



## Orion Minerals

ASX/JSE RELEASE: 28 October 2021

# September 2021 Quarterly Activities Report

## HIGHLIGHTS

### DEVELOPMENT

- ▶ Project funding discussions continued for the fully-permitted Prieska Copper-Zinc Project in South Africa's Northern Cape, with the Independent Technical Review of the updated Bankable Feasibility Study nearing completion.
- ▶ Orion exercised its option to acquire a controlling interest in several properties within the Okiep Copper Project (OCP), also in the Northern Cape region. A separate option was exercised to acquire +60 years of mining and exploration records and data held by the O'Okiep Copper Company.
- ▶ The OCP acquisition was restructured with Orion directly acquiring the mineral rights and other assets held by Southern African Tantalum Mining (Pty) Ltd (SAFTA), Nababeep Copper Company (Pty) Ltd (NCC) and Bulletrap Copper Co (Pty) Ltd (BCC), rather than the entities themselves.
- ▶ South Africa's Industrial Development Corporation (IDC) signalled its intention to become a key strategic partner with Orion in the development of the New Okiep Mining Company (a subsidiary of Orion) and the OCP.

### EXPLORATION

- ▶ High-priority exploration targets were identified along the Koperberg-Carolusberg line at the OCP, to be validated with twin and in-fill drilling ahead of the estimation of Mineral Resources.
- ▶ A 1,872km<sup>2</sup> high-powered SkyTEM™ airborne electromagnetic (EM) survey was successfully completed over the OCP with 7,348 line-kms flown, covering 26 historical copper mines and approximately 150 known copper prospects.
- ▶ Sixteen 'late-time' EM targets were detected from an initial review of the data with several conductors identified close to known copper deposits. These targets will now be prioritised and refined with ground-based EM surveys to finalise drilling targets.
- ▶ Subsequent to Quarter-end, diamond drilling at Orion's Masiqhame Prospecting Right has intersected sulphide mineralisation up-dip of a high-priority EM target at the Bokspots Prospect, with drilling of a follow-up wedge hole now underway vectoring towards increasing sulphide content.

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

*"The September Quarter marked another very busy and productive quarter as we took further important steps towards our goal of becoming a major diversified base metals producer in the Northern Cape Province, ready to supply critical metals for the impending global energy transformation."*

*"Just six months after making headlines in South Africa by securing an exclusive option to secure a controlling interest in the world-class Okiep copper district, we formally exercised our option to acquire the asset under a restructured arrangement which saw us acquire the mineral rights directly rather than the corporate entities originally subject to the agreement. We simultaneously exercised the option to acquire the vast mining and exploration database which we negotiated earlier this year."*

"The speed with which we have delivered maiden JORC Resources, completed a Scoping Study, finalised due diligence and completed the acquisition of the OCP is a credit to our hard-working team – paving the way for the next stage of Orion's growth as a leading new-generation base metals company."

"At the same time as completing the acquisition, we immediately embarked on extensive exploration programs at the OCP and completed the landmark SkyTEM™ survey, which has already revealed several high quality EM targets that will now be prioritised for exploration."

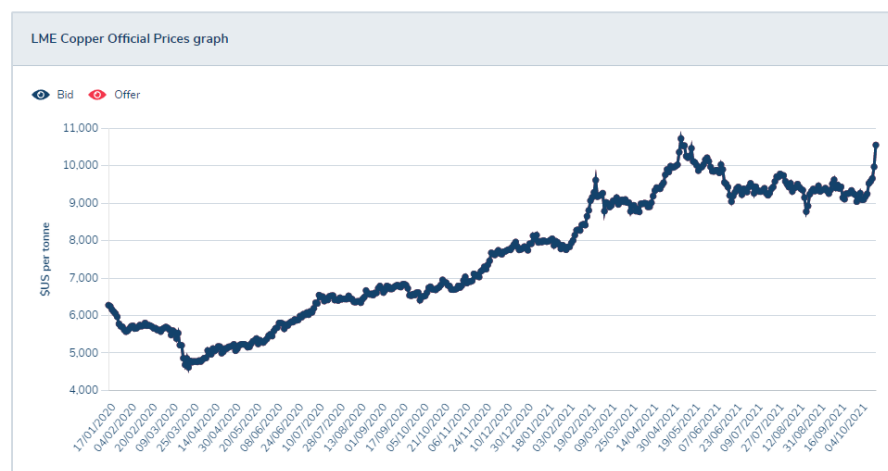
"On other fronts, we continued to work very hard behind the scenes on financing and strategic partnering arrangements for the world-class Prieska Copper-Zinc Project. The Independent Technical Review of the updated BFS is nearing completion and we hope to update the market on our progress in this regard during the December Quarter."

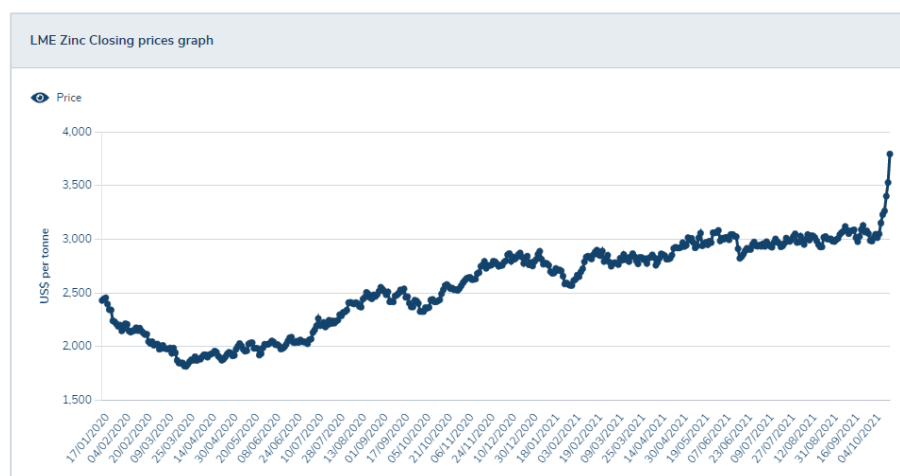
## Commodity Markets

Copper prices (along with other base metals) and global markets generally were impacted during the Quarter by a combination of factors including rising rates, inflation fears, concerns about the Chinese property market, energy shortages in China and Europe and surging US gas prices. Copper prices ended the Quarter close to the US\$4 a pound level after losing around 2% for the Quarter.

Zinc prices increased to a seven-week high towards the end of the Quarter after zinc inventories in warehouses monitored by the Shanghai Futures Exchange slid to 29,204 tonnes, the lowest level since September 2007.

Both copper and zinc prices jumped sharply by mid-October, with the copper price surging to a record high of US\$10,538 per tonne as freely available LME copper stocks fell to the lowest level since 1974. The zinc price rose by 8.2% to US\$3,846 per tonne, the highest level since early 2007. This was after production cuts were announced by Nyrstar and Glencore due to the energy crisis in Europe.





Source: London Metal Exchange

## 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 FY2022 are shown below:

**Table 1: Hours worked at the Group's Areachap Projects and Okiep Copper Project (South Africa).**

Category of Work	Hours Worked	
	Quarter	FY22 Total
Exploration	20,644	20,644
Mine Re-Entry	3,336	3,336
Contractors	20,363	20,363
<b>Total</b>	<b>44,343</b>	<b>44,343</b>

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. The South African Government moved the country from Alert Level 4 to Alert Level 3 toward the end of September 2021.

Three cases of infection with the SARS-Coronavirus 2 have been reported amongst Company employees or contractors to date, with no new cases during the Quarter. 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 Vaccinations

With registration and vaccination of the over- 18 age group in full swing Siyathemba community members have taken full advantage of the opportunity to get their vaccinations at the Bill Pickard Hospital pharmacy.

Orion played a key role in ensuring that the Siyathemba community is able to access the national Covid-19 vaccine rollout close to home by buying a specialised fridge for the hospital pharmacy, allowing it to be accredited as a Covid-19 vaccination centre. Before the pharmacy's accreditation, the closest accredited vaccination centre within the Pixley Ka Seme District was in De Aar, 180km from Prieska.

Vaccinations started in late June 2021 and 9,045 members of the community had been vaccinated by the end of the September 2021 Quarter.

#### 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 opportunities.

The first batch of bicycles were handed over in August 2021 to the Prieska Primary School. Beneficiaries of the bicycles were identified by the distance walked to school each day. Bicycles will now be distributed to each of the other eight schools in the Siyathemba and Vanwyksvlei areas in order to further enhance the objective of improving scholar mobility.

#### Secondary School students

During the Quarter, Orion committed to sponsoring one round trip of transport per month each for Marydale scholars (who reside close to Orion's Marydale Project) attending Saul Damon Secondary School in Upington (nearly 200kms away). This sponsorship will allow students to return home over weekends while the school boarding houses are closed over the weekends due to COVID-19 restrictions.

