

# FY22 COSMOS AND FORRESTANIA RESOURCES AND RESERVES

IGO Limited (ASX: IGO) is pleased to report its 30 June 2022 Mineral Resource estimates (MREs) and Ore Reserve estimates (OREs) for its Cosmos Project (Cosmos) and Forrestania Operation (Forrestania)<sup>1</sup> acquired through the acquisition of Western Areas Limited (WSA) via a scheme of arrangement on 20 June 2022.

The release of this statement for Cosmos and Forrestania ensures alignment with IGO reporting requirements, including the release of IGO's 2022 Annual Report to Shareholders on 30 August 2022.

There have been limited changes to the MREs and OREs relative to previous disclosure by WSA. In summary:

- Cosmos' MRE and ORE remain unchanged
- Forrestania's MRE and ORE have been updated and depleted for production through to 30 June 2022
- Changes to Forrestania ORE also reflect minor changes to the Flying Fox underground mine plan.

IGO will continue to provide an Annual Report for Minerals Resources and Ore Reserves for all portfolio assets as at 31 December each year. This will include the alignment of historic Forrestania MRE and ORE to IGO's reporting and current JORC Code Standards.

This ASX announcement also includes in the attachments to this release, a revised JORC Code Table 1 Checklist for the MRE at Greenbushes Lithium Mine, which supersedes the checklist reported in IGO's 31 January 2022 announcement<sup>2</sup>. While a new checklist has been issued by the Competent Person, there has been no change to the Greenbushes MRE as tabulated in IGO's January 2022 announcement, and its subsequent listing in IGO's 2022 Annual Report to Shareholders.

# **Forward-Looking Statements**

This document includes forward-looking statements including, but not limited to, statements of current intention, statements of opinion and expectations regarding IGO's present and future operations, and statements relating to possible future events and future financial prospects, including assumptions made for future commodity prices, foreign exchange rates, costs, and mine scheduling. When used in this document, the words such as 'could', 'plan', 'estimate', 'expect', 'intend', 'may', 'potential', 'should' and similar expressions are forward-looking statements. Such statements are not statements of fact and may be affected by a variety of risks, variables and changes in underlying assumptions or strategy which could cause IGO's actual results or performance to materially differ from the results or performance expressed or implied by such statements. There can be no certainty of outcome in relation to the matters to which the statements relate, and the outcomes are not all within the control of IGO.

IGO makes no representation, assurance or guarantee as to the accuracy or likelihood of fulfilment of any forward-looking statement or any outcomes expressed or implied in any forward-looking statement. The forward-looking statements in this document reflect expectations held at the date of this document. Except as required by applicable law or the ASX Listing Rules, IGO disclaims any obligation or undertaking to publicly update any forward-looking statements or discussions of future financial prospects, whether because of new information or of future events. IGO cautions against undue reliance on any forward-looking statement or guidance, particularly considering the current economic climate and significant volatility, uncertainty, and disruption, including that caused by the COVID-19 pandemic.

This announcement is authorised for release to the ASX by the Board of Directors.

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<sup>&</sup>lt;sup>1</sup> IGO ASX release 20 June 2022 "Completion of Western Areas Scheme of Arrangement"

<sup>&</sup>lt;sup>2</sup> IGO ASX announcement "31 January 2022 - CY21 Annual Resources and Reserves Update"





FY22 COSMOS AND FORRESTANIA RESOURCES AND RESERVES 30 JUNE 2022



# INTRODUCTION

IGO Limited (IGO) is a multi-commodity mineral producer which listed on the Australian Securities Exchange (ASX) in January 2002. IGO's corporate strategy is to focus on metals and minerals critical for clean energy applications, including renewable energy generation, grid-scale energy storage and electric vehicles.

Through direct ownership or indirectly through joint venture (JV) agreements, IGO produces saleable concentrates containing nickel  $\pm$  copper  $\pm$  cobalt or

lithia from its three operational mining interests in Western Australia (WA). As depicted in the map below, which illustrates IGO's exploration and mining tenements at the end of financial year 2022 (FY22), IGO also manages, again through direct ownership or JV, extensive geological 'belt-scale' exploration ground positions throughout WA, the Northern Territory, South Australia, and New South Wales, in Australia, and in Greenland in Europe.



# IGO's end of FY22 exploration tenure and mining interests

IGO publicly reports its Exploration Results, Mineral Resource estimates (MREs) and Ore Reserve estimates (OREs) in accordance with the ASX Listing Rules<sup>1</sup> and the requirements and guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, which is known as the JORC Code (JORC Code 2012)<sup>2</sup>. In January 2022, IGO reported its JORC Code 2012 MREs and OREs effective 31 December 2021 (CY21), for its:

• 100% owned nickel-copper-cobalt (Ni-Cu-Co) Nova Operation (Nova), which is



approximately (~) 140 kilometres (km) east northeast of the town of Norseman in WA

- 100% interest in the Ni-Cu-Co sulphide mineralisation at the Silver Knight Project, which is ~35 km northeast of Nova
- 24.99% indirect interest in Greenbushes Lithium Mine, which is ~210 km south of WA's capital city, Perth.<sup>3</sup>

In its financial year (FY) annual report to shareholders, IGO usually reports summary listings of its prior calendar year (CY) end MREs and OREs, where the JORC Code 2012 supporting details for the estimates have been previously reported in an IGO CY end MRE and ORE ASX announcement. Additionally, for its operational interests, IGO also reports any production between CY end and FY end reporting periods, to serve as a proxy for MRE and ORE mining depletion until the next planned CY end update is prepared.

However, for its 2022 Annual Report to Shareholders, IGO now needs to report FY22 MREs and OREs from its recently acquired Cosmos Project (Cosmos) and Forrestania Operation (Forrestania)<sup>4</sup>, where for Forrestania some estimates were reported in accordance with the requirements of the older 2004 edition of the JORC Code (JORC Code 2004)<sup>5</sup>. As such, the purpose of this announcement is to provide readers with the necessary detail relating to Cosmos' and Forrestania's estimates, so that the MRE and ORE summary listings included in IGO's 2022 Annual Report to Shareholdersare supported by the ASX and JORC Code related requirements.

