Orion Minerals

ASX/JSE RELEASE: 16 July 2018

Prieska Zinc-Copper Project Resource Drill-Out Progressing Well

- **Positive assay results received for another 13 intersections drilled by Orion.**
- **68 intersections, including 12 intersections drilled for metallurgical test work, have been completed in the Deep Sulphide Target since May 2017.**
- **79 additional historic drill holes have been captured and added to 251 historic intersections already included in the Prieska Zinc-Copper Project database.**
- **Drilling continues with 18 active diamond drill holes in the hinge zone of the North-West Target area and the south-east continuation of the Deep Massive Sulphide on the Vardocube Prospecting Right.**

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

"We continue to be pleased with the progress on the Prieska Project resource drill out. Feasibility work, including provisional mine development layouts are reaching advanced stages and await the final block model which will be finalised when drilling is completed. The block plans and mine layouts will then be fed into mine scheduling software to optimise the extraction plan and mine financial model. We are on track to complete the BFS in late 2018 or early in the new year."

Orion Minerals Limited (**ASX/JSE: ORN**) (**Orion** or the **Company**) is pleased to announce that the Mineral Resource drill-out at the Prieska Zinc-Copper Project (**Prieska Project**) is progressing well. Eighteen diamond drill rigs are currently deployed for infill drilling to increase sample density in the Deep Sulphide Mineral Resource, with the objective of achieving an updated Mineral Resource estimate, including upgrade in resource categories in Q4 2018.

Since drilling commenced in May 2017, Orion has completed 31 mother holes and 37 deflections into the Deep Sulphide Target (Figure 1). Analytical results for one mother intersection and one deflected intersection are awaited. Drilling is continuing with 12 mother holes and two deflected holes currently in progress on the Vardocube Prospecting Right, while one mother and three deflected holes continue to test the steep dipping area on the Repli Prospecting Right.

Thirteen newly reported intersections (Table 1) are consistent with previously reported intersections in the area of these intersections.

To date, 9,462m of percussion pre-collar and 57,696m of diamond drilling have been completed on the Deep Sulphide Target. Infill drilling is anticipated to be completed in Q4 2018.

In addition to the on-going infill drilling (Figures 1 and 4), Orion has also completed the digital capture and validation of drilling from historic mine records and has now included a further 79 drill intersections (Appendix 1) to add to the 251 historic intersections in the drill database. The newly captured intersections are concentrated in the up-dip extension of the area where Orion has targeted its deep drilling campaign since May 2017 and

brings the total number of drill intersections now available within the area of the Mineral Resource to 380. This is a significant increase to the 288 intersections available at the time the April 2018 Mineral Resource estimate (refer ASX release 9 April 2018).