#### Mobile Office

The Company has initiated the use of a mobile community liaison office which will travel around Siyathemba and Vanwyksvlei on a rotational basis. Plans are underway for a community liaison office for the Okiep Copper Project to be opened in Springbok in the December 2021 Quarter.

### **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 / JSE release 26 May 2020). Updates to Environmental Permitting are being finalised and progress continues on the selection of the EPCM contractor. Preliminary site works have been completed 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. A submission has previously been made to the Department of Mineral Resources and Energy (DMRE) and, subsequent to Quarter-end, approval was received for the addition of the Reverse Osmosis and Irrigation for the water treatment process. The second part of the Amendment submission to the Department of Human Settlements, Water and Sanitation (**DHSWS**) regarding the Integrated Water Use Licence remains in progress, with the submission being imminent.

**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, the Prieska Copper-Zinc Mine (**PCZM**) is exempt from requiring a permit as the Project site falls outside the 30km declared area to the nearest SKA infrastructure. A review meeting was held with the SKA management during the Quarter and the permitting process remains on track.

### EPCM Contract

Input from potential debt funders is being considered for the EPCM contracting strategy, which will extend the selection process into the March 2022 Quarter.

### 4IR Roadmap

Work continued during the Quarter with a specialised 4IR consulting company, RAMJACK Technology Solutions, which is working with PCZM on compiling a 4IR Technology Roadmap. This Roadmap will identify the areas within the Project where specialised 4IR technologies can be installed in line with Orion's strategy of building a modern mining operation. The first phase of information gathering was completed and Phase 2 is underway to identify potential vendors that will supply the proposed technologies. Phase 3 will develop 4IR solutions for the relevant areas of the Project.

### Project Execution Preparations

The option to commence with the dewatering of the underground mine workings ahead of a final investment decision is being investigated. This early pumping would serve to test feasibility study concepts and commence mine dewatering, albeit at a lower pumping rate of 500m<sup>3</sup>/h, ahead of the full-scale pumping project being commissioned. The capital cost and schedule are being refined for the plan to be finalised during the December Quarter. If approved for implementation, the pumping plan will be presented to the DHSWS before commencing with the pumping activities. Early commencement of dewatering will have a positive impact on the project execution timeline.

Following on from the multi-disciplinary Project Execution workshop held last Quarter, 10 areas were identified for further investigation. These workstreams have been progressing with dedicated workshops and, as they are completed, will feed into the Project Charter document. SHE, Governance and Stakeholder Management workshops have been completed. 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. One of the 10 areas identified is the local procurement, contracting and enterprise development strategy. A community meeting was recently held with the Siyathemba Stakeholders Forum to share the Project's high-level localisation strategy and to consider the Forum's expected localisation targets. As part of the strategy, Orion has facilitated the registration of 53 local companies onto a database that will provide information to the Project about their capabilities and localisation opportunities. Individuals from the Siyathemba area have also registered on the database and, to date, 1,844 CVs have been uploaded. This will assist larger contractors to prioritise preferred local employment. Localisation opportunities are being mapped out for both the construction and operational stages of the Project.

## Process Plant Operations

Minerals Operations Executive (Pty) Ltd (**Minopex**) provided an updated and amended proposal for the contract operations of the processing plant. It has been agreed that Minopex will add the running and management of the plant laboratory to its operations. Work is progressing on 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 the December 2021 Quarter.

## Underground Mining Contract

A set of pre-selection criteria was completed during the Quarter in order for Orion to determine which potential contractors will be taken forward into a Request for Proposal process. A detailed mine planning process has started which will provide the scope of work supporting the anticipated initial five-year contract. Selection of a preferred underground contractor is expected to be made during Q2 2022. Discussions with potential contractors have also taken place to assist in determining appropriate contracting arrangements, payment mechanisms and localisation strategies.

## Infrastructure

*Power Supply* – a revised edition of a security guarantee was received from Eskom for the 15 MVA Feeder Bay Self-build agreement. The payment mechanism for the guarantee has been finalised and the contract pack will now be returned to Eskom. Deposits have been paid for long-lead electrical switchgear items for the feeder bay upgrade. This will enable the Cuprum sub-station to be connected for construction power during Q2 2022. Site-wide power reticulation has also been designed to accommodate the early de-watering plan mentioned above.

*Water Supply* – the Alkantpan Water Pipeline Agreement has been reviewed and approved by all parties and final signature is expected by Armscor management.

## 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 December 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.

## **Okiep Copper Project**

Orion took another key step in its strategy to become a leading diversified international base metals producer during the Quarter, after exercising its exclusive option to acquire a controlling interest in the majority of the properties comprising the **Okiep Copper Project (OCP)**, located approximately 570km north of Cape Town in the Northern Cape Province of South Africa (Figure 1 and Figure 2). In addition to the OCP Option acquisition, Orion has also applied for additional Prospecting Rights to supplement the OCP mineral rights.

The mineral rights holding of OCP are intended to be held by two newly formed Orion companies, namely the New Okiep Exploration Company (Pty) Ltd (**New Okiep Exploration Co**) (initially 100% Orion) and the New Okiep Mining Company (Pty) Ltd (**New Okiep Mining Co**) (initially 56.3% Orion: 43.7% Industrial Development Corporation (**IDC**)). Both of these entities will in future include empowerment partners in compliance with Mining Charter 2018.

In parallel, the Company has also exercised its option to acquire the database owned by the O'Okiep Copper Company (and its affiliates), including all historical mining and exploration records for the OCP covering more than 60 years of production history.



The OCP is a significant growth opportunity as it could become a second base metal production hub for Orion in the Northern Cape alongside the Prieska Copper-Zinc Project, located 450km east of the OCP (Figure 1).

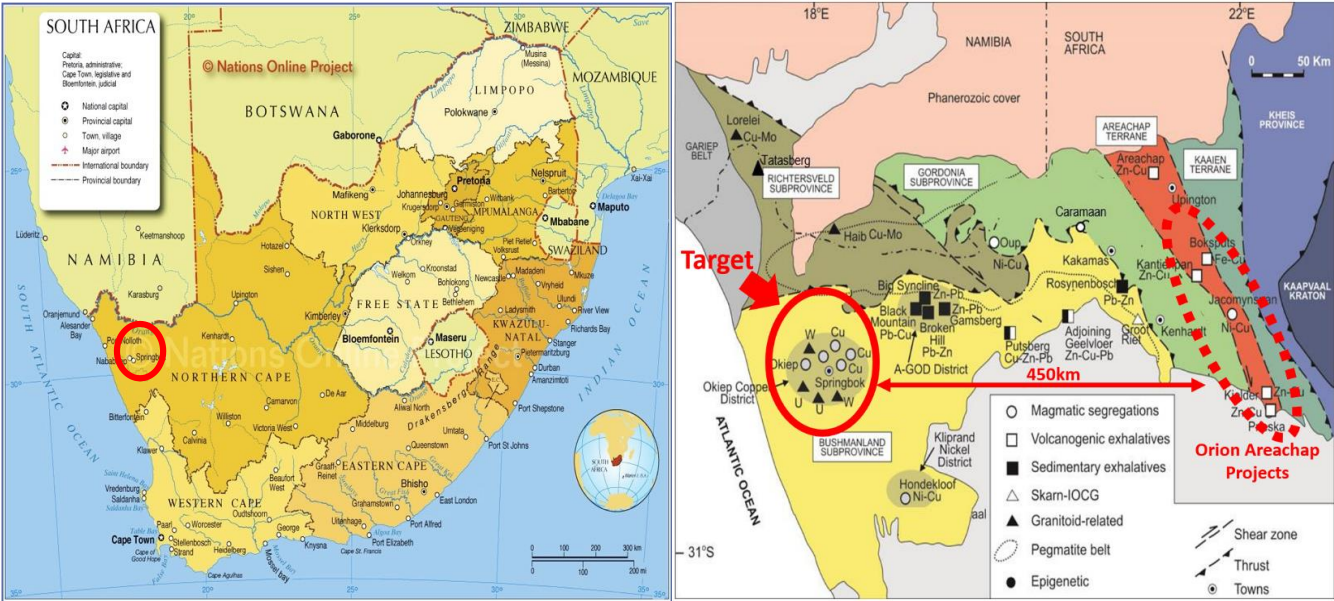


Figure 1: Location of the Okiep Copper Project (Okiep Project) in relation to Orion's existing Areachap projects.

