Progress Update from the Prieska Zinc-Copper Project

Orion Minerals NL

ASX Code: ORN

Issued Capital:

Ordinary Shares: 792M

Options: 180M

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Highlights:

- **Strong on-ground momentum at Deep Sulphide Target drilling program with coring of first holes set to commence this week.**
- **Continued excellent results from +105 Level Target (open pit) including 11.53m at 3.23% Zn. 0.97% Cu and 0.22g/t Au.**
- **Geotechnical inspection of the historic shaft and decline continues with encouraging engineering reports.**

Orion Minerals NL (ASX: ORN) (Orion or the **Company)** is pleased to provide an update on activities at the **Prieska Zinc-Copper Project** in South Africa (**PC Project**). Orion completed the acquisition of the PC Project in March 2017 for an effective 73.33% interest and is in full compliance with South African Black Economic Empowerment legislation.

Orion is targeting dip and strike extensions to historical underground mining areas at the PC Project, with mineralisation having previously been delineated by extensive drilling and geophysics by previous owners.

Deep Sulphide Target drilling program

The Deep Sulphide Target is the down-dip extension to mineralisation previously mined at the Prieska Copper Mine (Figure 1), which is the cornerstone of Orion's development strategy.

The current program (refer ASX release 9 May 2017) is scoped to systematically test and confirm the extensive historical drilling (refer ASX release 18 November 2015) with the aim of underpinning a maiden JORC compliant mineral resource estimate.

Orion has generated strong on-ground momentum with the first two pre-collars completed and casing being set to enable coring to commence this week and two further pre collars are in progress.

+105 Level Target (Open Pit) results

The ongoing drilling program at the +105 Target is designed to confirm, in-fill and extend the historical drilling, targeting mineralisation that would be amenable to open pit mining (Figures 1 - 4).

Assays have been received from diamond drilling completed between January 2017 and March 2017. The holes were designed to test areas up-dip from historical mining areas (Figure 2).

Drill hole OCOD043 returned a strong intercept of **11.53m at 3.23% Zn, 0.97% Cu and 0.22g/t Au** from 189.22m down-hole (approximately 85m below surface), including a higher grade zone of **3.34m at 5.26% Zn, 1.51% Cu and 0.36g/t Au from 189.22m down-hole**.

This result is the furthest drill hole along the southeast strike that Orion has undertaken on the target and confirms the continuity and tenor of mineralisation at the +105 Level Target (Figures 2 and 4, Appendix 1).

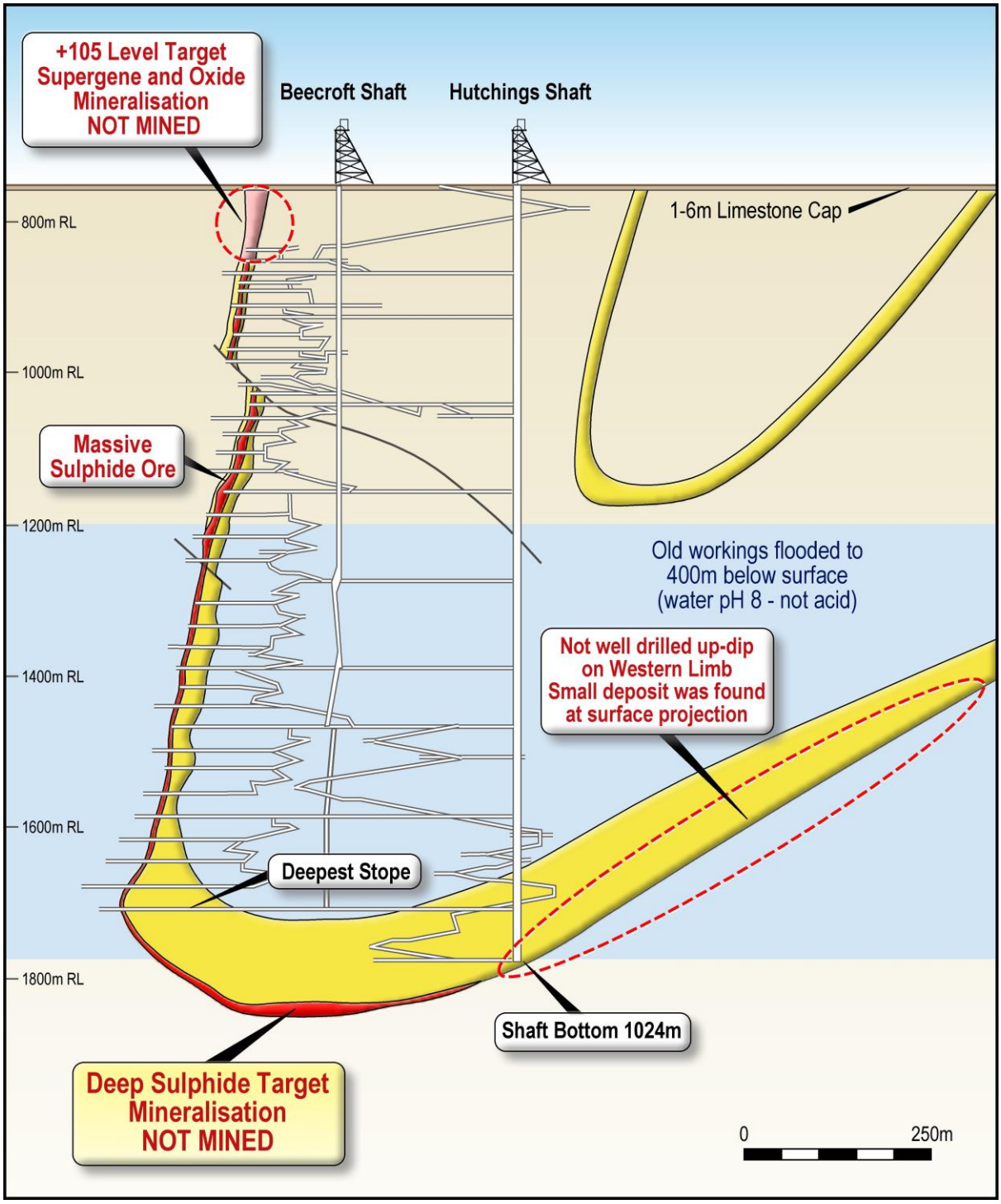

Figure 1: Section showing underground workings and mineralisation at the PC Project.

