Orion Minerals

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Updated Feasibility Study Delivers Substantial Increases in Production, Cash Flow and Mine Life for the Prieska Copper-Zinc Project

Improved economics, operational efficiencies and enhanced sustainability credentials among the many other significant benefits to be delivered from optimisation and value engineering

HIGHLIGHTS

- Updated Bankable Feasibility Study (BFS) completed for a proposed new 2.4Mtpa copper and zinc mining operation at the brownfields Prieska Project, located in the Northern Cape Province of South Africa.
- The updated BFS delivers numerous improvements on the previous study completed in June 2019, including:
  - 43% increase in undiscounted free cash flows to AUD1.6 billion, pre-tax (AUD1.2 billion post-tax);
  - 36% increase in NPV (at an 8% discount rate) to AUD779 million, pre-tax (AUD552 million post-tax);
  - 5-month reduction in the capital payback period to 2.4 years;
  - 6% decrease in all-in-sustaining costs to USD3,531/t (USD1.60/lb) of copper equivalent metal sold;
  - 3% increase in all-in-sustaining margin to 47%;
  - 5% increase in pre-tax IRR to 39%;
  - 9% increase in peak funding requirements to AUD413 million to cater for the operational improvements; and
  - peak annual production of 23kt of copper and 88kt of zinc in concentrates.
- The life of mine is extended by 2 years to a duration of 12 years.
- Total milled production increases by 20% to 25.2Mt at 1.0% Cu and 3.3% Zn (comprising 57% Probable Ore Reserves, 10% Indicated Mineral Resources and 33% Inferred Mineral Resources), with the plan now delivering more payable metal sold as differentiated concentrates, namely:
  - 226kt of copper (a 20% increase); and
  - 680kt of zinc (a 17% increase).
- The updated BFS includes:
  - A 30% decrease in the shaft dewatering timeline with the incorporation of a water treatment plant;
  - Cost savings from value engineered modifications to the processing plant layout incorporating semi-autogenous grinding mills and removing multi-stage crushing; and
  - Prioritising the extraction of higher grade (and confidence) Mineral Resources earlier in the mine schedule.
- Upside potential beyond the updated BFS includes:
  - Improvements to the plant and concentrate grade recovery above the conservative estimates applied in the BFS, to match historical plant performance;
  - Extensions and additions to the Mineral Resources and mine life via:
    - Conversion of delineated Inferred Mineral Resources into the mining plan;

- **Extensional exploration and 'out of resource' mineralisation;**
- **Near-mine and satellite exploration potential; and**
- **Remnant pillar extraction.**

- **Partially completed mine-to-market optimisation studies present the potential for refinements to be applied during the mine development and early production period.**

- **Next steps, with the granting of the Integrated Water Use Licence and second mining right imminent, are to advance:**
  - **Project financing discussions;**
  - **Project implementation planning; and**
  - **Agreements with service providers for key early works activities.**

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

"The completion of this updated BFS marks another key step towards the development of a modern base metals mine at Prieska with the potential to become one of a new generation of world-class mines in southern Africa.
"I would like to congratulate the entire Orion team, and our consultants and partners, for their enormous efforts in completing the multiple work streams required to deliver this high quality BFS amidst the challenges of the current Covid-19 lockdown.

"The substantial improvements achieved since the June 2019 BFS are reflected in the headline numbers. The mine is now forecast to deliver AUD1.6 billion of pre-tax free-cash-flow over 12 years and a pre-tax Net Present Value of AUD779 million (at an 8% discount rate), with the initial 12-year LOM plan delivering an impressive 47% all-in-sustaining margin and underpinned by a robust mine plan delivering more payable metal in differentiated high quality copper and zinc concentrates.

"The capital payback period has been reduced to less than two-and-a-half years from first production on lower commodity price assumptions, even with the inclusion of water treatment and offsite irrigation and assuming a more conservative construction schedule and build-up to first production.

"In addition, the updated BFS has enhanced the Project's environmental, social, and governance outcomes. Sustainable development goals have been planned at the forefront increasing the use of renewable energy and reducing the carbon footprint. Water conservation and recycling in the dry and arid conditions at the Project is now maximised. The business plan provides a clear roadmap for progressive 4IR adoption, which should deliver high productivity and personnel well-being gains to our workforce.

"Meanwhile, there is further scope to significantly extend the mine life, given that the deposit remains open both at depth and along strike. Potential satellite discoveries both near-mine and within the broader region provides the opportunity to potentially operate in this district for many decades to come.

"With the Prieska BFS update now complete, the development of the Prieska Project is ideally positioned to play a vital role in the local economic recovery plan for the Northern Cape region. The Project's low exposure to imported materials and foreign labour reduces construction challenges as the world overcomes and recovers from Covid-19.

"Prieska is well positioned to supply high-quality copper and zinc concentrates to the global market, targeting a production start-up in 2024 as market conditions permit."

Disclosure on Forward Looking Statements

The Bankable Feasibility Study (**BFS**) reported in this Announcement determines the commercial viability of establishing mining and ore processing operations on the Prieska Copper-Zinc Project (**the Project**). The BFS has been prepared to an estimation accuracy level of ± 15%. It contains Production Targets and forecast financial information supported by a combination of Probable Ore Reserves, Indicated Mineral Resources and Inferred Mineral Resources, all classified and disclosed in compliance with ASX Listing Rules and JORC Code (2012) reporting standards. Orion is satisfied that the portions of Inferred Mineral Resources included in the Production Targets (never more than 35% of the mining plan) are not the determining factor in Project viability and do not feature as a significant portion early in the mining plan.

Note that there is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the portion of the production target reliant on Inferred Mineral Resources will be realised.

The Ore Reserves and Mineral Resources underpinning the Production Target have been prepared by competent persons in accordance with the requirements in Appendix 5A (JORC Code (2012)) in accordance with the ASX Listing Rules.

All material assumptions for the BFS are outlined in this report. These include assumptions about the availability of funding. While Orion considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the BFS will be achieved. Funding in the order of AUD413M (which incorporates a 10% contingency allowance) will be required.

Orion Minerals Ltd (**ASX/JSE: ORN**) (**Orion** or **Company**) is pleased to present the outcomes of the updated Bankable Feasibility Study for the Foundation Phase of its Prieska Copper-Zinc Project (**Prieska Project** or **Project**), located in the Northern Cape Province of South Africa (**BFS**, **BFS-20** or **Study**). The BFS outlines an improved business plan compared to the one reported in the June 2019 Feasibility Study (**BFS-19**)[1].

The BFS confirms the potential of the Prieska Project to underpin a significant near-term, low-cost, copper and zinc development project, with exceptional opportunities for future growth. Based on updated BFS assumptions, the Project will provide excellent financial returns, for a relatively modest capital investment, given the scale of operations envisaged and the fact that this development is intended as a new production hub within a highly-endowed but under-explored volcanic massive sulphide (**VMS**) copper-zinc and intrusive nickel-copper district, with significant long-term exploration potential.

The BFS incorporates updated assumptions based on the current macro-economic outlook and considers the results of ongoing investigations that sought to improve the commercial viability of the baseline mining plan outlined in the BFS-19. The Project aims to deliver sound commercial returns whilst also establishing mine infrastructure and operational capacity that will become a platform for further mining of deposit extensions and the exploration and mine development of neighbouring prospects (**Foundation Phase**).

The duration of the Foundation Phase has been extended by 2 years, to now run for 12 years of production at a design run-of-mine (**RoM**) processing rate of 2.4Mtpa. This phase of operation targets the exploitation of those portions of the Prieska deposit that were upgraded to Indicated and Inferred Mineral Resources from the first surface-based drilling campaign conducted between 2017 and 2018. The Production Target is composed of 57% Probable Ore Reserves, 10% Indicated Mineral Resources and 33% Inferred Mineral Resources, with Ore Reserves and Indicated Mineral Resources predominating during the early stages of the mining plan. In compliance with disclosure requirements, note that there is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target or financial forecast information outlined in this document will be realised.

Both underground and surface mining methods are planned to be used in conjunction with conventional froth-flotation concentration to produce differentiated copper (**Cu**) and zinc (**Zn**) concentrates for export.

[1] Refer to ASX release 26 June 2019.

Key assumptions and Project performance parameters of the BFS are presented in Table 1 below:

Key Assumptions and Project Performance Parameters							
Price and Forex Assumptions	**Unit**	**Value**	**Financial Performance**	**Unit**	**Value**	**Unit**	**Value**
Metal price - Cu	USD/t	6,680	NPV (pre-tax) @8% discount rate	ZAR (M)	8,566	AUD (M)	779
Metal price - Zn	USD/t	2,337	NPV (post-tax) @8% discount rate	ZAR (M)	6,069	AUD (M)	552
Exchange rate	ZAR:USD	18:1	IRR (pre-tax)	%	39%	%	39%
Exchange rate	ZAR:AUD	11:1	IRR (post-tax)	%	33%	%	33%
Exchange rate	AUD:USD	1.64:1	Payback from first production	years	2.4	years	2,4
Production Metrics	**Unit**	**Value**	Undiscounted free cash flow (pre-tax)	ZAR (M)	17,691	AUD (M)	1,619
Life of Mine (Foundation Phase)	Years	11.5	Peak funding	ZAR (M)	4,542	AUD (M)	413
Treatment plant capacity	Mtpa	2.4	**Project Cost Metrics**	**Unit**	**Value**	**Unit**	**Value**
Foundation Phase tonnage - RoM	kt	25,250	Average cash operating unit cost (C1)	ZAR/t	807	AUD/t	73
RoM Plant Feed Grade - Cu - U/G (O-Pit)	%	1.0 (1.9)	All-in-sustaining cost per unit RoM t	ZAR/t	972	AUD/t	88
RoM Plant Feed Grade - Zn - U/G (O-Pit)	%	3.3 (2.4)	All-in-sustaining cost per unit Cu eq t sold	USD/t Cu	3,531	AUD/t Cu	5,779
Overall Plant Recovery - Cu	%	83.9%	All-in-sustaining cost per unit Zn eq t sold	USD/t Zn	828	AUD/t Zn	1,355
Overall Plant Recovery - Zn	%	81.9%	Price received (net of NSR) - Cu	USD/t Cu	6,604	AUD/t Cu	10,807
Concentrate tonnage - Cu - U/G (O-Pit)	kt	1,071 (54)	Price received (net of NSR) - Zn	USD/t Zn	1,588	AUD/t Zn	2,599
Concentrate tonnage - Zn - U/G (O-Pit)	kt	1,256 (46)	All-in-sustaining margin	%	47%	%	47%
Concentrate grade UG - Cu - U/G (O-Pit)	%	19.8 (25.5)	Operating breakeven grade (Cu eq)	%	1,0%	%	1.0%
Concentrate grade UG - Zn - U/G (O-Pit)	%	52.9 (35.0)	**Project Cash Flows**	**Unit**	**Value**	**Unit**	**Value**
NSR as % of metal price - Cu - U/G (O-Pit)	%	99.3 (92.1)	LoM net revenue	ZAR (M)	43,404	AUD (M)	3,946
NSR as % of metal price - Zn - U/G (O-Pit)	%	68.4 (51.3)	LoM operating costs (plus State Royalty)	ZAR (M)	20,082	AUD (M)	1,826
Metal sold (in concentrates) - Cu	tonnes	226,000	Project Start-up Capital Expenditure	ZAR (M)	4,100	AUD (M)	373
Metal sold (in concentrates) - Zn	tonnes	680,000	Sustaining Capital Expenditure	ZAR (M)	1,510	AUD (M)	137
Total Sales as Cu equivalent	tonnes	386,000	Income Tax	ZAR (M)	4,865	AUD (M)	442
Total Sales as Zn equivalent	tonnes	1,644,000	Cash Flow After Tax	ZAR (M)	12,826	AUD (M)	1,166
Level of Accuracy of Financial Model ± 15%,			LoM = Life of Mine, NSR = Net Smelter Return, NPV = Net Present Value, IRR = Internal Rate of Return				
There is a low level of geological confidence associated with Inferred Mineral Resources and therefore there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target or financial forecast information referred to in this Study will be realised.							

Table 1: Key assumptions and Project performance parameters for the Prieska Project (numbers may contain apparent rounding errors).

The Foundation Phase of the Project has undiscounted cash flows of AUD1.6 billion pre-tax (AUD1.2 billion post-tax), a Net Present Value (**NPV**) of AUD779 million pre-tax and post-royalties (AUD552 million post-tax, post royalties), using non-inflation-adjusted estimates and a discount rate of 8%, and achieves an Internal Rate of Return (**IRR**) of 39% pre-tax (33% post-tax). The NPV is based on long-term forecast metal prices of USD6,680/tonne for copper and USD2,337/tonne for zinc[2].

Peak funding requirements total AUD413 million including a 10% contingency allowance. This is forecast to occur in the third year of the capital expenditure (**Capex**) program. Payback is planned to occur 5 years from the start of construction or 2.4 years from the start of production.

[2] Metal price assumptions based on S&P Global Capital commodity long-term real forecast (April 2020).

S&P Global	Unit	2024	2025	2026	2027	2028	BFS	BFS (USD/tonne)
	real/nominal	real	real	real	real	real	real	real
April 2020 - Cu	USD/lb	2.91	2.97	2.97	3.13	3.15	**3.03**	**6,680**
April 2020 - Zn	USD/lb	1.04	1.01	1.09	1.09	1.09	**1.06**	**2,337**

Unit all-in-sustaining costs (**AiSC**) over the duration of the Foundation Phase are estimated to be AUD5,779/t (USD3,531/t) (USD1.60/lb) copper equivalent metal sold. The realised price (net of smelter charges) is forecast to be AUD10,807/t (USD6,604t) copper equivalent metal sold, yielding in the order of a 47% all-in-sustaining margin. The operating breakeven grade is estimated at 1.0% copper equivalent, well below the Probable Ore Reserves grade of 1.8% copper equivalent (Cu_Eq grade (1.8%) = Cu grade (1.0%) + 0.23 x Zn grade (3.3%))[3], applied in the production schedule.

Project Financial Assumptions Sensitivity

The NPV estimate is most sensitive to the ZAR-USD foreign currency exchange (**Forex**) rate and least sensitive to Project capital expenditure. Post-tax NPV ranges from AUD329M (-40%) to AUD775M (+40%) as the applied ZAR-USD Forex rate is varied from -15% to +15% of the base assumption of 18.0. Post-tax IRR ranges from 25% (-26%) to 41% (+23%) as the assumed ZAR-USD Forex rate varies from -15% to +15% (Figure 1 and Table 2).

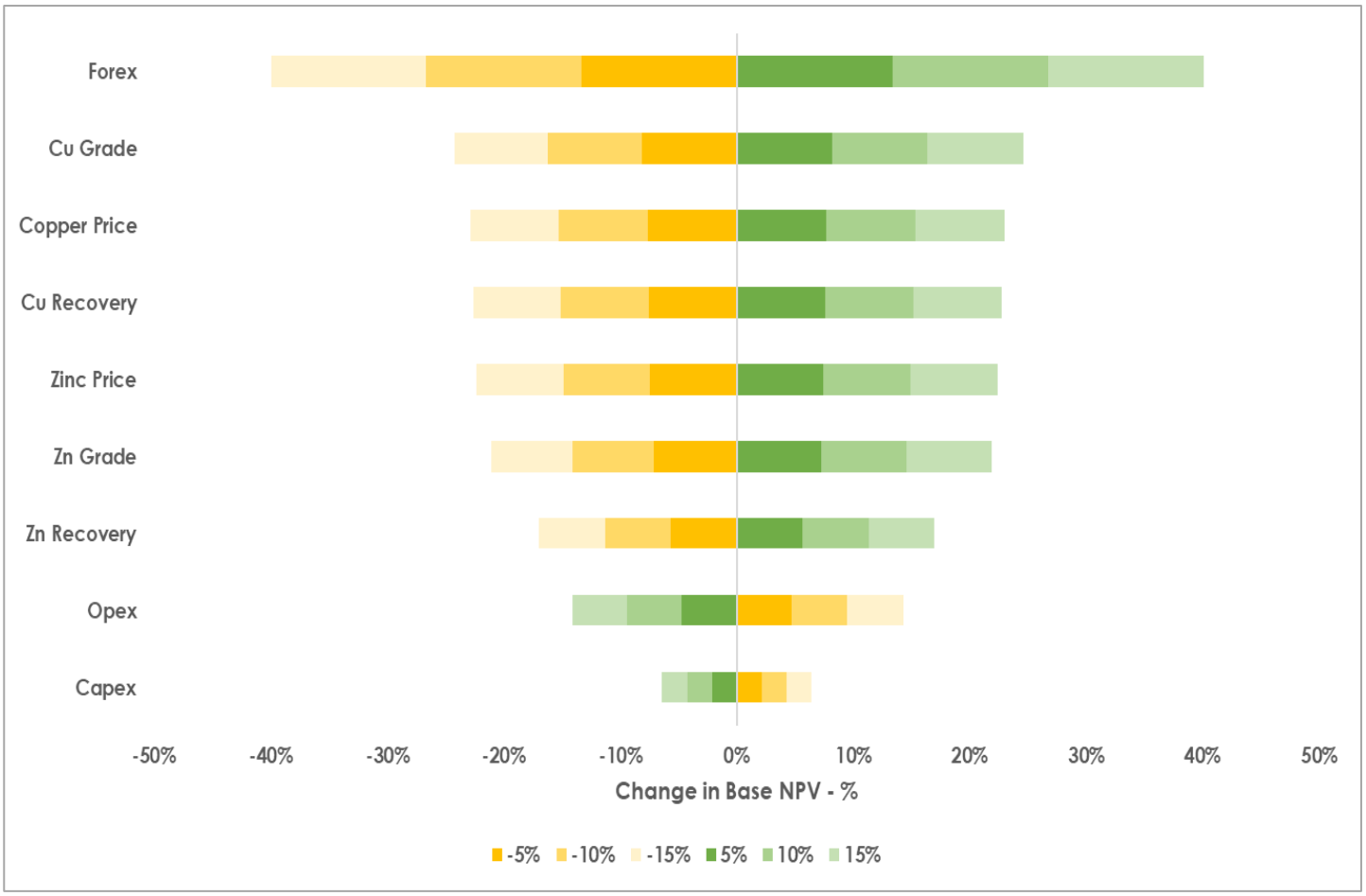


Figure 1: Sensitivity of the post-tax NPV to changes in key project parameters for the Prieska Project BFS.

The sensitivity of the post-tax NPV and IRR to changes in Forex rate and metal price assumptions is further illustrated in the following graph (Table 2).

[3] Method used to determine Cu equivalent Zn grades, using assumed metal prices of USD2,337/t Zn and USD6,680/t Cu:
1% Zn = (Zn price x Zn NSR) x (Zn plant recovery) = (2,337 x 68.0%) x (81.9%) = 0.23% Cu
(Cu price x Cu NSR) x (Cu plant recovery) (6,680 x 99.3%) (83.9%)
Therefore Cu Equivalent grade = Cu grade + 0.23 x Zn grade.
Metal prices are quoted from S&P Global Capital consensus long term price forecast as of April 2020.
Recovery assumptions are based on metallurgical test work completed to date at Mintek Laboratories (South Africa) under the supervision of DRA Projects South Africa (Pty) Ltd. Refer to JORC Table 1 in the Appendices and ASX releases 15 November 2017, 8 February 2018, 1 March 2018, 12 June 2018, 22 October 2018 and 31 October 2019.
It is the company's opinion that all the elements included in the metal equivalents estimation have a reasonable potential to be recovered and sold.

NPV Sensitivity (AUD (M))	% Change	-15%	-10%	-5%	0%	+5%	+10%	+15%	0%
	Zn Price USD/lb	0.90	0.95	1.01	1.06	1.11	1.17	1.22	1.06
	Cu Price USD/lb	2.58	2.73	2.88	3.03	3.18	3.33	3.48	3.03
% Change	ZAR:USD	post-tax NPV (at 8% discount rate)							IRR
-15%	15.30	112	185	257	329	400	471	541	25%
-10%	16.20	176	252	328	403	478	553	629	28%
-5%	17.10	238	319	398	477	557	636	716	31%
0	18.00	301	385	468	**552**	636	719	804	**33%**
+5%	18.90	363	451	538	626	714	803	892	36%
+10%	19.80	425	517	609	701	793	887	981	38%
+15%	20.70	487	583	679	775	873	971	1,070	41%

Table 2: The effect of fluctuations in metal prices and foreign currency exchange rates on the post-tax NPV and IRR for the Prieska Project. The base case scenario post-tax NPV (at 8% discount rate) is AUD552m, with a post-tax IRR of 33%.

Comparing the updated BFS to the BFS-19

Compared to the BFS-19 plan, material changes in the updated BFS include:

- Reducing the mine dewatering timeline and supplementing water treatment of that water;
- Incorporating additional Mineral Resources into the mining plan, increasing the mine life by 2 years;
- A more conservative timeline to ramp-up to steady-state production;
- Prioritising early mining of the high-grade zones in the mining sequencing;
- The adoption of semi-autogenous grinding (**SAG**) mills in the processing flowsheet;
- An owner miner operating philosophy for underground mining and utilising an experienced contractor to operate the processing plant; and
- Change in the key operational infrastructure being supplied and financed by third party financing and supply of select key operational infrastructure.

Key economic assumptions updated in line with the contemporary economic outlook are tabled below.

Parameter[4]	UoM	BFS-20	BFS-19	Variance	
				Value	%
Metal Price - Cu	USD/t	6,680	6,834	-154	-2%
Metal Price - Zn	USD/t	2,337	2,756	-419	-15%
Metal Price - Ag	USD/oz	16.50	17.00	-0.50	-3%
Metal Price - Au	USD/oz	1,350	1,300	50	4%
Discount Rate	%	8.0	8.0	0.0	0%
Forex Rate ZAR:USD	ZAR:USD	18.0	14.5	3.5	24%
Forex Rate ZAR:AUD	ZAR:AUD	11.0	10.0	1.0	10%
Forex Rate AUD:USD	AUD:USD	1.64	1.45	0.2	13%

Table 3: Key economic assumptions (numbers may contain apparent rounding errors).

These changes have resulted in the following outcomes.

Overall unit operating costs per tonne of RoM have reduced by 6% to AUD88/t compared to the BFS-19. The main contributor to cost reduction has been from the assumption of an owner-underground mining base case philosophy, thus removing the provision for a contractor's margin. Unit AiSC per tonne of copper equivalent metal sold are down by 6% in USD terms to USD3,531/t (USD1.60/lb) however up by 7% in AUD terms to AUD5,779/t, from USD3,773/t (AUD5,470/t) (USD1.71/lb) in the BFS-19 (Table 4).

[4] Metal prices are quoted from S&P Global Capital consensus long term price forecast as of April 2020. Foreign exchange rates are April 2020 rates obtained from Bloomberg Markets, https://www.bloomberg.com/markets/currencies.

Operating Costs	BFS-20	BFS-19	Variance	
	AUD/RoM t	AUD/RoM t	AUD/RoM t	%
Mining	38	48	-11	-22%
Processing	15	16	-1	-8%
Surface & Indirects	6	7	-1	-15%
Concentrate Transport Charges	11	9	1	12%
Corporate Costs	1	1	0	-13%
Off-mine Costs	1	2	-1	-38%
Royalties (Government)	7	6	1	13%
SIB Capex	5	4	1	36%
Operationalised Infrastructure	5	0	5	0%
Total	**88**	**94**	**-6**	**-6%**

Table 4: Operating cost comparison between the BFS-20 and the BFS-19 (numbers may contain apparent rounding errors).

Establishment expenditure overall is up by 5% to AUD463M, with the additional spend required to primarily accommodate water treatment and make provision for an augmented owner's mining fleet. The total Project capital expenditure has however been reduced by 7% to AUD373M with third party funding assumed for some key infrastructure elements, such as the water treatment and handling system, which will only be required for a 12-month duration whilst mine dewatering is being undertaken (Tables 5 to 7).

Establishment Expenditure Grouped Elements	BFS-20 AUD (millions)	BFS-19 AUD (millions)	Variance AUD (millions)	Variance % Variance
Power and Water Supply	8	9	-1	-8%
Tailings Storage Facility	47	33	14	44%
Shaft Refurbishment and Equipping	37	39	-2	-4%
Mine Dewatering	48	32	17	53%
Surface Infrastructure	44	47	-4	-8%
Underground Infrastructure	49	48	2	3%
Mining Fleet	50	39	12	30%
Processing Plant	91	108	-17	-16%
Project Management and Site Services	46	48	-2	-5%
Subtotal	**421**	**402**	**19**	**5%**
Contingency @ 10%	42	40	2	5%
Total Establishment Expenditure	**463**	**442**	**21**	**5%**

Table 5: Establishment cost comparison between the BFS-20 and the BFS-19 (numbers may contain apparent rounding errors).

Project Capex Grouped Elements	BFS-20 AUD (millions)	BF-19 AUD (millions)	Variance AUD (millions)	Variance %Variance
Power and Water Supply	0	9	-9	-100%
Tailings Storage Facility	0	33	-33	-100%
Shaft Refurbishment and Equipping	37	39	-2	-4%
Mine Dewatering	30	32	-2	-5%
Surface Infrastructure	35	47	-12	-25%
Underground Infrastructure	49	48	2	3%
Mining Fleet	50	0	50	0%
Processing Plant	91	108	-17	-16%
Project Management and Site Services	46	48	-2	-5%
Subtotal	**339**	**363**	**-25**	**-7%**
Contingency @ 10%	34	36	-2	-7%
Total Start-up Capex	**373**	**400**	**-27**	**-7%**

Table 6: Capex comparison between the BFS-20 and the BFS-19 (numbers may contain apparent rounding errors).

Valuation Results	UoM	Business Case Comparison			
		BFS-20	BFS-19	Variance	
		AUD	AUD	Value	%Variance
NPV (pre-tax)	AUD (M)	779	574	204	36%
NPV (post-tax)	AUD (M)	552	408	144	35%
Undiscounted Free Cash Flow (pre-tax)	AUD (M)	1,608	1,127	482	43%
Undiscounted Free Cash Flow (post-tax)	AUD (M)	1,166	819	347	42%
IRR (pre-tax)	%	39%	38%	2%	5%
IRR (post- tax)	%	33%	33%	1%	2%
Undiscounted Payback (from first prod)	years	2.4	2.9	-0.5	-16%
Peak Funding (Max. Neg. Cash Flow)	AUD (M)	413	378	35	9%
Time to Reach Peak Funding	months	33	32	1	3%
Project Capital (Incl. Contingency)	AUD (M)	373	400	-27	-7%
NPV/Max. Exposure	ratio	1.3	1.1	0.3	24%
AiSC / Cu eq Tonne	USD/lb	1.60	1.71	-0.11	-6%
AiSC / Zinc eq Tonne	USD/lb	0.38	0.49	-0.12	-24%
Zinc revenue contribution	%	41%	46%	-5%	-11%
Sustaining Capital (LoM)	AUD (M)	137	83	54	64%
First Concentrate Produced	months	33	25	8	32%
Life of Mine	years	11.5	9.7	1.8	19%
Copper Price	USD/lb	3.03	3.10	-0.1	-2%
Zinc Price	USD/lb	1.06	1.25	-0.2	-15%
Forex	AUD:USD	1.64	1.45	0.2	13%

Table 7: Valuation result comparison between the BFS-20 and the BFS-19 (numbers may contain apparent rounding errors).

The Study also included a review of the BFS-19 Project risk register. The risk review re-assessed the Project's risk profile considering already-identified as well as new potential exposures. The same risk evaluation criteria as was used for the BFS-19 was employed to characterise, rank and develop mitigatory measures for the identified risks.

New risks added to the list of headline risks includes the potential adverse impact of the Covid-19 pandemic (**Covid-19**) on Project development and efficient operation. Mitigatory measures include using wider ranges for the stress testing of business scenarios and project economics, revising the fund-raising strategy and establishing Covid-19 management protocols during Project development and operation.

The risk of delaying Project start-up and operation due to onerous permitting requirements for operating within the Square Kilometre Array (**SKA**) restriction zone was removed from the headline risk list. Significant progress has been made towards obtaining the requisite SKA permissions.

Beyond the Foundation Phase, it is anticipated that mine-life extension will be underpinned by delineated Mineral Resources not yet incorporated into the mining plan as well as known deposit extensions and existing mineralised pillars which are anticipated to require low or no additional capital investment to extend the mine life.

PRIESKA BANKABLE FEASIBILITY STUDY TECHNICAL REPORT EXTRACTS

Nature of and Contributions to the BFS and BFS-19

This BFS is an update of the business case put forward in the BFS-19 report, incorporating business plan refinements resulting from ongoing value engineering and project development investigations, as well as considering the current macro-economic outlook. The basis of the majority of the BFS assumptions are as reported in the BFS-19 plan. The BFS is supported by work carried out by various consultants and specialists reporting to the Orion owner's team, with an internal technical and financial review conducted by SRK Consulting (Pty) Ltd (**SRK**).

The consultants and specialists who have variously contributed are: A&B Global Mining Ltd; ABS Africa (Pty) Ltd; BPDT & Co. (Pty) Ltd; Bluhm Burton Engineering & Ventilation Consultants (Pty) Ltd; Beulah Africa (Pty) Ltd; Cart Investments (Pty) Ltd; DRA Projects South Africa (Pty) Ltd; Earth Science Solutions; Endeavour Financial Limited; Falcon and Hume Attorneys Inc.; Fraser McGill Mining & Minerals Advisory (Pty) Ltd; Knight Piésold (Pty) Ltd; METC Engineering Ltd; Gariep Mining and Exploration Services (Pty) Ltd; Mets Consulting South Africa; Patterson and Cooke (Pty) Ltd; PCDS Consultants (Pty) Ltd; Power Plant Electrical Technologies (Pty) Ltd; Professional Cost

Consultants (Pty) Ltd; Promethium Carbon (Pty) Ltd; Shift Innovations (Pty) Ltd; SRK Consulting (Pty) Ltd; Strategy4Good; The MSA Group (Pty) Ltd; Turnkey Civil (International) Group (Pty) Ltd; VBKom Engineering Consultants (Pty) Ltd; Whittle Consulting (Pty) Ltd and Z Star Mineral Resource Consultants (Pty) Ltd. Orion's owner's team had overall Project management oversight.

Reference is also made to historical and other more current Project documents.

The report complies with Australian Securities Exchange (**ASX**) Listing Rules and The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 (**JORC Code**) reporting standards.

Project Context and Overview

The Project is located in the Northern Cape Province of South Africa. Figure 2 outlines the location of the Company's exploration activities, with the Prieska Project located at the southern extent, approximately 60km south-west of the town of Prieska.

The BFS outlines an improvement of the business case detailed in the BFS-19, for the establishment of new mining operations at the existing Prieska Copper Mine (**PCM**). PCM ceased operations in 1991 and a conditional mine closure certificate was issued in 1995.

The mine was previously owned and operated by Prieska Copper Mine Limited, a subsidiary of Anglo-Transvaal Consolidated Investment Company Limited (**Anglovaal**). The decision to close the mine was influenced by a combination of the uncertain economic and political environment in South Africa in the mid-1980s and the technical considerations that arose as the mine got deeper and the spatial orientation of the mineralisation changed. The technical considerations relating to the mining of the flattened deposit no longer presents a major challenge as modern mechanised mining methods, employed globally, present a ready solution to the historical challenges.

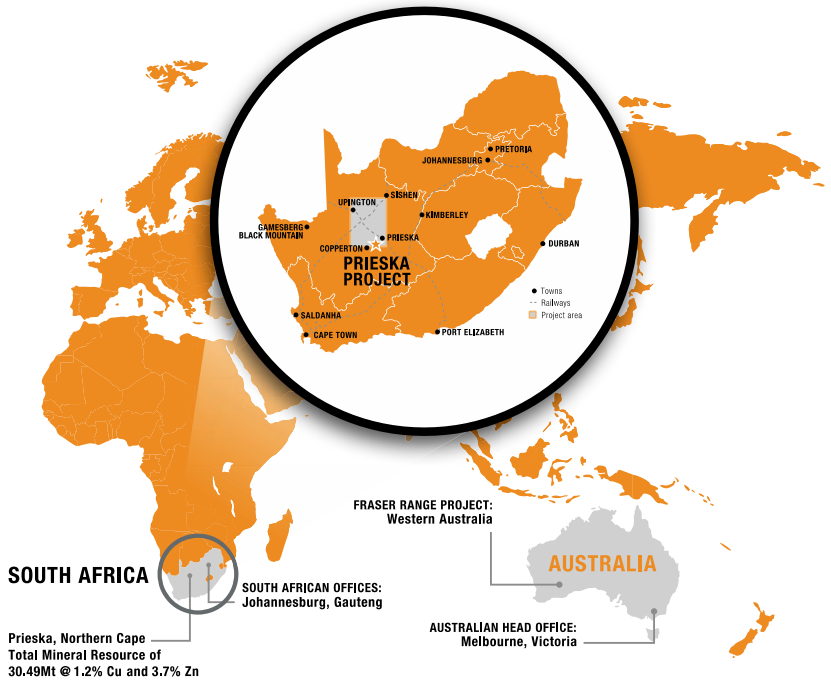


Figure 2: Location of the Prieska Copper-Zinc Project, Northern Cape Province, South Africa.

The BFS, as summarised herein, was carried out to a cost estimation accuracy level of ± 15% and is supported by a Mineral Resource estimated in accordance with JORC Code guidelines, as announced in January 2019 (refer ASX release 15 January 2019). A detailed underground mine design and schedule, as well as a practical pit design and schedule were completed, containing a combination of Probable Ore Reserves, Indicated Mineral Resources and no more than 33% Inferred Mineral Resources in the total Production Target.

In the Study, underground mining is planned to predominate during the first 11 years of production, with open pit mining planned from Year 11 to the end of the Foundation Phase. The Foundation Phase excludes known deposit extensions, remnant pillars and satellite deposits. Project financial evaluations have therefore been limited to considering the Foundation Phase only, though elements of strategic planning have an outlook for the granted length of the Repli Mining Right, which is 24 years.

Project Ownership, Mineral Tenements and Licensing

The Project area consists of two mineral tenements: the Repli Mining Right area and the contiguous Vardocube Prospecting Right area (under mining right application). Together, these tenements cover a combined 6,766 hectares. The mineral tenements were granted to two subsidiaries of Orion, namely Repli Trading No. 27 (Pty) Ltd (**Repli**) and Vardocube (Pty) Ltd (**Vardocube**). As of January 2020, Vardocube became a wholly owned subsidiary of Repli.

Orion indirectly holds the majority ownership of Repli (70%), with the balance held by Prieska Resources (Pty) Ltd (**Prieska Resources**) (20%), the Orion Siyathemba Community Trust (**Community Trust**) (indirectly 5%) and the Orion Siyathemba Employee Trust (**Employee Trust**)(indirectly 5%).

Prieska Resources has BEE entrepreneurial companies as its shareholders, namely, Safika Resources (Pty) Ltd (44.72%), Kolobe Nala Investment Company (Pty) Ltd (37.97%) and Black Star Minerals (Pty) Ltd (17.31%). The Community Trust was established for the benefit of the host communities residing in the vicinity of the Project Area. The Employee Trust was established for the benefit of the future mine's employees.

Neither the Community Trust nor the Employee Trust are required to directly contribute to funding the Project development upfront. However, the Company and Prieska Resources are entitled to recover all funding contributions they make on behalf of both trusts from Project cash flows. This Project ownership structure fulfils the requirements of the current iteration of the Broad-based Socio-Economic Empowerment Charter for the South African Mining Industry (**Mining Charter III**). This corporate structuring was concluded after completion of the BFS-19. The ownership structure is set out in the diagram that follows (Figure 3).

