

**ASX Code: ORN** 

**Issued Capital:** 

Ordinary Shares: 421M

Options:

91M

**Directors:** 

**Denis Waddell** 

Chairman

**Errol Smart** 

Managing Director, CEO

**Bill Oliver** 

Technical Director

**Alexander Haller** 

Non-Executive Director

#### **Management:**

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## **QUARTERLY ACTIVITIES REPORT**

FOR THE QUARTER ENDED 31 MARCH 2016

#### **HIGHLIGHTS**

- Preparations advanced for Orion's maiden drilling programs at the Areachap Project, South Africa:
  - Drilling will test near surface copper-zinc mineralisation at the +105 Level Exploration Target at the PC Project.
  - PC is recorded as one of world's 30 largest VMS base metal deposits with recorded historical production of 0.43Mt of copper and 1Mt of zinc from 46.8Mt of sulphide ore milled(1). Unmined dip and strike potential is confirmed by extensive drilling and geophysics.
  - Drilling and trenching will also be carried out at the Marydale Project, a virgin epithermal discovery where initial drilling identified wide intersections of gold mineralisation.
- Further exploration opportunity secured 80 kilometres north of PC Project prospective for VMS, SEDEX and mafic intrusive hosted base metal mineralisation, as well as lithium and rare earth element bearing pegmatites.
- Orion is canvassing investor support for both equity and debt financing to complete the South African acquisition. Initial discussions with potential financiers for the project have been very positive at both South African and international level.
- Fieldwork ongoing at Connors Arc Epithermal Project, Queensland:
  - Broad zones of anomalous gold assays returned from drilling at Chough indicative of a prospective epithermal system.
  - Fieldwork enables drill targeting to be completed at the 6 Mile Creek Prospect where shallow drilling intersected mineralised epithermal veining.

(1) Source: Mine records.

During the Quarter, Orion made substantial progress towards the next phase of drilling at its highly prospective South African and Queensland projects. With the Company now focussing on these projects, the Company is actively seeking to joint venture and/or sell its Fraser Range nickel-copper and gold project (Western Australia), its Walhalla gold and polymetals project (Victoria) and its Eastern Goldfields Project, a non-contiguous tenement package within the Eastern Goldfields region of Western Australia.

#### Areachap Copper-Zinc and Gold-Projects (South Africa)

During the Quarter, the Company advanced planning for its maiden resource delineation drilling programs at the Prieska Copper (PC) Project and acquired an option over a further prospecting right within the Areachap Belt (Figure 1).

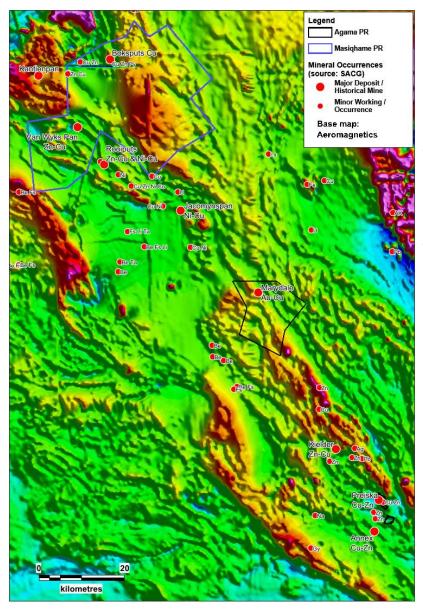


Figure 1: Regional magnetic map of the Areachap Belt showing prospecting rights currently under option to Orion and noted mineral occurrences as per published data from South African Council for Geoscience.



Drilling at the PC Project will focus on near surface mineralisation and test the Company's +105 Level Exploration Target (Table 1).

Drilling will infill and validate historical drilling which returned results including:

- 11.5 metres at 1.2% Copper + 7.2% Zinc from 109.5 metres (V04);
- 8.1 metres at 4.6% Copper + 2.5% Zinc from 106.05 metres (V09);
- 33.4 metres at 0.95% Copper + 0.80% Zinc from 16.4 metres (COC01);
- 8.4 metres at 1.25% Copper + 0.72% Zinc from 43.8 metres (COC02);
- 6.5 metres at 2.17% Copper + 0.38% Zinc from 46.8 metres (COC04);
- 6.6 metres at 1.63% Copper + 3.76% Zinc from 84.7 metres (COC05);
- 5.8 metres at 1.49% Copper + 6.93% Zinc from 70.6 metres (COC09); and
- 9.6 metres at 4.34% Copper + 0.39% Zinc from 51.9 metres following 6.0 metres at 0.34% Copper + 0.50% Zinc from 40.1 metres (COC10).

(Refer ASX Release 18 November 2015)

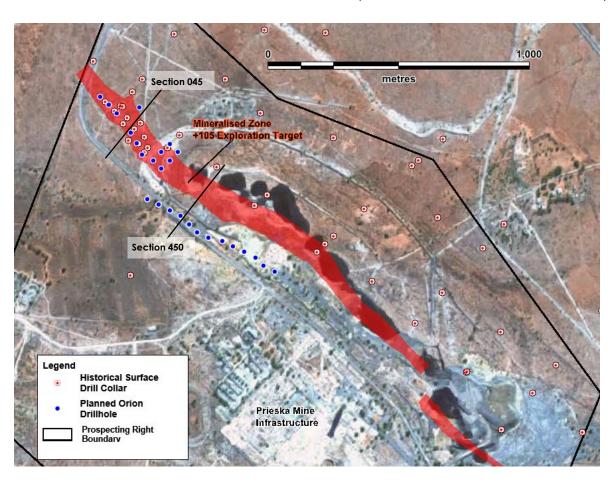


Figure 2: Plan showing the PC Project with historical and proposed drilling at the +105 Level Exploration Target

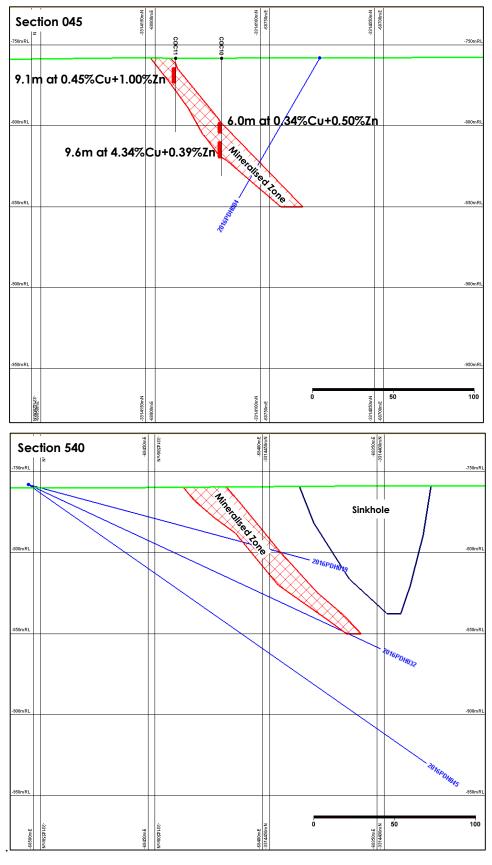


Figure 3: Sections showing historical and proposed drilling at the +105 Level Exploration Target (refer Figure 2 for section location).



