Sales	Tonnes	386,787	Cash Flow After Tax	ZAR (M)	3,241	AUD (M)	291
Level of Accuracy of Financial Model ± 25%, LoM = Life of Mine, NSR = Net Smelter Return, NPV = Net Present Value, IRR = Internal Rate of Return							
There is a low level of geological confidence associated with Inferred Mineral Resources and therefore there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target or financial forecast information referred to in this Study will be realised. Source: ORN Okiep Financial Model revision 4.0.							
AUD means Australian dollars.							
USD means United States dollars.							
ZAR means South African rand.							

Table 2: Key assumptions and project performance parameters for the Okiep Copper Project (Flat Mines Project area) (numbers may contain apparent rounding errors).

The modelled scenario returns undiscounted free cash flows of approximately \$413 million pre-tax (\$291 million post-tax), with an NPV of approximately \$170 million pre-tax and post-royalties (\$114 million post-tax, post royalties), using non-inflation-adjusted estimates and a discount rate of 10%. The Project achieves an Internal Rate of Return (IRR) of approximately 44% pre-tax (37% post-tax). The financial modelling assumes long-term forecast metal prices of USD7,593/tonne for copper¹.

¹ Metal price assumptions based on S&P Global Capital commodity long-term real forecast (May 2021).

Peak funding requirements total \$58 million, including a 15% contingency allowance. This is forecast to occur in the second year of the capital expenditure (**Capex**) program. Payback is planned to occur 4.5 years from the start of construction or 3.25 years from the start of production, shown in the figure below.

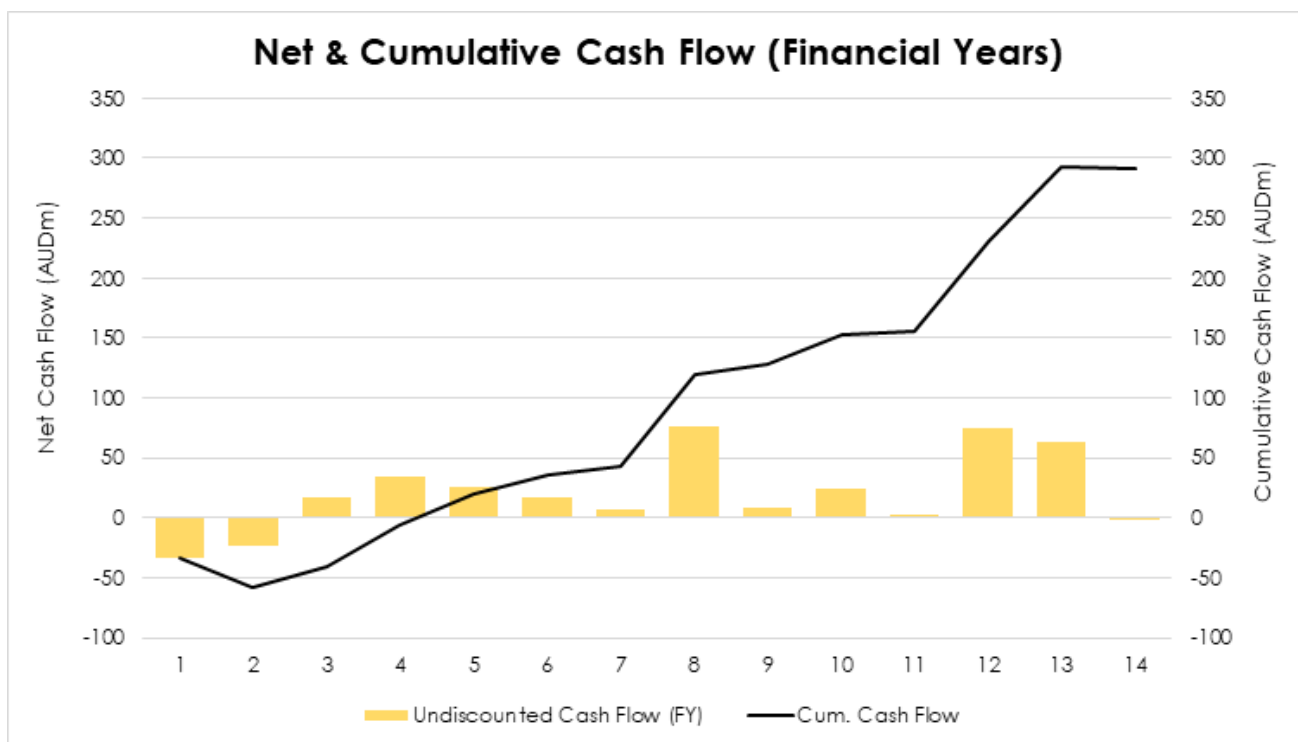


Figure 8: Cash flow profile over the life of mine.

