



## Orion Minerals

ASX/JSE RELEASE: 31 January 2024

# December 2023 Quarterly Activities Report

## HIGHLIGHTS

- ▶ Orion's transition to become a mine developer and operator at the Prieska Copper Zinc Mine (PCZM) is well advanced, with onboarding of a site-based skilled operating team, installation of mining infrastructure and commencement of the trial mining program.
- ▶ Trial mining contractor, P2 Mining (Newrak Mining Group), mobilised to the PCZM site during the Quarter and commenced with 143 Level drawpoint loading and waste drive development towards the 105 Level supergene orebody. At the end of the December Quarter, a total of ~4,000 tonnes of drawpoint material had been hauled to surface and 75% of the waste drive development was complete. Development reached the 105 Level ore in January 2024.
- ▶ PCZM partnered with electrical service provider, Power Plant Electrical Technologies, for all the EPC surface and underground electrical reticulation leading up to the 15MVA tie-in planned for Q2 CY2024.
- ▶ Mine dewatering pumps were procured and delivered to site in time for the planned Q1 CY2024 installation. Dewatering will commence after the construction of the evaporation storage dam and the availability of the 15MVA power supply.
- ▶ Updated Feasibility Study on the accelerated development strategy and staged ramp-up at Prieska is well advanced and on track for completion by mid-CY2024, once the trial mining program has been completed.
- ▶ Orion entered into agreement to acquire 12,156 hectares of surface rights at the Okiep Copper Project (OCP), opening up new opportunities for exploration in the area and facilitating surface drilling to conduct validation drilling and support the Okiep Bankable Feasibility Study (BFS).
- ▶ Delivery of the Okiep BFS has been delayed to accommodate validation drilling and metallurgical test work programs on areas not previously accessible.
- ▶ Experienced mining executives Anthony Lennox and Patience Mpfu appointed to the Board as non-executive directors.

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

*"Orion made significant progress in 2023 and I am very proud of how far the Company has come in the last year as we continue to advance towards production.*

*"During the year, we systematically checked the boxes that allowed us to progress the development of our three key base metal hubs in South Africa's Northern Cape.*

*"Supported by the equity, convertible debt and royalty funding packages we secured in 2023, Orion commenced trial mining at our flagship Prieska Copper Zinc Mine (PCZM) during the December Quarter, with our trial mining contractor mobilising to site in late September to commence drawpoint loading and waste drive development. We celebrated the first blast at Prieska in November and mine development has reached the 105 Level orebody in January.*

*“Results from this trial mining program will provide a vital input for the Early Production Feasibility Study for Prieska, which is targeted for completion by mid-year.*

*“We are also continuing to progress metallurgical test work on Prieska ore, with current test work programs focused on the supergene sulphide ore which we expect to mine in the initial phase of the proposed mining operation while dewatering of the main mine is underway.*

*“At the Okiep Copper Project, we are continuing to work to complete the final elements of the Feasibility Study in collaboration with our peer review team. On advice of the independent expert reviewers, we completed planning for a twin drilling program to verify historical data that underpinned the Mineral Resource Estimates at the Flat Mines East and North orebodies and further de-risk the study.*

*“Following the recent completion of land access negotiations, this drilling program will commence shortly, with the Flat Mines Feasibility Study now scheduled for completion by mid-CY2024.*

*“We are also continuing our review and update of previous studies at the Jacomynspan Nickel-Copper-Cobalt-PGE Project and progressed planning for a trial mining program to support metallurgical test work programs. Laboratory scale test work to confirm amenability of the Jacomynspan concentrated to the Stratega-TCM Metal Vapour Refining Technology progressed with pleasing results.*

*“With mine development studies progressing on multiple fronts, we are excited for 2024 and believe this year will be a game changer for Orion as we deliver on our vision of becoming a fully integrated future metals product producer.*

*“We were also pleased to announce the appointment of two new non-executive directors to the Orion Board during the Quarter, with Anthony Lennox and Patience Mpofu joining Orion. This marks the beginning of a board renewal process as we begin our transition to becoming an operating mining company. I would like to welcome Anthony and Patience to the Orion team – we are extremely fortunate to have secured their services, and I am very much looking forward to working with them.*

*“A big thank-you also to Tom Borman, who stepped down as a non-executive director in October. Tom has made a huge contribution to Orion over a number of years and remains a significant and supportive shareholder. We thank him for his hard work and wise counsel as a highly valued board member.”*

## **Orion Overview**

Orion Minerals Ltd (ASX/JSE: ORN) is a diversified international base metals company which is developing three complementary base metal production hubs in South Africa's Northern Cape Province, a richly endowed mineral province and well-established mining jurisdiction.

Orion is prioritising the development of projects capable of meeting the growing demand for key future facing metals – such as copper, zinc and nickel – that have strong market fundamentals because of declining global resource inventories, falling grades at major mines and lack of investment in new mines. The use of these metals in clean energy technologies makes them critical to a low-carbon future.

The Company continues to fast-track the development of its flagship Prieska Copper Zinc Mine (**PCZM**), with an Early Production Feasibility Study currently in progress targeting the staged ramp-up of operations and production. Key inputs to this study include the trial mining program (commenced in October) and ongoing metallurgical test work, with dewatering of the underground mine also planned for early CY2024. The Feasibility Study is due for completion by mid-CY2024.