PC Project – Exploration Targets					
Area Tonnage Range Cu range (%) In range (%					
+105 Level	3,000,000 – 4,500,000	1.0 – 1.6	1.3 – 2.0		
Deep Sulphide         7,000,000 - 11,000,000         1.2 - 1.8         3.9 - 5.9					

**Table 1.** Exploration Targets at the PC Project. Detail and supporting information relating to these Exploration Targets is contained in the ASX Release of 18 November 2015.

Work has continued to locate, validate and incorporate data with the aim of refining drill targets to test the Deep Sulphide Exploration Target at the PC Project (Table 1). Geophysical methods are also being considered to confirm the morphology of the mineralised body and identify/refine the location of potential extensions to the massive sulphide mineralised zone.

#### **Marydale Project**

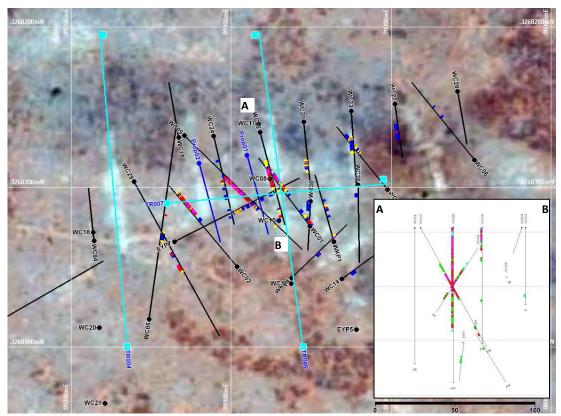
A short phase of drilling and trenching will be carried out at the Marydale Project, a virgin gold discovery of possible epithermal origin located 60 kilometres from the PC Project. Drilling will enable the geological model for the Maydale mineralisation to be tested by infilling historical drilling at the project. Results from this drilling included:

- 50.4 metres at 2.68g/t gold from 8.1 metres (WC08);
- 37.1 metres at 2.72g/t gold from 61.1 metres (WC09);
- 25.7 metres at 2.72g/t gold from 47.8 metres (WC22);
- 11.3 metres at 3.36g/t gold from 1.4 metres (WC10);
- 12.1 metres at 2.37g/t gold from 56.2 metres & 27.4 metres at 2.18g/t gold from 72.6 metres (WC01).

(Refer ASX Release 18 November 2015)

Historical drilling was carried out at sub-optimal orientations (Figure 4) and the combination of drilling data with surface mapping and sampling from trenching will enable future drilling to be correctly targeted. Trenching will also test surface geochemical anomalies reported by Anglo and other historical explorers.





**Figure 4**: Plan showing historical and proposed drilling at the Marydale Project and (inset) section A – B

#### **Masighame Project**

As announced today, Orion has signed a binding option agreement with Masiqhame Trading 855 Pty Ltd (**Masiqhame**) for Orion to earn up to a 73% interest in Masiqhame.

Masiqhame holds a prospecting right located 80 kilometres north of the PC Project (Figure 1) which covers an area of almost 1,000 square kilometres. Orion has targeted the large Masiqhame prospecting right after analysing regional data which points to the potential for three significant styles of mineralisation.

The South African Council for Geoscience (**SACG**), in its 1998 Volume "Explanation: Metallogenic Sheets 2820 and 2920", indicates three metallogenic districts are represented on the Masiqhame prospecting right (Figure 5):

1. Areachap - Copperton Metallogenic Province: Volcanic massive sulphide (VMS) and sedimentary exhalative deposits (SEDEX) Zinc - Copper mineralisation has been recorded along a volcano-sedimentary belt some 200 kilometres in length (Figure 1). Several massive sulphide occurrences are noted on the prospecting right, including some where copper and zinc are present (Figure 5). These have apparently been tested by drilling in the past, although no information is currently available. In addition, the SACG volume notes that at the Boksputs Prospect, only one sulphide body has formed a gossan and the remainder are blind to surface (page 27) increasing the potential for further bodies to be identified on the Masighame prospecting right.



- 2. Jacomynspan Copper-Nickel Metallogenic District: Copper nickel mineralisation has been identified at a number of localities directly south of the prospecting right associated with mafic intrusive lithologies. The mineralisation, age, tectonic setting and metamorphic alteration of these mafic ultramafic intrusive bodies are strongly analogous to what is encountered in the Fraser Range, Western Australia. The SACG volume quotes an undifferentiated resource of 114 million tonnes at 0.25% Nickel and 0.17% Copper(1) on the farm Jacomynspan (page 72). The known occurrences trend northward toward the Masiaphame prospecting right where the volume notes: "the presence of low tenor Cu, Ni, Co and Zn in graphitic and banded carbonaceous schist" and suggests that the strange metal assemblage may represent leakage of nickel-copper mineralisation associated with an underlying intrusive body passing through the VMS / SEDEX Copper-Zinc mineralisation.
- 3. The Orange River Pegmatite Belt contains recorded occurrences of pegmatites both north and south of the Masiqhame prospecting right, suggesting a trend through the prospecting right. To the south of the prospecting right the pegmatites are recorded to contain beryllium-columbite-tantalite with lithium mica and spodumene and in some cases small scale mining of these minerals has been noted.

The intersection of three metallogenic districts on one large prospecting right provides Orion with a unique opportunity to optimise its expertise in mafic intrusive exploration developed over the past three years in the Fraser Range, Western Australia and its experience exploring volcanogenic epithermal and VMS mineralisation.

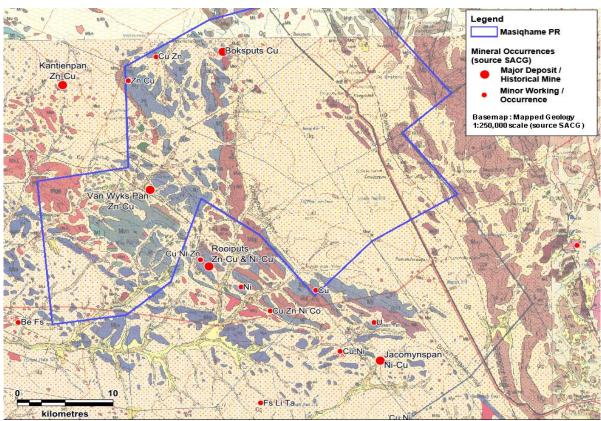
The indicated potential of lithium-rare earth element pegmatites also gives Orion investors the added benefit of exposure to a new suite of minerals, currently in high demand.