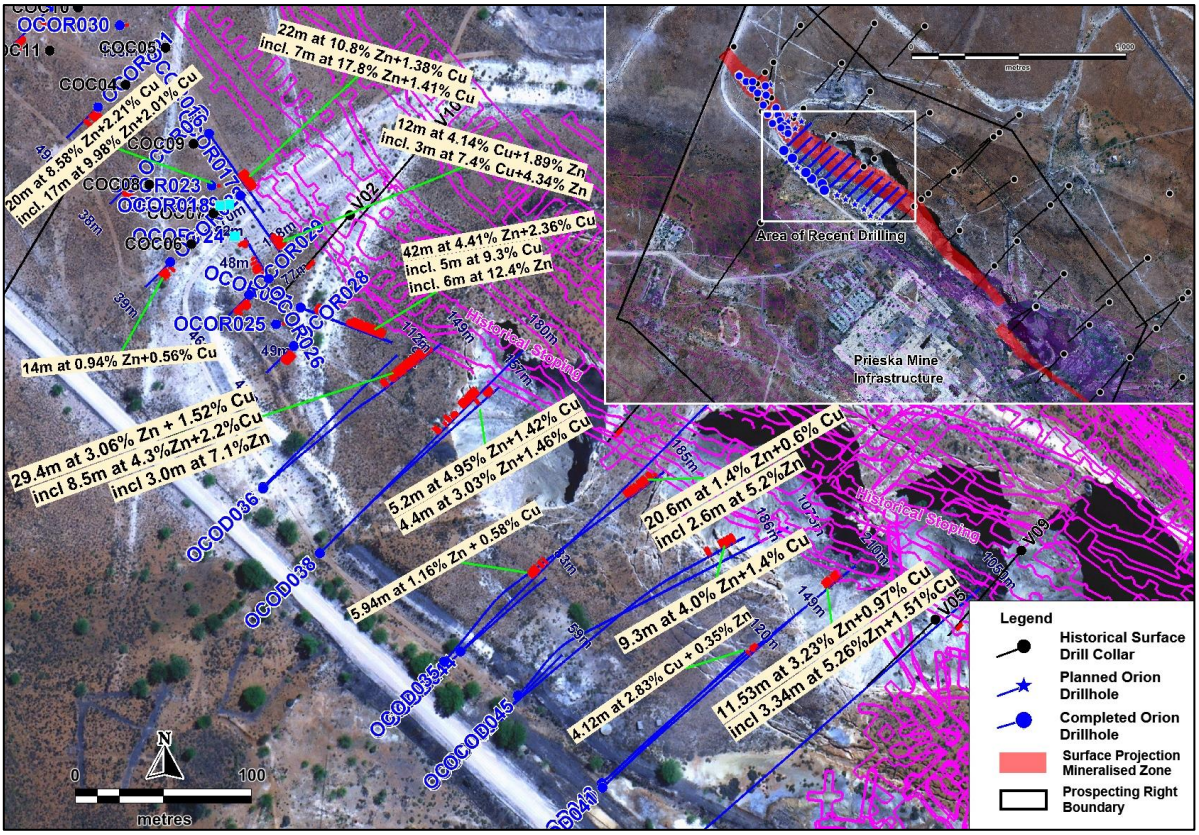

Figure 2: Plan showing the PC Project with completed, proposed and historical drilling at the +105 Level Target.

Drill holes OCOD040, 42 and 44 were drilled to confirm the up-dip limit of the supergene sulphide zone and intersected the leached/oxidised zone as expected. These holes are a key part of delineating the mineralisation zone for use in the estimation of a Mineral Resource (as defined in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**)).

Significant oxide intersections were returned from shallow levels in these holes, with OCOD040 intersecting a high grade copper zone **40m below surface** (**4.12m at 2.83% Cu and 0.35% Zn** from 119.48m downhole) and OCOD044 intersecting **5.94m at 1.16% Zn and 0.58% Cu from 59.56m downhole (equivalent to 20m below surface)**.

All significant intersections are tabulated in Appendix 1, including those stated in the ASX releases of 25 July 2016, 22 August 2016, 14 September 2016, 2 November 2016, 7 December 2016 and 16 December 2016 with best results including:

- **22m at 10.8% Zn, 1.38% Cu and 0.3g/t Au from 57m, including: 7m at 17.8% Zn and 1.41% Cu (OCOR016);**
- **20m at 8.58% Zn, 2.21% Cu and 0.3g/t Au from 48m, including: 17m at 9.98% Zn and 2.01% Cu (OCOR023);**
- **42m at 4.41% Zn, 2.36% Cu and 0.42g/t Au from 55m, including: 5m at 9.28% Cu from 55m & 6m at 12.4% Zn from 75m (OCOR027);**
- **9.3m at 4.0% Zn, 1.4% Cu, 0.13g/t Au and 9.0g/t Ag from 170m (OCOD033);**
- **29.4m at 3.06% Zn + 1.52% Cu, 0.36g/t Au and 9.0g/t Ag from 112.6m, including:**

8.5m at 4.33% Zn + 2.17% Cu from 115m and 3m at 7.13% Zn from 139m (OCOD036);

- **12m at 4.14% Cu, 1.89% Zn and 0.29g/t Au from 57m, including: 3m at 7.4% Cu and 4.34% Zn (OCOR017);**
- **11.53m at 3.23% Zn, 0.97% Cu, and 0.22g/t Au from 189.22m, including: 3.34m at 5.26% Zn, 1.51% Cu and 0.36g/t Au (OCOD043); and**
- **20.6m at 1.36% Zn, 0.63% Cu, and 0.1g/t Au from 156.1m, including: 2.6m at 5.2% Zn (OCOD035).**

The drilling of the +105 Level Target has tested mineralisation both to the north-west of the area affected by sinkholes and also in the south-eastern area, where the mineralisation is impacted by mining related subsidence or sinkholes, making drilling problematic.