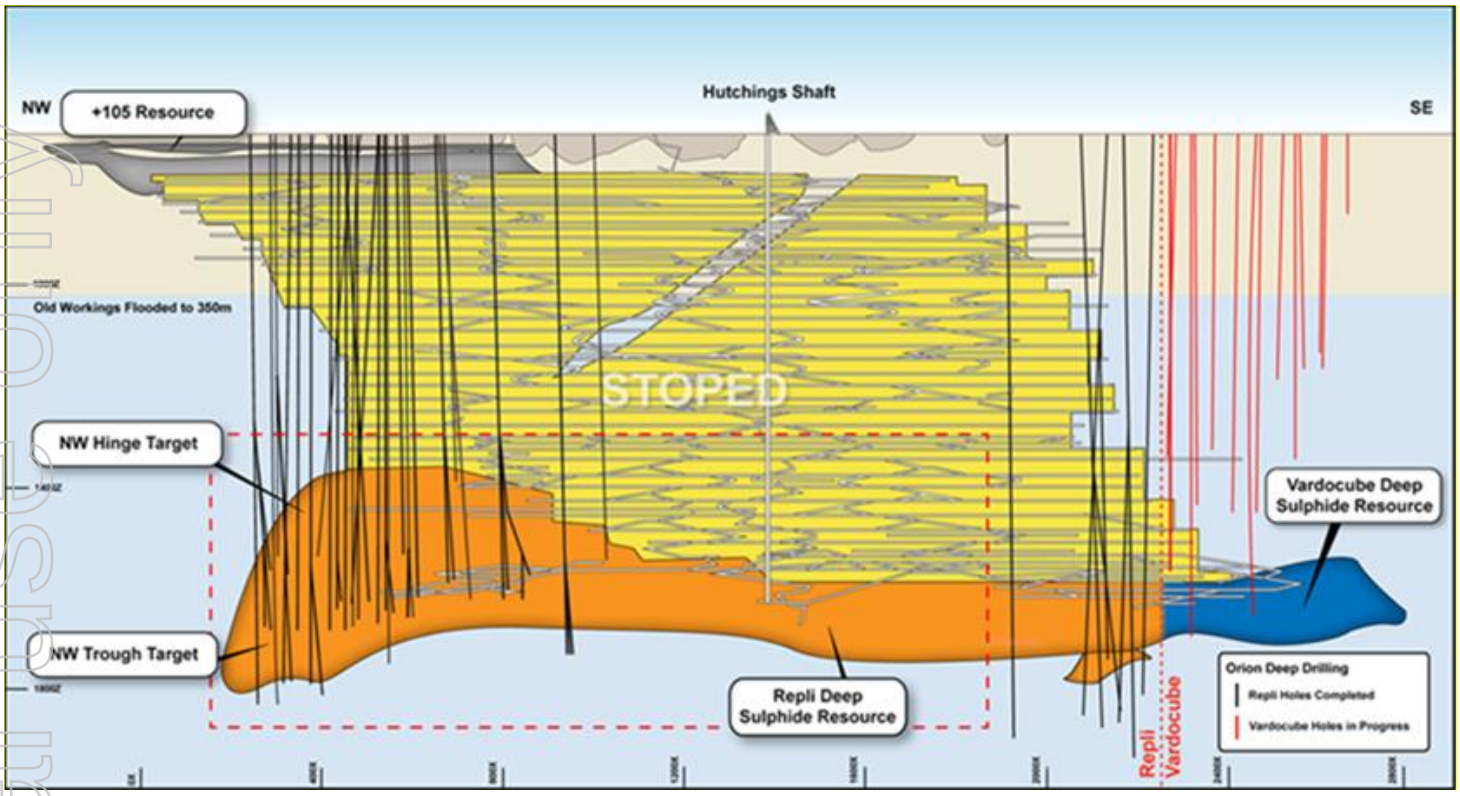


Figure 1: Longitudinal projection of the Prieska Project showing the Repli and Vardocube areas. The area blocked in red shows the intersection points of the drill holes reported in this release and is enlarged in Figure 2. The Vardocube drill holes in progress are shown in red traces.