Orion will be compiling all available historic exploration data for the prospecting right area and analysing the data in context of modern exploration models. Orion is of the opinion that the intersection of the Nickel-Copper-Cobalt rich mafic intrusive rocks with high sulphur, base metal mineralisation in country rock could present unique conditions for massive sulphide mineralisation with high base metal tenor.

The prospecting right area has very similar topography to that in the Fraser Range, with shallow sand and calcrete/gypsum cover obscuring most outcrop. Exploration techniques developed in the Fraser Range, including geophysics and geochemistry, have not been applied in this district and this presents a very important opportunity for Orion.

<sup>(1)</sup> Note this resource should not be confused with a Mineral Resource as defined by the JORC Code. It is included here due to its public nature but is not JORC compliant and should not be treated as a JORC compliant resource.





**Figure 5:** Masighame prospecting right outline with known mineral occurrences. Source: South African Council for Geoscience.

#### Background on Prieska Copper – a world-class VMS development asset<sup>(2)</sup>

Prieska Copper Mines Limited, then a subsidiary of Angovaal Limited, operated the mine between 1971 and 1991, producing over 430,000 tonnes of copper and more than 1 million tonnes of zinc from an underground operation based on an initial drilled reserve<sup>(3)</sup> of 47Mt grading 1.74% copper, 3.87% zinc, 8g/t silver, 0.4g/t gold and 30% pyrite.

Mining ceased in 1989, with milling ceasing in 1991. The site was closed and rehabilitated in 1991. The operation was a significant financial success for its owners, returning ZAR2.64 per share (US\$1.16 in money of the time) in dividend yields for an investment of ZAR0.5 per share (US\$0.70) by the shareholders. The premature closure of the mine was influenced by an early operating decision by the owners to focus on maximising dividend yields, rather than investing further in underground capital development to extend mine life. The decision was influenced by uncertain economic and political environment in South Africa in the mid-1980s.

The project is located 270 kilometres south-west of Kimberley (the regional capital) in the Northern Cape province. Importantly, the project has access to significant local and regional infrastructure, with mine infrastructure including a regional power grid feed, bitumen access roads, access to a bulk, treated water supply and a 1,900 metre landing strip. Several large commercial wind and solar generation projects are operational in the surrounding area and the mine is located just 48 kilometres from a railway siding at Groveput with an open-access railway line connecting the site to the world-class export port of Saldanha Bay.

(2) Source of information in this section: Mine records. (3) Note – this is not a JORC Compliant figure, source Prieska Copper Mines Ltd Annual Report 1970.

# Sorion Gold<sub>NL</sub>

The underground development and regional infrastructure and services in place at the mine is estimated by Orion to have significant replacement value, which will assist in the feasibility and economics of any potential redevelopment of the mine. The underground mine is accessed via an 8.8 metre diameter concrete lined vertical shaft to a depth of 1,024 metres. Three separate ramp declines (6.5 metres by 3.8 metres) have been developed to access the deepest ore at a vertical depth of 1,140 metres. The mineralisation lies in a synformal structure and the target lies in the keel and upturned limb of the syncline, above 1,200 metres.



Figure 6: Historical photograph of the Prieska Copper Mine

As part of its due diligence process, Orion has digitally captured, validated and modelled all available project drilling data, from hard-copy sources. This work has enabled the Company to calculate Exploration Targets for near surface mineralisation comprising both oxide, supergene and primary sulphide material to a depth of 100 metres which is potentially accessible via an initial open pit (+105 level Exploration Target) and an Exploration Target for the deeper sulphide mineralisation identified by historic drilling (Deep Sulphide Exploration Target) (refer Table 1 and ASX Release 18 November 2015). The Exploration Target is based on 182 drill intersections, which can be relied on for width and depth of mineralisation, while 88 boreholes provide information on grade of mineralisation (Figure 7 and 8).

While the data has shortcomings due to loss of some historic records, which prevent estimation of JORC 2012 compliant resources, the Company is encouraged by the assessment by its Competent Person that limited infill and confirmatory drilling may be sufficient to establish JORC 2012 compliant resource estimates. Additional comfort comes from the highly credentialed Dr Danie Krige (of "Kriging" fame), under whose supervision the mines resources were historically estimated and who published academic papers on the estimation methodology applied. The historic data and mine records also provide important information for preliminary mine design and selection of mining methods to advance scoping studies.



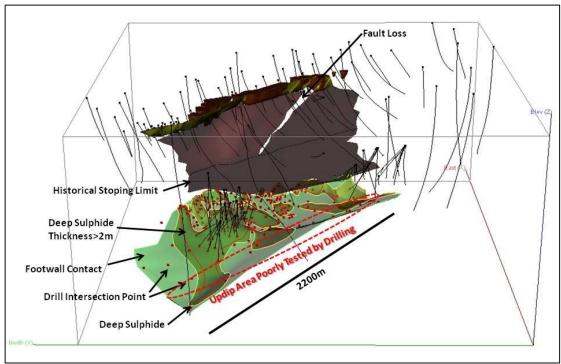


Figure 7: Three Dimensional view of drilling and 3D mineralisation model for the PC Project.

Area	Item	Arithmetic Mean Value	Weighted Mean	Max Value	Count
	Cu%	1.59	1.49	4.29	42
NW Trough	Zn%	4.19	4.12	6.52	42
INVV Hough	SG	3.54	3.65	N/A	17
	Thickness	7.71	N/A	N/A	75
	Cu%	1.52	1.27	3.13	4
NW Hinge	Zn%	3.73	3.81	4.27	4
INVV Hillige	SG	3.41	3.41	N/A	4
	Thickness	5.76	N/A	N/A	39
	Cu%	1.34	1.38	2.76	28
SE Trough	Zn%	5.58	5.54	7.68	28
SE Hough	SG	3.64	3.62	N/A	24
	Thickness	4.97	N/A	N/A	36
	Cu%	1.63	1.75	2.69	12
SE Hinge	Zn%	6.94	7.04	12.62	12
SE Hillige	SG	3.77	3.77	N/A	2
	Thickness	10.12	N/A	N/A	14
	Cu%	0.40	0.40	0.41	2
Control Trough Area	Zn%	5.91	5.39	8.29	2
Central Trough Area	SG	3.18	3.19	N/A	2
	Thickness	5.77	N/A	N/A	18
	Cu%	1.48	1.50	4.29	88
Whole Area	Zn%	5.03	4.90	12.62	88
Wildle Alea	SG	3.57	3.62	N/A	49
	True Thickness	6.74	N/A	N/A	182

Notes

Cu%, Zn% and SG "arithmetic mean values" are arithmetic mean of stretch values.