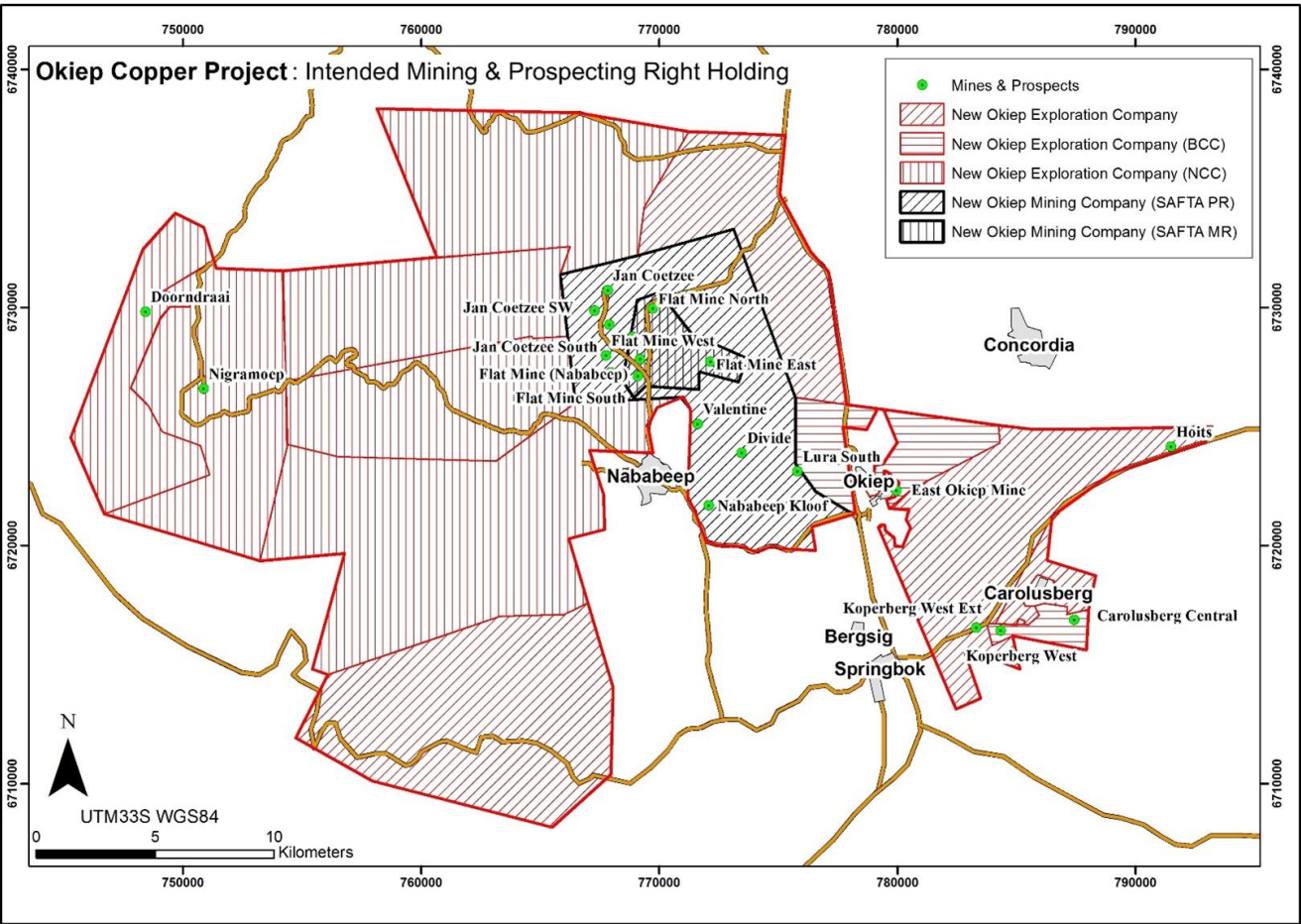


Figure 2: Location of the Okiep Copper Project (Okiep Project) Mineral rights.

The OCP Option has been restructured since the initial OCP Option Agreement was announced on 2 February 2021, with Orion now directly acquiring the assets held by Southern African Tantalum Mining (Pty) Ltd (**SAFTA**), Nababeep Copper Company (Pty) Ltd (**NCC**) and Bulletrap Copper Co (Pty) Ltd (**BCC**), rather than the entities themselves.

These entities hold the majority of the large, historical mines in this significant copper-producing district, which has produced more than 2Mt of copper metal over a 150-year period to 2003. The mineral rights include numerous existing drilled copper orebodies with decline mine access and services in place.

Since signing the OCP Option Agreement, Orion has undertaken extensive due diligence work at the OCP, including the completion of JORC compliant Mineral Resource Estimates for an initial six deposits totalling 11.5 million tonnes grading 1.4% copper for 159,000 tonnes of contained copper (refer ASX / JSE release 29 March 2021).

In addition, the Company also completed a positive Scoping Study (refer ASX / JSE release 3 May 2021), which demonstrated the economic merit of developing a foundation phase mining operation at the OCP while Orion conducts the required work and engineering studies to support its aspiration for achieving a larger mining operation with production at a similar scale to past owners Newmont and Goldfields who produced 30,000 - 40,000 tonnes per annum of copper.

Orion's objective of rapidly expanding the Mineral Resource base at the OCP is supported by the exercise of a separate option agreement to acquire the extensive historical mining and exploration database held by the O'Okiep Copper Company (and its affiliates) (refer ASX / JSE release 15 February 2021), covering more than 60 years of production and exploration history.

#### **SA's Industrial Development Corporation to Become a Strategic Partner**

During the Quarter, Orion's development strategy for the OCP received a significant boost after the Industrial Development Corporation of South Africa Limited (**IDC**) signalled its intention to become a key strategic partner in the OCP's future development.

As part of this, it is envisaged that the IDC will be a strategic shareholder in the New Okiep Mining Company (Pty) Ltd (**NOMC**). This newly-created Orion subsidiary that will hold the SAFTA assets and be responsible for advancing its development as a potential second base metals production hub for the Company in the Northern Cape region. The shareholding in NOMC will in the future, include empowerment partners in compliance with the requirements of the Mining Charter 2018.

With the IDC currently being a 43.75% shareholder in SAFTA, one of the suspensive conditions to the SAFTA Transaction was that the IDC was required to approve the SAFTA shareholder resolution regarding the SAFTA Transaction as well as become a party to the relevant transaction agreements relating to the SAFTA Transaction, being the SAFTA Asset Acquisition Agreement and the Transaction Cooperation Agreement.

These suspensive conditions have now been satisfied. The IDC has approved the SAFTA shareholder resolution regarding the SAFTA Transaction and becoming a party to the SAFTA Asset Acquisition Agreement and the Transaction Cooperation Agreement. In doing so, the IDC has signalled its intention to become a key strategic partner along with Orion in developing NOMC and the OCP.

There remain various other suspensive conditions to implementing the OCP Option, as set out in Orion's ASX / JSE announcement released on 2 August 2021, which Orion and the other transaction parties are making good progress towards completing.



## Okiep Project Operational Activities

### Environmental Management

*Environmental Authorisation (EA)* – Environmental Authorisation for the Flat Mines Project has been received. This is one of three key authorisations required from the Authorities before Mining Operations may commence. The Mining Right Application is in process, and work on the Water Use Licence Application is progressing

*Water Use Licence Application (WULA)* – The drafting of the WULA requires a number of studies to be completed by various Environmental Specialists. ABS – Africa have been contracted to appoint all the required specialists and to consolidate their reports into the WULA covering all necessary aspects required for approval.

*Tailings Storage Facility (TSF)* – The design of the TSF is a key component of the WULA. EPOCH (Pty) Ltd, specialist TSF design Engineers, have been commissioned to undertake the detailed Engineering of the TSF to Bankable standards. A site selection process looking at alternative sites for evaluation is nearing completion.

### Occupation of OCC Offices and Exploration Data Capture

The legal transfer process of the OCC Office Complex, acquired as part of the acquisition of the data, is underway. Occupation of the offices by Orion has been affected.

The capture and processing of historic exploration data acquired from Okiep Copper Company (**OCC**) is in progress. All of the mapping and data in paper record has been secured in the recently acquired OCC Office complex and is being sorted and catalogued for reference. Digitisation of data is ongoing.

### Infrastructure

*Power Supply* – Applications for the establishment of a 10 MVA Electricity supply point has been submitted to both Eskom and the local NamaKhoi Municipality. In terms of the national Electricity supply regulations, either entity could potentially supply power to the new development.

### Community Liaison

Meetings have been held between Orion Management and the Municipal Management and Political leadership team to discuss Orion's vision for the Okiep operations. A cordial relationship has been established.

A Community Liaison office has been established in Springbok to facilitate access by and communications with the broader Community in the Namaqualand District

## New Okiep Mining Company Permitting

The status of the Mining Right and Prospecting Right Applications pertinent to the NOMC operations are as follows:

- Mining Right Application is being processed by the DMRE. A query regarding the Social and Labour Plan submitted in the application by SAFTA in 2018 was raised, resulting in a review of the SLP by Orion. The new SLP proposal has been accepted by the DMRE and is now with the Community for their participation in the process. It is understood that the review of the Mining Works Program by the DMRE is taking place concurrently with the CSR program review.
- SAFTA Prospecting Right Applications over the areas contiguous to the MRA area are still in process.
- Prospecting Rights held by Bulletrap Copper Company over the Koperberg area have been approved and executed. Exploration in this Rights Area is to commence shortly.