The unit all-in-sustaining costs (**AISC**) over the proposed mine life (**LoM**) are estimated to be \$6,904/t (USD4,478/t) (USD2.03/lb) copper metal sold. The realised price (net of smelter charges) over the LoM is forecast to be \$11,344/t (USD7,358/t) (USD3.34/lb) copper metal sold, yielding in the order of a 40% all-in-sustaining margin. The operating breakeven grade is estimated at 0.8% copper, well below the Run of Mine (**RoM**) feed grade of 1.3% copper applied in the production schedule. The break-even grade using direct production costs (**C1**) is estimated at 0.7% copper, in line with the cut-off grade used for stating the supporting estimated Mineral Resources.

Full details of the OCP Foundation Phase Scoping Study were provided in the Company's ASX release dated 3 May 2021. The objective of the ongoing studies and exploration programs is to increase the OCP Foundation Phase Scoping Study production rate of 9,000 tonnes of copper per annum to targeting future mineral resources and production levels similar to that delivered by Newmont and later Goldfields, who produced 30,000 - 40,000 tonnes of copper metal per annum over several decades.

Due Diligence Program

In addition to underpinning the completion of the OCP Scoping Study outlined above, due diligence work undertaken during the Quarter also defined a series of new high-priority drill targets on the Carolusberg – Koperberg complex that forms part of the OCP. The Carolusberg – Koperberg Complex is situated 20km southeast of the Flat Mine Complex that hosts the current OCP Mineral Resources base of 11.5Mt at 1.4% Cu for 159,000 tonnes of contained copper (refer ASX release 29 March 2021) (Figure 9).

The targets were identified during ongoing due diligence investigations being undertaken by Orion on the extensive database recently secured (refer ASX release 15 February 2021).