"Weighted means" are individual intersections (stretch values) weighted by true thickness.

Cu% and Zn% "max values" are maximum of stretch values.

Thickness mean values are arithmetic mean of true thickness values.

Figure 8: Summary of drillhole intersections available for the PC Project



#### **Background Option Agreement and Due Diligence Investigations**

In November 2015 the Company announced the signing of a binding term sheet giving Orion the right to acquire the unlisted company, Agama Exploration & Mining (Pty) Ltd (**Agama**), a South African registered company which through its subsidiary companies, ultimately holds an effective 73.33% interest in the PC Project and the Marydale gold project. Information on these projects is detailed in the Company's ASX Release of 18 November 2015 and is summarised in the "Background" section above.

The projects have a well established Broad Based Black Economic Empowerment (**BBBEE**) ownership structure (26.66% ownership) in place with strong local partners.

The Option represents a low-cost, counter-cyclical opportunity for Orion to expand its existing resource portfolio beyond greenfields exploration projects and create significant value for its shareholders. Importantly, the PC Project has a cash backed environmental fund of ZAR17.3 million (A\$1.5 million) which has not been needed since the mine closed in 1991. Importantly the acquisition target is well financed at project level to advance its main project, with ZAR 30 million (approximately A\$2.6million) facility available from a South African Investment Fund.

The Option is exercisable at Orion's election any time before 31 July 2016, and can be terminated at any time at Orion's election.

The Option period allows Orion to conduct comprehensive due diligence, including geophysics, in-fill and confirmatory drilling and feasibility studies in advance of a decision to exercise the Option. Since signing of the Option the Company has progressed extensive due diligence investigations including:

- Legal title opinion by Japie Van Zyl Attorneys in South Africa has confirmed good standing of the Prospecting Rights of the PC Project and the Marydale project, freehold title to certain properties at PC and servitude rights for usage of all land required to operate PC if a Mining Right is granted.
- Paul Matthews, a geologist and Competent Person under the JORC Code, has undertaken extensive review of historical geological records, capturing and recording all information to evaluate the geological potential and has signed off on the +105 Level and Deep Sulphide Exploration Targets including compilation of information required under the JORC Code (refer ASX Release 18 November 2015).
- A comprehensive review of environmental conditions, mining infrastructure, engineering design and costing for potential future mine development to +-30% accuracy levels (normally applied at the Scoping Study level) has been carried out by a team of over 10 engineers and scientists under the supervision of the METS Group and Shaft Sinkers, who are industry leaders in planning and executing primary mine development.
- METS made use of specialist sub-contractor groups to evaluate open pit mining, underground mining, mineral processing and environmental conditions.

Since the execution of the term sheet, Orion has focused on legal title, environmental and technical due diligence. Due diligence investigations have not identified any fatal flaws and have confirmed the expectation that the PC Project justifies fast track progress to feasibility study level.



#### **Connors Arc Epithermal Gold Project (Queensland)**

During the Quarter, the Company's exploration at the Connors Arc Epithermal Gold Project (Queensland) comprised review and interpretation of results from the recent drilling program at Chough and Veinglorious with field work being undertaken at the 6 Mile Creek and Killarney Prospects, as well as investigation of epithermal veining in the areas surrounding these prospects (Figure 9).

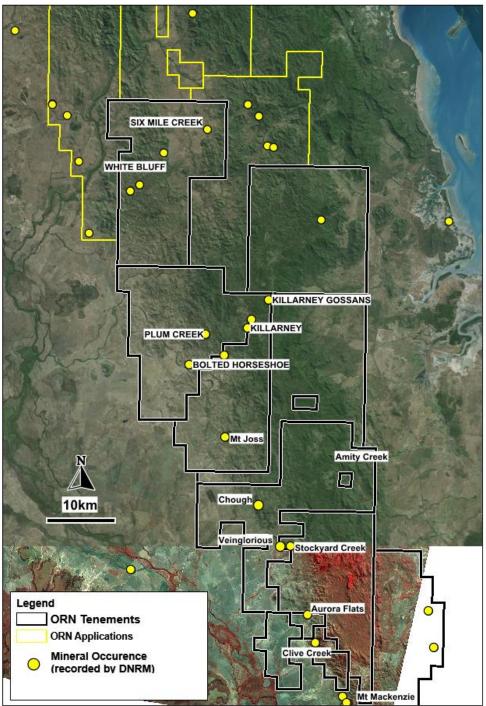


Figure 9: Plan showing location of Chough, Aurora Flats and Veinglorious Prospects along with Orion drillholes and mapped veins. Regional prospects and recorded mineral occurrences also shown.



#### **Chough Prospect**

During the Quarter, results received from the recent drilling program at Chough enabled the Company to complete sampling of the extensive anomalous zone intersected in that program. A significant interval of anomalous gold results in CHRC003 was finalised to comprise 82 metres at 0.11g/t gold (refer ASX Release 19 February 2016).

The anomalous gold results are hosted in a package of inter-layered andesite and pervasively altered rhyolite, with several breccia units, strong clay alteration of feldspars and with significant sulphides present (refer ASX Release 3 December 2015 and 21 January 2016).

Inspection of the drill core and field outcrops by the Company's consultants, including Professor Noel White and structural expert Dr Brett Davis, has led to the development of an initial geological model for the mineralisation.

Further data has been collected based on their recommendations, which will enable followup drilling to target mineralisation below the anomalous zones intersected in the initial drilling.

#### **6 Mile Creek Prospect**

At the 6 Mile Creek Prospect, a detailed structural interpretation completed by Dr Brett Davis confirmed a NNE-SSW strike to the primary structures and a dextral sense of shear resulting in displacement of the epithermal veins.

It is likely that mineralisation within the structural regime at 6 Mile Creek will form steeply-plunging shoots analogous to the geometry of ore shoots at Pajingo; follow-up drilling will therefore focus immediately below the historical shallow drilling beneath these outcrops, which returned results including:

- 7 metres at 1.0g/t gold and 10g/t silver (MRCPH-2);
- 2 metres at 1.3g/t gold and 30g/t silver (MRCPH-1);
- 1 metre at 2.9g/t gold and 34g/t silver (MRCPH-4); and
- 1 metre at 3.18g/t gold and 34g/t silver (MRCPH-5).

(Refer ASX Release 7 December 2015)

Further field work was completed during the Quarter, to check various locations of interest within the prospect area as well as assess various logistical requirements for drilling.

#### **Killarney Prospect**

Work at the Killarney Prospect was slowed by substantial seasonal rains in the area. The ground is currently unsuitable for geochemical sampling and access for geophysical survey is not possible.

