

**ASX Code: ORN** 

### **Issued Capital:**

Ordinary Shares: 556M

Options: 85M

### **Directors:**

# **Denis Waddell**

Chairman

### **Errol Smart**

Managing Director, CEO

### **Bill Oliver**

**Technical Director** 

#### **Alexander Haller**

Non-Executive Director

## **Management:**

### **Martin Bouwmeester**

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# Latest drilling hits thick mineralisation grading up to 13% Zn and 6.5% Cu at Prieska Zinc-Copper Project, South Africa

Work now underway on maiden JORC resource estimate for open pit target

# **Highlights:**

- Further excellent results received from ongoing drilling at the historical Prieska Copper Mine Zinc-Copper Project, South Africa.
- Hole OCOD036 at the +105 Level Target intersects:
  - 29.4m at 3.06% Zn + 1.52% Cu, 0.36g/t Au and 9.0g/t Ag from 112.6m (equivalent to 60m below surface); and
  - 2m at 3.25% Cu + 0.52% Zn, 0.37g/t Au and 20g/t Ag from 103m (equivalent to 55m below surface).
- Wide intersection includes numerous high grade zones such as 3m at 7.13% Zn from 139m, 8.5m at 4.33% Zn + 2.17% Cu from 115m and 3.35m at 3.31%Zn + 3.82%Cu from 134m.
- Maiden JORC Mineral Resource due in early 2017.

Orion Gold NL (ASX: ORN) is pleased to advise that it is on track to deliver a maiden JORC resource estimate for the +105 Level Target at the historical Prieska Copper Mine (PC) Zinc-Copper Project in the Northern Cape Province, South Africa, after receiving further impressive results from the ongoing diamond drilling program.

Drill hole OCOD036 intersected a **38.9m wide zone of massive sulphides** which returned **29.4m at 3.06% Zn + 1.52% Cu, 0.36g/t Au and 9.0g/t Ag** from 112.6m down-hole.

The mineralisation is located between 55m and 70m vertically below surface. The intersection includes a number of higher grade zones (Appendix 1) including:

- 8.5m at 4.33% Zn + 2.17% Cu, 0.35g/t Au and 11.3g/t Ag from 115m;
- 2.05m at 4.86% Zn + 1.09% Cu, 0.24g/t Au and 7.4g/t Ag from 129.1m;
- 3.35m at 3.31% Zn + 3.82% Cu, 0.47g/t Au and 23.5g/t Ag from 134m; and
- o 3m at 7.13% Zn + 0.44% Cu, 0.13g/t Au and 2.9g/t Ag from 139m.

These zones include individual samples which returned assays over 10% Zn and 5% Cu (Appendix 2).

The PC Project covers unmined dip and strike extensions from historical underground mining, with the mineralisation having previously been delineated by extensive drilling and geophysics. The current drilling program is designed to confirm, in-fill and extend the historical drilling at the +105 Level Target, where it is targeting mineralisation that would be amenable to extraction via open pit mining (Figure 1).

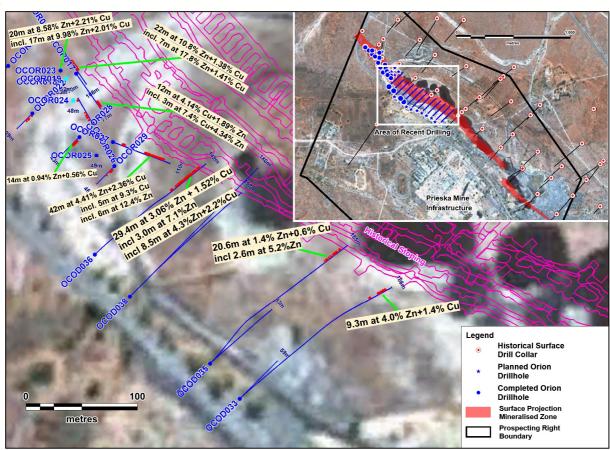


Figure 1: Plan showing the PC Project with completed, proposed and historical drilling at the +105 Level Target.