## Exploration at the Okiep Copper Project

Drilling has commenced on the Koperberg – Carolusberg line at the recently-acquired OCP, where historical Newmont/Goldfields-era drilling identified high-grade near-surface mineralisation that remains unmined.

The drilling program is designed to validate two zones of mineralisation at Koperberg West and Koperberg East (Figure 3), identified by high-density Newmont/Goldfields-era drilling, to prepare for the completion of Mineral Resource estimates.

At Koperberg West (Figures 4 and 5), drilling will test the down-dip and strike extensions of a shallow glory hole that has been mined to a depth of 35m below surface. At the un-mined Koperberg East body (Figures 6 and 7), drilling will verify high-grade intersections returned from historical drilling.

Both drill targets lie within 3,000m of, and on the same structural feature that has been mined to 1,900m depth at Carolusberg Deeps. Importantly, historical drilling from the north at Koperberg East may have missed down-dip mineralisation (Figure 7). Mineralisation mined 2,000m to the east, along strike at Carolusberg Deeps showed characteristic south-stepping down dip, en-echelon lenses (Figure 8).



Figure 3: Drill Targets on the Koperberg - Carolusberg Lines.

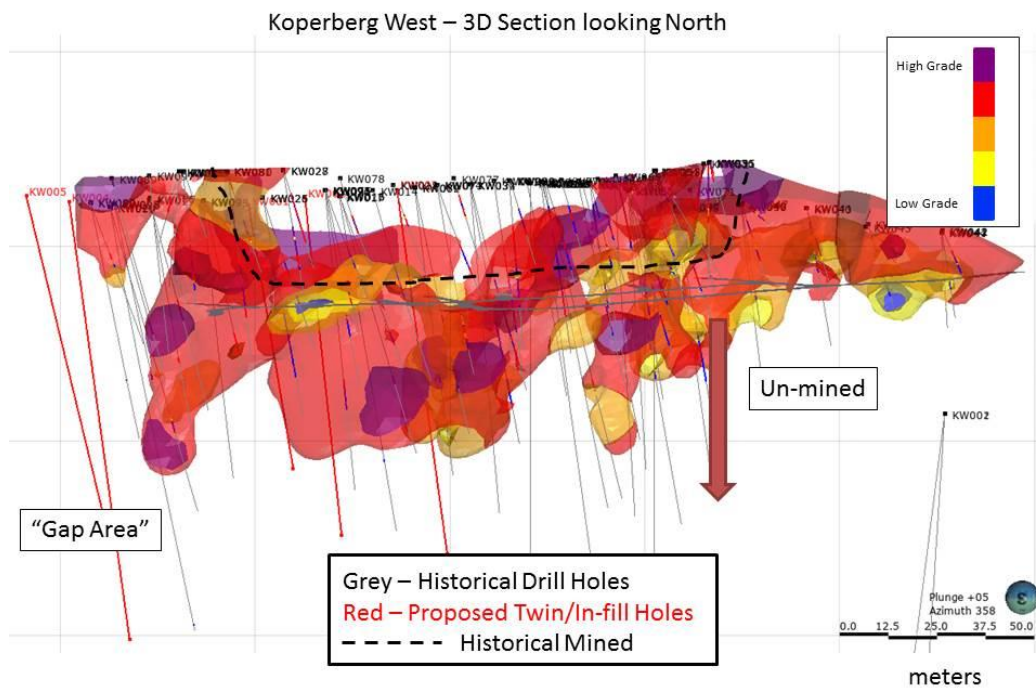


Figure 4: Historical intersections and geological interpretation at Koperberg West to be infilled and traced.

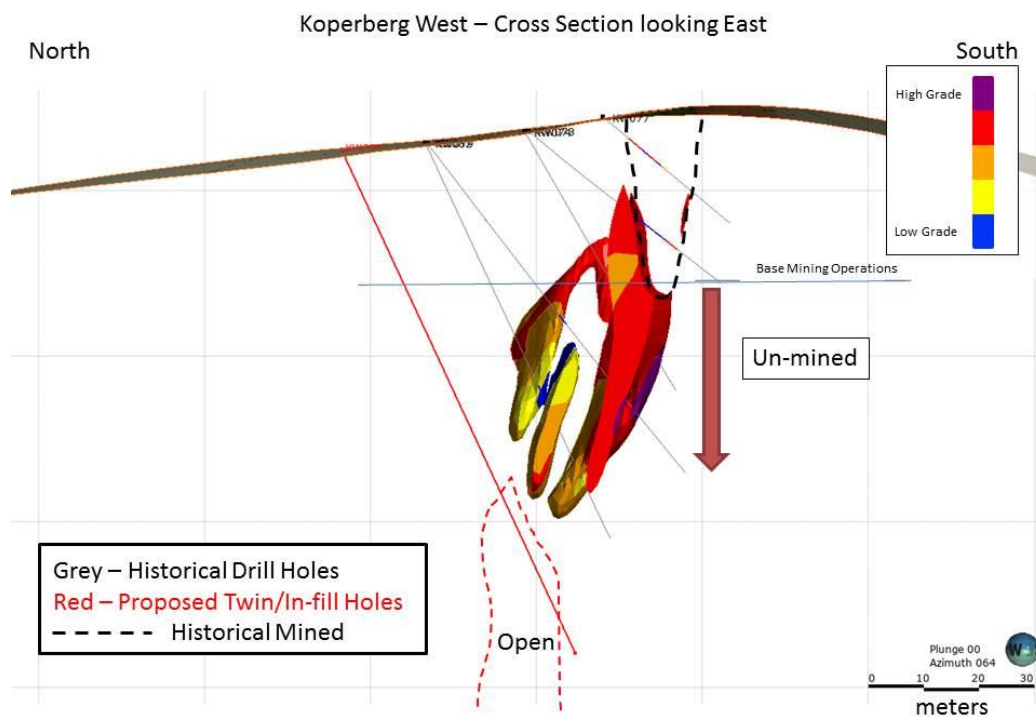


Figure 5: A typical cross section through historical drilling and mining at Koperberg West.

### Koperberg East – 3D Section looking North

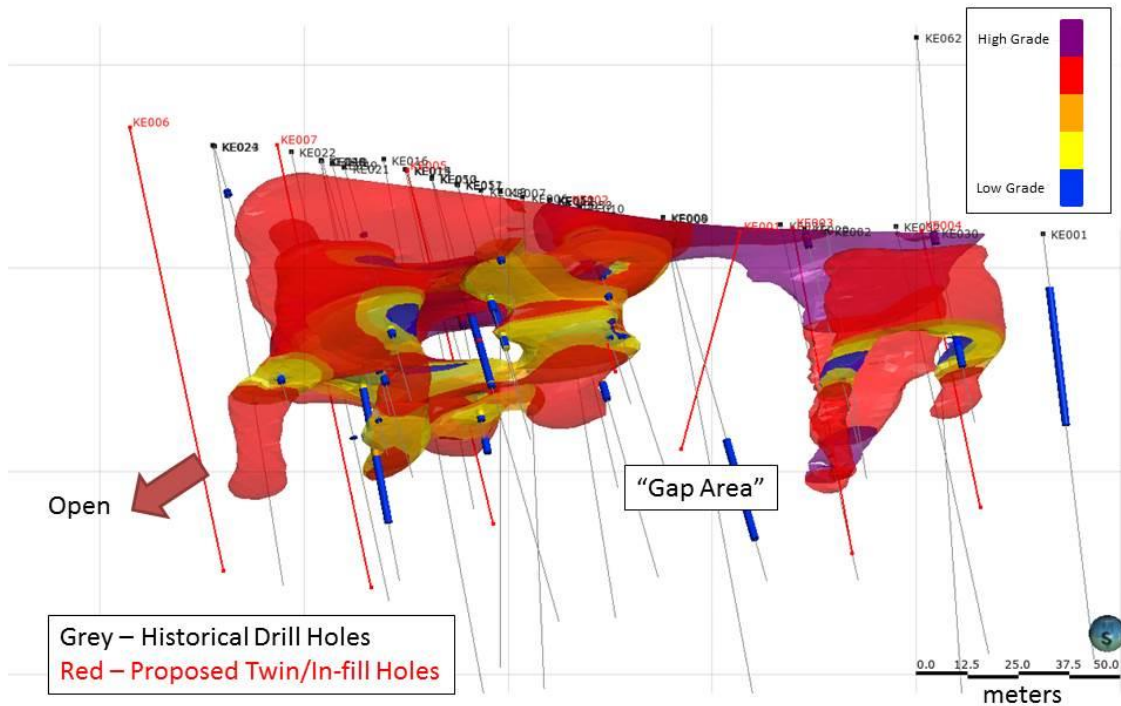


Figure 6: Historical drilling at Koperberg East to be twinned, infilled and tested along strike and down dip.