The Company was able to complete initial geological reconnaissance during the Quarter, with traverses on foot across the main prospects and a handful of samples taken from outcropping epithermal veins and breccias. Encouragingly, two out of six samples collected returned results above 1g/t gold and 20g/t silver (ASX Release 19 February 2016).



#### **Veinglorious Prospect**

A field review of the Veinglorious Prospect confirmed that the veining in the north and northeastern part of the prospect is devoid of prospective epithermal textures and has therefore been formed deep in the system.

As a result, the "critical depth" for precious metal deposition lies in the centre of the prospect. This enhances the prospectivity down-dip from the veining intersected in VGRCD005, which returned results of 3 metres at 0.14g/t gold and 153g/t silver (refer ASX Release 27 April 2015).

#### Background

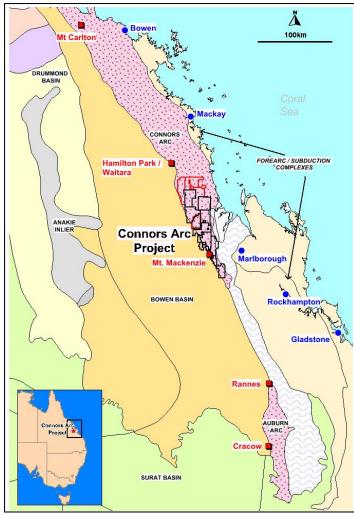
The New England Fold Belt in Queensland hosts numerous +1Moz Devonian through to Triassic aged epithermal and intrusion-related gold deposits. Many of these are Permian – Carboniferous aged systems and are intimately associated with intrusive lithologies of similar age.

Orion's Connors Arc project area is located within a geological and structural setting very similar to other significant epithermal gold systems in Queensland (Figure 10). Notable features include close proximity to the eastern margin of the Bowen Basin and prospective, Permo-Carboniferous aged volcanic and intrusive lithologies. In addition:

- Key prospects are spatially associated with a large, magmatic hydrothermal system (Mt Mackenzie);
- This hydrothermal system is located within a geological and structural setting which is very similar to other significant epithermal gold systems in Queensland such as Cracow and Mt Carlton and is of the same broad age (Permo-Carboniferous) as many other intrusion-related gold systems in Queensland; and
- Geological and geochemical characteristics in historical drilling which suggests that some prospects may be shallowly eroded, implying potential for higher gold grades at depth and existence of blind to surface orebodies.

In addition, several targets have been identified based on historical data review and using coincident ASTER alteration, geological and geophysical features which represent grass-roots additions to the project's target portfolio, which complement more mature targets such as Aurora Flats. Field mapping and sampling has also identified new targets.





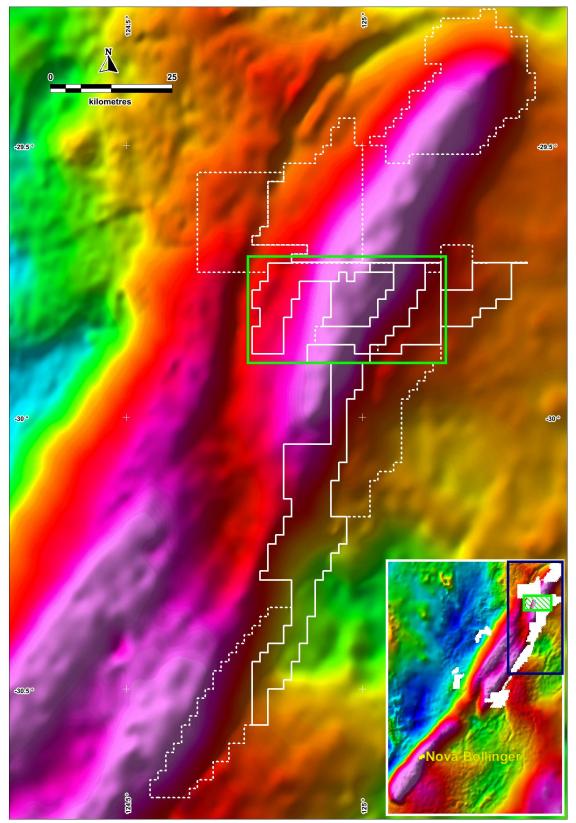
**Figure 10:** Location of tenements in the Connors Arc Project.

## Fraser Range - Nickel-Copper and Gold-Projects (Western Australia)

The Company continues to hold a substantial tenement holding in the Fraser Range Province of Western Australia. The Company has defined a substantial number of targets within the project area but at this point is still assessing how to effectively explore the significant areas covered by these targets with the limited resources at hand.

A number of these targets lie beneath deeper, modern sediment cover in the eastern project area, where airborne electromagnetic (EM) has been ineffective and, in some cases, where high-resolution magnetic data has not yet been acquired.

Whilst the Fraser Range Project is highly prospective, due to the nature and scale of exploration activities that need to be undertaken, the Project currently has a lower priority for the Company. As a result, the Company is in discussions with several parties who have expressed interest to become involved in the Fraser Range Project. Involvement from these interested parties could provide both additional technical capability and potential financing for expanded exploration efforts on Orion's large tenement holding. Discussions with various parties are ongoing.



**Figure 11:** Map showing the Company's 4000km² Fraser Range tenement holding (white) and area of the gravity modelling study (green) over regional gravity data. The inset shows the dataset from the belt and the location of the Nova-Bollinger Deposit.



The Fraser Range Project is located between two world-class discoveries, being the Tropicana Gold Project to the north, owned by Independence Group and AngloGold Ashanti and the Nova Nickel-Copper-Cobalt Project to the south, owned by Independence Group. The tenement areas cover prospective targets for both Tropicana-style gold and Nova-style nickel deposits, with historical geochemical anomalies and scout drilling identifying bedrock mineralisation of both minerals.

Nickel-PGE exploration in the Peninsula Project, to the north-east of the Cundeelee Shear Zone, was carried out by Western Areas NL between 2000 and 2006. Scout RC drilling in 2005 yielded intersections of gabbronorite and other mafic units which were interpreted to represent differentiated mafic intrusives, similar to those which were later discovered and host Independence Group's Nova-Bollinger nickel-copper-cobalt deposit.

Exploration of the Peninsula Project pre-dated the Nova-Bollinger discovery and the Company has now reinterpreted data from the Project in that context and acquired additional geophysical data to generate targets for drilling to test for deposits obscured by surface cover.

In December 2013, the Company carried out its maiden drilling program at the Peninsula Project and identified prospective mafic-ultramafic intrusive lithologies in areas where intrusive bodies had not previously been identified. RC drilling at Peninsula in early 2014 yielded anomalous Nickel-Copper results which are the subject of current work programs.