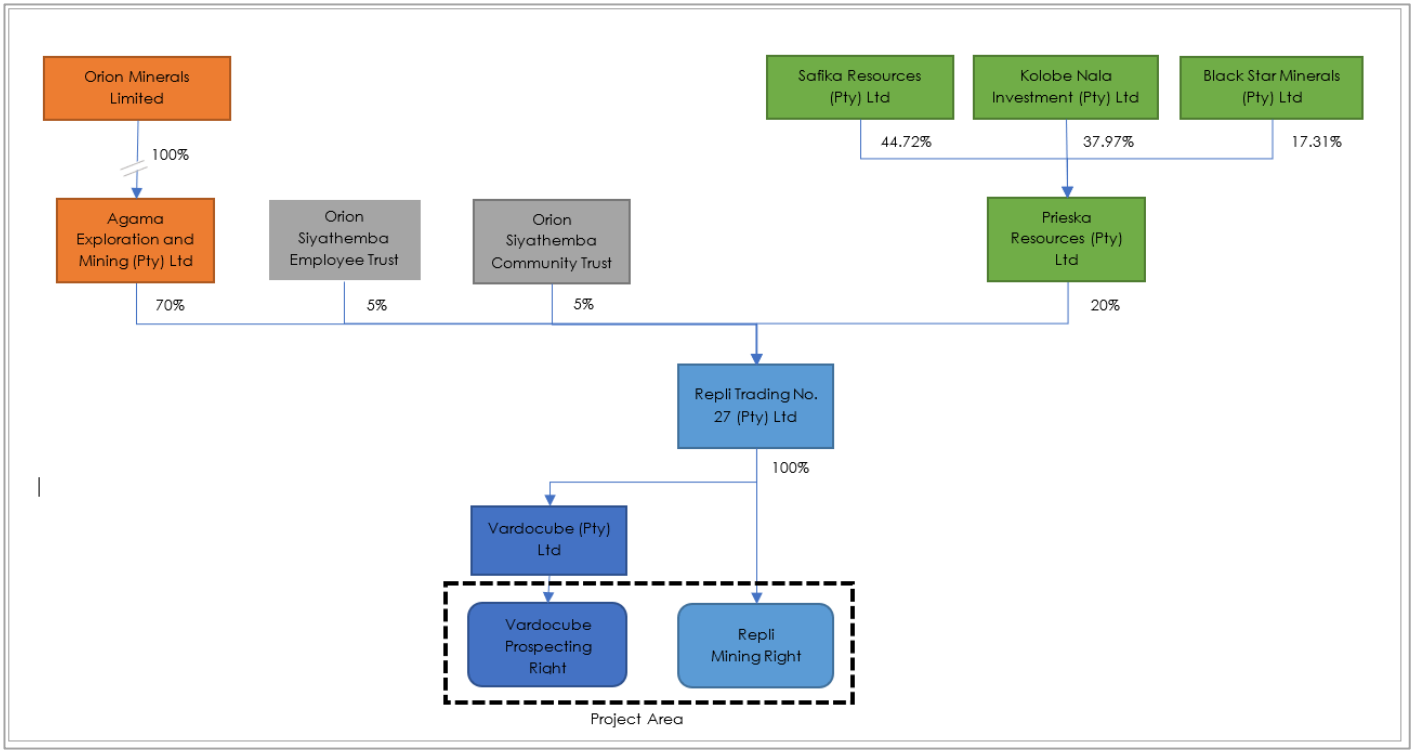


Figure 3: Ownership structure for the Prieska Copper-Zinc Project, Northern Cape Province, South Africa.

The Mining Right (**MR**), the Waste Management Licence (**WML**) and the Environmental Authorisation (**EA**) for Repli were granted during Q3 2019 after completion of the BFS-19. The Repli Integrated Water Use Licence (**IWUL**) was submitted to the relevant authorities and is nearing finalisation. The Vardocube EA was granted in Q1 2020. The

grant of the Vardocube MR is expected during 2020. No IWUL is required for Vardocube. A land rezoning certificate (Special Zone – Extractive Industry) is required for the purposes of municipal land-use levies. Work is well advanced to obtain the certificate during the 2020 calendar year. This licencing timeline will allow mine construction to commence as soon as funding is available. A summary of the status of key Project licences is tabled below (Table 8).

Type of Authorisation/Licence	Repli	Vardocube
Environmental Authorisation (and Waste Use Licence)	Granted 3 July 2019	Granted 3 March 2020
Mining Right	Granted 23 August 2019	Pending
Water Use Licence	Pending	Not required
Special Zone (Extractive Industry)	Pending	Pending

Table 8: Status of key licences required to commence mine construction activities at the Prieska Project.

Key surface rights agreements to provide access to land on the Project site are already in place.

Surrounding the Project area, Orion also holds additional prospecting rights or has prospecting rights under application through subsidiary entities. This tenement holding enables exploration for down-dip and westerly extensions of the Prieska Deposit to be undertaken as well as the search for possible new satellite mineralisation in the vicinity of the Project area. A map showing the boundaries of only those mineral tenements that are granted to various Orion subsidiaries, nearby the Hutchings Shaft are shown in Figure 4. Orion has a total of approximately 3,000km^2 of ground in the region as either granted mineral tenements or under application for prospecting rights.

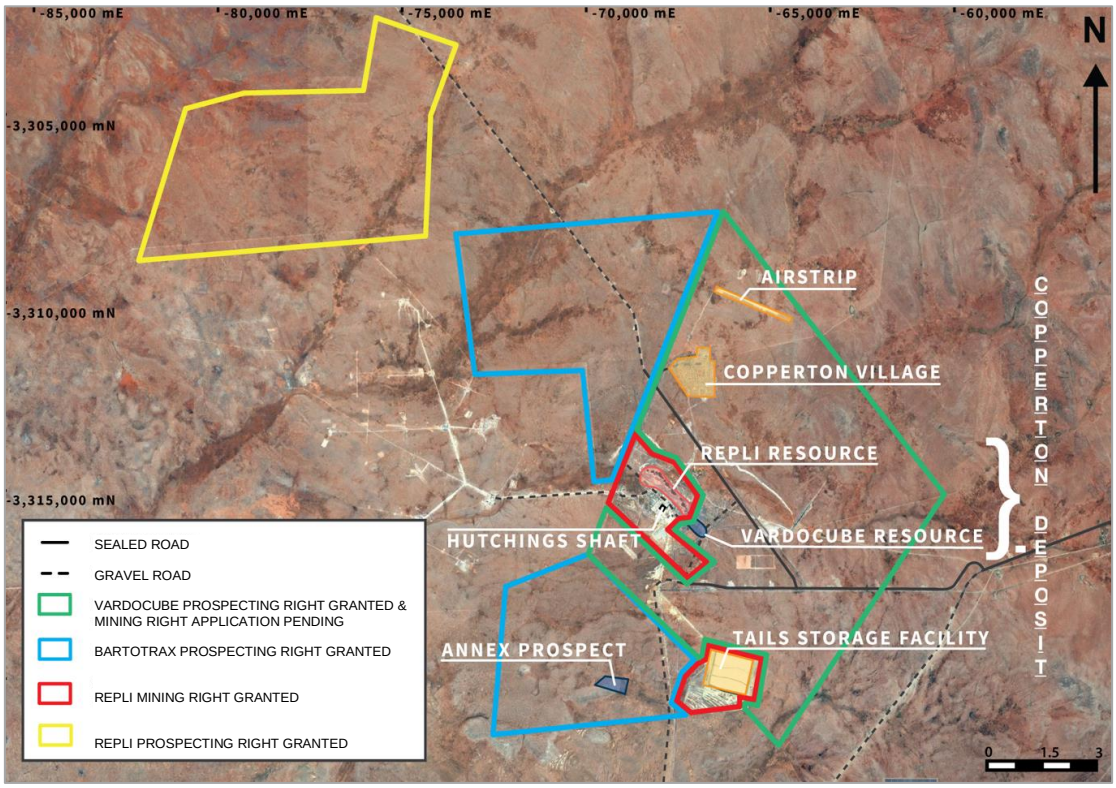


Figure 4: Mineral Tenement Map for the Project Area and surrounds.

History

Previous owners successfully operated the PCM on the Project site as a mechanised underground mine between 1971 until 1991. During that time the mine processed 46Mt of run-of-mine (**RoM**) material and produced 430kt of

Cu and 1.01Mt of Zn[5], at average processing plant metal recoveries of 84.9% for Cu and 84.3% for Zn. Reported 'mineral reserve' grades at the time of mine commissioning were 1.7% Cu and 3.8% Zn[6]. Pyrite was also intermittently produced as a by-product. The concentrates were either smelted domestically at O'kiep or Zincor or exported via Saldanha Bay.

Existing Infrastructure

Despite the Project site being in a remote part of South Africa, with no nearby large human settlements, it is well-serviced by infrastructure that was established for the previous mining operation. Existing infrastructure includes a water pipeline from the Orange River, tarred roads, national grid power supply and a 1.7km-long air strip. The village of Copperton, which is located 4km by road from the main rock hoisting shaft was the principal residence for the PCM community. The town is still in use, though only 40 of the original 300 houses remain. The farming service town of Prieska, with a population of 16,000, lies 60km north-east of the Project site. The operating rail siding of Groveput, located 50km from the Project site, on-route to the town of Prieska, provides rail access to the main Kimberley – De Aar railway line and from there to various ports.

The main hoisting shaft, which is 1,024m deep, 8.8m in diameter and concrete-lined, along with associated concrete headgear, remain intact. New infrastructure, such as rock-and-materials winders, underground rock handling facilities, processing plant and related surface infrastructure, are to be designed and purpose-built for the new mine. The mine is currently filled with water to a depth of 310m below surface. A 10-month pumping program is planned to de-water the mine, following a 7-month mobilisation and preparation period to ready the shaft for de-watering.

Exploration and Mineral Resources

Deposit Geology and History

The Mineral Resources estimate supporting the BFS is unchanged from that previously reported in the BFS-19[7]. The Mineral Resources consist of portions of the Prieska Deposit extending at depth, the Deep Sulphide hypogene deposit (**Deep Sulphide Deposit**) and the smaller near-surface +105 Level supergene deposit (**+105 Level Deposit**).

The Prieska Deposit is a VMS style deposit, with mineralisation proved along 2.4km of a northwest-southeast trending strike extent and down to a depth of 1.25km. Mineralisation of Cu, Zn, silver (**Ag**) and gold (**Au**) is in massive sulphides distributed as a persistent lens within gneiss rock assemblages contained within an overturned synform (Figure 5).

[5] Refer ASX release 15 November 2017
[6] Note that these were historical estimates not compiled in accordance with JORC Code guidelines.
[7] ASX release of 26 June 2019.

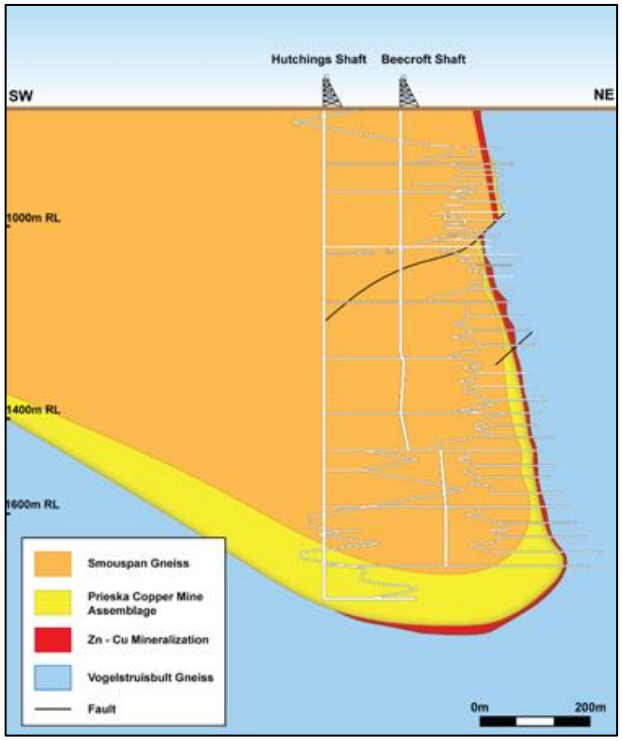


Figure 5: Geological cross-section through the Prieska Deposit (modified after Theart et al, 1989 and Wagner and Van Schalkwyk, 1986).

By the time the mine closed, the deposit had been exploited to a depth of 900m below surface. In addition, strike and dip extensions had been identified, mineral resource estimates prepared, and access development partially established into some of the deposit extensions.

Mineral Resources Estimates

Orion used the extensive catalogue of historical data to guide its verification and infill drilling campaigns on both the hypogene Deep Sulphide Deposit and the supergene +105 Level Deposit. Approximately 86,000m of diamond core and reverse circulation drilling was conducted, culminating in the declaration of Mineral Resources estimated by a Competent Person and classified in accordance with JORC Code (2012) guidelines as shown in the series of tables that follow (Table 9).

Deep Sulphide Mineral Resource for Repli + Vardocube Tenements (Effective Date: 15 December 2018)[8]						
Tenement	**Classification**	**Tonnes**	**Cu (metal tonnes)**	**Cu (%)**	**Zn (metal tonnes)**	**Zn (%)**
Repli	Indicated	15,052,000	170,000	1.15	510,000	3.38
	Inferred	6,998,000	80,000	1.04	270,000	3.86
	Total	**22,050,000**	**249,000**	**1.13**	**779,000**	**3.53**
Vardocube	Indicated	3,455,000	44,000	1.27	158,000	4.57
	Inferred	3,221,000	41,000	1.27	147,000	4.56
	Total	**6,676,000**	**85,000**	**1.27**	**305,000**	**4.57**
Deep Sulphide Total	Indicated	18,507,000	217,000	1.17	667,000	3.60
	Inferred	10,219,000	117,000	1.14	417,000	4.08
	Total	**28,726,000**	**334,000**	**1.16**	**1,084,000**	**3.77**
Deep Sulphide Resource bottom cut-off = 4% Equivalent Zn (Zn Eq = Zn% + (Cu%*2)). Mineral Resources stated at zero % cut-off. Tonnes are rounded to thousands, which may result in rounding errors.						

[8] Mineral Resource reported in ASX release of 18 December 2018: "Landmark Resource Upgrade Sets Strong Foundation" available to the public on http://www.orionminerals.com.au/investors/asx-jse-announcements/. Competent Person Orion's exploration: Mr. Errol Smart. Competent Person: Orion's Mineral Resource: Mr. Sean Duggan. Orion confirms it is not aware of any new information or data that materially affects the information included above. For the Mineral Resources, the company confirms that all material assumptions and technical parameters underpinning the estimates in the ASX release of 18 December 2018 continue to apply and have not materially changed. Orion confirms that the form and context in which the Competent Person's findings are presented here have not been materially modified.

+105 Updated Mineral Resource for the Repli Tenement (Effective Date: 11 January 2019)[9]						
Classification	**Mineralised Zone**	**Tonnes**	**Cu (metal tonnes)**	**Cu (%)**	**Zn (metal tonnes)**	**Zn (%)**
Indicated	Supergene	624,000	10.000	1.54	19,000	3.05
	Total	**624,000**	**10,000**	**1.54**	**19,000**	**3.05**
Inferred	Oxide	511,000	3,000	0.6	4,000	0,9
	Supergene	627,000	14,000	2.2	11,000	1.8
	Total	**1,138,000**	**17,000**	**1.5**	**16,000**	**1.4**
Total	**+105 Total**	**1,762,000**	**27,000**	**1.5**	**35,000**	**2.0**
+105m Level Mineral Resource bottom cut-off = 0.3% Cu. Mineral Resources stated at zero % cut-off. Tonnes are rounded to thousands, which may result in rounding errors.						

Combined Prieska Project Mineral Resource for Repli + Vardocube Tenements (Effective Date: 11 January 2019)[9]						
Mineral Resource	**Classification**	**Tonnes**	**Cu (metal tonnes)**	**Cu (%)**	**Zn (metal tonnes)**	**Zn (%)**
Deep Sulphide Resource	Indicated	18,507,000	217,000	1.17	667,000	3.60
	Inferred	10,219,000	117,000	1.1	417,000	4.1
+ 105m Level Resource	Indicated	624,000	10,000	1.54	19,000	3.05
	Inferred	1,138,000	17,000	1.4	16,000	1.4
Total	Indicated	19,131,000	227,000	1.18	686,000	3.59
	Inferred	11,357,000	134,000	1.2	433,000	3.8
Grand Total		**30,488,000**	**361,000**	**1.2**	**1,119,000**	**3.7**
Deep Sulphide Resource bottom cut-off = 4% Equivalent Zn (Zn Eq = Zn% + (Cu%*2)); +105m Level Mineral Resource bottom cut-off = 0.3% Cu. Mineral Resources stated at zero % cut-off. Tonnes are rounded to thousands, which may result in rounding errors. The Mineral Resources are inclusive of Ore Reserves.						

Table 9: Deep Sulphide Mineral Resource (top), +105 Level Mineral Resource (middle), Prieska Mineral Resource Estimate – Combined (bottom).

Mineral Resource Classification Criteria for the Deep Sulphide (underpinning the Deep Sulphide Ore Reserve)
Refer to ASX release 18 December 2018.

Mineral Resource Confidence for the Deep Sulphide (underpinning the Deep Sulphide Ore Reserve)
Refer to ASX release 18 December 2018.

Mineral Resource Classification Criteria and Confidence for the +105 Level (underpinning the +105 Ore Reserve)
Refer to ASX release 15 January 2019.

There still remains significant potential for deposit extensions with 'out of resource' mineralisation confirmed by diamond drill hole core samples. Remnant pillars are also planned for further investigation. Satellite deposit potential has been demonstrated with intersections of sulphide mineralisation at Ayoba, 5km from the proposed Prieska processing plant. Further afield, available historical data and exploration work by Orion has confirmed the existence of numerous follow-up massive sulphide copper-zinc-rich targets within the nearby mineral tenements also held by Orion[10].

Ore Reserves

Ore Reserves Estimation

The Deep Sulphide Ore Reserves were re-estimated as part of this Study using updated modifying factors and economic assumptions from the BFS-19 Ore Reserves estimations. A complete mining plan and schedule

[9] Mineral Resource reported in ASX release of 15 January 2019: "Prieska Total Resource Exceeds 30Mt @ 3.7% Zn and 1.2% Cu Following Updated Open Pit Resource" available to the public on http://www.orionminerals.com.au/investors/asx-jse-announcements/. Competent Person Orion's exploration: Mr. Errol Smart. Competent Person: Orion's Mineral Resource: Mr. Sean Duggan. Orion confirms it is not aware of any new information or data that materially affects the information included above. For the Mineral Resources, the company confirms that all material assumptions and technical parameters underpinning the estimates in the ASX release of 15 January 2019 continue to apply and have not materially changed. Orion confirms that the form and context in which the Competent Person's findings are presented here have not been materially modified.

[10] Refer to ASX releases 16 January 2019 for Ayoba satellite target area and 25 February 2019 for Prieska deposit extensional potential.

supported solely by Indicated Mineral Resources was prepared as part of determining Ore Reserves and testing the economic robustness of the Project.

Breakeven Grade
The breakeven grade for the Deep Sulphide Ore Reserves estimation was estimated in the BFS-19 and remains unchanged, refer to ASX release 26 June 2019. No breakeven or cut-off grade is estimated for the open-pit as the Whittle 4D© Pit Optimisation process takes account of all relevant costs and the value per mining block net of plant recovery factors, treatment and refining charges and including waste stripping to determine if a Mineral Resource block can be brought into an economic pitshell.

Mining Dilution, Recovery Factors and Stope and Tunnel Dimensions
The mine designs assume trackless mining methods for drilling and blasting, with LHD and truck haulage to deliver rock to ore passes, where the rock will be directed onto a train haulage level. The train system is planned to tram rock back to the shaft for hoisting. The dilution could be in the form of low-grade mineralisation directly adjacent to the stope boundaries or backfill which can enter the ore stream from mining next to previously filled stopes. The modifying factors and key excavation dimensions for underground mining are outlined below.

Parameter	Source	Factor
Mineral Resources (below Cut-off: 4.0% Zn_Eq.) & Mine Design Losses	MSO	58%
Design stope dilution	MSO	20%
Geological/pillar Losses	Assumed	0%
Dilution from backfill in adjacent stopes – Longitudinal LHOSF	Orion	0.3%
Dilution from backfill in adjacent stopes – Transverse LHOSF	Orion	2.2%
Dilution from backfill in adjacent stopes – Longitudinal LHOSF	Orion	1.5%
Mining recovery factor – D&F	Assumed	100%
Mining recovery factor - LHOSF	Assumed	95%
Minimum mining dimensions - LHOSF	Orion	5-15m x 40m
Minimum mining dimensions – D&F	Orion	4m x 4m
Tunnel dimensions – main ramps	Orion	5.5m x 5m
Tunnel dimensions – footwall tunnels	Orion	5m x 5m
Tunnel dimensions – ore drill drives	Orion	5m x 4m

Table 10: Dilution, recovery and stope and tunnel dimensions used in the determination of the Ore Reserves.

Mining cycle times were built up from first principles to determine productivity rates for the mine scheduling. These productivity rates also govern the mining fleet and staffing requirements.

The open pit mining dilution, recovery factors and pit dimensions are as stated in the BFS-19 release[11].

Estimation Methodologies for the Ore Reserves
The BFS used Datamine™ and a mineable shape optimiser (**MSO**) as detailed in the BFS. Deductions were made for material excluded by the MSO, geological and pillars losses and a mining extraction factor. Dilution is included during the MSO process. The modifying factors, preliminary designs and schedules were done using the Mineral Resources classified and released in December 2018 for the Hypogene Deep Sulphides (refer ASX release 18 December 2018). The open pit Ore Reserves estimation methodologies are as stated in the BFS-19 release.

Material assumptions regarding timeframe for development and production assumed that the BFS is positive, the necessary licences and permits are granted by the authorities and funding is procured.

Classification Criteria for Ore Reserves
Only Indicated Mineral Resources were used to determine Probable Ore Reserves for both open pit and underground Ore Reserves.

Confidence in the Modifying Factors used for Ore Reserves determination
The level of accuracy for the BFS Technical Report is ± 15%. The Deep Sulphide Ore Reserves were estimated using only the Indicated Mineral Resource component of the Deep Sulphide Mineral Resources. A LoM plan and

[11] Refer ASX release 26 June 2019.

financial forecast was prepared using Indicated Mineral Resources only, as part of the process of determining Ore Reserves. The Ore Reserves only plan was demonstrated to be economically viable, as a stand-alone scenario.

A detailed underground drilling program consisting of 120 drill holes (approximately 22,400m) and estimated to cost AUD2.9M has been compiled to upgrade those Inferred Mineral Resources incorporated in the Production Target. This program has been provisioned for as part of the mining plan.

For the open pit Ore Reserves estimations, modifying factors remain as stated in the BFS-19 release.

Ore Reserves Tabulation

The updated Deep Sulphide Probable Ore Reserves amount to 14.0Mt grading 1.0% Cu and 3.2% Zn for 146kt of contained copper metal tonnes and 446kt of contained zinc in-situ (Cu-Eq of 248kt metal at 1.8%). The Ore Reserves have been prepared under the supervision of a Competent Person and are classified and reported in accordance with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) (Table 11).

Prieska Project Deep Sulphide Ore Reserves (Effective Date: 30 April 2020)								
Deposit	Ore Reserve Classification	Tonnage (Mt)	Cu		Zn		Cu equivalent[12]	
			Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)
Deep Sulphide	Probable	14.0	146	1.0	446	3.2	248	1.8
Total	**Probable**	**14.0**	**146**	**1.0**	**446**	**3.2**	**248**	**1.8**

Deep Sulphide Ore Reserves estimated using financial assumptions and modifying factors stated in the Study. Tonnes are rounded to thousands, which may result in rounding errors. The corresponding Indicated Mineral Resources, disclosed in Table 9, are inclusive of these Ore Reserves.

Table 11: Ore Reserves Estimate – Deep Sulphide Mineral Resource.

The +105 Level Probable Ore Reserves as stated in the BFS-19 have not been updated. These amount to 484kt grading 1.5% Cu and 3.3% Zn for 7kt of contained copper metal and 16kt of contained zinc metal (Cu-Eq of 11kt metal at 2.3%)[13]. The +105 Ore Reserves estimate have been assessed by a Competent Person as being valid after consideration of current macro-economic assumptions and the manner in which the Ore Reserves are applied in the Production Target. The Ore Reserves are re-issued in accordance with the JORC Code (2012) (Table 12).

[12] Method used to determine Cu equivalent Zn grades:
Underground Cu Equivalent Estimation
1% Zn = (Zn price x Zn NSR) x (Zn plant recovery) = (2,337 x 68.3%) x (81.6%) = 0.23% Cu
(Cu price x Cu NSR) x (Cu plant recovery) (6,680 x 99.3%) (85.5%)
Therefore Cu Equivalent grade = Cu grade + 0.23 x Zn grade.
Open-pit Cu Equivalent Estimation
1% Zn = (Zn price x Zn NSR) x (Zn plant recovery) = (2,337 x 52.2%) x (75.8%) = 0.17% Cu
(Cu price x Cu NSR) x (Cu plant recovery) (6,680 x 91.9%) (61.7%)
Therefore Cu Equivalent grade = Cu grade + 0.17 x Zn grade.
Combined Cu Equivalent Estimation
1% Zn = (Zn price x Zn NSR) x (Zn plant recovery) = (2,337 x 67.8%) x (81.4%) = 0.23% Cu
(Cu price x Cu NSR) x (Cu plant recovery) (6,680 x 99.0%) (84.3%)
Therefore Cu Equivalent grade = Cu grade + 0.23 x Zn grade.
Metal prices assumptions based on S&P Global commodity long-term forecast (April 2020).
Plant recovery assumptions are based on metallurgical test work completed to date at Mintek Laboratories (South Africa) under the supervision of DRA. Refer to JORC Table 1 in the Appendices and ASX releases 15 November 2017, 8 February 2018, 1 March 2018, 12 June 2018, 22 October 2018 and 31 October 2019.

[13] *Ore Reserve reported in ASX release of 26 June 2019: "Prieska Bankable Feasibility Study confirms …" available to the public on http://www.orionminerals.com.au/investors/asx-jse-announcements/. Competent Person: Orion's Ore Reserve: Mr. William Gillespie. Orion confirms it is not aware of any new information or data that materially affects the information included above. For the Ore Reserves, the company confirms that all material assumptions and technical parameters underpinning the estimates in the ASX release of 26 June 2019 continue to apply and have not materially changed. Orion confirms that the form and context in which the Competent Person's findings are presented here have not been materially modified.*

Prieska Project +105 Level Ore Reserves (Effective Date: 15 June 2019)								
Deposit	Ore Reserve Classification	Tonnage (kt)	Cu		Zn		Cu Equivalent[13]	
			Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)
+ 105 Supergene	Probable	484	7	1.5	16	3.3	11	2.3
Total	**Probable**	**484**	**7**	**1.5**	**16**	**3.3**	**11**	**2.3**

+105m Level Ore Reserves estimated using financial assumptions and modifying factors stated in the Study. Tonnes are rounded to thousands, which may result in rounding errors. The corresponding Indicated Mineral Resources, disclosed in Table 9, are inclusive of these Ore Reserves.

Table 12: Ore Reserves Estimate – +105 Level Supergene Mineral Resource.

The combined Project Probable Ore Reserves total 14.5Mt grading 1.1% Cu and 3.2% Zn for 153kt of contained copper metal and 462kt of contained zinc metal, (Cu-Eq of 259kt metal tonnes at a grade of 1.8%). This is an increase of 6% on the previously reported Ore Reserves (Table 13).

Prieska Project Ore Reserves Estimate (Effective Date: 30 April 2020)								
Deposit	Ore Reserve Classification	Tonnage (Mt)	Cu		Zn		Cu Equivalent[13]	
			Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)	Metal Tonnes (kt)	Grade (%)
Deep Sulphide	Probable	14.0	146	1.0	446	3.2	248	1.8
+ 105 Supergene	Probable	0.5	7	1.5	16	3.3	11	2.3
Total	**Probable**	**14.5**	**153**	**1.1**	**462**	**3.2**	**259**	**1.8**

Project Ore Reserves estimated using financial assumptions and modifying factors stated in the BFS-20. Tonnes are rounded to thousands, which may result in rounding errors. The corresponding Indicated Mineral Resources, disclosed in Table 9, are inclusive of these Ore Reserves.

Table 13: Ore Reserves Estimate – Combined Mineral Resource.

Foundation Phase Plan (Life-of-Mine)

Both underground and open pit mining are planned for the Foundation Phase. Underground mining is planned to commence on completion of mine dewatering, shaft refurbishment and underground infrastructure establishment, expected to be 27 months from Project approval. Underground mining is forecast to build up over 20 months to a steady-state run-of-mine production rate of 200 thousand tonnes per month (**ktpm**) or 2.4Mtpa. Open pit mining is planned after exhausting underground material at a production rate of 100ktpm.

The LoM plan contains 25.2Mt of material at an average grade of 1.0% Cu and 3.3% Zn from underground and 1.9% Cu and 2.4% Zn from the open pit. This is expected to produce 226kt of Cu and 680kt of Zn contained in differentiated concentrates. The updated LoM plan contains an additional 20% RoM material compared to the BFS-19 plan.

Probable Ore Reserves make up 57% of the total Production Target (underground and open pit), with Indicated Mineral Resources contributing an additional 10% and Inferred Mineral Resources making up the remaining 33%. Those Indicated Mineral Resources that rely on the extraction of Inferred Mineral Resources to be considered economically viable were excluded from the Ore Reserves estimate.

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

The LoM mining production profile is shown in the following graphs with the lower graph illustrating the monthly build-up to steady-state production as compared to the BFS-19 production profile (Figures 6 and 7). A more conservative approach has been adopted for the time to start underground mining and the build-up to steady-state production than was planned in BFS-19. Ore processing commences in Month 33 as compared to Month 25 in the BFS-19.

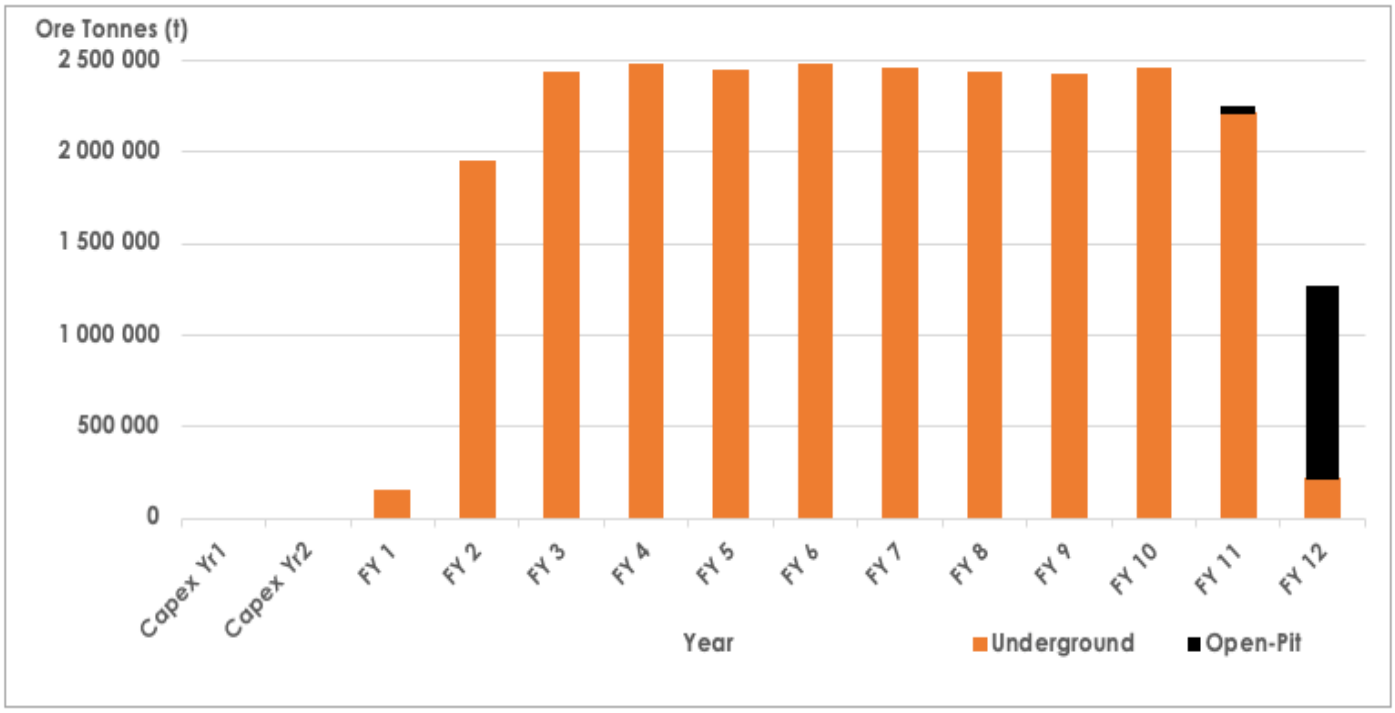


Figure 6: Foundation phase annual mine production profile for the updated BFS.

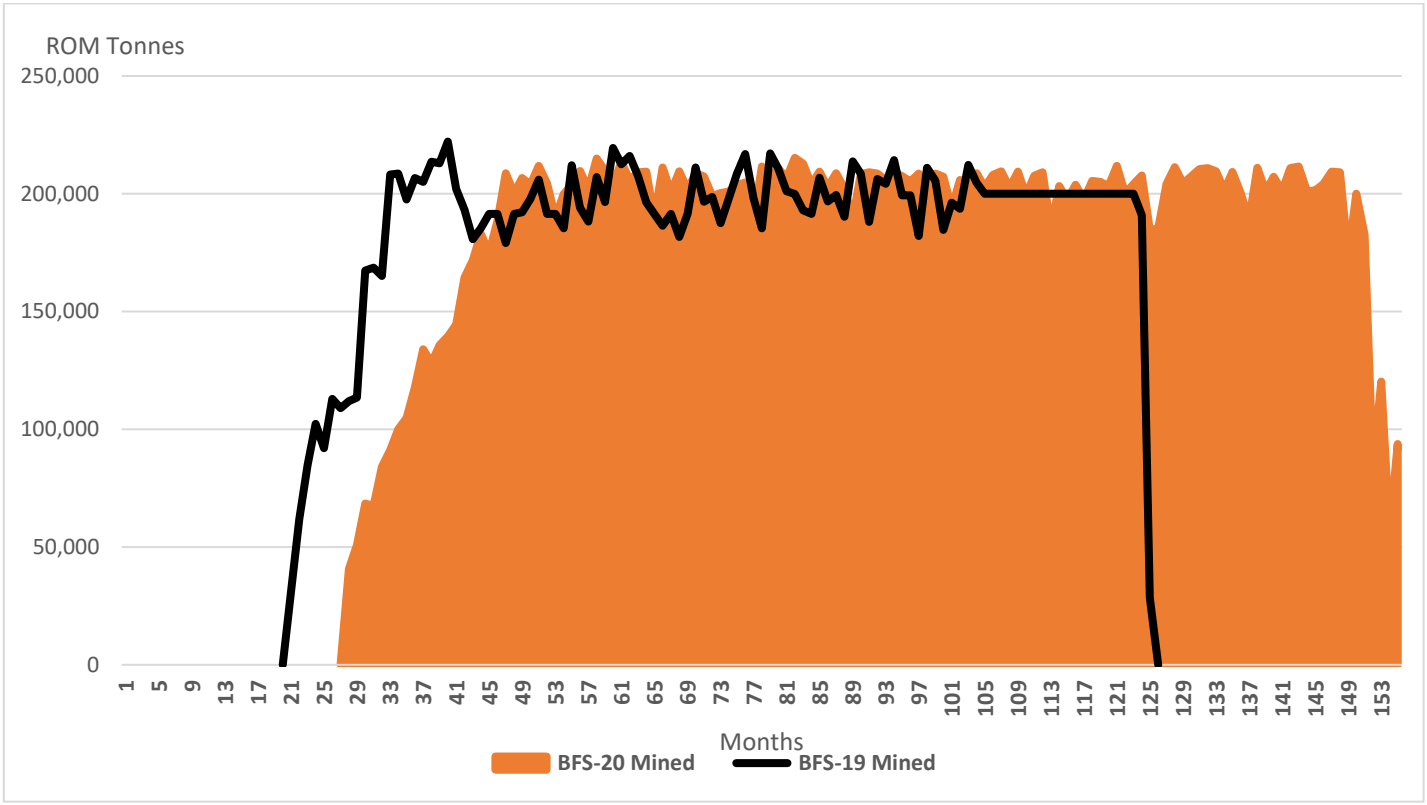


Figure 7: Comparison of the mining production profiles for the updated BFS and the BFS-19, illustrating the deferred build-up to steady-state production.