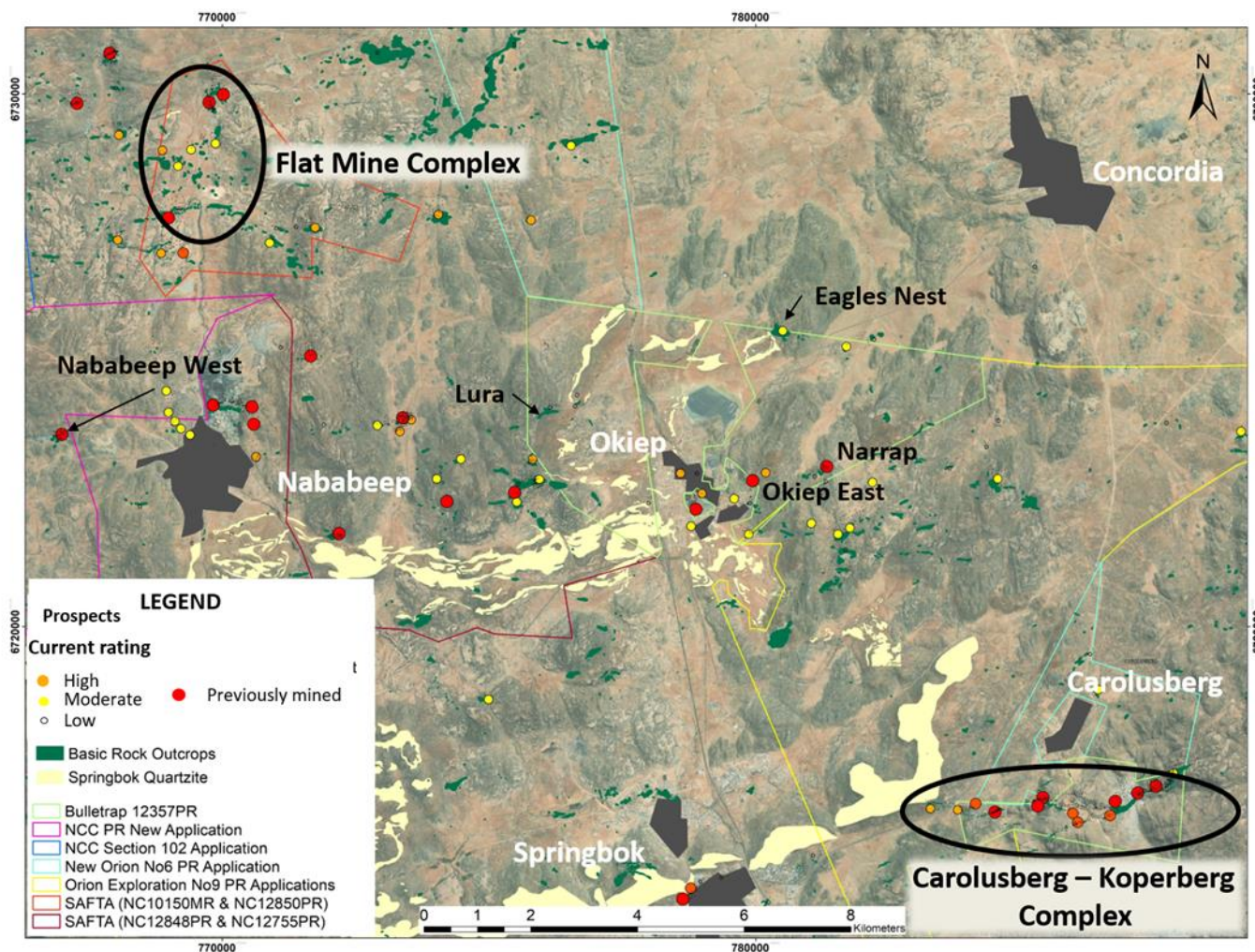


Figure 9: Locality map showing the Carolusberg – Koperberg and Flat Mine Complexes.

The following targets are currently being prioritised for exploration follow-up:

Koperberg – Carolusberg (Bulletrap PR)

- Shallow, potentially open pit targets (1, 2 and 3 on Figures 11 and 12) defined by:
 - Basic rock type outcrops with visible copper oxide mineralisation (Figure 10); and
 - Targets above historical mined areas not tested by historic drill holes.
- Deeper underground targets (4, 5 and 6 on Figures 11 and 12) defined by:
 - The upper and lower contacts of the favourable Springbok Quartzite / Schist horizon along the Koperberg – Carolusberg line of mafic intrusions (refer ASX release 2 February 2021). This is the same geology as Okiep, Nababeep South and Carolusberg Deeps;
 - A large undrilled area above drill intercepts (refer ASX release 21 May 2021) located immediately west of Carolusberg Deep; and
 - A large untested area adjacent to drill intercepts (refer ASX release 21 May 2021) located east of Carolusberg Deep and below Carolusberg East.

In addition, the line of mafic bodies extending west – south-west and east – north-east from the Koperberg East Deposit, warrants follow-up drilling. Two preliminary targets, 7 and 8 on Figure 11, have been prioritised.



Figure 10: Photo showing green malachite staining on mafic rocks outcropping at Koperberg West.