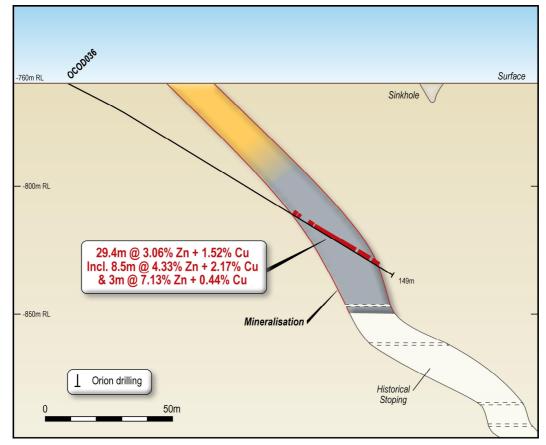


Figure 2: Cross-section showing mineralisation intersected in OCOD036.



Diamond core 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 and using flexible barrels, the holes can be manipulated to intersect the mineralisation at an optimal angle (Figure 2).

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 and 7 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 and 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% In and 0.29g/t Au from 57m, including: 3m at 7.4% Cu and 4.34% In (OCOR017); 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).

Mineralisation at the PC Project continues to contain potentially significant precious metal credits, with 0.36g/t gold and 9g/t silver over the 29.4m intersection in OCOD036 and individual samples greater than 3g/t gold and 30g/t silver (Appendix 2).

As announced in previous ASX releases, modelling of the mineralisation intersected in the drilling is now underway with the objective of producing Mineral Resources compliant with the JORC Code in early 2017 and feeding these resource estimates into Pre-Feasibility Studies with a target completion date of mid-2017. To aid these studies, a large diameter diamond core hole is being drilled to provide material for metallurgical testwork (OCOD039).

Resource drilling at Copperton for input into the +105 Mineral Resource estimation, is nearing completion. Drill hole OCOD039 is expected to be completed prior to the Christmas/New Year break and drilling is scheduled to resume on 9 January 2017. Assays are pending for OCOD037 and OCOD038, which intersected massive sulphides over 6.71m (144.41m - 151.20m) with significant core losses (2.53m aggregate) noted, and 33m (110m - 133m) respectively.

The PC Project is being acquired as part of Orion's option to acquire Agama Exploration & Mining (Pty) Ltd (**Agama**). In July 2015, the Company announced that it had signed a binding term sheet giving Orion the right to acquire the unlisted company, Agama, a South African-registered company which, through its subsidiary companies, ultimately holds an effective 73.33% interest in the Prieska Zinc-Copper Project and the Marydale Gold-Copper Project (Figure 3).

**Errol Smart** 

**Managing Director and CEO** 



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### **About Orion**

Orion Gold 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 proven mineral provinces.

Recently, the Company has secured an outstanding growth and diversification opportunity in the global gold and base metals sectors and has secured options and earn-in rights over a combined area of 1790km² on the highly prospective Areachap belt, North Cape Province of South Africa (Figure 3). These include:

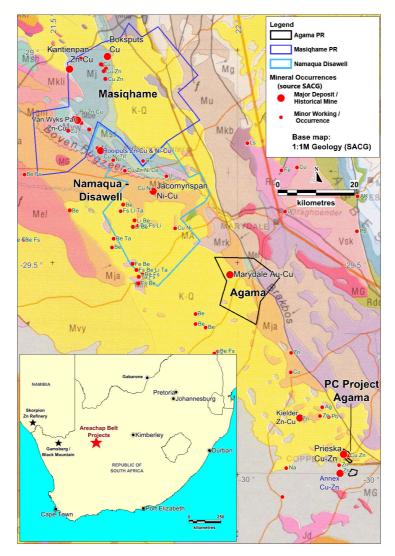
- An option to acquire an advanced volcanic massive sulphide copper-zinc project with near-term production potential. The option gives Orion the right to acquire an effective 73.33% interest in a portfolio of projects including an exploration project at the Prieska Copper Project, located near Copperton in the Northern Cape province of South Africa, and the Marydale Prospecting Right, a virgin gold discovery of sheared remobilised VMS origin, located 60 km from the Prieska Copper Project. The Company is progressing extensive due diligence investigations. (refer ASX release 18 November 2015).
- An earn in right to ultimately earn a 73% interest in a 980km² 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 29 April 2016 and 31 May 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 626km². 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 is increasing its focus on this project, following promising reports from expert consultants, and its fieldwork has led to the discovery of substantial epithermal systems at the Veinglorious and Chough Prospects.