# **ECONOMIC ASSUMPTIONS**

Two key inputs to Cosmos' and Forrestania's operational budgets and ORE cut-off grades are foreign exchange (FX) rates between Australian dollars (A\$) and United States dollars (US\$) and the nickel price. For IGO's FY22 reporting, IGO has relied on the price and FX assumptions set by prior owner Western Areas Limited (WSA).

100/WOATA fale assumptions	IGO/WSA	FX ra	ate ass	umptions
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	Currency	Exchange rate							
Year	ratio	IGO	WSA	WSA/IGO ratio					
2021	\$AA\$:US\$	0.74	0.70	95%					
2022	\$AA\$:US\$	0.75	0.75	100%					
20	022/2021	101%	107%						

The tabulations above and below are comparative listings of FX rate and nickel metal price assumptions per tonne (t) of nickel metal for IGO's CY21 assumptions and WSA's FY22 budgets.

GO/WSA nicke	l price	assumptions
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		Nickel price assumptions								
Year	Unit	IGO WSA		WSA/IGO ratio						
2021	US\$/t	16,550	13,228	80%						
	A\$/t	22,420	18,897	84%						
2022	US\$/t	17,900	16,535	92%						
	A\$/t	23,810	22,046	93%						
2022/2024		108%	125%							
2022	/2021	106%	117%							

These listings reveal that WSA and IGO are aligned on FX rate, with only a 1% relative difference, and WSA has taken a more conservative view on metal prices compared to IGO over the last few years. While there are differences, IGO does not consider the variances between WSA and IGO's FX rate and nickel price assumptions to be material.

#### MINERAL RESOURCES AND ORE RESERVES

For this announcement, IGO has relied on the MREs and OREs prepared by WSA's consultants or technical staff. However, IGO's senior technical staff reviewed the WSA estimates as part of IGO's due diligence work for the WSA acquisition, and furthermore engaged a well-respected MRE-ORE consultancy (Snowden Optiro) in the due diligence process to provide IGO with expert opinions regarding the WSA estimates. Additionally, the Competent Persons who are taking responsibility for Cosmos and Forrestania estimates discussed in this announcement are now employees of IGO.

Most of Cosmos' and Forrestania's MREs and OREs have been prepared in accordance with guidelines of the JORC Code 2012 and prevailing ASX requirements. However, several MREs and one ORE for Forrestania have been prepared and reported under the JORC Code 2004 regimen. The main difference between the two reporting systems (JORC Code 2004 and JORC Code 2012) is that the ASX reporting of JORC Code Table 1 Checklists is discretionary for the JORC Code 2004 estimates, while checklist reporting is mandatory for all initial 2012 estimates and subsequent annual revisions that involve material changes to the first estimates.

The tabulations below are summary listings of the Cosmos and Forrestania MREs and OREs in the form that they appear in IGO's 2022 Annual Report to Shareholders and effective on 30 June 2022. Full details, including deposit sector information, are included in the relevant ensuing sections of this announcement. For any JORC Code 2012 estimates, JORC Table 1 Checklists are included in the attachments to this announcement.



	IODO			3	30 June 202	1	30 June 2022			
Location	Code	Estimate	Code	Mass	Nic	kel	Mass	Nic	kel	
	Edition		Class	(Mt)	(%)	(kt)	(Mt)	(%)	(kt)	
Cosmos	2012	OD-AM5-AM6	Measured	-	-	-	-	-	-	
			Indicated	-	-	-	11.56	2.27	262	
			Inferred	-	-	-	2.52	2.65	67	
			OD-AM5-AM6	-	-	-	14.08	2.34	329	
		Mt Goode	Measured	-	-	-	13.56	0.80	106	
			Indicated	-	-	-	27.36	0.60	159	
			Inferred	-	-	-	12.01	0.50	62	
			Mt Goode	-	-	-	52.94	0.62	327	
		Stockpiles	Measured	-	-	-	-	-	-	
		Total	Measured	-	-	-	13.56	0.78	106	
			Indicated	-	-	-	38.92	1.08	421	
			Inferred	-	-	-	14.53	0.89	129	
	<u></u>	-	Cosmos	-	-	-	67.01	0.98	656	
Forrestania	2012	All	Measured	-	-	-	-	-	-	
			Indicated	-	-	-	4.79	2.33	112	
			Inferred	-	-	-	2.84	1.51	43	
			All	-	-	-	7.63	2.03	155	
		Stockpiles	Measured	-	-	-	-	-	-	
		Total	Measured	-	-	-	-	-	-	
			Indicated	-	-	-	4.79	2.33	112	
			Inferred	-	-	-	2.84	1.51	43	
			JORC 2012	-	-	-	7.63	2.03	155	
	2004	All	Measured	-	-	-	-	-	-	
			Indicated	-	-	-	4.40	1.43	63	
			Inferred	-	-	-	0.41	1.26	5	
			JORC 2004	-	-	-	4.82	1.42	68	
	All	Total	Measured	-	-	-	-	-	-	
			Indicated	-	-	-	9.19	1.43	175	
			Inferred	-	-	-	3.25	1.26	48	
			Forrestania	-	-	-	12.45	1.79	223	
Total	All	All	Measured	-	-	-	13.56	0.78	106	
			Indicated	-	-	-	48.11	1.24	596	
			Inferred	-	-	-	17.78	1.00	177	
			Total	-	-	-	79.46	1.11	879	

# Cosmos and Forrestania Mineral Resources at FY21 and FY22

Notes: MRE masses are in millions of tonnes (Mt) and grades are weight per cent. Nickel metal is in thousands of tonnes (kt). Mineral Resources are inclusive of the Ore Reserves. OD-AM5-AM6 refers to the Odysseus (DD) and Alec Mairs 5 (AM5) and Alec Mairs 6 (AM6) deposits at Cosmos. Some totals and averages may mistakenly appear to be inaccurate due to the rounding of estimates to fixed decimal places.



