Orion Minerals

ASX/JSE RELEASE: 28 August 2023

Orion upgrades Mineral Resources at the Flat Mines Area, Okiep Copper Project as BFS nears completion

Other historic mines and prospects also being modelled, with potential to deliver further resource growth

- **A review of the geological interpretation at Flat Mine North, Flat Mine East and Flat Mine South has resulted in improved definition of the mineralised zones together with an increase in the total Mineral Resources.**
- **Mineral Resources at Flat Mine North, Flat Mine East and Flat Mine South now total 9.3Mt at 1.3% Cu for 130,000 tonnes of contained copper including a Measured and Indicated Resource of 7.4Mt at 1.4% Cu.**
- **In addition to the previously announced Mineral Resource of 2.5Mt at 1.4% Cu at Flat Mine (Nababeep), Jan Coetzee Mine and Nababeep Kloof Mine, this brings the total Mineral Resources within the Flat Mines Area of the OCP to 12Mt at 1.4% Cu for 160,000 tonnes of contained copper.**
- **Other historical mines and prospects are currently being modelled, with the potential to deliver further growth in the OCP Mineral Resource.**

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

*"Following a detailed geological review, we have been able to deliver an increase in the total Mineral Resource for the Flat Mines Area and, more importantly, greater confidence in the resource model. This is a very positive result which has now been incorporated in the Bankable Feasibility Study (**BFS**) for the Okiep Copper Project.*

"We have now concluded the main body of work for the BFS and we are in the process of handing the study to the Independent Technical Expert appointed by the debt advisor for the project on behalf of the Industrial Development Corporation of South Africa Limited and debt financiers who have expressed an interest in funding the project. The BFS outcomes will be released to the market once the Independent Technical Assessment has been completed.

"While this initial Resource has been utilised to support a foundation stage BFS and economic assessment of the Okiep Copper Project, we are confident in the potential to expand these resources with future drilling into the mineralised envelopes. We see outstanding potential to further grow and upgrade the Mineral Resources with in-fill drilling into areas with low drill density as well as drilling potential plunge and strike extensions of the known deposits.

"Most importantly, we are pleased to have concluded the tailings facility design, together with completion of water management plans in order to submit an application for an Integrated Water Use Licence. This element of the BFS work has proven to be the most time consuming due to Orion's focus on high ESG standards."

Orion Minerals Limited (**ASX/JSE: ORN**) (**Orion** or **Company**) is pleased to report an increase in the Mineral Resource Estimates for three deposits that form part of the Okiep Copper Project (**OCP**), located in the Northern Cape Province of South Africa, following a detailed review of the geology and remodelling of the deposits.

The Measured, Indicated and Inferred Mineral Resources, as stated in Table 1 below, have been re-estimated for the Flat Mine North (**FMN**), Flat Mine East (**FME**) and Flat Mine South (**FMS**) deposits, and now total **9.3Mt grading 1.3% Cu for 130,000 tonnes of contained copper** (Table 1).

Together with the previously reported Mineral Resources for Flat Mine (Nababeep), Jan Coetzee Mine and Nababeep Kloof Mine (refer ASX/JSE release 29 March 2021), these latest resource estimates increase the total Mineral Resource at the OCP to **12Mt grading 1.4% copper for 160,000 tonnes of contained copper** (Table 2).

The Mineral Resource estimations are based on historical drilling data and were estimated by a Competent Person and classified in accordance with the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC code 2012**) with supporting information in Appendices 1 and 2.

Updated FMN, FME and FMS Mineral Resource

The Mineral Resource consists of three separate mineralised deposits in close proximity to each other (FMN, FME, and FMS). Following an extended period of detailed review resulting in an increased understanding of the regional geology, the local geology and the controls on mineralisation, new interpretations were completed for the FMN, FME and FMS deposits. The new interpretations have significantly improved the definition of the estimation domains at FME and, to a lesser extent, at FMS. This is particularly relevant in areas of the deposits where there is a lower density of drill hole information. For FMN, where there is a higher density of drill hole information, the changes to the interpreted estimation domains are less pronounced.

The changes to the resource models successfully increased the FMN, FME and FMS total Mineral Resource from 8.9Mt grading 1.4% Cu (refer ASX/JSE release 10 February 2021) to **9.3Mt grading 1.3% Cu**, including Measured and Indicated Resources of **7.4Mt grading 1.4% Cu** and Inferred Resources of 2.0 Mt grading 1.3% Cu.

The Measured and Indicated Resources show a decrease of 1.1Mt from 8.5Mt grading 1.4% Cu (refer ASX/JSE release 10 February 2021). This is a direct result of the changes in the resource models due to the increase in understanding of the geology and mineralisation models combined with a different Mineral Resource estimation methodology.

The FMN, FME and FMS Mineral Resources shown in Table 1 are based on drilling data available for the Flat Mines Southern African Tantalum Mining (Pty) Ltd (**SAFTA**) Mining Right NC30/5/1/2/2/10150MR. The Mineral Resources are reported in accordance with the JORC Code (2012), with supporting information provided in Appendices 1 and 2.

Several other historical mines and prospects are currently being modelled, with the potential to deliver further growth in the OCP Mineral Resource.

Table 1: Mineral Resource Statement for the Flat Mine North, Flat Mine East and Flat Mine South.

Mine / Prospect	Measured			Indicated			Inferred		
	Tonnes	% Cu	t Cu	Tonnes	% Cu	t Cu	Tonnes	% Cu	t Cu
Flat Mine North	440,000	1.13	5,000	940,000	1.42	13,000	200,000	1.5	4,000
Flat Mine East	-	-	-	3,400,000	1.37	47,000	1,000,000	1.0	9,000
Flat Mine South	-	-	-	2,600,000	1.35	35,000	800,000	1.6	13,000
Total*	**440,000**	**1.13**	**5,000**	**6,900,000**	**1.37**	**95,000**	**2,000,000**	**1.3**	**26,000**

**Numbers may not add up due to rounding in accordance with the JORC code guidance.*
Resources are reported at a 0.7% Cu cut-off grade.