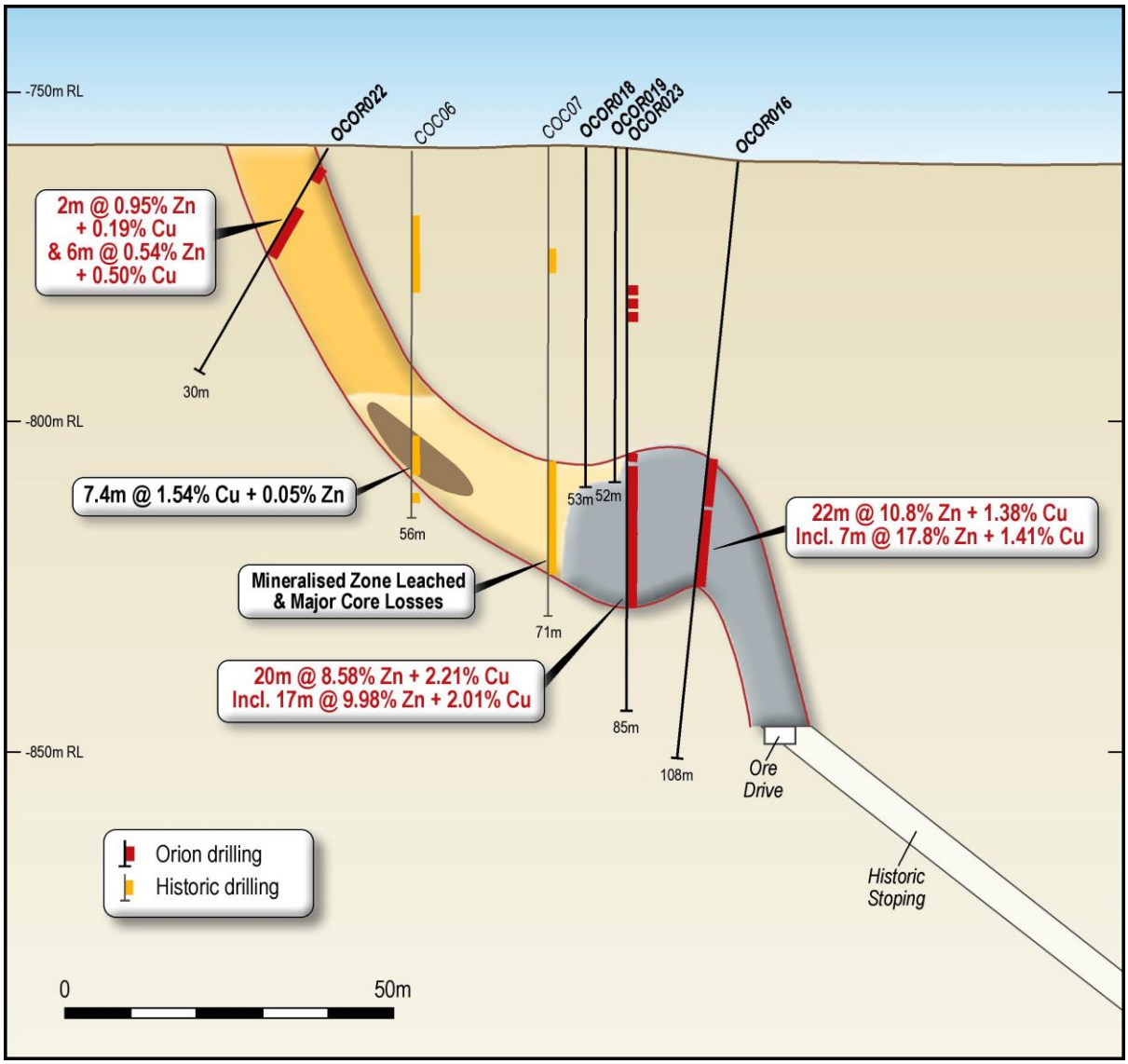

Figure 3: Cross section through the +105 Level Target showing previous drill results from Orion drilling together with historical results in the area to the north-west of the sinkholes.

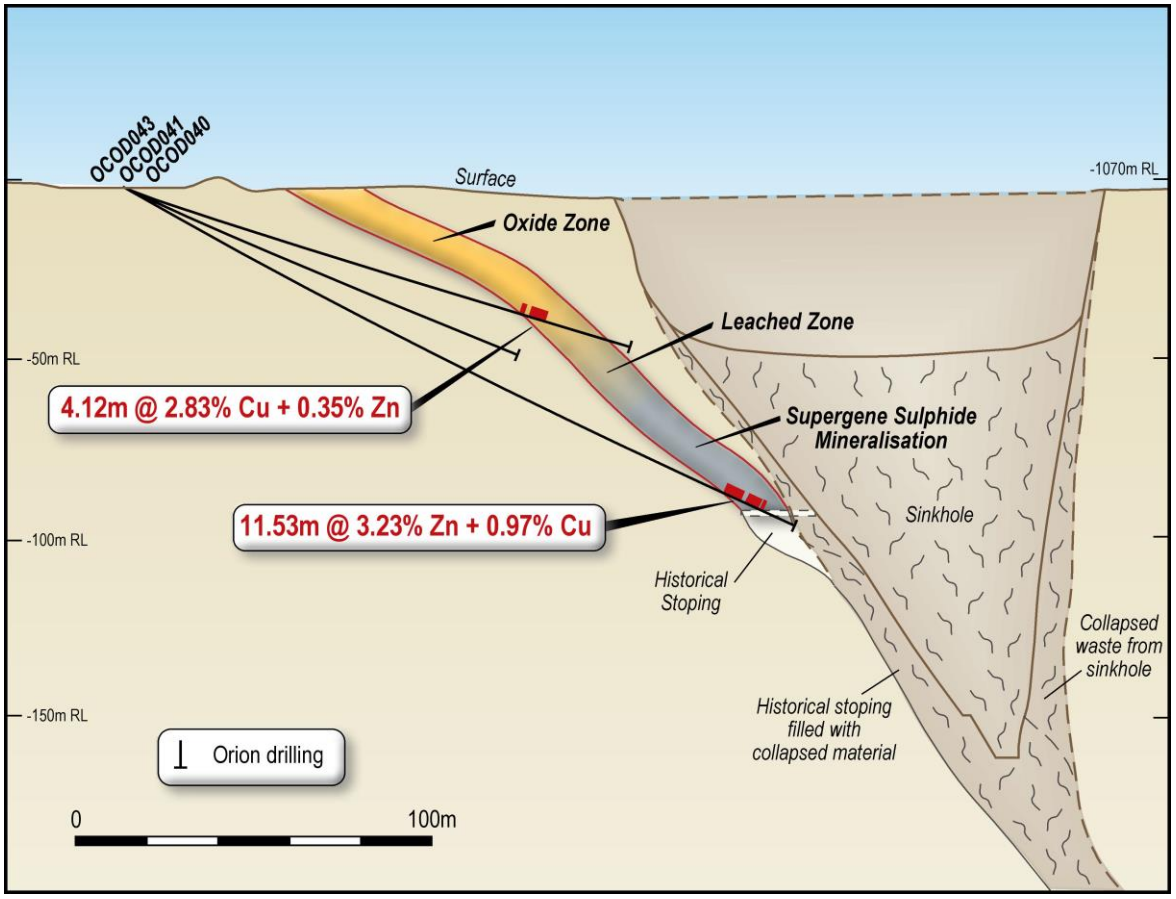

Figure 4: Cross section through the +105 Level Target showing recent drilling results from south-eastern end of the +105 Level Target.

Diamond drilling at the +105 Level Target is utilising an innovative shallow drilling method to drill holes to test mineralisation up-dip of historical underground mining. By utilising inclinations of between 15 and 30 degrees from the horizontal, the holes can be planned to intersect the mineralisation at targeted elevations.

Modelling of the mineralisation intersected in the drilling is now underway with the objective of producing a maiden JORC Mineral Resource to underpin pre-feasibility studies with a target completion date of late 2017. To aid these studies a large diameter diamond core hole has been drilled to provide material for metallurgical testwork (OCOD039). A total of 3.5 tonnes of large diameter core and percussion drill chips of samples have been submitted to MINTEK South Africa for testwork, to confirm the good metallurgical recoveries previously reported from extensive laboratory and plant scale trials on ore from this target conducted during 1987.

Mine re-entry and geotechnical appraisal

Orion has also made significant progress with the assessment of existing infrastructure, in particular the re-opening of the primary underground access via both the decline roadway and the main Hutchings shaft (Figures 1 and 5).

Inspection of the portal and decline has commenced prior to clearing activities to enable vehicle access. The nature of this work necessitates careful and systematic advances to ensure best practice safety levels are provided for our workforce.

To date ground conditions and infrastructure has been found to be in better condition than anticipated and Orion is confident that refurbishment will not require substantial engineering works.

Key observations:

- The decline has been inspected down to 178m below surface and found to be in very good condition, requiring only minor clearing and support work before being used for vehicle access.
- The Hutchings shaft has been inspected down to 300m below surface, confirming that the main carrier steelwork is in satisfactory condition and should not require replacement ahead of possible future recommissioning.
- The water level in the shaft is currently at 348m below surface and has been sampled both for environmental baseline studies and to confirm suitability for use in metallurgical processing. Initial samples from shallow below surface of the water confirmed a neutral pH of 7.4, providing encouragement that the steel and concrete below water surface will not be corroded.
- The concrete and steelwork of the 64m high headframe is also confirmed to be in good order and will not require replacement.

Figure 5: Refurbished decline portal at the PC Project.

Regional exploration update

Orion has received results from its drilling at the Kantienpan and Marydale Projects, part of its extensive holdings in the Areachap Belt (Figure 8), comprising assay and geophysical data.