	IORC			30 June 2021			30 June 2022			
Location	Code	Estimate	JORC Class	Mass	Ma	iss	Mass	Ma	ISS	
	Edition			30 June 2021         30 June 202           Mass         Long         Long <thlong< th=""> <thlong< th=""> <thlong< th=""></thlong<></thlong<></thlong<>	(kt)					
Cosmos	2012	OD-AM6	Proved	-	-	-	-	-	-	
			Probable	-	-	-	10.23	2.07	212	
			OD-AM6	-	-	-	10.23	2.07	212	
		Stockpiles	Proved	-	-	-	-	-	-	
		Total	Proved	-	-	-	-	-	-	
			Probable	-	-	-	10.23	2.07	212	
			Cosmos	-	-	-	10.23	2.07	212	
Forrestania	2012	All	Proved	-	-	-	-	-	-	
			Probable	-	-	-	0.78	3.17	25	
			All	-	-	-	0.78	3.17	25	
		Stockpiles	Proved	-	-	-	-	-	-	
		Total	Proved	-	-	-	-	-	-	
			Probable	-	-	-	0.78	3.17	25	
			JORC 2012	-	-	-	0.78	3.17	25	
	2004	All	Proved	-	-	-	-	-	-	
			Probable	-	-	-	2.11	1.46	31	
			JORC 2004	-	-	-	2.11	1.46	31	
	All	Total	Proved	-	-	-	-	-	-	
			Probable	-	-	-	2.89	1.92	56	
			Forrestania	•	-	-	2.89	1.92	56	
Total	All	All	Proved	-	-	-		-	-	
			Probable	-	-	-	13.1	2.04	268	
			Total	-	-	-	13.1	2.04	268	

Cosmos and Forrestania Ore Reserves at FY21 and FY22

Notes: Some totals and averages may mistakenly appear to be inaccurate due to the rounding of estimates to fixed decimal places.



# FY22 Resource and Reserve in situ metal by deposit and JORC Code edition of reporting



Observations from the MRE tabulation above are:

- Of the total 879t of total nickel metal in MREs for Cosmos and Forrestania, 656kt (~75%) is at Cosmos, of which ~327kt of nickel (~37% of IGO's 879kt total) is in the Mt Goode deposit
- Excluding Mt Goode, the other 'underground' MREs at Cosmos contain a total of 329kt of nickel

Observations from the ORE table above are that:

- Of the 267kt of nickel metal in ORE at Cosmos and Forrestania, 212kt of metal (~79%) is at Cosmos and reported under the guidelines of the JORC Code 2012 as Probable Ore Reserve
- Forrestania has 56kt of nickel metal in OREs, with 31kt of nickel (55%) as a JORC Code 2004 Probable Ore Reserve and the balance as JORC Code 2012 Probable Ore Reserve.



# Cosmos Project IGO 100%

#### LOCATION

# 40km north northeast of Leinster WA

#### SALEABLE PRODUCTS

-

Not yet in production but will produce a nickel concentrate with cobalt credits

# TENURE

88km<sup>2</sup> of WA mining tenure

### MINING METHOD

- Planned mining methods for Odysseus and AM6 is open stoping with paste backfill.
  - Ore will be shaft hoisted ~1km to surface.

# PROCESSING AND SALES

- A 2018 Feasibility Study planned ore processing in a 0.9Mt/a froth flotation concentrator but IGO is assessing an alternate expanded 1.1Mt/a concentrator to start in 2023
- Sales methods are yet to be finalised

#### ORE RESERVES

- 10.23Mt grading 2.07% Ni for 212kt of nickel in situ
- MINERAL RESOURCES
- 67.01Mt grading 0.98% Ni for 656kt of nickel in situ including the low grade Mt Goode deposit

#### MINE LIFE

Based on the current mine plans the mine life is at least 10 years

# POTENTIAL

- Conversion of the AM5 resource to reserve
- Mine and/or underground development of the bulk tonnage low-grade Mt Goode Deposit
- Discovery of further high grade lodes along strike and between known deposits



# Introduction

By road, the turnoff to Cosmos is ~50km north along the Goldfields Highway from the town of Leinster, which is ~645 km due northeast of WA's capital city of Perth. The portal of the Ilias Decline at Cosmos, which is the current access to Cosmos' reserves, is at latitude 27°36'00" S and longitude 120°34'28" E.

#### **Cosmos overview**



# **Regional geology**

Cosmos' cluster, or 'camp' of nickel sulphide deposits, occurs within or adjacent to a local sequence of ~2.7 billion year (Ga) old (Archean age), and now metamorphosed, komatiitic lavas that are part of the Agnew-Wiluna Greenstone Belt (AWGB) of the Kalgoorlie Terrane of the Eastern Yilgarn Craton, as depicted in the map below.

# Komatiites

Komatiites form from high temperature, low viscosity lavas that have predominantly erupted in restricted linear belts, which today are interpreted to be the signature expressions of early crustal boundaries6.

#### Terranes and komatiites of the Yilgarn Craton



Modified from<sup>6</sup>

#### Concept crustal section of komatiite formation



Image modified from<sup>6</sup>

Komatiites are rare in post-Archean geology and this sparsity in the younger rock record is interpreted to be due to the presence of a much higher internal heat flux in the Archean-age Earth. As depicted in the image above, this higher Archean heat flow is thought to have facilitated the formation of rapidly ascending plumes of nickel-enriched magmas from the upper mantle, and the subsequent eruption of these magmas as komatiite lavas through fissures formed along thinning and extending palaeocratonic continental margins7. These ancient margins are now the sites of major nickel camps throughout WA.

#### Agnew-Wiluna Greenstone Belt (AWGB)

Relative to Cosmos, the AWGB extends ~115km north northwest to the town of Wiluna and ~150km south southeast to near the town of Leonora. However, the simplified regional geology image below, which depicts the locations of the major nickel sulphide deposits around Cosmos, only captures the northern half of the AWGB.





Simplified regional geology of the AWGB

As depicted in the map above, the AWGB hosts multiple world-class high-grade underground nickel deposits in the Cosmos region, such as near Leinster where the Perseverance deposit had a premining resource in the order of ~50 Mt grading 2.2% Ni (1.1Mt nickel). The AWGB also hosts multiple large-tonnage, low-grade nickel deposits that are usually mined using open pit methods, such as Mt Keith, which is ~40km north of Cosmos, which had a pre-mining resource in the order of ~500Mt grading 0.55% Ni (2.75Mt nickel)<sup>9</sup>.