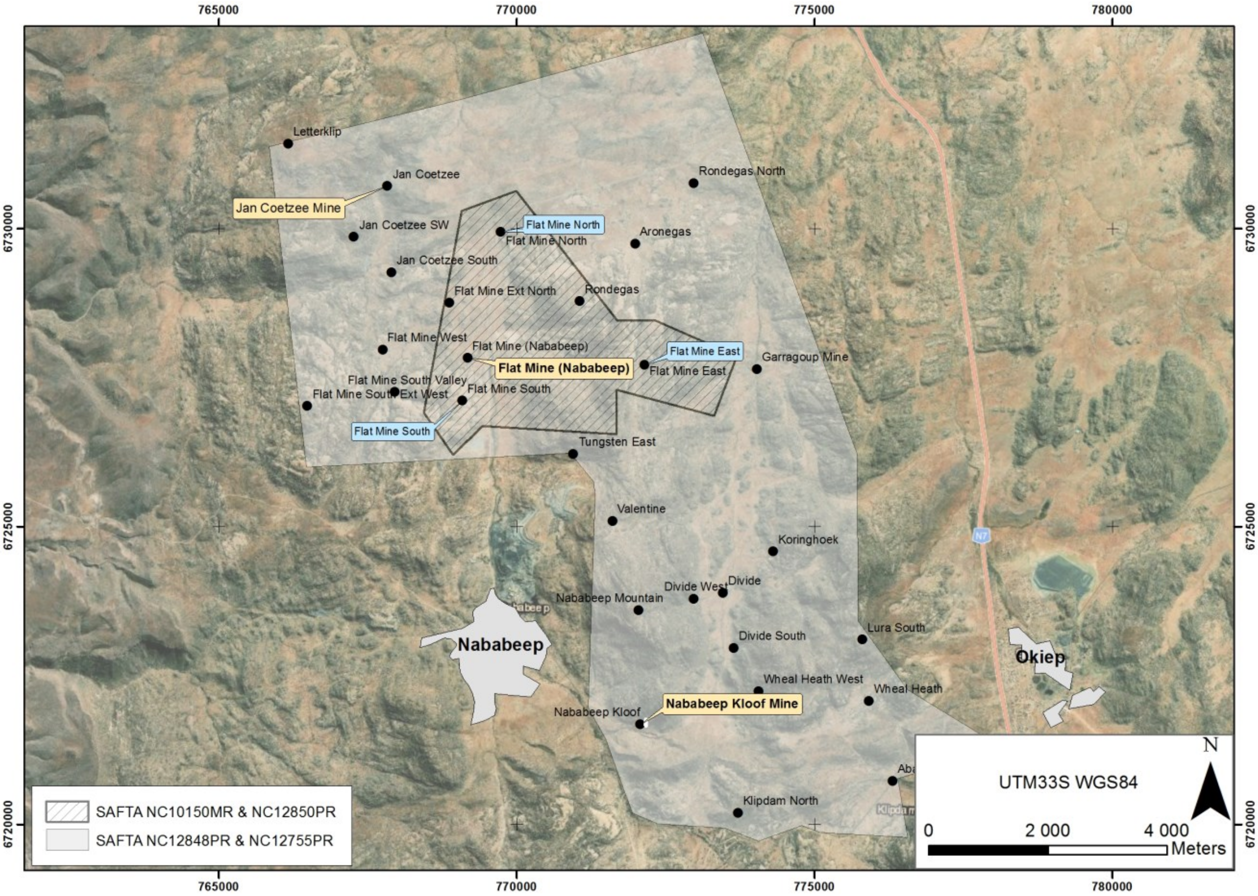

Figure 1: SAFTA prospecting and mining rights showing previously reported (orange) and updated (blue) Mineral Resources.

Table 2: Total Mineral Resource Statement for the Flat Mines Area of the OCP.

Mine / Prospect	Measured			Indicated			Inferred		
	Tonnes	% Cu	t Cu	Tonnes	% Cu	t Cu	Tonnes	% Cu	t Cu
Flat Mine (Nababeep)	-	-	-	-	-	-	1,000,000	1.4	15,000
Jan Coetzee Mine	-	-	-	-	-	-	1,000,000	1.4	14,000
Nababeep Kloof Mine	-	-	-	-	-	-	500,000	1.2	6,000
Flat Mine North	440,000	1.13	5,000	940,000	1.42	13,000	200,000	1.5	4,000
Flat Mine East	-	-	-	3,400,000	1.37	47,000	1,000,000	1.0	9,000
Flat Mine South	-	-	-	2,600,000	1.35	35,000	800,000	1.6	13,000
Total	**440,000**	**1.13**	**5,000**	**6,900,000**	**1.37**	**95,000**	**4,500,000**	**1.3**	**61,000**

**Numbers may not add up due to rounding in accordance with the JORC code guidance.*
Resources are reported at a 0.7% Cu cut-off grade.

Geology and Interpretation

The Okiep Copper Deposits are Orogenic-type copper deposits hosted in mafic to ultra-mafic intrusive bodies in the western part of the Namaqua Complex, South Africa. Mines in the Okiep district produced 106Mt at 1.7% Cu since the 1900s[1].

[1] Lombaard A.F., in Annhauser C.R., and Maske S. (eds). The Copper Deposits of the Okiep Copper District, Namaqualand in Mineral Deposits of Southern Africa. 1982 pp 1421 - 1445.

Copper deposits are hosted by east-trending mafic/ultramafic dykes and sills. Some 1,700 of these intrusions occur in the district. A structural control on intrusives in the form of “steep structures” or monoclinal folds is well established. Copper mineralisation occurs as disseminations of chalcopyrite and bornite with local massive sulphide concentrations within and adjoining mafic intrusive bodies.

The best analogue to the Okiep copper district is probably the copper district of the Curaçá River Valley in Brazil[2], which hosts deposits of 180Mt of copper sulphide grading 1% copper, including 5Mt of copper oxide material at a grade of 0.6% Cu[2]. Production came from both underground and surface workings.

Mineralisation at FMN, FME and FMS is hosted by shallow, sub-surface bodies.

FMN consists of three mineralised bodies within a continuous mafic intrusive. The southern and central bodies striking north-south for approximately 280m and 260m respectively, with a shallow dip of approximately 15° to the north. There is a gap of approximately 80m between the northernmost limit of the southern body and the southernmost limit of the central body. There is continuity of mineralisation between the central body and the northern body which is flat-lying with and has an east-west strike of 340m. FMN extends from surface to a known maximum depth of 230m. An existing decline extends from the south of the southern body to the southern section of the central body. The decline is in extremely good condition indicating strong geotechnical conditions.

Mineralisation at FME consists of two en-echelon “eastern bodies” with a strike of 560m and an average dip of 55° to the north-northwest. The eastern bodies extend from 50m to 330m below surface. A separate “western body” has a strike of 320m and a dip of 65° to the north-northwest. The western body extends from 100m below surface to 400m.

FMS has an east-west strike of approximately 580m and dips steeply at approximately 75° to the north. The body extends from 140m to 700m below surface.

Estimation Methodology

The following estimation methods were applied:

- Mineralisation often occurs as discrete mineralised lenses within and normally following the general trend of a broader mafic intrusive body. With the irregular intrusive nature of the geology and mineralisation it can be difficult to correlate individual lenses between sections and drillholes and in many cases modelling of estimation domains was only feasible by grouping the lenses into a broader envelope.
- A 0.5% Cu cut-off grade was selected for the outer limit of the estimation domain. From visual observation, using a cut-off grade above 0.5% Cu, the mineralisation lacks the required continuity to construct a viable domain for resource estimation. In addition, in some areas the 0.5% Cu cut-off was lowered (often in sections where all grades are below 0.5% Cu but still anomalous and in the mafic lithologies associated with the mineralisation), or significant internal waste was included in the mineralisation envelope, in order to maintain continuity and a viable domain for resource estimation. Estimation domains for all three deposits (FMN, FME and FMS) were delineated by creating interpreted strings along successive vertical sections.
- Detailed modelling of lithological units was not possible over any significant extent due to the irregular intrusive nature of the geology. Modelling of internal “waste pillars” (mostly associated with granitic inclusions within the mafic bodies) as a separate domain for estimation was only possible to a meaningful extent at the FME eastern bodies. In other areas it was difficult to correlate internal waste zones between drillholes over any significant distance.
- No differentiation was made between the oxide and sulphide mineralisation as generally the oxide component is insignificant within the Flat Mines deposits.
- Sample lengths for FMN and FME were composited to 2m, while samples for FMS were composited to 1.5m.

[2] Hasui Y.,Del'Rey L.J.H., Silva F. J.L., Mandetta P., De Moraes J. A. C., De Oliveira J. G., and Miola W. Geology and Copper Mineralisation of Curaçá River Valley in Bahia. Revista Brasileira de Geodencias vol 12(1-3) March 1982.