Mining of Ore Reserves has been prioritised in the LoM production schedule, with Inferred Mineral Resources contributing 33% of tonnes planned over the 12-year period (Figure 8). Having considered, geological continuity, the nature of the deposit's mineralisation, historical context, the manner in which the Indicated Mineral Resources (inclusive of Probable Ore Reserves) have been prioritised for mining ahead of Inferred Mineral Resources and the mining methods to be adopted, Orion is optimistic that the Inferred Mineral Resources included in the mining

plan have good prospects of being upgraded to Indicated Mineral Resources and that the mining plan is realistic and achievable.

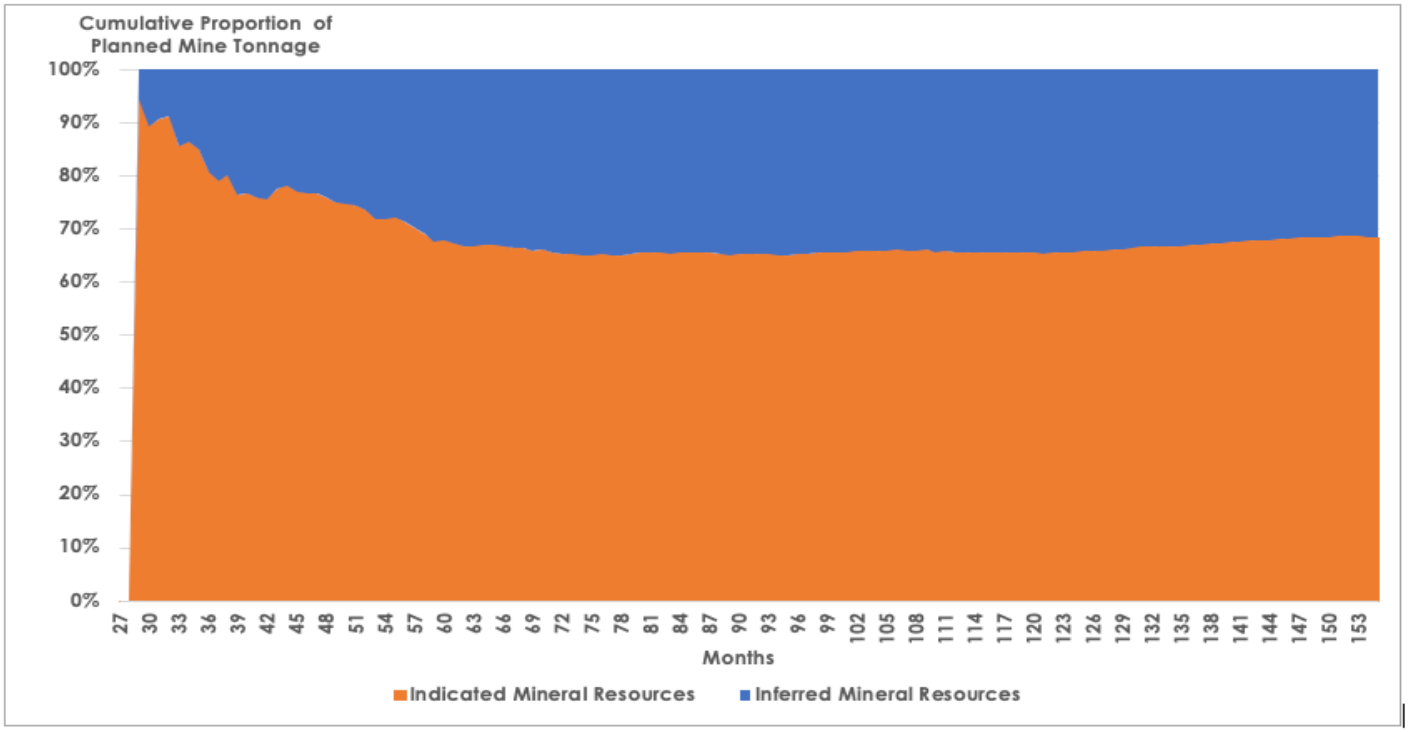


Figure 8: Proportion of Inferred and Indicated Mineral Resources (inclusive of Probable Ore Reserves) incorporated into the Production Target.

Whilst the updated mining plan has a more conservative ramp up to steady-state production, it better prioritises higher grade zones for early mining compared to the BFS-19 mine plan as is shown in the figures below (Figures 9 and 10).

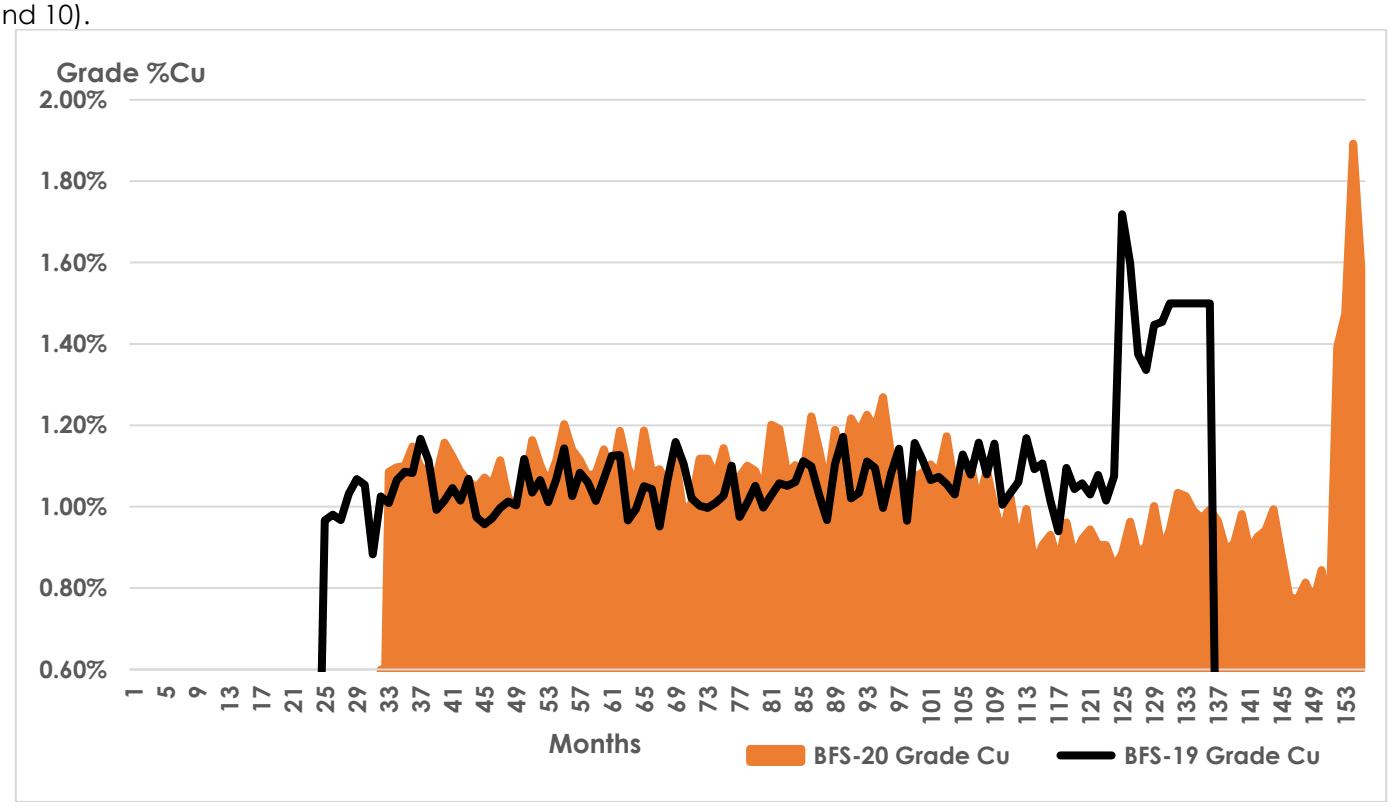


Figure 9: Comparison of the copper grade of the mill feed for the updated BFS and BFS-19

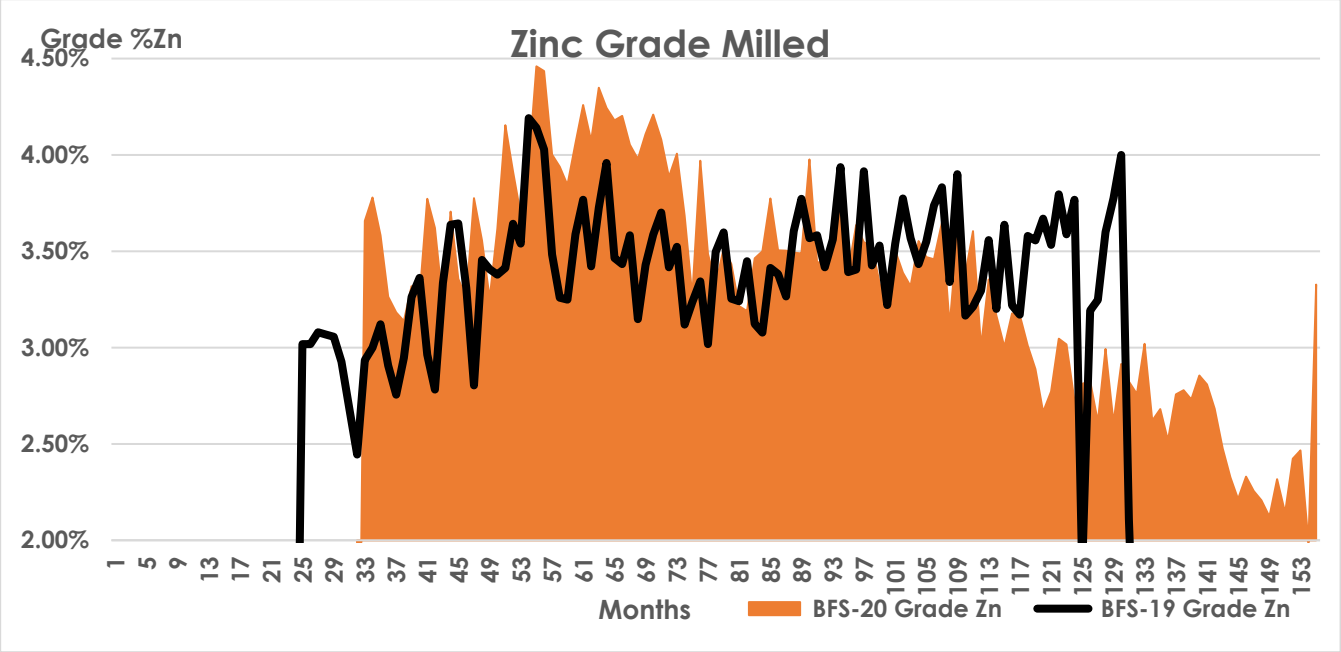


Figure 10: Comparison of the zinc grade of the mill feed for the updated BFS and BFS-19

Mining Methods

The mining methods remain unchanged compared to those stated in BFS-19. Tunnel development remaining from the previous mining operations allows for early access to underground production mining areas. A combination of Long-hole Open Stoping with Fill (**LHOSF**) and Drift and Fill (**D&F**) mining methods are planned to be used, supported with paste backfill. Some low-profile, D&F mining is planned from year 5 of operation, along with open-pit mining of the near-surface +105 Level Supergene Deposit for the last 2 years. The following diagram outlines the four mining zones of the Deep Sulphide Deposit in the mining plan (Figure 11).

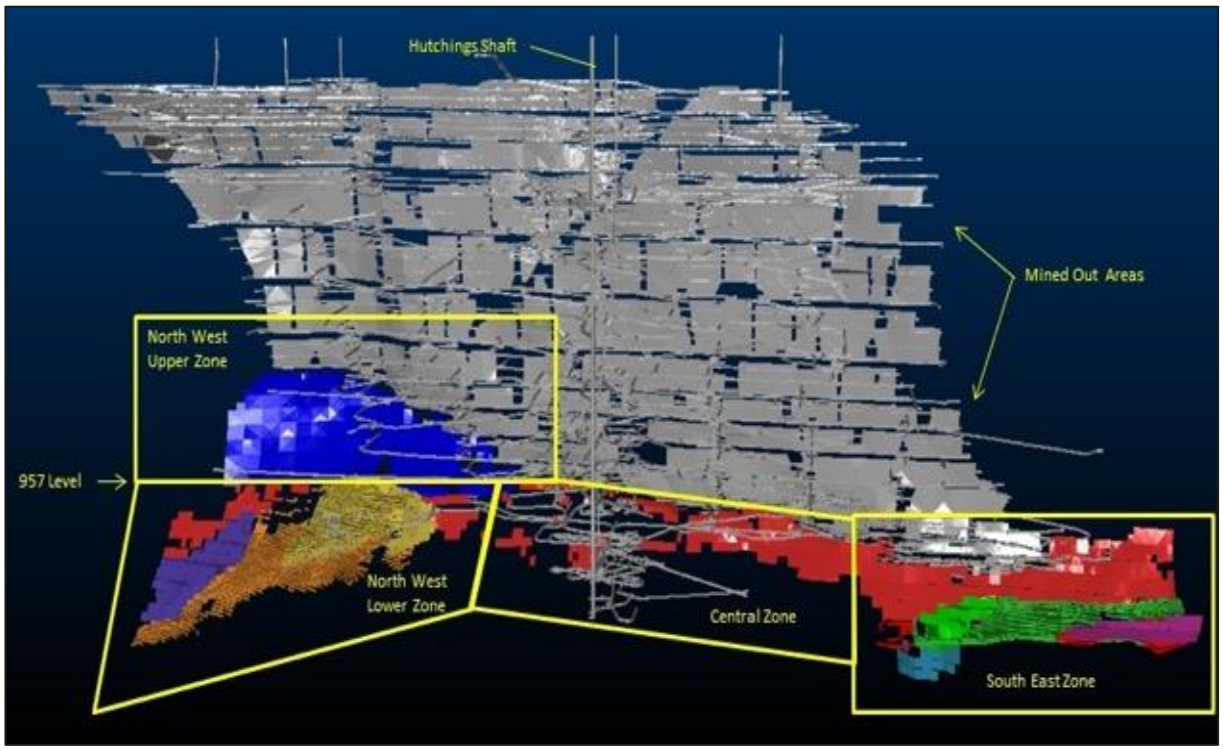


Figure 11: Deep Sulphide Resource planned mining precincts.

Shaft Refurbishment and Dewatering

The Hutchings Shaft and underground workings are currently filled with water to a depth of 310m below surface and contain a volume of 8.6 million cubic metres of water (Figure 12). Dewatering of the workings via a pumping system to be installed in the Hutchings Shaft is planned. Water will be pumped into a 1 million cubic metre volume dewatering dam on surface, from where mechanical evaporators and a reverse osmosis (**RO**) water treatment plant will be used to dispose of and treat the water for discharge into the environment.

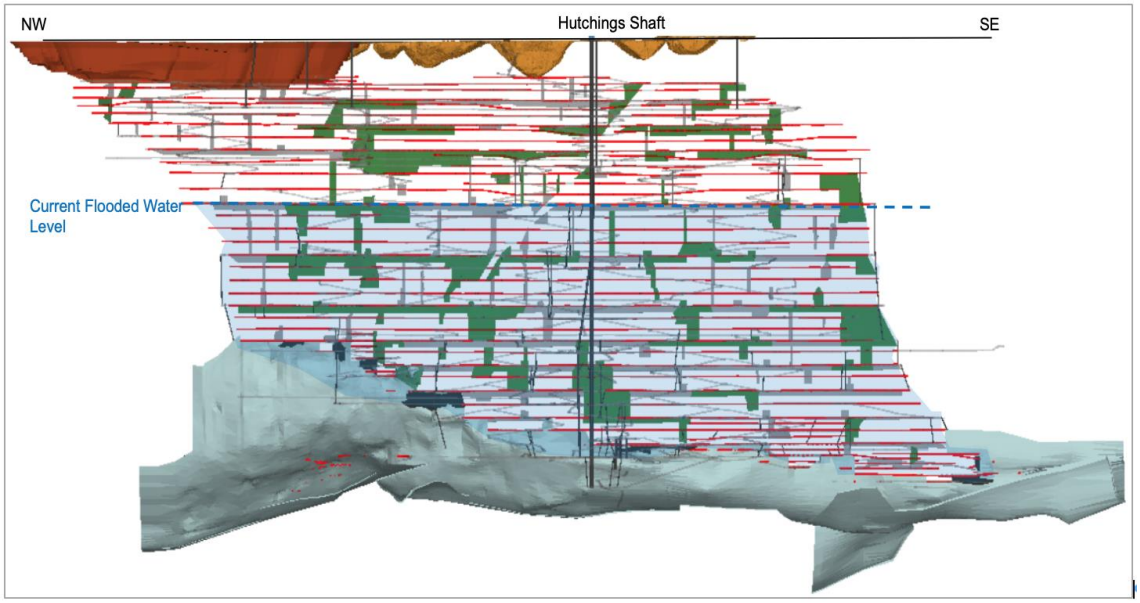


Figure 12: Views showing the remnant pillars and the accumulated water level.

In the updated BFS, the use of water treatment supplements mechanical evaporation which allows the pumping schedule to be accelerated by 4 months. Furthermore, the Department of Human Settlements, Water and Sanitation (DWS) stipulated as part of the IWUL application process that provision be made for a portion of the dewatered volume to be made available for social, commercial or agricultural use in the locality.

Forced evaporation is planned to be used as the primary means to dispose of the water with the water treatment plant (**WTP**) as the secondary means to treat and then discharge treated water into the environment as irrigation water. Forced evaporation and the WTP have similar direct capital requirements (within 15%), however the operating cost of forced evaporation is significantly cheaper (more than 50%) hence its status as the primary method. It must be noted that forced evaporation requires the use of a large evaporation dam, impacting environmental considerations, when compared to the small footprint required by the WTP. This is mitigated through the early construction of the Tailings Storage Facility (**TSF**) which serves a dual purpose for early Project phase dewatering and later as a TSF during the operational life of the mine. An effluent dam is also required to contain residual brine from the water treatment process.

Components of the surface water handling system are illustrated in the following figure (Figure 13).

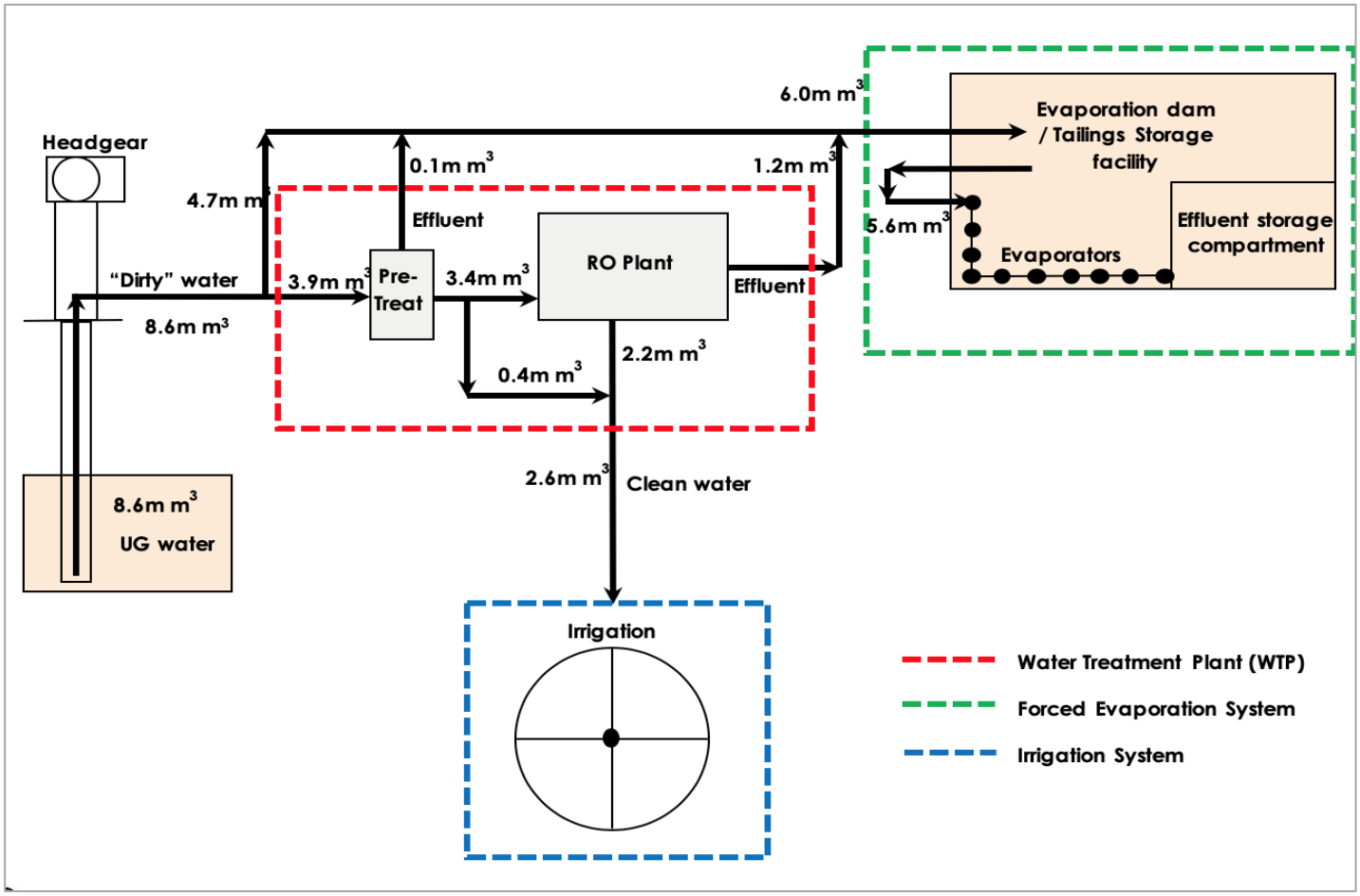


Figure 13: A schematic diagram of the water handling system during dewatering showing the volumes of water to be handled in each process.

Examinations and testing of the shaft steelwork from surface down to 30m below the water level, along with the use of video camera inspection down to 470m below the water surface (780m below shaft collar), as well as shaft probing and water quality testing to within 100m of the shaft bottom helped determine that the majority of the shaft is in good order. The design allows for sections of the shaft to be refurbished.

A refurbished Koepe rock winder and a double-drum men and material winder, with new ropes and equipment have been identified for purchase and installation. The shaft steelwork refurbishment will be carried out concurrently with the underground dewatering campaign to reduce the Project construction time and make optimal use of the available construction crews.

Ore Processing and Product Sales

The updated BFS process design verified and maintained much of the original BFS design with a number of improvements made as a result of new test work information and additional optimisation engineering resulting in a plant design with improved operability and lower Capex and Opex. The updated plant design is based on a high steel charge SAG and ball milling circuit followed by differential flotation. This flowsheet (overleaf, Figure 14) is well known in industry and differential flotation has historically been proven on full operational scale as a suitable processing route for Prieska Project ores. The BFS-19 plan relied on a two-ball mill configuration that required three stages of crushing before the material was a suitable size for milling. The SAG milling configuration removes the need for multiple stages of crushing.

The updated milling circuit comprises a high steel charged SAG mill operating in an open circuit with a secondary ball mill operated in a closed circuit with a classification cyclone cluster. The SAG mill trommel screen oversize feeds a pebble crushing circuit which returns crushed product to the SAG mill feed conveyor. The milling circuit is fed with (F100) 250mm primary crushed material from the primary stockpile at a throughput rate of 300dt/hr and produces a product size of 70% passing 75µm, which is fed to the differential flotation circuit.

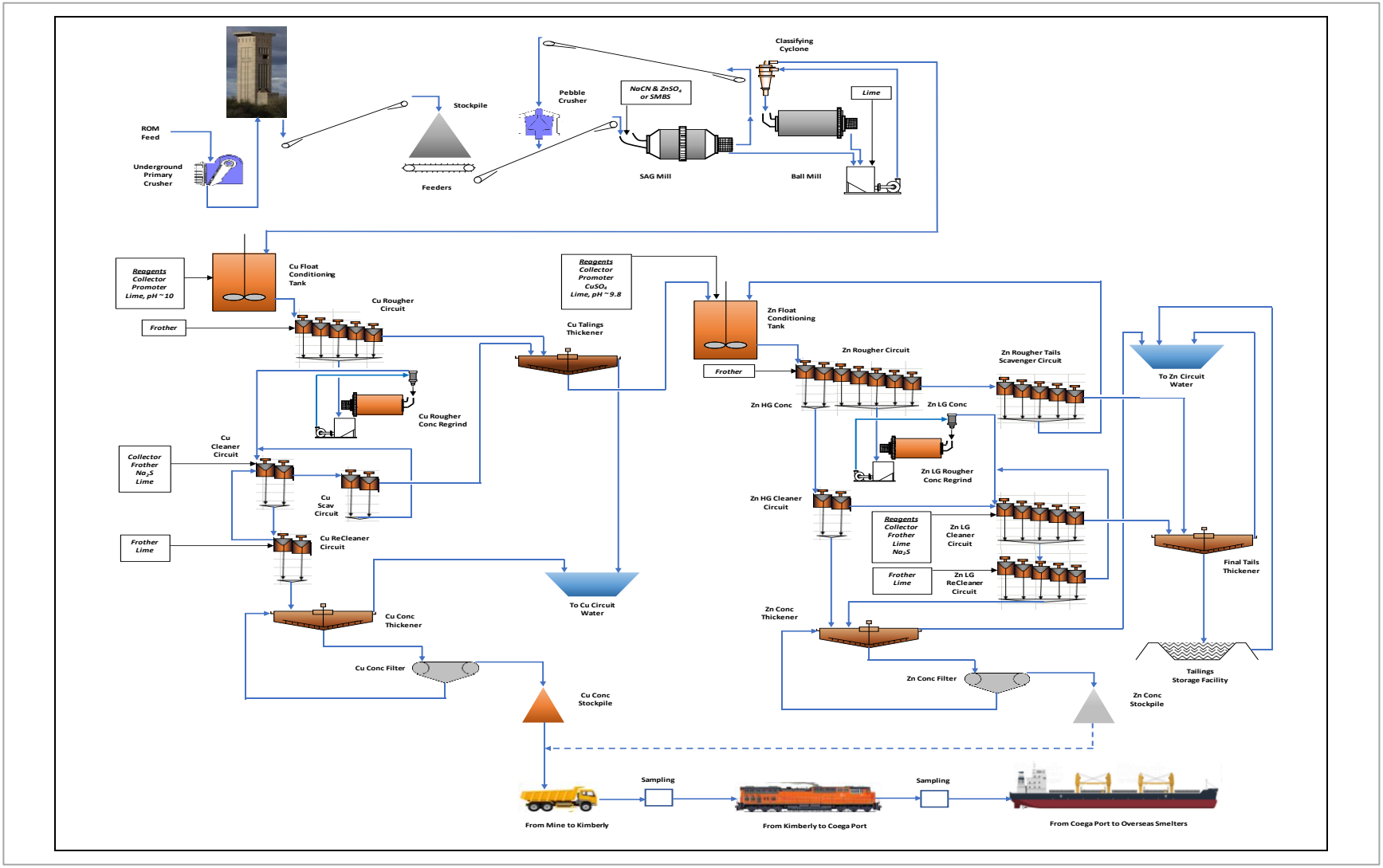


Figure 14: Processing plant flowsheet incorporating the SAG mill.

Test work conducted as part of the BFS-19 indicated that the flotation circuit response was sensitive to the type of water used in the primary milling stage. This was also evidenced and noted during historical operations by Anglovaal. Based on the test-work findings, the design and operating cost is based on two stages of milling, using fresh raw water to achieve the primary milling circuit dilution requirements.

Metallurgical testing was completed and results were reported as part of the BFS-19. Metallurgical results were released to the ASX on 15 November 2017, 8 February 2018, 1 March 2018, 12 June 2018 and 22 October 2018. Further testing on SAG milling carried out under the guidance of METC was conducted during the latter half of 2019 and reported to the ASX on 31 October 2019.

Processing Recovery Factors and Allowances made for Deleterious Elements
The differential froth flotation aims to produce separate copper and zinc concentrates shown in test work to be able to range between 20% to 26% for Cu and 49% to 53% for Zn. Target grades of 20% Cu and 53% Zn from underground mined material and 26% and 35% respectively from open-pit sourced material were used for the updated BFS compared to 24% Cu and 50% Zn in the BFS-19 plan. Overall LoM metal recoveries into concentrates are anticipated to be on average 83.9% for Cu and 81.9% for Zn from treating RoM.

The BFS design allows for concentrates to be produced with a moisture content of about 10%. The concentrates will be trucked to Groveput rail siding, 50km from site, and then railed to the Port of Ngqura (at Coega) for export to smelters in Asia and Europe. NSR (payments) for the Cu and Zn concentrates (accounting for metal payabilities, treatment and refining charges, and penalty provisions) are expected to be 99.3% and 68.4% of market metal prices for Cu and Zn respectively for underground sourced metal; and 92.1% and 51.3% for Cu and Zn respectively for open-pit material. This includes penalty estimates for deleterious elements of USD26/t for copper concentrate and USD17/t for zinc concentrate. Historic concentrate had a reputation for being relatively 'clean' which was confirmed by test work.

Recent changes in benchmark treatment costs for zinc concentrate and treatment and refining costs for copper concentrates have been incorporated, with the discounts on benchmark charges being offered by potential off-takers for the clean Project products.

Mine Infrastructure Requirements and Staffing

The infrastructure and the processing plant for the planned mine is depicted below, (Figure 15).

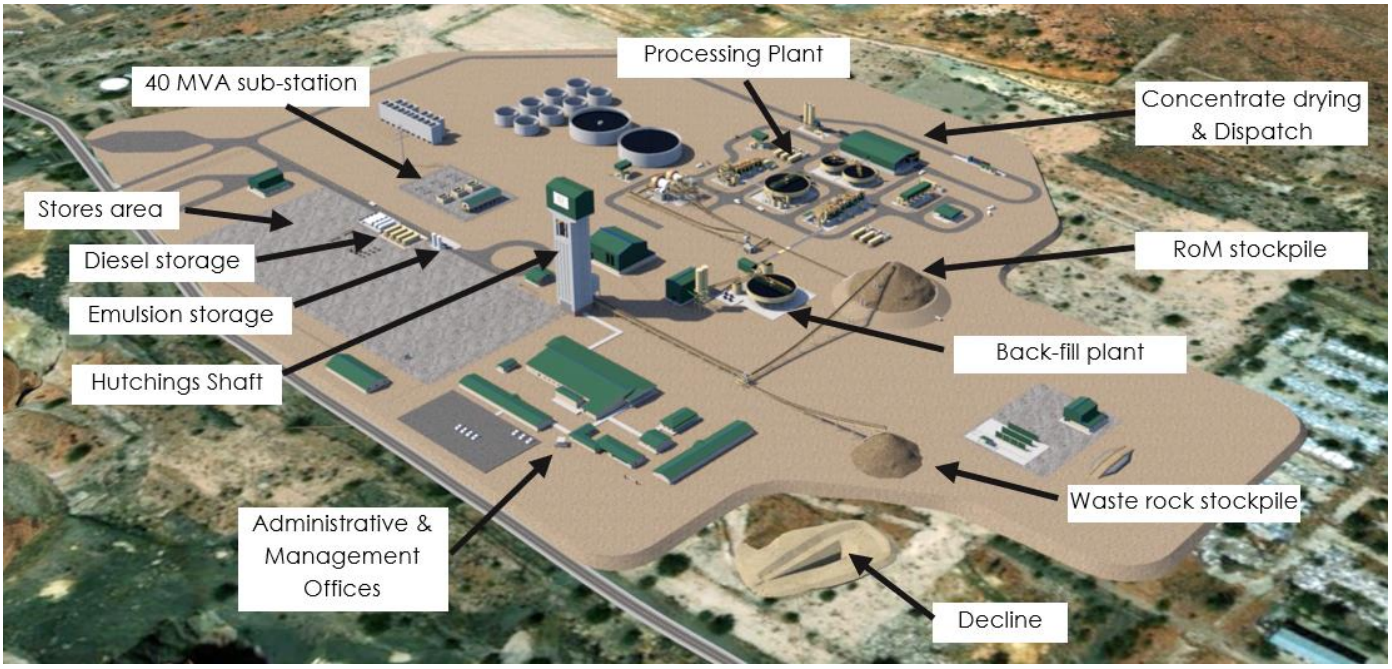


Figure 15: Project site general layout.

Water for the mining operations will be supplied from the Orange River, at a rate of approximately 3.7 million litres per day, via the existing water pipeline to the Prieska Project. Power requirements of 32MW, will be sourced from the national power utility company, Eskom, via the onsite Cuprum substation. Plans are at an advanced stage to commission the establishment of a renewable energy alternative source to national grid power supply, capable of providing 52% of the mine's energy needs in the near term.

A TSF that will initially serve as a dewatering reservoir, will be constructed to service the Foundation Phase. Accommodation during the construction and commissioning period will be at Copperton, with plans to establish the permanent mine village in Prieska once planning approvals allow for such migration to occur.

During construction a peak site labour force including contractors is estimated to total 1,200, whilst during steady state operations the total average workforce including contractors will be 840 people. During the peak of activities when waste development is at its highest, the number will increase to 879. Allowances for training, absenteeism and leave are added to the base numbers to arrive at a total payroll number. Adequate allowances and training plans have been included to ensure compliance with Employment Equity targets.

No new main roads will be required to access the Project site, though some internal roads are planned in order to access site infrastructure.

Environment, Health, Safety and Community

All environmental studies and applications for authorisations have been completed for the Project with the exception of the Repli IWUL (refer to 'Environmental Permitting' above). Environmental management is planned in compliance with the National Environmental Management Act (**NEMA**) as well as the Equator Principles and the International Finance Corporation Performance Standards. A complete and compliant Mine Health & Safety Management System is to be developed prior to the commencement of operations and will be implemented within South African Health and Safety regulatory provisions. Community engagement has been underway since 2018 with the recent establishment of an active Stakeholder Engagement Forum to provide relevant input to the Project.

The Project is planned for an eventual carbon neutral footprint for all metal being produced from the venture. Starting with a carbon emission intensity for Scope 1, Scope 2 and Scope 3 emissions of 3.1 tCO_2e/t zinc equivalent for the first full year of production[14], the Project 'Carbon Neutral Roadmap' aims to reduce the Scope 1 and 2 emissions intensity to zero (0 tCO_2e/t zinc equivalent) over the life of mine.

Operating Costs

The estimated underground operating costs[15] per RoM tonne for the Foundation Phase are shown in Table 14.

Operating Cost Summary	BFS-20	BFS-19	Variance	
	AUD/ t	AUD/RoM t	AUD/RoM t	%
Mining	38	48	-10.63	-22%
Processing	15	16	-1.33	-8%
Surface & In-directs	6	7	-0.98	-15%
Concentrate Transport Charges	11	9	1.16	12%
Corporate Costs	1	1	-0.18	-13%
Off-mine Costs	1	2	-0.89	-38%
Royalties (Government)	7	6	0.75	13%
SIB Capex	5	4	1.44	36%
Operationalised Infrastructure	5	0	5.01	0%
Total	**88**	**94**	**-5.65**	**-6%**

Table 14: Foundation Phase operating cost summary (numbers may contain apparent rounding errors).