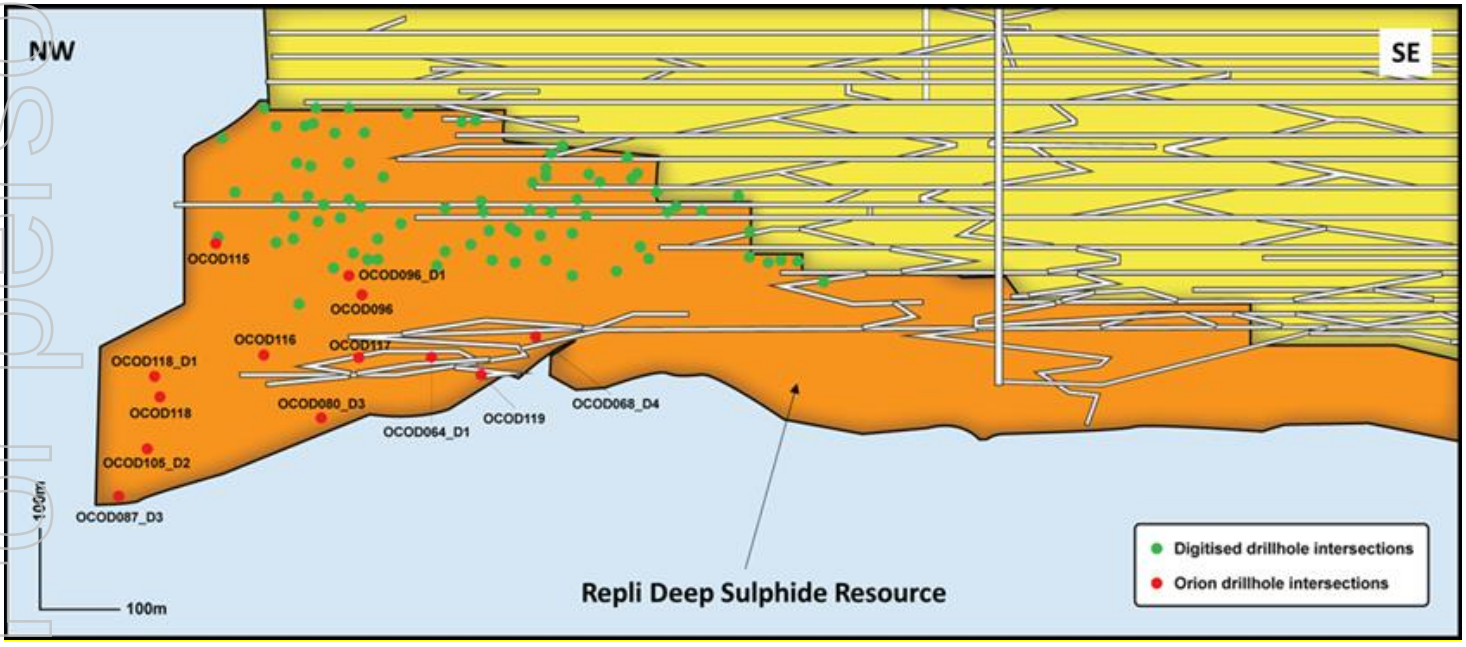


Figure 2: Longitudinal projection of the NW Target area of the Prieska Project, showing the additional drill hole information included in the Prieska Project database and the Orion drill holes reported in this release.

All significant intersections from surface drilling at the Deep Sulphide Target have been released in ASX releases of 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, with historical drilling detailed in ASX release

of 18 November 2015. Newly drilled significant intersections are included in Table 1. All intersections quoted for the Deep Sulphide Target are length and relative density weighted, following the procedure detailed in Appendix 2.

New drill intersections (Table 1) are consistent with historic drilling close to these intersections:

Drill hole	East (WGS84 LO23)	North (WGS84 LO23)	From (m)	To (m)	Length (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
OCOD064_D1	-68,270	-3,314,574	988.91	1003.45	14.54	0.56	1.06	0.12	4
OCOD068_D4	-68,094	-3,314,615	978.62	983.00	4.38	0.80	4.84	0.21	11
	-68,089	-3,314,614	994.00	1007.72	13.72	1.65	2.31	0.41	17
	including		997.00	1000.00	3.00	2.59	2.56	0.70	32
			1005.00	1007.72	2.72	3.35	4.08	0.83	24
OCOD080_D3	-68,405	-3,314,524	1056.70	1060.20	3.50	0.38	4.95	0.08	4
OCOD087_D3	-68,644	-3,314,422	1154.00	1154.75	0.75	0.26	4.33	0.05	4
OCOD096	-68,175	-3,314,354	968.69	974.09	5.40	0.66	2.01	0.09	6
OCOD096_D1	-68,178	-3,314,339	950.00	958.00	8.00	1.18	3.57	0.24	15
	Including		951.49	958.00	5.51	1.05	4.55	0.23	14
	-68,178	-3,314,343	944.20	948.00	3.80	0.81	1.89	0.11	8
OCOD105_D2	-68,555	-3,314,377	1088.62	1111.68	23.06	1.35	2.70	0.31	12
	including		1093.00	1097.39	4.39	0.68	4.45	0.09	21
			1097.39	1103.83	6.44	2.17	4.79	0.35	21
			1108.00	1111.68	3.68	2.00	1.74	0.43	15
OCOD115	-68,311	-3,314,241	890.50	893.00	2.50	3.08	2.97	0.27	26
	-68,307	-3,314,235	905.50	912.75	7.25	0.98	3.27	0.09	9
	-68,298	-3,314,224	936.00	937.60	1.60	0.43	1.79	0.05	3
OCOD116	-68,321	-3,314,338	1014.00	1017.30	3.30	0.85	1.67	0.18	6
	-68,319	-3,314,337	1024.00	1027.00	3.00	1.34	1.71	0.26	13
OCOD117	-68,252	-3,314,429	1000.00	1001.00	1.00	0.28	3.43	0.15	8
	-68,250	-3,314,429	1005.00	1006.67	1.67	1.45	2.81	0.97	9
	-68,250	-3,314,428	1012.00	1015.00	3.00	1.79	2.96	0.22	10
OCOD118	-68,469	-3,314,309	1040.60	1058.00	16.40	1.08	2.27	0.23	10
	Including		1040.60	1051.50	9.90	1.08	2.79	0.27	9
			1052.17	1058.50	5.83	1.18	1.53	0.16	11
OCOD118_D1	-68,444	-3,314,273	1031.70	1040.15	8.45	0.97	2.02	0.21	7
	Including		1034.70	1038.95	4.25	1.23	2.74	0.22	7
	-68,441	-3,314,271	1045.15	1046.40	1.25	1.09	1.37	0.25	15
OCOD119	-68,270	-3,314,675	1000.50	1002.71	2.21	0.55	4.48	0.11	8