- Copper assay values were capped to selected thresholds using the Parker[3] methodology. For FMN, three samples were capped to 11.79% Cu. For FME eastern bodies, six sample were capped to 11.62% Cu, and for FME western body, one sample was capped to 2.16% Cu. No capping was necessary for Cu for FMS.
- Block models with the following cell size and sub-cell size were used for the FMN, FME and FMS deposits:

Deposit	Block Cell Size	Sub-Cell Size
FMN	30m (X) x 30m (Y) x 8m (Z)	1m x 1m x 1m
FME	30m (X) x 8m (Y) x 30m (Z)	1m x 1m x 1m
FMS	30m (X) x 6m (Y) x 30m (Z)	1m x 1m x 1m

- Following a spatial analysis, the composite data were used to estimate the block grades using ordinary kriging (**OK**) where this was considered appropriate. Blocks that were not estimated by the first-pass OK were estimated using the first-pass estimates as input to a moving average.
- For FMN, neighbourhood analysis resulted in an optimum search neighbourhood of 45m x 25m x 8m for local block estimation. The second-pass estimates were calculated from the first-pass OK estimates using a moving average technique with the search radii doubled. 72% of blocks (94% of the volume) were estimated by the first-pass, with the remaining blocks estimated by the second-pass.
- For FME eastern bodies, neighbourhood analysis resulted in an optimum search neighbourhood of 100m x 5m for local block estimation. The second-pass estimates were calculated from the first-pass OK estimates using a moving average technique with the search radii doubled. 93% of blocks were estimated by the first-pass, with the remaining blocks estimated by the second-pass. For the waste pillars a length-weighted average grade was applied.
- For FME western body there is a lower sample density and no clear spatial relationship between samples. Local block estimation using OK was not feasible and an inverse distance weighting (to a power of two) (**IDW²**) approach was utilised instead. The FME eastern bodies Cu% ranges of 100m x 100m x 5.8m were applied. The IDW² estimate resulted in 60% of blocks being estimated in the first-pass. The second-pass was populated using a moving average with the first-pass estimates as the input data.
- For FMS, neighbourhood analysis resulted in an optimum search neighbourhood of 70m x 70 x 5.5m for local block estimation. The second-pass estimates were calculated from the first-pass OK estimates using a moving average technique with the search radii increased. 54% of blocks were estimated by the first-pass, with the remaining blocks estimated by the subsequent passes.
- Bulk Densities (t/m3) were determined using the water displacement method. For FMN there was a good spread of density measurements through the deposit with a total of 549 data points. For FMS there are 79 density measurements, but these are restricted to the shallower holes in the deposit. For FME eastern bodies there are no recorded density measurements with 43 measurements in the FME western body.
- For FMN density outliers, higher values were capped using the Parker[3] methodology to 3.17t/m3, while lower values were capped up to 2.53 t/m3. For FME eastern bodies, density values were assigned to logged lithologies based on density statistics from FMN, where host lithologies are similar. No capping was applied to density values for FME or FMS.
- For FMN, OK was applied for bulk density estimation with a search neighbourhood of 45m x 23m x 11m. The first-pass resulted in 53% of blocks estimated. A second-pass using first-pass estimates as input data using a moving average with the search radii doubled populated the remainder of the blocks.
- For FME main bodies, block density was calculated using IDW². The orientation and range of the search neighbourhood was defined by the Cu % models, i.e. a search range of 100m x 100m x 5.8m orientated in the plane of the orebody as defined by the experimental variography for the FME Cu % analysis. For FME western bodies, the same search neighbourhood search was used for IDW². A second-pass was done from using first-pass block estimates and a moving average with the search radii doubled.
- For FMS IDW² was used using FMS Cu% variogram ranges in the plane of mineralisation. The first-pass estimated only 10% of the parent blocks. The first-pass estimates were used as input to a moving average to inform the remainder of the blocks.
- Datamine™ was utilised to create a block model and measure individual block volumes within each zone and these data were imported into Isatis™ for further analysis.

[3] Parker, H. Statistical treatment of outlier data in epithermal gold deposit reserve estimation. Mathematical Geology, Vol23. 175-199, 1991.

In the Competent Person's opinion, the estimation methodologies are suitable for the type of deposit and nature of the data and can be used to classify the estimate in accordance with the JORC Code (2012).

Resource Classification

The Resource classification has been carried out in accordance with the JORC Code (2012).

The resources are classified as Measured, Indicated and Inferred. Cognisance was taken of the potential uncertainties related to mineralised envelope delineation and therefore the associated volume estimation, as well as that this resource estimation is based on historical data.

The geological models are considered by the Competent Person to be defined to an acceptable level and there is sufficiently accurate data to produce local block estimates using ordinary kriging in all areas apart from FME western body where there is a lower data density and IDW^2 estimation was employed. In areas where there is a limited number of samples resources are defined as Inferred.

Although there is a moderate level of uncertainty associated with the estimation of bulk densities at FMS and FME, the common lithologies associated with the mineralisation have a relatively narrow range of density values. In most parts of the deposits there are sufficient data for reasonably accurate local block estimates of grade (FMN 72%; FME 93%; FMS 54% of blocks populated by first-pass kriging). The kriging performance parameters, e.g. slope of regression, together with an assessment of the areas of blocks that were populated by first-pass kriging, were utilised to make a distinction between the Measured, Indicated and Inferred levels of confidence.

Twin and some infill drilling will be required to increase the confidence and upgrade the Inferred Resources. The results conform to the view of the Competent Person.

Cut-off Grades

A cut-off of 0.7% Cu was used for the Mineral Resource Statement that corresponds with reasonable prospects of economic extraction using today's economics. This is based on the break-even grade resulting from the financial model used for the Scoping Study (refer ASX/JSE release 3 May 2021).

Mining, Metallurgical Methods and Modifying Factors

Potential mining of these three deposits is considered suitable for underground operations.

Historically mined areas (stopes) shown on mine survey plans were excluded from the resource. This is only applicable for FMN where approximately 180,000 tonnes of ore are recorded to have been historically mined.

No historical metallurgical test results are available apart from a locked-cycle test carried out by SAFTA in 2018. Based on this single test, indications are that recoveries in excess of 90% with concentrate grades in excess of 21% should be readily achievable. Since 1946, OCC mined and treated 105.6Mt from 27 different mines all with similar and amenable metallurgy.

The only test work caried out by Orion has been XRF ore sorting test work by RADOS. Work is ongoing but results show significant benefits to XRF sorting of the ore.

Future Activities

Some twin and in-fill drilling will be required to increase the confidence and upgrade the Inferred Resources. A Feasibility Study is currently underway which will determine the viability for mining of the FMN, FME and FMS Mineral Resources.

For and on behalf of the Board.

Errol Smart
Managing Director and CEO

ENQUIRIES

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Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr Paul Matthews (Pr.Sci.Nat.), a Competent Person who is a member of the South African Council for Natural Scientific Professionals, a Recognised Professional Organisation (**RPO**). Mr Matthews is a full-time employee of Orion. Mr Matthews 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 JORC Code. Mr Matthews consents to the inclusion in this announcement 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 is based on information compiled by Mr Sean Duggan, a Competent Person who is a Director and Principal Analyst at Z Star Mineral Resource Consultants (Pty) Ltd. Mr Duggan (Pr.Sci.Nat) is registered with the South African Council for Natural Scientific Professionals (Registration No. 400035/01), an RPO. 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 JORC Code. Mr Duggan consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears and detailed in Appendix 1 and 2.