In addition, a total of 34 Nickel-Copper-Platinum Group Element targets, have been generated, based on geophysical, geochemical and geological criteria across the Company's substantial landholding of approximately 4,000km<sup>2</sup> (Figure 11). The Company's interest in these tenements is between 70% - 100% and includes 1,783km² of granted tenements and 1,933km<sup>2</sup> of applications where the Company and its partner are the sole or priority applicant.

The Company's exploration programs have recently focussed on the Peninsula Prospect where the following key indicators have been observed:

- Large bodies of mafic-ultramafic intrusives are present, with the Company's drilling confirming the nature and extent of the magma chamber at Pennor;
- Detailed geochemical data from drillhole (fresh rock) samples confirms that:
  - the large HA2 and Pennor intrusive bodies are related and from the same source;
  - the parent magmas for these intrusions are fertile as sources of Nickel-Copper;
  - a substantial amount of crustal contamination has occurred during uplift and emplacement of these magmas, adding the necessary components to form sulphides;
  - the HA2 magma chamber contains sulphides which were formed in the parent magma then entrained by magma dynamics;
  - the Pennor magma chambers contains magma which is depleted in Nickel-Copper, relative to the parent magma; and
  - the Nickel-Copper segregated out (or entrained in the case of HA2) is expected to have accumulated along basal contacts in magma chamber or in feeder zones to the large chambers.



#### Walhalla Gold and Polymetals Project (Victoria)

#### Walhalla Polymetals Project, Victoria (PGE-Copper-Nickel)

During the Quarter, the Company did not carry out any exploration activity on the Walhalla Project. The progress of the sale agreement with A1 Gold to acquire MIN5487 (as announced on 30 December 2015) is detailed in the Corporate section.

#### **Background**

The Walhalla – Woods Point District is most widely known as the third largest goldfield in Victoria, with significant past production exceeding 4 million ounces of gold at a reported head grade of over 25g/t gold. The current JORC resources comprise 268,000 ounces of gold in the Inferred category (detailed in Appendix 1).

While the Walhalla – Woods Point District is mostly known for gold mining, high grade copper-nickel and PGE mineralisation also occurs within the belt. Both mineralisation styles are hosted by dykes from the Woods Point Dyke Swarm (WPDS), a series of ultramafic to felsic dykes occurring over a 75km long north-south belt which are now interpreted to be the "plumbing" for a magmatic system of significant scale. The same studies have also developed a cogenetic model for the gold and the "polymetal" mineralisation. Five key Cu-Ni-PGE occurrences are known within the WDPS and three of these lie with Orion's tenement package (refer Figure 12). Despite these occurrences being known, sampled and, in the case of Coopers Creek, previously mined, there has been only been sporadic exploration for polymetallic deposits (mostly in the 1970's and 1980's).

The new understanding of the related polymetal and gold mineralisation in this district, as well as the model for mineralisation to be controlled by magmatic processes, has lead Orion to a new focus on exploration for polymetal, dyke-hosted deposits. The bulk of each individual dyke will likely exhibit only traces of sulphide mineralisation and minor Cu-Ni-PGE anomalism, however, examples such as Coopers Creek clearly demonstrate the potential for accumulation of sulphides in structural traps, resulting in zones of high grade mineralisation. Subsurface geometry of each dyke occurrence is considered one of the crucial factors in the development of such zones of sulphide accumulation and high grade mineralisation.

Orion recognises the opportunity presented by these unique deposits as well as their potential value, illustrated in Table 2 by the valuation of the metal content intersected in historical drill hole CC003.

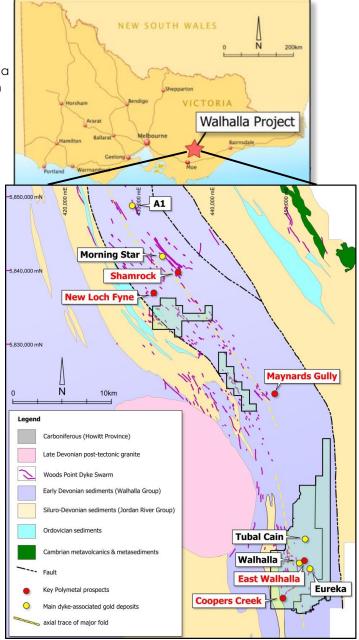
**Table 2.** Metal equivalent grade calculations for drill hole CC003 (Coopers Creek), drilled by Ausplat Minerals/Golden Shamrock, 1988

			Over 36 Meters			Over 3.5 Meters			
	Price	Grade	US\$ value/tonne	Au equivalent	Cu equivalent	Grade	US\$ value/tonne	Au equivalent	Cu equivalent
Au	\$1,217	0.39g/t	15.25	0.39g/t	0.23%	1.3g/t	50.85	1.30g/t	0.75%
Pt	\$1,300	0.78g/t	32.60	0.83g/t	0.48%	1.16g/t	48.48	1.24g/t	0.72%
Pd	\$802	1.08g/t	27.85	0.71g/t	0.41%	1.64g/t	42.29	1.08g/t	0.63%
Ag	\$17.11	8.6g/t	4.73	0.12g/t	0.07%	14.4g/t	7.92	0.20g/t	0.12%
Cu	\$6,735	1.75%	117.86	3.01g/t	1.75%	3.23%	217.54	5.56g/t	3.23%
Ni	\$16,500	0.20%	33.00	0.84g/t	0.49%	0.53%	87.45	2.24g/t	1.30%
Total			\$231.29	5.91g/t	3.43%		\$454.53	11.62g/t	6.75%

## Sorion Gold

Note on Table 2: Orion has considered the in-situ grades reported in the context of the metal prices as reported by the London Bullion Market Association, the London Platinum & Palladium Fixing Company and the London Metal Exchange on 30 September 2014. The gangue and ore mineral assemblage as reported for the intersection is typical of PGE ores commonly mined in Southern Africa where >90% of world PGE production takes place. The metals and minerals identified are conventionally recoverable to a sulphide concentrate with standard metallurgical practices and a reasonable expectation of recovering >90% of each of the ore minerals. The concentrates produced can be expected to have composition typical of those commonly purchased and/or toll treated by base metal + PGE refineries in South Africa. The Competent Person is thus of the opinion that the metal equivalent estimate is a reasonable approach as an initial indication of economic merit of the mineral occurrence. The metal equivalence is stated as gold equivalence for Orion, which is a gold exploration and development company and has reported JORC compliant gold resources on the same tenement. Copper equivalence is also stated since copper is the metal contributing most economic value in the intersection.

**Figure 12:** Location of the Walhalla Gold-PGE Project showing known Cu-Ni-PGE occurrences.





#### **New Projects**

As part of its longer term growth strategy, the Directors of Orion continually review new business opportunities and the Company routinely makes opportunistic applications for vacant ground in known mineralised provinces with the aim of building a landholding in these areas.

