Orion Minerals

ASX/JSE RELEASE: 15 October 2018

Completion of extensive Deep Sulphide drill-out, paves way for updated Resource at Prieska Zinc-Copper Project

- **Prieska Deep Sulphide Project drill-out program completed on schedule.**
- **Excellent safety record maintained over duration of the program.**
- **85,424 metres drilled since May 2017 with up to 18 surface diamond drill rigs.**
- **87 intersections completed to in-fill and twin historical drilling; 15 intersections for metallurgical sampling.**
- **Updated Mineral Resource scheduled for mid-December 2018 to underpin Bankable Feasibility Study.**
- **High priority target areas identified for follow-up drilling to target extensions to intersected mineralisation.**

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

"The completion of this major drilling program is a huge achievement and a really important milestone for Orion on our journey to become a substantial new base metal producer in South Africa.

The program, which has at times involved up to 18 surface rigs working around the clock over the past 18 months, has been a huge endeavour. I am very proud of the professional and efficient manner in which our exceptional geological team and contractors have executed the drilling program while maintaining an outstanding safety and environmental performance throughout.

The program was mainly designed to in-fill the mineralisation within the February 2018 mineral resource footprint with the objective of achieving an upgrade in resource confidence to feed into our Bankable Feasibility Study. The updated resource is now scheduled for mid-December 2018 and the BFS is on track for release in Q2 2019. Importantly, the drilling has also identified very promising possible extensions to the current resource which will be drill tested in coming months to continue probing areas with potential to expand the resource while we complete the BFS."

Orion Minerals Limited (**ASX/JSE: ORN**) (**Orion** or the **Company**) is pleased to announce that it has successfully completed an 85,424m infill and extension drilling program at its Prieska Zinc-Copper Project (**Prieska Project**), located in the Areachap Belt in South Africa's Northern Cape Province.

The infill drilling program was primarily designed to increase sample density for the Deep Sulphide Mineral Resource, with the objective of upgrading the Inferred Resource reported previously (refer ASX release 9 April 2018) as the foundation for the ongoing Bankable Feasibility Study (**BFS**) due for completion early next year.

With as many as 18 surface diamond drill rigs in operation on the project at the peak of the program, Orion is pleased to announce that, with more than 475,000 hours spent on the project since May 2017, only one lost time injury was reported which was fully investigated, and the appropriate remedial action taken.

The drilling program consisted of 41 mother holes and 61 deflections (wedge holes) for a total of 85,424m drilled, with the objective of upgrading the confidence level in the current Deep Sulphide Inferred Resource of 27.8 Mt

grading 3.92% Zn and 1.22% Cu on the Repli Prospecting Right (**Repli**) and Vardocube Prospecting Right (**Vardocube**) (Figure 1) (refer ASX release of 9 April 2018).

As part of the ongoing BFS, the 2017 – 2018 drill program was designed to twin and infill historical drilling to achieve an average 60m intersection spacing. The program was successful in confirming excellent continuity of the massive sulphide zinc-copper mineralisation while also identifying areas where the Resource remains open down-dip and along strike with potential to add significantly to the current Resource.

All core samples were submitted to ALS Chemex Laboratories in Johannesburg for analysis. The Deep Sulphide Mineral Resource (refer ASX releases 8 February 2018 and 9 April 2018) will be updated once all assay results are returned and quality control performance criteria satisfied. The Mineral Resource update is expected to be completed by mid-December 2018.

Ten new intersections for the Deep Sulphide Target (one from Repli and nine from Vardocube) are reported here (Figures 1 to 5 and Table 1).