Disclaimer

Appendix 1: Maps and Figures

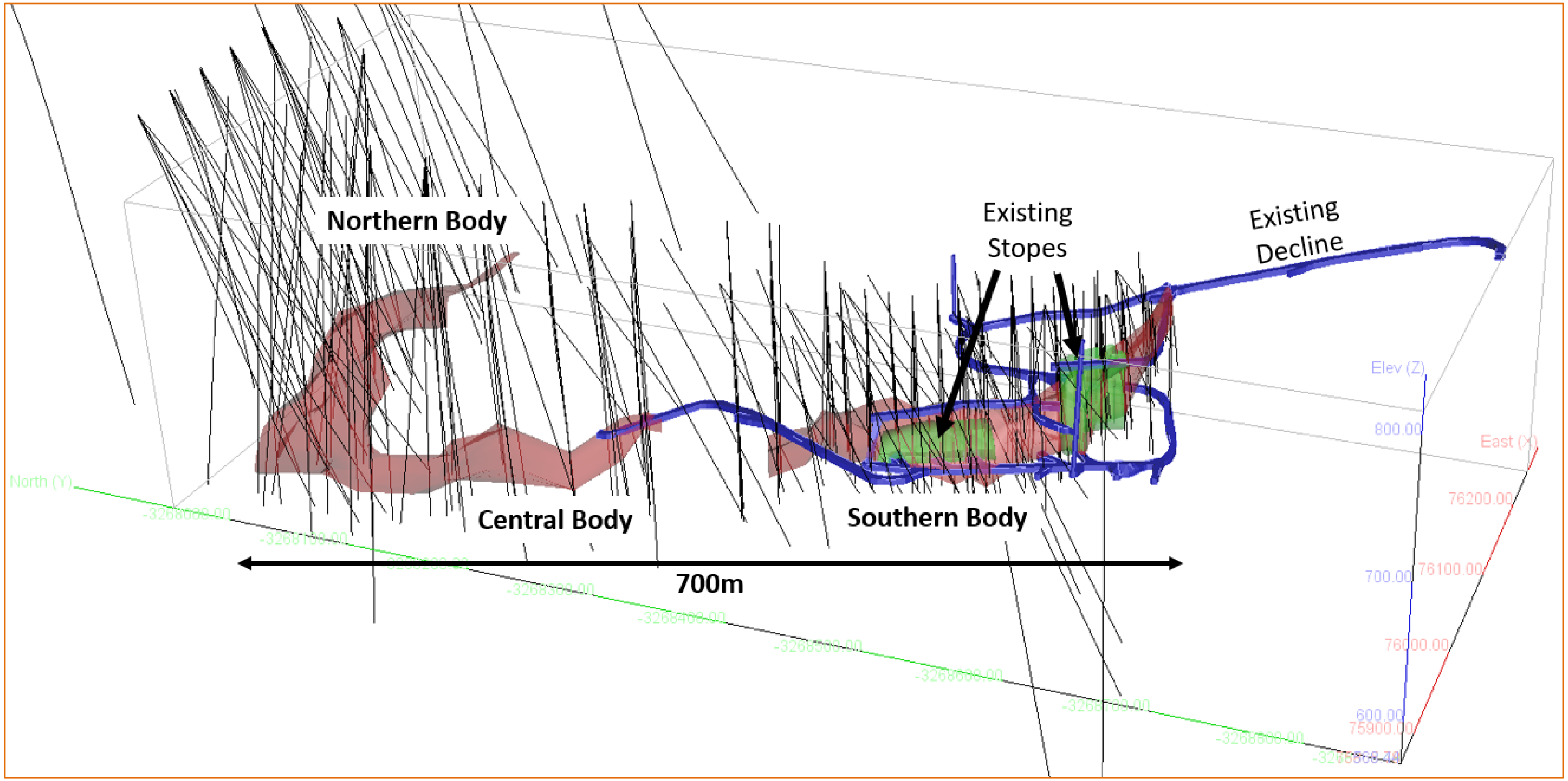

Figure 2: Flat Mine North defined estimation domains, drill hole traces and existing mine workings.

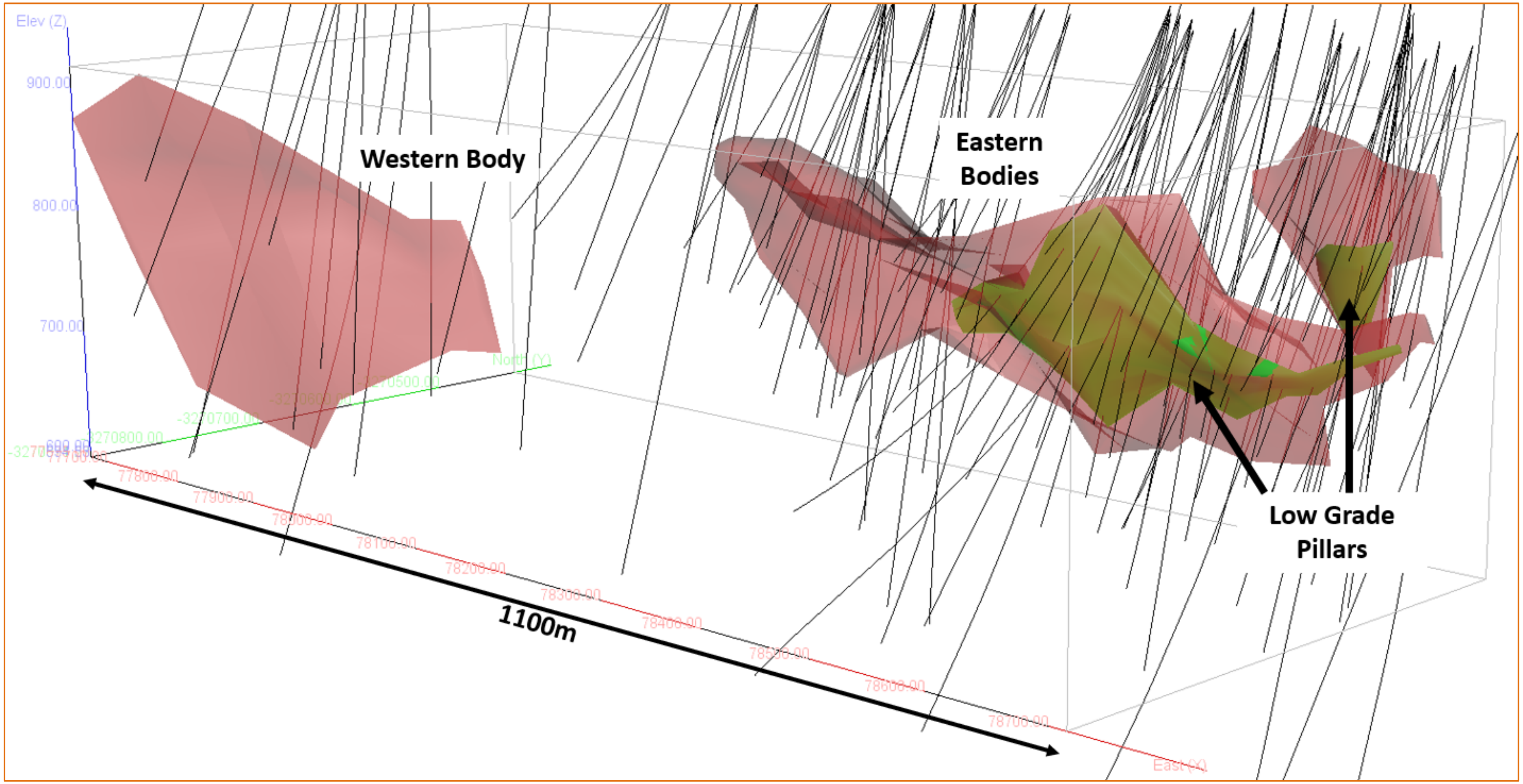

Figure 3: Flat Mine East defined estimation domains, drill hole traces.