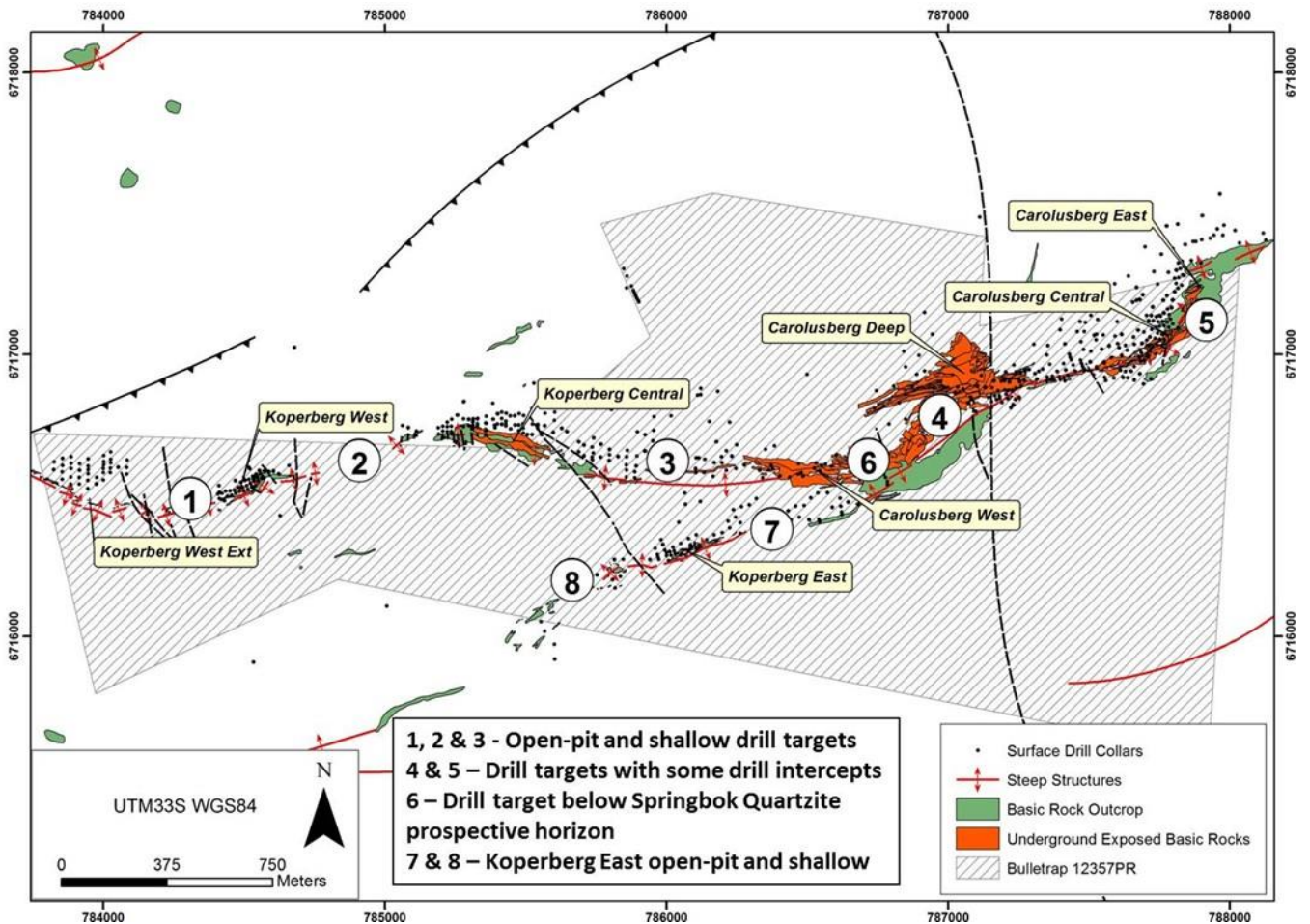


Figure 11: Surface plan of the Carolusberg – Koperberg Complex showing targets 1 to 8.

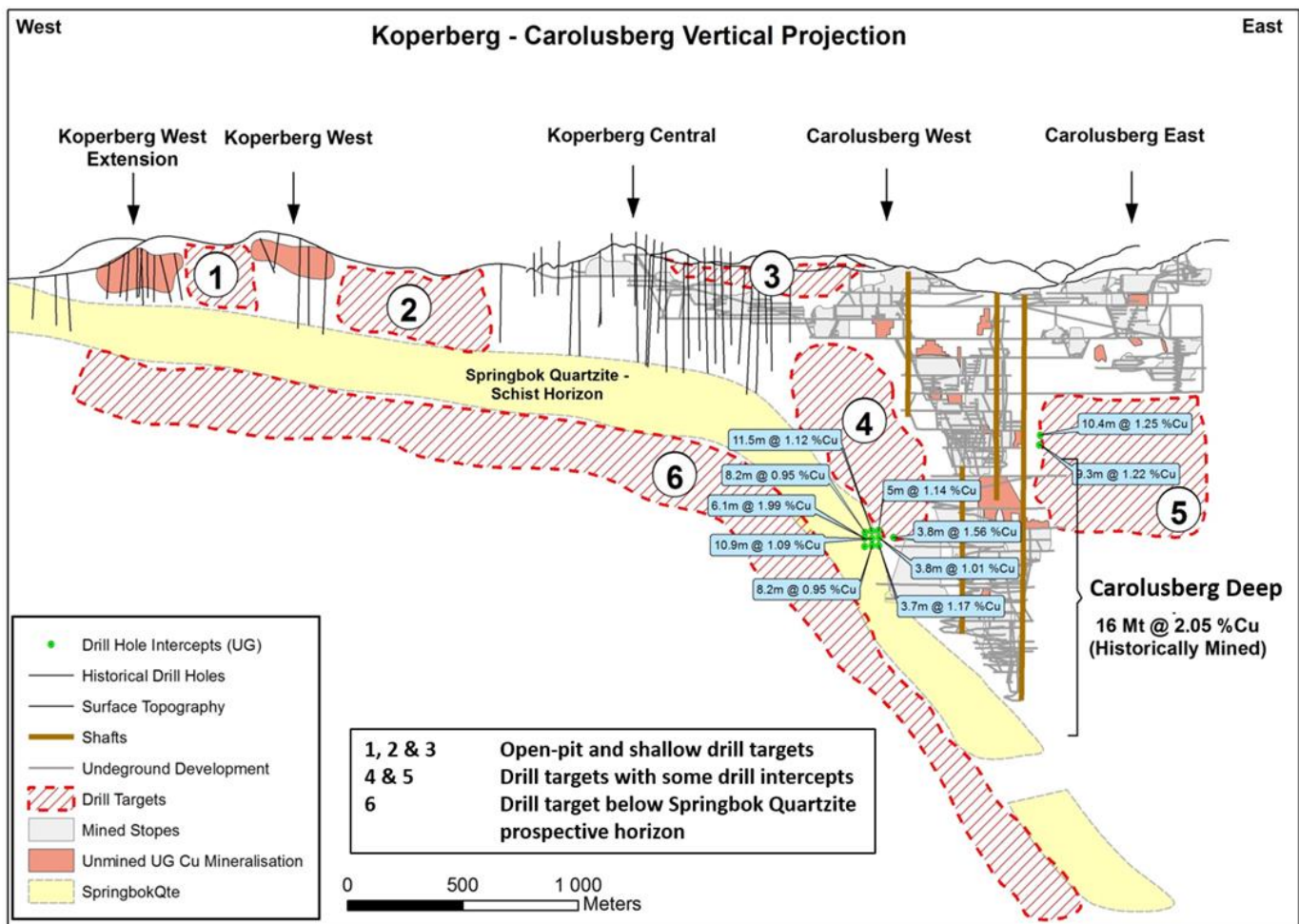


Figure 12: Longitudinal projection of deposits along the Carolusberg – Koperberg Line of historic copper mines.