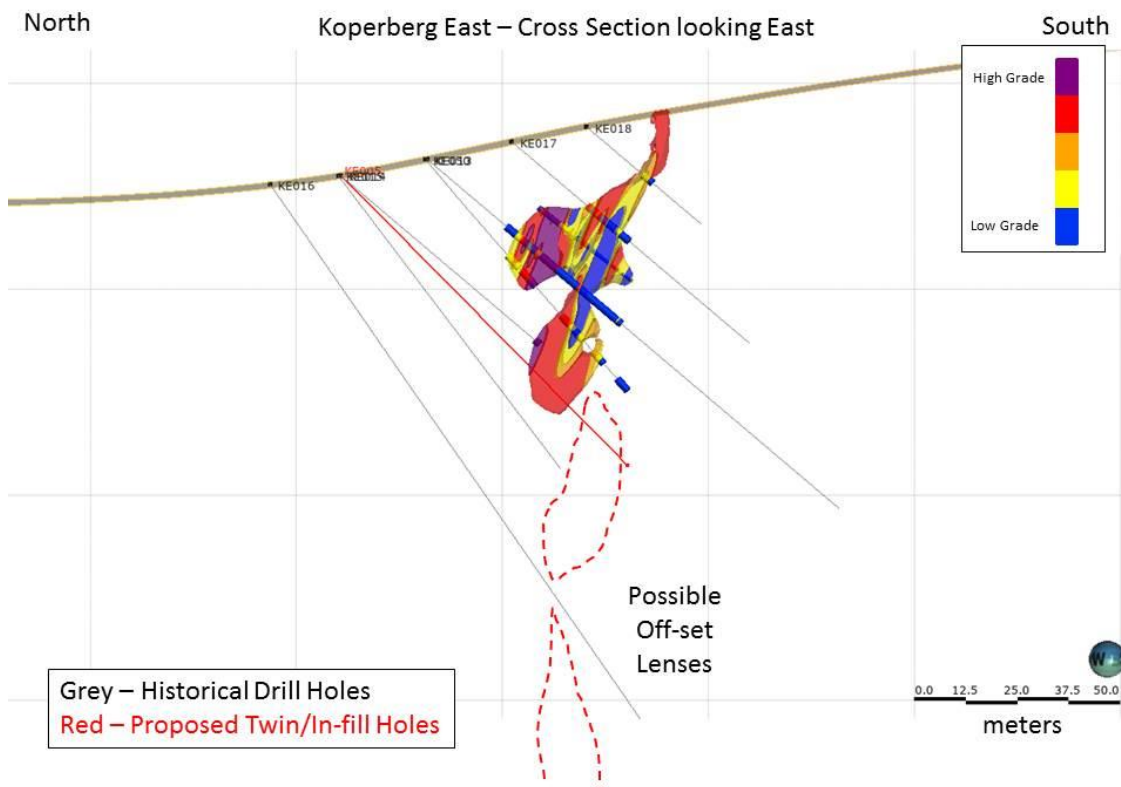
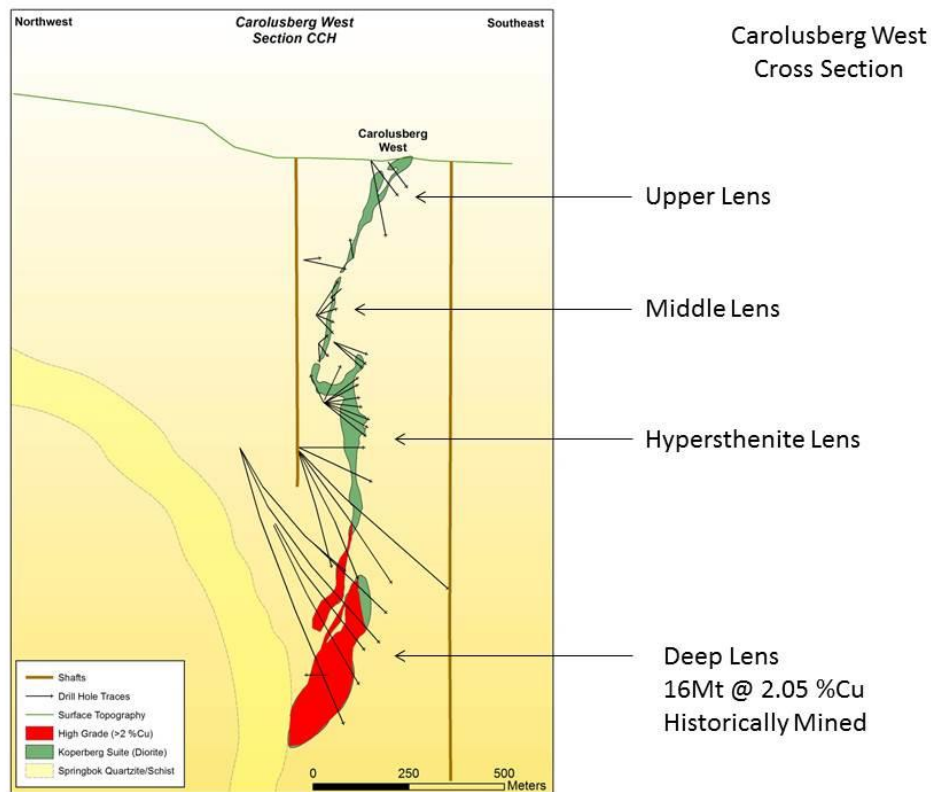


Figure 7: Koperberg East - A Cross section showing possible off-set mineralised lenses.





**Figure 8: Carolusberg Deeps cross section showing characteristic discontinuous and south stepping down dip, mineralisation lenses historically mined to 1,900m depth (after Lombaard, 1986).**

### Multiple priority electromagnetic targets identified

Orion successfully completed an extensive SkyTEM™ helicopter-borne electromagnetic geophysical (AEM) survey at the OCP during the Quarter.

The regional survey covered a total area of 1,872km<sup>2</sup> with approximately 1,073 line-kms flown at 1km line spacing in conjunction with the Council for Geosciences and Orion's high-priority area of 857km<sup>2</sup> flown at 150m line spacing resulting in a total of 7,348 line-kms being flown.

Production flights over the OCP commenced in June 2021 (Figure 9) (refer ASX / JSE release 28 June 2021), with the survey successfully completed in September 2021, despite challenging weather conditions.

Preliminary results have been received from first-pass processing of magnetic and AEM data. The initial results are very encouraging, resulting in the identification of numerous new targets for follow-up and demonstrating the value of applying modern exploration methods to the 1,872km<sup>2</sup> area.



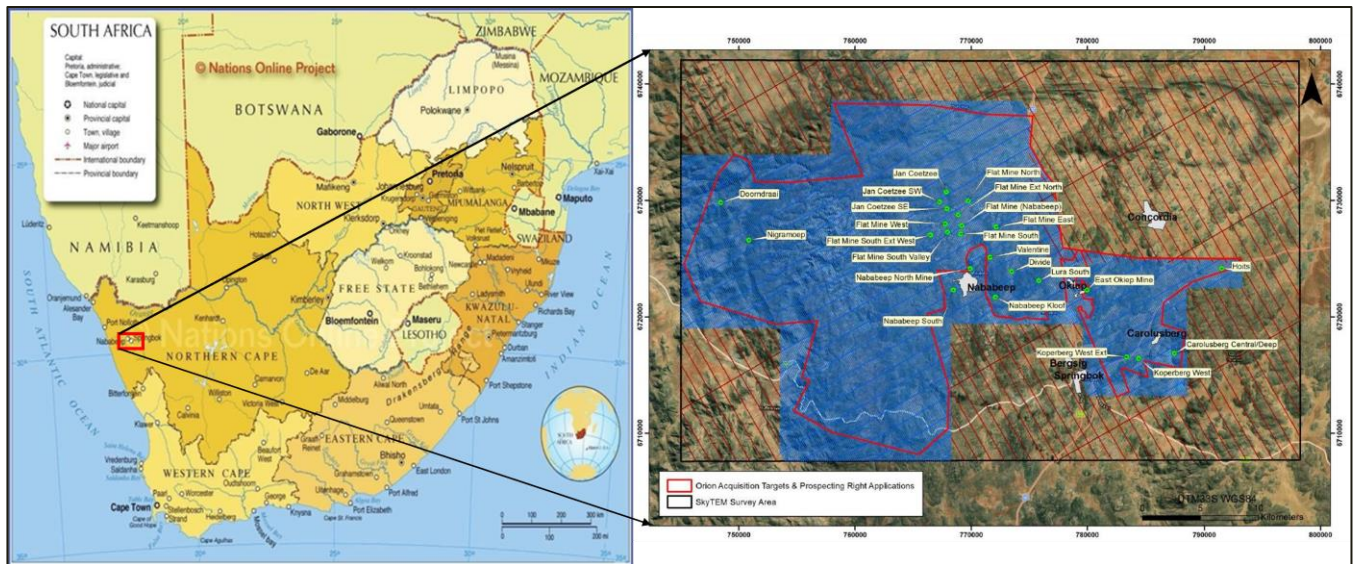


Figure 9: Locality plan of the 1,872km<sup>2</sup> SkyTEM™ survey over the OCP area.