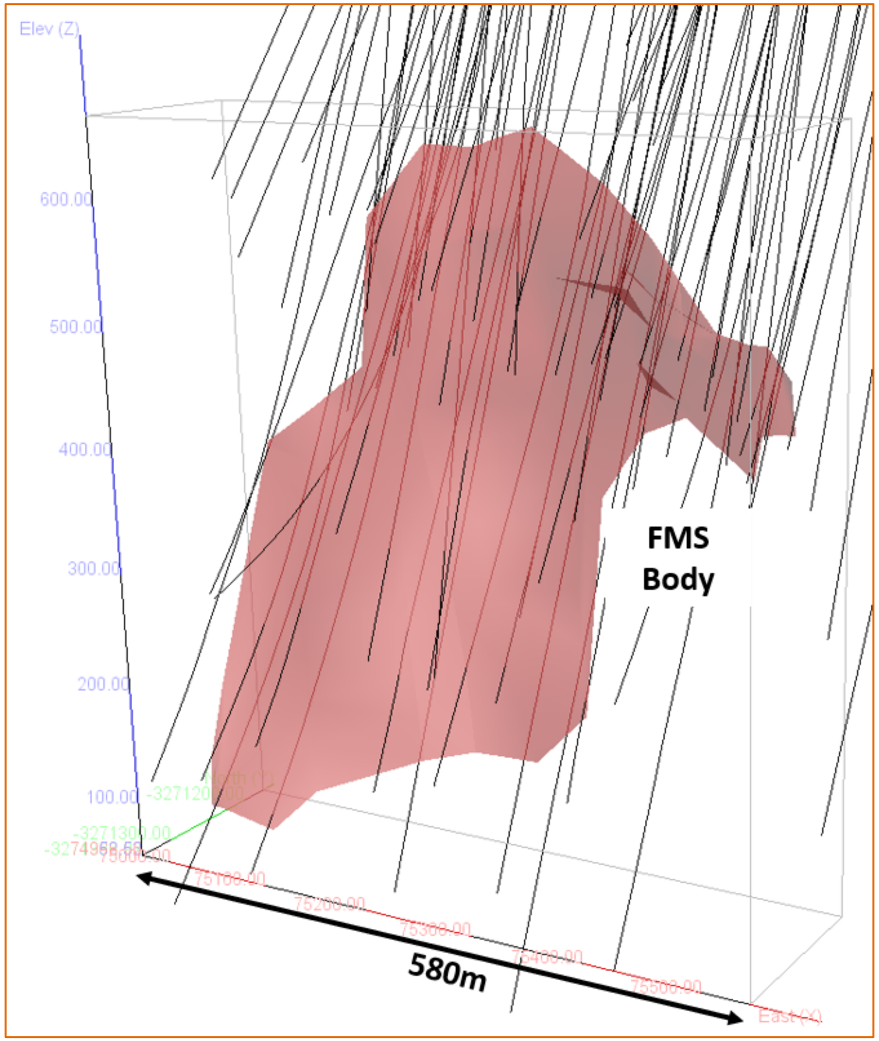

Figure 4: Flat Mine South defined estimation domain, drill hole traces.

Appendix 2: The following tables are provided to ensure compliance with the JORC Code (2012) requirements for the reporting of Mineral Resources for the Okiep Copper Project.

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

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 was undertaken during three distinct periods since the initial discovery of mineralisation: • Prior to 1984 by O'Okiep Copper Company (**OCC**) under ownership of Newmont. • 1984 – 1999 by OCC under ownership of Goldfields of South Africa (**GFSA**). • and in 2018 by South Africa Tantalum Mining (**SAFTA**). **Newmont and GFSA:** • For diamond drilling carried out by OCC between 1953 and 1978, there is limited information available on sampling techniques for core. With exploration and resource management being carried out under the supervision of OCC, 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 discussions with personnel employed by OCC. • The exploration and resource management were under the supervision of the OCC geology department, recognised as one of the best exploration departments in South Africa at the time. OCC was successful in defining resources which were used as the basis of successful mine development for 33 different mines for an operation over a 45-year period. • GFSA is a reputable South African Mining house and owned gold, base metal and platinum mines at the time. • Drilling of exploration holes was carried out on a 60m by 30m line spacing. • Drill samples from OCC and GFSA drilling were all sent to OCC on-mine laboratory in Nababeep. • Samples were taken over two metre intervals adjusted to accommodate geological contacts. OCC whole core was submitted to the laboratory (AX core size). A 10cm representative core was archived for each sample. • GFSA drilled BQ size core. Core was cut with a core cutter at the core yard and half core was submitted over the entire sample interval. • For both companies, samples were numbered and bagged at the core yard before being submitted to the laboratory.

Criteria	JORC Code explanation	Commentary
		• No formal QC samples were inserted at the time by the geologists on the exploration site. OCC laboratory developed its own standards, and those were used internally in the laboratory. No record exists on the preparation method of the standards. Duplicate samples were also inserted to check for repeatability. No records exist on the percentage duplicate or standard. • No historical Standard Operating Procedures are available. **SAFTA:** • Diamond core samples were demarcated and collected across all visible mineralisation estimated at least 0.05% Cu. • At least 1m hanging and footwall material were also sampled. • The average sample length is approximately 1m with minor variations to accommodate geological boundaries. • Sampling was carried-out by an experienced sampler/geologist according to Standard Operating Procedures (SOP). • Sampling of the mineralised drill core was of high standard and found suitable for estimation purposes. • QC samples were inserted and the records are available.
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.).*	**Newmont:** • All intersections were by core drilling. • AX-size core was drilled. • Core orientation was not done. **GFSA:** • All intersections were by core drilling. • BQ core size was drilled. • No core orientation was carried out. **SAFTA:** • Recent twin drilling consisted of an upper percussion portion followed by a diamond tail. • The diamond tail commenced when either significant deviation was encountered or until 2m to 3m above the targeted mineralisation. • NQ size diamond core drilling followed and intersected the targeted mineralisation. • The shallower holes at Flat Mine North commenced with NXC size for 2m to 5m followed by NQ drilling.

Criteria	JORC Code explanation	Commentary
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.*	**Newmont:** • All mineralised intersections were done with core drilling. • Core stick-ups reflecting the depth of the drill hole are recorded at the rig at the end of each core "run". • A block with the depth of the hole written on it is placed in the core box at the end of each run. • Core recoveries were measured for each run. • No records exist for core recoveries on individual samples. • Intersections were in hard rock and good recoveries are envisaged through the mineralisation. **GFSA:** • All mineralised intersections are done with core drilling. • Core stick-ups reflecting the depth of the drill hole are recorded at the rig at the end of each core run. • A block with the depth of the hole written on it is placed in the core box at the end of each run. • At the core yard, the length of core in the core box is measured for each run. The measured length of core is subtracted from the length of the run as recorded from the stick-up measured at the rig to determine the core lost. • Core recoveries were done for individual samples. • Intersections were in hard rock and good recoveries are encountered through the mineralisation. **SAFTA:** • Core is carefully packed, marked and measured in order to determine core recoveries according to SOP. • Recoveries are recorded as part of the geological and sampling logs. • Core stick-ups reflecting the depth of the drill hole are recorded at the rig at the end of each core run. • A block with the depth of the hole written on it is placed in the core box at the end of each run. • Core recoveries were measured for each run. • The recent twin drill program recorded excellent recoveries, with an average of 98.1%. • Excellent recoveries are due to highly competent rocks and a low weathering profile. • Good recoveries are obtained within the mineralised zones and no sample bias occurred.

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.*	**Newmont and GFSA:** • All relevant intersections for surface holes have been logged by qualified geologists and all of this information is available. • No geotechnical information is available for the historic drill holes. • Core was not photographed. • Logs were recorded in the core yard on standard log sheets. • Quantitative estimates of sulphide mineralogy were done. • Core of the entire drill hole length was geologically logged and recorded on standardised log sheets by qualified geologists. • No air drilling was carried out. **SAFTA:** • RC drill hole chips and core were logged by experienced and qualified geologists. • All diamond core was logged, recorded and digitally captured. • Core was photographed. • Standard codes describing lithology, alteration, mineralisation and structure were applied. • Structural measurements were collected from orientated core for all but 2 drill holes completed. • A total of 13 twin holes were drilled resulting in approximately 1,260 percussion and 1,109 diamond core metres logged. • All the twinning holes were geotechnical logged (RQD). • Two holes were abandoned.
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.*	**Newmont:** • All sample data are available. • Whole core was used for assaying. • The entire sample length was submitted to the laboratory except for a 10cm piece of core retained as a reference. • Sample preparation was undertaken by the OCC Laboratory. • The retention of the 10cm length of core from each sample will not result in maximum representativity of samples. However, this methodology was employed for numerous prospects which were successfully mined. • No certified reference material, blanks or duplicates were inserted, however the OCC laboratory inserted in-house standard reference material with each batch. **GFSA:** • NQ core was cut at the core yard and half core taken as a sample.