Drilling at the Kantienpan Deposit targeted the KN1 conductor delineated by Orion in a high powered ground electromagnetic (**EM**) survey. Previous results from Orion drilling included:

- 2.05m at 9.93% Zn + 0.09% Cu from 404.87m (OKND016);
- 3.55m at 2.13% Zn + 0.35% Cu from 409.75m (OKND016); and
- 1.91m at 4.35% Zn + 0.32% Cu from 404.12m (OKND017).

(Refer Figure 6 and ASX Release 25 January 2017)

OKND018B intersected a similar sulphide bearing zone with assays received as 1.26m at 3.54% Zn and 0.30% Cu. Downhole EM surveys were completed but unfortunately the hole had collapsed before the final depth.

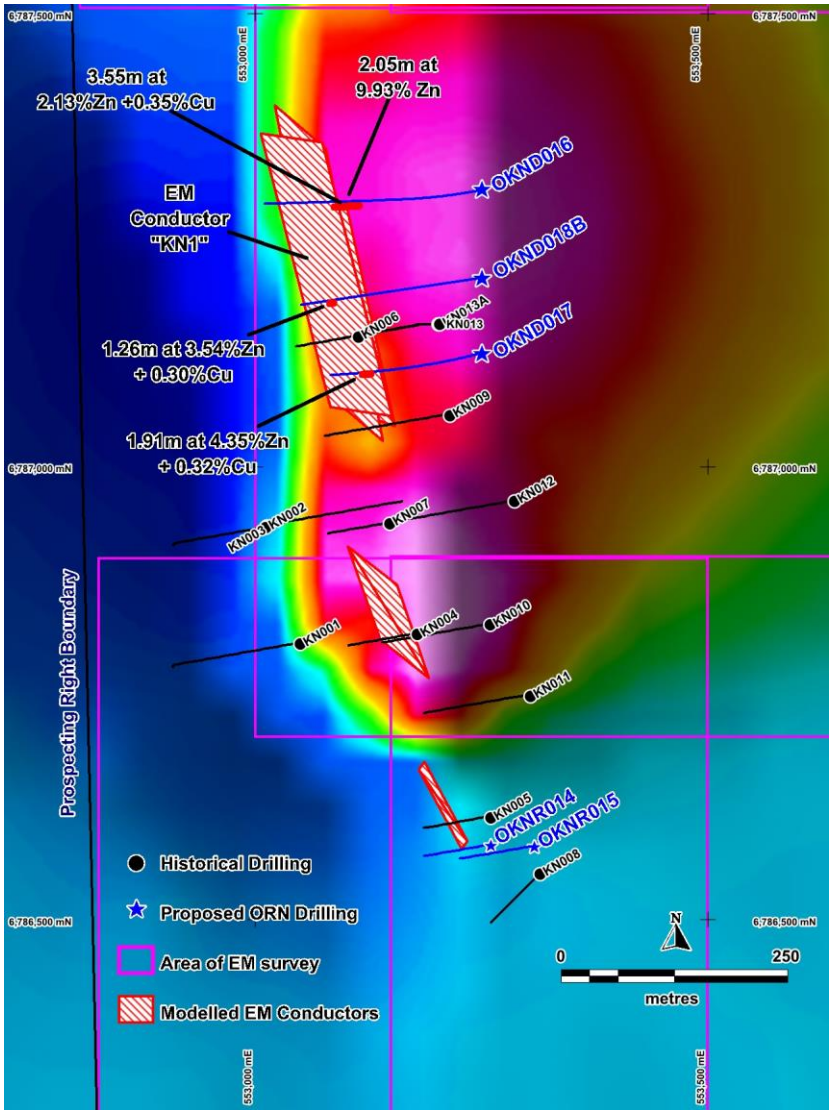

Figure 6: Plan showing Orion's drilling at Kantienpan on response from Channel 30 from Orion's recent HP_FLEM survey. Historical drilling and modelled conductors (including KN1) from survey data are also shown.

The potential of the KN1 zone is demonstrated by the results in OKND016. The KN1 zone appears to be a separate mineralised horizon to the mineralisation intersected in historical drilling (refer Figure 6, ASX release 31 May 2016) and the results from KN1 will now be reviewed along with results from the broader Kantienpan area. Future exploration is likely to target both horizons utilising both geochemical and geophysical means.

The Kantienpan Deposit lies within the prospecting right held by Masiqhame Trading 855 Pty Ltd, in which Orion has exercised its option to acquire a 50% interest (subject to regulatory approval) and under the option agreement can earn up to a 73% interest (refer ASX release 29 September 2016, Figure 8).

At Marydale drilling targeted a 1.7km long semi circular arcuate chargeability anomaly detected in the Company's high powered IP survey. As reported in ASX announcements of 7 December 2016 and 25 January 2017 drilling intersected several zones of disseminated sulphides, a number of which returned anomalous levels of copper and gold in assays. All results have now been received and no significant results (greater than 0.3g/t gold or 0.1%) were returned. Based on results to date there seems to be a metal bearing system of reasonable size at the Marydale Project with further exploration to comprise lithogeochemcial and structural studies with the aim of identifying potential trap sites.

With the completion of the Agama Transaction in March 2017 the focus of the Company has been on rapidly advancing the PC Project through feasibility studies towards a development decision point. The Company maintains a substantial and prospective landholding in the Areachap Belt and intends to continue systematic exploration for potential satellite deposits to feed into the life of mine plan for the PC Project. It is noteworthy that Volcanogenic Massive Sulphide (**VMS**) deposits almost always occur as "clusters" associated with volcanic centres with four such centres having been identified in the Areachap Belt. The Company's prospecting rights overlie the bulk of the Copperton and Boksputs Volcanic Centres (Figures 7 and 8). Further details of the work programs will be released as they are designed and implemented, with results to be released as they are received.