The Company also holds a substantial tenement holding in the Albany-Fraser Belt, host to Australia's two most significant discoveries of the last decade (the Tropicana Gold Deposit and the Nova Nickel-Copper-Cobalt Deposit). Part of this tenement holding was acquired from entities associated with Mark Creasy who is a large shareholder in Orion. Orion's intensive, systematic exploration programs have successfully defined 34 targets to date by a combination of geological, geochemical and geophysical methods.

Additionally, the Company owns the Walhalla Project located in Victoria, which is prospective for gold, copper – nickel and PGEs.

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



**Figure 3:** Regional geology map of the Areachap Belt showing prospecting rights 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 and, Marydale Project 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 Gold NL's 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 3.

## **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



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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	ı	Hole abar	doned, c	ollapsec	in leache	ed zone	
OCOR019	624353	6686614	52	ı	Hole abar	ndoned, c	ollapsec	l in leache	ed 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	ı	Hole abar	doned, c	ollapsec	in leache	ed 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 abo	andoned (	due to e	xcess dev	iation	
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 abo	andoned (	due to e	xcess dev	iation	
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)	Cυ (%)	Zn (%)	Au (g/t)	Ag (g/t)
OCOD037	624406	6686417	157.29			Assay	s Awaite	ed		
OCOD038	624406	6686417	141.21	Assays Awaited						
OCOD039	624353	6686622				In F	Progress			

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



Appendix 2: Significant Assay Results from OCOD036.

Drill hole	From (m)	To (m)	Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)
OCOD036	103	104.22	1.18	0.57	0.06	0.16	8
OCOD036	104.22	105.0	6.48	0.44	0.09	0.71	39
OCOD036	105.0	105.8	0.785	0.55	0.02	0.13	5
OCOD036	105.8	107.0	0.207	0.26	0.03	0.07	<1
OCOD036	107.0	108.0	0.097	0.27	0.01	0.03	<1
OCOD036	108.0	109.17	0.125	0.28	0.01	0.06	<1
OCOD036	109.17	109.6	0.328	0.32	0.02	0.09	1
OCOD036	109.6	110.32	0.358	0.51	0.03	0.12	3
OCOD036	110.32	110.97	0.398	0.29	0.01	0.1	1
OCOD036	110.97	111.69	0.35	0.73	0.03	0.05	2
OCOD036	111.69	112.6	0.883	0.23	0.04	0.87	8
OCOD036	112.6	114.0	1.01	0.96	0.02	0.12	4
OCOD036	114.0	114.55	0.79	0.32	0.04	0.15	5
OCOD036	114.55	115.0	1.17	0.82	0.03	<0.01	5
OCOD036	115.0	115.5	3.22	3.23	0.05	0.35	12
OCOD036	115.5	116.0	0.58	6.78	0.03	0.27	3
OCOD036	116.0	116.5	0.242	5.99	0.02	0.04	1
OCOD036	116.5	117.0	0.567	1.43	0.06	0.08	5
OCOD036	117.0	117.5	0.179	4.3	0.02	0.08	1
OCOD036	117.5	118.0	0.239	8.81	0.02	0.1	2
OCOD036	118	118.43	0.887	1.71	0.16	0.28	9
OCOD036	118.43	118.6		No	Sample		•
OCOD036	118.6	119.0	1.02	7.52	0.13	0.34	4
OCOD036	119.0	119.5	0.345	8.59	0.02	0.12	1
OCOD036	119.5	120.0	0.837	10.7	0.06	0.15	5
OCOD036	120.0	121.03		No	Sample		•
OCOD036	121.03	121.88	2.3	5.66	0.03	0.27	15
OCOD036	121.88	122.5	9.88	2.52	0.03	0.37	41
OCOD036	122.5	123.0	9.7	2.33	0.04	3.17	57
OCOD036	123.0	123.5	3.19	1.16	0.02	0.08	18
OCOD036	123.5	123.83	0.225	1.17	0.01	0.09	1
OCOD036	123.83	124.17	0.186	0.32	0.02	0.09	<1
OCOD036	124.17	124.55	0.209	0.77	0.01	0.39	<1
OCOD036	124.55	125.0	1.075	2.33	0.02	0.15	5
OCOD036	125.0	125.5	0.723	2.11	0.02	0.18	5
OCOD036	125.5	126.0	0.434	1.39	0.02	0.13	2
OCOD036	126.0	126.5	1.035	1.24	0.02	0.2	7
OCOD036	126.5	127.0	2.37	1.52	0.01	0.31	12
OCOD036	127.0	127.5	2.96	1.25	0.02	0.92	19
OCOD036	127.5	128.0	1.44	1.41	0.01	3.48	7
OCOD036	128.0	128.45	0.452	1.75	0.01	0.02	2
OCOD036	128.45	129.06	No Sample				
OCOD036	129.06	129.5	0.56	2.38	0.01	0.05	3
OCOD036	129.5	130.0	0.402	10.8	0.02	0.18	4