Criteria	JORC Code explanation	Commentary
		• With core samples, the entire sample length is cut and sampled. • No CRMs, blanks or duplicates were inserted, however the OCC laboratory inserted in-house standard reference material with each batch. **SAFTA:** • The sampling method is considered appropriate for this type of mineralisation. • Mineralisation is generally massive to disseminated. • Field duplicates consisted of identical quartered core of initial sampling. • NQ Core was halved and quartered by diamond saw. • CRMs, blanks and field duplicates were inserted.
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 accuracy (i.e. lack of bias) and precision have been established.*	**Newmont and GFSA:** • No records exist for laboratory procedures for the OCC laboratory. • No geophysical tools, spectrometers or handheld XRF instruments were used. • No record is available on quality control methods. **SAFTA:** • No geophysical tools, spectrometers or handheld XRF instruments were used for grade determination. • Samples from the 2018 twin drilling program were analysed by the ISO17025 accredited ALS laboratory (**ALS**) in Johannesburg, South Africa. • Samples were crushed and pulverised to 85% passing <75µm. • Samples were analysed using the ME-OG62 4 Acid digestion method and finished by ICP-AES. • Assay precision is within 7-10% with a lower detection limit of 10ppm (0.001%) Cu. • The quality of assay data / results was monitored by insertion of approximately 5% CRMs, 5% Blanks and 5% field duplicates. • At least five different and applicable CRMs were used, two low grade (<1% Cu) and three medium grade (1% – 2% Cu). • A total of 422 samples were analysed, including 24 blanks, 21 CRMs, 17 duplicates, 15 coarse rejects and 11 pulp duplicates. • All but two CRM results were within the accepted two standard deviation limits. • The blanks performed exceptionally well, denoting a low level of contamination of sample preparation. • Field duplicates showed good correlation with only two samples slightly off the linear regression curve.

Criteria	JORC Code explanation	Commentary
		• Pulp duplicates (eleven in total, one from each hole) across the broad range of grades were renumbered and submitted to ALS and the same analytical method. A very good correlation was obtained. • 16 Reject samples were re-analysed by ALS, a good correlation was obtained. • Limited data swap and labelling errors were encountered and rectified. • Blanks, standards and duplicates comprised 15% of all field samples, the total QC samples comprised 21% of the entire 422 samples dispatched. **Flat Mine North (FMN):** • A total of 335 samples from 9 drill holes were submitted, including 17 CRMs, 17 blanks and 13 duplicates. **Flat Mine East (FME):** • No twin holes were drilled. **Flat Mine South (FMS):** • A total of 102 samples from 2 drill holes were submitted including 4 CRMs, 7 blanks and 4 duplicates.
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.*	**Newmont and GFSA:** • No records are available on the verification of data. • Exploration was managed by the OCC and GFSA exploration departments, consisting of qualified geologists. • No adjustments to assay data were reported. **SAFTA:** • 13 Twin drill holes were drilled, 10 at FMN and 3 at FMS. • Records of verification data/samples are available. • Verification samples were submitted to a second laboratory, namely Intertek, Australia. • A subset of approximately 5% of the total samples across the grade spectrum was submitted and analysed. • The 22 samples and one CRM were assays by the 4AO/OM method, i.e. 4 Acid digest and ICP-OES finish. • The verification samples showed excellent correlation with original ALS analyses.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	**Newmont and GFSA:** • Drill hole collars were surveyed by qualified surveyors and documented

Criteria	JORC Code explanation	Commentary
	• *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	in a Survey Logbook. • All surface and underground drill hole collars were surveyed by qualified surveyors using a theodolite. • The historic mine survey data is in the old national LO 17 Clarke 1880 system coordinate system. • Down-hole surveys were carried using an Eastman survey instrument and documented and filed. Plans and sections were meticulously plotted and signed off by a certified surveyor. **SAFTA:** • The 2018 twin drill hole collars were located using a differential GPS by a qualified surveyor. • The down-hole surveys of 4 holes of the drilling program were surveyed using the open hole magnetically compensated "Peewee" instrument. • The rest of the holes were surveyed by the non-magnetic "Devico" survey instrument by an independent survey company. • The WGS84 / Hartebeeshoek LO17 coordinate system was used for all the survey data of the project. • A drone derived topographic map (DTM) with 5m contours was used. • The coordinates and elevations of the collars are within reasonable margin of error and considered adequate for Mineral Resource estimation.
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.*	**Newmont and GFSA:** • Original exploration holes were drilled aiming to achieve a 60m by 30m spacing, considered appropriate for Mineral Resource estimation of this type of mineralisation. **SAFTA:** • No resource definition holes were drilled, twin holes were drilled at FMN and FMS to confirm and verify historical drilling and data. • Twin hole locations were selected based on historically drill data and accessibility. • 10 Holes were drilled at FMN and 3 at FMS, no twin holes were drilled at FME. • The historically 15m drill line spacing is considered to be applicable to geological and grade continuity of this type of mineralisation. • The twin holes, although limited, has provided a good degree of confidence of the grade distribution and geological model.

Criteria	JORC Code explanation	Commentary
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.*	**Newmont and GFSA:** • Historical drilling is generally 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 drill hole orientations. **SAFTA:** • The twinning drill holes were drilled from surface at inclinations ranging between -60° and -78°. • Generally, the mineralisation is steeply dipping to the north with some occasional flatter dipping mineralised bodies at FMN. • Drill intercepts range between 70 – 100% of the true widths and are considered to be representative and unbiased. • Only 2 holes had excessive lateral deviation and the intercepts not as perpendicular to strike and dip of the mineralisation as planned.
Sample security	• *The measures taken to ensure sample security.*	**Newmont and GFSA:** • No details of sample security are available. However, during the mining operations, the site was fenced and gated with security personnel employed as part of the staff. **SAFTA:** • Core and sampling storage was at a secure location. • Sample security and storage followed standard procedures. • Samples were properly bagged, tagged and sealed with cable ties. • Samples were handed over by the site geologist and shipped via couriers to the laboratories. • Laboratories received all samples in good order and no breaches where reported. • Records of chain of custody exist.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	**Newmont and GFSA:** • No audits and/or review records or documentation are available. **SAFTA:** • Drilling procedures, sample collection and preparation techniques were audited by external and independent consulting exploration and resource geologists. • Site visits were undertaken to review adherence to the SOPs.

Criteria	JORC Code explanation	Commentary
		• The drill hole database was reviewed. • QA and QC sample collection protocols where reviewed, interrogated and found to be adequate for inclusion of the data in the resource estimation.

Section 2 Reporting of Exploration Results

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

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 mineral rights to the properties are vested in the State and the Minerals and Petroleum Development Act, 2002, (MPRDA) regulates the exploration and mining industry in South Africa. **Newmont and GFSA:** • OCC and GFSA held vast areas under prospecting and mining rights, most of these have been relinquished. **ORION:** • A mining right, NC30/5/1/2/2/10150MR, in accordance with section 23 of the MPRDA; was granted to Southern African Tantalum Mining (Pty) Ltd (SAFTA) to mine for a period of fifteen years on 28 July 2022. • The right is for copper and tungsten ore for a portion of portion 3, a portion of portion 13, a portion of portion 14 and a portion of portion 21 of the farm Nababeep No 134 situated within the administrative district of Namaqualand. The total area measures 1,214Ha in extent. • A prospecting right application NC30/5/1/1/2/12850MR in accordance with section 16 of the MPRDA was submitted to the authorities for the same area as the mining right application for 5 years for 26 additional minerals including gold and silver. The application was accepted on 21 July 2021. • Orion acquired 53.6% of the project through the SAFTA-Orion Acquisition Agreement (refer ASX release 2 August 2021). The remaining 46.7% is held by the Industrial Development Corporation of South Africa (IDC). Applications for Section 11 consent to cede the rights to New Okiep Mining Company (Pty) Ltd (NOMC) are submitted once each right is granted and are in process. • The area was mined historically for copper.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	**Newmont and GFSA:** • Underground and especially surface geological mapping are of high quality and detail. • Historical data included in this resource estimation were generated by OCC and GFSA. • Later limited follow-up exploration was completed by Metorex. • It is evident that the historical data was collected via industry best practices and are considered suitable and acceptable for resource estimation.
Geology	• *Deposit type, geological setting and style of mineralisation.*	**O'Okiep Copper District (OCD):** • These Cu deposits are part of the well-known Namaqualand Metamorphic Complex which consists primarily of meta-volcanic sedimentary and intrusive rock types. • Copper mineralisation is primarily associated with irregular, elongated and steeply dipping Koperberg Suite mafic intrusives. • The Koperberg Suite intrusives are mainly restricted to so-called "Steep Structure" of extensive strike lengths and steeply dipping to the north. • The Koperberg Suite consists of anorthosite, diorite and norite intermediate rock types. • Mineralisation usually occurs as blebs to disseminated Cu mineral assemblages bornite > chalcopyrite > chalcocite and less pyrite and pyrrhotite. • The more mafic and magnetite-rich lithologies generally host the bulk of and higher grade mineralisation. • The OCD has a long exploration and mining history, and the geology is well known and understood.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  o *easting and northing of the drill hole collar*
	  o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole 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*
		Newmont and GFSA:
		• All historical grade and density information are incorporated in the database, and due to the large number of intersections made it is in the Competent Person view that it should not be included in this table.
		• Historically 483 holes were drilled totalling 127,278m, most are AQ except for NQ and BQ close to the collars.
		• All drill hole collars were surveyed.
		• Down-hole surveys are available for the majority of the historical GFSA holes, a few are missing at FMS.