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

Notes:

1. All drilling is with long holes (>1000m) and deflected long holes with both azimuth and dip changing materially from the collar to intersection. Therefore, coordinates of mid-point of sample intervals are presented in this table, instead of collar locations/dip-azi information.
2. All intersections quoted are based on a minimum width of 0.7m and lower cut-off grades of 0.3% copper or 0.5% zinc. (allowing for an 1m maximum internal intersection below the lower cut-off grades in each of OCOD064_D1, OCOD096, OCOD118_D1 and an 1m and 0,78m maximum internal intersection below the lower cut-off grades in OCOD105_D2). No top-cut has been applied to achieve the averages.
3. Quoted average grades are length and density weighted.
4. All intercept lengths are down-the-hole lengths and true widths are unknown.

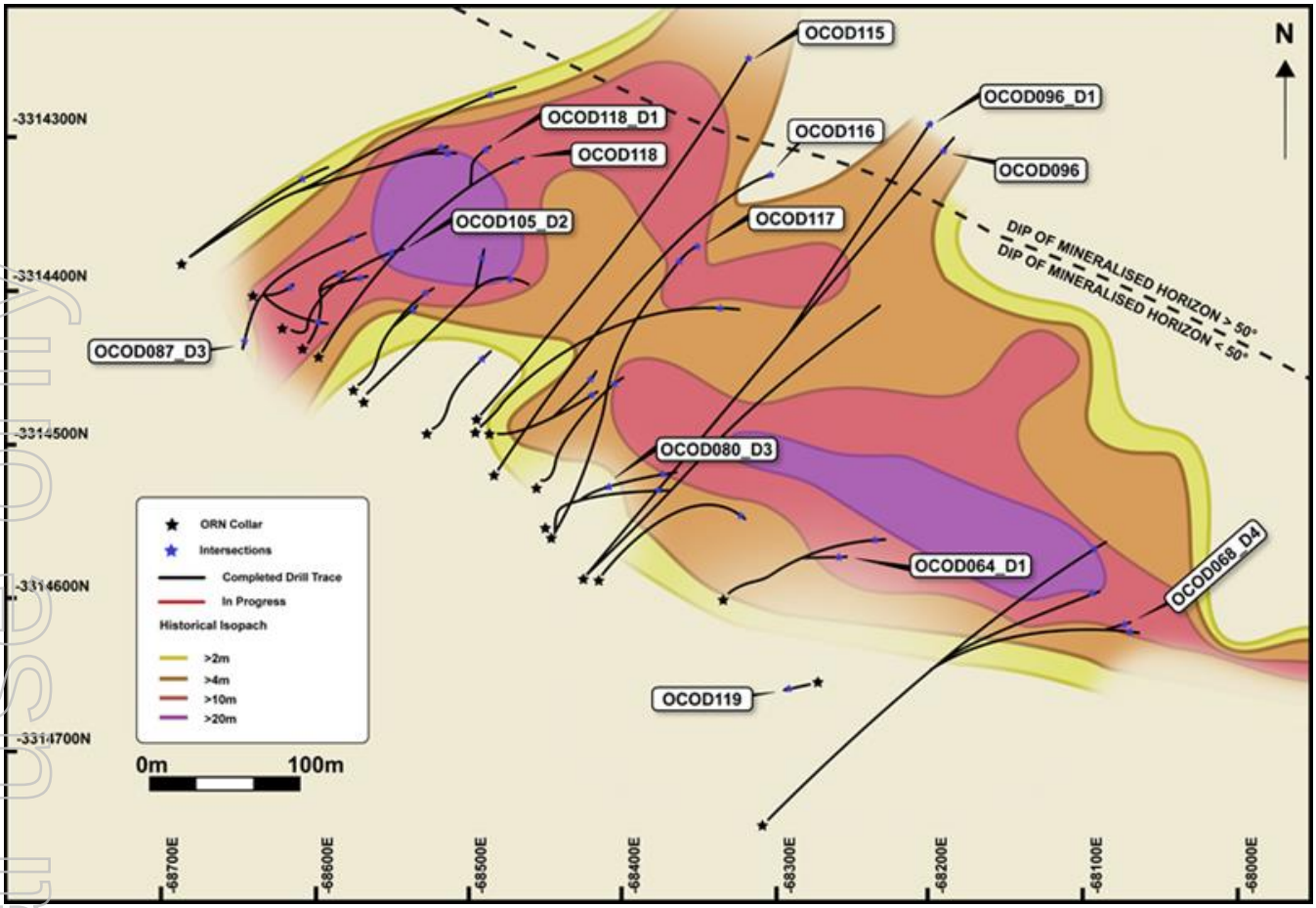
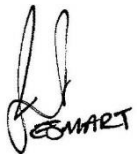