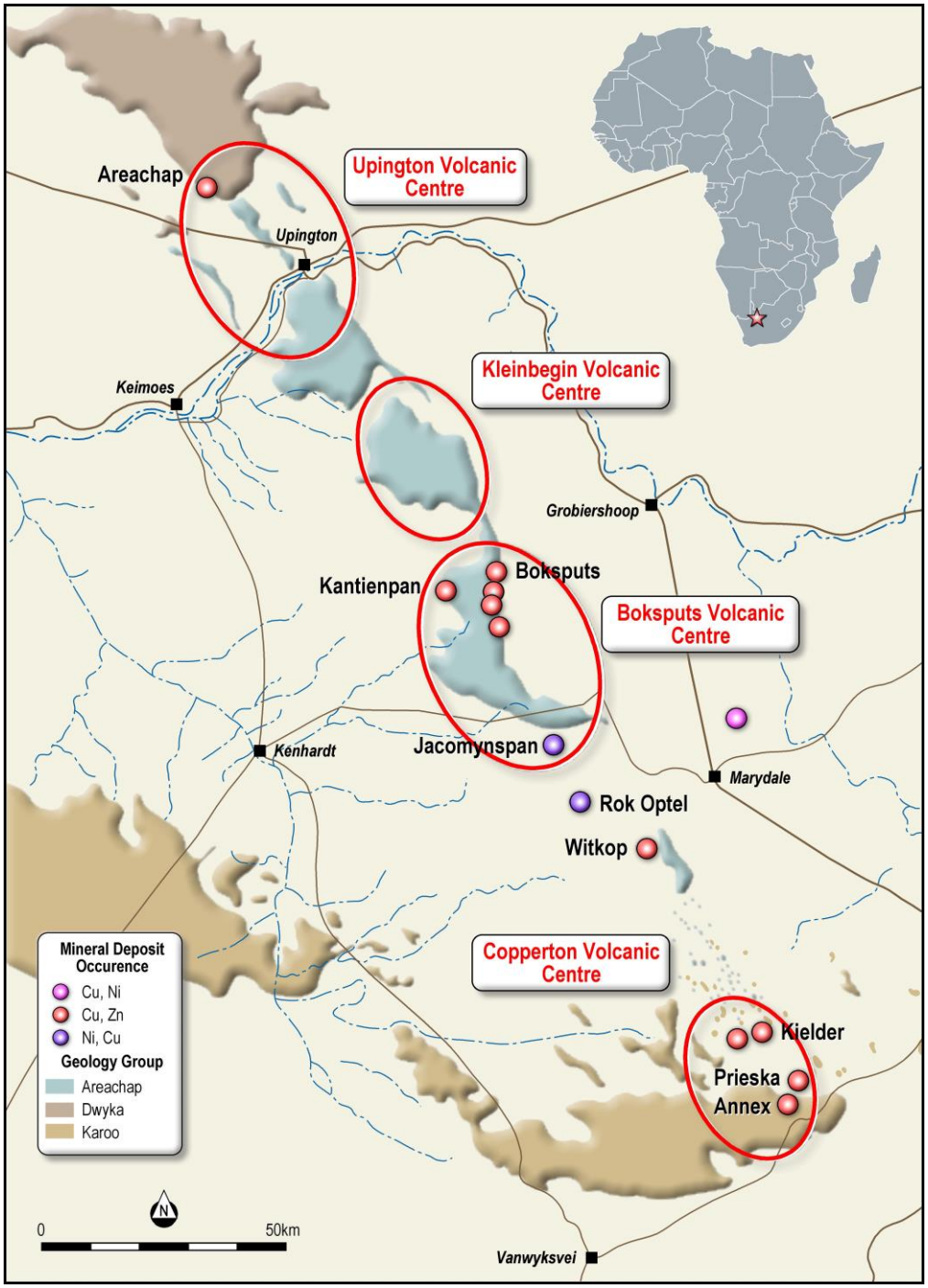

Figure 7: Plan showing outcrop geology of the Areachap Belt with interpreted volcanic centres and major mineral deposits/occurrences. After Geringer et al., 1994, *Lithostratigraphy, protolithology and tectonic setting of the Areachap Group*. South African Journal of Geology, 97 (1), 78 -100.

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About Orion

Orion Minerals is focused on acquiring, exploring and developing large tenement holdings or regional scale mineral opportunities in world-class mineral provinces. The Company has acquired quality projects in such mineral provinces.

Orion has recently acquired an effective 73.33% interest in a portfolio of projects including an advanced volcanic massive sulphide zinc-copper exploration project with near-term production potential at the Prieska Zinc-Copper Project, located near Copperton in the Northern Cape province of South Africa, and the Marydale Prospecting Right, a virgin gold discovery of possible epithermal origin, located 60 km from the Prieska Zinc-Copper Project. (refer ASX release 30 March 2017).

In addition to the Prieska Zinc-Copper Project and Marydale Gold Project, the Company has entered into options and earn-in rights agreements over a combined area of 1606km^2 in the highly prospective Areachap belt, North Cape Province of South Africa (Figure 8). This has secured an outstanding growth and diversification opportunity for the Company. Agreements entered into include:

- An earn in right to ultimately earn a 73% interest in a 980km^2 prospecting right area located approximately 80 km north of the Prieska copper Project. The project area contains several VMS and VHMS zinc and copper targets including the advanced stage Kantienpan zinc – copper project. (refer ASX releases 31 May 2016 and 29 April 2016).
- An earn in right to ultimately earn an 80% interest, via a South African registered special purpose vehicle which will be 74% owned by Orion, to prospecting and mining right applications covering a combined and partially overlapping area of 626km^2. The mineral rights areas include an advanced stage ultramafic hosted nickel – copper project, analogous to the geology of the Fraser Range, Western Australia. Several VMS and VHMS copper-zinc targets are also located within this mineral rights package. (refer ASX release 14 July 2016).

The Company also continues to explore a large tenement package on the Connors Arc in Queensland, where a significant intermediate sulphidation, epithermal gold and silver system has been identified at Aurora Flats. The project lies between the Cracow and Mt Carlton epithermal deposits. The Company's fieldwork has led to the discovery of substantial epithermal systems at the Veinglorious and Chough Prospects.

The Company also has joint ventures over its Fraser Range Project, which are funded to the completion of pre-feasibility by Independence Group NL (ASX: IGO). The Fraser Range Project consists of a substantial tenement holding in the Albany-Fraser Belt, which hosts Australia's two most significant discoveries of the last decade (the Tropicana Gold Deposit and the Nova Nickel-Copper-Cobalt Deposit). (refer ASX release 10 March 2017).

The Company has an experienced management team with a proven track record in exploration, development and adding shareholder value.