## SkyTEM™ Survey Results

A total of 16 'late-time' conductors have been selected as first-pass targets (Figure 10) with scope for more targets to be identified as data processing progresses. Several of the conductors are close to known copper deposits, with the five best targets located close to historical mining area of Nababeep (Figure 11).

Interpretation of the AEM data is well underway and includes filtering out of near-surface cultural effects, ground-truthing of anomalies, modelling of anomalies and target prioritisation. Advanced processing of data is also continuing to assist with the identification of possible additional, more obscure anomalies.

The magnetic data from the SkyTEM™ survey will assist in the prioritisation of AEM targets. The emplacement of the mafic intrusions that host copper deposits at the OCP are known to be structurally controlled and the magnetic data from the SkyTEM™ survey will significantly improve Orion's understanding of the geology and structure of the OCP – assisting with exploration targeting.

In addition, three-dimensional inversion modelling of magnetic anomalies will be undertaken. Although ground and airborne magnetic surveys were historically used as exploration tools, this is the first time that 3D inversion modelling of aeromagnetic data has been undertaken in the OCP area. A database of anomalies and their respective exploration priority rank will be compiled and maintained.

Orion believes that high-quality drill targets will be generated from the combination of the AEM and magnetic models and the reinterpretation of available historic geological data. Once they have been prioritised, the targets will be followed up with high-powered ground EM and drilling.

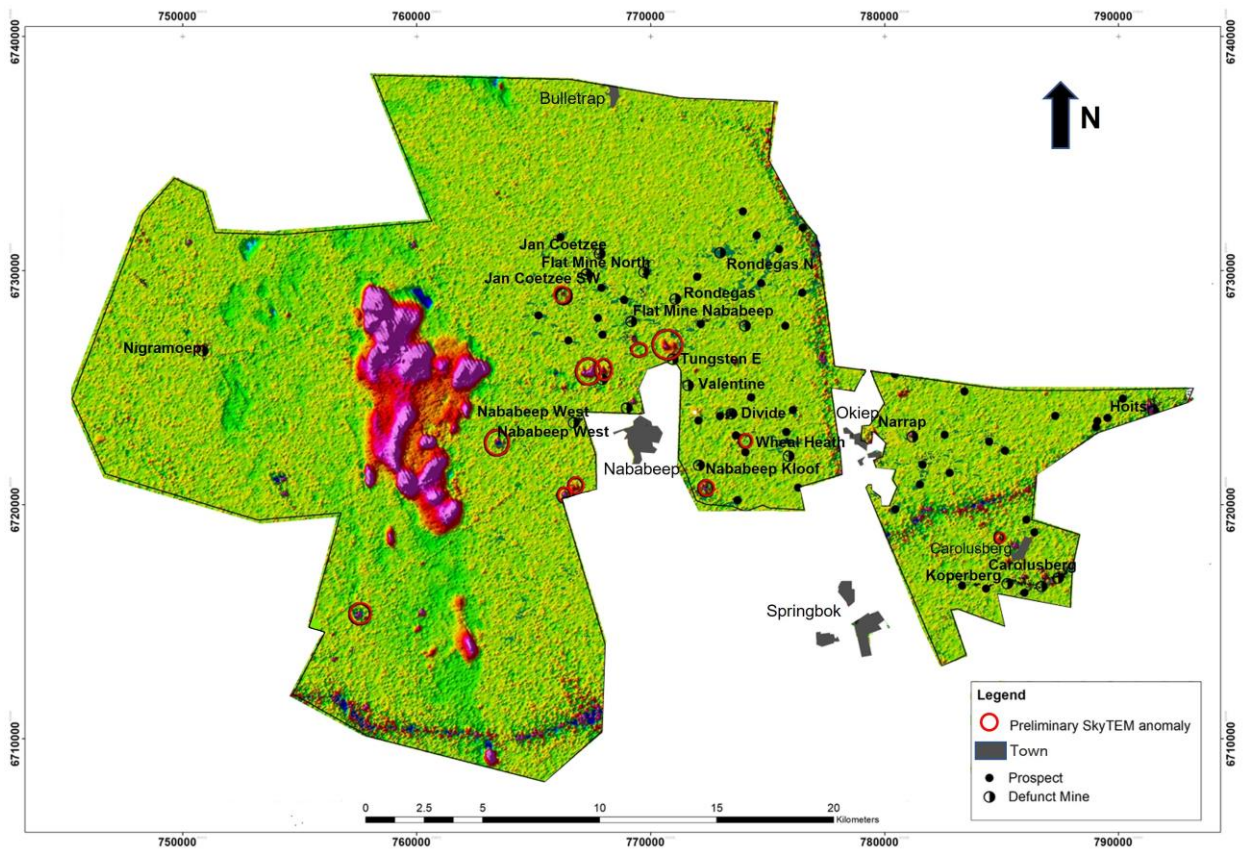


Figure 10: A Z-Channel 40 AEM image over the OCP area, with preliminary SkyTEM™ anomalies selected for follow-up.

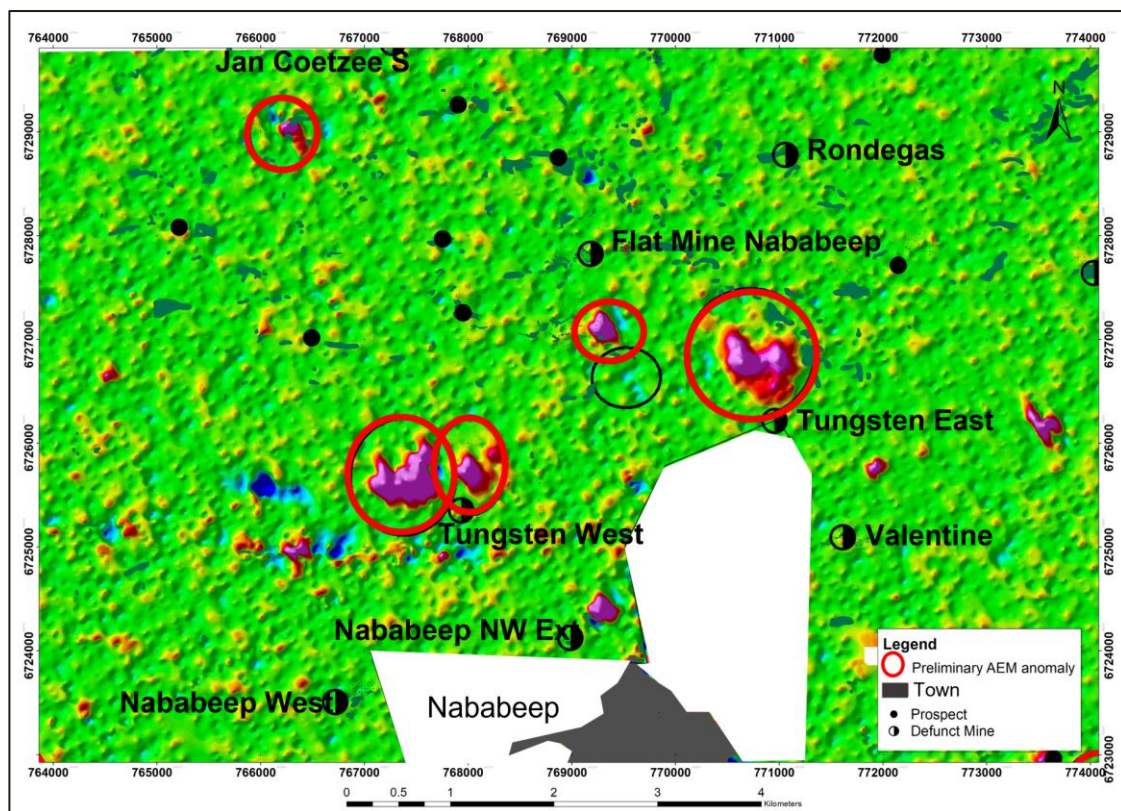


Figure 11: AEM targets close to Nababeep illustrating the proximity of these targets to known deposits.



## 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 12).

During the Quarter, the Company did not carry out any work on the Near-Mine exploration area.