Criteria	JORC Code explanation	Commentary
	explain why this is the case.	**SAFTA:** • 13 Twin holes and 2,370m were drilled in 2018. • Down hole surveys are available for 11 of the 13 twin holes. The other two holes were abandoned.
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.*	**Newmont and GFSA:** • Individual intersections were weighted by sample width. • Mineralised sample lengths were erratically standardised at 1.0m, 1.5m and 2.0m. • No truncations have been applied. **SAFTA:** • Individual intersections were weighted by sample width. • Mineralised sample lengths were standardised at 1.0m intervals within the mineralised zones with small variations allowing for lithological boundaries. • No truncations have been applied.
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 drill hole 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').*	**Newmont and GFSA:** • Historical drilling is generally oriented perpendicular, or at a maximum achievable angle to, the attitude of the mineralisation. • Generally, drill hole inclinations ranged between -55° to 80°. • For the shallower historical, the true widths are 70 to 100% of the down-hole intercepts, especially at the flatter dipping mineralised zones of FMN. • The deeper historical holes have more acute intercept angles since the mineralised zones are much steeper at depth. **SAFTA:** • For the shallower twin holes, the true widths are 70 to 100% of the down-hole intercepts, especially at the flatter dipping mineralised zones of FMN. • Down-hole lengths are reported.
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 drill hole collar locations and appropriate sectional views.*	• Numerous plans and cross-sections are available and were utilised during the geological and mineralisation modelling. • All historical data is available as hard copies and is currently being digitised and incorporated into a GIS system.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades*	• This resource estimation is based on all available and verified historical and 2018 twin drilling data.

Criteria	JORC Code explanation	Commentary
	and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Although limited, statistical comparisons of matching twin and historical holes indicates a close correlation. • Peer review of the geological modelling and resource estimation has found it to be a reasonable assessment of the mineralisation.
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.*	• Detailed surface maps and drill sections were extensively consulted and utilised in the understanding of geology and mineralisation. • Regional and detailed geophysical maps (magnetic) were also consulted. • Historical surface and down-hole geophysical work were executed to industry best practices.
Further work	*1. The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* *2. Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• More twinning of historical drill holes is needed in order to improve confidence in the historical data, especially at FME where no twinning has taken place. • Deeper mineralisation as well as en-echelon type mineralised lenses are potentially present and should be further investigated. **FMN:** • Closely spaced drilling is required to bridge the gap at the northern end of the southern body. **FME:** • Delineation drilling of higher grade lenses down plunge and up dip is required. • Gaps exist and in-fill drilling is required to establish continuity and delineate potential extensions and upgrade to Indicated Resources of higher confidence. **FMS:** • The deeper westerly portions require in-fill drilling as the current drill spacing is too wide. • Upgrading Inferred Resources to Indicated also requires additional in-fill drilling.

Section 3 Estimation and Reporting of Mineral Resources

(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.*	• Historical data has been digitally captured from hand-written documents, plans and sections. • All data are presented and stored in a MS Access database. • Integrity checks by the CP have found the database to be an accurate representation of the original data. • Data checking and corrections were also made in Datamine Studio 3.0TM, i.e. checking for overlaps, gaps, collar positions and erroneous surveys.
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.*	• A site visit was undertaken by the Competent Person in January 2023. • No major issues were observed which could have had a material impact.
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.*	• Geological interpretation was done based on drill hole sections. • Mineralisation is found to occur predominantly in most of the intermediate rock types also crossing lithological boundaries. • Mineralisation generally does not extend into the granitic and gneiss host rocks and the contact is usually sharp. • Due to the complex nature of these intrusive lithologies and different phases, ore envelopes based on grade were constructed. • Grade envelopes were constructed for FMN, FME and FMS using a minimum sample length weighted cut-off grade of 0.5% Cu. • The intermediate mineralised rocks are structurally controlled and pinching and swelling is a common feature, in both strike and dip.
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.*	**FMN:** • The mineralisation occurs as three mineralised bodies within a continuous mafic intrusive. • The southern and central bodies striking north-south for approximately 280m and 260m respectively, with a shallow dip of approximately 15° to the north. • There is a gap of approximately 80m between the northernmost limit of the southern body and the southernmost limit of the central body. • There is continuity of mineralisation between the central body and the northern body which is flat-lying with and has an east-west strike, which is typical for the O'Okiep Copper District (OCD), of 340m. • FMN extends from surface to a known maximum depth of 230m. • An existing decline is developed from the from the south to the southern

Criteria	JORC Code explanation	Commentary
		section of the central body. The decline is in extremely good condition indicating strong geotechnical conditions. **FMS:** • Mineralisation has an east-west strike length of approximately 580m. • The ore envelope is undulating but has a general steep dip of 75° towards the north. • The intermediate rocks containing the Cu mineralisation has an irregular continuous configuration. • The FMS mineralisation is typical for the OCD. **FME:** • Mineralisation at FME consists of two en-echelon "eastern bodies" with a strike of 560m and an average dip of 55° to the north-northwest. • The mineralised zones (medium to low grade) are concordant with the hosting steep structure and comprise of at least two to three, stacked lenticular bodies. • Higher grade (>5% Cu) "lenses" occur within these larger bodies and are considered an important component. • The strike lengths of these bodies range between 30m to 100m. • All mineralised bodies occur at sub surface, extending from 50m to 330m below surface. • A separate lower grade "western body" has a strike of 320m and a dip of 65° to the north-northwest. The FME western body extends from 100m below surface to 400m.
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.*	• Mineralised zones for all three deposits (FMN, FME & FMS) were delineated by creating interpreted strings along successive vertical sections using a 0.5% Cu cut-off grade. • Mineralisation often occurs as discrete mineralised lenses within a larger mafic body. Generally, individual lenses were grouped together to allow for correlation, interpretation and modelling of mineralisation between successive vertical sections and to create a viable mineralisation domain for resource estimation. • For the two FME main bodies, a "waste pillar" comprising lower grade lenses predominantly associated with granitic inclusions within the bodies was modelled for both of the main bodies. These waste pillars were treated as a separate domain for resource estimation. • No differentiation was made between the oxide and sulphide mineralisation as generally the oxide component is insignificant within the Flat Mines deposits.