Orion is also advancing the development of a second production hub, initially based on the Flat Mines area at the Okiep Copper Project (**OCP**), while also conducting exploration programs to increase the Resource and Reserve base to underpin a larger-scale, longer-term operation. The BFS on Flat Mines has been delayed to accommodate a drilling and metallurgical program.

Orion's third project, the Jacomynspan Nickel-Copper-Cobalt-PGE sulphide (**JMP**) project will leverage modern refining technology specifically directed toward production of metal products that are critical to the energy transition. The metal vapour refining technology currently being tested on JMP metal sulphide concentrates presents an exceptional opportunity to maximise metal recovery to high value products with high ESG credentials.

# Operations Report

## Health and Safety, Community Engagement and Environmental Management

### Health and Safety

No injuries were recorded during the December 2023 Quarter. The hours worked for the Quarter and the 2024 financial year to date are shown in the table below:

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

Category of Work	Hours Worked	
	Quarter	FY2024 YTD Total
Exploration	5,473	9,155
Surface	12,780	24,106
Underground	31,558	37,546
Contractors	19,473	27,562
<b>Total</b>	<b>69,284</b>	<b>98,369</b>

The Lost-Time Injury Frequency Rate (**LTIFR**) per 200,000 hours worked is **0.0** for the December Quarter.

At the end of the Quarter, the team celebrated 1,597 days without a Lost Time Injury (**LTI**).

### Community and Stakeholder Engagement

#### Orion surpasses local community employment targets

Prieska Copper Zinc Mine (PCZM) is proud to have achieved 56% local community representation at the current employment level. By the end of December 2023, a total of 93 community members were employed at PCZM, which has 166 on-site employees. Local employees come from the communities of Prieska, Marydale, Vanwyksvlei and Niekerkshoop, and fill various roles at the operation.

Over the three months to the end of December 2023, 17% of the mine's goods and services and sub-contracting opportunities were awarded to local suppliers who were either based in the community, employed community labour, or were based in the Northern Cape (up from 13% in the prior quarter).

Of these contracts, 66% were awarded to businesses that are either based in, or employ labour from, the host communities of Siyathemba and Vanwyksvlei, and 34% to businesses located elsewhere in the Northern Cape. There are continued efforts to identify competent local enterprises to further increase host community spend.

Orion is working to meet aspirational targets that are captured in its Community Participation Framework, which was developed at PCZM. The framework, which has evolved through a year-long series of in-person meetings with representatives from local businesses and resident groups, commits Orion to proactively encourage host community involvement in its operations through targets of 50% of employment, 30% of the procurement of goods and services and 40% of sub-contracting opportunities.

The first of its type among junior mining companies operating in South Africa, the framework is a model for community engagement and participation. It also provides a template that will be implemented at the Okiep Copper Project in the Nama-Khoi municipal area.

### Siyathemba Community

#### Local Enterprise Development and Skills Transfer

The second PCZM Social & Labour Plan Human Resource Development program was completed during the Quarter, with 16 local candidates participating in Competency B (underground safety) training.

Training took place at the Murray & Roberts Training Centre in Carletonville and transportation services were arranged through a local vendor.

Together with Orion, Murray & Roberts has also offered learnership opportunities at the Training Centre to ten community members. This six-month learnership program began on 6 November 2023, and includes three women and seven men from the community.

## **Nama Khoi Community**

### First Social and Labour Plan projects underway

Significant progress was achieved towards the execution of two Flat Mines Social and Labour Plan (**SLP**) projects during the Quarter. These Local Economic Development projects are focused on animal husbandry and agriculture to ensure that communities have a way to sustain their livelihoods beyond mining.

A dedicated project team, represented by Orion, a Ward Councillor, a Community Development Worker, the Department of Agriculture, two Ward Committee members and the Nama-Khoi Local Economic Development Officer, was formed.

A specialised training program focused on vegetable cultivation, sponsored by the Department of Agriculture and Rural Development, was run for 15 community members. This foundational training serves as a stepping stone towards self-sufficiency and ensures sustainable livelihoods for the participants. Orion plans to expand the initial training in 2024, by focusing on further education in both vegetable cultivation techniques and egg laying practices.

## **Environmental Management**

Making positive contributions to the state of the natural environment, reducing pollution, and ensuring negligible contamination from operational activities are central to Orion's business model and part of our commitment to delivering the highest level of environmental compliance while managing and monitoring the environmental impacts of our activities throughout the mining lifecycle.

There were no environmental incidents recorded during the December 2023 Quarter.

### Water Use Licence Application (WULA)

The Amended Integrated Water Use Licence Application (IWULA) Report for PCZM (prepared by ABS (Africa) dated November 2021) was reviewed with the Department of Water and Sanitation (**DWS**) during November 2023. Confirmation was given by the DWS that the amendment, with recommendations from DWS, is likely to be received in Q1 CY2024.

## **Prieska Copper Zinc Mine Development and Exploration**

### **Human Resources**

A strategy remains in place to integrate PCZM employees within the Prieska community and local economy. Sourcing of highly skilled individuals remains a challenge, more specifically engineering skills.

Given that specialist mining skills are currently not available locally, skills transfer remains a high priority while the positive impact of disposable incomes being spent within the local economy benefits the entire host community.

In conjunction with Murray & Roberts, the skills transfer and development of local community members should establish a pool of local candidates available to feed into PCZM and contractor mining positions as these become available and as the mine moves towards full operations.