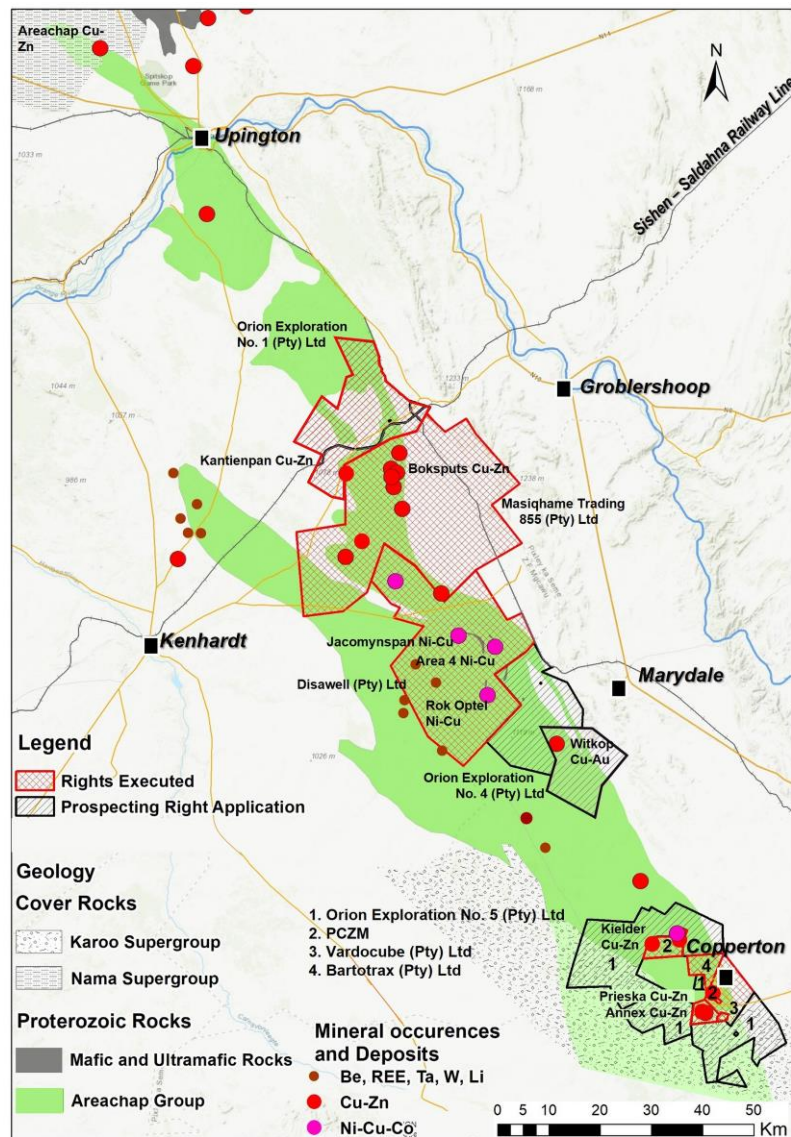
## Regional Exploration

Surrounding the Near-Mine Exploration Project, the Company holds a substantial and prospective land holding in the Areachap Belt (Figure 12). 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 12). The Kantienpan (Zinc-Copper-Silver-Gold) and Bokspuits (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 12: 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 / JSE release 25 January 2021).

A follow up FLEM survey of the B1 conductors previously detected in two small survey loops has now confirmed a strong (3000s-6000s) conductor. Orion is currently drilling this conductor located 3.7 km to the northwest of the 600s conductor. The first hole, OBPD002, deflected significantly due to geological constraints, missing its intended target. However, it did intersect a zone of pyrrhotite mineralisation from 610 m to 614 m, although assays showed no material elevated base metal values. A second hole, OBPD004, also deflected more than expected, however, the downhole EM survey indicated that it skimmed the uppermost part of the conductor. OBPD004 also intersected some pyrrhotite mineralisation

from 824 m to 843 m with assay results for this intersection pending. Currently Orion is planning on using a downhole motor to deflect off OBPD004 at the 480m depth and steer the deflection towards the thickest and most conductive portion of the modelled conductor.

### **Marydale Gold-Copper Project (Witkop)**

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

## **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 review of the high temperature Squid moving loop EM survey completed in the June Quarter, receipt of the detailed petrographic from drill core submitted to Canadian University for thin section and mineralogy mapping. Heritage survey's undertaken in preparation for diamond drilling following completion of air core drilling during the Quarter.

On E28/2462, Angler target, eighteen air core holes were drilled in September 2021. Two infill holes were drilled at 50m spacing NE and E of drill hole 21AFAC10418, to define the extension of the mafic body in the original program. Samples from current air core program will be submitted to the lab in the December Quarter.

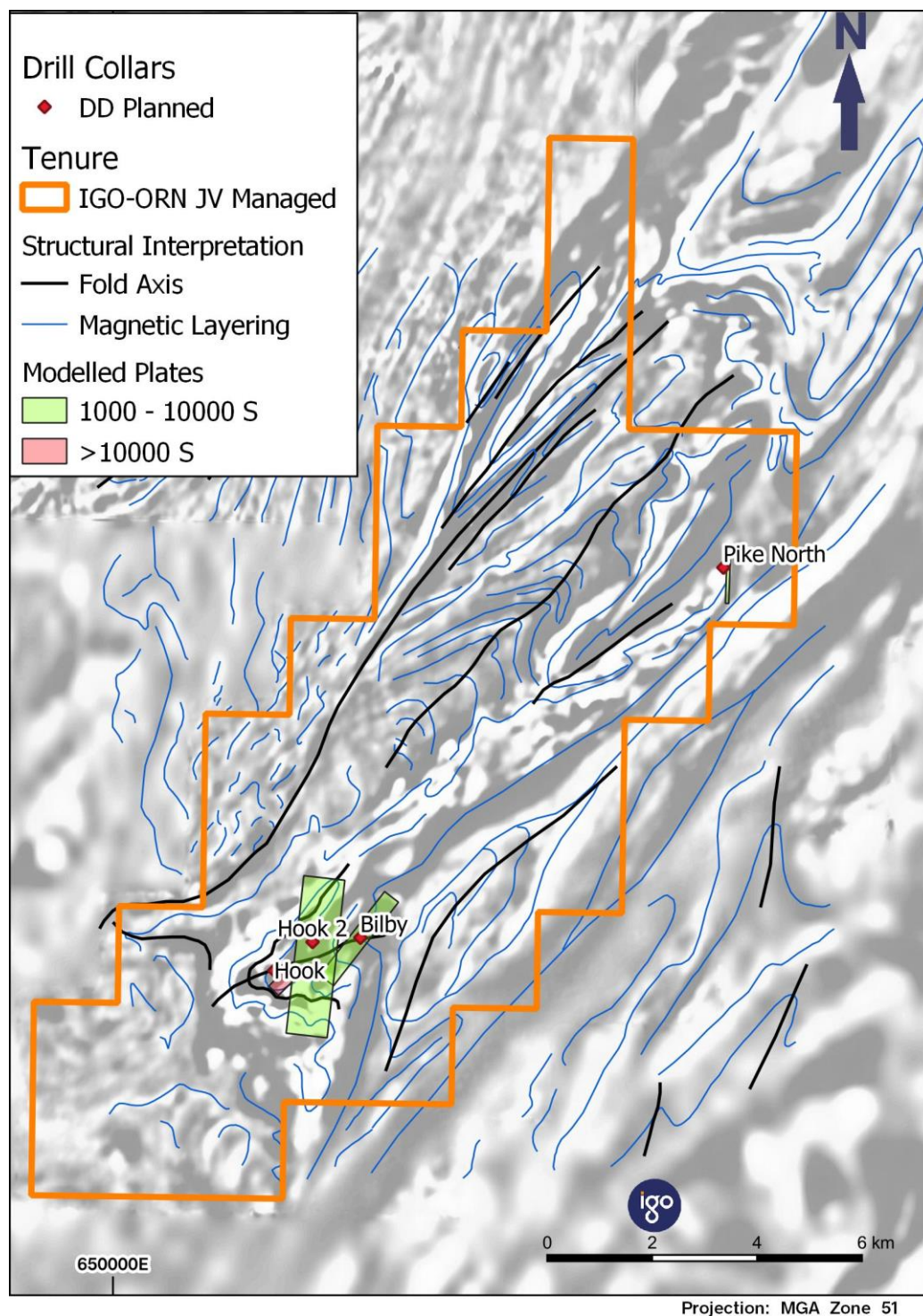
Interpretation of aeromagnetic and gravity data for targets on E28/2367, a structural framework was developed for the area around Pike, Hook (1 and 2) and Bilby (previously Pike Eye). The digitisation was undertaken using QGIX and interpreted using geometry and continuity of magnetic layers (Figure 13).

Planned work programs for the first half of the December 2021 Quarter field season consist of air-core and diamond drilling along with heritage environmental approvals. Future MLEM surveys are planned, particularly on tenements E39/1653 and E39/164. Planning for these surveys will be undertaken upon completion of the heritage negotiations which are currently in progress.