As depicted on the simplified regional geology map above, the Ida Fault demarks the western boundary of the AWGB, and the belt is truncated in the east by the Keith-Kilkenny Lineament. The northern and southern margins are ambiguous, with the northern margin hidden by the Proterozoic age Earaheedy Group of rocks near Wiluna, and based on geochemical characteristics of the komatiite units, the AWGB extends southeastwardly to near the town of Leonora. The entire belt has undergone a complex polyphase deformational history, with metamorphism ranging from low temperature pressure prehnite-pumpellyite facies in some rocks Wiluna, increasing in pressure near and temperature to greenschist to lower amphibolite grade in rocks near Agnew, then increasing again to the higher temperatures and pressures of middle amphibolite grade in the rocks around Leinster. The geology of the AWGB is often disrupted by major wrench-faults that are traceable over tens of kilometres, and the local geology is often characterised by a steeply dipping stratigraphy, and rocks that can display structural features from up to ten regional deformation events.

# **Geology and mineralisation**

On a local scale, Cosmos' geology comprises a metamorphosed sequence of ultramafic, intermediate, and felsic volcanic rocks that contain multiple komatiite-hosted (or associated) nickel sulphide deposits. The mineralised ultramafics have thicknesses of up to 500m in the Cosmos mine camp, where they dip vertically and face east. However, the komatiites thin towards Lake Miranda, which is just south of Cosmos, and dip more shallowly to the east.

The footwall volcanic succession to Cosmos' mineralised and now metamorphosed komatiite lavas is an intercalated sequence of fragmental and coherent extrusive lithologies, ranging from metamorphosed basaltic andesites through to rhyolites, and additionally, younger cross cutting felsic intrusions and pegmatites. Age dating studies indicate that this footwall volcanic succession has an age range of 2.736 to 2.724Ga<sup>10</sup>.

Cosmos' ultramafic sequence that overlies the footwall metavolcanics has two units identified in mapping and drill hole logging. The first is a basal UMu1 package that is separated from the upper UMu1 by a 2.685 Ga old, discontinuous felsic unit that occurs ~30 to 60m above the UMu1 basal contact. This felsic unit is interpreted to signal a hiatus in komatiite lava eruption.

Two younger felsic intrusions have also been age dated to be 2.653Ga and 2.670Ga respectively. The younger of these intrusions cross cuts the upper contact of the upper UMu2 komatiite. Combined with dating from the footwall volcanics, the lower UMu1 ultramafic package is interpreted to have been deposited in flows from 2.724 to 2.685Ga, while the upper UMu2 package was deposited from 2.685 to 2.670Ga. As such, the first phase of komatiite deposition lasted ~50 million years (Ma), followed by a short pause, then a second phase of ~30Ma of eruption and deposition.

The stratigraphic hangingwall to Cosmos' mineralised komatiites consists of reworked volcaniclastic metasediments, including polymictic

Image modified from<sup>8</sup>



conglomerates containing granite clasts. In terms of structure, Cosmos' mine sequence is often disrupted by northwest trending dextral offset shears. All rocks have undergone upper greenschist to lower amphibolite grade metamorphism, which has usually destroyed primary igneous textures through the formation of metamorphic minerals. However, some areas of primary textures can still be recognised locally in some of the thicker and less serpentinised parts of some deposits, such as in the core zone of the Mt Goode metadunite.

#### Cosmos' local geology



The surface regolith ranges from 40 to 80m deep across the local region and comprises transported cover and saprolite clays. The carapace over the ultramafic rocks frequently presents as a siliceous saprock over cavernous clays.

# Komatiite nickel sulphide deposits

The formation model for Cosmos' nickel deposits is the 'Kambalda-style' model, where precipitation of nickel sulphides is interpreted to occur in channelised komatiitic lava flows and/or lava tubes. This model proposes two dominant deposit types<sup>11</sup>.

'Type 1' deposits are interpreted to have formed where the hottest lava in the centre of a lava channel thermally erodes into a sulphidic substrate and massive sulphides accumulate at the channel base. This high-grade primary formation style is applicable to the origin of the Cosmos, Cosmos Deeps, AM1, AM2, parts of AM5 and the Odysseus Massive zones.

Komatiite lava flow prospective channels



Modified from<sup>11</sup>



Type 1 deposit model formation

Modified from<sup>11</sup>

However, the Type 1 deposits are often subject to mobilisation into structural sites when massive sulphide bodies behave plastically or even re-melt under the high metamorphic temperatures and pressures that are generated by local or regional tectonic faulting and/or folding events. Cosmos' Cosmos Deeps and the Odysseus Massive zone are likely examples of this remobilisation style.

'Type 2' deposits are interpreted to have formed from somewhat cooler and slower flowing lavas than those envisaged for Type 1 deposits. In this model, the mineral olivine is envisaged to crystallise from these cooler lavas. The olivine grains settle to the channel's base with the precipitation of sulphides. In this model, the coeval sulphides crystallise between the olivine grains, giving rise to



a disseminated to 'matrix' textured nickel sulphide mineralisation that builds up from the channel base. This style of mineralisation is applicable to Cosmos' AM5, AM6 and Odysseus Disseminated zones.

Type 2 – deposit model



Modified from<sup>11</sup>

Cosmos' Mt Goode deposit represents a third style of nickel sulphide mineralisation found at Cosmos, with its genetic model being the 'Mt Keith' type. In this model, the sulphides are envisioned to have formed in the centre of a slower flowing thick lava channel with the disseminated mineralisation formed in a similar co-crystallising process to that postulated for the Type 2 deposits. However, the sulphides are more disseminated than in the Type 2 model, albeit with a central core of higher grade disseminated that is encased within a very low sulphide content halo, which in turn grades into an outer bounding sulphide-barren zone of olivine-rich adcumulate or mesocumulate rocks.





Modified from<sup>11</sup>

Secondary styles of sulphide mineralisation overprint the primary style at Mt Goode, where the metadunite has undergone varying levels of serpentinisation, which is an oxidising metamorphic process. Due to the growth of metamorphic serpentinisation minerals, the pentlandite grains in Mt Goode can become disaggregated to ever decreasing particles sizes and replaced with the sulphide heazlewoodite. Additionally, in the originally nickel barren outer zones of Mt Goode, serpentinisation of olivine grains has formed fine <10 micrometre diameter heazlewoodite and/or millerite sulphide 'dust' throughout the serpentine mineral crystal matrices. Although the nickel grades in this zone are at economically attractive levels for open pit mining (0.5 to 1.0% Ni), the metallurgical recovery is typically poor due to fineness of the sulphides and their associated problematic liberation characteristics.