## Critical Focus Items

During the Quarter, a number of critical items were addressed in support of trial mining and dewatering at PCZM. These included:

- The Skyjack hoisting platform installed in the Hutchings Shaft has been upgraded to carry three people at a time. It has DMRE approval as the second escape from underground;
- P2 Mining team mobilised in October and commenced with 143 Level footwall drive loading, drawpoint loading and 105 Level development;
- Both the 163 Level fixed underground refuge chamber and the mobile refuge chamber are in operation, enabling 50 people to work underground at a time;
- Designs and plans for the self-build of a 15MVA Eskom grid connection sub-station expansion were approved by Eskom and the procurement of long lead items has commenced;
- The underground ventilation plan was completed and the required ventilation fans have been procured, delivered to site and installed in a staged approach based on criticality allowing trial mining to commence;
- Services to the underground workings (ventilation, water, electricity and compressed air) have been installed. Rectangular ducting was sourced for the historical underground drives giving sufficient clearance to the trial mining fleet and removing the need for costly access tunnel slipping; and
- Power Plant Electrical Technologies (PPE Technologies) were appointed as electrical EPC contractor for all electrical standards together with surface and underground electrical reticulation installation.

## Dewatering

The water depth is presently approximately 269m below surface. Primary dewatering will commence once sufficient electrical power becomes available and a water storage facility has been constructed.

The submersible pumps for installation in the main Hutchings Shaft and the multi-stage pumps to be installed on the 178-Level have been delivered to site and will be installed in Q1 CY2024.

Different water treatment and purification methods were evaluated based on cost (CAPEX and OPEX intensity), executability, timelines and compliance with the PCZM water use licence specifications. The most suitable solution has proven to be the construction of an interim single-lined 13-hectare water storage facility for dewatering.

Mine dewatering and water treatment is now planned to progress in two phases, with the first phase focusing on volume reduction through evaporation which will utilise standard evaporation as originally included in the PCZM BFS20. The concentrated brine remaining will then be temporarily stored in the 13-hectare single-lined impoundment facility located within the footprint of the approved 65-hectare tailings storage facility (TSF).

The second phase of Reverse Osmosis water treatment will follow at a later stage, being less time sensitive, and will focus on producing agricultural use quality water for possible host community projects. Brine will be stored in the planned 9-hectare effluent storage facility (ESF) as approved in the water use license.

The future treatment of brine stored in the lined facilities to recover agri-minerals and fertiliser as part of a potential joint venture with parties specialised in this industry and possibly with local partners, remains an opportunity to be exploited in the future.

ECO Elementum Engineering has been contracted to design the 13-hectare dewatering storage facility. The design is such that it will allow for a seamless transition into the future paddocked 65-hectare TSF treatment plant slurry storage facility once the Processing Plant comes online. The footprint has been optimised for the planned dewatering rates and will make use of evaporators to concentrate the salts in storage. Construction of the storage facility commenced in January 2024.

The early dewatering program is on track to complete installation of dewatering pumping at a rate of 100m<sup>3</sup>/hr initially in Q2 CY2024, building up to 500m<sup>3</sup>/hr by Q4 CY2024. Dewatering will commence with the scheduled 15MVA Eskom power connection in Q2 CY2024 and the availability of a dedicated sub-station to support the dewatering pumps.

### Power Reticulation

The engineering design of the 15MVA electricity supply point sub-station extension was approved by Eskom in October. Construction of the sub-station extension by an Eskom approved contractor is scheduled to commence in Q1 CY2024. PCZM has partnered with PPE Technologies (Power Plant Electrical Technologies) for the electrical specifications, procurement, and electrical project management. The 15MVA upgrade is scheduled to be completed by Q2 CY2024.



**Photo 1: Underground Electrical Substation.**

In the meantime, the surface and underground electrical reticulation has commenced and is being project managed by a site-based PPE construction manager in readiness for the delivery of the long-lead items of the 15MVA upgrade.

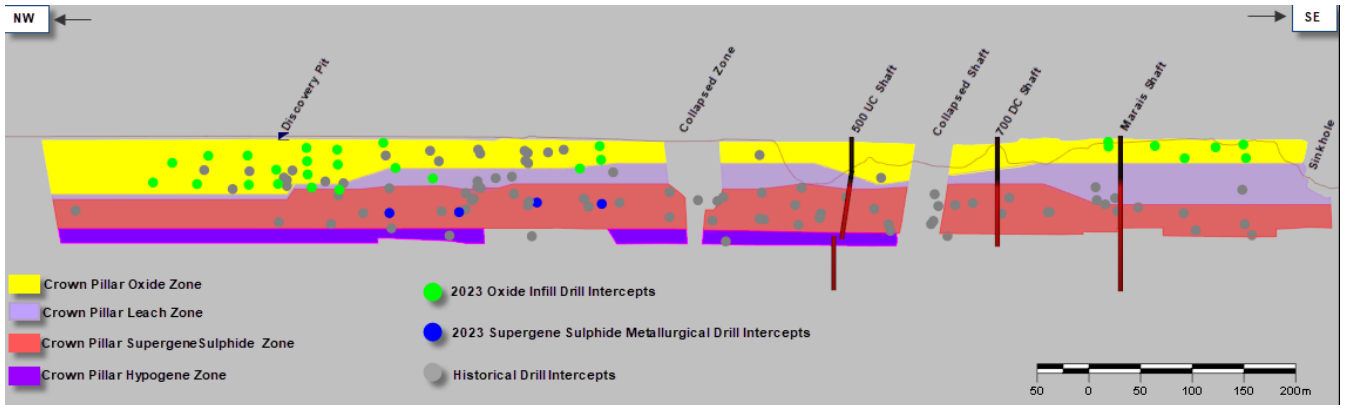
The interim arrangement to increase the currently available electrical supply to 1MVA has commenced with the construction of the 11kV overhead powerline and installation of transformers and electrical switchgear. Switch-over to the 11kV supply occurred in mid-January 2024. The Medium Voltage (11kV) extension to the underground workings powers the trial mining compressors, mining drills and ventilation fans at the 105 Level and drawpoint loading at the 143 Level.