The diamond drilling targets are conceived from previous moving-loop EM (**MLEM**) survey anomalies or Downhole EM (**DHEM**) conductors as well as encouraging geochemical results obtained from AC drilling and geophysical inversion modelling. Diamond drilling targets for FY22 include:

- A single diamond hole (650m) at the Hook target, designed to test an 18,000S off-hole conductive response identified by DHEM. Previous diamond drilling was terminated within a low-MgO gabbro-noritic unit.
- A single diamond hole (600m) at the Hook2 target - designed to test a 7,000S plate. The previous drilling did not intersect the EM plate. The target area also shows a high potential to have a prospective intrusion units based on the IGO in-house geochemical and geological index.
- A single diamond hole (340m) - designed to intersect a 6,000S EM plate identified by MLEM at Pike North.
- A single diamond hole (540m) at Bilby - targeting a discrete plate of 7,000S.





**Figure 13: Interpreted structures, EM modelled plates and projected diamond drilling holes on E28/2367.**

### 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 \$14.8 million. Payments made to related parties and their associates during the Quarter was \$171k and relates to Director fees and consulting fees, as listed in Section 6 of the Company's Quarterly Cash Flow Report (Appendix 5B).

### Okiep Copper Project – Key Acquisition Details

On 2 August 2021, Orion announced that it has taken another key step in its strategy to become a leading diversified international base metals producer after exercising its exclusive option to acquire a controlling interest in the majority of the properties comprising the OCP.

Orion and the management and shareholders of each of SAFTA, NCC and BCC (collectively, **Target Entities**) reached agreement with each other in relation to the manner in which the OCP Option would be restructured when implemented. This restructure principally related to Orion acquiring the assets and claims on loan account from each of the OCP Target Entities, rather than acquiring all of the issued shares in, and claims on loan account against, the Target Entities as had been previously contemplated in the OCP Option Agreement.

New Okiep Mining Co (in relation to SAFTA) and New Okiep Exploration Co (in relation to NCC and BCC) (each a **Purchaser**) will acquire all of the assets of SAFTA, NCC and BCC, respectively, comprising principally their respective mineral rights (**Mineral Projects**), mineral data, rehabilitation guarantees, any specified contracts and any other assets identified by the Purchasers (collectively, the **Sale Assets**) (**Okiep Transaction**).

The aggregate purchase consideration payable by the Purchasers to the Target Entities and their shareholders (excluding the IDC) (**Selling Shareholders**) for the Sale Assets is ZAR76.5 million (~\$7.1 million) (**Purchase Consideration**), to be settled as to ZAR18.4 million in cash and ZAR58.1 million in Orion fully paid ordinary shares (**Shares**) (**Orion Consideration Shares**). The issue price of the Orion Consideration Shares will be equal to the 30-day volume weighted average price of the Orion Consideration Shares traded on the ASX and the JSE in the period ending on the date that is the earlier of (i) the closing date of the applicable part of Okiep Transaction; and (ii) 30 days after the date on which the last of specified mineral right is granted in respect of the Target Entity that is the subject of that transaction.

In addition to the Purchase Consideration, the Selling Shareholders will be entitled to a conditional deferred payment (**Agterskot**). The Agterskot will be calculated on the basis of the number of tonnes of Mineral Resources published by Orion in relation to the Mineral Projects in compliance with the JORC Code, estimated with reference to the relevant cut-off grade, less the tonnes of the baseline JORC Code Mineral Resource (as set out in more detail in Appendix 1 of ASX / JSE release 2 August 2021).

Orion will, within a period of 12 months after the closing date of each Okiep Transaction, incur aggregate exploration expenditure of at least ZAR4.0 million (~\$0.37 million) in exploring the Mineral Projects for each Acquisition Target seeking to satisfy the Mineral Resource requirements on the basis of which the Agterskot will become payable to the shareholders of the Target Entities (excluding the IDC).

The Okiep Transaction agreements otherwise contains such undertakings, warranties and terms and conditions as would be standard and customary to include in transactions of this nature.

Refer to the Okiep Copper Project Section for further information in relation to the OCP Project.

### O'Okiep Copper Company Database – Key Acquisition Details

The aggregate purchase price payable by Orion to the O'Okiep (Okiep) Copper Company Proprietary Limited, O'Okiep Australia Pty Ltd and N7 Transport CC for the mining and exploration data and premises following Orion's exercise of the Data Option (**Data Option Purchase Price**) is as follows:

Target Entity	Purchase Price		Total
	Cash	Cash or Shares <sup>1</sup>	
Stage 1:			
Mining and Exploration Data	ZAR3.5 million	ZAR2.5 million	ZAR6.0 million
Premises	ZAR0.5 million	---	ZAR0.5 million
Sub-total	ZAR4.0 million	ZAR2.5 million	ZAR6.5 million
Stage 2:			
Mining and Exploration Data	---	ZAR18.0 million	ZAR18.0 million
Premises	ZAR0.5 million	---	ZAR0.5 million
Sub-total	ZAR0.5 million	ZAR18.0 million	ZAR18.5 million
Total	ZAR4.5 million	ZAR20.5 million	ZAR25.0 million

<sup>1</sup>. Orion may at its election, settle the Purchase Price in cash or Shares (refer below).

- The Data Option Purchase Price will be settled as follows:
  - Stage 1 Cash: was paid within 5 business days following the Data Option Exercise Date (30 July 2021) (**Data Option Exercise Date**).
  - Stage 1 Shares: Orion elected to settle the Stage 1 Data Option Exercise Price in Shares and, under the terms of the Data Option Agreement, issued 4.1 million Shares at an issue price of \$0.034 per Share on 4 August 2021.

The Data Option Purchase Price payable in respect of the Mining and Exploration Data was reduced by the option fee of ZAR1.0 million to ZAR1.5 million.

- Stage 2 Cash: Payable on or before 12 February 2022.
- Stage 2 Shares: Where Orion elects to settle the Stage 2 Data Option Exercise Price in Shares, the Shares will be issued on or before 12 February 2022 on the same terms as those Shares issued by Orion in Stage 1, above.

The Stage 2 Data Option Exercise Price payable in respect of the Premises shall be adjusted to account for certain expenses, rates, taxes and levies incurred up to the date of registration of the transfer.

The Data Option agreement otherwise contains such undertakings, warranties and terms and conditions as would be standard and customary to include in transactions of this nature.

For key terms of the Data Option Purchase Price payable by Orion following the exercise of the option to acquire the O'Okiep Copper Company database, refer to Orion's ASX / JSE announcement, released on 15 February 2021.

On 4 August 2021, Orion issued 4,097,065 Shares, at an issue price of \$0.034 per Share (\$0.14M), as part consideration payable, on exercise of the option by Orion to acquire mining and exploration data and a premises relating to the Okiep Copper Complex.

#### Anglo American sefa Mining Fund – Loan

In November 2015, PCZM, (a 70% owned subsidiary of Orion) and Anglo American sefa Mining Fund (**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 (~\$1.31 million);
- Interest rate: Prime lending rate in South Africa;

- Repayment date: 31 October 2021, with the repayment date eligible for renewal every six months, subject to Orion submitting a report to AASMF thirty days before the expiry of each renewal period setting out PCZM's progress in relation to the Prieska Project fund raising and exploration activities and financial information (**Status Report**), and the review by AASMF of each Status Report; 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 by PCZM of its obligations in terms of the Loan Facility.

Orion submitted a Status Report to AASMF in September 2021 (within the stipulated time periods) to extend the repayment date of the Loan Facility from 31 October 2021 to 30 April 2022. The Status Report and the extension request, with the support of the fund manager of AASMF, is currently being reviewed by AASMF and a response is anticipated during late November 2021, or early December 2021.

As at 30 September 2021, the balance of the Loan Facility was ZAR20.72 million (~\$1.90 million) (including capitalised interest).

### Annual General Meeting

The Annual General Meeting of shareholders of the Company will be held at the offices of Clayton Utz, Level 27, QV1 Building, 250 St Georges Terrace, Perth, Western Australia on Thursday 25 November 2021, commencing at 3:00 p.m. (Perth time).

## Tenement Table

Tenement	Project	Ownership Interest	Change in Quarter	Joint Venture Partner
<b>South Africa</b>				
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	Masiqhambe	50%	---	Masiqhambe 855 (Pty) Ltd
NC30/5/1/1/2/12197PR	Okiep – Bokputs North	70%	Acquired	---
NC30/5/1/1/2/11125PR	Okiep	100%	Acquired	---
NC30/5/1/1/2/12357PR	Okiep	100%	Acquired	---
<b>Western Australia</b>				
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

<b>Tenement</b>	<b>Project</b>	<b>Ownership Interest</b>	<b>Change in Quarter</b>	<b>Joint Venture Partner</b>
E69/2379	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.