The sulphide nickel assemblages at Cosmos are 'high tenor', meaning that the sulphides are dominated by the nickel-bearing mineral pentlandite. The sulphide assemblages also contain the sulphide mineral pyrrhotite, with minor amounts of pyrite and chalcopyrite, and in some places, small concentrations of rarer nickel sulphides such as valleriite and millerite.

# **Cosmos history**

Cosmos has a long history of nickel sulphide deposit discovery, which commenced in 1997 when Jubilee Gold Mines NL (JBM), discovered a nearsurface and very high-grade massive sulphide nickel deposit, which it named Cosmos. JBM's exploration team made this discovery through applying a combination of geological, geochemical, and geophysical methods to explore the region.

Over the next 20 years, JBM discovered six new high-grade nickel deposits, and additionally defined the current mineral resources of the large low-grade Mt Goode deposit, which it acquired in 2003 from Barrick Gold Australia (Barrick). Subsequent Cosmos owner Xstrata Nickel Australasia Pty Ltd (XNA) – a 100% owned subsidiary of Xstrata plc (Xstrata) – then discovered two additional deep high-grade deposits, both of which form the foundation reserves of Cosmos' mining and processing revival with IGO. More information on the past discovery, acquisition and mining of Cosmos' deposits is detailed in the following sections of this announcement.

# **Cosmos Deposit**

The original Cosmos deposit is centred on coordinates ~27°35′59″S and 120°34′34″E, which is now the centre of the mined-out Cosmos Pit. Cosmos was JBM's first discovery in 1997; one of JBM's drill holes tested a short strike-length electromagnetic (EM) geophysical anomaly that had been partially tested by prior explorers<sup>12</sup>. However, unlike its less fortunate predecessors, JBM's first hole drilled to test this anomaly intersected high-grade massive sulphides. With further drilling, JBM defined Cosmos to be a 250m long, steeply dipping, and tabular nickeliferous massive sulphide sheet-like body that had accumulated along the base of a local ultramafic unit, which was overlain by felsic



volcanics and metasediments, and below ~50m of overburden and largely barren saprolite.



Cosmos deposit and completed open pit

tonnage but at a 16% higher nickel grade than the Ore Reserve's head grade global nickel esitmate<sup>24</sup>.



**Cosmos Deeps** 

Cosmos Deeps is centred on coordinates ~27°35'56"S and 120°34'37"E, which is only ~130m northeast of the Cosmos Pit's centre. In 1999. during Cosmos' project construction and the open pit's overburden pre-stripping phase, JBM's exploration team discovered the Cosmos Deeps deposit, when an EM survey in an exploratory diamond drill hole found a strong conductor near the hole. This conductor was directly below the Cosmos Pit at ~500m below the pit's crest elevation<sup>25</sup>. Subsequent diamond core drilling confirmed the Cosmos Deeps discovery when holes that were designed to test the off-hole EM anomaly intersected two zones of high-grade massive nickelbearing sulphides<sup>26-28</sup>.

Unlike Cosmos, which is interpreted to be a mostly in situ Type 1 deposit, Cosmos Deeps was found to be a secondary, tectonic style deposit, where the primary sulphides had been remobilised into a breccia-style fracture system within a felsic volcanic unit. In October 2001, JBM announced a first Cosmos Deeps ORE, which extended Cosmos' processing life by at least three years<sup>29</sup>.

Following a resource definition phase of drilling through 1998, JBM announced in April of that year a first MRE for Cosmos for fresh sulphide mineralisation<sup>13,14</sup>. By mid-year 1998, JBM reported that a 'bankable' Feasibility Study (FS) had confirmed the viability of constructing a three-year life mining and processing operation, comprising a 150 thousand tonnes per annum (kt/a) concentrator and associated infrastructure, to process a revised open pit mineable Cosmos ORE<sup>15,16</sup>.

In November 1998, JBM entered into an offtake agreement to sell its future concentrates to Inco Limited, and by August 1999 had accepted a financing offer to construct a 150kt/a concentrator and cover its associated mine and project development costs <sup>17,18</sup>. Site clearing, pre-stripping of the open pit and plant construction all commenced in October 1999<sup>19,20</sup>. Also, at the end of 1999, JBM shortened its company name to Jubilee Mines NL<sup>21</sup>.

JBM processed Cosmos' first ore through its new concentrator in July 2000, and later that year its first saleable concentrates shipped to Canada<sup>22,23</sup>. On completion of the Cosmos Pit in August 2003, JBM reported that the plant had processed 100% of the Ore Reserve's estimated





Cosmos and Cosmos Deeps

In December 2002, JBM fired its first blast to establish the portal of the Ilias Decline, which would eventually access the Cosmos Deeps ORE<sup>30</sup>. Ore mining commenced in June 2003, just as mining ceased in the Cosmos Pit<sup>31</sup>. In the same year, JBM also completed more underground drilling to test the Cosmos Deeps Hangingwall Zone Inferred MRE, which was not included in the ORE and mine plan<sup>32</sup>. Cosmos Deeps continued as Cosmos' principal ore source for JBM until March 2007, when the last stope was completed from the deposit<sup>33</sup>.

# Mt Goode (also referred to as Anomaly 1)

Lachlan Resources NL (Lachlan), which was majority owned by Homestake Gold Australia (Homestake), discovered Mt Goode in 1998, by testing the ultramafic unit south of JBM's Cosmos discovery with geophysical surveys and then reverse circulation (RC) percussion drilling. This RC drilling intersected thick zones of low to moderate grades of nickel in several holes<sup>34</sup>. Following more

drilling by Lachlan and then Homestake over several years, subsequent Mt Goode owner Barrick, which had merged with Homestake's parent company in 2001, prepared several unpublished MRE estimates for Mt Goode before it sold the project to JBM. In April 2003, JBM acquired the Mt Goode Nickel Project from Barrick.