### Exploration

A program of shallow in-fill Reverse Circulation holes was completed in Q3 CY2023. The purpose of the program was to increase the amount of drilling data in the oxide Mineral Resource above the +105 Level supergene sulphide Mineral Resource and to provide material for oxide leach test work purposes.

This could facilitate the evaluation of the open pit oxide mining concept. Thirty-two holes were drilled totalling 1,286m (Figure 1).

Interpretation and modelling is currently underway with expected completion in Q1 CY2024. Results from oxide leach test work is pending.



**Figure 1: Drill holes – actual oxide hole positions.**

### Trial Mining

P2 Mining (part of Newrak Mining – a company with more than 25 years of contractor mining experience) is the appointed mining contractor for the 6-month trial mining period. P2 Mining mobilised to site in late September 2023, with final equipment arriving and being commissioned from early October 2023.

Trial mining kicked off with footwall drive loading to access the 143 Level drawpoints followed by development drilling and blasting from the 105 Level development drive towards the supergene Crown Pillar orebody.

Approximately 4,000 tonnes of different drawpoint material was loaded to surface over the December Quarter. At surface, the material is stored according to geological classification for future treatment in a crushing and sub sampling plant, with grade determination in the newly constructed mine laboratory.



**Photo 2: 143 Level drawpoint material stockpiled on surface.**

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**Photo 3: +105 Level face charging.**

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**Photo 4: Ore horizon intersected with Primary development.**

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Drilling and blasting of the development cross-cut ramp started towards the end of November and a total of 68m (at 4.5m wide x 4.5m high) of the projected 95m drive was completed by the end of the Quarter.

Development rates were hampered with poor machine availability at start-up together with services (water and ventilation) issues as the mining team came to grips with the site conditions and teething problems of starting a new operation.

Ventilation was installed in a phased approach making optimal use of the available electrical power at the time, with final fans only becoming operational once the ends of the two 150m ore drives were reached in Q1 CY2024.

Machine reliability has now improved substantially, and the required underground services are now fully installed and operational. The 105 Level supergene Crown Pillar is expected to be reached early February 2024 when underground rock conditions will be evaluated and the original assumptions regarding development drift dimensions, roof support and mining method will be reviewed.

Based on this new-found information, a 40,000t per month mining schedule will be developed to follow after trial mining has come to an end.

The trial mining project is testing the conventional load-haul-dump arrangement as well as an alternative underground mining method using continuous loaders matched with bi-directional trucks. The learnings and efficiency improvements will feed into the revised mining BFS, together with drawpoint sampling results from the 143, 201 and 259 Levels that will evaluate the quality of broken ore remaining in old stopes in the upper areas of the underground workings.



**Photo 5: Trial mining at PCZM site 143 Level.**

### **Mining Fleet for Trial Mining Phase**

The mining fleet of vehicles and machinery is shown in the table below.

Equipment sizing will be further optimised from the understanding of the supergene Crown Pillar orebody and incorporated into the mining schedule to follow.

<b>Item</b>	<b>Description</b>	<b>Quantity</b>
LHD	Aard 5.t	2
Dump Trucks	14 t low profile Fermel	2
Drill Rig	Sandvik DD321	1
Utility Vehicle	UV120	1
Continuous Loader	ITC120N	1
Bi-directional drive Dump Trucks	20t Paus ITC 10	2

### **Metallurgical Process Re-evaluation and Early Concentrator Plant Design**

Orion continues to engage with various technical and turnkey process plant service providers for the supply of a 30-60ktpm modular process plant to treat ore from the trial mining phase at PCZM. The test work for the design of the process plant is being undertaken on supergene material.

Processing routes developed by Mintek in 2018 include hypogene milling, sequential copper (Cu) flotation, zinc (Zn) flotation and ultra-fine grinding. However, opportunities still exist to improve on the processing route for the supergene sulphide portions of the deposit (+105 Level Crown Pillar) and this is the focus of the current test work.

Flotation testing of hypogene samples in line with historical recoveries of the mine achieved over 86% recovery for both Cu and Zn, with Cu concentrate grades above 28% and Zn at 53% (refer ASX/JSE release 26 May 2020). Test work is now being progressed to assess the supergene sulphide recoveries from Locked Cycle testing.

The results of this test work will be incorporated into the Early Mining Plan and modular process plant design. The plant will be designed to treat the different orebodies in separated treatment campaigns from surface stockpile material. Throughput rates will be in the 30-60ktpm range.