[14] Estimated using the 2019 South African Grid Emissions factor and without any mitigatory measures.
[15] The BFS involved detailed studies informing each operating cost line item shown above; methodology and sources are explained in JORC Table Section 4.

Operating costs were calculated from first principles for mining, processing (including labour), concentrate transport, corporate costs, indirect costs, off mine and environmental costs, electrical power and Royalties which combined make up 88% of the costs. SIB capex (6% of costs) was factorised. Operationalised Infrastructure costs (6% of costs) are based on a proposed repayment mechanism with third-party suppliers, which is in the process of being negotiated.

The operationalised infrastructure will be purchased and supplied by third parties, to be repaid on a cost per RoM tonne of ore processed basis. The infrastructure has been divided into two categories based on the service life attributable to the mine, these being:

- non-moveable assets: those assets that are not transferable from the mine. At the end of the construction and dewatering period, all non-moveable assets will be owned by the mine; and
- moveable assets: those that are transferable and that have a residual value after services have been provided to the mine, including evaporators, water treatment plant and agricultural irrigation systems. At the end of the dewatering program, the moveable assets would be demobilised, with the Project having incurred the cost for that portion of service life expended on the Project.

The AiSC over the duration of the Foundation Phase are estimated to be AUD5,779/t (USD3,531/t) (USD1.60/lb) copper equivalent metal sold. The adoption of owner underground mining as the base case operating philosophy resulted in a reduction of mining costs as the provision for contracting margins was removed.

Capital Expenditure and Construction Program

The total capital cost[16] to construct the mine is estimated to be AUD373 million which includes provision for open pit mining in Year 11 and a 10% contingency; peak funding required is AUD413 million (Table 15).

Project Capex Grouped Elements	BFS-20 AUD (millions)	BF-19 AUD (millions)	Variance AUD (millions)	Variance %Variance
Power and Water Supply	0	9	-9	-100%
Tailings Storage Facility	0	33	-33	-100%
Shaft Refurbishment and Equipping	37	39	-2	-4%
Mine Dewatering	30	32	-2	-5%
Surface Infrastructure	35	47	-12	-25%
Underground Infrastructure	49	48	2	3%
Mining Fleet	50	0	50	0%
Processing Plant	91	108	-17	-16%
Project Management and Site Services	46	48	-2	-5%
Subtotal	**339**	**363**	**-25**	**-7%**
Contingency @ 10%	34	36	-2	-7%
Total Start-up Capex	**373**	**400**	**-27**	**-7%**

Table 15: Foundation Phase capital expenditure summary (numbers may contain apparent rounding errors).

The capital costs for the mine construction were built up using quotations from earthworks and civil contractors, equipment and service providers. A portion of the Electrical Control and Instrumentation capital costs were factorised from similar projects which make up 8% of the total capital cost. Where appropriate, costs from the BFS-19 estimate were escalated into Jan 2020 constant money terms. A 10% contingency was added to the base capital estimate.

Total establishment expenditure, including the cost of infrastructure and services provided by third parties is AUD463M (Table 16).

[16] The BFS involved detailed studies informing each capital cost line item shown above; methodology and sources are explained in JORC Table Section 4.

Establishment Expenditure Grouped Elements	BFS-20 AUD (millions)	BFS-19 AUD (millions)	Variance AUD (millions)	Variance % Variance
Power and Water Supply	8	9	-1	-8%
Tailings Storage Facility	47	33	14	44%
Shaft Refurbishment and Equipping	37	39	-2	-4%
Mine Dewatering	48	32	17	53%
Surface Infrastructure	44	47	-4	-8%
Underground Infrastructure	49	48	2	3%
Mining Fleet	50	39	12	30%
Processing Plant	91	108	-17	-16%
Project Management and Site Services	46	48	-2	-5%
Subtotal	**421**	**402**	**19**	**5%**
Contingency @ 10%	42	40	2	5%
Total Establishment Expenditure	**463**	**442**	**21**	**5%**

Table 16: Establishment Expenditure (numbers may contain apparent rounding errors).

As shown in the execution schedule below, the construction period to first concentrate production is estimated to be 33 months. This is 7 to 8 months longer than the start-up schedule in the BFS-19 plan (Table 17).

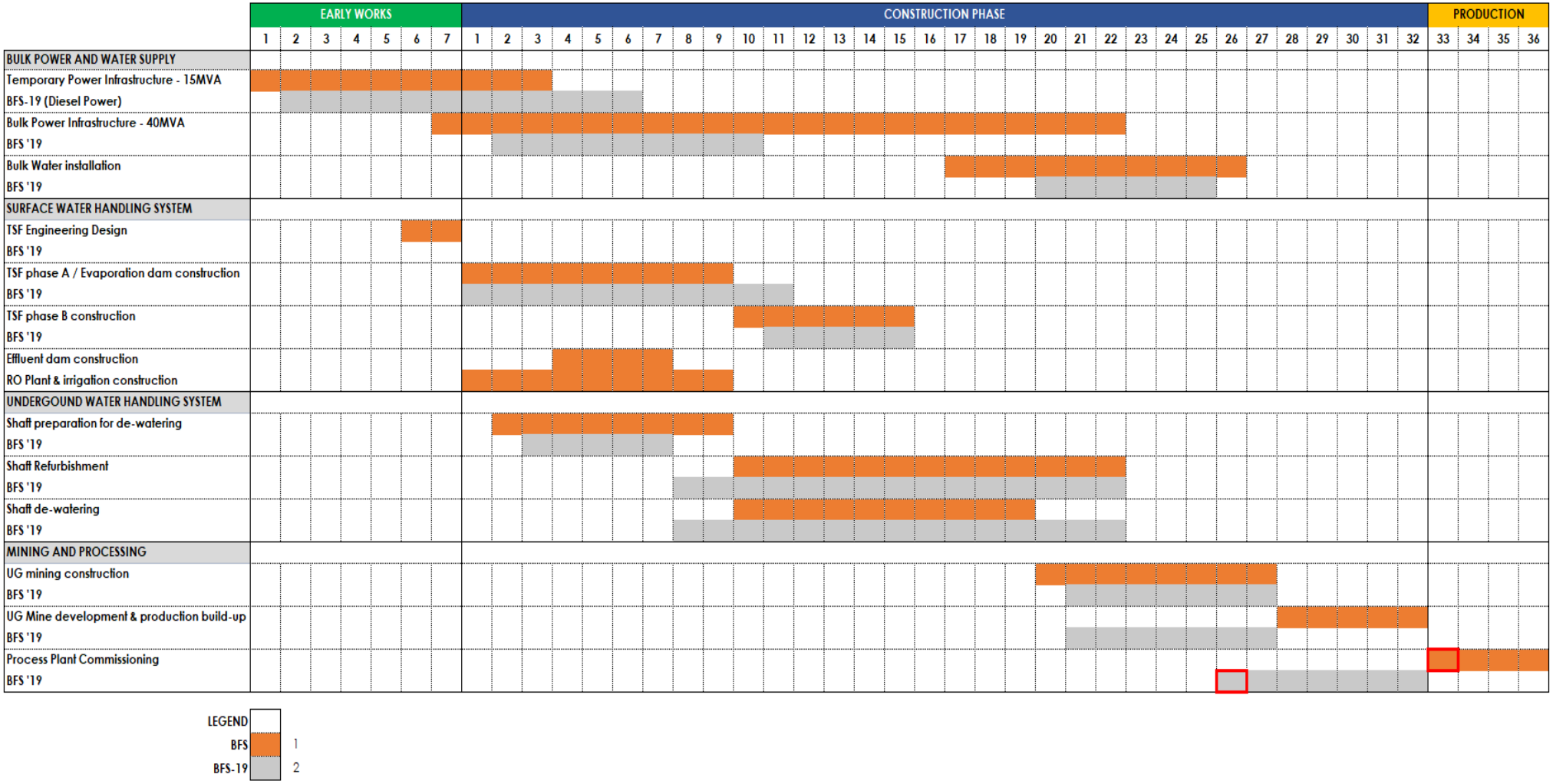


Table 17: Project Execution Schedule.

Financial Evaluation

The Foundation Phase is expected to generate AUD1.2 billion of post-tax free cash flow, with the Capex program, production profile and expected cash flows as shown in Figure 16 and Table 18.

The cash flow profiles shown below assume Project execution approval is given late in 2020 and the Repli IWUL is granted.

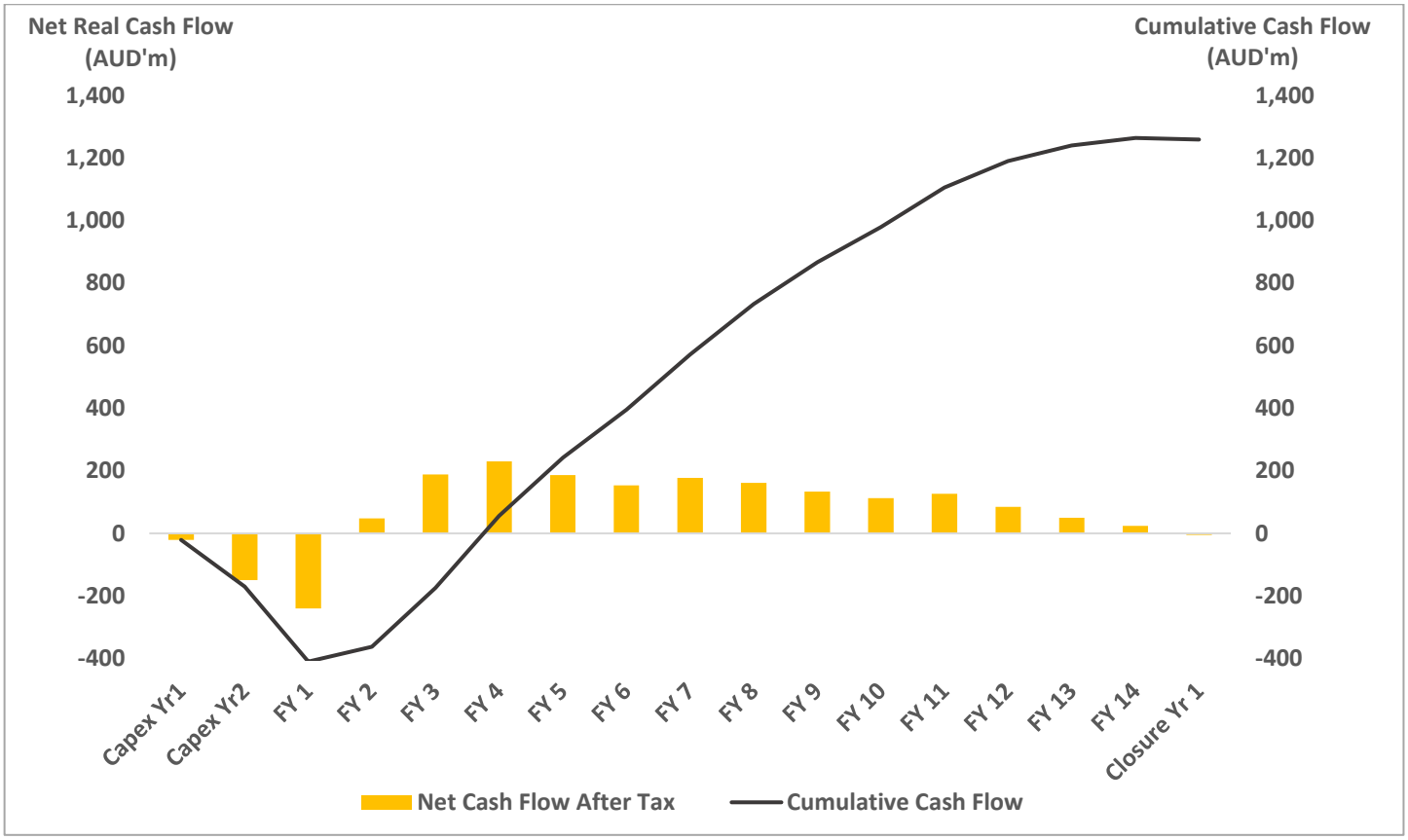


Figure 16: Project net cash flow post-tax profile.

The higher cash flow in the early years of production is due to low tax and royalty rates resulting from tax rebates from carry-over of accumulated capital and operating losses. Probable Ore Reserves and Indicated Mineral Resources make up a combined 67% of the Production Target incorporated in the Foundation Phase plan with the balance derived from Inferred Mineral Resources (33%). There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target or financial forecast information outlined in this document will be realised.

Parameter	Unit	Foundation Phase	Capex Yr1	Capex Yr2	FY 1	FY 2	FY 3	FY 4	FY 5	FY 6
ROM Tonnage (Processed)	tonnes	25,248,633	0	0	150,000	1,947,430	2,432,693	2,479,045	2,448,527	2,475,811
Plant Feed Grade - Cu	%	1.1%	0%	0.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Plant Feed Grade - Zn	%	3.3%	0%	0.0%	3.7%	3.4%	3.8%	4.1%	3.7%	3.5%
Plant Recovery - Cu	%	84.6%	0%	0.0%	83.1%	85.3%	85.8%	85.9%	85.8%	86.1%
Plant Recovery - Zn	%	81.6%	0%	0.0%	82.1%	82.5%	85.3%	86.5%	84.4%	83.6%
Concentrates Sold - Zn	tonnes	1,301,901	0	0	9,391	106,348	150,469	166,125	143,182	137,839
Concentrates Sold - Cu	tonnes	1,124,664	0	0	8,459	97,698	114,354	117,376	113,778	122,462
Metal Contained - Zn	tonnes	679,975	0	0	4,508	55,149	79,749	88,046	75,887	73,055
Metal Contained - Cu	tonnes	226,164	0	0	1,353	18,169	22,871	23,475	22,756	24,492
Revenue (Post-NSR)	AUD '000	4,211,517	0	0	25,970	340,804	456,919	485,195	445,562	456,999
Selling & Realisation Charges	AUD '000	-265,667	0	0	-1,954	-22,331	-29,016	-31,077	-28,147	-28,494
Net Revenue	**AUD '000**	**3,945,849**	**0**	**0**	**24,016**	**318,473**	**427,902**	**454,118**	**417,415**	**428,505**
Mining, Development, Services Cost	AUD '000	-947,631	0	0	-31,143	-83,792	-99,819	-89,036	-85,985	-87,590
Processing Cost	AUD '000	-373,696	0	0	-2,582	-31,062	-34,860	-35,110	-34,946	-35,093
Operationalised Infrastructure	AUD '000	-123,059	-1,245	-5,854	-8,276	-21,616	-23,987	-22,823	-21,077	-18,181
General & Admin.	AUD '000	-142,468	0	0	-7,391	-12,950	-13,164	-13,109	-13,090	-13,059
Off-mine Costs	AUD '000	-68,980	-1,033	-1,883	-4,160	-5,246	-5,252	-5,834	-5,579	-5,016
Royalties (Govt.)	AUD '000	-169,799	0	0	-107	-1,419	-1,862	-10,768	-23,147	-24,651
Cash Operating Costs	**AUD '000**	**-1,825,633**	**-2,278**	**-7,737**	**-53,659**	**-156,084**	**-178,944**	**-176,679**	**-183,823**	**-183,589**
Cash Operating Profit	**AUD '000**	**2,120,216**	**-2,278**	**-7,737**	**-29,643**	**162,389**	**248,958**	**277,439**	**233,593**	**244,916**
Project Capital	AUD '000	-374,628	-23,609	-177,266	-155,266	-16,571	0	0	0	0
Sustaining Capital	AUD '000	-137,307	0	0	-1,013	-8,059	-15,053	-19,693	-15,755	-19,767
Operationalised Infrastructure	AUD '000	-123,059	-1,245	-5,854	-8,276	-21,616	-23,987	-22,823	-21,077	-18,181
Net Cash flow Pre-tax	**AUD '000**	**1,608,282**	**-27,132**	**-190,857**	**-194,197**	**116,142**	**209,918**	**234,923**	**196,760**	**206,969**
Income Tax	AUD '000	-442,245	0	0	0	0	0	-55,074	-60,994	-63,042
Net Cash flow Post-tax	**AUD '000**	**1,166,037**	**-27,132**	**-190,857**	**-194,197**	**116,142**	**209,918**	**179,849**	**135,766**	**143,927**

Parameter	Unit	Foundation Phase	FY 7	FY 8	FY 9	FY 10	FY 11	FY 12	FY 13	FY 14
ROM Tonnage (Processed)	tonnes	25,248,633	2,456,930	2,432,593	2,426,720	2,457,987	2,256,609	1,269,531	14,757	0
Plant Feed Grade - Cu	%	1.1%	1.1%	1.0%	0.9%	1.0%	0.9%	1.7%	1.8%	0.0%
Plant Feed Grade - Zn	%	3.3%	3.5%	3.3%	2.8%	2.8%	2.3%	2.4%	2.5%	0.0%
Plant Recovery - Cu	%	84.6%	85.9%	85.1%	84.8%	85.0%	83.8%	69.1%	64.4%	0.0%
Plant Recovery - Zn	%	81.6%	83.2%	82.3%	79.3%	78.9%	73.8%	63.1%	52.8%	0.0%
Concentrates Sold - Zn	tonnes	1,301,901	133,913	124,969	102,789	101,454	73,141	51,624	655	0
Concentrates Sold - Cu	tonnes	1,124,664	117,137	100,226	94,280	100,120	80,562	57,545	667	0
Metal Contained - Zn	tonnes	679,975	70,974	66,234	54,478	53,770	38,765	19,164	197	0
Metal Contained - Cu	tonnes	226,164	23,427	20,045	18,856	20,024	16,191	14,336	168	0
Revenue (Post-NSR)	AUD '000	4,211,517	439,995	390,883	347,212	358,036	276,813	185,117	2,012	0
Selling & Realisation Charges	AUD '000	-265,667	-27,484	-24,666	-21,568	-22,051	-16,802	-11,933	-145	0
Net Revenue	**AUD '000**	**3,945,849**	**412,511**	**366,217**	**325,644**	**335,985**	**260,011**	**173,184**	**1,868**	**0**
Mining, Development, Services Cost	AUD '000	-947,631	-89,565	-87,009	-83,624	-80,211	-89,135	-39,994	-729	0
Processing Cost	AUD '000	-373,696	-34,991	-34,860	-34,828	-34,997	-34,247	-25,754	-368	0
Operationalised Infrastructure	AUD '000	-123,059	0	0	0	0	0	0	0	0
General & Admin.	AUD '000	-142,468	-13,071	-13,030	-12,985	-12,950	-11,808	-5,753	-108	0
Off-mine Costs	AUD '000	-68,980	-4,826	-4,867	-5,095	-4,993	-3,889	-3,584	-4,221	-3,502
Royalties (Govt.)	AUD '000	-169,799	-25,691	-20,624	-17,505	-19,762	-11,510	-12,743	-10	0
Cash Operating Costs	**AUD '000**	**-1,825,633**	**-168,145**	**-160,390**	**-154,037**	**-152,913**	**-150,589**	**-87,828**	**-5,436**	**-3,502**
Cash Operating Profit	**AUD '000**	**2,120,216**	**244,367**	**205,827**	**171,607**	**183,072**	**109,422**	**85,356**	**-3,569**	**-3,502**
Project Capital	AUD '000	-374,628	0	0	0	-1,596	-319	0	0	0
Sustaining Capital	AUD '000	-137,307	-10,179	-15,471	-15 099	-8,433	-8,785	0	0	0
Operationalised Infrastructure	AUD '000	-123,059	0	0	0	0	0	0	0	0
Net Cash flow Pre-tax	**AUD '000**	**1,608,282**	**234,188**	**190,356**	**156,509**	**173,043**	**100,318**	**85,356**	**-3,569**	**-3,502**
Income Tax	AUD '000	-442,245	-65,573	-53,300	-43,822	-48,452	-28,089	-23,900	0	0
Net Cash flow Post- tax	**AUD '000**	**1,166,037**	**168,615**	**137,056**	**112,686**	**124,591**	**72,229**	**61,456**	**-3,569**	**-3,502**

Table 18: Production profile and expected cash flows.

The Foundation Phase NPV estimate is most sensitive to the ZAR-USD exchange rate, followed copper grade and copper price as shown in the following chart. The NPV is least sensitive to Capex (Figure 17 and Table 19).

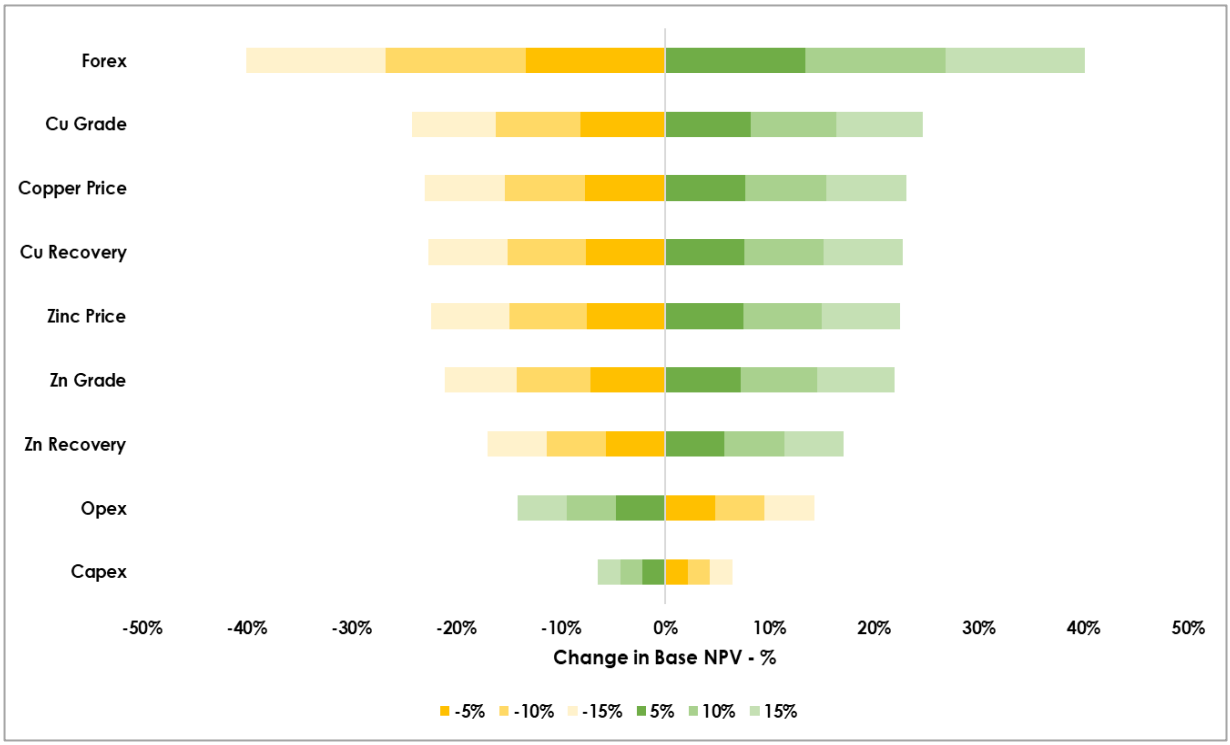


Figure 17: Chart of the sensitivity of pre-tax NPV to variances in key input elements.

NPV Sensitivity (AUD (M))	% Change	-15%	-10%	-5%	0%	+5%	+10%	+15%	0%
	Zn Price USD/lb	0.90	0.95	1.01	1.06	1.11	1.17	1.22	1.06
	Cu Price USD/lb	2.58	2.73	2.88	3.03	3.18	3.33	3.48	3.03
% Change	ZAR:USD	NPV (at 8% discount rate)							IRR
-15%	15.30	112	185	257	329	400	471	541	25%
-10%	16.20	176	252	328	403	478	553	629	28%
-5%	17.10	238	319	398	477	557	636	716	31%
0	18.00	301	385	468	**552**	636	719	804	**33%**
+5%	18.90	363	451	538	626	714	803	892	36%
+10%	19.80	425	517	609	701	793	887	981	38%
+15%	20.70	487	583	679	775	873	971	1,070	41%

Table 19: The effect of fluctuations in metal prices and foreign currency exchange rates on the post-tax NPV and post-tax IRR for the Prieska Project. The base case scenario NPV is AUD552, with an IRR of 33%.

Copper contributes about 59% of the net revenue (after allowing for concentrate logistics, treatment costs and refining charges). The main production and financial metrics for the Project are shown in the table that follows.

Key assumptions and Project Performance Parameters							
Price and Forex Assumptions	**Unit**	**Value**	**Financial Performance**	**Unit**	**Value**	**Unit**	**Value**
Metal price - Cu	USD/t	6,680	NPV (pre-tax) @8% discount rate	ZAR (M)	8,566	AUD (M)	779
Metal price - Zn	USD/t	2,337	NPV (post-tax) @8% discount rate	ZAR (M)	6,069	AUD (M)	552
Exchange rate	ZAR:USD	18:1	IRR (pre-tax)	%	39%	%	39%
Exchange rate	ZAR:AUD	11:1	IRR (post-tax)	%	33%	%	33%
Exchange rate	AUD:USD	1.64:1	Payback from first production	years	2.4	years	2,4
Production Metrics	**Unit**	**Value**	Undiscounted free cash flow (pre-tax)	ZAR (M)	17,691	AUD (M)	1,619
Life of Mine (Foundation Phase)	Years	11.5	Peak funding	ZAR (M)	4,542	AUD (M)	413
Treatment plant capacity	Mtpa	2.4	**Project Cost Metrics**	**Unit**	**Value**	**Unit**	**Value**
Foundation Phase tonnage - RoM	kt	25,250	Average cash operating unit cost (C1)	ZAR/t	807	AUD/t	73
RoM Plant Feed Grade - Cu - U/G (O-Pit)	%	1.0 (1.9)	All-in-sustaining cost per unit RoM t	ZAR/t	972	AUD/t	88
RoM Plant Feed Grade - Zn - U/G (O-Pit)	%	3.3 (2.4)	All-in-sustaining cost per unit Cu eq t sold	USD/t Cu	3,531	AUD/t Cu	5,779
Overall Plant Recovery - Cu	%	83.9%	All-in-sustaining cost per unit Zn eq t sold	USD/t Zn	828	AUD/t Zn	1,355
Overall Plant Recovery - Zn	%	81.9%	Price received (net of NSR) - Cu	USD/t Cu	6,604	AUD/t Cu	10,807
Concentrate tonnage - Cu - U/G (O-Pit)	kt	1,071 (54)	Price received (net of NSR) - Zn	USD/t Zn	1,588	AUD/t Zn	2,599
Concentrate tonnage - Zn - U/G (O-Pit)	kt	1,256 (46)	All-in-sustaining margin	%	47%	%	47%
Concentrate grade UG - Cu - U/G (O-Pit)	%	19.8 (25.5)	Operating breakeven grade (Cu eq)	%	1,0%	%	1.0%
Concentrate grade UG - Zn - U/G (O-Pit)	%	52.9 (35.0)	**Project Cash Flows**	**Unit**	**Value**	**Unit**	**Value**
NSR as % of metal price - Cu - U/G (O-Pit)	%	99.3 (92.1)	LoM net revenue	ZAR (M)	43,404	AUD (M)	3,946
NSR as % of metal price - Zn - U/G (O-Pit)	%	68.4 (51.3)	LoM operating costs (plus State Royalty)	ZAR (M)	20,082	AUD (M)	1,826
Metal sold (in concentrates) - Cu	tonnes	226,000	Project Start-up Capital Expenditure	ZAR (M)	4,100	AUD (M)	373
Metal sold (in concentrates) - Zn	tonnes	680,000	Sustaining Capital Expenditure	ZAR (M)	1,510	AUD (M)	137
Total Sales as Cu equivalent	tonnes	386,000	Income Tax	ZAR (M)	4,865	AUD (M)	442
Total Sales as Zn equivalent	tonnes	1,644,000	Cash Flow After Tax	ZAR (M)	12,826	AUD (M)	1,166
Level of Accuracy of Financial Model ± 15%,			LoM = Life of Mine, NSR = Net Smelter Return, NPV = Net Present Value, IRR = Internal Rate of Return				
There is a low level of geological confidence associated with Inferred Mineral Resources and therefore there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target or financial forecast information referred to in this Study will be realised.							

Table 20: Summary of key Project metrics (numbers may contain apparent rounding errors).

Risk Assessment

The ten headline risks identified for the Project, as charted in the below (Figure 18), are summarised in the accompanying table (Table 21). Each identified risk has been ranked according to a likelihood and consequence measure, with the resulting risk rating for the more prominent risks plotted in the warmer colours.

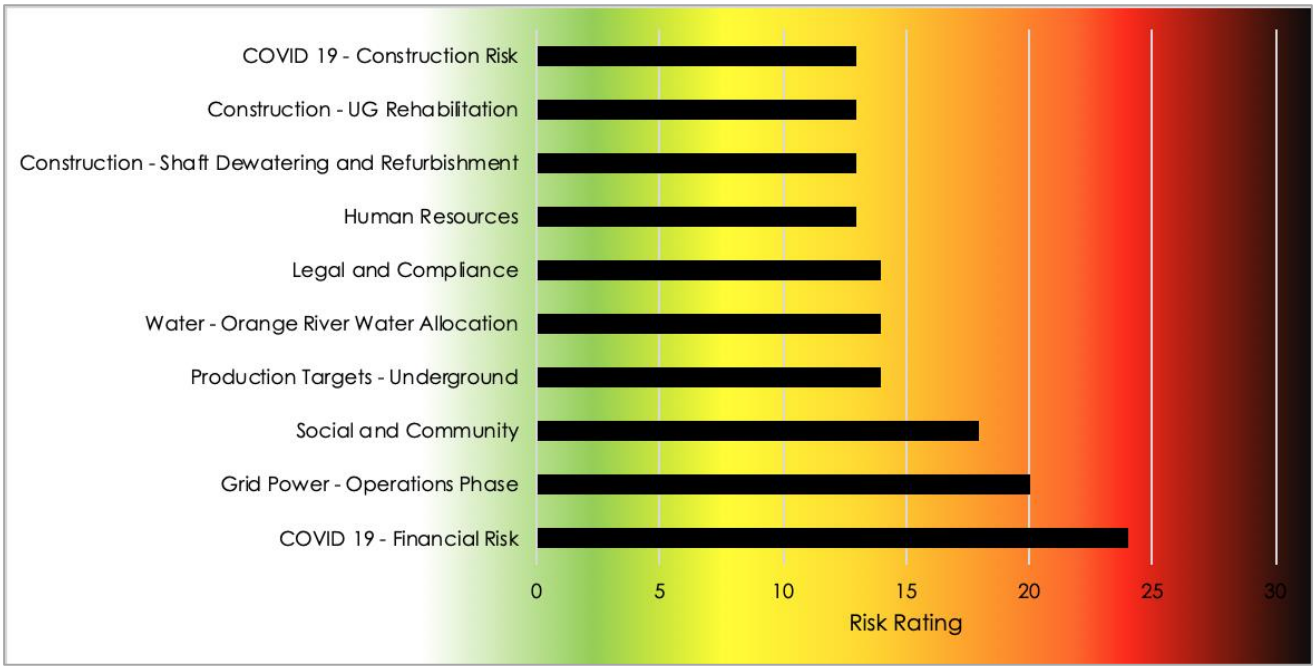


Figure 18: Headline risks.

Risk Description	Consequences Description	Mitigation Measures	Risk Rating Post Mitigation
1. Covid19 Financial Risk – Covid19 outbreak causes volatility in the financial and commodity markets.			
The Project's business case is negatively impacted.	Delays to the Project due to a lack of finance and difficulty raising funding. In-consistent long-term projections of key financial assumptions.	Focus on equity fund raising; stagger construction in line with availability of funding; Apply for any Covid-19 related funding available to the Project. Revise debt funding strategy to suit conditions. An equity funding review of the BFS with SRK commissioned. Consult several consensus forecasts for price, Forex, escalation assumptions. Sensitivity analyses and develop mitigatory measures for downside case scenarios.	**24 High**
2. Grid Power - Eskom late in approving the 40MVA grid power connection, load shedding reducing power during the operational phase.			
Unreliable power supply from Eskom for the construction and operational phases.	Additional cost of diesel generated power during the operational phase. Reduced production and revenue. Adverse impact on operational efficiencies du to disruption.	Applications for temporary and permanent power (40 MVA) for the Construction Phase have been approved by Eskom. Emergency (diesel) power will be installed - currently set at 5MW. Connect the mine to renewable energy sources. Orion is in the final stages of signing a PPA with JUWI, a renewable energy project developer for the supply of 52% of the Project's power needs. Prepare a planned operating shutdown procedure in the event of a grid power failure, based on both a planned and unplanned failure.	**20 Significant**
3. Social and Community - Demands on the Project from local communities exceed what the Project can provide in terms of jobs and business opportunities.			
Influx of people from outside of the Prieska Municipal	Influx of people onto the mine and possible property damage.	Orion has set up an office in Prieska to provide interaction with the Prieska Municipality on community related issues.	**18 Significant**

Risk Description	Consequences Description	Mitigation Measures	Risk Rating Post Mitigation
area looking for employment and local companies seeking business opportunities that the Project may not be able to accommodate.	Strikes and intimidation of mine workers. Loss of production and revenue. Negative press for the Project.	A Stakeholder Engagement Forum has been constituted to promote a positive interactive relationship with the local communities. Orion continues to engage with the Siyathemba Municipality on the scope of the Project and SLP matters. Training and upskilling of the local community has started. SCNET has been set up to allow all potential local suppliers to the Project to make contact with Orion.	
4. Production Targets Underground – Staff skills are lacking; actual development and production do not meet planned targets; or unexpected underground conditions are encountered.			
Build up to target production takes longer than planned.	Planned revenue targets not met	A detailed 24-month mining plan is to be drafted. A contracting strategy is to be used whereby skilled and experienced operators will operate the mine to ensure a high productivity start-up.	**14 Significant**
5. Water – Orange River Water Allocation may be reduced to the Project by water supply authorities due to water shortages.			
Lack of water for the operation.	The recovery plant may not receive the required fresh water for the process circuit.	Investigate viability of developing a water borehole supply system.	**14 Significant**
	Lost revenue.	Maintain regular contact with regulatory authorities on water supply and demand projections. Develop plans to increase return water from the TSF and from the filter process in the paste fill plant; develop a holistic water supply contingency including storage plan.	
6. Legal and Compliance - Not staffing the mine according to Mining Charter guidelines and non-adherence to H&S and Mining Right legislation			
Non-compliance with legislation and the Mining Charter II.	Penalties, and potentially a loss of the Mining Licence. Accidents and incidents.	Create a compliance committee and a health and safety committee to oversee compliance at the operating level. Appoint a 'Legal and Compliance Officer' position for the operational phase. Create compliance documentation with measurements and actions required.	**14 Significant**
7. Human Resources, skills retention - The location of the Project is remote; Orion does not have a historical presence as a mining operating company and the Project may not attract the required skills.			
Orion's ability (or lack of ability) to attract and retain skills.	The correct level of skills, qualification and experience are not brought onto the Project. The construction schedule is interrupted and delayed. Supporting technical services to production are below the expected quality impacting on the medium to longer term production schedule. Regulatory risks if statutory appointments are not filled.	Budget for appropriate salary levels to attract employees; a "Northern Cape Allowance" is included in the Financial Model. Provide suitable accommodation and recreation facilities. The accommodation camp has been designed by a reputable industry logistics service provider - Speed Space. Provide training and develop a succession plan to cater for staff turn-over, particularly for key staff positions. Design an operating roster system that attracts staff and allows for FIFO employees (landing strip on the Project site).	**13 Significant**

Risk Description	Consequences Description	Mitigation Measures	Risk Rating Post Mitigation
8. Construction – Shaft Rehabilitation and Dewatering - Unplanned difficulties experienced during the pumping and rehabilitation work; water treatment design; water levels continue to rise.			
Delays and cost overrun to the shaft de-watering and shaft refurbishment. Uncertainty about the effectiveness of the forced evaporation process to dispose of shaft water.	Delays to the construction schedule and a late start to production.	Steel samples were extracted from the shaft and were laboratory tested. Underwater video footage was taken down to 600 metres below the shaft collar. A recognised shaft steel expert (Dr Geoff Krige) has examined the above data and made an estimate for the steel replacement required. The pumping plan has been reviewed by pump suppliers and a shaft engineering consultant (Solly Van der Wath). '+10% contingency allowance was added to the water volume estimate in the mine. Spare pumps have been added to the pumping plan and a SCADA system is incorporated into the design that will monitor the pumping system. A RO water treatment plant has been added to the surface water handling infrastructure to reduce the risk from using only forced evaporators and to efficiently use water in a water scarce environment. The plant has been carrying out water treatment trials on site since August 2019. Results have confirmed the plant design with associated operating costs.	**13 Significant**
9. Construction – Underground Construction – conditions worse than expected; designed infrastructure does not match the underground conditions.			
Underground rehabilitation and construction takes longer than anticipated.	Project construction delayed with cost overruns. The start of production is delayed.	Build contingencies for time and money into the Project Capex budget. Prepare to bring on additional resources (people and equipment) if problems arise.	**13 Significant**
10. Covid-19 – Construction Risk – Covid-19 outbreak affecting company staffing levels			
Availability of construction engineers and crews. Additional Covid-19 Level 3,4 and 5 lockdowns.	The Project start may be delayed and this will also result in the shaft water level rising, obsolescence of some assumptions in the business plan.	Adopt accepted industry best practice on Covid-19. Establish Covid-19 Protocols in line with Regulations and update as necessary. Strict access control to site; regular health monitoring; provision of temporary on-site hospitalisation facilities. Orion is an active member of the Minerals Council – stay in contact regarding Covid-19 matters. Continually update the business plan in line with changing global economic outlook.	**13 Significant**

Table 21: Summary of top ten headline risks.