The acquired Mt Goode tenure abutted JBM's Cosmos' tenure at ~350m south of the Cosmos Pit, where prior explorers and Barrick had drill defined a ~100m wide nickeliferous zone having a strike length of ~500m, with fresh sulphide mineralisation commencing at ~100m below surface and extending to ~300m below surface. In its April 2003 Mt Goode acquisition announcement, JBM cited typical Barrick drill hole intercepts through Mt Goode ranged from ~45m to ~200m, with nickel grades averaging ~0.7% Ni, but with several intercepts indicating a higher-grade core zone that had intercept nickel grades ranging from ~1.0 to 1.2% Ni. JBM additionally reported that Barrick had discovered low-grade mineralisation in drilling ~4km south of Mt Goode in the acquired Mt Goode tenure package, which signalled two new nickel deposit discoveries, as discussed further below<sup>35</sup>. In April 2005, JBM announced the results of pilot plant metallurgical testing of diamond core samples from Mt Goode and stated that the production of ~14% Ni concentrates was possible, with metallurgical recoveries in the range ~73.4% to 75.7%<sup>36</sup>. JBM reported a first JORC Code reportable MRE for Mt Goode (as Anomaly 1) in July 2004<sup>37</sup> and in mid-2006, which added ~60kt of nickel metal to the prior estimate due to the full definition of Mt Goode's lower-grade halo mineralisation through new drilling<sup>38</sup>.

Despite having several studies initiated by JBM and subsequent owner WSA, an ORE has never been announced for Mt Goode, likely due to its marginal economics at prevailing nickel prices. However, IGO will still report an MRE for Mt Goode, as discussed in the later sections of this ASX announcement and will assess the viability of the deposit over coming months.

Mt Goode hosts a large FY22 JORC Code reportable MRE for IGO, and this is discussed in more detail further below.





Mt Goode low and higher grade zones at Cosmos and Cosmos Deeps

# AM1

AM1 is a mined-out underground zone that is on coordinates ~27°36'11"S centred and 120°34'29"E, ~400m south southwest of the centre of Cosmos Pit, near and within the boundary of mining lease M36/127. In June 2004, JBM's exploration team discovered a small but very high grade, Type 1 massive sulphide zone, which it initially named the '1200' zone, at ~350m southwest of Cosmos Pit at the contact between the ultramafic hosting Mt Goode and felsic volcanics<sup>39</sup>. In August of the same year, JBM announced it had given the approval for the development of an exploration decline to provide underground drill platforms to explore the 1200 zone<sup>40</sup>. In August 2004, JBM renamed the 1200 zone to the Alec Mairs (AM) deposit in honour of JBM's long-serving board chair who passed away in 2004. Alec Mairs later became known as AM1, when additional lodes were discovered in the same area<sup>41</sup>. JBM completed the AM exploration decline in January 2005 and established two drill platforms for the concurrent drilling of AM1 in that year<sup>42</sup>.

In June 2005, JBM commenced a second decline beneath AM1, branching from the Cosmos Deeps llias Decline termination. The purpose of this new exploration decline was to facilitate drilling of the prospective ultramafic contact along strike and test EM conductors and surface-collared positive drill intersections, which occurred down plunge from, and below, Mt Goode<sup>43</sup>. These early intercepts were the first signals of the yet to be defined AM5 and AM6 zones discussed further below<sup>44</sup>. For reasons not stated publicly, JBM never published an MRE for AM1. However, in a 2007 conference presentation, JBM noted when discussing JBM's Cosmos discovery history, that AM1 contained ~2kt of nickel metal in a 'production' status<sup>45</sup>.

# AM2

AM2 is another mined-out underground zone centred on coordinates ~27°36'20"S and ~120°34'24"E, which is 300m south southwest of AM1, and within the same mining lease as AM1. In October 2005, JBM reported a first MRE for AM2<sup>46</sup>. JBM then reported first mining of AM2 in March 2007 in conjunction with the last ore mining from Cosmos Deeps<sup>33</sup>. In its 30 June 2007 quarterly



report, JBM commented that the first narrow vein mining method 'Alimak' Stope at AM1, along with AM2, were the main ore sources for production, along with ore blended from the Tapinos deposit (Tapinos is discussed further below)<sup>47</sup>. No ORE for AM2 was reported to the ASX, with JBM's mining proceeding on the MRE.





# Prospero (also referred to as Anomaly 3)

Prospero is another mined-out underground deposit, also within mining lease M36/127, that is coordinates 27°38'13"S centred on and 120°34'50"E, and ~3.6km south southeast of AM2. In July 2003, JBM's exploration diamond core drilling at 'Anomaly 3', which is ~4.5km south of the Cosmos Pit, intersected a ~70m length of low-grade nickel sulphide mineralisation<sup>48</sup>. Being near the base of an ultramafic and adjacent to a sulphidic felsic footwall unit, the geological setting of this mineralisation was initially thought to be like that of Cosmos<sup>49</sup>.

However, later drilling results revealed the mineralisation was a remobilised style, with the nickel sulphides hosted by a package of felsic volcanic rocks that are internal to the ultramafic sequence. Following further drilling success, JBM renamed Anomaly 3 in September 2004 to the 'Prospero' prospect, which in turn would later become known as the Prospero deposit <sup>50,51</sup>.In May 2005, JBM reported a first Prospero MRE, noting that the estimate was limited to the available drilling, and that there were still several abutting off-hole EM targets yet to be drill tested<sup>52</sup>.

In June 2005, JBM reported a revised Prospero MRE<sup>44</sup>, and having confidence that Prospero would



very likely become a mine, JBM commenced a boxcut in August 2005 to develop the Helene Decline to access Prospero<sup>53</sup>. In March 2006, JBM reported another revised Prospero MRE<sup>54,55</sup>, and by August 2006, following the completion of mining studies, JBM reported an ORE for Prospero (all Probable Ore Reserves)<sup>56</sup>. Mining of Prospero commenced under the management of XNA, as discussed further below.