As a result of one such targeting process the Company lodged a series of applications over vacant ground in the Eastern Goldfields Province of Western Australia (Eastern Goldfields Project). The applications covered an underexplored ultramafic sequence within a major greenstone belt, however are non-contiguous and small in area. While prospective for nickel sulphide mineralisation the Eastern Goldfields Project no longer represents a priority for the Company. The Company is currently actively marketing this package along with the other lower priority projects in its portfolio.

#### **Tenement Schedule**

Tenement	Project	Ownership Interest	Change in Quarter	Joint Venture Partner			
Western Aus	Western Australia						
E28/2231	Fraser Range	0%	Surrendered	GeoBase Australia Pty Ltd			
E28/2232	Fraser Range	0%	Surrendered	GeoBase Australia Pty Ltd			
E28/2292	Fraser Range	0%	Surrendered				
E28/2367	Fraser Range	100%					
E28/2378	Fraser Range	100%					
E28/2462	Fraser Range	100%					
E39/1653	Fraser Range	80%		Geological Resources Pty Ltd			
E39/1654	Fraser Range	70%		NBX Pty Ltd			
E69/2379	Fraser Range	70%		Ponton Minerals Pty Ltd			
E69/2380	Fraser Range	70%		Ponton Minerals Pty Ltd			
E69/2707	Fraser Range	70%		Ponton Minerals Pty Ltd			
Queensland		1					
EPM19825	Connors Arc	100%					
EPM25122	Connors Arc	100%					
EPM25283	Connors Arc	100%					
EPM25703	Connors Arc	100%					
EPM25708	Connors Arc	100%					
EPM25712	Connors Arc	100%					
EPM25714	Connors Arc	100%					
EPM25763	Connors Arc	100%					
EPM25764	Connors Arc	100%					
EPM25813	Connors Arc	100%					



Tenement	Project	Ownership Interest	Change in Quarter	Joint Venture Partner
Victoria				
MIN5487	Walhalla	100%		
EL5340	Walhalla	100%		
EL5348	Walhalla	100%		

## Corporate

#### Cash and Finance

Cash on hand at the end of the Quarter was \$0.31 million.

#### Option Agreement – Masighame (South Africa)

As referred to in the Exploration section of this Report, the Company announced today that it had executed a binding option agreement with Masiahame Trading 855 Pty Ltd (**Masiahame**) for Orion to earn up to a 73% interest in Masiahame (**Term Sheet**). Masiahame holds prospecting rights over large, highly prospective area located approximately 80 kilometres north of the Prieska Copper Project. Key terms of the Term Sheet are as follows:

- Orion has the opportunity to earn up to a 73% interest in Masighame.
- Masighame is a privately owned South African company with 100% Historically Disadvantaged South African ownership. Masighame is thus black economic empowerment (BEE) compliant from the outset and Orion will earn in to an incorporated joint venture, partnering with a BEE partner via Masighame.
- Orion will have an exclusive option to undertake due diligence on the corporate entity
  and the prospecting rights until no later than 30 September 2016 (Option), failing which
  the parties will be released from their obligations under the Term Sheet.
- Following the successful completion of due diligence, should Orion elect to exercise the Option:
  - o Orion will pay Masighame ZAR1,500,000 (A\$130,000) to invest in new fully paid Masighame shares (**Shares**); and
  - Masiqhame will issue Orion with Masiqhame Shares which shall result in Orion being the holder of 50% of the total Shares on issue immediately following such issue of Shares.

#### (Completion)

- At Completion, Orion shall have the right to appoint the majority of directors to the board of Masighame and shall be appointed manager and operator of the prospecting rights;
- Masiqhame will then apply the ZAR1,500,000 Orion has invested in Masiqhame Shares to execute an initial exploration program on the tenements.



- Once Orion has earnt the initial 50% interest in Masighame through the issue of Masighame Shares to Orion, it can elect to increase its interest by a further 23% (to 73% in total) via:
  - o provision of a shareholder loan to Masighame (**Loan**) on the following terms:
    - The principal amount of the Loan shall be the ZAR equivalent of A\$100,000 in each 12 month period commencing from the 12<sup>th</sup> month following Completion (Principal);
    - Proceeds from the Loan shall be used to progress exploration programs and feasibility study works;
    - The Loan interest rate shall be nil;
    - the Loan shall only be repaid from operating surplus from future operations of Masiahame;
    - In addition to the Principal, Orion may elect at its sole discretion to provide additional finance by means of the Loan in order to progress exploration works and complete feasibility study works and if applicable, apply for a mining right;
    - Masighame shareholders as at the date of execution of the Term Sheet will be free carried until such time that a mining right is granted; and
    - if Orion fails to advance the Principal in any 12 month period, Masiqhame may subject to notice periods demand that all of the Shares held by Orion be transferred back to the Masiqhame shareholders (excluding Orion) for nil consideration and remove Orion as manager.
  - o finalisation of a feasibility study; and
  - o lodgement of an application for the grant of a mining right over some or all of the area of the prospecting rights,

Following this, Masiqhame shall immediately issue further new Shares to Orion which shall result in Orion being the holder of 73% of the total Shares on issue immediately following such issue.

• The transaction is subject to due diligence to be conducted by Orion and all necessary regulatory approvals.

#### Sale of Mining Tenement

On 30 December 2015, the Company announced that it had entered into a binding agreement (**Agreement**) with A1 Consolidated Gold Limited (**A1 Gold**) for A1 Gold to acquire Orion's Walhalla Project mining tenement 5487 (**Tenement**) in Victoria, which includes the Eureka and Tubal Cain deposits, for total consideration of \$0.85 million. The Agreement amended the terms of the term sheet announced on 11 August 2015 for A1 Gold to acquire the Tenement. Key terms of the Agreement are as follows:

- \$0.05 million cash payment (received by Orion in August 2015);
- \$0.3 million consideration through the issue of 7,816,285 fully paid ordinary A1 Gold shares
  (A1 Shares) at the volume average weighted price (VWAP) of the A1 Shares as traded
  on the ASX in the ten trading days prior to 7 August 2015 (\$0.03838) (issued to Orion in
  February 2016); and



• \$0.5 million royalty through a 2% royalty on net smelter returns from the sale of gold recovered and sold by A1 Gold from the Tenement (NSR). In addition, A1 Gold has granted Orion a put option whereby Orion can at any time following a period of 36 months from the date of the Term Sheet, require A1 Gold to purchase the NSR at a price equal to \$0.5 million less any NSR paid in accordance with the Term Sheet (NSR Consideration). Orion can elect to receive the NSR Consideration as cash or Shares issued to Orion at the VWAP of the Shares as traded on the ASX in the ten trading days prior to the date of issue.