Drill hole	From (m)	To (m)	Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)
OCOD036	130.0	130.5	0.475	4.21	0.02	0.12	3
OCOD036	130.5	131.11	2.53	2.32	0.11	0.53	17
OCOD036	131.11	132.47	0.382	0.46	0.1	0.84	4
OCOD036	132.47	133.0	0.226	0.5	0.05	0.09	2
OCOD036	133.0	133.5	0.718	0.83	0.17	0.17	5
OCOD036	133.5	134.0	1.305	0.62	0.01	0.2	9
OCOD036	134.0	134.83	3.69	5.28	0.02	0.69	22
OCOD036	134.83	135.47	1.855	4.34	0.02	0.14	14
OCOD036	135.47	136.0	5.09	3.3	0.01	0.77	34
OCOD036	136.0	136.5	2.46	1.71	0.03	0.74	14
OCOD036	136.5	137.35	5.45	1.54	0.06	0.15	31
OCOD036	137.35	137.67	0.746	0.27	0.17	0.71	10
OCOD036	137.67	138.28		No	Sample		
OCOD036	138.28	139.0	0.559	0.28	0.26	0.58	13
OCOD036	139.0	139.81	0.565	2.36	0.07	0.2	4
OCOD036	139.81	140.5	0.866	5.64	0.03	0.14	5
OCOD036	140.5	140.9	0.133	12.3	0.02	0.13	1
OCOD036	140.9	140.94	No Sample				
OCOD036	140.94	141.49	0.227	13.25	0.01	0.08	2
OCOD036	141.49	142.0	0.159	6.6	0.02	0.04	1



Appendix 3: The following tables are provided to ensure compliance with the JORC Code (2012) requirements for the reporting of Exploration Results for the PC Project.

# Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul> <li>Reverse circulation drilling sampled every metre by splitting at the sampling yard.</li> <li>NQ diamond core cut at core yard and half core taken as sample.</li> <li>NQ diamond core sampled on 1m intervals where possible, sample lengths adjusted to ensure samples do not cross geological boundaries or other features.</li> <li>Drilling (RC &amp; 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.</li> <li>Sampling carried out under supervision using procedures outlined below including industry standard QA/QC.</li> <li>Samples submitted for analysis by ALS is pulverized in its entirety and split to obtain a 0.2g sample for digestion and analysis.</li> </ul>
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).	<ul> <li>Reverse circulation drilling using a face sampling hammer.</li> <li>Diamond core drilling using NQ sized core.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul> <li>Samples are individually weighed to quantify recovery and variations in recovery are recorded on the sample ledger (e.g. small samples).</li> <li>For RC drilling cyclone, splitters and sample buckets cleaned regularly.</li> <li>No grade variation with recovery noted.</li> </ul>



Criteria	JORC Code explanation	Commentary
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>All holes logged on 1m intervals using visual inspection of washed drill chips and both full and split core.</li> <li>Qualitative logging of colour, grainsize, weathering, structural fabric, lithology, alteration type and sulphide mineralogy carried out.</li> <li>Quantitative estimate of sulphide mineralogy and quartz veining.</li> <li>Logs recorded at the drill site and entered into digital templates at the project office.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>NQ core cut at core yard and half core taken as sample.</li> <li>1m samples from reverse circulation drilling collected by passing entire 1 metre sample through a splitter.</li> <li>Sampling on site aims to generate a &lt; 2kg sub sample to enable the entire sample to be pulverised without further splitting.</li> <li>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 &lt;5mm if required and then pulverising so that +85% of the sample passes 75 microns.</li> <li>CRM's, blanks and replicates are inserted every 30 samples and analysed with each batch.</li> <li>Lab supplied CRM's, blanks and replicates are analysed with each batch.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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 established.</li> </ul>	<ul> <li>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.</li> <li>External quality assurance of the laboratory assays is monitored by the insertion of blanks, duplicates and certified reference materials (CRM)</li> <li>Coarse field duplicates consisting of a split sub-sample of the original crushed sample material.</li> <li>Three CRMs are alternated through the sample stream and where possible matched to the material being drilled.</li> <li>Two blank are used (pulp and chips).</li> <li>No external laboratory checks have been carried out at this stage, apart from the bias test mentioned above.</li> </ul>
Verification of sampling and	The verification of significant intersections by either independent or alternative company personnel.	The Managing Director is the Competent Person and is personally supervising the drilling and sampling along with experienced