#### Cosmos plan of all mineralised zones and mineral tenure

Cosmos long section of all mineralised zones looking west



# Tapinos (also referred to as Anomaly 4)

Tapinos is a second southerly mined-out underground deposit centred on 27°38'8"S and 120°34'41"E, and ~300m west northwest of the centre of Prospero. In October 2005, following JBM's exploration successes in the diamond core drilling that was testing the basal ultramafic contact at 'Anomaly 4', ~1km north of Prospero, JBM renamed Anomaly 4 to the Tapinos deposit<sup>57</sup>. In November 2005, JBM reported a first MRE for Tapinos (all Inferred Mineral Resources). JBM described Tapinos' mineralisation style as flat-lying, Type 1 massive and massive-stringer mineralisation on the basal contact of the ultramafic host rock sequence. JBM further noted that conveniently, Tapinos was relatively shallow and located close to the Helene Decline so it could be accessed in conjunction with the deeper Prospero mine development<sup>58</sup>. In August 2006, JBM reported that



mining studies on Tapinos had been prepared but because the MRE contained only Inferred Mineral Resources, an ORE could not be reported in accordance with the guidelines of the JORC Code<sup>56</sup>.

Prospero and Tapinos drill section



In conjunction with the last ore to the Cosmos mill from Cosmos Deeps and first ore from AM2, JBM reported the first ore mining from Tapinos in March 2007<sup>33</sup>. By April 2007, both the Tapinos and AM2 deposits were developed, and stoping was underway, with Tapinos contributing to the ore stream to the concentrator by April 2007, along with the AM1 and AM2 ore sources<sup>47</sup>.

# AM5

In May 2007, JBM reported the discovery of what eventually proved to be just the top of the AM5 mineralisation, which is ~100m east of AM2 starting at the base of the host ultramafic. JBM commented that AM5 comprises both high-grade massive nickel sulphides at the basal contact and then a large zone high-grade disseminated of mineralisation stratigraphically above the massive pods. This highgrade zone then diffuses into a lower-grade halo of disseminated sulphide mineralisation, having an average grade of ~1.0% Ni<sup>59</sup>. In one of its last ASX reports before it was acquired by XNA, JBM reported continued positive drilling results and associated definition of off-hole down hole EM targets in AM5<sup>47</sup>. AM5 hosts a FY22 JORC Code reportable MRE for IGO and this is discussed in more detail further below.

# JBM's discovery history

Over the two decades starting in 1997 to September-end 2007, JBM discovered seven highgrade nickel deposits along a ~5km strike length of the Cosmos Camp, as listed in the tabulation below.

Excluding AM5, which was discovered but not defined by JBM, the total contained in situ Ore

Reserves (or reserve proxies) from the deposits discovered and defined (or mined) by JBM totalled ~2.2Mt grading ~6% Ni (132kt metal). JBM's exploration teams made these seven discoveries using industry routine geological, geochemical, and geophysical targeting methods, which were well supported by JBM's corporate commitment to deep exploration, such as the mining of declines to provide exploration platforms to test deeper geological conceptual targets. Additionally, during its ownership of Cosmos, JBM acquired the Mt Goode discovery and subsequently defined a large low-grade resource containing ~325kt of nickel metal. A discussion regarding Mt Goode's geology and estimates is detailed further below.

#### JBM's Cosmos discovery history

Discovery		ORE	(or pro	ky)			
Donosit	Voor	Mass	Nicl	cel	Estimate basis		
Deposit	Tear	(Mt)	(%)	(kt)			
Cosmos	1997	0.42	8.71	30.5	JORC Code ORE		
Cosmos Deeps	1999	0.52	7.20	37.4	JORC Code ORE		
Prospero	2003	1.00	1.90	49.0	JORC Code ORE		
AM1	2001	-	-	2.0	Production record		
AM2	2005	0.06	13.91	6.1	JORC Code MRE		
Tapinos	2005	0.18	3.45	7.0	Mining inventory		
Total ORE (or p	2.18	6.05	132				

In the ~6.5 years from the commencement of Cosmos' production in mid-2000, up to March quarter end in 2007 when Xstrata acquired JBM, Cosmos' mill processed a total ~1.1Mt of ore with an average head grade of ~7.0% Ni (~76kt of nickel), with an average metallurgical recovery of 95%.

#### JBM's cosmos process history



In the summary Cosmos production history charts, the 2004 step increase in mass of ore processed reflects the installation of an ore sorter, which increased total throughput. The declining grade over time mirrors the depletion of the Cosmos Pit and Cosmos Deeps ore sources and a move from mid-2005 to ore mining from the lower-grade



Prospero and Tapinos deposits. Metallurgical recoveries also declined marginally with lowergrade feed from mid-2005. On average, over its production life, Cosmos consistently produced between 2.5 and 3.0kt of nickel metal in concentrate per quarter from processing on average ~40kt of ore per quarter (~160kt/a).

On 28 October 2007, JBM's Board of Directors recommended accepting Xstrata's offer of A\$23 per share for JBM, which valued the company at ~A\$3.1 billion<sup>60</sup>. Following acceptance of Xstrata's takeover offer by all shareholders, JBM was removed from the ASX on 24 April 2008<sup>61</sup>.

# **Cosmos and Xstrata**

In 2008, XNA was an unlisted private company, and its parent company Xstrata was a worldwide multicommodity producer at the time it fully acquired JBM. As such, Xstrata's public reporting regarding Cosmos was exiguous compared to the detailed information regularly announced to the ASX by JBM. IGO is yet to undertake a full review of the Xstrata data it acquired with WSA so the history of Xstrata's ownership of Cosmos below is compiled from publicly available records.

In its 2008 annual report to the London Securities Exchange, Xstrata reported Cosmos' annual production to be 7.3kt of nickel in concentrate for the year ending 31 December 2008, but details regarding head grade or tonnage processed were not provided. However, in its subsequent 2009 annual report, Xstrata stated the head grade for 2008 was 3.6% Ni and tonnage processed was 0.17Mt<sup>62,63</sup>. Also in its 2009 report, Xstrata reported 0.35Mt processed for the year, with ore mainly sourced from Prospero with a head grade of 3.71% Ni, and 11kt of nickel in concentrate shipped. Xstrata also commented that the Cosmos mill was upgraded during 2009 to increase its throughput so that ~13.5kt/a of nickel in concentrate could be produced.

In 2010, XNA reported that Cosmos' mill had achieved a 0.38Mt throughput for the year, again stating that Prospero was the principal ore source, and reporting 14kt of nickel in concentrate produced, but with no details of head grade. However, assuming a metallurgical recovery of ~95%, as per the past recovery performances reported by JBM, this production equates to a ~3.9% Ni head grade<sup>64</sup>. On the exploration front, Xstrata reported the discovery of the AM6 and Odysseus deposits but with no details regarding how the deposits were found.