Moving forward, upon the Victorian Government Department of Economic Development, Jobs, Transport and Resources (**DEDJTR**) issuing a recommendation in relation to the transfer of the Tenement from Orion to A1 Gold, A1 Gold is required to replace the \$0.18 million rehabilitation bond that the Company has on deposit with the DEDJTR.

The acquisition of the Tenement by A1 Gold is subject to the grant of consents required under the Mineral Resources (Sustainable Development) Act.

#### Breakaway Issue Research Report

On 3 February 2016, the Company announced that Breakaway Research had completed a research report on the Company.

To view a copy of the report, entitled "Significant Upside in Proposed Counter-Cyclical South African Acquisition", please visit our website at <a href="https://www.oriongold.com.au">www.oriongold.com.au</a>.

Breakaway Research is an independent research company. It is a member of Breakaway Investment Group - an Australian financial services company that specialises in the resource sector providing funds management, equity research and corporate advisory services. As disclosed in the report, Breakaway Research was commissioned by the Company to prepare the research report.

### Research and Development Tax Incentive

During the Quarter, the Company received a Research and Development (**R&D**) Tax Incentive rebate from the Australian Taxation Office of \$0.84 million. During the year ended 30 June 2015, Orion incurred eligible R&D expenditure from which the rebate was calculated.

#### **Appointment of Company Secretary**

On 1 April 2016, Mr Martin Bouwmeester was appointed as Company Secretary of Orion Gold NL and its subsidiaries, replacing Mr Kim Hogg who has resigned.

Mr Bouwmeester has 20 years' experience in the mining industry and was Business Development Manager, Chief Financial Officer and Company Secretary of Perseverance Corporation Limited. Mr Bouwmeester was a key member of the team that evaluated the sulphide mineralisation at the Fosterville Gold Mine; an initiative that led to the discovery and definition of more than 3 million ounces of gold and the funding for the development of the mine and processing plant to exploit those resources.

Mr Bouwmeester will also remain as Orion's Business Development Manager, providing valuable corporate experience and financial and strategic capability to the Company. Mr Bouwmeester previously held the position of Company Secretary from 23 September 2009 until 30 May 2014.



#### **Competent Persons Statement**

The information in this report that relates to Exploration Results and the Exploration Targets at the Prieska Copper project complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**) and is based on information compiled by Mr Paul Matthews, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Matthews has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Matthews consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears. The Exploration Results are based on standard industry practises for drilling, logging, sampling, assay methods including quality assurance and quality control measure as detailed in the Company's ASX announcement of 18 November 2015.

The information in this report that relates to Exploration Results at the Marydale project complies with the JORC Code and is based on information compiled by Mr Hano Hamman, a Competent Person who is a Member of the South African Council of Natural Earth Scientists, a ROPO organisation in terms of JORC 2012. Mr Hamman 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 Hamman 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 the Company's ASX announcement of 18 November 2015.

The information in this report that relates to Epithermal origin of the Marydale Project complies with the 2012 Edition of the 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 experience in the identification and exploration of mineralisation of this style. Mr Smart consents to the public release of the information in the context contained within this release as a Competent Person as defined in the 2012 Edition of the JORC Code).

The information in this report that relates to Exploration Results and other technical information for the Fraser Range Nickel-Gold Projects (also described as the Cundeelee Gold Project, the Peninsula Nickel Project and the Plumridge Lakes Project) complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code") and has been compiled by Mr Bill Oliver, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Oliver is the Chief Operating Officer of Orion Gold NL 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 Oliver consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Exploration Results at the Connors Arc Project complies with the JORC Code and is based on information compiled by Mr Bruce Wilson, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Wilson is the Principal of Mineral Man Pty Ltd, a consultant to Orion Gold, 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 Wilson consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Exploration Results and other technical information for the Walhalla PGE-Cu-Ni "Polymetals" Project complies with the 2012 Edition of the JORC Code and has been compiled and assessed under the supervision of Mr Errol Smart, Orion Gold NL's Managing Director, from historical records and field investigation. Mr Smart (PrSciNat) is registered with the South African Council for Natural Scientific Professionals, a ROPO for JORC purposes and has experience in the identification and exploration of mineralisation of this style. Mr Smart consents to the public release of the information

Sorion Gold<sub>NL</sub>

Orion Gold<sub>NL</sub> in the context contained within this release as a Competent Person as defined in the 2012 Edition of the JORC Code).

The information in this announcement relating to Mineral Resources and Exploration Targets complies with the 2012 Edition of the JORC Code and is based on and accurately reflects grade estimation and modelling undertaken by Mr Phil Jankowski MSc MAuslMM(CP) on behalf of Orion Gold. Mr Jankowski is a Director with of Baltica Consulting and has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' Mr Jankowski also consents to the inclusion in the report of the information in the form and context in which it appears.

#### Disclaimer

This release may include forward-looking statements. 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 Gold NL. 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 Gold NL 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.



#### Appendix 1: Mineral Resources at the Walhalla Gold Project.

Walhalla Gold Project – In situ Mineral Resources					
Deposit	Cut-off	Inferred			
Берозп	Au g/t	Tonnes	Au g/t	Ounces Au	
Tubal Cain	21	932,000	4.10	122,900	
Eureka <sup>2</sup>	4	153,000	9.90	49,200	
Cohen's	2	825,000	3.63	96,300	
Total		1,910,000	4.37	268,400	

#### Notes:

- 1. The 2g/t applies to the bulk of the deposit, below the 475mRL. Above this depth a 1g/t cutoff is used as surface mining may be able to be used for this portion of the deposit.
- 2. The Eureka Deposit was estimated based on the 2004 JORC Code and has been "grandfathered" in accordance with the 2012 JORC guidelines as there has been no material change to the Mineral Resource.
- 3. Further information on these Mineral Resources is included in the December 2013 Quarterly Activities Report and it is recommended that these resources are reviewed in conjunction with this information.

Walhalla Gold Project – Exploration Targets					
Deposit	Tonnage Range	Grade range (Au g/t)	Contained Ounces Range (Au)		
Tubal Cain	500,000 – 1,500,000	1.5 – 2.5	25,000 – 120000		
Cohen's	100,000 – 300,000	2 – 4	5,000 – 40,000		
Total	600,000 - 1,800,000	1.6 – 2.8	30,000 – 160,000		

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. The information in this announcement relating to Exploration Targets should not be misunderstood or misconstrued as an estimate of Mineral Resources or Ore Reserves. The Exploration Targets cover areas where there has been insufficient exploration to define a Mineral Resource which complies with the JORC Code, and it is uncertain if further exploration will result in the determination of a Mineral Resource. The potential tonnages and grades presented in these Exploration Targets are conceptual in nature.