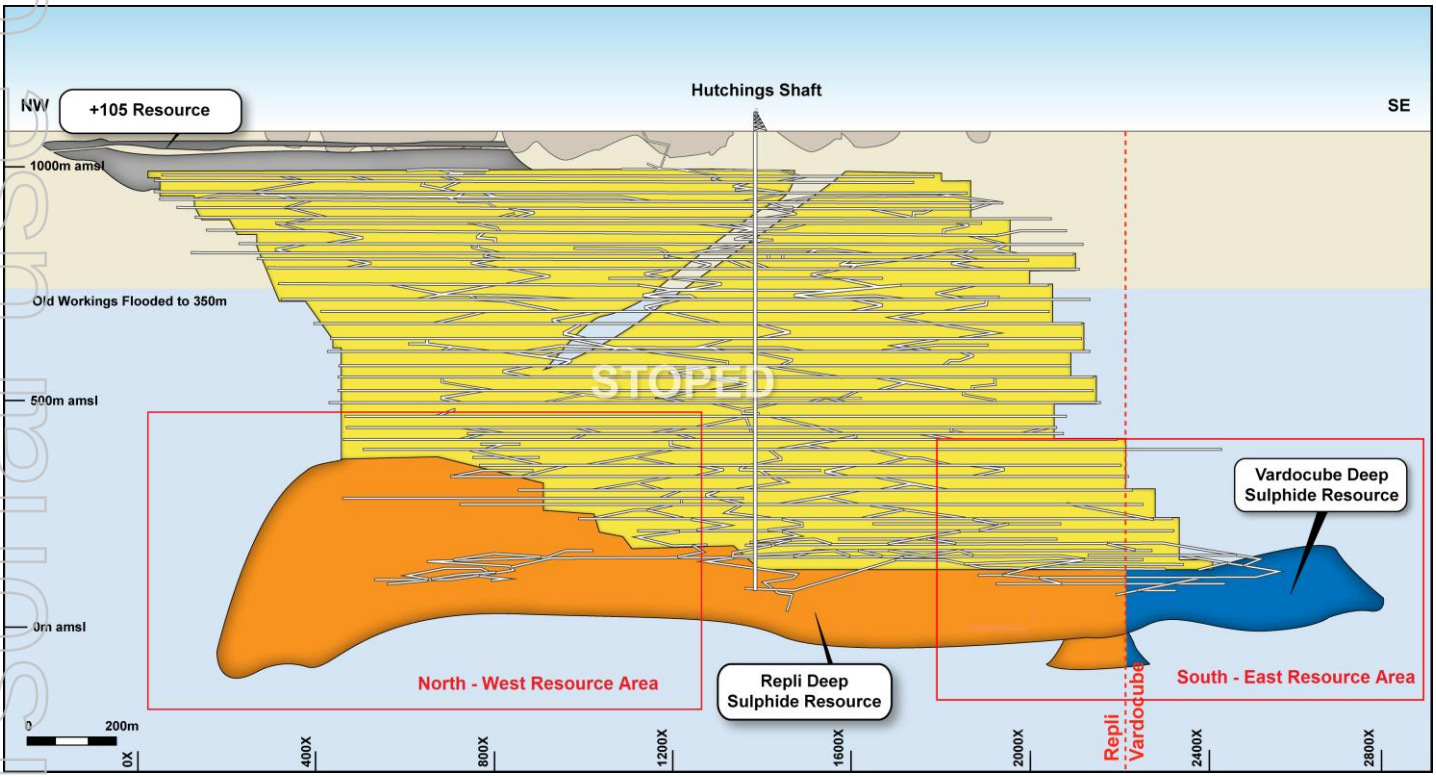


Figure 1: Longitudinal projection of the Prieska Project showing the Repli and Vardocube areas. The areas blocked in red are enlarged in Figures 2 and 4 and show the intersection points of the drill holes reported in this release.