Mr Bryan Broekman, the previous Chief Metallurgist for Anglovaal Group – who was directly responsible for most of the metallurgical process plant optimisations at Prieska Copper Mines to treat mixed oxide, supergene sulphide and hypogene sulphide ores from 1988 until mine closure in 1991 – is overseeing the two sets of supergene flotation test work on 1.5 tonnes of fresh metallurgical samples drilled from four holes in the supergene sulphide zone of the +105 Resource blocks.

The test work is currently being undertaken by Enprotec and MTEC Engineering respectively. Additional fresh supergene mined material for test work will become available from the trial mining project in Q1 CY 2024.

### Metallurgical Test Work Update

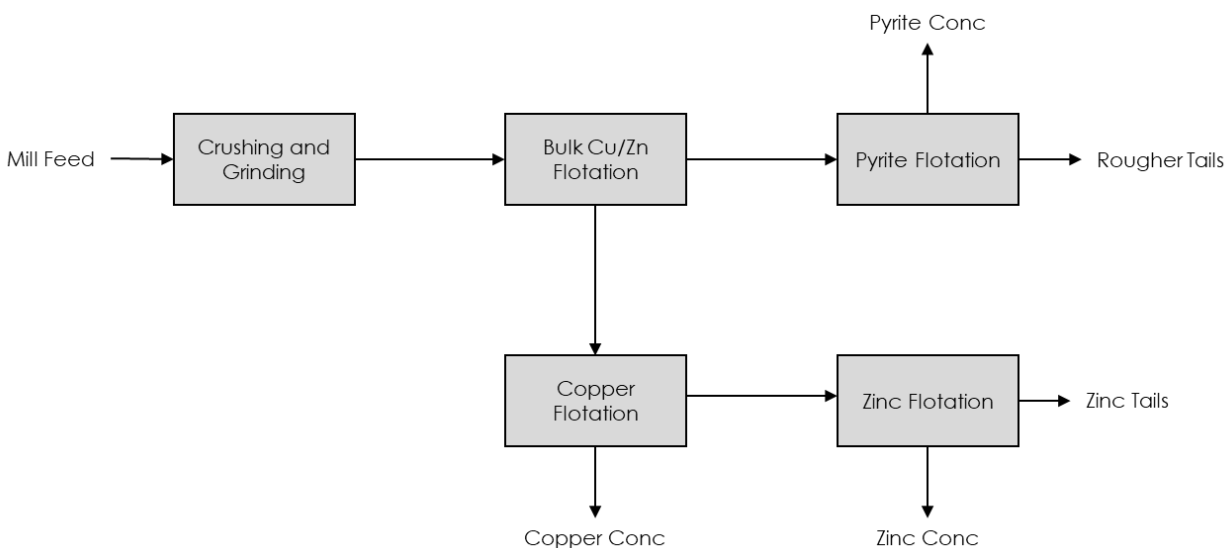
#### PCZM Supergene Ore

The project focus has been turned around and the readily accessible supergene ore will be mined first while dewatering of the underground mine is underway. In 2018, Mintek completed some preliminary flowsheet development work on the treatment of supergene ore.

The 2018 Mintek test work demonstrated on a preliminary basis that the flotation of supergene ore was feasible. This process concept became the base case for the current process design.

The metallurgical test work is being carried out at Maelgwn South Africa Laboratories under the guidance of Orion Mineral's metallurgical consultants. A composite sample for this test work program was developed from reverse circulation drill core samples from the +105 Level Crown Pillar.

The flowsheet adopted by Mintek in the 2018 study is shown in Figure 2 below.



**Figure 2: Simplified flow diagram of the flotation process.**

For the Q3 CY2023 test work, the supergene flowsheet development focused on the production of separate copper and zinc concentrates at economically attractive grades.

The first phase of supergene test work proved that bulk concentrate flotation achieved high recoveries of copper and zinc into a bulk concentrates. The test work also showed that a high grade pyrite concentrate (>50% S grade) is easily produced and presents a by-product sales opportunity.



**Photo 6: Photograph showing a batch flotation test of the PCZM supergene ore at Maelgwyn.**

The next phase of Enprotec and MTEC Engineering test work under the guidance of Bryan Broekman is in progress at Maelgwyn, focused on improving and refining the flotation procedures developed during the initial test phases to achieve the required selectivity for saleable concentrates production.

The procedure changes focused on:

1. Conditioning method and time;
2. Reagents addition sequence and methods; and
3. Management of slurry pH and potential.

Early indications from this phase of test work indicate a marked improvement in the flotation process Cu/Zn selectivity in comparison to the earlier rounds of tests completed. This phase of test work will continue with the flotation process improvements to achieve copper and zinc selectivity for the production of higher quality concentrates.

### **PCZM Oxide Resources**

Samples of oxides mineralisation from +143 Level drawpoints where crown pillar collapse material has reported and +105 Level Crown Pillar have been delivered to CM Solutions Laboratories for characterisation and leach test work. This test work is scheduled for Q1 CY2024.

## **Okiep Copper Project Development and Exploration**

### **Feasibility Study Report**

The Okiep Bankable Feasibility Study (BFS) Report was submitted for peer review in the September 2023 Quarter. The review team examined the reports and supporting documentation discipline by discipline, to advise Orion where additional work may be required to satisfy commercial banks' due diligence

required for project funding. A bulletin itemising area's requiring further clarification and, in some cases, further work, was provided to Orion.