Criteria	JORC Code explanation	Commentary
Location of data points	<ul> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>geologists.</li> <li>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.</li> <li>Collar data has been laid out using a handheld GPS and these coordinates are reported here.</li> <li>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.</li> <li>Downhole surveys are completed using an electronic multi-shot instrument.</li> <li>All data is collected in UTM WGS84 Zone 34 (Southern Hemisphere) and these coordinates are reported above.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	Drill holes (RC & DD) intersected the mineralisation on approximately 45m spacing with some infill drilling in areas of interest.
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>Drilling is oriented perpendicular, or at a maximum achievable angle to, the attitude of the mineralisation.</li> <li>As a result most holes intersect the mineralisation at an acceptable angle.</li> <li>Where surface access or geotechnical conditions do not allow access to optimal drill collar positions, holes may be inclined.</li> <li>The intersections will be corrected once the mineralised zone is modelled in three dimensions and local attitude can be accurately determined.</li> <li>No sampling bias is anticipated as a result of hole orientations.</li> </ul>
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by the Company. Samples were stored on site in a secure locked building and then freighted directly to the lab.
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.



# <u>Section 2 Reporting of Exploration Results</u>

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>The Prospecting Right is held by a subsidiary company of Agama Exploration and Mining (Pty) Ltd through which Agama holds a 73.33% effective interest in the project.</li> <li>The Prospecting Right covers a strike of 2,200m for the Deep Sulphide mineralisation out of a total interpreted strike of 2,800m.</li> <li>The Prospecting Right covers the complete known strike of the +105 Level Target.</li> <li>All of the required shaft infrastructure and lateral access underground development is available within the Prospecting Right.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Deep Sulphide Target</li> <li>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.</li> <li>The Anglovaal exploration resulted in the delineation and development of a large mine.</li> <li>+105m Level Target</li> <li>The 2012 drilling of the NW section of the +105m Level Target was carried out by the current tenement holder.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The Copperton deposit is a Volcanogenic Massive Sulphide deposit. The deposit is contained in the Areachap Group, which also hosts the Boks Puts, Areachap, Kielder, Annex Vogelstruisbult and Kantienpan deposits.</li> <li>The historically mined section of the 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.</li> <li>The mineralised zone outcrop 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</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>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.</li> <li>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.</li> </ul>
Drill hole Information	<ul> <li>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:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	All Significant Intersections, location data and other drill hole information is tabulated in Appendix 1.
Data aggregation methods	<ul> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	Significant Intersections are calculated by average of assays result > 0.3% copper or 0.5% zinc and weighted by sample width. 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.
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<ul> <li>All intersection widths quoted are down hole widths.</li> <li>Most holes intersected the mineralisation perpendicular or at high angle to the attitude of the mineralisation.</li> <li>The mineralisation has complex geometry and mineralisation widths need to be estimated based on interpretation of surrounding intercepts.</li> </ul>



Criteria	JORC Code explanation	Commentary
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.	Drilling is shown in plan view on Figure 1 and section view on Figure 2.
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 holes are listed in Appendix 1, including those with no mineralisation.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	<ul> <li>Hardcopy maps are available for a range of other exploration data. This includes mine survey plans, geological maps, airborne magnetics, ground magnetics, EM, gravity and IP. All available exploration data has been viewed by the Competent Person.</li> <li>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.</li> <li>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.</li> <li>Copper and zinc recoveries averaged 84.9% and 84.3% respectively during the life of the mine.</li> <li>The initial resource to 840m depth below surface based on 23,000m of drilling in 47 boreholes was stated as 47 Mt. However, more recent publications refer to a resource of 57 Mt.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Drilling is ongoing in the +105 Level Target with planned holes shown on Figure 1.