North West Resource Area

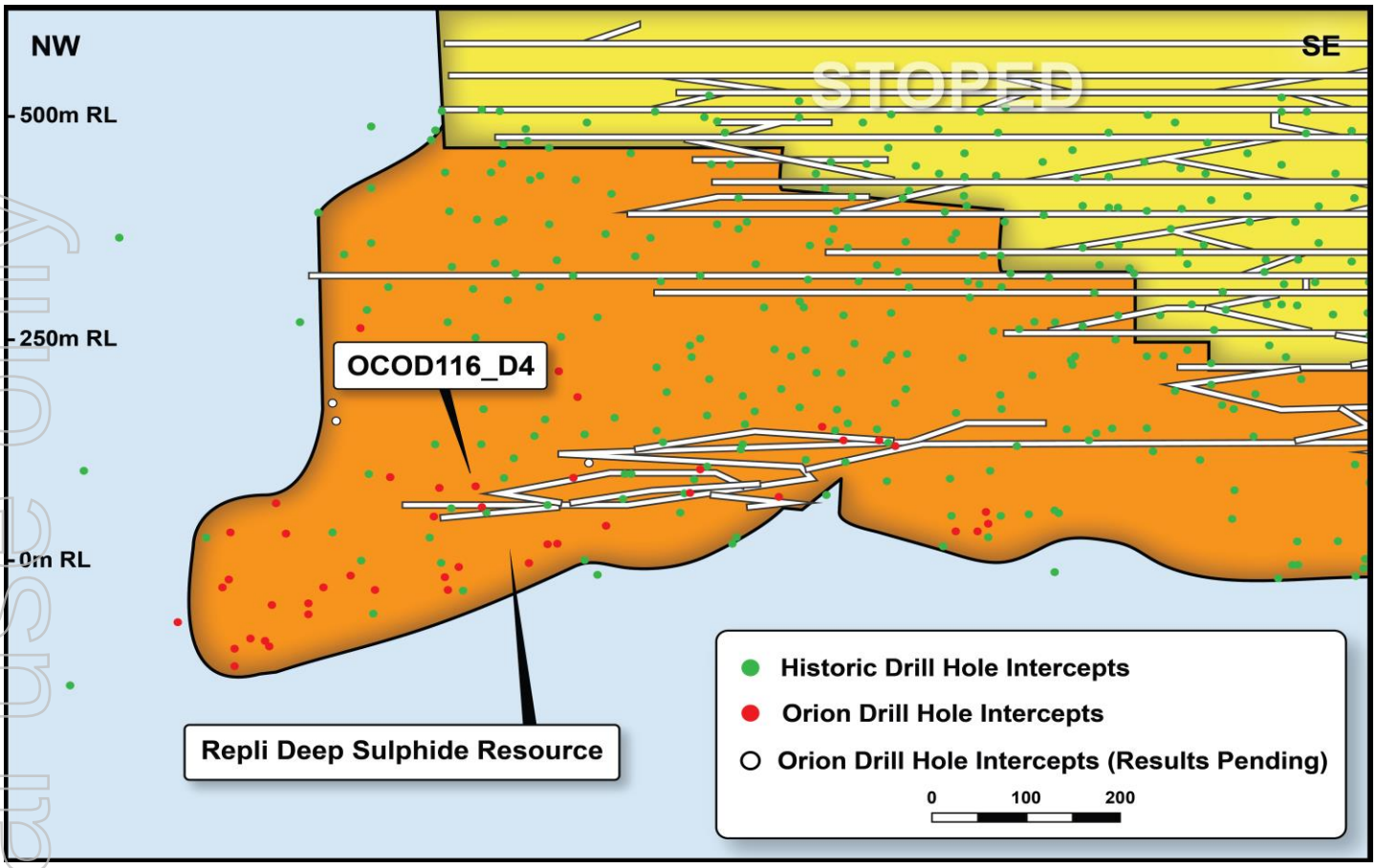


Figure 2: Longitudinal projection of the North-West Resource area of the Prieska Project, showing drill hole OCOD116_D4 intersection point reported in this release.

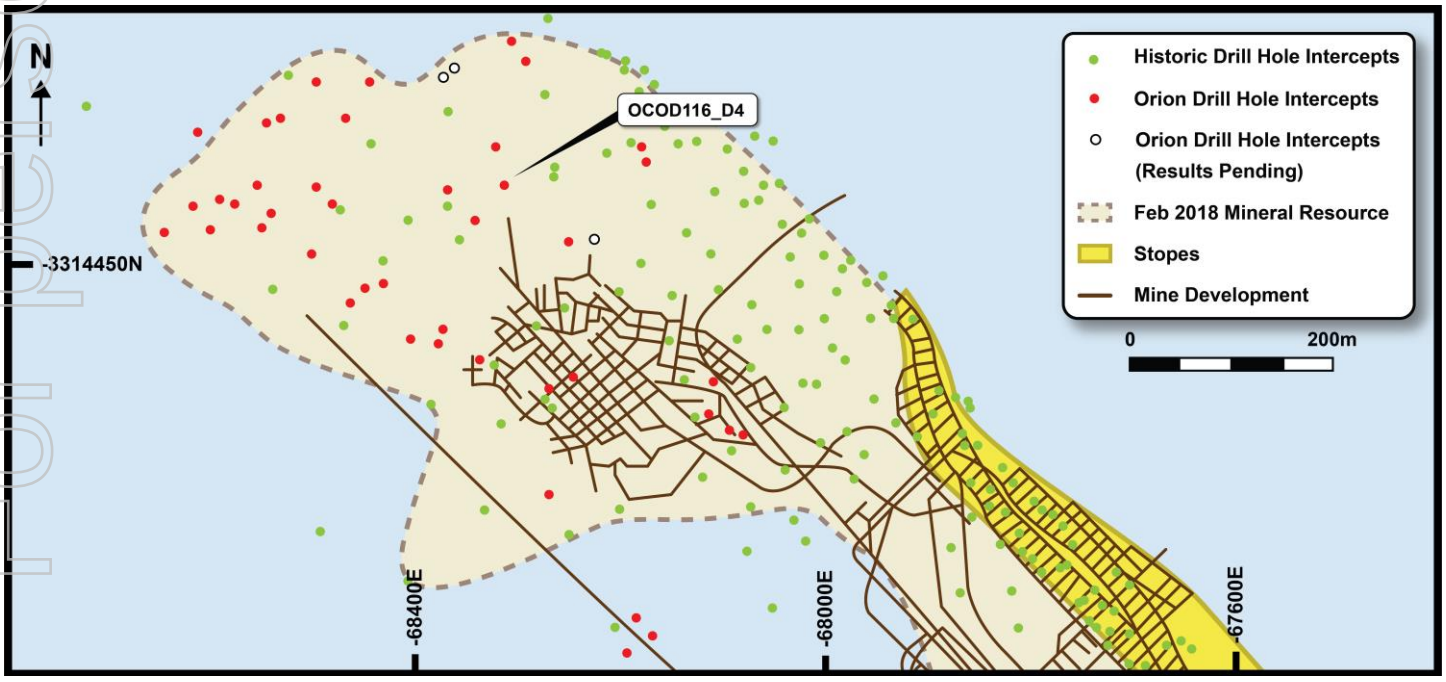


Figure 3: Plan of the North-West Resource outline of the Prieska Project, showing drill hole OCOD116_D4 reported in this release.