The bulk of the Study content was accepted, however the peer review team recommended additional validation drilling to confirm the results of Newmont and Goldfields era drilling that has been used throughout the study. This validation drilling will confirm Resource classification of the project area as defined by the Competent Person that signed off on the Resource Statement. The historical exploration data from work done by Newmont and Goldfields (the prior owners of the Project Area) has been validated to satisfaction at Flat Mine North however lack of surface access resulted in the absence of twin-drilling by Orion in the Flat Mines East and South orebodies.

Orion concluded negotiations in January 2024 to access and acquire 12,156 ha of land that includes the majority of the Flat Mines Project area.

In consultation with the peer review team, Orion will drill additional diamond drill holes into the Flat Mines orebodies to prove the reliability of the legacy exploration data to a standard which would be satisfactory to lenders. This drilling program is scheduled to commence in February 2024, and will delay the completion of the BFS to approximately mid-2024.

The drilling program into the Flat Mines will provide the opportunity to gather additional data, including geotechnical and metallurgical characteristics of the Flat Mines orebodies to confirm the absence of any negative ore zonation over the extensive intrusive bodies. The Okiep Copper Company, who previously operated more than 16 mines in the district, never noted any metallurgical abnormalities that made treatment of these orebodies in the central milling and concentrator facilities problematic.

## **Environmental Management**

### Water Use Licence Application (WULA)

The Integrated Water Use Licence Application (IWULA) was submitted to the Department of Water and Sanitation (DWS) early in September (previous Quarter), and a certificate of receipt was received. The Application is progressing through the Department and queries and clarifications have been answered as required. Approval of the WULA by DWS is now anticipated in Q1 CY2024.

## **Okiep Project Development**

### Metallurgical Processing Plant

The planned availability of additional drill core from the Flat Mines East orebody has facilitated the planning of metallurgical test work to confirm the metallurgical behaviour of ore from the East orebody. Previously, test work on the South orebody (with very similar mineralogy) was relied upon for the forecasting of the metallurgical behaviour of the East Mine.

The additional confirmatory test work will commence as soon as samples become available from the diamond drilling program, scheduled to be completed by May 2024.

The capital and operating cost estimates for the Processing Plant will be updated to 2024 values.

### Mine Planning

With the additional drilling to be undertaken in the Flat Mines East and North orebodies, the Resource model will be updated by Z-star (the nominated independent Competent Person). The Mine Layouts will be reviewed to accommodate any changes of geometry, if any, to the block model.

### Infrastructure

As reported previously, the plans for the provision of power and water to the Flat Mines operations have been finalised and incorporated in the BFS. No further work in this area is currently required.

Rehabilitation of the Nababeep waste-water-works by the local municipality is in progress, with consultants appointed by the municipality to oversee the work. The refurbishing works required have been put out to tender, and the appointment of contractors is imminent.

A connection point for construction power supply from the existing NK Municipality substation has been indicated and a servitude application for the 11kV powerlines to the mine site has been submitted as part of the SPLUMA (land use rezoning application) which is in process.

Access control booms have been installed at the entry to the Mining Area to control access to the site.

### Land Access

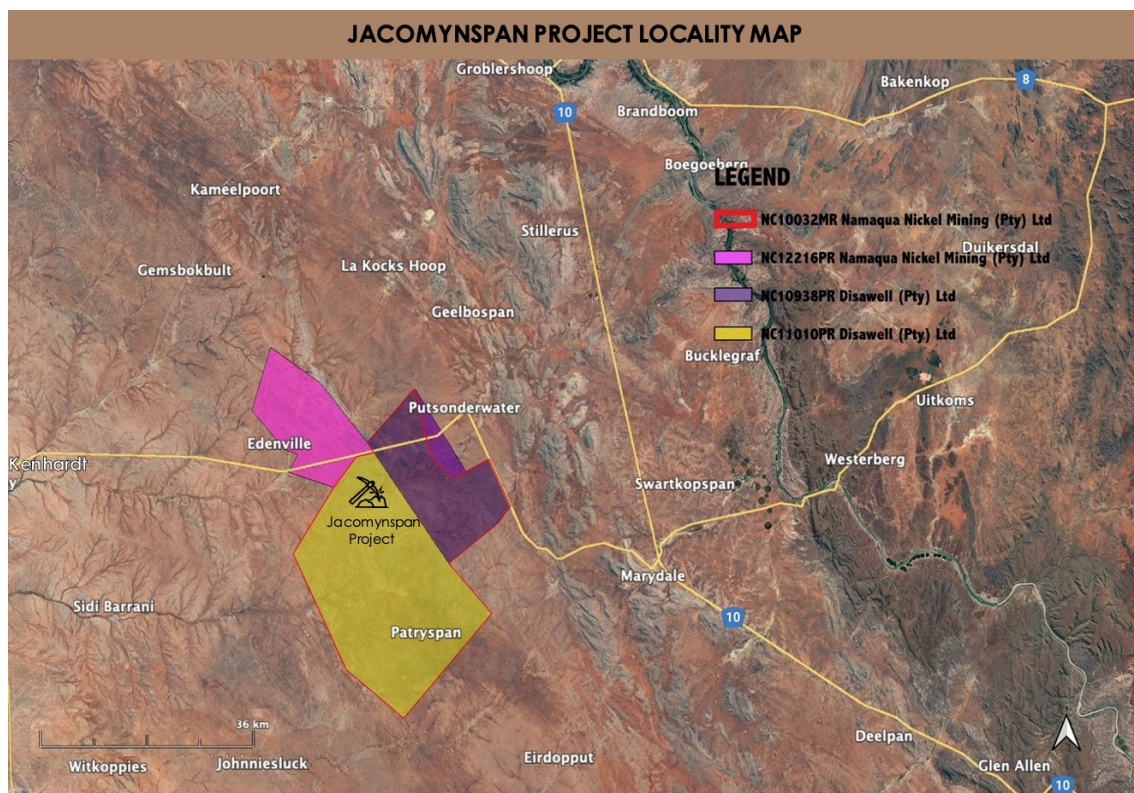
As reported previously, access to the land on which the bulk of the surface mining infrastructure will be located has been secured through a access and purchase agreement with a private owner and a lease agreement with the Nama Khoi Local Municipality (**NKM**). The Rezoning Application for Mining Use was submitted during the Quarter.