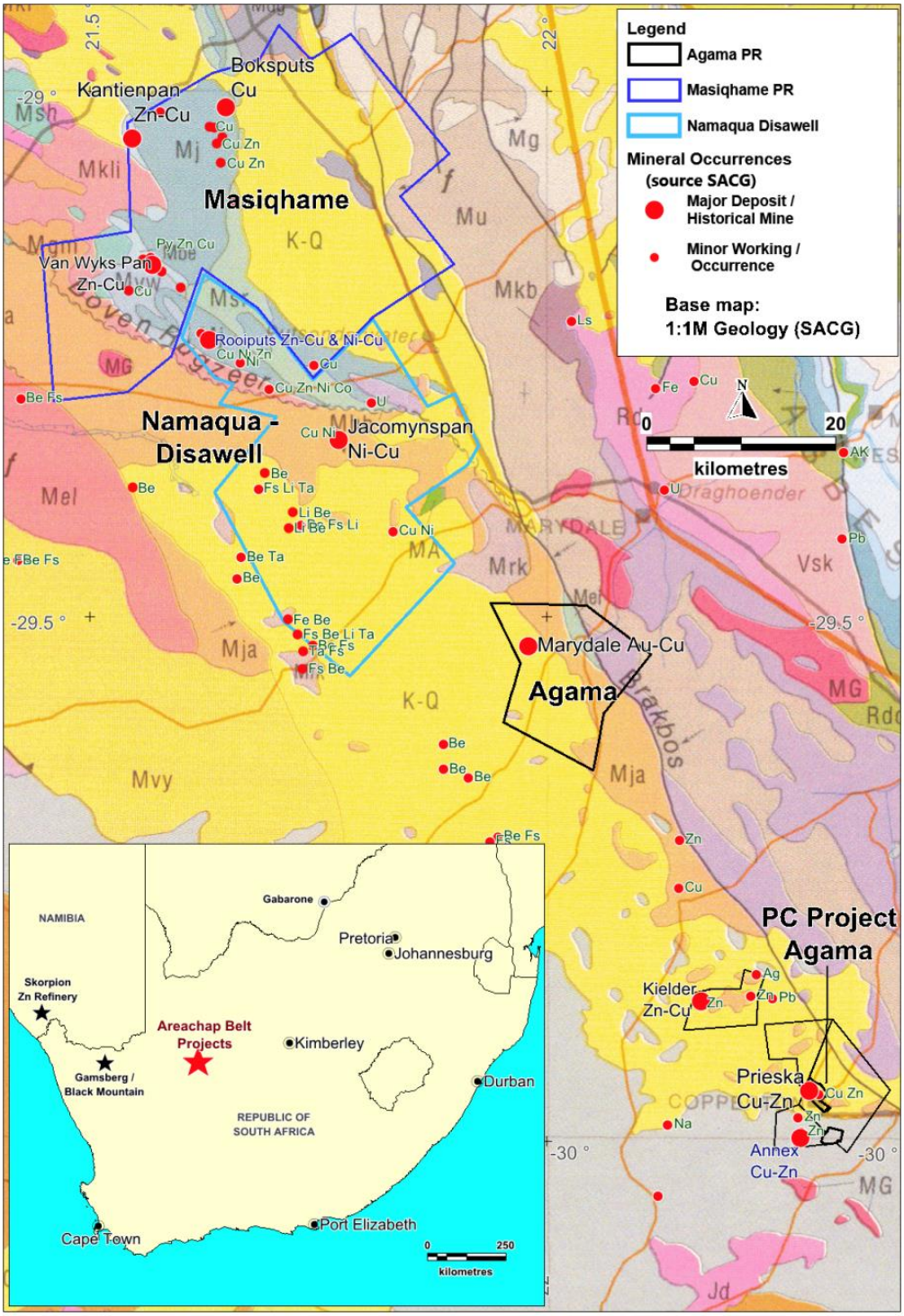

Figure 8: Regional geology map of the Areachap Belt showing prospecting rights owned by Orion and currently under option to Orion and noted mineral occurrences as per published data from South African Council for Geoscience.

Competent Persons Statement

The information in this report that relates to Orion's Exploration Results at the PC, Marydale and Kantienpan Projects comply with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**) and has been compiled and assessed under the supervision of Mr Errol Smart, Orion Minerals Managing Director. Mr Smart (PrSciNat) is registered with the South African Council for Natural Scientific Professionals, a ROPO for JORC purposes and 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 Smart consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears. The Exploration Results are based on standard industry practises for drilling, logging, sampling, assay methods including quality assurance and quality control measure as detailed in Appendix 4.

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. 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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Appendix 1: Significant Zinc-Copper Intersections from Orion drilling at the PC Project.

Drill hole	East (UTMz34S)	North (UTMz34S)	Depth (m)	From (m)	To (m)	Length (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
OCOR012A	624166	6686808	39	23	31	8	0.31	0.92	0.03	0.5
				36	39	3	0.50	1.36	0.02	0.6
OCOR013A	624199	6686776	42	15	20	5	0.92	1.56	0.04	0
				36	42	6	0.60	0.68	0.03	0.3
OCOR014	624228	6686776	42	35	40	5	2.10	0.34	0.01	0
OCOR015	624228	6686744	108	83	86	3	0.40	1.40	0.05	2.3
OCOR016	624340	6686653	108	57	79	22	1.38	10.8	0.30	9.7
			incl.	62	69	7	1.41	17.8	0.26	6.9
OCOR017	624361	6686618	77	57	69	12	4.14	1.89	0.29	9.9
			incl.	63	66	3	7.40	4.34	0.08	1.3
OCOR018	624348	6686611	53	*Hole abandoned, collapsed in leached zone*						
OCOR019	624353	6686614	52	*Hole abandoned, collapsed in leached zone*						
OCOR020	624300	6686626	38	10	20	10	0.39	1.13	0.16	1.0
OCOR021	624280	6686669	49	6	12	6	0.17	0.63	0.01	0.1
				19	22	3	0.21	0.92	0.01	0.3
OCOR022	624321	6686583	39	3	5	2	0.19	0.95	0.01	0
				9	18	9	0.45	0.61	0.04	0.3
OCOR023	624347	6686621	85	48	68	20	2.21	8.58	0.36	12.1
			incl.	63	66	17	2.01	9.98	0.37	2.3
OCOR024	624358	6686594	47	*Hole abandoned, collapsed in leached zone*						
OCOR025	624378	6686544	49	8	25	17	0.86	1.00	0.55	8.1
OCOR026	624375	6686573	70	16	26	10	0.11	0.61	0.01	0.4
				59	63	4	0.50	0.04	0.11	1.0
				64	68	4	0.06	0.60	0.01	0.2
OCOR027	624393	6686556	110	55	97	42	2.36	4.41	0.42	13.6
			incl.	55	60	5	9.28	0.10	0.65	31.6
			incl.	75	81	6	0.90	12.4	0.29	6.7
OCOR028	624363	6686561	43	7	24	14	0.94	0.56	0.09	0.9
OCOR029	624394	6686534	46	5	25	20	0.53	0.65	0.10	1.5
OCOR030	624292	6686713	103	71	77	6	1.90	0.85	0.39	8.2
OCOR031	624252	6686723	61	17	20	3	1.22	0.26	0.03	1.0
				46	60	14	0.30	0.71	0.01	0.6
OCOD032	624503	6686323	59	*Hole abandoned due to excess deviation*						
OCOD033	624503	6686323	186.14	161	163	2	0.14	1.02	0.14	7.0
				170.71	180.05	9.34	1.40	4.00	0.13	9.0
OCOD034	624477	6686355	82.88	*Hole abandoned due to excess deviation*						
OCOD035	624477	6686355	184.7	156.1	176.7	20.6	0.63	1.36	0.11	8.9
			incl.	167.9	170.5	2.6	0.49	5.20	0.11	13.9
OCOD036	624375	6686455	149.25	103	105	2	3.25	0.52	0.37	20.1
				112.6	142	29.4	1.52	3.06	0.36	9.0
			incl.	115	123.5	8.5	2.17	4.33	0.35	11.3
			incl.	129.06	131.11	2.05	1.09	4.86	0.24	7.4
			incl.	134	137.35	3.35	3.82	3.31	0.47	23.5
			incl.	139	142	3	0.44	7.13	0.13	2.9

Drill hole	East (UTMz34S)	North (UTMz34S)	Depth (m)	From (m)	To (m)	Length (m)	Cu (%)	Zn (%)	Au (g/t)	Ag (g/t)
OCOD037	624406	6686417	157.29	147.53	152.75	5.22	1.42	4.95	0.38	15.6
OCOD038	624406	6686417	141.21	103.8	106.5	2.70	1.20	1.02	0.21	2.7
				110.98	111.90	0.92	3.04	0.06	0.14	4.0
				111.90	113.20	*Core Loss*				
				113.80	115.63	1.83	1.38	0.50	0.07	3.3
				115.63	117.44	*Core Loss*				
				121.30	126.44	*Core Loss*				
				126.44	130.88	4.44	1.46	3.03	0.13	4.2
				130.88	132.28	*Core Loss*				
				132.28	137.17	4.89	1.19	1.78	0.16	5.7
OCOD039	624353	6686622	---	*Sampled for Metallurgical Testwork*						
OCOD040	624553	6686302	149	**119.48**	**123.60**	**4.12**	**2.83**	**0.35**	**0.01**	**0.5**
OCOD041	624563	6686287	120	*Hole abandoned due to excess deviation*						
OCOD042	624372	6686453	112	**68.80**	**70.05**	**1.25**	**0.29**	**0.41**	**0.01**	**0.5**
OCOD043	624563	6686287	202.3	**187.76**	**199.29**	**11.53**	**0.97**	**3.23**	**0.22**	**8.8**
			incl.	**189.22**	**192.56**	**3.34**	**1.51**	**5.26**	**0.36**	**8.3**
OCOD044	624483	6686360	94.6	**59.56**	**65.50**	**5.94**	**0.58**	**1.16**	**0.01**	**0.9**
OCOD045	624515	6686336	---	*Precollar Completed. Preparing to commence coring.*						
OCOD046	624610	6686251	---	*In Progress*						
OCOD047	624844	6686154	---	*In Progress*						
OCOD048	624450	6686373	---	*In Progress*						

1. All intersections > 1m and >0.3% copper or > 0.5% zinc are quoted.
2. New results are shown in bold type.
3. Hole OCOD039 is a large diameter diamond core hole which was drilled for metallurgical purposes.
4. It is recommended that the supporting information contained in Appendix 4 is read in conjunction with these results.