Figure 3: Plan showing drill hole collar positions in the NW Target area, with drill holes that have new intersections reported in this release and drill holes in progress shown as black stars and black drill traces. See Table 1 for details on intersections.

Figure 4: Drill rigs active on Vardocube Prospecting Right with historic Prieska Copper Mine shaft and waste dumps in the background.



Errol Smart
Managing Director and CEO

ENQUIRIES

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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 Overseas Professional Organisation (**ROPO**). 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.

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Appendix 1: Table of historical drill intersections from the NW Target area, added to the Prieska Project geological database and first reported in this announcement.

Drill hole	East (WGS84 LO23)	North (WGS84 LO23)	From (m)	To (m)	Length (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
D279	-68 282	-3 314 222	29.44	31.16	1.72	0.11	4.72	N/A	N/A
D286	-67 961	-3 314 580	21.39	22.96	1.57	0.48	2.08	N/A	N/A
D311	-68 139	-3 314 342	93.71	100.17	6.46	0.02	0.06	N/A	N/A
D312	-68 144	-3 314 301	48.06	57.97	9.91	1.67	4.97	N/A	N/A
D339	-67 995	-3 314 538	45.69	55.85	10.16	1.01	1.90	N/A	N/A
D340	-67 964	-3 314 504	31.80	38.30	6.50	0.87	4.24	N/A	N/A
F1092	-67 919	-3 314 577	12.76	14.37	1.61	4.01	1.46	N/A	N/A
F1413	-67 811	-3 314 684	47.40	54.03	6.63	1.85	1.38	N/A	N/A
F1414	-67 800	-3 314 693	71.46	94.82	23.36	2.12	1.50	N/A	N/A
F1442	-67 922	-3 314 595	59.31	62.35	3.04	0.56	5.00	N/A	N/A
F1488	-67 922	-3 314 506	79.59	90.79	11.20	2.20	3.75	N/A	N/A
F1517	-68 181	-3 314 282	55.25	74.52	19.27	0.89	5.33	N/A	N/A
F1527	-67 753	-3 314 716	72.29	80.60	8.31	0.11	0.10	N/A	N/A
F1534	-68 238	-3 314 251	53.61	65.91	12.30	0.81	1.30	N/A	N/A
F1542	-67 821	-3 314 658	69.15	72.90	3.75	0.17	0.98	N/A	N/A
F1555	-67 884	-3 314 584	97.49	129.47	31.98	0.96	4.02	N/A	N/A
F1571	-67 861	-3 314 620	17.04	70.23	53.19	1.11	3.24	N/A	N/A
F1579	-67 935	-3 314 566	44.62	52.08	7.46	0.95	3.39	N/A	N/A
F1580	-67 916	-3 314 556	55.61	67.30	11.69	2.46	3.17	N/A	N/A
F1584	-67 923	-3 314 569	34.11	58.88	24.77	1.34	3.35	N/A	N/A
F1587	-67 957	-3 314 459	38.32	46.10	7.78	0.97	1.76	N/A	N/A
F1588	-67 964	-3 314 456	28.87	34.00	5.13	2.16	3.82	N/A	N/A
F1590	-67 941	-3 314 489	29.04	34.65	5.61	0.14	1.71	N/A	N/A
F1606	-68 172	-3 314 263	39.76	52.92	13.16	2.44	3.54	N/A	N/A
F1610	-67 970	-3 314 471	54.42	55.57	1.15	0.25	3.19	N/A	N/A
F1611	-67 962	-3 314 457	40.60	43.27	2.67	0.04	0.66	N/A	N/A
F1616	-67 979	-3 314 447	42.10	50.66	8.56	0.75	3.61	N/A	N/A
F1617	-68 004	-3 314 446	53.23	58.17	4.94	0.95	2.54	N/A	N/A
F1619	-67 943	-3 314 504	46.53	48.55	2.02	0.39	1.88	N/A	N/A
F1654	-68 101	-3 314 342	60.17	62.36	2.19	0.65	0.74	N/A	N/A
F1658	-68 116	-3 314 299	18.47	22.99	4.52	0.61	3.83	N/A	N/A
F1668	-68 159	-3 314 298	40.60	46.46	5.86	0.76	3.72	N/A	N/A
F1669	-68 159	-3 314 321	70.55	78.04	7.49	1.20	5.51	N/A	N/A
F1672	-68 180	-3 314 310	61.06	66.57	5.51	1.45	1.01	N/A	N/A
F1673	-68 163	-3 314 297	35.39	40.35	4.96	0.63	3.79	N/A	N/A
F1675	-68 171	-3 314 282	72.29	74.94	2.65	1.67	3.67	N/A	N/A
F1687	-68 215	-3 314 246	36.02	39.76	3.74	1.14	2.77	N/A	N/A
F1689	-68 217	-3 314 253	29.72	36.29	6.57	1.69	2.89	N/A	N/A
F1690	-68 226	-3 314 258	28.70	30.75	2.05	0.57	2.78	N/A	N/A
F1695	-67 935	-3 314 504	11.11	22.18	11.07	2.02	3.70	N/A	N/A
F1709	-68 181	-3 314 278	27.31	29.40	2.09	1.10	5.44	N/A	N/A
F1711	-68 229	-3 314 302	34.80	36.95	2.15	0.27	2.32	N/A	N/A