The fact that the rezoning application applies to land owned by a NKM means that approval for the rezoning does not require Department of Agriculture approval. The rezoning approval is therefore of relatively short duration.

### New Okiep Mining Company Permitting

No changes in the status of the Mining and Prospecting Rights occurred during the Quarter.

## Jacomynspan Project



**Figure 3: Jacomynspan Project area map in the Northern Cape, South Africa.**

The Jacomynspan Project offers the potential for a Class-1 nickel-copper-cobalt-PGE-gold open pit and shallow underground mining project. As previously reported, the Namaqua Nickel Mining Right, which was granted by the DMRE in September 2016, was notorially executed with the DMRE in December 2022.

An application for the extension of the commencement date of mining operations was submitted to the DMRE in December 2023, to allow time to complete ongoing technical studies and a water use licence application.

Work continued to focus on planning for a trial mining exercise to generate a sufficiently sized representative bulk sample to test innovative metallurgical refining/battery pre-cursor production at a pilot scale. Orion maintains an exclusivity agreement with Stratega Metals (Pty) Ltd (**Stratega**) to undertake amenability test work on a 250kg sample of Ni-Cu-Co-PGE-Au concentrates from the Jacomynspan Project after the initial laboratory amenability test work on a sample of Jacomynspan concentrate provided promising results.

Work continued during the Quarter on refining and updating a 2013 feasibility study for the project that forms the basis of the approved mine works plan. The current focus of work is on securing an adequate water supply for mining operations and application for a water use licence to conduct the trial mining operations.

### Stratega Metals Vapour Refining Project

The laboratory tests on chloro-vapour extraction of sulphur and metals reported in September's Quarterly report progressed during the Quarter. The aim is to optimise the thermodynamic conditions of the metal vapour process. These tests will determine the thermodynamic and kinetic parameters for selective chlorination and extraction, metal vapour transfer, distillation, and subsequent carbonylation. The targeted outcome is the optimised refining configuration for production of high value products such as high pyrite elemental sulphur, separated metal products and compounds and ultrafine metal carbonyl powders.

An Independent Scientist review to evaluate and validate the outcome of the test results continued during the Quarter. The agreed next phase of the Amenability Test will consist of a larger sample (500g) and will start after the verification of Stage Gate 1 test results review.

As reported in the June 2023 Quarterly Report, Stratega has progressed discussions with electric vehicle (**EV**) manufacturers which are potential end users of the metal vapour powder products to be produced. One large European EV manufacturer has accepted Stratega onto its accredited supplier listing and has expressed interest in funding a vertically integrated mine and refinery facility to produce its metal product requirements. Discussions with this and other EV OEMs continue.

### Areachap Exploration

Areachap is an under-explored belt with multiple copper-zinc and nickel-copper-cobalt-PGE-gold intrusive targets within Orion's tenements. Chief among these are:

- Several high-grade copper-gold targets with historical and recent drill-hole intersections;
- The Kantienpan zinc-copper VMS project where Orion has identified a substantial mineralised orebody and will now progress this project to pre-feasibility level; and
- Lithium, beryllium and Rare Earth Element (REE) opportunities, which are currently being investigated. The Orange River Pegmatite Swarm with notable Li, Coltan and beryllium occurrences traverses the mineral rights held by Orion with several old workings mapped on these pegmatites.

Orion is investigating the potential to joint venture or separately fund this significant earlier stage exploration opportunity. While the focus of Orion's operations lies with mine development of its advanced projects Orion recognises the potential to secure funding from investors with appetite for exploration stage investment.

Orion has secured the services of Mr John-Paul Hunt as Group Consulting Geologist, to lead the exploration and new business opportunity. JP Hunt has until recently been the Principal Scientist for SRK

based on Johannesburg and has extensive experience in base metal exploration with a focus on geophysics and remote sensing.

No exploration work took place during the Quarter.

## Australian Projects

### Fraser Range – Nickel-Copper Projects (Western Australia)

The Fraser Range Project is a belt-scale project highly prospective for high-value magmatic nickel-copper-cobalt sulphide discoveries. ASX-listed IGO Limited is the dominant landholder in the Fraser Range and owns the Nova Operation, which is mining and processing the Nova-Bollinger Ni-Cu-Co sulphide deposit discovered in 2015.