Operational Readiness and Way Forward

Mine construction can begin once permitting is complete and funding secured. Concentrate production is expected to commence 33 months later. A Project execution strategy has been formulated and discussions with key service providers are well advanced.

Project Funding

Orion is listed on the Australian Securities Exchange (ASX: ORN) and has a secondary listing on the Main Board of the Johannesburg Stock Exchange (JSE: ORN). Orion currently intends to fund the development of the Project by means of a combination of debt and equity. Equity can be raised at listed or unlisted holding company level.

Future Activities

Following the positive outcomes of the BFS, Orion is targeting a Final Investment Decision for the Prieska Project as soon as financing negotiations have been concluded. This can place the Company in a position to commence construction as soon as financing is available. In addition, Orion is also progressing key commercial work streams including, concentrate marketing and Project financing.

In parallel with these programs, resource extension drilling would also be undertaken from underground drilling platforms targeting opportunities to further extend the Foundation Phase 12-year mine life.

Opportunities

Several opportunities to improve on the base case mining plan have been identified. These are being followed up as part of operational readiness activities or will be investigated as part of mine operations.

Key opportunities include:

- Mineral Resources Extension Potential:
- Conversion of delineated Inferred Mineral Resources into the mining plan;
- Extensional exploration and 'out of resource' mineralisation;
- Near-mine and satellite exploration potential; and
- Remnant pillar extraction.

Mining Operations Opportunities:

- Fleet Automation and Diesel versus Electric Trade off Studies; and
- Mine to Market Optimisation studies.

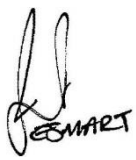
Ore Processing and By-products Opportunities:

- Achieve or exceed historic plant performance increasing both metal recovery and concentrate qualities;
- Cyanide Substitution potential;
- Barite by-product recovery potential from RoM and tailings retreatment;
- Pyrite by product recovery from RoM and tailings retreatment; and
- Pre-sorting of crushed ore to pre-concentrate and reduce milled tonnage.

Mine Services and Infrastructure Opportunities:

- Renewable energy power supply options.

For and on behalf of the Board.



Errol Smart
Managing Director and CEO

ENQUIRIES

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Competent Person's Statements

The information in this report that relates to Exploration Results has been compiled under the supervision of Mr Errol Smart, a Competent Person who is registered with the South African Council for Natural Scientific Professionals, a 'Recognised Professional Organisation' (**RPO**). Mr Smart is a full-time employee of Orion in the role of Managing Director. Mr Smart has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Smart consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources has been compiled under the supervision of Mr Sean Duggan, a Competent Person, who is registered with the South African Council for Natural Scientific Professionals, a RPO. Mr Duggan is a Director and Principal Analyst at Z Star Mineral Resource Consultants (Pty) Ltd, which provides consulting services to Orion. Mr Duggan has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Duggan consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on information compiled under the supervision of Mr William Gillespie, a Competent Person who is a Fellow of the Institute of Materials, Minerals and Mining (IMMM), a RPO. Mr Gillespie is a contract employee of A & B Global Mining Consultants which consults to Orion. Mr Gillespie has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Gillespie consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the metallurgy and processing plant is based on information compiled under the supervision of Mr John Edwards, a Competent Person who is a Fellow of the South African Institute of Mining and Metallurgy (SAIMM), a RPO. Mr Edwards is an employee of METC Engineering Ltd, which provides consulting services to Orion. Mr Edwards has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Edwards consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Disclaimer

This release may include forward-looking statements. Such forward-looking statements may include, among other things, statements regarding targets, estimates and assumptions in respect of metal production and prices, operating costs and results, capital expenditures, mineral reserves and mineral resources and anticipated grades and recovery rates, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions. These forward-looking statements are based on management's expectations and beliefs concerning future events. Forward-looking statements inherently involve subjective judgement and analysis and are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Orion. Actual results and developments may vary materially from those expressed in this release. Given these uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. Orion makes no undertaking to subsequently update or revise the forward-looking statements made in this release to reflect events or circumstances after the date of this release. All information in respect of Exploration Results and other technical information should be read in

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JORC (2012) Table 1: Section 1 Sampling Techniques and Data

(Criteria listed in this section apply to all succeeding sections

Refer to ASX releases 15 January 2019, 18 December 2018, 5 November 2018 and 5 February 2018 for JORC (2012) Table 1 Section 1 Information for the +105 Level Mineral Resource.

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	• Drilling and sampling by Anglovaal has been undertaken during two distinct periods since the discovery of mineralisation. These are pre-mine exploration (1968 -1971) and during mine operations (1972-1984) drillholes ("V", "D", and "F" prefixed holes). • Since 2017 diamond drilling and sampling at the Prieska Copper-zinc Project (**Prieska Project** or **Project**) was done on two adjacent prospecting rights held by Repli Trading No. 27 (Pty) Ltd (**Repli**) and Vardocube (Pty) Ltd (**Vardocube**), both subsidiary companies of Orion Minerals Ltd (**Orion**). Anglovaal: • For diamond drilling carried out by Anglovaal between 1968 and 1984, there is limited information available on sampling techniques for core. However, with exploration and resource management being carried out under the supervision of Anglovaal, it is considered by the Competent Person that there would be procedures in place to the industry best practice standard at that time. This is based on the Competent Persons knowledge of exploration carried out by Anglovaal and discussions with personnel employed by Anglovaal. • The mineral resource management were under the professional supervision of Dr Danie Krige an internationally recognised expert of the time who published peer reviewed papers based on the sampling data. The sampling was successful in defining a resource estimate which was used as the basis of successful mine development and operation over a 20-year period. • Drilling of the original surface exploration holes was carried out at 200 – 250m line spacing. Underground exploration holes were not drilled on a regular spacing. • Surface drill exploration samples were all sent to Anglovaal Research Laboratory at Rand Leases Mine and underground drill samples to the mine laboratory for analyses. • No records on the sampling methodology. • Although no formal QA/QC samples were inserted at the time by the geologists on the exploration site or the mine the Anglovaal Research Laboratory developed their own standards, certified by other commercial

Criteria	JORC Code explanation	Commentary
		and those were used internally within the laboratory. Duplicate samples were also inserted to check for repeatability. Orion: • Diamond drill core was geologically logged, and zones of mineralisation were identified and marked on the core. The core was marked for cutting using the "low point" of the stratigraphy, marking the downhole direction on each core piece to ensure that the cut core was returned to the tray correctly. Half core was sampled. The sampling process was undertaken by a qualified geologist, who checked that all core was returned in the correct order by turning the core to face upward, fitting the core together and marking the metre intervals on the cut face. • The core sample intervals were marked with due consideration of the percentage of sulphide mineralisation, lithological contacts, and minimum and maximum sample intervals (nominally 50cm to 1.0m). The sampling details were captured onto a paper log sheet that records sample depths, sample number (derived from a standardised sample register) recoveries, mineralisation percentage, sulphide minerals and mineralisation style. A comments field is used to capture ancillary observations or associations. • Drilling at the Deep Sulphide Target was initially carried out aiming to define an approximate 100m x 100m pattern by use of "mother" holes and deflections from these holes. In specific areas the drill density was increased to improve the level of confidence of the resource. • Percussion / reverse circulation pre-collars (where used) were sampled on a composite basis. • Sampling was carried out under supervision of a qualified geologist using procedures outlined below including industry standard QA/QC. • Samples submitted for analysis to ALS Chemex (Pty) Ltd (**ALS**) were pulverised in its entirety at ALS and split to obtain a 0.2g sample for digestion and analysis. • Downhole electromagnetic (EM) surveys were carried out in selected drillholes using standard techniques.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	Anglovaal: • Records for core size are not available. • No core orientation records were available. Orion: • Diamond core drilling used single tube NQ and BQ sized core. BQ core was only drilled where problems were encountered in the original NQ drilled drillhole and the drilling could not continue with NQ size. • In the near surface weathered zone HQ core was drilled. • Pre-collars were drilled using percussion drilling on certain holes (above mineralisation). • Core was orientated in holes selected for geotechnical studies.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Anglovaal: • All mineralised intersections were done with core drilling. • Core recoveries were measured for each drill "run" and recorded on assay sheets. • In most V holes and all D and F holes, intersections were in hard rock and recoveries were generally good through the mineralisation. Orion: • All mineralised intersections were done with core drilling. • Core stick-ups reflecting the depth of the drillhole were recorded at the rig at the end of each core run. • A block with the depth of the hole written on it was placed in the core box at the end of each run. • At the core yard, the length of core in the core box was measured for each run. The measured length of core was subtracted from the length of the run as recorded from the stick-up measured at the rig to determine the core loss. • Core recovery in all the mineralised intersections is good. • No grade variation with recovery relationship was noted.

Criteria	JORC Code explanation	Commentary
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	Anglovaal: • All relevant intersections for V surface holes were logged and all this information was available to Orion. It is understood from historical reports that all intersections for D and F holes were logged but not all the information is currently available. • Downhole geotechnical information is available for some of the D and F holes only. Downhole mineralogical logs are available for some D and F holes. Orion: • Pre-collar percussion holes were logged on 1m intervals using visual inspection of washed drill chips. A hand held XRF instrument was used to determine the presence of any metals. • Core for the entire hole length was geologically logged and recorded on standardised log sheets by a qualified geologist. • Qualitative logging of colour, grain size, weathering, structural fabric, lithology, alteration type and sulphide mineralogy was carried out. • Quantitative estimate of sulphide mineralogy. • Logs were recorded at the core yard and entered into digital templates at the Project office.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	Anglovaal: • Details of sub-sampling techniques were not available. Orion: • Samples from percussion pre-collars were collected by spear sampling. • Sampling on site aimed to generate a < 2kg sub sample to enable the entire sample to be pulverised without further splitting. • Water was used for dust suppression during percussion drilling, resulting in wet chip samples. • BQ and NQ core cut at the core yard and half core was taken as the sample. with a maximum 1m sample length. • For core samples, the entire sample length was cut and sampled. • Sample preparation was undertaken at ALS an ISO accredited laboratory. ALS utilises industry best practise for sample preparation for analysis, involving drying of samples, crushing to <5mm if required and then pulverising so that +85% of the sample passes at <75 micron.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of*	Anglovaal: • Surface drill exploration samples were all sent to Anglovaal Research Laboratory at Rand Leases Mine. • The Atomic Adsorption method was used with a Nitric-bromide digest. • Underground drillhole samples were sent to the mine laboratory, where the same analytical method was used. • Although no formal QC samples were inserted with the drill samples of the exploration holes, the Anglovaal Research Laboratory developed their own

Criteria	JORC Code explanation	Commentary
	accuracy (i.e. lack of bias) and precision have been established.	standards, certified by other commercial laboratories and these were used internally in the laboratory. Duplicate samples were also inserted to check for repeatability. Orion: • Samples were submitted to ALS and analysed for base metals, Au and Ag. Analysis was by the ICP-OES methodology. Initially a three-acid digest was used but since November 2018 an Aqua-regia digest was used. • Certified Reference Material (CRM), blanks and duplicates were inserted and analysed with each batch. Insertion rates for the current reporting was: CRM = 10%, blanks = 5%, field duplicates = 2% and pulp repeat duplicates = 3.9%. • ALS has their own internal QA/QC protocols which include CRM's (5%), blanks (2.5%) and duplicates (2.5%). • CRM samples showed high accuracy and tight precision with no consistent bias. • Blank samples indicated no contamination, within the pre-determined thresholds, during the sample preparation process. • Field duplicate samples showed acceptable precision with no obvious bias. • Laboratory samples showed excellent accuracy and precision. • External laboratory checks by Genalysis showed excellent repeatability with the primary laboratory. • Down hole EM surveys were carried out in selected holes, using a 3-component Digi-Atlantis probe and ultra-high power transmitter. • Loop size of 1,800m x 600m were used with continuous measurements taken as the probe travels into the hole and out again. • Surface TDEM surveys were carried out using a Supracon Jesse Beep squid sensor and ultra-high-power transmitter with a Smartem 24 receiver.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	Anglovaal: • No records available. Orion: • Orion's Executive: Exploration personally supervised the drilling and sampling along with a team of experienced geologists. • The Executive: Exploration reviewed the raw laboratory data and confirmed the calculation of the significant intersections. • Twin holes were drilled to verify historical drill intersections from Anglovaal. • Data entry from the primary hard copies was done on MSExcel spreadsheets by the geologists logging the core. The data was then imported into an MSAccess database by the geologist responsible for the database. Validation of the data was done during the MSAccess import by running

Criteria	JORC Code explanation	Commentary
		queries, and additionally when the resource geologist imported the data into to the modelling software. • All drilling data has been transferred to a secure Geobank database. • For the EM survey, data was collected on site and validated by a geophysical technician daily. Data (raw and processed) was sent to a consultant geophysicist for review, quality control and processing. • No adjustments were made to the assay data.
Location of data points	• *Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	Anglovaal: • All surface and underground hole collars were surveyed by qualified surveyors using a theodolite. • The historic mine survey data is in the old national Lo 23 Clarke 1880 coordinate system. • Downhole surveys were carried out for most of the V holes and all of the D and F holes. Methodology of the downhole surveys is not recorded on the available hardcopy information but plans and sections are meticulously plotted and signed off by a certified surveyor. • Both Eastman and Sperry Sun instruments were used in the downhole surveys. • Significant deflections in the dips of the holes have been noted, especially for the deeper holes. The V holes, with no downhole surveys, are shallower holes drilled earlier on in the initial exploration phase. These holes intersected areas where the mineralisation is now largely mined out. • All hole positions have been converted to Lo23 WGS84 coordinates. • Underground D and F holes are recorded in local "V" line and "O" distance coordinates with local mine datum elevations. Level plans have both the local V/O grid and Lo23 Clark 1880 grids plotted and this was used to define transformation parameters from local grid to geographical coordinates. All hole positions were converted to Lo23 WGS84 coordinates. Orion: • Drillhole collar positions were laid out using a handheld GPS. • After completion of the Orion drilling all collars were surveyed by a qualified surveyor using a Trimble R8 differential GPS. • Downhole surveys were completed in all drillholes using a North-Seeking Gyro instrument. • All survey data is in the WGS84 ellipsoid in the WG23 Zone with the Hartebeeshoek 1994 Datum. The coordinates are also supplied in Clarke 1880 and in UTM WGS84 Zone 34 (Southern Hemisphere).

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	Anglovaal: • Original exploration holes (V) were drilled on 200 - 250m spacing. • Underground drilled holes (D, F and R) were not drilled on a regular spaced grid. Orion: • For the Deep Sulphide Mineral Resource drillholes were initially aimed to intersect mineralisation on approximately 100m x 100m spacing with infill drilling to be carried out in areas of interest as determined by results. In specific areas the drill density was increased to improve the level of confidence of the Mineral Resources. • Variography analyses were carried out to establish optimum drill spacing for Mineral Resource estimates. • No sample compositing was applied before assaying.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Most of the historical drilling and all current drilling was oriented perpendicular, or at a maximum achievable angle to, the attitude of the mineralisation. • As a result, most holes intersect the mineralisation at an acceptable angle. • No sampling bias is anticipated as a result of hole orientation. • EM surveys were completed by Orion in an orientation perpendicular to the interpreted or intersected mineralisation.
Sample security	• *The measures taken to ensure sample security.*	Anglovaal: • No details of sample security were available. However, during the mining operations the site was fenced and gated with security personnel employed as part of the staff. Orion: • Chain of custody was managed for all sampling programs. Samples were stored on site in a secure locked building and then freighted directly to the laboratory. • All coarse and pulp rejects returned from the laboratory are stored within secured locked buildings.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	Anglovaal: • No records of audits or reviews were available. Orion: • SRK reviewed the sampling techniques practiced. • The sampling process was governed by well-established industry standards and company procedures and protocols.

JORC (2012) Table 1: Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Refer to ASX releases 15 January 2019, 18 December 2018, 5 November 2018 and 5 February 2018 for JORC (2012) Table 1 Section 2 Information for the +105 Level Mineral Resource.

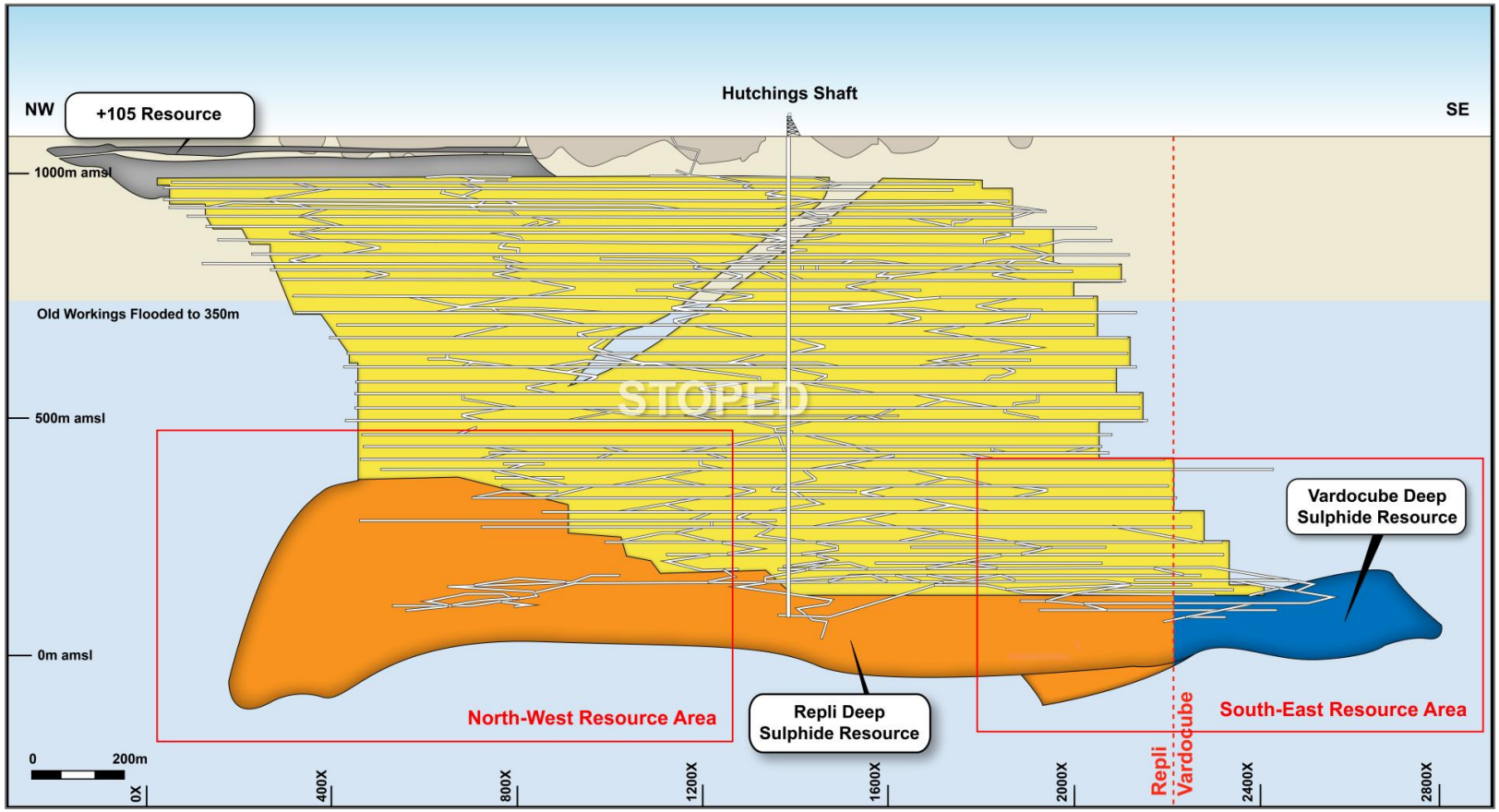
Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Deep Sulphide Target is located on the Repli Mining Right and the Vardocube Prospecting Right which are both indirect subsidiaries of Orion. A Vardocube mining right application for the Vardocube Prospecting Right area is in process with the authorities. See JORC Table 1 section 4 for further tenement detail. • The combined right areas covers a strike length of 2,460m for the Deep Sulphide mineralisation. • All of the required shaft infrastructure and lateral access underground development is available within the area of the two rights.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Anglovaal exploration resulted in the delineation and development of a large mine. • Drilling in 2012 of the north-western section of the +105 Level Target was carried out by the previous owners of Repli (Orion acquired Repli in March 2017).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Prieska deposit is a Volcanogenic Massive Sulphide (**VMS**) deposit which is situated in the southernmost exposures of the north-north-west trending Kakamas Terrain, which forms part of the Mid-Proterozoic Namaqualand Metamorphic Complex. • The deposit is hosted by the Copperton Formation of the Areachap Group. The Areachap Group, also hosts several other smaller VMS deposits such as Areachap, Boks Puts, Kantien Pan, Kielder, and Annex Vogelstruisbult. • The structural sequence at the mine consists of a footwall Smouspan Gneiss Member, Prieska Copper Mines Assemblage (**PCMA**), which hosts the sulphide mineralisation, and the hangingwall Vogelstruisbult Gneiss Member. • The historically mined section of the deposit was confined to a tabular, stratabound horizon in the northern limb of a refolded recumbent synform, the axis of which plunges at approximately 5° to the south-east. • The known mineralised zone, called the Deep Sulphide, has a strike of 2,400m, is oxidised and / or affected by leached and supergene enrichment to a depth of approximately 100m and crops out as a well-developed gossan. It has a dip of between 55° and 80° to the northeast at surface and a strike of

Criteria	JORC Code explanation	Commentary
		130° to the north. Drilling indicated that the Deep Sulphide has a strike length of at least 2,860m in depth. • The thickness of the mineralised zone exceeds 30m in places but averages between 7m and 9m. The mineralised zone persists to a depth of 1,100m (as deep as 1,228m in one section) after which it is upturned due to the folding. • The Deep Sulphide area located below the historical mined area, comprises the steep down dip continuity (steep limb and hinge zone) continuing to where it upturns to a synformal structure ('trough zone'). • The morphology of the mineralised horizon in the folds eastern limb was well mapped out by drilling and historical mining while the up dip extent in the western limb is poorly mapped and tested. • The +105 Level Mineral Resource area comprises the oxide/supergene/ mixed zone (and a zone of remnant primary sulphides) situated from above the upper limit of mining at approximately 100m depth below surface, up to surface. This zone of oxide and supergene mineralisation has a strike length of 867m.
Drillhole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* o *easting and northing of the drillhole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	Anglovaal: • Historical drilling results used in the Deep Sulphide Mineral Resource estimation were reported in the ASX releases of 16 July 2018 and 18 November 2015. Orion: • All drillhole intersections used in the Deep Sulphide Mineral Resource estimation were reported in the ASX releases of 5 November 2018, 15 October 2018, 18 September 2018, 16 July 2018, 19 February 2018, 1 February 2018, 12 December 2017, 8 November 2017, 9 October 2017, 5 October 2017, 19 September 2017, 6 September 2017, 27 July 2017 and 17 July 2017. • Other relevant diagrams were included in the abovementioned ASX releases relating to the drilling results at the Prieska Project.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	Orion: • Significant intersections for the Deep Sulphide Mineral Resource reported to the ASX were estimated by an average of assay results > 0.3% copper or 0.5% zinc and weighted by the sample width and specific gravity of each sample. • In general, the significant intersections correspond strongly to geological boundaries (massive sulphides) and are clearly distinguishable from country rock / surrounding samples. • No truncations have been applied. • No metal equivalent values were considered. • Significant intersections made by Orion were reported in previous ASX releases relating to drilling of the Deep Sulphide Mineral Resource.

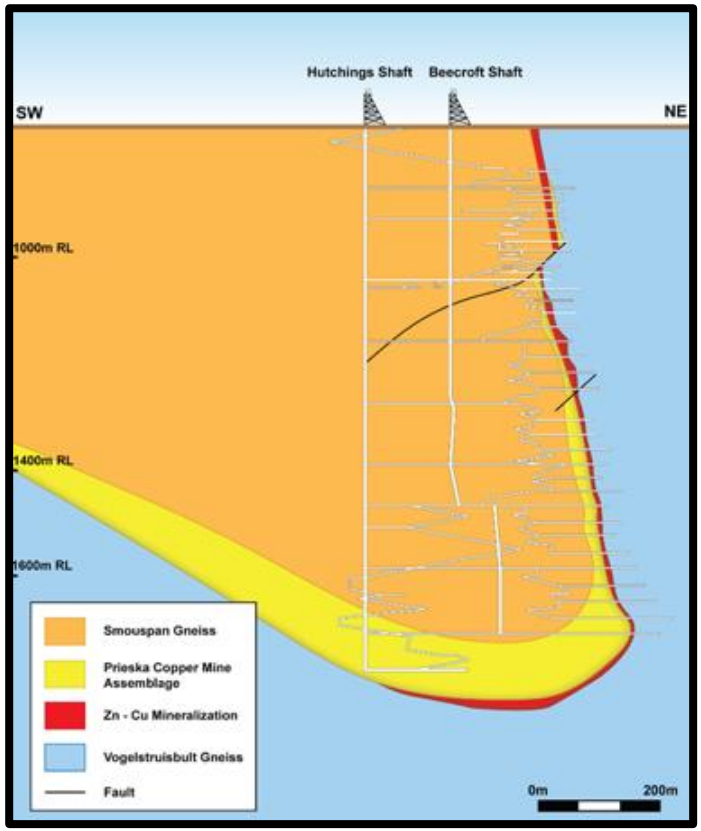
Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• All intersection widths quoted are down hole widths. • Most holes intersected the mineralisation perpendicular or at a high angle to the attitude of the mineralisation. • The geometry of the Deep Sulphide mineralisation is complex and true widths were obtained from the three-dimensional wireframe created to depict the mineralisation.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.*	• Appropriate diagrams (plans and long sections) are shown in JORC Table 1: Figures 1A to 6A. • All drillhole intersections used in the Deep Sulphide Mineral Resource estimation have been reported in the ASX releases of 5 November 2018, 15 October 2018, 18 September 2018, 16 July 2018, 19 February 2018, 1 February 2018, 12 December 2017, 8 November 2017, 9 October 2017, 5 October 2017, 19 September 2017, 6 September 2017, 27 July 2017 and 17 July 2017. Historical drilling results were reported in the ASX releases of 16 July 2018 and 18 November 2015. Other relevant diagrams have been included in previous ASX releases relating to the drilling results at the Prieska Project.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced avoiding misleading reporting of Exploration Results.*	• All drilling information was compiled digitally and is available in a secure Geobank™ database. • The Company presented all available information in its drill reports in a balanced manner and has provided appropriate context for the Exploration Results to allow a considered and balanced judgement of their significance.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Hardcopy plans are available for a range of other exploration data. This includes mine survey plans, geological maps, airborne magnetic, ground magnetic, electromagnetic, gravity and induced polarisation information. All available exploration data was viewed by the Competent Person. • The Prieska Mine operated from 1972 to 1991 and is reported to have milled a total of 45.68 Mt of ore at a grade of 1.11% copper and 2.62% zinc, recovering 0.43 Mt of contained copper metal and 1.01 Mt of contained zinc

Criteria	JORC Code explanation	Commentary
		metal. Detailed production and metallurgical results were available for the life of the mine (JORC Table 1: Figure 7A). • In addition, 1.76 Mt of pyrite concentrates and 8,403t of lead concentrates as well as amounts of silver and gold were reportedly recovered. • Historically, copper and zinc recoveries averaged 84.9% and 84.3% respectively during the life of the PCM mine. • Comprehensive geotechnical work as part of a BFS has been completed on the Deep Sulphide and +105 Level areas and the data is available. • Metallurgical testwork forms part of the Ore Reserve assessment. Refer JORC (2012) Table 1: Section 4. • Relevant diagrams have been included in previous ASX releases relating to drilling at the Prieska Project.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Following the positive outcomes of the BFS, Orion is targeting a Final Investment Decision for the Prieska Project as soon as financing negotiations have been concluded. This can place the Company in a position to commence construction as soon as financing is available. In addition, Orion is also progressing key commercial work streams including, concentrate marketing and Project financing. • In parallel with these programs, resource extension drilling would also be undertaken from underground drilling platforms targeting opportunities to further extend the Foundation Phase 12-year mine life.

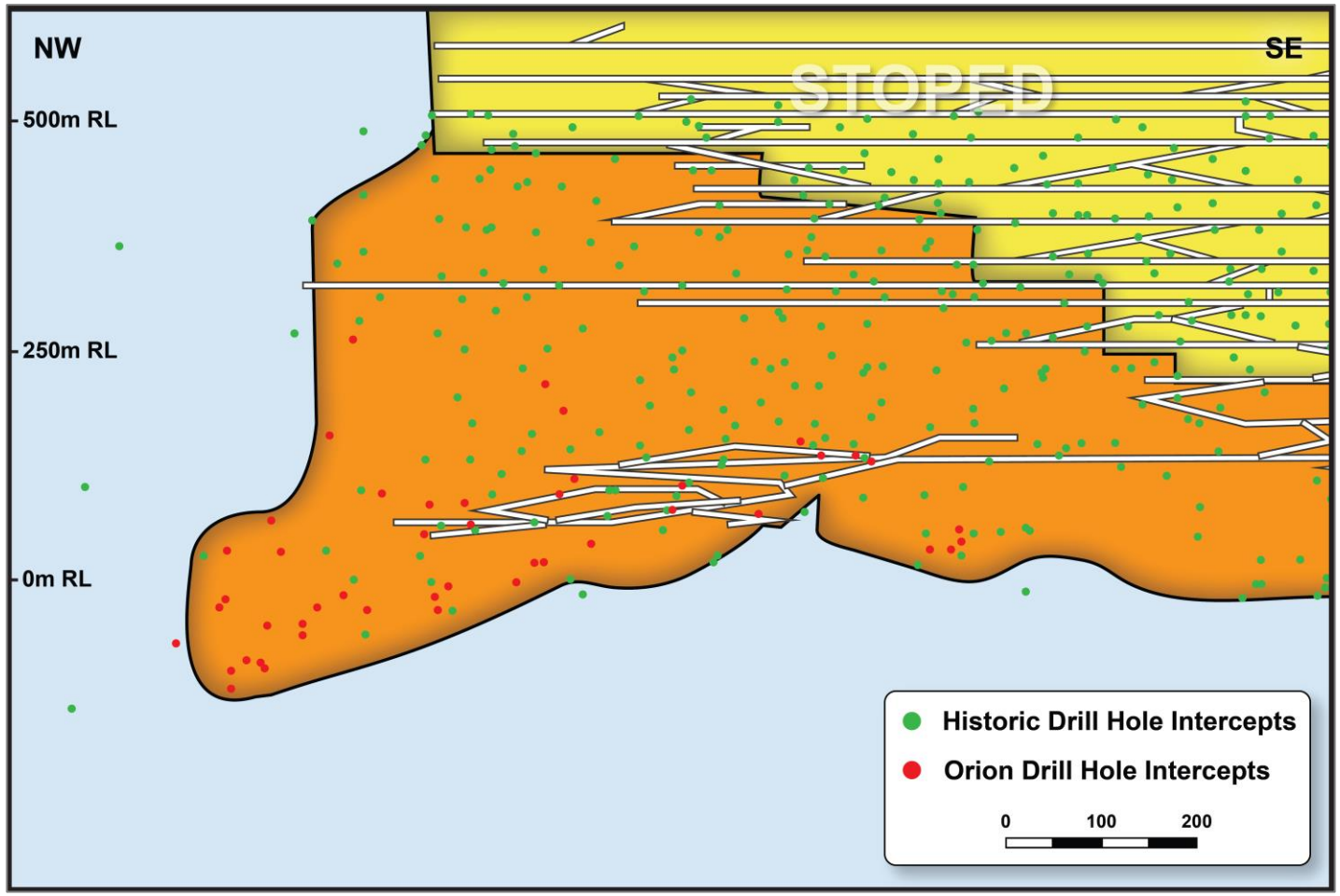
Section 2-1 Selected Images illustrating the Mineral Resource and sampling presented.



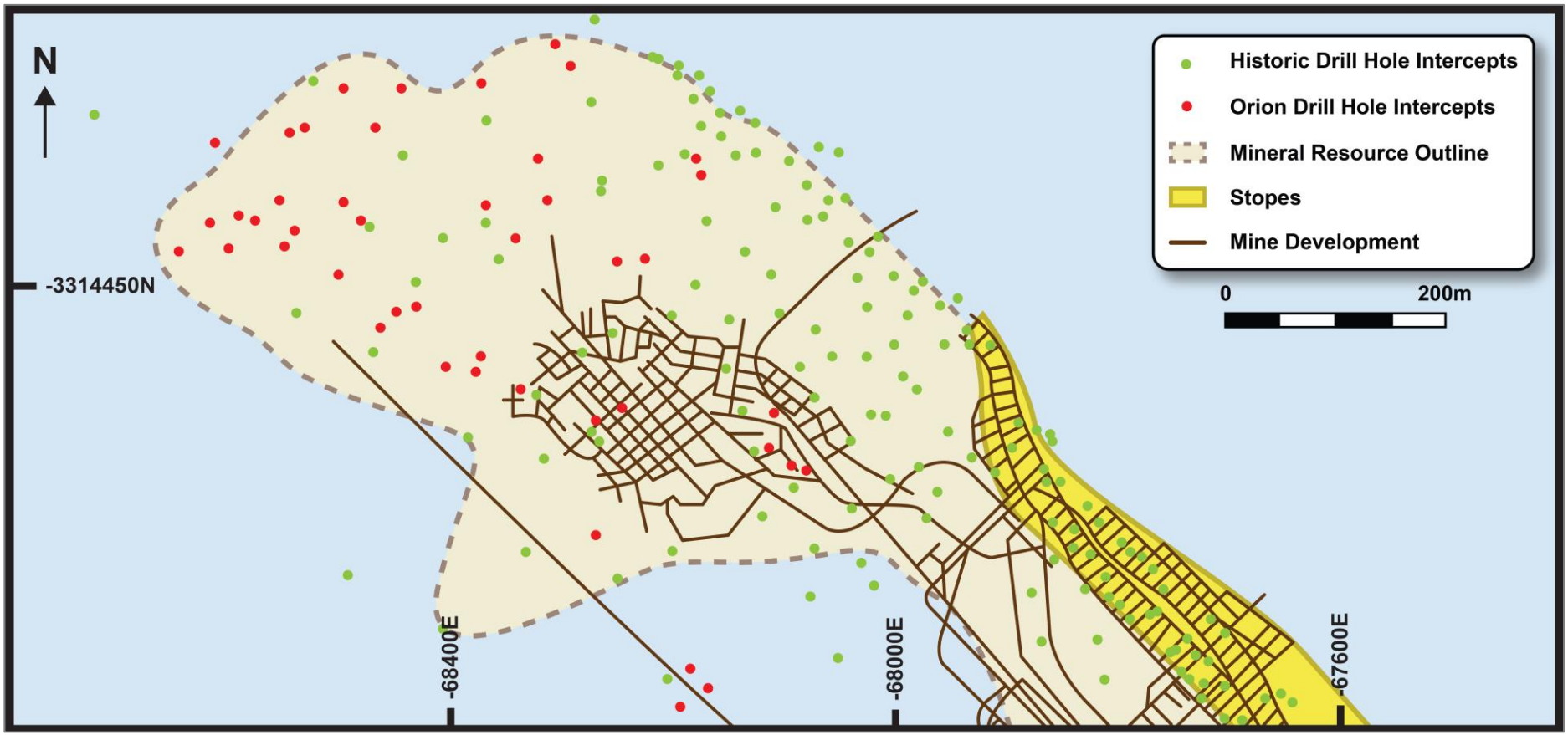
JORC (2012) Table 1: JORC Table 1: Figure 1A: Longitudinal section showing the historically mined area and the Deep Sulphide Mineral Resource, with the Deep Sulphide Mineral Resource sub-divided into the Repli and Vardocube Mineral Resource areas.