In addition to the drill targets identified on the Carolusberg – Koperberg line, Orion is currently evaluating the potential of drill targets described in Table 3 below and shown on Figure 9:

Target	Prospecting Right	Description
Okiep East	Bulletrap	Potential exists for additional mineralisation within the mine and near mine area along strike and down dip. Numerous untested strong magnetic anomalies remain to be investigated.
Narrap	Bulletrap	Potential exists for additional mineralisation in the near mine area along strike and down dip. Some magnetic anomalies in the area have not been fully investigated.
Eagles Nest	Bulletrap	Potential exists for additional mineralisation in the near mine area along strike and down dip. Limited historical surface drilling was done at this prospect.
Nababeep West Mine	NCC	Potential exists for additional mineralisation in the near mine area along strike and down dip.
Nababeep North Mine Extension West	Bulletrap	Potential still exists for additional copper mineralisation on the westward extension of the high-grade Nababeep (North) Mine.
Lura	Bulletrap	Potential for higher grade mineralisation exists at the untested mafic rock – Springbok Quartzite intersection. This target was not tested by historic exploration and limited drilling was carried out on the prospect.

Table 3: Potential drill targets (as shown on Figure 9).

Airborne Electromagnetic Survey

During the Quarter, Orion signed a Memorandum of Understanding (**MOU**) with the Council for Geoscience, Republic of South Africa (CGS) to collaborate on joint initiatives in the Northern Cape Province aimed at stimulating exploration activity and enhancing regional exploration targeting across this highly prospective region (see Corporate Section below).

One of the first joint projects undertaken under the MOU is a SkyTEM™ helicopter electromagnetic (**EM**) survey over Orion's Okiep District properties.

The regional survey commenced in late June 2021 and will cover an area of 1,827km², with 1,073 line kms flown at 1km line spacing. Orion's focused exploration area of 857km² will have a total of 6,157 line kms flown at 150m line spacing (Figure 14).

The average height of the helicopter borne survey is planned to range between 35m – 45m above ground level, collecting high quality data, including EM data, total magnetic intensity and residual magnetic intensity data. Various processed outputs and derivatives will be available to assist in target generation and prioritisation.

The instruments being used are the deep penetrating SkyTEM312HP with the 12.5 Hz, low frequency system and the Geometrics Caesium Vapour type 822A total intensity magnetometer.

The survey was expected to take approximately 5-6 weeks to complete, however, this timing has been extended by a number of weeks due to inclement weather.

The geophysical data collected will be used to map out structure and potential mineralised mafic intrusives.

Given the significant historic copper production and identified resources in the district, Orion is confident this first-time employment of high powered airborne EM tools will assist in identifying high priority drill targets aimed at the discovery of new high-grade copper deposits.



Figure 13: SkyTEM™ fly-over at Carolusberg Mine (defunct shaft in foreground).