Orion maintains a sizeable tenement package in the Fraser Range under a joint venture with IGO. In terms of the joint venture, IGO is responsible for the exploration of all the tenements while Orion is free-carried by IGO through to the first Pre-Feasibility Study. This allows Orion to maintain exposure to ongoing exploration and development of the project, without any ongoing financial commitment.

During the December 2023 Quarter, IGO completed a rehabilitation and tenement reclassification review across all tenements under the JV agreement. Several targets were reviewed in depth for prospectivity and two were identified for additional exploration, to aid with further assessment. In the coming Quarter, IGO intends to complete any additional in-depth review of the targets and prepare an exploration program for the Peninsula and Artemis targets. Desktop review of the tenements will continue into the coming Quarter.

### 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, 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 Walhalla Project during the reporting period.

## Corporate

### Cash and Finance

Cash on hand at the end of the Quarter was \$10.96 million. Payments made to related parties and their associates during the Quarter was \$170k for director fees and consulting fees, as listed in Section 6 of the Company's Quarterly Cash Flow Report (Appendix 5B).

### Options Exercised

During the Quarter, the Company issued 158,333,332 ordinary fully paid shares following the exercise of options with an exercise price of \$0.017 and an expiry date of 30 November 2023. Orion's former non-executive director, Mr Thomas Borman, exercised 133,333,332 options and Clover Alloys Investments exercised 25 million options, together investing \$2.69 million in the Company.

A total of 3,354,821,376 unexercised, unlisted options, expired on 30 November 2023. These options and those above were issued as part of the capital raising announced by the Company in March 2023.

### Project Funding

Drawdown of the IDC Convertible Loan is in tranches and is pro rata matched by the drawdown requests that Orion makes under the Triple Flag Funding Arrangement. No funding was drawn down during the Quarter from the IDC Convertible Loan Facility or the Triple Flag early Funding Arrangement.



Orion's flagship Prieska Copper Zinc Mine (PCZM) is transitioning to the mine development and construction phase following the conclusion of the key elements of an overarching strategic funding package.

This funding package allows Orion to progress the development of the PCZM, including the commencement of trial mining and processing of ore, mine dewatering and the completion of feasibility studies for the PCZM Early Production Plan.

A summary of the material terms of the IDC Convertible Loan definitive agreement is provided in Appendix 1 of the 8 February 2023 ASX/JSE release. While a summary of the material terms of the Triple Flag definitive agreements is provided in Appendix 1 of the 13 December 2022 ASX/JSE release.

### Directors Appointed

On 13 December 2023, the Company appointed experienced mining executives Mr Anothny Lennox and Ms Patience Mpfu as non-executive directors of Orion. Their appointments further strengthened the Orion Board, given their extensive skill sets including technical, operational, commercial, ESG and community/stakeholder expertise, particularly as Orion transitions to a producer of future facing metals.

### Annual General Meeting

The Annual General Meeting of shareholders of Orion was held at the offices of Clayton Utz, Level 27, QV1 Building, 250 St Georges Terrace, Perth, Western Australia on Tuesday, 28 November 2023. All items put to shareholders was passed by a poll.

## Tenement Table

Tenement	Project	Ownership Interest	Change in Quarter	Joint Venture Partner
<b>South Africa</b>				
NC30/5/1/1/2/11850PR NC30/5/1/1/2/13528PR <sup>1</sup>	Bartotrax	100%	---	---
NC30/5/1/2/2/10138MR	Prieska Copper Zinc Mine	70%	---	---
NC30/5/1/2/2/10146MR	Prieska Copper Zinc Mine	70%	---	---
NC30/5/1/1/2/12257PR	Prieska Near Mine-OE5	100%	---	---
NC30/5/1/1/2/12258PR	Prieska Near Mine-OE5	100%	---	---
NC30/5/1/1/2/12287PR	Prieska Near Mine-OE5	100%	---	---
NC30/5/1/1/2/12405PR	Prieska Near Mine-OE5	100%	---	---
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 NC30/5/1/1/2/13397PR <sup>1</sup>	Namaqua-Disawell	25%	---	Disawell (Pty) Ltd
NC30/5/1/1/2/11010PR NC30/5/1/1/2/13398PR <sup>1</sup>	Namaqua-Disawell	25%	---	Disawell (Pty) Ltd
NC30/5/1/1/2/12292PR	Masiqhame	50%	---	Masiqhame 855 (Pty) Ltd
NC30/5/1/1/2/12197PR	Boksputs North	70%	---	---
NC30/5/1/1/2/11125PR NC30/5/1/1/2/13395PR <sup>1</sup>	Okiep	100%	---	---

Tenement	Project	Ownership Interest	Change in Quarter	Joint Venture Partner
NC30/5/1/1/2/12357PR	Okiep	100%	---	---
NC30/5/1/1/2/12897PR	Okiep	70%	---	---
NC30/5/1/2/2/10150MR	Okiep	56.25%	---	Industrial Development Corporation of South Africa Limited (IDC)
NC30/5/1/1/2/12850PR	Okiep	56.25%	---	Industrial Development Corporation of South Africa Limited (IDC)
NC30/5/1/1/2/12852PR	Okiep	100%	---	---
NC30/5/1/1/2/12854PR	Okiep	100%	---	---
<b>Western Australia</b>				
E28/2367	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>Victoria</b>				
EL6069	Walhalla	100%	---	---
EL5042	Walhalla	100%	---	---

This Quarterly Report is authorised by the Board.