South East Resource Area

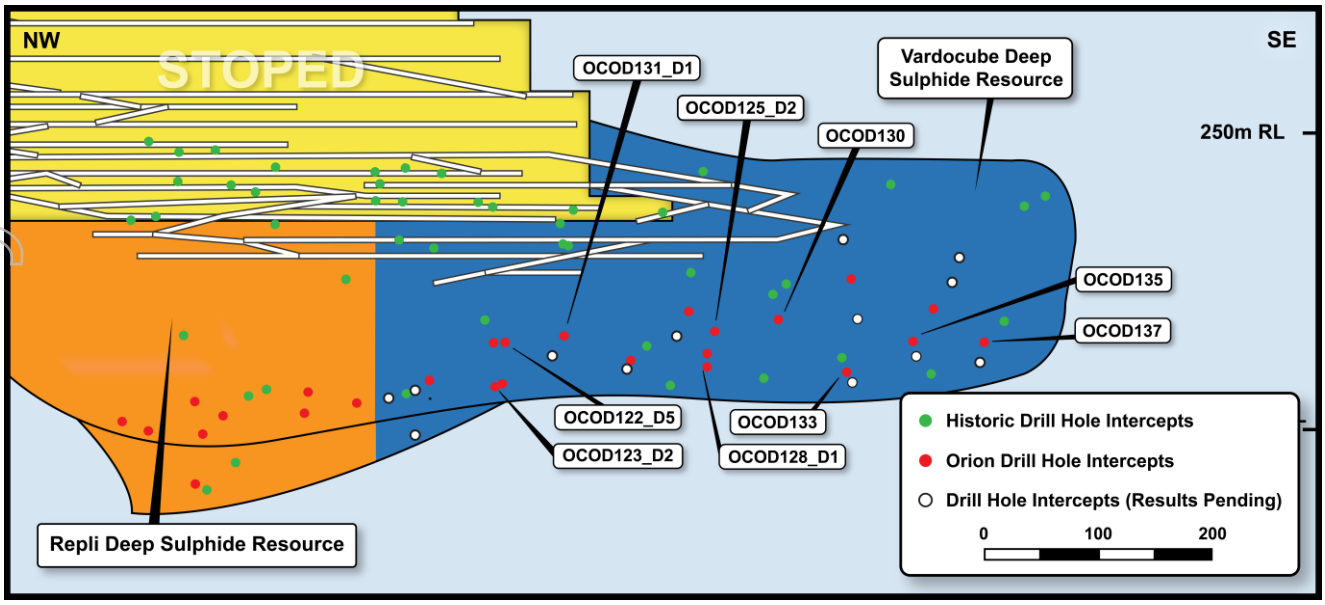


Figure 4: Longitudinal projection of the South-East Resource area of the Prieska Project, showing the Orion drill hole intersection points reported in this release.