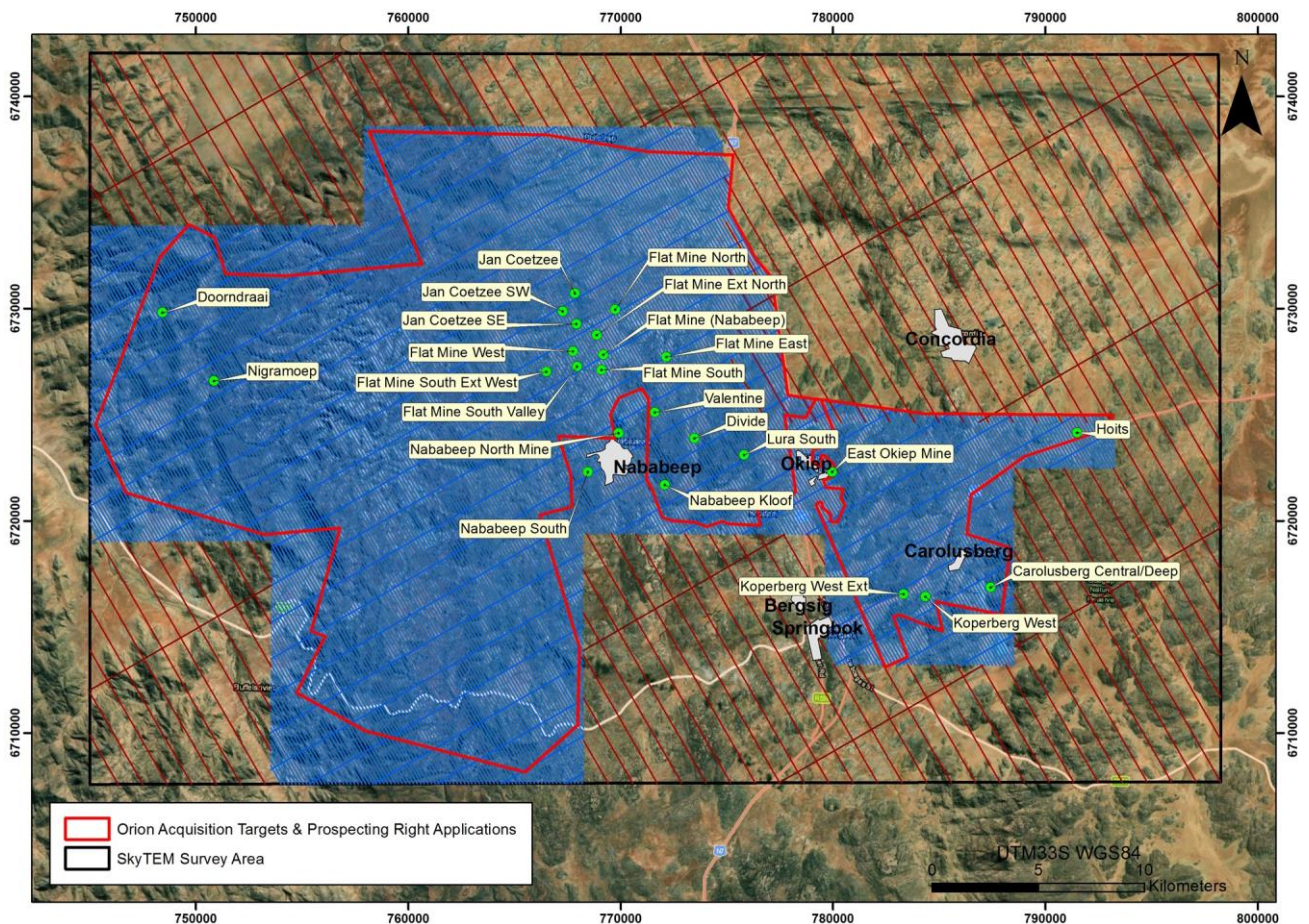


Figure 14: Okiep Copper Project – SkyTEM™ geophysical survey (also showing known historical mines and Cu prospects).

Australian Projects

Fraser Range – Nickel-Copper Projects (Western Australia)

Orion maintains a sizeable tenement package in the Fraser Range Province of Western Australia in joint venture with IGO Limited (ASX: IGO) (refer ASX release 10 March 2017). Under the terms of the joint venture, IGO is responsible for all exploration on the tenements and provides regular updates to Orion on activities and results.

Importantly, Orion maintains an exposure to the ongoing exploration and development of the Fraser Range Project without additional financial commitment, given that Orion is free-carried through to the first pre-feasibility study on any of the tenements.

During the Quarter, IGO completed work within eight of the joint venture tenements. The work included a high temperature Squid moving loop EM survey and review of results from drill core submitted to Canadian University for thin section and mineralogy mapping. The report and mineral mapping scan results were still awaited at Quarter end.

Planned work programs for the first half of FY22 field season consist of MLEM survey, air-core and diamond drilling along with heritage and environmental approvals. Ranking and review of all 13 targets is being undertaken, with four targets scheduled to be tested with diamond drilling commencing in the September 2021 Quarter (Figure 15).