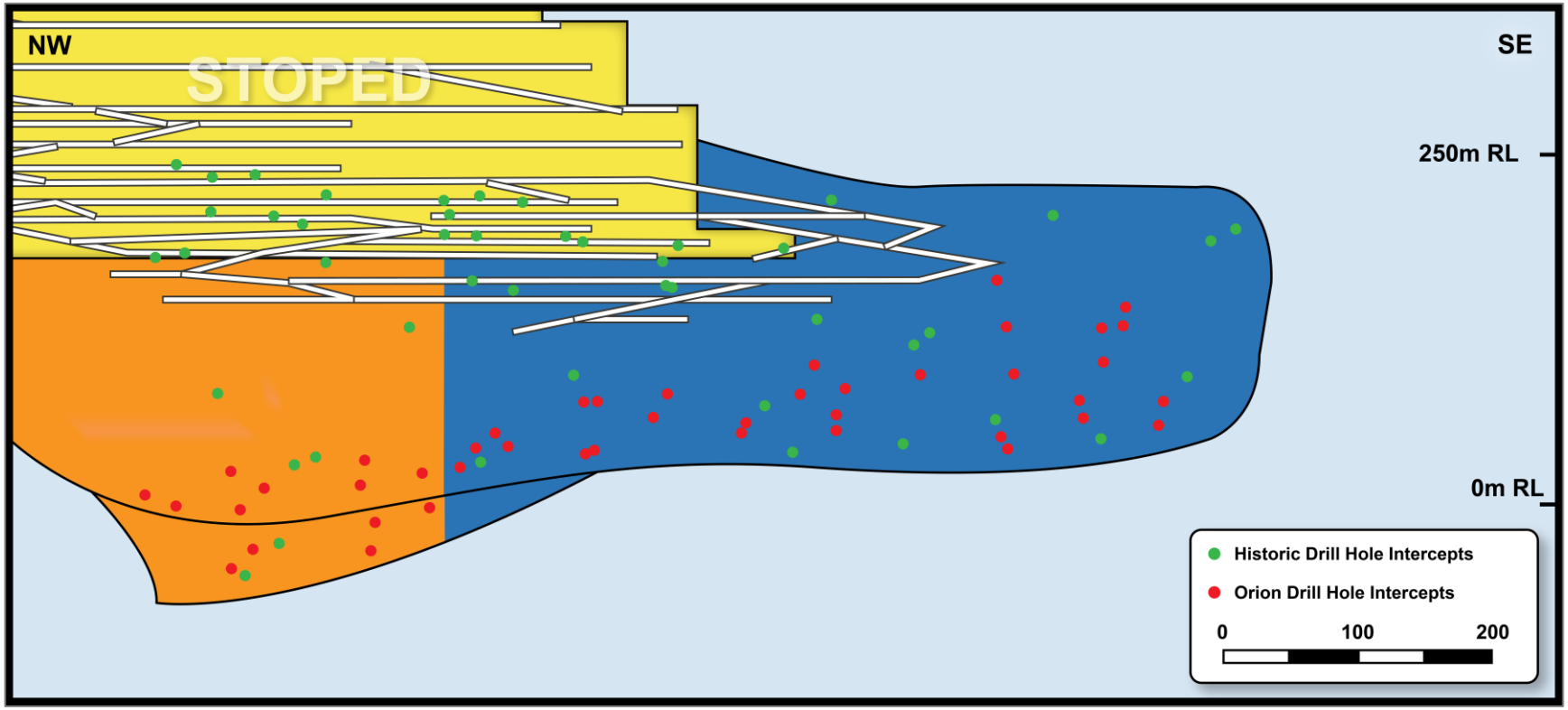
JORC (2012) Table 1; JORC Table 1: Figure 2A: Simplified geological section through the Prieska deposit showing structure and relative location of the Deep Sulphide Target below the old workings.



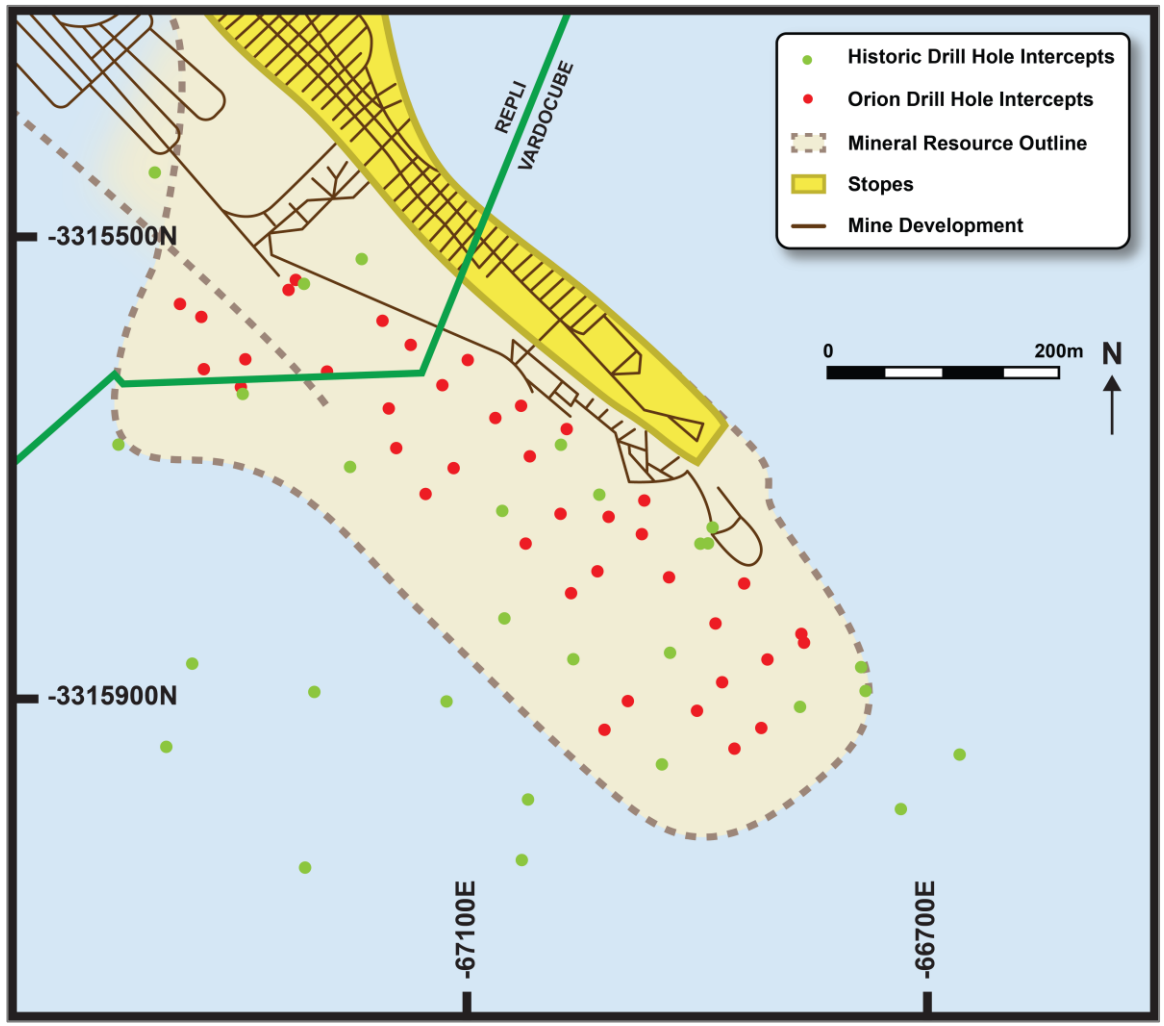
JORC (2012) Table 1: JORC Table 1: Figure 3A: Longitudinal projection of the North-West Resource area of the Prieska deposit, showing the intersection points of the drillholes used to estimate the Mineral Resource.



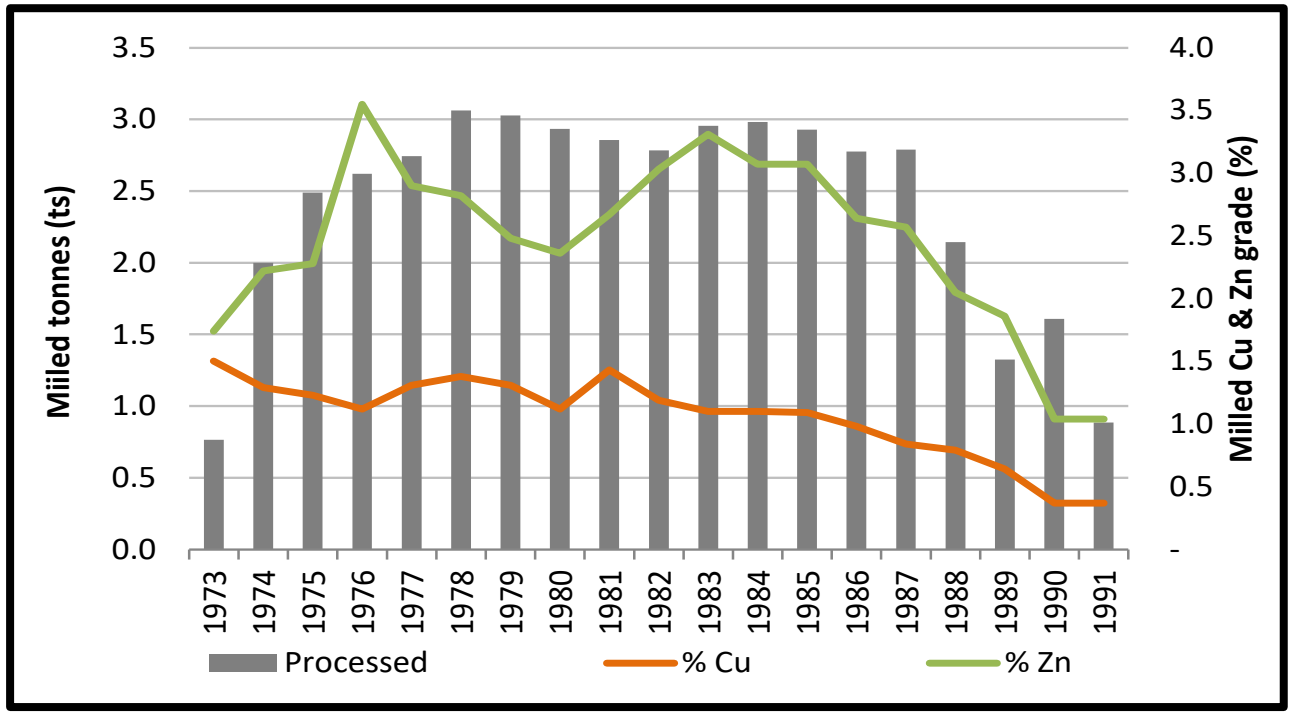
JORC (2012) Table 1: JORC Table 1: Figure 4A: Plan of the North-West Resource area of the Prieska deposit, showing the intersection points of the drillholes used to estimate the Mineral Resource.



JORC (2012) Table 1: JORC Table 1: Figure 5A: Schematic longitudinal projection of the South-East Resource area of the Prieska deposit, showing the intersection points of the drillholes used to estimate the Mineral Resource.



JORC (2012) Table 1: JORC Table 1: Figure 6A: Plan of the South-East Resource area of the Prieska deposit, showing the intersection points of the drillholes used to estimate the Mineral Resource.



JORC (2012) Table 1: Figure 7A: Graphic presentation of the tonnes and grades milled at the Prieska Copper Mine from 1973 to 1991 (Source: PCM Mine Records).

JORC (2012) Table 1: Section 3 Estimation and Reporting of Mineral Resources – Deep Sulphide

(Criteria listed in Section 1 and where relevant in Section 2 also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• All drillhole and sample data are stored by Orion in a robust Geobank™ database. • Validation included the following: o Ensuring that all drillholes have appropriate XYZ coordinates. o Comparing the maximum depth of the hole against the final depth indicated in the collar file. o Comparing the final depth in the survey file against final depth in the collar file. o Comparing the final depths of all geology, assay, and core recovery against the final depth in the collar file. o Checking for duplicate drillholes. o Checking that each depth interval has a main lithology. o Checking that all fields set up as mandatory fields contain entries. o The core recoveries were checked for unrealistic percentages. o Density results were checked for unrealistic values. • A further check was performed when the drillhole data was imported into the Geovia SurpacTM (Surpac) modelling software. The data was validated for duplicates, gaps, overlaps, impossible intervals in down-hole sequence for assay, collar coordinates, geology data and survey data. The drillholes were also visually checked in plan and section in Surpac.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Z Star Mineral Resource Consultants (Pty) Ltd (**Z Star**) were requested by Orion Services South Africa (Pty) Ltd (**Orion SA**) to estimate and classify a Mineral Resource for the Deep Sulphide deposit. Z* visited the Prieska Project from 17 to 19 October 2017 and on two subsequent occasions in 2018 and 2019. • The visit included a review of the drilling and sampling operations, discussion on the geology and associated mineralisation, review of the planned drillholes, examination of the assay data and a high level spatial analysis.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The Deep Sulphide mineralisation is the depth extension of the strata-bound, stratiform VMS Prieska copper-zinc deposit and is hosted by the 3km thick Copperton Formation of the Areachap Group. The massive sulphide mineralisation is characterised by abundant rounded fragments of gangue material of various sizes contained in a matrix of sulphide minerals. The gangue includes fragments of both hanging- and footwall material. • No clear metal zonation is evident from the modelling. High Cu values are generally not in the same place as the high Zn values (with a few exceptions). • Geological information and conclusions reached were based on observations made in drill core from the drilling and sampling programs. • Like many other VMS deposits domaining for estimation was not possible using the geology, and the best method is was to use the assay data. • There is a sharp decrease in the Zn and Cu grades on the boundary of the Massive Sulphide Unit. For the construction of the wireframes a Zn equivalent cut-off of 3.0% (Zn_Eq

Criteria	JORC Code explanation	Commentary
		= Zn% + (Cu%*2) for the mineralised zones was used. The Zn equivalent cut-off was used as a guide for modelling rather than a strict threshold.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• Within the licence areas, the strike length of the mineralisation is 2,600m, horizontal width varies from 410m to 870m and the down dip extent is 1,228m below shaft collar. True thickness of the mineralisation varies between <1m to 30m with an average of 7m.

Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters, and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*
	• *The assumptions made regarding recovery of by-products.*
	• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).*
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*
	• *Any assumptions behind modelling of selective mining units.*
	• *Any assumptions about correlation between variables.*
	• *Description of how the geological interpretation was used to control the resource estimates.*
	• *Discussion of basis for using or not using grade cutting or capping.*
	• *The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.*
		• The Mineral Resource estimation of the Deep Sulphide included the following steps:
		  ○ The creation of a wireframe model for the Deep Sulphide mineralisation using a 3.0% Zn equivalent cut-off as a guide (using Datamine™). In addition, the lithology was used;
		  ○ Data validation and selection of samples within the Deep Sulphide deposit and analysis of the variables to be estimated, i.e. Cu%, Zn%, and SG;
		  ○ Exploratory Data Analysis (**EDA**) that included:
		  ○ Compositing the data to 1m;
		  ○ Capping four Cu% outliers with no capping of Zn% values; and
		  ○ Exclusion of two samples with extreme lengths.
		  ○ Creation of a suitable block model with estimation blocks measuring 30m x 30m x 5m, and sub-cells measuring 0.5m x 0.5m x 0.5m;
		  ○ Spatial analysis of estimation variables followed by a neighbourhood analysis taking cognisance of the folding;
		  ○ Estimation using an appropriate method and modelled parameters, i.e. Ordinary kriging for local block estimation supplemented by zonal estimation; and
		  ○ Validation of block estimates including statistical and visual methods as well in comparison with the results of a second method (moving average).
		  ○ The software used for estimation was Isatis™.
		• Orion declared a Mineral Resource for the Deep Sulphide deposit on the then Repli and Vardocube Prospecting Rights on 8 February 2018 and 9 April 2018, respectively.
		• There are no previous mine production plans for the Deep Sulphide Mineral Resource.
		• No assumptions were made with respect to the Mineral Resource, regarding the recovery of by-products.
		• No deleterious elements or non-grade variables were estimated as part of the Mineral Resource estimation process.

Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• No moisture content was estimated; the core dried naturally during logging and sampling. The estimated tonnages are therefore based on a natural moisture basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The Deep Sulphide Mineral Resource was classified and reported at a zero cut-off but using a wireframe that mostly excludes sample values below a 3% Zn equivalent. • The cut-off was on the recommendation of Orion's Chief Operating Officer (**COO**) based on historical data from the historical Prieska Copper Mine (**PCM**) and a dataset of parameters from similar operations in the region.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• Minimum mining thickness of 2m and a cut-off of 4% Zn equivalent were proposed by Orion's COO, based on historical data from PCM and a dataset of parameters from similar operations in the region. • The minimum thickness is based on a combination of longhole open stoping (**LHOS**) and drift and fill (**D&F**) mining methods. • A preliminary mine design forming the basis of a BFS was available at the time of Mineral Resource modelling.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• PCM operated from 1972 to 1991 and is reported to have milled a total of 45.68 Mt of ore at a grade of 1.11% copper and 2.62% zinc, recovering 0.43 Mt of contained copper metal and 1.01Mt of contained zinc metal. • Detailed production and metallurgical results are available for the life of the mine. • In addition, 1.76Mt of pyrite concentrates and 8,403t of lead concentrates as well as silver and gold were recovered. • Copper and zinc recoveries averaged 84.9% and 84.3% respectively during the life of PCM. • Metallurgical testwork on the Deep Sulphide mineralisation revealed good concentrate recoveries, similar to those reported for the historical Anglovaal operation. • Additional metallurgical testwork was conducted as part of the BFS and is described in Section 4.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• The Deep Sulphide Mineral Resource environmental footprint overlies that of the historical PCM site. Environmental impact assessment studies formed part of the licensing and BFS processes and are described in Section4.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors, i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data.* • *Whether the result appropriately reflects the Competent*	• The classification of the Deep Sulphide Mineral Resource took cognisance of the uncertainty associated with the geology with the focus being on the definition of the mineralised domain and therefore the volume estimate. The classification also took cognisance of the fact that there is more than one drilling and sampling program, and the historical Anglovaal data has a lack of available supporting documentation. A further important consideration was the methodology used to estimate Cu%, Zn%, and BD t/m^3 and an assessment of the results (refer to discussion of relative accuracy and confidence

Criteria	JORC Code explanation	Commentary
	Person(s)' view of the deposit.	below). In particular the Slope of Regression (**SOR**), the kriging Efficiency (**KE**) and the drilling density were utilised to identify blocks of lower levels of uncertainty. • The Deep Sulphide Mineral Resource is classified at an Indicated and an Inferred level of confidence. • The results conform to the view of the Competent Persons.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• MSA reviewed the 2018 Deep Sulphide Mineral Resource in 2018. • A SRK review of the 2018 Deep Sulphide Mineral Resource was completed.
Discussion of relative accuracy/confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Deep Sulphide target was originally modelled on the historic Anglovaal drilling only. It is important to recognise that the Orion holes that targeted this Deep Sulphide deposit intersected the mineralised zone at the expected depths. The Orion holes did not alter the known shape of the original Deep Sulphide deposit significantly. The compatibility of the two drilling campaigns thus added considerable support in terms of including the Anglovaal drilling. • The results of a comparative analysis between Anglovaal and Orion drilling and sampling data did not justify exclusion of historical data. There is a reasonable compatibility between the histogram analysis (despite a significant difference in the number of assays). • In general, the variogram models for Cu% and Zn% for both Anglovaal and Orion data compared very favourably. • Ordinary kriging was undertaken on Cu%, Zn%, and BD t/m3 using 30m x 30m x 5m blocks, utilising the capped 1m composite input datasets, the modelled variograms and the optimised search neighbourhood parameters. The results from the first pass for Cu%, Zn% and BD t/m3 populate between 68% and 86% of the blocks for the Deep Sulphide Mineral Resource. A second kriging pass was used for Cu%, Zn% and BD t/m3, that resulted in 100% of the blocks being populated. • No production data was available.

JORC (2012) Table 1: Section 3 Estimation and Reporting of Mineral Resources - +105 Level

(Criteria listed in Section 1 and where relevant in Section 2. also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• All drillhole and sample data are stored by Orion in a robust Geobank™ database. • Validation included the following: o Ensuring that all drillholes have appropriate XYZ coordinates. o Comparing the maximum depth of the hole against the final depth indicated in the collar file. o Comparing the final depth in the survey file against final depth in the collar file. o Comparing the final depths of all geology, assay and core recovery against the final depth in the collar file. o Checking for duplicate drillholes. o Checking that each depth interval has a main lithology. o Checking that all fields set up as mandatory fields contain entries. o Core recoveries were checked for unrealistic percentages. o Density results were checked for unrealistic values. • Additional validation was undertaken when the drillhole data was imported into the Geovia Surpac™ (**Surpac**) modelling software. The data was checked for duplicates, gaps, overlaps, impossible intervals in down-hole sequences for assay, collar coordinates, geology data and survey data. The drillholes were also visually checked in plan and section in Surpac. • Additional validation was undertaken when the data was imported into Datamine™ and again when the de-surveyed data was imported to Isatis™ for the EDA and the estimation.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Z Star Mineral Resource Consultants (Pty) Ltd (**Z Star**) were requested by Orion Services South Africa (Pty) Ltd (**Orion SA**) to estimate and classify a Mineral Resource for the Deep Sulphide deposit. Z Star visited the Prieska Project from 17 to 19 October 2017 and on two subsequent occasions in 2018 and 2019. • The visits included a review of the drilling and sampling operations, discussion on the geology and associated mineralisation, review of the planned drillholes, examination of the assay data and a high level spatial analysis.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The +105 Level Mineral Resource comprises four defined geological zones above the primary sulphides. These are: o Haematite-goethite-quartz oxide zone (gossan) from surface to approximately 33m. o Clay (kaolinite) zone developed in places below 33m. o Chalcocite dominant supergene zone between approximately 42m and 70m. o Mixed Supergene-sulphide zone between approximately 70m and 90m below surface. This has a relatively sharp contact with the fresh underlying massive sulphides.

Criteria	JORC Code explanation	Commentary
		• Of the above four zones, the first and the third are considered as being suitable for inclusion as part of the Mineral Resource. These two are referred to as the Oxide and Supergene zones, respectively. • The boundaries of the mineralisation are relatively sharp irrespective of the geology. Therefore, wireframes for the Oxide and Supergene zones were created by interpretation of the Zn% and Cu% values along 31 sections across the deposit. The wireframes were constructed using Zn% values greater than or equal to 0.6% and Cu% values greater than or equal to 0.3%. Where possible both values were utilised during modelling, but greater emphasis was placed on the copper values as the zinc was leached out towards the surface. In places, this resulted in the inclusion of mineralised areas based only on high Cu% values. • In the north-west part of the deposit, mineralisation occurs in two lenses. It is unclear whether this is stacked mineralisation formed during deposition or a structural duplication due to thrusting or isoclinal folding and will be investigated with detail grade control drilling should open pit mining be approved. The upper lens does not seem to have a depth extent and is part of the oxide zone. • Geological data and conclusions reached are based on observations in drill core. • The Oxide and Supergene zones were treated independently for Mineral Resource estimation.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The strike length is 867m and the depths below surface to the upper limits are from 5m to 20m and to the lower limits from 61m to 104m below surface. • The thickness of the mineralised zone varies from 1.5m to 23m.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters, and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to*	• Density weighting is standard practice for VMS deposits. However, in the Oxide and Supergene zones the density measurements did not correlate well with the assay values • The distribution of composites for each of the variables (Zn%, Cu%, and density) were assessed and a decision was taken to use the Parker methodology for capping outliers; resulting in the relevant outliers for each variable being capped to a chosen threshold. • No Zn%, Cu% or density values were capped in the Oxide Zone however capping was applied to two Zn% assays and one Cu% assay in the Supergene Zone. • Datamine™ was used to create a block model and measure individual block volumes within each zone and these data were imported into Isatis™ for further analysis and estimation. • The Oxide and Supergene zones were analysed independently to ensure that the plane for estimation had an optimal orientation. • Following a spatial analysis, variograms for all variables were modelled using the laboratory assay capped composites only and modelled in two directions, downhole

Criteria	JORC Code explanation	Commentary
	control the resource estimates. • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.*	(along the drillhole) and omni-directionally on the plane of the mineralisation. Assessment of the variogram models was preferentially focused on the Zn% and Cu% spatial structure. • Repli (2014) stated a near-surface Oxide Mineral Resource of 1.2Mt at 1.02% Cu and 1.13% Zn for the north-west oxide and leached zone, based on 12 diamond drillholes. • No mining production took place above the 105 Level of the existing mine. • No assumptions have been made regarding the recovery of by-products. • No deleterious elements or non-grade variables were estimated. • A block model was created to allow estimation into 40m x 40m x 5m blocks with sub-cells of 2.5m x 2.5m x 2.5m. • Ordinary kriging was used for all variables on a 40m x 40m x 5m block scale, utilising the capped composite input datasets and the modelled variograms. Estimation runs on two different neighbourhoods were completed for all variables and the first estimation run in each case had smaller searches (equivalent to the variogram ranges), particularly in the Z direction. This ensures that the variography, and therefore the nature of the mineralisation, is honoured and ensures that negative weights are minimised. The neighbourhood of the second kriging run was expanded to allow population of most of the remaining blocks. The 2nd pass kriging run failed to populate all the blocks in the Oxide and Supergene Zones, particularly in areas where the peripheral dip of the deposit was different to the best fit plane. A decision was taken to utilise the 'grid filling' option in Isatis™ using a moving average interpolator. • No assumptions were made regarding selective mining methods. • The Oxide and Supergene zones were reported independently in the Mineral Resource statement.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• No moisture content was estimated, and the core dried naturally during logging and sampling. The estimated tonnages are therefore based on a natural moisture basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A Cu% cut-off of 0.3% that corresponds with the wireframe modelling was used for the Mineral Resource Statement. • The cut-off was on the recommendation of Orion's Chief Operating Officer (**COO**) based on historical data from the Prieska Copper Mine (**PCM**) and a dataset of parameters from similar operations in the region.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The assumption during modelling was to use open cast mining methods with 10m benches. • The major risk is mining between sinkholes and above the partly collapsed crown pillar of the underground mined-out stopes.

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• Metallurgical testwork indicated that a separate copper and zinc concentrate of the supergene mineralisation is achievable, testwork of the oxide mineralisation however had unsuccessful results. • The oxide mineralisation has a reasonable prospect for eventual economic extraction as it occurs close to the surface and treatment of this type of mineralisation by means of leaching is well known in the industry.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• The +105 Level Mineral Resource environmental footprint overlies that of the historical PCM site. Environmental impact assessment studies formed part of the licensing and BFS processes and are described in Section 4.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Due to the poor core recoveries the density data in the Oxide Zone is sparse with only 14 samples available. There are 134 density measurements in the Supergene Zone. • Bulk Densities (**BD t/m³**) were determined using the water displacement method. A representative sample of full core at 15cm length was collected per metre length, taking cognisance of the change in lithology. • A total of 33% of the samples lying within the wireframe used for the estimation of the supergene mineralisation were re-done for relative density using the wax relative density method. These results showed excellent precision and no obvious bias when compared with the original relative densities. • No moisture content was determined. • Core is mostly weathered in the Oxide Zone with obvious core loss. The representative samples selected for density measurement were sprayed with a clear lacquer spray and allowed to dry prior to being weighed. • The low number of samples and the lack of a variogram model for density samples in the Oxide Zone resulted in a different approach to estimation. The estimation methodology for density in this zone is as follows: o Calculation of a length weighted average BD t/m³ per drillhole. o Calculation of the average density per spatial area from the drillholes (declustering). o Calculation of the average of the spatial areas (declustered mean). This marginally lower but more representative mean BD t/m³ value, 2.59 t/m³, was applied as a zonal estimate

Criteria	JORC Code explanation	Commentary
		for all blocks within the Oxide Zone. • The densities in the Supergene Zone were estimated using Ordinary kriging.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors, i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data.* • *Whether the result appropriately reflects the Competent Person(s)' view of the deposit.*	• The geology of the two zones making up the +105 Level Mineral Resource is relatively uncomplicated, and the key issues relate to the delineation of the domain boundaries (not geology). The assay data used for estimation is reliable and has been acquired with good governance associated with all processes. With one exception (BD t/m^3 in the Oxide Zone), the variables were estimated using independent variogram models and Ordinary kriging. • Oxide Zone: Inferred Mineral Resource - the geological model is defined to a reasonable level and there is sufficiently accurate data to produce local block estimates using Ordinary kriging, albeit that there is a limited number of samples. There is a high level of uncertainty associated with the zonal estimation of density due to a low number of samples (and a possible bias in the methodology) as well as possible inaccuracies associated with core loss. The collapse breccia (within the sinkholes) will also have the largest effect on this zone and this has not been well defined. • Supergene Zone: Inferred and Indicated Mineral Resources - the geological model is defined to a reasonable level and there is sufficiently accurate data coverage to produce local block estimates using Ordinary kriging. In parts of the Supergene Zone there are sufficient data for reasonably accurate local block estimates of grade (~69% of volume populated by 1st Pass kriging). The low number of density samples is a concern but local block estimation with reasonable accuracy was possible. The kriging performance parameters, e.g. slope of regression, were utilised to make a distinction between the Indicated and Inferred levels of confidence. • The results conform to the view of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• MSA reviewed the 2018 Deep Sulphide Mineral Resource in 2018. • A SRK review of the 2018 Deep Sulphide Mineral Resource was completed.
Discussion of relative accuracy/confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the*	• Final estimates for all variables in both zones were validated by comparing the mean composite grades to the mean estimate grades. The data for Zn and Cu with the 1st Pass and final estimates are within 5% of the composites mean for the Supergene Zone and within 8% for the Oxide Zone. • Composite and estimated final grade and density distributions were compared to ensure that the block estimates represent the original data distribution. These were found to be reasonably compatible. • Swathe Trend plots were created in the Y, X and Z directions and all the estimates followed the trend of the composite data. • All estimates were studied graphically and compared to the composite data in three-dimensional space and they compared reasonably well, given the high variability of the sample data. • No production data were available.

Criteria	JORC Code explanation	Commentary
	estimate should be compared with production data, where available.	

JORC (2012) Table 1: Section 4 Estimation and Reporting of Ore Reserves – Deep Sulphides, Underground

(Criteria listed in Section 1, and where relevant in Section 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• The Ore Reserves are based on the total Deep Sulphide (underground) Mineral Resources for the Prieska Project of 28.73Mt at grades of 3.77% Zn and 1.16% Cu, classified and reported in accordance with JORC Code 2012[17] in ASX release 18 December 2018. • The Mineral Resources are based on drilling data available as at 30 November 2018. • The Competent Person for the Mineral Resource is Mr Sean Duggan of Z Star Mineral Resource Consultants (Pty) Ltd, RSA. • The Mineral Resource estimate was prepared by Z Star Mineral Resource Consultants (Pty) Ltd using variogram modelling, neighbourhood optimization and Ordinary kriging to estimate the zinc and copper grades into the geological domains constrained by wireframes. • The Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• The Competent Person, William Gillespie, Principal Mining Consultant of ABGM Consultants and Fellow of IMMM, visited the site on 16th May 2019. The visit included site familiarisation: discussions with site personnel, inspection of the surface facilities, review of selected drill core, inspection of the proposed open pit operation and an underground visit including inspection of some of the accessible facilities and the rock condition of the upper ramp, drives and crosscut. • A visual inspection of the shaft and steelwork was carried out at the 294 Level station. Shaft lining and steelwork looked visually competent. • The 310 Level pumping station settlers on the 294 Level were visited and looked structurally competent. • The previous underground mining at PCM consisted of long-hole-sub-level-open stoping leaving sill and rib pillars intact. • The waste collecting drive and stope draw-points were inspected on 210 Level. Roof and sidewall conditions were good.

[17] *Mineral Resource reported in ASX release of 18 December 2018: "Landmark Resource Upgrade Sets Strong Foundation for Development of Prieska Zinc-Copper Project" available to the public http://www.orionminerals.com.au/investors/asx-jse-announcements/. Competent Person Orion's exploration: Mr. Errol Smart. Competent Person: Orion's Mineral Resource: Mr. Sean Duggan. Orion is not aware of any new information or data that materially affects the information included above. For the Mineral Resource, the company confirms that all material assumptions and technical parameters underpinning the estimates in the ASX release of 18 December 2018 continue to apply and have not materially changed. Orion confirms that the form and context in which the Competent Person's findings are presented here have not been materially modified.*

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>• Limited support was installed in the ramps, drives and crosscuts in these upper levels other than for unconformities.</td></tr>
<tr><td>Study status</td><td>• The type and level of study to enable Mineral Resources to be converted to Ore Reserves.
• The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that the material Modifying Factors have been considered.</td><td>• A BFS Technical Report was completed in June 2019 and updated in May 2020 to include operational optimisations.
• The May 2020 BFS (BFS-20) has been prepared to an accuracy level of ± 15% using Indicated and Inferred Mineral Resources; appropriate mine planning and modifying factors were applied commensurate to a BFS level of accuracy and are deemed to have reasonable prospects of being technically achievable and economically viable.</td></tr>
<tr><td>Cut-off parameters</td><td>• The basis of the cut-off grade(s) or quality parameters applied.</td><td>• The cut-off grade, in this case the break-even grade, was estimated based on a Zn equivalent basis using all Opex including Stay-In-Business (SIB) capital and government royalties. The reason Zn equivalent grade was used is because the results of the Scoping Study[18] indicated that the zinc would be the predominant contributor to revenue. Revenue used for the calculations is the received Zn metal price net of concentrate logistics costs and treatment and refining charges. Consequently, all Cu grades in the geological block model are converted into Zn equivalent grades using the ratios of the zinc and copper metal prices, plant recoveries and the zinc and copper Net Smelter Returns (NSR).
• The cut-off grade table is shown below.
<table>
<tr><th>Cost and Revenue Parameters</th><th>Units</th><th>LHSF without trucking</th><th>LHSF with trucking</th><th>D&F</th></tr>
<tr><td>On-mine Opex</td><td>ZAR/t</td><td>519</td><td>629</td><td>848</td></tr>
<tr><td>Royalty</td><td>ZAR/t</td><td>98</td><td>98</td><td>98</td></tr>
<tr><td>SIB Capex</td><td>ZAR/t</td><td>35</td><td>35</td><td>35</td></tr>
<tr><td>Marketing costs</td><td>ZAR/t</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td>Concentrate transport costs</td><td>ZAR/t</td><td>137</td><td>137</td><td>137</td></tr>
<tr><td>Total cash Opex per tonne treated</td><td>ZAR/t</td><td>794</td><td>904</td><td>1,122</td></tr>
<tr><td>FX (ZAR-USD)</td><td>ZAR:USD</td><td>14.00</td><td>14.00</td><td>14.00</td></tr>
<tr><td>Total cash operating cost per tonne treated</td><td>USD/t</td><td>56.68</td><td>64.57</td><td>80.16</td></tr>
<tr><td>Zn price</td><td>USD/t</td><td>2,866</td><td>2,866</td><td>2,866</td></tr>
</table></td></tr>
</table>

[18] Refer ASX release 19 December 2019.