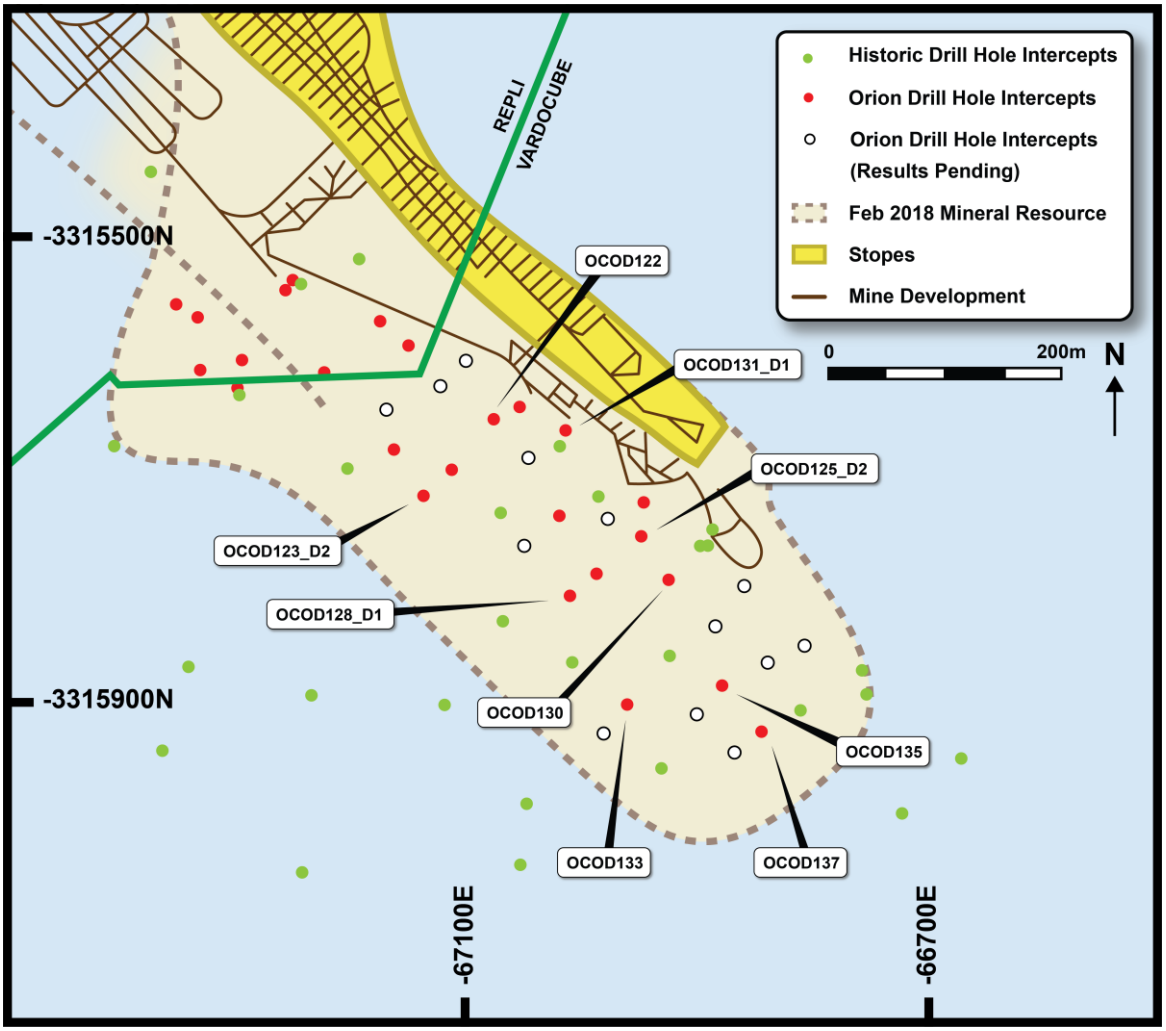


Figure 5: Plan of the South-East Resource outline of the Prieska Project, showing Orion drill hole intersection points reported in this release.

Details of previous intersections from surface drilling at the Deep Sulphide Target have been reported in the ASX releases of 18 September 2018, 16 July 2018, 19 February 2018, 1 February 2018, 12 December 2017, 8 November 2017, 9 October 2017, 5 October 2017, 17 September 2017, 6 September 2017, 27 July 2017 and 17 July 2017. Historical drilling results were reported in the ASX press releases of 16 July 2018 and 18 November 2015. Details of the latest (previously unreported) intersections are presented in Table 1.

Several targets have been identified in the South Eastern resource area for priority follow-up drilling with potential to increase the resource outline. These include a high-grade duplicate massive sulphide horizon which has now been shown to have a large footprint and remains open along strike to the north. This horizon is now identified as a priority drill target for expanding the Resource base at the Prieska Project (Figures 6 and 7).

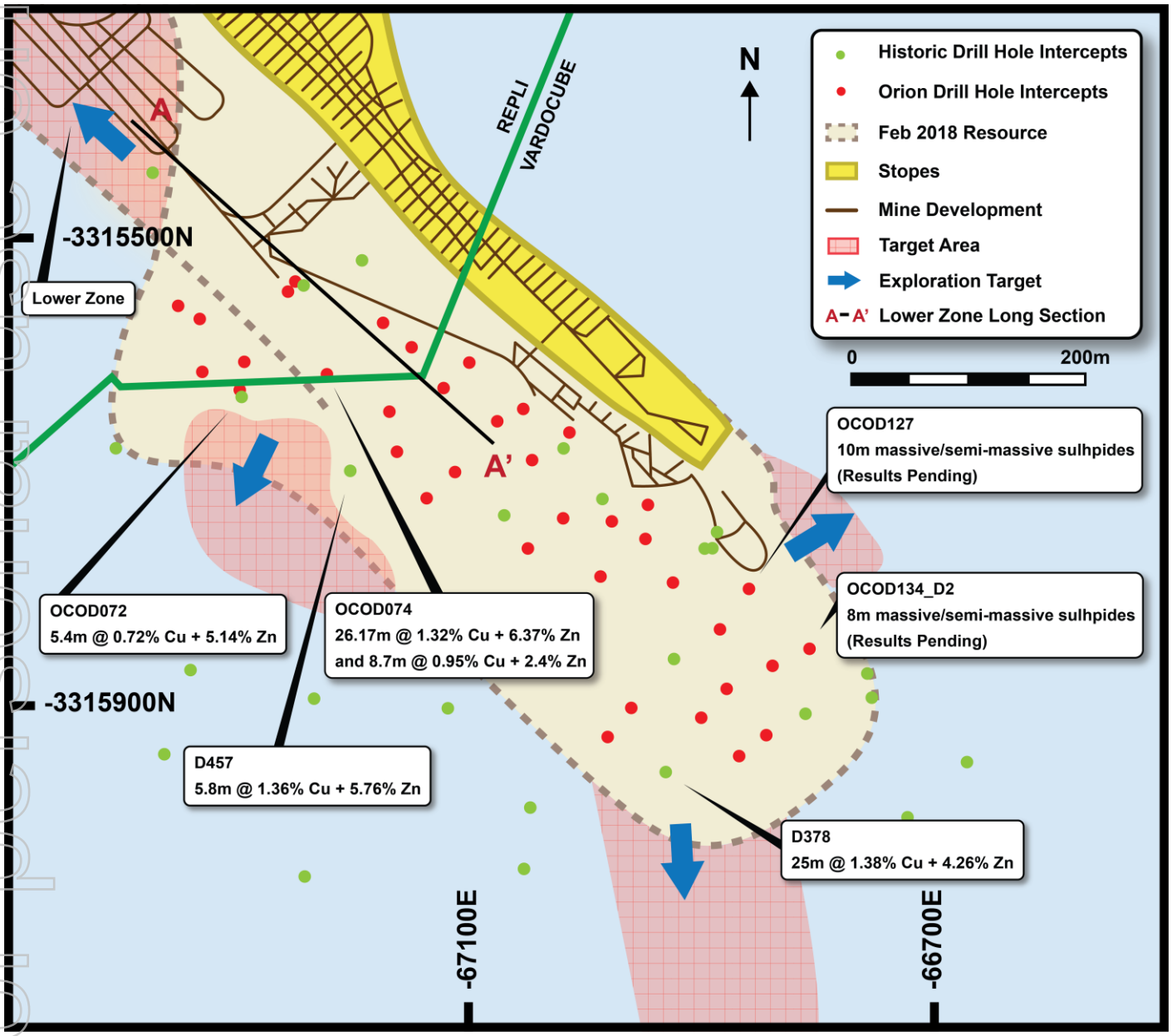


Figure 6: Plan of the South-East Resource outline at the Prieska Project, showing areas for priority drilling to extend resource.