Drill hole	East (WGS84 LO23)	North (WGS84 LO23)	From (m)	To (m)	Length (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
F1718	-68 188	-3 314 272	39.74	42.12	2.38	1.33	5.53	N/A	N/A
F1727	-68 022	-3 314 392	38.98	55.64	16.66	1.28	1.96	N/A	N/A
F1730	-68 083	-3 314 392	90.94	93.86	2.92	0.83	1.98	N/A	N/A
F1749	-68 007	-3 314 444	34.22	38.97	4.75	2.72	3.42	N/A	N/A
F1753	-68 025	-3 314 377	28.85	47.59	18.74	1.84	2.60	N/A	N/A
F1755	-68 049	-3 314 372	47.88	56.84	8.96	0.99	4.94	N/A	N/A
F1756	-68 082	-3 314 336	35.51	44.34	8.83	1.28	4.47	N/A	N/A
F1775	-67 778	-3 314 702	15.01	26.35	11.34	1.91	2.42	N/A	N/A
F1778	-68 102	-3 314 314	29.76	31.89	2.13	0.89	1.52	N/A	N/A
F1779	-68 130	-3 314 331	95.66	99.04	3.38	2.22	2.55	N/A	N/A
F1780	-68 192	-3 314 259	37.76	39.69	1.93	0.60	3.08	N/A	N/A
F1781	-68 178	-3 314 266	42.89	45.54	2.65	1.15	1.58	N/A	N/A
F1782	-68 199	-3 314 264	27.58	30.43	2.85	1.11	2.90	N/A	N/A
F1783	-68 207	-3 314 269	41.90	43.53	1.63	0.18	7.92	N/A	N/A
F1787	-68 267	-3 314 233	60.62	63.12	2.5	0.52	3.82	N/A	N/A
F1790	-68 181	-3 314 287	33.73	35.33	1.6	0.34	3.38	N/A	N/A
F1804	-67 848	-3 314 667	34.99	37.49	2.5	2.48	1.79	N/A	N/A
F1805	-67 826	-3 314 665	32.34	34.83	2.49	4.59	3.00	N/A	N/A
F1819	-67 876	-3 314 589	21.41	48.02	26.61	2.13	4.19	N/A	N/A
F1828	-67 995	-3 314 480	22.83	25.89	3.06	1.17	2.77	N/A	N/A
F1883	-68 140	-3 314 299	16.85	22.33	5.48	0.99	3.28	N/A	N/A
F1884	-68 141	-3 314 297	14.57	22.15	7.58	1.08	1.32	N/A	N/A
F1886	-68 147	-3 314 336	42.71	52.94	10.23	1.20	2.19	N/A	N/A
F1887	-68 131	-3 314 306	41.11	45.82	4.71	0.63	3.07	N/A	N/A
F1890	-68 069	-3 314 391	45.77	48.75	2.98	1.62	3.08	N/A	N/A
F1892	-68 020	-3 314 402	37.12	47.76	10.64	1.61	3.21	N/A	N/A
F1893	-68 050	-3 314 418	32.33	34.16	1.83	0.64	0.74	N/A	N/A
F1894	-68 028	-3 314 422	42.63	47.01	4.38	1.55	2.08	N/A	N/A
F1895	-68 031	-3 314 474	30.08	31.70	1.62	0.39	1.29	N/A	N/A
F1897	-68 004	-3 314 502	39.38	42.80	3.42	0.01	0.02	N/A	N/A
F1899	-67 967	-3 314 488	31.07	72.77	41.7	1.40	3.03	N/A	N/A
F1947	-68 044	-3 314 450	48.42	51.36	2.94	0.02	0.02	N/A	N/A
F1980	-67 895	-3 314 575	26.41	33.56	7.15	0.70	4.14	N/A	N/A
F1983	-67 978	-3 314 451	61.51	66.61	5.1	0.47	3.25	N/A	N/A
F2024	-68 022	-3 314 411	71.71	73.57	1.86	0.41	0.82	N/A	N/A
F2029	-67 992	-3 314 457	26.45	29.66	3.21	0.32	3.54	N/A	N/A
F2054	-68 303	-3 314 236	29.12	43.67	14.55	1.22	3.29	N/A	N/A