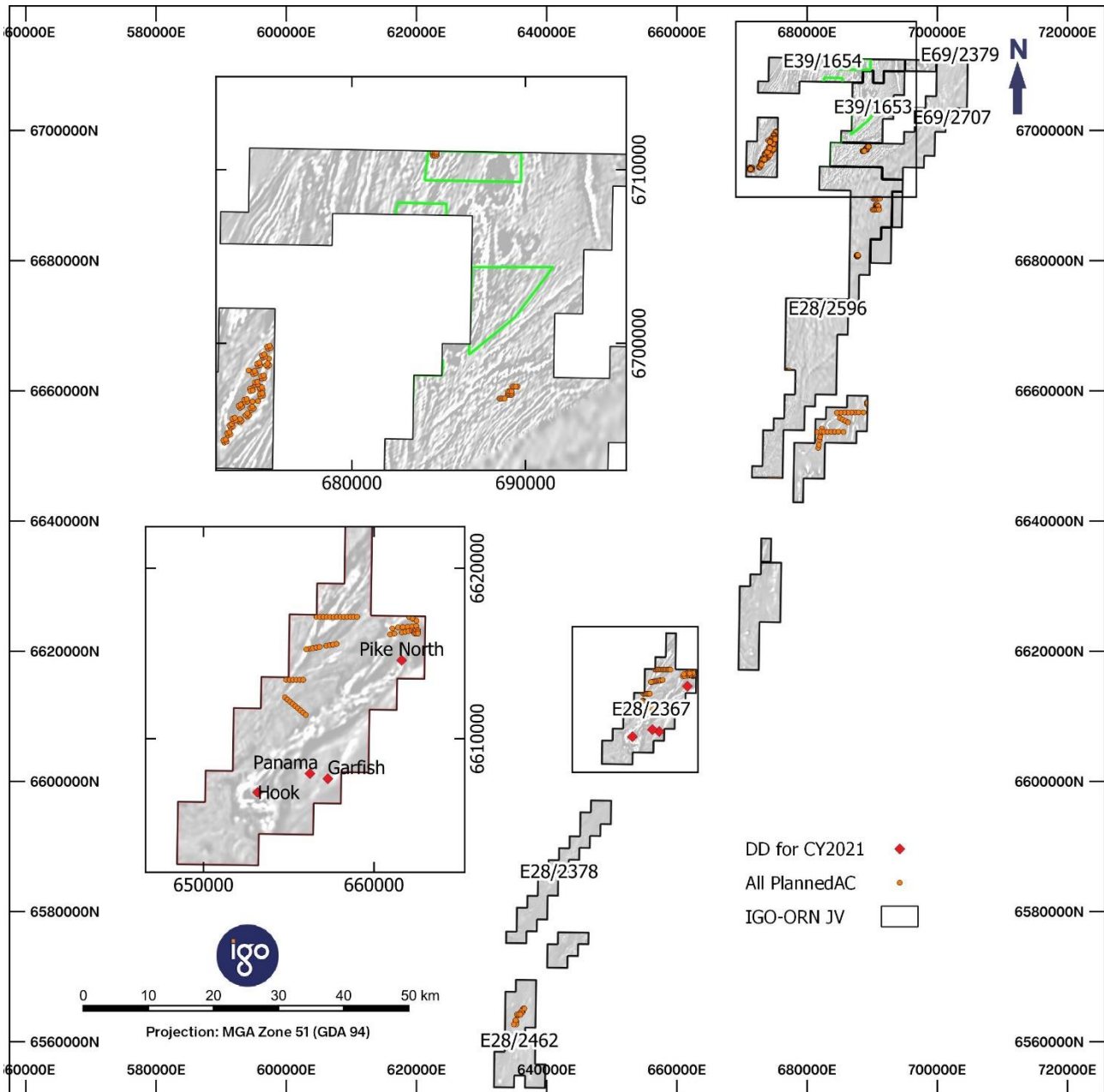


Figure 15: ORN-IGO JV prospects outlining proposed programs of work for first half of FY22.

Walhalla Gold and Polymetals Project (Victoria)

While the Walhalla-Woods Point District is best known for gold mining, high-grade copper-nickel and PGE mineralisation also occurs within the belt. Both the gold and copper-nickel-PGE mineralisation within this district are hosted within dykes from the Woods Point Dyke Swarm (WPDS), a series of ultramafic to felsic dykes occurring over a 75km long north-south belt.

No field or exploration work was carried out on the Victoria Project during the Quarter. During the Quarter, the Company continued to progress its licence applications over prospective areas of Walhalla.

Corporate

Cash and Finance

Cash on hand at the end of the Quarter was \$20.5 million. Payments made to related parties and their associates during the Quarter was \$181k and relates to Director fees and consulting fees, as listed in Section 6 of the Company's Quarterly Cash Flow Report (Appendix 5B).

MOU with South Africa's Council for Geoscience

During the Quarter, Orion signed a Memorandum of Understanding (**MOU**) with the Council for Geoscience, Republic of South Africa (**CGS**) to collaborate on joint initiatives in the Northern Cape Province, aimed at stimulating exploration activity and enhancing regional exploration targeting across this highly prospective region.

Under the MOU, Orion and the CGS will co-operate on matters of common interest, particularly in respect of national priorities, research, geoscientific advice and development.

The parties will benefit by cooperating on joint exploration initiatives and the exchange of information, scientific and technical personnel and research into subjects of mutual interest. The main purpose is to enable a two-way flow of knowledge, information and collaborative research aimed at stimulating exploration activity and potentially unlocking a new generation of mineral discoveries in the Northern Cape Province.