Criteria	JORC Code explanation	Commentary
	• *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 drill hole data, and use of reconciliation data if available.*	**FMN:** • Samples were composited to 2m lengths. • Cu values were capped to selected thresholds using Parker methodology. Three samples were capped to 11.79% Cu. • A block model was created with dimensions 30m X by 30m Y by 8m Z, with no rotation. Sub-cell size was 1m by 1m by 1m. • Following a spatial analysis, the composite data were used to estimate the block grades using ordinary kriging (**OK**). • In order to reduce the impact of single drillholes, the semi-major search range was reduced from 17m (variogram range) to 8m, with a maximum of four samples per drillhole in four quadrants. Neighbourhood analysis resulted in an optimum search neighbourhood of 45m x 25m x 8m for local block estimation. • 72% of blocks (94% of the volume) were estimated by the first-pass. Blocks that were not estimated by the first-pass ordinary kriging were estimated using the first-pass estimates as input to a moving average with the search radii doubled. **FME:** • Samples were composited to 2m lengths. • Cu values were capped to selected thresholds using Parker methodology. For the eastern bodies, six samples were capped to 11.62% Cu, while for the western body one sample was capped to 2.16% Cu. • A block model was created with dimensions 30m X by 8m Y by 30m Z. The block model was first rotated by -20° around the Z axis and then by -38° around the X axis. Sub-cell size was 1m by 1m by 1m. • Following a spatial analysis, the composite data were used to estimate the block grades using ordinary kriging (OK) for the eastern bodies. For the western body where there is a lower sample density and no clear spatial relationship between samples. • For the eastern bodies, neighbourhood analysis resulted in an optimum search neighbourhood of 100m x 5m for local block estimation, corresponding to the variogram range. The second-pass estimates were calculated from the pass 1 OK estimates using a moving average technique with the search radii doubled. 93% of blocks were estimated by the first-pass, with the remaining blocks estimated by the second-pass. For the waste pillars the length weighted average grade was applied. • For the western body where there is a lower sample density and no clear

Criteria	JORC Code explanation	Commentary
		spatial relationship between samples. Local block estimation using OK was not feasible and an inverse distance weighting (to a power of two) (IDW^2) approach was utilised instead. The FME Cu% ranges of 100m x 100m x 5.8m were applied. The IDW^2 estimate resulted in 60% of blocks being estimated in the first-pass. The second-pass was populated using a moving average with the first-pass estimates as the input data. **FMS:** • Samples were composited to 1.5m lengths. • Cu values were assessed for capping using Parker methodology. No capping for Cu was necessary. • A block model was created with dimensions 30m X by 6m Y by 30m Z, with a rotation of -10° around the X axis. Sub-cell size was 1m by 1m by 1m. • Following a spatial analysis, the composite data were used to estimate the block grades using ordinary kriging (OK). • Neighbourhood analysis resulted in an optimum search neighbourhood of 70m x 70 x 5.5m (corresponding to the variogram range) for local block estimation. The second-pass estimates were calculated from the pass 1 OK estimates using a moving average technique with the search radii increased. 54% of blocks were estimated by the first-pass, with the remaining blocks estimated by the subsequent passes.
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 calculated, and the core was naturally dried when logged and sampled. The estimated tonnages are therefore based on a natural basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A cut-off of 0.7% Cu was used for the Mineral Resource Statement that corresponds with reasonable prospects of economic extraction using today's economics. This is based on the break-even grade resulting from the financial model used for the 2021 Scoping Study.

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.*	• All tonnages reported are dry. • FMN is the only deposit with existing mining infra-structure, i.e. a 100m deep decline, ore drives and mined stopes. • Mining is planned to consist of historically proven access declines, drill drives and ore access and draw points. • The development method is considered to be based on drill-and-blast executed with trackless mobile equipment. • The stoping method to be used is considered to be Vertical Crater Retreat or long-hole stoping, both methods historically successfully implemented.
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.*	**SAFTA:** • Although the mineralogy is relatively consistent throughout the licence area, only samples from FMN were available for metallurgical test work by SAFTA. • A laboratory scale locked cycle test was conducted by Maelgwyn Metallurgical Laboratory. • Samples were ground to 80% passing 75 microns in order to generate a grade versus recovery grade. • A recovery of 96% was achieved with a concentrate grade of over 21% Cu. • Tailings grade was 0.15% Cu. • Calculations indicate that over the life of mine concentrates with a grade in excess of 25% Cu with a Cu recovery between 84 to 88% are achievable. **ORION:** • Ore sorting testwork was carried out using RADOS technology on SAFTA twin hole core from FMN and FMS. • Work is ongoing but results showed significant benefits to XRF sorting of the ore.
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*	• The mining site (deposits) is located within a relatively non-ecologically sensitive location. • A number of potential sites were investigated for waste rock and tailings as part of the minimisation of the operational footprint. • Mining operations will be underground limiting rehabilitation and decommissioning. • Already spoilt areas will be used for siting of new infra-structure. • Existing access roads will be used during the operations. • Finer material will be pumped to the Tailings Storage Facility (TSF) to be

Criteria	JORC Code explanation	Commentary
	should be reported with an explanation of the environmental assumptions made.	established on existing old evaporation pans close by.
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.*	• Bulk density (**B.D.**) data is available for both historical and twinning drill core. • The B.D. data was acquired using the Archimedes method by weighing drill core in air and water, a practical method considered appropriate for this competent rock types. • For FMN there was a good spread of density measurements through the deposit with a total of 549 data points. For FMS there are 79 density measurements, but these are restricted to the shallower holes in the deposit. For FME eastern bodies there are no recorded density measurements with 43 measurements in the FME western body. **FME:** • With no B.D. measurements in the main eastern bodies, density values were assigned to logged lithologies based on density statistics from FMN where host lithologies are similar. • No capping was applied to the B.D. values assumed for FME main or western bodies. • For eastern bodies block density was calculated using IDW^2 technique (using the density values assumed from logged lithology). • The orientation and range of the search neighbourhood was defined by the Cu % models, i.e. a search range of 100m x 100m x 5.8m orientated in the plane of the orebody as defined by the experimental variography for the FME Cu % analysis. A second-pass was done from using first-pass block estimates and a moving average with the search radii doubled. • For the western body, the same search neighbourhood was used for IDW^2 as for the eastern bodies. A second-pass was done from using first-pass block estimates and a moving average with the search radii doubled. **FMN:** • For FMN density outliers, higher values were capped to 3.17t/m3, while lower values were capped up to 2.53 t/m3. • For FMN, OK was applied with a search neighbourhood of 45m x 23m x 11m. The first-pass resulted in 53% of the blocks estimated. A second-pass using first-pass estimates as input data using moving average with the search radii doubled populated the remainder of the blocks.

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		FMS: • B.D. measurements are restricted to the upper part of the body. No capping was applied to density values for FMS. • Due to insufficient data IDW² was used using FMS Cu% variogram ranges in the plane of mineralisation. The first-pass estimated only 10% of the parent blocks. The first-pass estimates were used as input to a moving average to inform the remainder of the blocks.
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.*	• Resource classification incorporated the confidence in the quality of the drill hole data, data distribution, geological and grade continuity and consideration of reasonable expectation for eventual economic extraction. • The resources are classified as Measured, Indicated and Inferred. Cognisance was taken of the potential uncertainties related to mineralised envelope delineation and therefore the associated volume estimation, as well as that this resource estimation is based on historical data. • The geological models are considered by the Competent Person to be defined to an acceptable level. • It is considered by the Competent Person that there is sufficiently accurate data to produce local block estimates using OK in all areas apart from FME western body where IDW² estimation was employed. For FME western body and other areas where there is a limited number of samples, resources are defined as Inferred. • Although there is a moderate level of uncertainty associated with the estimation of densities at FME and FMS, the common lithologies associated with the mineralisation have a relatively narrow range of density values. • In most parts of the deposits there are sufficient data for reasonably accurate local block estimates of grade (FMN 72%; FME 93%; FMS 54% of blocks populated by first-pass kriging). The kriging performance parameters, e.g. slope of regression, together with an assessment of the areas of blocks that were populated by first-pass kriging, were utilised to make a distinction between the Measured, Indicated and Inferred levels of confidence. • Twin and some infill drilling will be required to increase the confidence and upgrade the Inferred Resources. The results conform to the view of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Mineral Resource estimate has been internally audited by Orion. No external audit has been carried out to date.

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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 geological and mineralisation model, geological and grade continuity has been demonstrated to an acceptable confidence level in order to support the mineral categories classification. • Various statistical and geostatistical methods were applied to quantify relative accuracy of the resource estimation. • Final estimates for all variables in three deposits were validated by comparing the mean composite grades to the mean estimate grades. The data for Cu with the first-pass and final estimates are within 5% of the composites mean. • 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. • The only deposit with historical production is FMN. Full detailed production information is not available but partial records show that approximately 84,000 tonnes was mined at a grade of 1.5% Cu between October 1995 and June 1998. Additional mining took place in the early 2000's and survey plans of old stopes in conjunction with the block model indicate that approximately 180,000 tonnes at 1.4% Cu has been mined in total from FMN.