Notes:

1. Mineralised intersections were recorded in paper records and have now been digitised for these historic holes. Coordinates presented given are mid-points of intersections.
2. All intersections irrespective of a lower cut-off grade are included in the database are presented.
3. Quoted average grades are length and density weighted.
4. All intercept lengths are down-the-hole lengths and true widths are unknown.
5. N/A = Not analysed.

Appendix 2: Checklist and reference summary of criteria considered by the Competent Person in preparing the Public Report.

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. Orion: • Diamond core cut at core yard and half core taken as sample. • Diamond core sampled on 1m intervals where possible, sample lengths adjusted to ensure samples do not cross geological boundaries or other features. • Drilling at the Deep Sulphide Target was carried out, aiming to define an

Criteria	JORC Code explanation	Commentary
		approximate 100m x 100m pattern by use of "mother" holes and deflections from these holes. • Percussion / reverse circulation pre-collars (where used) sampled on a composite basis. • Mineralised zones are drilled using core drilling. • Sampling 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

Criteria	JORC Code explanation	Commentary
		lost. • Core recovery in all the mineralised intersections are good. • No grade variation with recovery 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 band 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 in 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,

Criteria	JORC Code explanation	Commentary
		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. • 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.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	Anglovaal: • No records available. Orion: • 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 Lo 23 Clarke 1880 coordinate system. • Downhole surveys were carried out for most of the V holes and all of the D and F holes. Methodology of the downhole surveys is not recorded on the available hardcopy information but plans and sections are meticulously plotted and signed off by a certified surveyor. • Both Eastman and Sperry Sun instruments were used in the downhole surveys. • Significant deflections in the dips of the holes have been noted, especially for the deeper holes. 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.

Criteria	JORC Code explanation	Commentary
		• 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 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 200 - 250 m 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. • Electromagnetic (**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.

Criteria	JORC Code explanation	Commentary
		Orion: • SRK 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

Criteria	JORC Code explanation	Commentary
		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 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 announcement. • Only the significant mineralised intersections and the easting and northing of these mineralised intercepts are presented in this announcement.
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.*	• 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

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	• *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').*	widths can be obtained from the three-dimensional wireframe created of the mineralisation.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Appropriate diagrams (plan, cross section and long section) are shown in the announcement 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 announcement, are listed in Table 1 and Appendix 1. All other drill holes have been detailed in previous announcements as referred to in the text.
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 8403 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 the Deep Sulphide Target.