Under the terms of the MOU, exchange and cooperation is intended to be conducted in the following ways:

- Skills development;
- Capability and capacity augmentation;
- Joint project development and implementation;
- Implementation of high-resolution in-fill surveys;
- Data, information and knowledge sharing;
- Technology development and implementation; and
- Other forms of cooperation as may be mutually agreed upon by both Parties.

The parties intend to enter into formal written agreements on specific cooperative projects, with the scope for cooperation expected to include activities such as:

- Geoscientific professional services and/or advice;
- Geophysical surveys; and
- Projects of mutual benefit, as agreed to by both parties in writing.

Subject to mutual agreement, other areas of cooperation may be identified subject to the resources and capacity of the parties.

Convertible Loan Facility

In January 2019, Orion announced that a \$3.6 million unsecured convertible loan facility had been agreed with Tembo Capital Mining Fund II LP (**Tembo Capital**) (**Convertible Loan Facility**).

Under the terms of the Convertible Loan Facility, Tembo Capital may elect for repayment of the balance of the Convertible Loan Facility (including capitalised interest and fees) (**Outstanding Amount**) to be satisfied by the issue of fully paid ordinary shares (**Shares**) by the Company to Tembo Capital at a deemed issue price of \$0.026 per Share (subject to shareholder and Foreign Investment Review Board (**FIRB**) approvals).

In accordance with the terms of the Convertible Loan, Tembo Capital elected to receive repayment of the Outstanding Amount by the issue of Shares (subject to shareholder approval and FIRB approval).

Following the receipt of both shareholder approval and FIRB approval, on 28 June 2021 Orion issued 191.6 million Shares at a deemed issue price of \$0.026 per Share in consideration for repayment of amounts owing to Tembo Capital under the Loan Facility.

Anglo American sefa Mining Fund – Loan

During the Quarter, Orion reached agreement with Anglo American sefa Mining Fund (**AASMF**) to extend the term of the ZAR14.25 million Loan Facility from 30 April 2021 to 31 October 2021.

In November 2015, PCZM, (a 70% owned subsidiary of Orion) and AASMF, entered into a ZAR14.25 million loan agreement for the further exploration and development of the Prieska Project (**Loan Facility**). Under the terms of the Loan Facility, on 1 August 2017, AASMF advanced ZAR14.25 million to PCZM. The key terms of the Loan Facility are:

- Loan amount: ZAR14.25 million (~\$1.32 million);
- Interest: Prime lending rate in South Africa;
- Repayment date: 31 October 2021 (previously 30 April 2021); and
- Security: 29.17% of the shares held in PCZM by Agama Exploration and Mining (Pty) Ltd (a wholly owned subsidiary of Orion), have been pledged as security to AASMF for the performance of PCZM's obligations in terms of the Loan Facility.

As at 30 June 2021, the balance of the Loan Facility was ZAR20.36 million (~\$1.89 million) (including capitalised interest).

Tenement Table

Tenement	Project	Ownership Interest	Change in Quarter	Joint Venture Partner
South Africa				
NC30/5/1/1/2/11850PR	Bartotrax	100%	---	---
NC30/5/1/2/2/10138MR	Prieska Copper-Zinc Mine	70%	---	---
NC30/5/1/2/2/10146MR	Prieska Copper-Zinc Mine	70%	---	---
NC30/5/1/1/2/11840PR	Doonies Pan	70%	---	---
NC30/5/1/2/2/10032MR	Namaqua-Disawell	25%	---	Namaqua Nickel Mining (Pty) Ltd
NC30/5/1/1/2/12216PR	Namaqua-Disawell	25%	---	Namaqua Nickel Mining (Pty) Ltd
NC30/5/1/1/2/10938PR	Namaqua-Disawell	25%	---	Disawell (Pty) Ltd
NC30/5/1/1/2/11010PR	Namaqua-Disawell	25%	---	Disawell (Pty) Ltd
NC30/5/1/1/2/00816PR	Masiqhame	50%	---	Masiqhame 855 (Pty) Ltd
NC30/5/1/1/2/12197PR	Orion Exploration No.1	70%	Granted	---
Western Australia				
E28/2367	Fraser Range	30%	---	IGO Limited
E28/2378	Fraser Range	30%	---	IGO Limited
E28/2462	Fraser Range	30%	---	IGO Limited
E28/2596	Fraser Range	30%	---	IGO Limited
E39/1653	Fraser Range	35%	---	IGO Limited & Geological Resources Pty Ltd
E39/1654	Fraser Range	10%	---	IGO Limited & NBX Pty Ltd
E69/2379	Fraser Range	10%	---	IGO Limited & Ponton Minerals Pty Ltd
E69/2380	Fraser Range	10%	---	IGO Limited & Ponton Minerals Pty Ltd
E69/2707	Fraser Range	10%	---	IGO Limited & Ponton Minerals Pty Ltd

This Quarterly Report is authorised by the Board.