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Appendix 2: Significant Intersections from Orion drilling at the Kantienpan Zinc–Copper Deposit.

	Collar Location (UTM Zone 34S)		Dip / Azimuth	Total Depth (m)	Intercept Data			Assay Data	
Hole ID	Easting	Northing			From (m)	To (m)	Length (m)	Zn (%)	Cu (%)
OKNR014	553260	6786583	-60 / 260	78	60	67	7.0	6.45	0.43
				including	63	66	3.0	7.94	0.50
OKNR015	553308	6786582	-60 / 260	135	*No intersection*				
OKND016	553250	6787305	-65 / 260	450.09	403.87	425.34	21.47	1.72	0.24
				incl.	404.87	406.92	2.05	9.93	0.09
				incl.	409.75	413.30	3.55	2.13	0.35
				incl.	420.09	421.44	1.35	1.63	0.17
OKND017	553250	6787125	-65 / 260	443.6	404.12	406.03	1.91	4.35	0.32
OKND018B	553250	6787210	-64 / 260	453.9	423.62	424.88	1.26	3.54	0.30

1. All intersections > 1% Zn.
2. It is recommended that the supporting information contained in Appendix 4 is read in conjunction with these results.

Appendix 3: Significant Intersections from Orion drilling at the Marydale Gold-Copper Project.

Drill hole	East (UTMz34S)	North (UTMz34S)	Depth (m)	From (m)	To (m)	Length (m)	Au (g/t)	Cu (%)
OWCD032	594756	6733064	128.0	22	86	64	1.55	0.26
			incl.	48	69	21	2.93	0.34
			incl.	49	54	5	5.09	0.37
OWCD033	594720	6733080	150.4	67.5	92.5	25	1.81	0.31
			incl.	70.1	81.7	11.6	2.63	0.36
			incl.	71.4	74.45	3.05	4.23	0.45
				134.1	137.5	2.4	1.61	0.32
				145.0	147.9	2.9	1.17	0.29
OWCD034	595680	6732300	271.5	*No significant results*				
OWCD035	595405	6732610	421.4	*No significant results*				
OWCD036	595680	6732300	445.4	*No significant results*				
OWCD037	594788	6732994	325.6	*No significant results*				

1. All intersections > 1m >0.3 g/t gold are quoted and include up to 2 metres internal waste.
2. It is recommended that the supporting information contained in Appendix 4 is read in conjunction with these results.

Appendix 4: The following tables are provided to ensure compliance with the JORC Code (2012) requirements for the reporting of Exploration Results.

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 (eg 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 (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.*	**Kantienpan** • Diamond core drilling at Kantienpan targeted to test EM target – conductive body detected in ground EM survey interpreted to be related to sulphide mineralisation. • Historical drilling was carried out on sections spaced between 100m and 200m, with holes drilled at 50m spacing on section. Current drilling is also being carried out at 50m spacing on section, with sections either stepping out 50m or 100m from historical results. **Marydale** • Diamond core drilling targeted to verify and aid interpretation of historical drilling, no consistent drill spacing achieved as yet. **PC Project** • Drilling (RC & DD) carried out on 45m spaced sections aiming to define an approximate 45m x 45m pattern. Infill drilling carried out in certain areas to better define mineralisation or geotechnical conditions and limits of historical stoping. Sampling carried out under supervision using procedures outlined below including industry standard QA/QC. **All Drilling** • ORN RC drilling sampled every metre by splitting at the sampling yard. • ORN DD drilling sampled by splitting core in half using diamond saw, sampled every metre unless sample intervals adjusted to match geological intervals. • Samples submitted for analysis by ALS is pulverized in its entirety and split to obtain a 0.2g sample for digestion and analysis.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• Reverse circulation drilling using a face sampling hammer. • Diamond core drilling using NQ sized core.

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.*	• Samples are individually weighed to quantify recovery and variations in recovery are recorded on the sample ledger (e.g. small samples). • Cyclone, splitters and sample buckets cleaned regularly. • 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.*	• All holes logged on 1m intervals using visual inspection of washed drill chips and both full and split core. • Qualitative logging of colour, grainsize, weathering, structural fabric, lithology, alteration type and sulphide mineralogy carried out. • Quantitative estimate of sulphide mineralogy and quartz veining. • Logs recorded at the drill site 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.*	• 1m samples from RC drilling collected by passing entire 1 metre sample through a splitter. • Sampling on site aims to generate a < 2kg sub sample to enable the entire sample to be pulverised without further splitting. • NQ core cut at core yard and half core taken as sample. • Sample preparation was undertaken at ALS Laboratory Johannesburg, 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. • CRM's, blanks and replicates are inserted every 30 samples and analysed with each batch. • Lab supplied CRM's, blanks and replicates are analysed with each batch.
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been*	• Samples from drilling were submitted to ALS Chemex in Johannesburg. Samples were analysed for base metals using a four acid digest and ICP-OES and for gold by fire assay with AAS finish. • External quality assurance of the laboratory assays is monitored by the insertion of blanks, duplicates and certified reference materials (**CRM**) • Coarse field duplicates consisting of a split sub-sample of the original crushed sample material. • Three CRMs are alternated through the sample stream and where possible matched to the material being drilled. • Two blank are used (pulp and chips).

Criteria	JORC Code explanation	Commentary
	established.	• No external laboratory checks have been carried out at this stage, apart from the bias test mentioned above.
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.*	• The Competent Person is personally supervising the drilling and sampling along with experienced geologists. The Managing Director is regularly on site to inspect drilling and sampling activities. • Both the Managing Director and the Technical Director have reviewed the raw laboratory data and independent geologists have confirmed the calculation of the significant intersections.
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.*	• Collar data has been laid out using a handheld GPS and these coordinates are reported here. • All of the Orion drill hole collars will be surveyed by a qualified surveyor using a differential GPS which may result in minor adjustments to coordinate data. • Downhole surveys are completed using an electronic multi-shot instrument. • All data is collected in UTM WGS84 Zone 34 (Southern Hemisphere) and these coordinates are reported above.
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.*	• **Kantienpan** - drilling is spaced between 100 and 200m along strike. • **PC Project** - drill holes (RC & DD) intersected the mineralisation on approximately 45m spacing with some infill drilling in areas of interest. • **Marydale** – drilling is targeting IP anomalies, no defined spacing at this stage. • Insufficient data to map grade distribution at this time at any of the prospects, once further drilling is carried out the appropriate data spacing to accurately estimate grade distribution will be better understood.
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.*	• At all prospects drilling is being carried out perpendicular to mineralisation defined in historical drilling and modelled EM conductors. • No orientation based sampling bias has been identified in the data at this point.
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody was managed by the Competent Person.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews have been carried out at this stage.