Criteria	JORC Code explanation	Commentary

Zn NSR	%	74.3%	74.3%	74.3%
Net Zn price received	USD/t	2,130	2,130	2,130
Unplanned mining dilution	%	8.0%	8.0%	6.0%
Zn plant recovery factor	%	85.0%	85.0%	85.0%
Break-even in-situ Zn equivalent grade	**%**	**3.4%**	**3.9%**	**4.7%**

- The calculation used at this time based on the prevailing inputs for the conversion of Cu to Zn equivalent grade is as follows:

$$1\%\ Cu = \frac{(Cu\ price \times Cu\ NSR)}{(Zn\ price \times Zn\ NSR)} \times \frac{(Cu\ PRF)}{(Zn\ PRF)}$$

$$= \frac{(6{,}614^{19} \times 93.7\%^{20})}{(2{,}866^{1} \times 74.3\%^{2})} \times \frac{85.0^{21}\%}{84.3^{3}\%}$$

$$= 2.9\%\ Zn$$

- Therefore, the Zn equivalent grade = [Zn grade + (2.9 x Cu grade)]
- The NSR estimates stated in the above estimates assume recovery of silver (**Ag**) and gold (**Au**) from the Cu concentrate. It is estimated from metallurgical testwork that the Cu concentrate will produce 144 to 176g/tonne Ag and 2 to 3g/tonne of Au. Concentrate specifications were derived from testwork undertaken at Mintek under the supervision of DRA.

Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	• The Ore Reserve estimate is classified and reported as Probable Ore Reserves for the underground hypogene Indicated Deep Sulphide Mineral Resources; this includes no Inferred Mineral Resources for the purposes of determining Ore Reserves. Inferred Mineral Resources were only considered for the mining plan. • The BFS used Datamine™ and a MSO as detailed in the body of the report. Deductions were made for material excluded by the MSO, geological and pillars losses and a mining extraction factor. Dilution is included during the MSO process. The Mineral Resource conversion factors are listed below: • Mineral Resources Conversion Factors for Production Scheduling including dilution and recovery:

[19] *Metal prices assumed for the purposes of mine planning.*
[20] *Estimated from Project estimates concentrate grades and: smelter terms.*
[21] *Project estimated plant recovery factors.*

Criteria	JORC Code explanation	Commentary
	• The major assumptions made, and Mineral Resource model used for pit and stope optimisation (if appropriate). • The mining dilution factors used. • The mining recovery factors used. • Any minimum mining widths used. • The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. • The infrastructure requirements of the selected mining methods.	

Parameter	Source	Factor
Mineral Resources (below Cut-off: 4.0% Zn_Eq.) & Mine Design Losses	MSO	58%
Design stope dilution	MSO	20%
Geological/pillar Losses	Assumed	0%
Mining extraction (recovery) factor – D&F	Assumed	100%
Mining extraction (recovery) factor - LHSF	Assumed	95%

- The above factors result in a 49% conversion of Mineral Resource tonnes to Ore Reserve tonnes used in the production scheduling.
- The modifying factors, preliminary designs and schedules were applied to the Mineral Resources classified and released in December 2018 for the hypogene Deep Sulphides (refer ASX release 18 December 2018).

Material assumptions regarding timeframe for development and production:

- It is assumed that the that the necessary licences and permits are granted by the authorities and that funding is procured.
- The mine model scenario for the BFS can be summarised as the establishment of underground operations to extract the extensions of the Indicated Mineral Resource from the hypogene Deep Sulphides (the Deeps) at > 600m accessed via existing underground mine infrastructure which would require dewatering and some refurbishment. Observations and non-destructive testing studies conducted by specialists on shaft steelwork as well as water quality tests have determined that 85 of the 226 total bunton sets should be replaced. It was also recommended that 20% of the shaft guides are replaced (refer ASX release 5 February 2018 which describes the shaft analysis work carried out).
- During historical operations, water was not required to be pumped from the mine. The current water-level is at 310m and it is assumed that successful dewatering of the operation will then reveal the actual conditions for mining at >600m. This factor has been built into the mine schedule and anticipated costs.
- Gas hazards, equipment, backfill design, crushing and hoisting, mine ventilation and underground rehabilitation of existing structures also formed part of these mining studies.
- Mining Method: Historically, between 1971 and 1991, a tabular body of mineralisation was almost continuously economically mined over a strike length of 2,400m from levels at -100m to approximately -850m using the longhole open stoping (**LHOS**) mining method. Assuming successful dewatering, refurbishment and new mine infrastructure are realised, mining scenarios propose Long-hole-open-stoping-with-fill (**LHSF**), either Longitudinal LHSF or Transverse LHSF (an estimated 63% of production) for the steeper sections. D&F (an estimated 37% of production) for the flatter dipping sections - based on the shape and layout of the Mineral

Criteria	JORC Code explanation	Commentary

Resource. Blasted rock from both operations is loaded either into trucks or tipped directly into ore passes by LHD trucks. The trucked blasted rock is hauled to rock pass systems on 926 level for loading into rail transport system on 957 level. Loaded trains transport rock to the respective ore and waste pass systems at the shaft.

- Geotechnical: Observations from the existing tunnels in the upper levels of the historical mine indicate competent rock with very little tunnel-support. Localised roof bolting was carried out in fractured sections. Geotechnical studies were carried out by the Middindi Consulting (Pty) Ltd. A total of 30 compressive and tensile strength tests were carried out on the hangingwall, mineralised zone and footwall rocks from 8 drillholes to estimate rock mass ratings at depth. The results indicate competent rock for all three rock-types.
- Primary and Secondary Support recommendations:

	Excavation	Primary support - tendons				Secondary support			
		Type	Specifications	Spacing	Application	Type	Specifications	Spacing	Application
Development excavations	Decline	Rebar	2.4m length 20mm diameter 160kN tensile strength Full column resin	1.5m x 1.5m	HW	N/A			
	Gathering haulage	Rebar	1.5m length 18mm diameter 120kN tensile strength Full column resin	1.5m x 1.5m	HW				
	Level access crosscut	Rebar	1.5m length 18mm diameter 120kN tensile strength Full column resin	1.5m x 1.5m	HW	N/A			
	All intersections	Rebar	As per individual excavations Full column resin	1.5m x 1.5m	HW	Cable anchor	4.5m length 38t tensile strength 15mm - 16mm diameter Full column grout	2.5m x 2.5m	HW
	Ore drive,drill drive,transport drift, stope / loading cross cut	Split set	1.8m length 46mm diameter 39-45mm hole diameter Galvanised, ungrouted	2.0m x 2.0m	HW	Shotcrete	Unreinforced Minimum 25mm thick	N/A	HW + 1.5m overlap to SW. From ore intersection back 15m towards haulage

- Backfill dilution: In addition to the dilution described earlier, dilution from backfill in adjacent stopes is as follows:
  - 0.3% for Longitudinal LHOS
  - 2.2% for Transverse LHOS
  - 1.5% for D&F

Criteria	JORC Code explanation	Commentary
		• Minimum Mining Widths: o D&F: 4m by 4m high stopes. o LHSF: 5-15m wide stopes with a strike span of 40m giving approximate stope capacities ranging between 20,000 tonnes and 60,000 tonnes per stope (estimated at approximately 130,000 tonnes/month). Inter-level spacing is designed at 30m. Where required on shallower dipping areas, level spacing is 15m o Tunnel dimensions designed at 5.5m x 5m high for main ramps and 5m x 5m for footwall tunnels and 5 x 4 metres for ore drill drives. Infrastructure Requirements for the chosen mining methods: o Existing Infrastructure (remaining from previous mine operation): The Project area is well serviced by infrastructure that was originally established for the historical mine; this includes the old mine roads on the site itself, some accommodation, telecommunications, water and electricity provision which are in use. On surface there remains the Hutchings Shaft, the main portal and decline which is operational. Underground, the mine tunnels and stopes are mainly accessible to 294 Level. It is assumed that the old mine infrastructure below water level at 310m such as the existing underground workshop at 957 Level, the crushing and shaft loading arrangement below 957 Level and the pre-existing mine ventilation facilities (Boehmka and Beecroft Shafts). Note the surface structure and fans have been removed and the shaft collars made safe) would be refurbished or rebuilt. Existing bulk electricity is supplied by Eskom and is planned to be upgraded to provide more than the required 32MW power. Bulk water supply from the Orange River via the existing Prieska Water Works (originally constructed at Prieska town for PCM use) is planned to be refurbished and has the capacity to supply the 3.7ML estimated to be required for mining operations. Mining studies on these aspects have been included in the BFS process to inform the BFS. o Additional Infrastructural Requirements for the chosen mining methods: the following were considered as part of the BFS. The refurbishment and rebuilding of existing mine infrastructure including winders for rock hoisting and men and material hoisting for the Hutchings Shaft, a new processing plant, additional bulk water and electrical supply from existing infrastructure; installation of new ventilation fans; water dams (including effluent dams), a RO (reverse osmosis) water treatment plant and irrigation, sewerage treatment plant, a new tailings storage facility (**TSF**) doubling as an evaporation facility, process water and storm water management are planned. New buildings and facilities including a management and office block, change-house, mine rescue room, training centre, central control room for the mine and processing plant, engineering workshop, a bunded diesel storage area and plant security and access control for mine safety. Solar and wind farm are in development close to the existing mine site. Orion is in negotiation with neighbouring renewable energy supplier, JUWI (Heads of

Criteria	JORC Code explanation	Commentary
		Agreement signed[22]) and it is anticipated that approximately 52% of the operational power requirements could be supplied from alternative power sources. ○ Explosives Magazine: Existing magazines remain from the historical mine and are in excellent condition. These will be used for storage of cartridges, boosters and detonators. Bulk emulsion which is planned for the underground mine will be stored near the Hutchings Shaft in dedicated silos.
Metallurgical factors or assumptions	• The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. • Whether the metallurgical process is well-tested technology or novel in nature. • The nature, amount and representativeness of metallurgical testwork undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. • Any assumptions or allowances made for deleterious elements. • The existence of any bulk sample or pilot scale testwork and the degree to which such samples are considered representative of the orebody as a whole. • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	• The design of the processing plant allows for treatment of the hypogene (underground) feed and the optional, later stage, supergene (open-pit) feed with modifications. Unit processing costs and plant design and equipment assumes underground feed only in the initial phase of the Project. • Metallurgical Process: conventional, crushing, grinding and differential froth flotation processing is proposed for the hypogene material which is designed to produce saleable concentrates of Zn and Cu with the potential for Ag and Au as by-products. • Appropriateness: appropriate for the type of material anticipated from the mining operation. • Tested Technology: The processing technology used for this Project is commonly used in industry and was successfully used during the previous operation of PCM. Over the 20-year mine life, metal recoveries averaged 85% for both zinc and copper into concentrate grades ranging between 28% to 30% for copper (in the copper concentrates) and 51% to 53% for zinc (in the zinc concentrates) (refer ASX release 15 November 2017). • Metallurgical Test Work: Specialists, Mintek under the guidance of the DRA Metallurgical team undertook the metallurgical testing. Open and closed circuit testwork was done for the copper-circuit and zinc-circuit. Process flow tests determined the optimal recovery processes based on the metallurgical characteristics of the material. 800kg of test sample was used from 7 drillholes ensuring representivity from various zones of the deposit (the NW and SE zones). These hypogene zones contain, in decreasing order of abundance, the minerals pyrite, sphalerite, chalcopyrite, pyrrhotite, barite and minor amounts of galena. Accessory minerals include magnetite, molybdenite, marcasite, arsenopyrite, minor gold and silver. Test work on underground samples with an average iron grade aligned to the expected mined grade (c.15% Fe) achieved similar recoveries to that achieved for historical operations. Flow-sheet development was carried out on blended samples and a comprehensive variability program focused on testing a range of feed blends aligned to the mine plan.

[22] Refer ASX release 5 March 2019.

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<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
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<u>Recovery Factors</u>: Test work data was used to derive grade-recovery correlations with expected recovery rates of between 80 to 88% dependent on feed grades. Zinc and copper concentrates of 45-53% and 20 to 26%, respectively, will be targeted.
<u>Assumptions or allowances made for deleterious elements</u>: historical sales of the PCM concentrates were recorded as clean with low concentrations of penalty elements. Detailed elemental analyses of the concentrates confirmed that several key deleterious elements are at negligible levels with, notably amongst others, arsenic, bismuth, cadmium, cobalt, tellurium, thorium and uranium at levels well below thresholds that may attract material penalty charges from most smelters or exclude some markets. Based on more recent discussions with concentrate off-takers, Cl & Fl, Pb & Zn have been noted as penalty elements in the Cu concentrate. Fe and Cl & Fl are penalty elements in the Zn concentrate and have been accounted for in the NSR calculations. The inputs into the NSR calculation are shown in the following table.

<table>
<tr><th>Parameter</th><th>UoM</th><th>Copper</th><th>Zinc</th></tr>
<tr><td>Metal price</td><td>USD/t</td><td>6,680</td><td>2,337</td></tr>
<tr><td>Concentrate grade (target)</td><td>%</td><td>20,0</td><td>53,0</td></tr>
<tr><td>Payability</td><td>%</td><td>95,0%</td><td>84.9%</td></tr>
<tr><td>Payability deduction</td><td>USD/t concentrate</td><td>-67</td><td>-187.0</td></tr>
<tr><td>TCs & RCs</td><td>USD/t concentrate</td><td>-90</td><td>-186.7</td></tr>
<tr><td>By-product credits</td><td>USD/t concentrate</td><td>173</td><td>0</td></tr>
<tr><td>Total penalties</td><td>USD/t concentrate</td><td>-26</td><td>-17</td></tr>
<tr><td>Net Smelter Return (NSR)</td><td>USD/t concentrate</td><td>1,326</td><td>848</td></tr>
<tr><td>NSR Percentage</td><td>%</td><td>99.3%</td><td>68.4%</td></tr>
</table>

With respect to minerals that are defined by a specification and used in the Production Target estimate, the metallurgical testwork was done to produce saleable concentrate products.
Metallurgical testing is completed, and results were reported in the BFS to 22 October 2018. Metallurgical results were released to the ASX on 15 November 2017, 8 February 2018, 1 March 2018, 12 June 2018 and 22 October 2018. Further testing on SAG milling was carried out under the guidance of METC during the latter half of 2019 and reported to the ASX on 31 October 2019.

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<tr><td>Environmental</td><td>

The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where

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The previous mine owner, Prieska Copper Mines Limited (PCML), obtained a Conditional Closure Certificate in 1996 from the authorities in terms of the Minerals Act, 1991, in terms of which rehabilitation of the old mine is legally considered complete; with the condition that a fund, be provided to rehabilitate any residual or deleterious aspects related to the closure of the mine

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Criteria	JORC Code explanation	Commentary
	applicable, the status of approvals for process residue storage and waste dumps should be reported.	and the remaining old TSF which potentially may occur in the future. In 2019, the trust deed was amended to include Repli and updated regulatory environmental obligations. The Nature Conservation Trust No. 723/89 Fund currently stands at AUD2.2 million (26 March 2020 Balance Sheet). • The Repli Mining Right (over the Repli Prospecting Right area) was granted on 23 August 2019 and the Environmental Authorisation (**EA**) and Waste Management Licence (**WML**), in terms of the NEMAct, 1998, on 3 July 2019 run concurrent to the Mining Right. The Water Use Licenses (**WUL**) is anticipated in Q2, 2020 (depending on Covid19 restrictions). Specialist studies to inform the Environmental Impact Report (**EIR**), Environmental Impact Assessment (**EIA**) and Environmental Management Programme (**EMPr**), WML and WUL were part of the Environmental Authorisation (**EA**) application process. The EA process also integrates the concerns raised during the Public Participation Process and incorporates mitigation measures for issues raised by affected parties. • The Vardocube Prospecting Right has a granted EA which forms part of the prospecting right and compliance therewith. The new Mining Right Application (**MRA**) for the Vardocube Prospecting Right area was submitted on 27 September 2018 together with an EA application in terms of the NEMAct, 1998, which runs concurrent to the Mining Right Application. The Vardocube EA was granted on 3 March 2020. • The estimate agreed with the Department of Minerals and Energy (**DMRE**) for the Financial Provision is AUD13.1 million and rehabilitation and closure costs of the proposed mine have been estimated by specialists in terms of the EIA at AUD20.3 million.
Infrastructure	• The existence of appropriate infrastructure; availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	• The combined area for the Repli Mining Right and Vardocube Prospecting Right upon which the mine and mine infrastructure is planned, is approximately 6,766 hectares in extent. • Surface Rights: Repli, an indirect subsidiary of Orion Minerals Ltd, and the entity which holds the Repli Mining Right and indirectly, the Vardocube Prospecting Right, controls the surface use for the farm Vogelstruis Bult 104 and Slimes Dam 154 (Prieska District, Northern Cape Province) primarily in the form of direct surface right ownership (97.5% shareholding in PCML (Prieska Copper Mining Limited); servitude rights written into the property deed for land owned by the Request Trust as well as a long-term Surface Use Agreement signed in November 2018 with the Request Trust in which users rights for prospecting and mining operations are guaranteed and the land-owner compensated. In addition, the holder of a prospecting and mining right is entitled to carry out the relevant operations for the winning of minerals in terms of Section 54 of the MPRDAct, 2002. To date, Orion is aware of no Land Claims that have been registered for the properties. The Company has used reasonable endeavours to confirm that land is therefore available for the building of new or use of any existing infrastructure. Infrastructure Requirements:

Criteria	JORC Code explanation	Commentary
		• Existing Infrastructure (remaining from previous mine operation): This is discussed under 'mining factors', above) and in the body of the document. • It is assumed that the old mine infrastructure below water level (310m below surface) would be refurbished or rebuilt. Preliminary mining studies on these aspects have been included in the BFS process and inform the BFS. • Additional Infrastructural Requirements: This is discussed under 'mining factors' above and in the body of the document.
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating costs. • Allowances made for the content of deleterious elements. The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products. • The source of exchange rates used in the study. • Derivation of transport charges. • The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. • The allowances made for royalties payable, both Government and private.	Capital Cost (Capex) Assumptions: • Capex: AUD373 million (after for allowing for third party funding) including a contingency of 10% of the underlying capital cost. • Construction Schedule – 33 months until first concentrate is produced from the plant. • LoM - approximately 7.3 years when Inferred Mineral Resources are incorporated. • Target accuracy of ±15%. • The base currency is the South African Rand (**ZAR**) and an exchange rate has been fixed at ZAR18.00 : USD1, ZAR11 : AUD1 and AUD1.64 : USD1. Source of Capex estimated costs: • The estimate is base dated to January 2020. • Process Plant: estimates were made from measured and quantified unit costs from the engineering layout drawings, process flow diagrams (**PFD**s), mechanical equipment lists (**MEL**), motor lists and electrical single line diagrams (**SLD**). Where appropriate, factors were used. • Surface Infrastructure: items were sized and quantified off general arrangement (**GA**) diagrams. Costs determined from vendor quotation pricing. The evaporation dam and TSF were costed by a specialist design and engineering consultancy. Bulk power supply was priced in detail by an electrical design and engineering company. Bulk water supply facilities and pipe-line upgrade costs are from a specialist consultant. • Underground Mining: quotes received for the underground fleet. The rock and man winders costed based on available second-hand units in the market made available to Orion, Surface ventilation fans were priced by a ventilation consulting company. Underground equipment has been priced from quotations and a specialist shaft and underground operator. • General: EPCM costs are based on a detailed build-up of man hours and related costs. Transport costs were quoted by suppliers in their quotations. First fills and commissioning spares have been priced by vendors in the quotations. Project owner's costs are detailed from Orion.

Construction power is based on the planned electrical kWh using 2019/20 Eskom electricity tariffs.

Opex Costs: A summary of the total estimated operating cost for the underground mining is shown below (on a per tonne treated basis).

Operating Costs - Underground	ZAR/t	AUD/t
Mining Labour	28	2.53
Drilling	48	4.38
Explosives	29	2.59
Load & Haul	101	9.15
Rock Support	26	2.37
Backfill	47	4.30
Electricity & Water	31	2.82
Underground Services	82	7.45
Grade control drilling	9	0.81
Shaft & Winders	24	2.19
TOTAL COST	**425**	**38.60**

When combined with the open-pit, the total operating costs including all areas for the Project are shown below;

Operating Costs Open Pit & Underground	ZAR/t	AUD/t
Mining	441	40
Ore Processing	170	15
Surface & Indirects	65	6
Concentrate Transport Charges	115	10
Corporate Costs	14	1
Off-mine Costs *	23	2
Royalties (Government)	51	5
Sustaining Capex	63	6
Operationalised Infrastructure	94	9
Total	**1,035**	**94**

		• * Includes a diesel rebate of ZAR3.32/litre x 80% of diesel consumption as per South Africa SARS regulations. • The royalty amount shown above is the average over the LoM. • Opex costs have been compiled from first principles. • Further details for each of the items listed in the above table are provided in the body of the BFS Technical Report along with tables for mining, processing, in-directs costs and off-site costs. • All labour costs across the various disciplines were built up from a detailed Project-wide labour schedule showing costs per individual role with applicable allowances building up to a cost to company wage rate. • Underground Mining: Development and production costs were built-up from first principles compiled in Candy Model software by PCDS. Grade control drilling was designed by the Orion on-site geological staff and competitive quotes were sourced from specialist drilling contractors. Back-fill costs were built up from underlying power and cement consumption rates by DRA and Paterson and Cooke using back-fill volumes supplied by Orion. Shaft operating costs were compiled by DRA based on previous experience including power consumption based on the selected winders using 2019/20 Eskom electricity tariffs. • Material Processing: Operating costs were compiled by DRA using planned reagent and crushing and milling wear component consumption rates and industry pricing. During the METC Value Engineering exercise certain costs were updated including those associated with the SAG milling process which replaced the conventional ball milling design. Processing power costs are based on 2019/20 Eskom electricity tariffs. • Surface and Indirect Costs (General and Admin): are primarily built up from the detailed labour schedule and quoted accommodation costs from the selected camp vendor. • Operationalised Infrastructure: items of a capital nature that are funding by third parties (in a SPV) which is converted into an effective operating cost over five years. • Off-mine Costs: includes Orion corporate office costs which have been built up in detail from current company costs. Marketing costs are a fixed amount of AUD1.14 million pa based on discussions with a concentrate logistics management company. • The base currency is the South African Rand (**ZAR**) and an exchange rate has been fixed at ZAR18.00 : USD1, ZAR11 : AUD1 and AUD1.64 : USD1. The rates of exchange used have been empirically estimated and are based on exchange rates at the time of this report. • Commodity price assumptions and source: see 'revenue' below. • Transport charges: For the purposes of the BFS it was assumed that the concentrate will be trucked from the processing plant at the mine to the Grovéput Rail Siding (50km from the mine) and railed via De Aar to the Ngqura Port and then shipped to China. Total transport and logistics charges are priced at USD59 and USD61 per tonne of copper and zinc concentrate respectively. • Penalties and allowances for deleterious elements: refer to the NSR estimate detailed in this release.

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<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
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<u>Government Royalties</u>: the royalties were set at the formula for "unrefined minerals", in terms of the Royalties Act, 2010, linked to the MPRDA, 2002. Where Y = 0.5 + [EBIT/(gross sales of unrefined minerals) x 9] x 100 {maximum Y is 7.0%}.
<u>Private Royalties</u>: No private royalties were included in the estimate.

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<tr><td>Revenue factors</td><td>

The derivation of or assumptions made regarding revenue factors including head grade, metal or commodity price(s), exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.

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Mining modifying factors were applied to Mineral Resources grades as covered in the document.
<u>Metal Price Assumptions</u>:

<table>
<tr><th>Metal Prices</th><th>USD/tonne</th><th>USD/lb</th><th>Source</th></tr>
<tr><td>Copper</td><td>6,680</td><td>3.03</td><td>S&P</td></tr>
<tr><td>Zinc</td><td>2,337</td><td>1.06</td><td>S&P</td></tr>
<tr><th>Precious Metals</th><th>USD/oz</th><th>USD/lb</th><th>Source</th></tr>
<tr><td>Gold</td><td>1,350</td><td>n/a</td><td>Orion</td></tr>
<tr><td>Silver</td><td>16.50</td><td>n/a</td><td>Orion</td></tr>
</table>

Metal Price assumptions were based on S&P Global Consensus LT Forecast April 2020.
Contribution by the co-products of silver and gold were included in the estimates for the BFS.
<u>Foreign Currency Exchange Rate Assumptions</u>:

<table>
<tr><th>FX Rate</th><th>USD</th><th>AUD</th><th>ZAR</th></tr>
<tr><td>USD</td><td>1.00</td><td>1.64</td><td>18.00</td></tr>
</table>

The rates of exchange used have been empirically estimated and are based on exchange rates at the time of this report.

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<tr><td>Market assessment</td><td>

The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.
A customer and competitor analysis along with the identification of likely market windows for the product.
Price and volume forecasts and the basis for these forecasts.

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<u>Demand, supply and stock situation for zinc and copper</u>:

<u>Copper</u>

Copper metal is extensively used in many applications, mainly electrical cables and motors, piping, construction and in various metals alloys. Copper is also widely used in the heating and air conditioning industries due to it high heat conductivity. Looking ahead, the global copper market will be significantly influenced by the growth of the electric vehicle market, water delivery challenges around the world, general rising electrification needs (especially in developing economies) and renewable energy.
Global demand for refined copper was estimated by S&P Global at around 20.6Mt in 2019, with an average price of USD6,003/t. The copper price declined in Q1 2020, which was influenced by concerns of the Covid-19 pandemic. It is anticipated that metals markets will recover once
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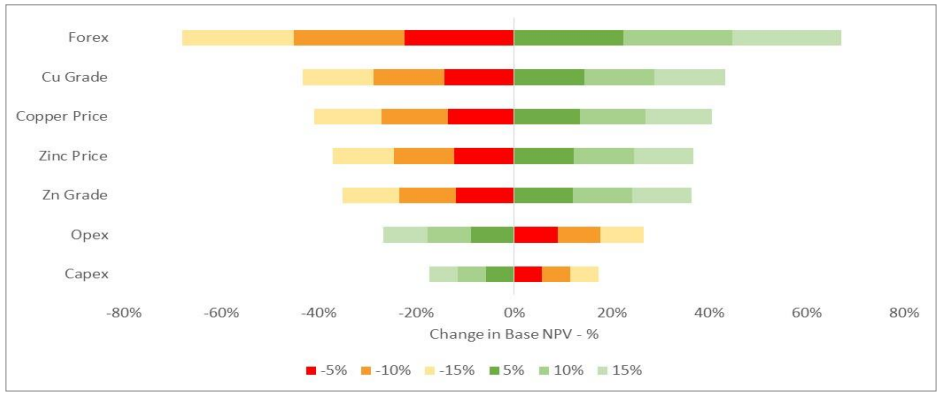
Criteria	JORC Code explanation	Commentary
		the coronavirus pandemic reaches its peak, where after the copper price will continue to grow at a compound annual growth rate of approximately 3.6%. China will add approximately 1.7 million tonnes of smelting capacity over the next two years and it is anticipated that copper concentrate will remain in strong demand for at least the next 10 years based on both the requirement for refined copper and projections of available primary smelting capacity. Significant investment is required in projects to meet the concentrate demand going forward and based on the current underfunded project pipeline output could peak in 2023 if no further investment is made in additional production. An increasing price trend for copper is expected in both real and nominal terms due to the influencing factors mentioned above. In addition to the long-term potential deficit, industry data indicates that the majority of projects capable of producing more than 100,000 tonnes of copper per year remain uncommitted. • Zinc Zinc has a multitude of applications in modern society. It is the fourth most consumed metal after iron, aluminium and copper. It is used mainly in infrastructure and construction, the vehicle industry and electronics. Its most important application is in galvanizing steel where around 50% of zinc metal is consumed. Zinc chemicals are used in several sectors, especially the paint, rubber and battery industries. Zinc was one of the most affected commodities in the global economic downturn and was one of the worst-performing base metals in 2019; this was mostly influenced by subdued global GDP growth and due to Chinese refined zinc imports falling by 46.5% year-to-year in December 2019. Chinese refined production however increased by 6.2% over this period. The global zinc metal market is in the region of 14Mt per annum and has been running at a structural deficit for the last four years, except for 2019, which saw a surplus of 119,000 tonnes. It is expected that this surplus will become a deficit in 2022 as consumption is expected to continue to outpace refined production going forward. As a result, it is expected that zinc prices could exceed USD3,000 ($1.36/lb) again in 2024. China is expected to remain the largest consumer of zinc, increasing from 48% of global consumption in 2019 to 49% in 2020. The global supply of zinc is however expected to fall in 2020 due to temporary mine closures and decreasing grades. In addition, the amount of new zinc announced in initial resources showed a declining trend since 2016 to 2019 and exploration budgets have also reduced over this period. S&P Global estimates that the 119,000-tonne surplus in 2019 will decline to 90,000 tonnes in 2020 and will become a deficit in 2021. This deficit is expected to remain until 2024. The increased demand forecasts coupled with a view of a reducing number of new projects that could come online may result in an upward trend in the zinc price going forward. Therefore an increasing price trend is expected in both real and nominal terms due to the influencing factors mentioned here. • Customer Analysis: Historically, the concentrates produced from the PCM were regarded as clean products with few and low levels of impurities. Current assay results support this and it is concluded that the concentrates will be in demand to blend down impurities in other concentrates. With the assistance of an external concentrate marketing consultant, Orion conducted a competitive

Criteria	JORC Code explanation	Commentary
		process for the Project's copper and zinc concentrates offtake, involving most of the largest smelting and trading groups from around the world. The market was widely canvassed and the assumptions used in the financial model are based on these findings. In the initial stage, expressions of interest in the Project's concentrates were sought and expressions of interest (**EOIs**) to enter into offtake agreements for the zinc and/or copper concentrates were received. Whilst not specifically sought, some of the proposals included offers to contribute to Project financing in some form or other, ranging from participation in the primary Project debt financing through to provision of working capital and cost overrun facilities. Shortlisted Parties, selected on strength of offtake terms and/or willingness to provide financing to the Project, reviewed and refreshed their initial EOIs offers. Based on these revised offers, the Company anticipates progressing negotiations with up to three parties with a view to concluding final offtake terms in advance of a final review by the Company's financiers. A high-level competitor analysis for VMS deposits has been included at the BFS stage.
Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• Sensitivity analysis for the economics shows the Project is most sensitive to the ZAR-USD exchange-rate followed by Cu grade. The sensitivities are shown in the diagram below. An analysis of the effect of the ZAR-USD exchange rate on the NPV and IRR is shown in the body of the ASX release. 
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• <u>Surface Use:</u> The Company, through Repli controls Prieska Copper Mines Limited which owns a portion of the surface rights. The Company has a long-term Surface Use Agreement, signed November 2018, with the remaining surface right holder for the area of the proposed mine infrastructure. <u>Social License to Operate</u>: • This aspect is guided by the Mining Charter and regulated by the Social and Labour Plan (**SLP**) which was compiled and submitted as part of the Repli and Vardocube Mining Right Applications. The SLP for Repli was approved as part of the Mining Right process and the Vardocube is currently being evaluated by the South African regulatory authorities.

Criteria	JORC Code explanation	Commentary
		• The Company signed an MOU (Memorandum of Understanding) with the Siyathemba Municipality for the Prieska District in February 2018 in which the Municipality endorsed the Repli SLP. • Several significant social investment initiatives proposed in the SLP, designed to and agreed between the Company and the Siyathemba Municipality, have already been started including the provision of internet facilities to the public in Prieska assisting the local community with application for work and/or as service providers for the proposed mining operation. The Company views the SLP as being a dynamic document that will continue to be revised as the Project develops and the needs and understanding of the local community change.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserve • Any identified material naturally occurring risks. • The status of material legal agreements and marketing agreements. • The status of governmental agreements and approval critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the pre-feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• Identified material natural occurring risks: nil. • Status of material legal agreements: all material agreements are current and active. • Status of material marketing agreements: agreements are in the process of negotiation and no signed off-take agreements are in place at the BFS stage. Government Agreements: • Tenement Status: Mineral tenure in South Africa is regulated by the MPRDA, 2002, with the environmental aspects regulated by NEMA, 1998, both managed under the authority of the DMRE. The Project mineral tenure or tenement holding comprises a set of contiguous mining and prospecting rights surrounding the old PCM area: the Repli Mining Right, the Vardocube Prospecting Right, the Bartotrax Prospecting Right, the Repli-Doonies Pan Prospecting Right and the Orion Exploration No. 5 (Pty) Ltd prospecting right application. An application for a mining right has been submitted to the DMRE for the Vardocube Prospecting Right area and grant is anticipated in Q2 2020 (pending Covid-19 restrictions). The primary tenement licenses and applications are detailed below: • Repli Mining Right Mining Right: NC30/5/1/2/2/10138MR. The Repli Mining Right was granted on 23 August 2019 and executed on 11 December 2019, in terms of Section 23 of the MPRDA, 2002, over the previous Repli Prospecting Right area for copper, zinc, lead, silver, gold, sulphur, cobalt, barytes, limestone, stone aggregate, gravel, sulphur in pyrite, pyrite, molybdenum ore, tungsten ore, sand (general) and iron ore in respect of the farm Vogelstruis Bult No 104, portion RE25 and portion 26 and the farm Slimes Dam 154, in the Prieska District, Northern Cape Province for an initial period of 24 years which may be renewed for up to 30 years at a time. The Mining Right was awarded together with the pre-requisite EA and WML (granted 3 July 2019) and includes the approved Mining Works Program and the SLP. The WUL application is anticipated to be awarded in Q2 2020 (pending Covid-19 restrictions).

Criteria	JORC Code explanation	Commentary
		Orion effectively holds a 70% interest in the Project, with the remaining 30% as 20% BEE ownership, 5% community trust and 5% employee trust in compliance with Mining Charter III guidelines and existing legislation. • Vardocube Mining Right Application. Mining Right: NC30/5/1/2/2/10146MR. The Vardocube Mining Right Application, in terms of Section 22 of the MPRDA, 2002, for the Vardocube Prospecting Right area for copper, zinc, lead, silver, gold, sulphur, cobalt, barytes, limestone, sulphur in pyrite, pyrite, molybdenum ore, tungsten ore, and iron ore was submitted to the authorities, together with the pre-requisite EA application, on 27 September 2018. The application includes the proposed Mine Works Program and the SLP. The application is in process at the DMRE and the EA was granted on 3 March 2020. • Vardocube Prospecting Right: NC 30/5/1/1/2/11841PR: Vardocube has been awarded a prospecting right, in terms of section 17(1) of the MPRDA, for copper ore, zinc ore, lead, gold, cobalt, sulphur in pyrite, barytes, limestone, pyrite, tungsten and molybdenum in respect of the farm Vogelstruis Bult No 104, portion RE1 in the Prieska District, Northern Cape Province. The date of grant is 25 April 2018; valid for five (5) years. Orion effectively holds a 70% interest in the Project, with the remaining 30% as 20% BEE ownership, 5% community trust and 5% employee trust in compliance with Mining Charter III guidelines and existing legislation. • Tenure Compliance: At the BFS Report effective date, the rights were compliant with statutory fee payments, annual reporting and financial provision audits up to date. • According to the Department of Land Restitution and Reform, there are no land claims on any of the properties covered by the prospecting rights. • The Conditional Closure Certificate is discussed under 'environmental', above. • The application process for the Prieska Project land use change from Unspecified Zone to Special Zone (Extractive Industry) is underway, with approval received from the Siyathemba Local Municipality and invitation for public comment published. Submission to the District Municipal Planning Tribunal for final approval is anticipated sometime during calendar year 2020. • Status of government and statutory approvals: Orion knows of no reason why all necessary government approvals shouldn't be received within the timeframes anticipated in the BFS. • Discussions continue with the South African Department of Science and Technology to ensure compliance with technical aspects which may impact on the Square Kilometre Array (**SKA**) radio telescope, being built near Carnarvon over 40km from the Project.