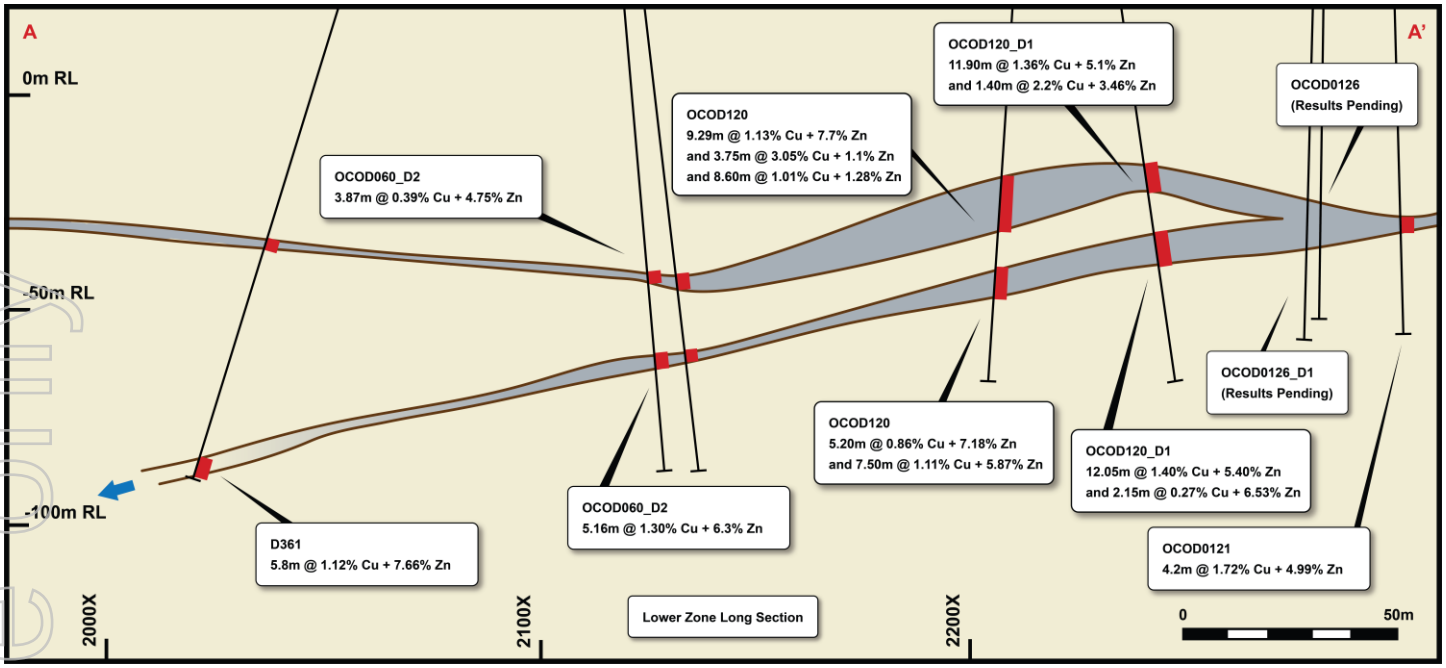
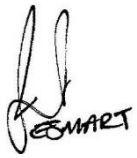


Figure 7: Section showing the lower ore horizon of the South-East Resource area (refer section line A-A' in Figure 6).

Table 1: New intersections from Deep Sulphide Target drilling at the Prieska Project in this release.

Drill hole	East (WGS84 LO23)	North (WGS84 LO23)	From (m)	To (m)	Length (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
Repli									
OCOD116_D4	-68,313	-3,314,367	1021.91	1027.58	5.67	0.67	2.74	0.18	8
Vardocube									
OCOD122_D5	-67,048	-3,315,642	1065.00	1068.52	3.52	0.60	3.73	0.18	7
OCOD123_D2	-67,133	-3,315,720	1096.70	1100.28	3.58	1.90	5.38	0.30	17
OCOD125_D2	-67,048	-3,315,642	1074.22	1076.80	2.58	0.50	2.58	0.11	6
OCOD128_D1	-67,005	-3,315,809	1089.00	1090.00	1.00	2.62	2.79	0.78	30
OCOD130	-66,919	-3,315,793	1060.30	1062.30	2.00	0.50	3.36	0.11	14
OCOD131_D1	-67,012	-3,315,665	1054.75	1065.00	10.25	1.03	3.84	0.23	16
OCOD133	-66,956	-3,315,902	1086.00	1088.08	2.08	1.41	5.13	0.39	12
	-66,956	-3,315,902	1111.34	1112.35	1.01	2.00	2.66	0.14	17
OCOD135	-66,874	-3,315,886	1071.50	1076.10	4.60	0.42	5.49	0.40	17
OCOD137	-66,842	-3,315,927	1065.95	1069.00	3.05	0.72	1.92	0.16	6

1. Drilling was conducted by means of long mother-holes (>1000m) and deflections therefrom. Azimuths and inclinations change significantly from the collar to the intersection points. Coordinates of the mid-point of the intersection are presented in the table above.
2. All intersections quoted are based on a minimum width of 1.0m and lower cut-off grades of 0.3% copper or 0.5% zinc. No top-cut has been applied.
3. The quoted average grades are length and density weighted (Appendix 1).
4. All intercept lengths are down-the-hole lengths.