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 property are vested in the State and the Act regulates the exploration and mining industry in South Africa. **Kantienpan** • A prospecting right in accordance with the Act was granted to Masiqhame Trading 855 to prospect for all minerals for a period of five years effective from 12 March 2014. • The Prospecting Right was granted in respect of the farm Koegrabe 117 comprising Portions 2 – 11; Boksputs 118 Portions 1, 7, 8, 9, 10; Kantien Pan 119 Portions 1 and 2; Wan Wyks Pan Portions 1 – 5; and Zonderpan Portions 1, 5, 6, 7, 8 situated in the Magisterial/ Administrative District of Kenhardt, Northern Cape Province. The total area measures 98435.8548 Ha in extent. **Marydale** • A prospecting right in accordance with the Act was granted to a subsidiary company of Orion (**Subsidiary**) to prospect for copper, lead, zinc, silver and gold for a period of two years effective from 10 February 2010. • The Prospecting Right was granted in respect of the farm Eyerdop Pan 58 comprising Portion 1 (Neeldale), Portion 2 (Witkop), Portion 3 (Eyerdop Put) and Portion 4 (Rooipan), situated in the Magisterial/ Administrative District of Prieska, Northern Cape Province. The total areas measure 17555.3 Ha in extent. • An application to renew the above Prospecting Right for a further period of three years was submitted to the Department of Mineral Resources (DMR). The Subsidiary has been informed by the DMR that the renewal has been granted **PC Project** • The Prospecting Right is held by a Subsidiary through which Orion holds a 73.33% effective interest in the project. • The Prospecting Right covers a strike of 2,200m for the Deep Sulphide Target mineralisation out of a total interpreted strike of 2,800m. • The Prospecting Right covers the complete known strike of the +105 Level Target. • All of the required shaft infrastructure and lateral access underground development is available within the Prospecting Right.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	**Kantienpan** • Much of the background information in this announcement is sourced from: – *Roussouw, D, 2003. A technical risk evaluation of the Kantienpan volcanic-hosted massive sulphide deposit and its financial viability. M.Sc. thesis, University of Pretoria, 118 pp.* – *Du Toit, M.C, 1998. The metallogeny of the Upington-Kenhardt Area. Explanation: Metallogenic Sheets 2820 and 2920, South African Council for Geoscience, 108p.* • Previous exploration in the northern Areachap belt including at the Kantienpan Deposit was carried out by Iscor, with exploration also carried out by Anglo American, Phelps Dodge, Anglovaal. • Exploration activities across the Project area included surface geochemical sampling, geophysical surveying and diamond core drilling. **Marydale** • The Marydale Project was explored by Anglo American Prospecting Services (**AAPS**) as part of two phases of regional exploration carried out in the general area. The first exploration phase was conducted between July 1975 and June 1982. The second phase of exploration was carried out between August 1988 and March 1989. Initial exploration activities on the project conducted during the 1970's and 1980's were focused primarily on the search for VMS. • Towards the end of the 1980's AAPS recognised the potential of gold mineralisation associated with volcanic massive sulphide deposits. The exploration focus during 1988 – 1989 by AAPS shifted from base minerals to gold mineralisation as the primary objective. This work led to the discovery of the Witkop gold mineralisation within the Marydale Project. • In early 2010, the Subsidiary was granted the prospecting rights to the project and additionally acquired from AAPS all the exploration data covering their work during 1975 – 1982 and 1988 – 1989 including drill core, drill chips and surface geochemistry data. The Subsidiary subsequently undertook geological mapping, and imagery analysis, geophysical re-interpretation, review surface geochemistry and several phases of exploration percussion and diamond drilling. **PC Project** <u>Deep Sulphide Target</u> • All exploration and life of mine drilling (V, D and F holes) was done by Anglovaal, resulting in a substantial amount of hardcopy data from which the Company has been able to assess the prospectivity of the remaining mineralisation.

Criteria	JORC Code explanation	Commentary
		• The Anglovaal exploration resulted in the delineation and development of a large mine. <u>+105m Level Target</u> • The 2012 drilling of the NW section of the +105m Level Target was carried out by the previous owners of the Subsidiary (Orion acquired the Subsidiary in March 2017).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The deposits lie in the Areachap Group, a volcano-sedimentary belt hosting other VMS deposits including Areachap, Boksputs, Kielder and Prieska (or Copperton). • The PC and Kantienpan Deposits are Volcanogenic Massive Sulphide (**VMS**) deposit, a globally significant and well studied mineralisation style • The historically mined section of the PC deposit is confined to a tabular, stratabound horizon in the northern limb of a refolded recumbent synform which plunges at approximately 45° to the southeast. It is hosted within deformed gneisses of the Copperton Formation, which have been dated at 1,285 Ma and forms part of the Namaqualand Metamorphic Complex. • The mineralised zone outcrop at the PC deposit has a strike of 2,400m, was oxidised and or affected by leached and supergene enrichment to a depth of approximately 100m, and outcrops 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. The width of the mineralised zone exceeds 35m in places but averages between 7m and 9m. The mineralised zone persists to a depth of 1,100m (as deep as 1,200m in one section) after which it is upturned. • The +105m Level Target area comprises the oxide / supergene / mixed zone (and a zone of remnant primary sulphides) situated from above the upper limit of mining at approximately 100m depth up to surface. • The Marydale Gold prospect is hosted within quartz-feldspar-biotite-hornblende gneiss, quartz-feldspar-biotite gneiss, amphibolite, biotite-mica schist and quartz-feldspar gneiss. The precursor rocks are believed to be andesitic, dacitic and rhyodacitic volcanic rocks. Mineralisation occurs as a series of intermittently developed lenses in chloritic schist (shear zones or drag folds). The parallel to sub-parallel lenses dip steeply to the south-west with a general ENE-WSW to E-W strike. The vein contacts are generally sharp but some sulphides with associated Au mineralisation also occur in the sheared wall rocks.
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:* ○ *easting and northing of the drill hole collar*	• Appendix 1 lists all the data from Orion's drilling at the PC Project, including location data. • Appendix 2 lists all the data from Orion's drilling at Kantienpan, including location data.

Criteria	JORC Code explanation	Commentary
	○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *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.*	• Appendix 3 lists all the data from Orion's drilling at Marydale, including location data.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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 intercepts in Appendices 1 - 3 were calculated by averaging the length weighted assay results for Cu, Zn and Au. • Intercepts presented are all intersections > 1% Zn, except Appendix 2 where intercepts presented are all intersections > 0.3g/t gold.
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 (eg 'down hole length, true width not known').*	• All intersections to be reported are downhole widths. • True widths are unknown at this time as the geometry of the mineralisation has not been determined.
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.*	• Drill hole location plans shown as Figures 2 and 6.
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 significant results are reported in Appendices 1 - 3.
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*	• The Company's previous ASX releases have detailed historical exploration works on the Areachap Projects and surrounds.

Criteria	JORC Code explanation	Commentary
	deleterious or contaminating substances.	
Further work	• *The nature and scale of planned further work (eg 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 ongoing at the PC Project testing the Deep Sulphide and the +105 Level Targets. • The results from Marydale and Kantienpan will be reviewed and form part of an expansive exploration program across the Company's Areachap Belt holdings. Further details of the work programs will be released as they are designed and implemented, with results to be released as they are received.