Criteria	JORC Code explanation	Commentary
		• In 1987, Armscor, a State-owned enterprise for acquiring defence capabilities for the South African Defence Force and other State agencies, established the Alkantpan ballistic test range on ground neighbouring the Project area These surface rights are unlikely to interfere with mine development and operating activities. • A MoU is in place with the Siyathemba Municipality regarding the supply of bulk water to the mine. Final water tariffs are under negotiation. • The engineering design of the planned construction of feeder bay within the Cuprum Sub-station to supply the Project with 40MVA of power for the operational stage of the Project has been approved by the Eskom Technical Evaluation Forum which took place in December 2018. Repli has paid all fees required to date to allow the process to continue for Eskom to sign the long-term power agreement. A final confirmation letter to Orion is outstanding whereupon a connection fee will be payable to Eskom. • The engineering design of the planned construction of feeder bay within the Cuprum Sub-station to supply the Project with 15MVA of power for the construction phase of the Project has been approved by the Eskom Technical Evaluation Forum and was formally accepted in August 2019. Repli has paid all fees required to date to Eskom to allow this process to continue. • Repli has been engaging with Transnet for rail transport logistics from the Grovéput rail siding to Ngqura Port. Quotations for the rail transport have been received and are included in the operating costs of the Project. • Unresolved matters with 3rd parties which would materially affect the results of the BFS – none.
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• The Deep Sulphide Indicated Mineral Resources were classified and upgraded to Probable Ore Reserves based on the mine planning process using appropriate modifying factors. These replace the Probable Ore Reserves for the Deep Sulphides announced to the ASX on 26 June 2019. • The Indicated Mineral Resources are reported inclusive of the Ore Reserves. • The results conform to the view of the Competent Person. • There are no Measured Mineral Resources.
Audits or reviews	• The results of any audits or reviews of the Ore Reserve estimates.	• A review of the underground Ore Reserves by SRK Consulting (Johannesburg) is currently underway

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which would affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have material impact on Ore Reserve viability. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The level of accuracy for the BFS Technical Report is ± 15%. • In accordance with the JORC Code (2012), the Deep Sulphide Ore Reserve (underground mining), and corresponding LOM plan, were based solely on Indicated Mineral Resources. No Inferred Mineral Resources were used. • The results conform to the view of the Competent Person. • The geostatistical accuracy of the Indicated Resources underpinning the Reserves are explained above in Section 3 of this table – Estimation and Reporting of Resources – Deep sulphide • The mine planning modifying factors and assumptions applied to convert the Resources to Reserves are deemed appropriate for a Feasibility level study and were described above in the relevant sections. • The capital costs for the mine construction were built up using quotations from earthworks and civil contractors, equipment and service providers. A portion of the Electrical Control and Instrumentation capital costs were factorised from similar projects which make up 8% of the total capital cost. Where appropriate, costs from the BFS-19 estimate were escalated into Jan 2020 constant money terms for the BFS-20 version. A 10% contingency was added to the base capital estimate. • Operating costs were calculated from first principles for mining, processing (including labour), concentrate transport, corporate costs, indirect costs, off mine and environmental costs, electrical power and Royalties which combined make up 88% of the costs. SIB capex (6% of costs) was factorised. Operationalised Infrastructure costs (6% of costs) are based on a proposed repayment mechanism with the Third-party funders which is in the process of being negotiated. • The net smelter returns (NSR) have been calculated based on a non-binding proposal from Bluequest Resources AG which includes details of Cu and Zn payability, penalty elements and Au and Ag credits. Bluequest have also offered a discount to benchmark TC/RCs which have been accounted for in the financial modelling. • Net revenue starts with the assumed metal prices as mentioned earlier in the section on Revenue Factors and applies the NSRs and the South African tax rate of 28% taking into account capital deductions. • For more details on the above points, refer to this release. • Studies for the BFS have been completed and further optimisation studies may continue.

JORC (2012) Table 1: Section 4 Estimation and Reporting of Ore Reserves - +105 Level, Open Pit

(Criteria listed in Section 1, and where relevant in Section 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Ore Reserves are derived from the use of the +105 Mineral Resources for the Prieska Open-pit of 1.76Mt at 1.5% Cu and 2.0% Zn, classified and reported in accordance with the JORC Code 201223 in ASX release 15 January 2019. • The Mineral Resources are based on drilling data available as at 30 November 2018. • The Competent Person for the Mineral Resource is Mr Sean Duggan of Z Star Mineral Resource Consultants (Pty) Ltd, RSA. • The Mineral Resource estimate for +105m Level was prepared using Variogram Modelling, Neighbourhood optimization and Ordinary kriging to estimate the zinc and copper grades into the geological domains constrained by wireframes. • The Indicated Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The Competent Person, William Gillespie, Principal Mining Consultant of ABGM Consultants and Fellow of IMMM visited the site on 16th May 2019. The visit included site familiarisation: discussions with site personnel, inspection of the surface facilities, review of selected drill core, inspection of the proposed open pit operation and an underground visit including and inspection of some of the accessible facilities.
Study status	• *The type and level of study to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that the material Modifying Factors have been considered.*	• A BFS Technical Report was completed in 2019 and an updated BFS (**BFS-20**) in 2020. The Ore Reserve remained unchanged between BFS-19 and BFS-20 but updated parameters were applied to the BFS-20 financial model. • The BFS has been prepared to an accuracy level of ± 15% using Indicated Mineral Resources. Appropriate mine planning and modifying factors have been applied commensurate to a BFS level of accuracy and are deemed to have reasonable prospects of being technically achievable and economically viable.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• No break-even or cut-off grade is estimated for the open-pit as the Whittle 4D© Pit Optimisation process takes account of all relevant costs and the value per mining block net of plant recovery factors, treatment and refining charges and including waste stripping to determine if a resource block can be brought into an economic pit-shell.

[23] *Mineral Resource reported in ASX release of 15 January 2019: "Prieska Total Mineral Resource Exceeds 30Mt @ 3.7% Zn equivalent and 1.2% Cu Following Updated Open-pit Resource" available to the public on www.orionminerals.com.au/investors/market-news. Competent Person Orion's exploration: Mr. Pottie Potgieter. Competent Person: Orion's Mineral Resource: Mr. Sean Duggan. Orion is not aware of any new information or data that materially affects the information included above. For the Mineral Resource, the company confirms that all material assumptions and technical parameters underpinning the estimates in the ASX release of 15 January 2019 continue to apply and have not materially changed. Orion confirms that the form and context in which the Competent Person's findings are presented here have not been materially modified.*

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr>
<td>Mining factors or assumptions</td>
<td>

The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).
The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.
The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.
The major assumptions made, and Mineral Resource model used for pit and stope optimisation (if appropriate).
The mining dilution factors used.
The mining recovery factors used.
Any minimum mining widths used.
The way Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.
The infrastructure requirements of the selected mining methods.

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The Ore Reserve estimate was classified and reported as Probable Ore Reserve for the open-pit +105 Level Supergene deposit; this includes no Inferred Mineral Resources for the purposes of determining Ore Reserves.
Deductions were made for mining extraction losses and additional dilution material. The Mineral Resource conversion factors are listed below:

Mineral Resources Conversion Factors for Production Scheduling:

<table>
<tr><th>Parameter</th><th>Source</th><th>Factor</th></tr>
<tr><td>Dilution</td><td>Assumed</td><td>5.0%</td></tr>
<tr><td>Mining extraction factor</td><td>Assumed</td><td>90%</td></tr>
</table>

The open-pit design resulted in a 28% conversion of Indicated Mineral Resource tonnes to Probable Ore Reserve tonnes.

<u>Material assumptions regarding the timeframe for development and production:</u>
It is assumed licensing and permitting is in place, funding is procured and the planned underground mine is completed following which the open-pit will commence.
The mine model scenario for the BFS can be summarised as completing a void (historical open-stopes) back-filling program beneath the planned open-pit. This will use back-fill from the paste plant used during the prior underground operation. Once the voids are filled, mining of the open-pit will commence. Six stopes, amounting to approximately 70,000m^3 in volume are required to be filled. Additional safety measures will be required as the initial mining will take place next to sink-holes. The details of these measures are outlined in the main report.
<u>Mining Method</u>: Conventional open-pit mining will be carried out by a mining contractor. ADTs (40t) are planned for the ore mining and CAT777 (90t) or equivalent trucks will be used for the waste mining. A grade control drilling program is planned at 10m intervals and a 20m spacing to delineate the supergene ore from the oxide and waste material.
<u>Geotechnical:</u> The open-pit design is based on a geotechnical assessment report carried out by Middindi Consulting (Pty) Ltd (Middindi), MAPTEK 3-D geotechnical survey data, laboratory rock strength tests and geological observations were used to provide the data set. Four rock types were identified: Weathered, Transitional, Poor-Quality and Fresh. The pit slope angles were determined by the position of these four rock types. Pit slope angles ranged from 41° for the Poor-Quality rock to 56° for the Fresh rock.
<u>Existing Infrastructure</u>: The Project area is well serviced by infrastructure that was originally established for the historical mine; this includes mine roads on the site itself, some accommodation, telecommunications, water and grid electricity which is in use.
<u>Additional Infrastructure</u>: As the open-pit mining follows on from the underground operation, general surface facilities will already be in place. This will mainly be; the

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<tr><td></td><td></td><td>engineering workshop; diesel storage area; security and personal access control. For the open-pit mining, top-soil, oxide and waste rock dumps will be required to be built.
• Explosives Magazine: Existing magazines remain from the historical mine and are in excellent condition. These will be used for storage of cartridges, boosters and detonators. Bulk emulsion which is planned for the open-pit mine will be stored near the Hutchings Shaft in dedicated silos which will already be in place from the underground mining.</td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>• The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.
• Whether the metallurgical process is well-tested technology or novel in nature.
• The nature, amount and representativeness of metallurgical testwork undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.
• Any assumptions or allowances made for deleterious elements.
• The existence of any bulk sample or pilot scale testwork and the degree to which such samples are considered representative of the orebody as a whole.
• For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</td><td>• The design of the processing plant allows for treatment of the open-pit supergene ore (with modifications after the underground mining is completed).
• Metallurgical Process: crushing, grinding and differential froth flotation processing is proposed for the supergene ore which can produce saleable concentrates of Zn and Cu with the potential for Ag and Au as by-products.
• Appropriateness: appropriate for the type of material anticipated from the mining operation.
• Tested Technology: The proposed processing route for open pit material is based on bulk flotation followed by differential cleaner flotation using a relatively novel flowsheet, using known processing technologies, and reagent regime.
• Metallurgical Test Work: Specialists: Mintek, under the guidance of the DRA Metallurgical team, undertook the metallurgical testing. Bench scale, batch open circuit flotation work was performed to derive the optimal flowsheet for processing of supergene material. Once the optimum flowsheet had been derived, bench scale, batch open circuit flotation variability testwork was performed. 602kg of test sample was used from eight drillholes ensuring representivity from the various zones of the deposit. The copper samples produced saleable concentrates although the testwork indicated that zinc material below 2.0% would not produce a saleable concentrate.
• Recovery Factors: Test work indicates metallurgical recovery rates of approximately 60% to 70% for copper and 48% to 53% for zinc. The concentrate grades were determined to be 23% to 26% for copper and 30% to 43% for zinc, with notable variability in ore response for open pit material.
Assumptions or allowances made for deleterious elements: historical sales of the PCM concentrates were recorded as clean with low concentrations of penalty elements. Detailed elemental analyses of the concentrates confirmed that several key deleterious elements are at negligible levels with, notably amongst others, arsenic, bismuth, cadmium, cobalt, tellurium, thorium and uranium at levels well below thresholds that may attract material penalty charges from most smelters or exclude some markets. Based on more recent discussions with concentrate off-takers, Cl & Fl, Pb & Zn have been noted as penalty elements in the Cu concentrate. Fe and Cl & Fl are penalty elements in the Zn concentrate and have been accounted for in the NSR calculations.
<table>
<tr><th>Parameter</th><th>UoM</th><th>Copper</th><th>Zinc</th></tr>
<tr><td>Metal price</td><td>USD/t</td><td>6,680</td><td>2,337</td></tr>
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<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Concentrate grade</td><td>%</td><td>24.5</td><td>35.7</td></tr>
<tr><td>Payability</td><td>%</td><td>95.9%</td><td>77.5%</td></tr>
<tr><td>Payability deduction</td><td>USD/t concentrate</td><td>-67</td><td>-187.0</td></tr>
<tr><td>TCs & RCs</td><td>USD/t concentrate</td><td>-96</td><td>-186.7</td></tr>
<tr><td>By-product credits</td><td>USD/t concentrate</td><td>41</td><td>0</td></tr>
<tr><td>Total penalties</td><td>USD/t concentrate</td><td>-11</td><td>-24</td></tr>
<tr><td>Net Smelter Return (NSR)</td><td>USD/t concentrate</td><td>1,505</td><td>436</td></tr>
<tr><td>NSR Percentage</td><td>%</td><td>91.9%</td><td>52.%</td></tr>
</table>

Bulk sample testwork and representivity: discussed under ‘testwork’ above.
With respect to minerals that are defined by a specification and used in the Ore Reserve estimate, the metallurgical testwork was done to produce saleable concentrate products.
Metallurgical testing is completed and results are reported in the BFS. Metallurgical results for the supergene testing were released to the ASX on 22 October 2018, 1 March 2018 and15 November 2017.

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<tr><td>Environmental</td><td>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</td><td>
The previous mine owner, Prieska Copper Mines Limited (PCML), obtained a Conditional Closure Certificate in 1996 from the authorities in terms of the Minerals Act, 1991, in terms of which rehabilitation of the old mine is legally considered complete; with the condition that a fund, be provided to rehabilitate any residual or deleterious aspects related to the closure of the mine and the remaining old TSF which potentially may occur in the future. In 2019, the trust deed was amended to include Repli and updated regulatory environmental obligations. The Nature Conservation Trust No. 723/89 Fund currently stands at AUD2.2 million (26 March 2020 Balance Sheet).
The Repli Mining Right (over the Repli Prospecting Right area) was granted on 23 August 2019 and the Environmental Authorisation (EA) and Waste Management Licence (WML), in terms of the NEMAct, 1998, on 3 July 2019 run concurrent to the Mining Right. The Water Use Licenses (WUL) is anticipated in Q2, 2020 (depending on Covid19 restrictions). Specialist studies to inform the Environmental Impact Report (EIR), Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr), WML and WUL were part of the Environmental Authorisation (EA) application process. The EA process also integrates the concerns raised during the Public Participation Process and incorporates mitigation measures for issues raised by affected parties.
The Vardocube Prospecting Right has a granted EA which forms part of the prospecting right and compliance therewith. The new Mining Right Application (MRA) for the Vardocube Prospecting Right area was submitted on 27 September 2018 together with
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Criteria	JORC Code explanation	Commentary
		an EA application in terms of the NEMAct, 1998, which runs concurrent to the Mining Right Application. The Vardocube EA was granted on 3 March 2020. • The estimate agreed with the Department of Minerals and Energy (**DMRE**) for the Financial Provision is AUD13.1 million and rehabilitation and closure costs of the proposed mine have been estimated by specialists in terms of the EIA at AUD20.3 million.
Infrastructure	• *The existence of appropriate infrastructure; availability o land for plant development, power, water transportation (particularly for bulk commodities), labour accommodation; or the ease with which the infrastructure can be provided or accessed.*	• The combined area for the Repli Mining Right and Vardocube Prospecting Right upon which the mine and mine infrastructure is planned, is approximately 6,766 hectares in extent. • Surface Rights: Repli, an indirect subsidiary of Orion, and the entity which holds the Mining Right and Prospecting Right, controls the surface use for the farm Vogelstruis Bult 104 and Slimes Dam 154 (Prieska District, Northern Cape Province) primarily in the form of direct surface right ownership (97.5% shareholding in PCML (Prieska Copper Mining Limited); servitude rights written into the property deed for land owned by the Request Trust as well as a long-term Surface Use Agreement signed in November 2018 between the latter in which users rights for prospecting and mining operations are guaranteed and the land-owner compensated. In addition, the holder of a prospecting and mining right is entitled to carry out the relevant operations for the winning of minerals in terms of Section 54 of the MPRDAct, 2002. To date, Orion is aware of no Land Claims that have been registered for the properties. The Company has used reasonable endeavours to confirm that land is therefore available for the building of new or use of any existing infrastructure. • Infrastructure Requirements: o Existing Infrastructure: required infrastructure will be from the remaining items from the previous mine operation and from the underground phase. These are described in the previous Section 4 for the Deep Sulphide Ore Reserve.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements. The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.* • *The source of exchange rates used in the study.* • *Derivation of transport charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.*	• Capital Cost (Capex) Assumptions (for the open-pit only): • Capex used: AUD2.5 million. • Construction Schedule – 9 months (for the void filling prior to open-pit mining starting). • Life of Pit - 17 months. • Contingency of 10% of the underlying capital cost items. • Target accuracy of ±15%. • The base currency is the South African Rand (**ZAR**) and an exchange rate has been fixed at ZAR18.00 : USD1, ZAR11 : AUD1 and AUD1.64 : USD1. Source of Capex estimated costs: o The estimate is base dated to December 2018. o Process Plant: estimates were made from measured and quantified each unit cost element from the engineering layout drawings, process flow diagrams (**PFDs**),

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
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- *The allowances made for royalties payable, both Government and private.*

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measured equipment lists (**MEL**), motor lists and electrical single line diagrams (**SLD**).

- Surface Infrastructure: Items sized and quantified off general arrangement (**GA**) diagrams. Costs determined from vendor quotations pricing. The evaporation dam and TSF were costed by a specialist design and engineering consultancy; Bulk power supply priced in detail by an electrical design and engineering company. Bulk water supply facilities and pipe-line upgrade costs are from a specialist consultant.
- Void filling below the open-pit costs were compiled by PCDS from detailed consumption rates for cement and using quoted price for the raise-bore drilling required.
- General: EPCM costs are based on a detailed build-up of man hours and related costs. Transport costs were quoted by suppliers in their quotations. First fills and commissioning spares have been priced by vendors in the quotations. Project owner's costs are detailed from Orion. Construction power is based on the planned electrical kWh using 2019/2020 Eskom electricity tariffs.

- Opex – the operating costs for the open-pit mining are shown below (on a total tonne mined basis):

Operating Costs - Open Pit Mining	ZAR/t	AUD/t
Admin and General	7.82	0.71
Top-Soil L&H	0.05	0.00
Waste Drilling	1.26	0.11
Waste L&H	8.70	0.79
Ore drilling	0.47	0.04
Ore L&H	0.55	0.05
Re-handle ore at RoM Tip	0.52	0.05
Waste explosives	2.76	0.25
Ore explosives	0.26	0.02
Grade control drilling per tonne of ore	0.42	0.04
Diesel	6.44	0.59
Total	**29.26**	**2.66**

- Opex costs have been compiled from contractor tendered quotes.
- A Total Opex Summary is provided in the body of the document.
- All labour costs across the various disciplines are built up from a detailed Project-wide labour schedule showing costs per individual role with applicable allowances building up to a cost to company wage rate.

- Open-pit mining: costs were built-up from tendered prices from a mining contractor.

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<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>Grade control drilling was costed by the Orion on-site geological staff.
○ Material Processing: Opex costs were compiled by DRA using planned reagent, crushing and milling wear component consumption rates and industry pricing. Processing power costs are based on 2019/20 Eskom electricity tariffs.
○ Surface and Indirect costs (General and Admin): These costs are primarily built up from the detailed labour schedule and quoted accommodation costs from the selected camp vendor.
○ Off-mine costs: This includes Orion Corporate office costs which have been built up in detail from current company costs. Marketing costs are a fixed amount of AUD1.14 million pa based on discussions with a concentrate logistics management company.
• Exchange Rate: Base currency is ZAR with a fixed exchange rate at The base currency is the South African Rand (ZAR) and an exchange rate has been fixed at ZAR18.00 : USD1, ZAR11 : AUD1 and AUD1.64 : USD1. The rates of exchange used have been empirically estimated and are based on exchange rates at the time of this report.
• Commodity price assumptions and source: see ‘revenue’ below.
• Transport charges: For the purposes of this Study it is assumed that the concentrate will be trucked from the processing plant at the mine to the Grovéput Rail Siding (50km from the mine) and railed via De Aar to the Ngqura Port and then shipped to China. Total transport and logistics charges are priced at USD59 and USD61 per tonne of copper and zinc concentrate respectively.
• Penalties and allowances for deleterious elements: refer to the NSR estimate above under ‘metallurgical’.
• Government Royalties: the royalties were set at the formula for “unrefined minerals”, in terms of the Royalties Act, 2010, linked to the MPRDA, 2002. Where Y = 0.5 + [EBIT/(gross sales of unrefined minerals) x 9] x 100 {maximum Y is 7.0%}.
• Private Royalties: No private royalties were included in the estimate.</td></tr>
<tr><td>Revenue factors</td><td>• The derivation of or assumptions made regarding revenue factors including head grade, metal or commodity price(s), exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
• The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</td><td>• Metal Price Assumptions
<table>
<tr><th>Metal Prices</th><th>USD/tonne</th><th>USD/lb</th><th>Source</th></tr>
<tr><td>Copper</td><td>6,680</td><td>3.03</td><td>S&P</td></tr>
<tr><td>Zinc</td><td>2,337</td><td>1.06</td><td>S&P</td></tr>
<tr><th>Precious Metals</th><th>USD/oz</th><th></th><th>Source</th></tr>
<tr><td>Gold</td><td>1,350</td><td></td><td>Orion</td></tr>
<tr><td>Silver</td><td>16.50</td><td></td><td>Orion</td></tr>
</table>
• Contribution by the co-products of silver and gold were included in the estimates for the BFS.
• Foreign Currency Exchange Rate Assumptions:
<table>
<tr><th>FX Rate</th><th>USD</th><th>AUD</th><th>ZAR</th></tr>
</table></td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		<table><tr><td>USD</td><td>1.00</td><td>1.64</td><td>18.00</td></tr></table> • The rates of exchange used have been empirically estimated and are based on exchange rates at the time of this report.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.*	<u>Demand, supply and stock situation for zinc and copper</u>: • <u>Copper</u> Copper metal is extensively used in many applications, mainly electrical cables and motors, piping, construction and in various metals alloys. Copper is also widely used in the heating and air conditioning industries due to it high heat conductivity. Looking ahead, the global copper market will be significantly influenced by the growth of the electric vehicle market, water delivery challenges around the world, general rising electrification needs (especially in developing economies) and renewable energy. Global demand for refined copper was estimated by S&P Global at around 20.6Mt in 2019, with an average price of USD6,003/t. The copper price declined in Q1 2020, which was influenced by concerns of the Covid-19 pandemic. It is anticipated that metals markets will recover once the coronavirus pandemic reaches its peak, where after the copper price will continue to grow at a compound annual growth rate of approximately 3.6%. China will add approximately 1.7 million tonnes of smelting capacity over the next two years and it is anticipated that copper concentrate will remain in strong demand for at least the next 10 years based on both the requirement for refined copper and projections of available primary smelting capacity. Significant investment is required in projects to meet the concentrate demand going forward and based on the current underfunded project pipeline output could peak in 2023 if no further investment is made in additional production. An increasing price trend for copper is expected in both real and nominal terms due to the influencing factors mentioned above. In addition to the long-term potential deficit, industry data indicates that the majority of projects capable of producing more than 100,000 tonnes of copper per year remain uncommitted. • <u>Zinc</u> Zinc has a multitude of applications in modern society. It is the fourth most consumed metal after iron, aluminium and copper. It is used mainly in infrastructure and construction, the vehicle industry and electronics. Its most important application is in galvanizing steel where around 50% of zinc metal is consumed. Zinc chemicals are used in several sectors, especially the paint, rubber and battery industries. Zinc was one of the most affected commodities in the global economic downturn and was one of the worst-performing base metals in 2019; this was mostly influenced by subdued global GDP growth and due to Chinese refined zinc imports falling by 46.5% year-to-year in December 2019. Chinese refined production however increased by 6.2% over this period. The global zinc metal market is in the region of 14Mt per annum and has been running at a structural deficit for the last four years, except for 2019, which saw a surplus of 119,000 tonnes. It is expected that this surplus will become a deficit in 2022 as consumption is expected to continue to outpace refined production going

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		forward. As a result, it is expected that zinc prices could exceed USD3,000 ($1.36/lb) again in 2024. China is expected to remain the largest consumer of zinc, increasing from 48% of global consumption in 2019 to 49% in 2020. The global supply of zinc is however expected to fall in 2020 due to temporary mine closures and decreasing grades. In addition, the amount of new zinc announced in initial resources showed a declining trend since 2016 to 2019 and exploration budgets have also reduced over this period. S&P Global estimates that the 119,000-tonne surplus in 2019 will decline to 90,000 tonnes in 2020 and will become a deficit in 2021. This deficit is expected to remain until 2024. The increased demand forecasts coupled with a view of a reducing number of new projects that could come online may result in an upward trend in the zinc price going forward. Therefore an increasing price trend is expected in both real and nominal terms due to the influencing factors mentioned here. • <u>Customer Analysis</u>: Historically, the concentrates produced from the PCM were regarded as clean products with few and low levels of impurities. Current assay results support this and it is concluded that the concentrates will be in demand to blend down impurities in other concentrates. With the assistance of an external concentrate marketing consultant, Orion conducted a competitive process for the Project's copper and zinc concentrates offtake, involving most of the largest smelting and trading groups from around the world. The market was widely canvassed and the assumptions used in the financial model are based on these findings. In the initial stage, expressions of interest in the Project's concentrates were sought and expressions of interest (**EOIs**) to enter into offtake agreements for the zinc and/or copper concentrates were received. Whilst not specifically sought, some of the proposals included offers to contribute to Project financing in some form or other, ranging from participation in the primary Project debt financing through to provision of working capital and cost overrun facilities. Shortlisted Parties, selected on strength of offtake terms and/or willingness to provide financing to the Project, reviewed and refreshed their initial EOIs offers. Based on these revised offers, the Company anticipates progressing negotiations with up to three parties with a view to concluding final offtake terms in advance of a final review by the Company's financiers. • A high-level competitor analysis for VMS deposits has been included at the BFS stage.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• Sensitivity analysis for the economics shows the Project most sensitive to the ZAR-USD exchange-rate followed by Cu grade. The sensitivity as shown in the diagram below. An analysis of the effect of the ZAR-USD exchange rate on the NPV and IRR is shown in the body of the ASX release.

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Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• <u>Surface Use:</u> The Company, through Repli controls Prieska Copper Mines Limited which owns a portion of the surface rights. The Company has a long-term Surface Use Agreement, signed November 2018, with the remaining surface right holder for the area of the proposed mine infrastructure. <u>Social License to Operate</u>: • This aspect is guided by the Mining Charter and regulated by the Social and Labour Plan (**SLP**) which was compiled and submitted as part of the Repli and Vardocube Mining Right Applications. The SLP for Repli was approved as part of the Mining Right process and the Vardocube is currently being evaluated by the South African regulatory authorities. • The Company signed an MOU (Memorandum of Understanding) with the Siyathemba Municipality for the Prieska District in February 2018 in which the Municipality endorsed the Repli SLP. • Several significant social investment initiatives proposed in the SLP, designed to and agreed between the Company and the Siyathemba Municipality, have already been started including the provision of internet facilities to the public in Prieska assisting the local community with application for work and/or as service providers for the proposed mining operation. The Company views the SLP as being a dynamic document that will continue to be revised as the Project develops and the needs and understanding of the local community change.

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Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserve* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing agreements.* • *The status of governmental agreements and approval critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the pre-feasibility of Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• Identified material natural occurring risks: nil. • Status of material legal agreements: all material agreements are current and active. • Status of material marketing agreements: agreements are in the process of negotiation and no signed off-take agreements are in place at the BFS stage. Government Agreements: • Tenement Status: Mineral tenure in South Africa is regulated by the MPRDA, 2002, with the environmental aspects regulated by NEMA, 1998, both managed under the authority of the DMRE. The Project mineral tenure or tenement holding comprises a set of contiguous mining and prospecting rights surrounding the old PCM area: the Repli Mining Right, the Vardocube Prospecting Right, the Bartotrax Prospecting Right, the Repli-Doonies Pan Prospecting Right and the Orion Exploration No. 5 (Pty) Ltd prospecting right application. An application for a mining right has been submitted to the DMRE for the Vardocube Prospecting Right area and grant is anticipated in Q2 2020 (pending Covid-19 restrictions). The primary tenement licenses and applications are detailed below: • Repli Mining Right Mining Right: NC30/5/1/2/2/10138MR. The Repli Mining Right was granted on 23 August 2019 and executed on 11 December 2019, in terms of Section 23 of the MPRDA, 2002, over the previous Repli Prospecting Right area for copper, zinc, lead, silver, gold, sulphur, cobalt, barytes, limestone, stone aggregate, gravel, sulphur in pyrite, pyrite, molybdenum ore, tungsten ore, sand (general) and iron ore in respect of the farm Vogelstruis Bult No 104, portion RE25 and portion 26 and the farm Slimes Dam 154, in the Prieska District, Northern Cape Province for an initial period of 24 years which may be renewed for up to 30 years at a time. The Mining Right was awarded together with the pre-requisite EA and WML (granted 3 July 2019) and includes the approved Mining Works Program and the SLP. The WUL application is anticipated to be awarded in Q2 2020 (pending Covid-19 restrictions). Orion effectively holds a 70% interest in the Project, with the remaining 30% as 20% BEE ownership, 5% community trust and 5% employee trust in compliance with Mining Charter III guidelines and existing legislation. • Vardocube Mining Right Application. Mining Right: NC30/5/1/2/2/10146MR. The Vardocube Mining Right Application, in terms of Section 22 of the MPRDA, 2002, for the Vardocube Prospecting Right area for copper, zinc, lead, silver, gold, sulphur, cobalt, barytes, limestone, sulphur in pyrite, pyrite, molybdenum ore, tungsten ore, and iron ore was submitted to the authorities, together with the pre-requisite EA application, on 27 September 2018. The application includes the proposed Mine Works Program and the SLP. The application is in process at the DMRE and the EA was granted on 3 March 2020.

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		• Vardocube Prospecting Right: NC 30/5/1/1/2/11841PR: Vardocube has been awarded a prospecting right, in terms of section 17(1) of the MPRDA, for copper ore, zinc ore, lead, gold, cobalt, sulphur in pyrite, barytes, limestone, pyrite, tungsten and molybdenum in respect of the farm Vogelstruis Bult No 104, portion RE1 in the Prieska District, Northern Cape Province. The date of grant is 25 April 2018; valid for five (5) years. Orion effectively holds a 70% interest in the Project, with the remaining 30% as 20% BEE ownership, 5% community trust and 5% employee trust in compliance with Mining Charter III guidelines and existing legislation. • Tenure Compliance: At the BFS Report effective date, the rights were compliant with statutory fee payments, annual reporting and financial provision audits up to date. • According to the Department of Land Restitution and Reform, there are no land claims on any of the properties covered by the prospecting rights. • The Conditional Closure Certificate is discussed under 'environmental', above. • The application process for the Prieska Project land use change from Unspecified Zone to Special Zone (Extractive Industry) is underway, with approval received from the Siyathemba Local Municipality and invitation for public comment published. Submission to the District Municipal Planning Tribunal for final approval is anticipated sometime during calendar year 2020. • Status of government and statutory approvals: Orion knows of no reason why all necessary government approvals shouldn't be received within the timeframes anticipated in the BFS. • Discussions continue with the South African Department of Science and Technology to ensure compliance with technical aspects which may impact on the Square Kilometre Array (**SKA**) radio telescope, being built near Carnarvon over 40km from the Project. • In 1987, Armscor, a State-owned enterprise for acquiring defence capabilities for the South African Defence Force and other State agencies, established the Alkantpan ballistic test range on ground neighbouring the Project area These surface rights are unlikely to interfere with mine development and operating activities. • A MoU is in place with the Siyathemba Municipality regarding the supply of bulk water to the mine. Final water tariffs are under negotiation. • The engineering design of the planned construction of feeder bay within the Cuprum Sub-station to supply the Project with 40MVA of power for the operational stage of the Project has been approved by the Eskom Technical Evaluation Forum which took place in December 2018. Repli has paid all fees required to date to allow the process to

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		continue for Eskom to sign the long-term power agreement. A final confirmation letter to Orion is outstanding whereupon a connection fee will be payable to Eskom. • The engineering design of the planned construction of feeder bay within the Cuprum Sub-station to supply the Project with 15MVA of power for the construction phase of the Project has been approved by the Eskom Technical Evaluation Forum and approval was given in August 2019. Repli has paid all fees required to date to Eskom to allow this process to continue. • Repli has been engaging with Transnet for rail transport logistics from the Grovéput rail siding to Ngqura Port. Quotations for the rail transport have been received and are included in the operating costs of the Project. • Unresolved matters with 3rd parties which would materially affect the results of the BFS – none.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• Indicated +105 Level Mineral Resources were upgraded to Probable Ore Reserves based on the mine planning process using appropriate modifying factors. • The results conform to the view of the Competent Person. • There are no Measured Mineral Resources.
Audits or reviews	• *The results of any audits or reviews of the Ore Reserve estimates.*	• A review of the Open pit Ore Reserves by SRK Consulting (Johannesburg) is currently underway.
Discussion of relative accuracy/confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which would affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying*	• In accordance with the JORC Code (2012), the +105 Level Supergene Ore Reserve (open pit mining), and corresponding LOM plan, were based solely on Indicated Mineral Resources. No Inferred Mineral Resources were used. • The level of accuracy for the BFS Technical Report is ± 15%. • The results conform to the view of the Competent Person. • The geostatistical accuracy of the Indicated Resources underpinning the Reserves are explained above in Section 3 of this table – Estimation and Reporting of Resources – Deep sulphide • The mine planning modifying factors and assumptions applied to convert the Resources to Reserves are deemed appropriate for a Feasibility level study and were described above in the relevant sections. • The capital costs for the mine construction were built up using quotations from earthworks and civil contractors, equipment and service providers. A portion of the Electrical Control and Instrumentation capital costs were factorised from similar projects which make up 8% of the total capital cost. Where appropriate, costs from the BFS-19 estimate were escalated into Jan 2020 constant money terms for the BFS-20 version. A 10% contingency was added to the base capital estimate. • Operating costs were calculated from first principles for mining, processing (including labour), concentrate transport, corporate costs, indirect costs, off mine and environmental costs, electrical power and Royalties which combined make up 88% of

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	Factors that may have material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	the costs. SIB capex (6% of costs) was factorised. Operationalised Infrastructure costs (6% of costs) are based on a proposed repayment mechanism with the Third-party funders which is in the process of being negotiated. • The net smelter returns (NSR) have been calculated based on a non-binding proposal from Bluequest Resources AG which includes details of Cu and Zn payability, penalty elements and Au and Ag credits. Bluequest have also offered a discount to benchmark TC/RCs which have been accounted for in the financial modelling. • Net revenue starts with the assumed metal prices as mentioned earlier in the section on Revenue Factors and applies the NSRs and the South African tax rate of 28% taking into account capital deductions. • For more details on the above points, refer to this release. • The results conform to the view of the Competent Person. • Studies for the BFS have been completed and further optimisation studies may continue.