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Competent Person's Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr JE Potgieter (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 Potgieter is a full-time employee of Orion. Mr Potgieter 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 Potgieter consents to the inclusion in this announcement 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 conjunction with Competent Person Statements in this release (where applicable). To the maximum extent permitted by law, Orion and any of its related bodies corporate and affiliates and their officers, employees, agents, associates and advisers:

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- disclaim all responsibility and liability for these forward-looking statements (including, without limitation, liability for negligence).

Appendix 1: The following tables are provided in accordance with the JORC Code (2012) for the reporting of Exploration Results for Prieska 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 has been undertaken during three distinct periods since the discovery of mineralisation. These are pre-mine exploration (1968-1971) and during mine operations (1972-1984) holes ("V", "D", and "F" prefixed holes) by Anglovaal Ltd (also known as the Anglovaal Group, "Anglovaal"), and current drilling (2017 to present) by 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 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 exploration and 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 200m – 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 used are available. Orion: • Diamond core is cut at the core yard and half core is taken as the sample. • The core is sampled at 1m intervals where possible with sample lengths adjusted to ensure samples do not cross geological boundaries or other features.

Criteria	JORC Code explanation	Commentary
		• Drilling at the Deep Sulphide Target was carried out with the aim of defining an approximate 60m x 60m pattern by use of "mother" holes and deflections therefrom. • Mineralised zones are drilled using core drilling. • Sampling is 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**) are pulverised in its entirety at ALS and split to obtain a 0.2g sample for digestion and analysis.
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 record on core orientation. Orion: • Diamond core drilling using NQ and BQ sized core. BQ core was only drilled where problems were encountered in the original NQ drilled drill hole and the drilling could not continue with NQ size. • In the near-surface weathered zone HQ core was drilled. • Pre-collar 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 are documented on the assay sheets. Core recoveries were measured for each "run". • 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 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 recovery in all the mineralised intersections are good.

Criteria	JORC Code explanation	Commentary
		• No grade variation with recovery was noted.
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 have been geologically logged by qualified geologists and all of this information is available. It is understood from historical reports and discussions with Anglovaal geologists involved with the Prieska Mine that all intersections for D and F holes were logged by qualified geologists. The detail logs are currently not 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 are logged by qualified geologists on 1m intervals using visual inspection of washed drill chips. A hand held XRF instrument is used to determine the presence of any metals. • Core of the entire hole length was geologically logged and recorded on standardised log sheets by qualified geologists. • Qualitative logging of colour, grain size, weathering, structural fabric, lithology, alteration type and sulphide mineralogy carried out. • Quantitative estimate of sulphide mineralogy. • Logs are 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 not available. • Although no formal QC samples were inserted by the geologists at the time of drilling the Anglovaal Research Laboratory produced their own standards, certified by other commercial laboratories which were routinely inserted into batches at the laboratory. Duplicate samples were also inserted to check for repeatability. Orion: • Samples from percussion pre-collars are collected by spear sampling. • Sampling on site aims to generate a < 2kg sub sample to enable the entire sample to be pulverised without further splitting. • Water is used in the dust depression process during percussion drilling, resulting in wet chip samples. • BQ and NQ core cut at core yard and half core taken as sample. • With core samples, the entire sample length is cut and sampled.

Criteria	JORC Code explanation	Commentary
		• Sample preparation is 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 75 microns. • CRMs, blanks and duplicates are inserted and analysed with each batch. Insertion rates for the current reporting is: CRMs = 10%, blanks = 5% and field duplicates = 2%.
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.*	Anglovaal: • Surface drill exploration samples were all sent to Anglovaal Research Laboratory at Rand Leases Mine. • Underground drill hole samples were sent to the mine laboratory, where the same analytical method was used. • Atomic Adsorption method was used with a Nitric-bromide digest. Underground drill hole 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 standards, certified by other commercial laboratories and those were used internally in the laboratory. Duplicate samples were also inserted to check for repeatability. Orion: • Samples submitted to ALS were analysed for base metals, Au and Ag. Analysis was by the Inductively Coupled Plasma and Optical Emission Spectroscopy ("ICP-OES") methodology, using a four-acid digest. • External quality control of the laboratory assays is monitored by the insertion of blanks and CRMs. • CRM samples show high accuracy and tight precision with no consistent bias. • Blank samples indicate no contamination, within the pre-determined thresholds, during the sample preparation process. • Laboratory samples show excellent accuracy and precision. • ALS has their own internal QC protocols which include CRMs (5%), blanks (2.5%) and duplicates (2.5%). • External laboratory checks have been carried out.
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*	Anglovaal: • No records available. Orion:

Criteria	JORC Code explanation	Commentary
	verification, data storage (physical and electronic) protocols. • *Discuss any adjustment to assay data.*	• The Competent Person is personally supervising the drilling and sampling along with a team of experienced geologists. • The Competent Person reviewed the calculation of the significant intersections. • Twin holes are drilled to verify historical drill intersections (Anglovaal). • For the EM survey, data are collected on site and validated by a geophysical technician daily. Data (raw and processed) is sent to a consultant geophysicist for review and quality control. • No adjustments have been made to the assay data.
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.* • *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 Lo23 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. 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 has been used to define transformation parameters from local grid to geographical coordinates. All hole positions have been converted to Lo23 WGS84 coordinates. Orion: • Drill hole collar positions are 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 are completed 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

Criteria	JORC Code explanation	Commentary
		1880 and in UTM WGS84 Zone 34 (Southern Hemisphere).
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 200m - 250m spacing. • Underground drilled holes (D, F and R) were not drilled on a regular spaced grid. Orion: • At the Deep Sulphide Target drill holes aim to intersect mineralisation on spacings sufficient to establish geological and grade continuity appropriate for Mineral Resource and Ore Reserve estimations. • Variography studies were carried out on both the historic and Orion data set to determine the drill spacing for Mineral Resource estimates. • No sample compositing was applied.
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.*	• Historical and current drilling is 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 orientations. • EM surveys by Orion were completed 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 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 is managed throughout, and the policy managed through an appropriate SOP. Samples are stored on site in a secure locked building and then freighted directly to the laboratory.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	Anglovaal: • No records available. Orion: • SRK Consulting has carried out a review on the sampling techniques and data.

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 Prospecting Rights are held by Repli Trading (Pty) Ltd and Vardocube (Pty) Ltd, which are subsidiaries of Orion. • The Prospecting Right areas covers a strike of 2460m for the Deep Sulphide mineralisation. • All of the required shaft infrastructure and lateral access underground development is available within the two Prospecting Rights.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• All exploration and life of mine drilling (V, D and F holes) was done by Anglovaal, resulting in a substantial amount of hard copy data from which Orion has been able to assess the prospectivity of the remaining mineralisation. • The Anglovaal exploration resulted in the delineation and development of a large mine.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Copperton deposit is a Volcanogenic Massive Sulphide (VMS) deposit which is situated in the southernmost exposures of the north-northwest 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 but smaller VMS deposits such as the Areachap, Boks Puts, Kantien Pan, Kielder, and Annex Vogelstruisbult deposits. • 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 is 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 mineralised zone outcrop has a strike of 2400m, 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 130° to the north. Current drilling indicates that the Deep Sulphides has a strike length of at least 2860m 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

Criteria	JORC Code explanation	Commentary
		of 1100m (as deep as 1228m in one section) after which it is upturned due to the folding. • The Deep Sulphide Target area located below the historical mined area, comprises the steep down dip continuity ("steep limb and hinge zone") and from where it upturns to its subsequent synformal structure ("trough zone"). • The morphology of the mineralised horizon in the eastern limb is well mapped out by drilling and historic mining while the western limb up dip extent is poorly tested and mapped.
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 explain why this is the case.*	• Drill hole collar coordinates, elevation, inclination and azimuth, down hole length, interception depth and hole length are available in Orion's geological database and are not all included in this release. • Only the significant mineralised intersections and the easting and northing of these mineralised intercepts are presented in this release.
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.*	• Significant Intersections for the Deep Sulphide Target are calculated by average of assays result > 0.3% copper or 0.5% zinc and weighted by the sample width and specific gravity of each sample. • Significant Intersections for the +105 Level Target are calculated by average of assays result > 0.3% copper or 0.5% zinc and weighted by the sample width of each sample only. • 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 at this stage for either Target.
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').*	• All intersection widths quoted are down hole widths. • Most holes intersected the mineralisation perpendicular or at high angle to the attitude of the mineralisation. • The geometry of the Deep Sulphide mineralisation is complex and true widths can only be obtained from the three-dimensional wireframe created of the mineralisation.

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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.*	• Appropriate diagrams (plan, cross section and long section) are shown in the release text.
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 to avoid misleading reporting of Exploration Results.*	• All drill hole results referred to in the release are listed in Table 1. All other drill holes have been detailed in previous releases as referred to in the text. • The Company has presented all available information in this report 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 maps are available for a range of other exploration data. This includes mine survey plans, geological maps, airborne magnetics, ground magnetics, electromagnetics, gravity and induced polarisation. All available exploration data has been viewed by the Competent Person. • The 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 copper and 1.01 Mt of zinc. Detailed production and metallurgical results are available for the life of the mine. • In addition, 1.76 Mt of pyrite concentrates and 8,403 t of lead concentrates as well as amounts of silver and gold were recovered. • Copper and zinc recoveries averaged 84.9% and 84.3% respectively during the life of the mine.
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.*	• Drilling is on-going to test extensions of the Deep Sulphide Target in areas where the mineralisation is not closed-off.