In its 2011 annual report, Xstrata reported that Cosmos' ore processed for the year had increased again to 0.43Mt but with a lower 11kt of nickel in concentrate produced, presumably due to lower head grades. Using the same assumption as above for recovery, this 11kt of nickel in concentrate production equates to a head grade of ~2.6% Ni<sup>65</sup>. In April 2011, Xstrata's CEO briefly reported in a conference presentation that Inferred Mineral Resources had been estimated for AM6 and Odysseus, but with no details regarding tonnages and grades provided<sup>65</sup>.

Xstrata prepared CY-end Mineral Resource and Ore Reserve (MROR) reports for 2008 and 2009, but with only group total nickel resources listed. In its 30 June 2012 half-yearly results, Xstrata commented that it had prepared an Indicated MRE for Odysseus of 4.0Mt grading 2.13% Ni (82.2kt nickel)66. However, in its CY-end 2012 MROR report, Xstrata commented that Cosmos' residual AM5 Ore Reserve had been reclassified to a Mineral Resource, and Cosmos had been placed on care and maintenance pending results of an FS into the development of the Odysseus resource. Based on Xstrata's annual reporting information, it processed ~1.34Mt grading 3.4% Ni from Cosmos between its acquisition of JBM and subsequent decision to put the operation on care and maintenance. Summing this with the 1.1Mt grading 7% Ni reported by JBM to the ASX, as discussed above, the total production from Cosmos, based on public reporting, is ~2.44Mt grading 5.02% Ni (123kt nickel). However, it appears that the final quarter of JBM's production is missing in the public records, and when WSA acquired Cosmos in 2015, it stated that the total production from Cosmos was 2.9Mt grading 5.0% Ni (~127kt nickel)<sup>67</sup>. The extra 4kt of contained metal in this statement is consistent with a missing quarter of production, which was not reported by JBM and not necessarily included in Xstrata's annual reported production.

# **Cosmos and Western Areas**

In June 2015, WSA announced it was in the process of acquiring Cosmos from Glencore for \$A24.5 million cash. WSA additionally commented in its acquisition announcement that the Odysseus deposit had an MRE of 7.3Mt grading 2.4% Ni (~174kt nickel), and the Cosmos acquisition included ~88 square kilometres (km<sup>2</sup>) of mineral tenure and all the infrastructure associated with the prior operations, including a 450kt/a concentrator<sup>67</sup>. The acquisition was completed on 1 October 2015<sup>68</sup>.

In its September 2015 quarterly report to the ASX, WSA reported its MREs for Cosmos, stating all estimates were reported in compliance with the mandatory requirements of the 2012 edition of the JORC Code<sup>69</sup>. WSA reported the total MREs at Cosmos contained 567.3kt of nickel metal, with 240.4kt of the total in the underground deposits outside Mt Goode. WSA commenced exploration of Cosmos in 2016, but the Cosmos MREs were static until June 2017. On 1 March 2017, WSA announced



the positive results of a PFS into the mining of Odysseus<sup>70</sup>. In June 2017, following interim drilling through 2016 and 2017, together with changes to the MRE modelling assumptions, WSA revised the naming of the Odysseus sub zones<sup>70</sup>. For its September-end quarterly report of 2018, WSA reported revised estimates that are the basis of WSA's Odysseus' FS<sup>71</sup>. In October 2018, WSA reported that its definitive FS for Odysseus had confirmed a 10-year operation with a planned processing capacity of 900 to 940kt/a to recover a total of ~130kt of nickel in saleable concentrates.

The key reporting outcome of the FS was a first ORE reported under JORC Code guidelines able (all Probable Ore Reserve) for Odysseus<sup>72</sup>. In January 2019, WSA reported that it had progressed early capital works to develop Odysseus, including pit dewatering and rehabilitation of the Ilias Decline. It also commented that it had purchased a high-quality, second-hand shaft headframe and winding gear from a mine in South Africa. WSA further commented that it had progressed studies into the mining of the AM5 and AM6 zones<sup>73</sup>. In August 2019, WSA reported that it had commenced rehabilitation of the two AM declines to AM5 and AM6, and that the headframe gear in South Africa was being dismantled for shipping to Australia<sup>71</sup>.

In April 2020, WSA reported that it had excavated a box-cut for the shaft that was designed to hoist Odysseus' ore from a depth of ~1,000m to surface<sup>74</sup>. By June 2020, decline rehabilitation work had reached AM5, and a PFS had commenced on AM6 to convert its Mineral Resources to Ore Reserves<sup>75</sup>. In September 2020, WSA subsequently reported in its September guarter-end activity report both a revision of the AM6 MRE and a first Probable ORE<sup>76,77</sup>. In December 2020, WSA's headframe, cable winder, and associated infrastructure arrived in Perth<sup>78</sup>, and the pilot hole for the first ~630m of the fresh air intake (and hoisting) shaft was completed<sup>79</sup>. In October 2021, WSA reported that the split decline developments to the North and South Odysseus zones were largely complete, and that the first development ore was mined and truckhauled to surface from Odysseus South. WSA also stated that raise boring of the first 630m shaft leg to surface at a 5.7m diameter had been completed<sup>80</sup>.

In its 2021 September quarterly report, WSA reported MRE revisions, effective 30 June 2021, for both AM5 and AM6, with the AM6 estimate reduced marginally due to new drilling and modelling of barren pegmatite zones. However, for AM5, a

significant tonnage of Inferred Mineral Resource which had previously been excluded due to concerns as to regarding geotechnical stability, was added to the MRE.

Odysseus' first ore at surface December 2020<sup>80</sup>



In December 2021, WSA announced its board had unanimously recommended that WSA shareholders should accept IGO's offer to acquire WSA for ~A\$1.1 billion<sup>82</sup>. However, due to significant shortterm nickel price volatility influencing the subsequent recommendations of WSA's independent valuation of the offer, IGO increased its offer to ~A\$1.3 billion. Again, WSA's board recommended that all shareholders should accept IGO's offer<sup>83</sup>.

In March 2022, WSA advised completion of the winder housing, gas had been connected to the dual fuel power station, and the process plant refurbishment and upgrade to 900kt/a was on plan<sup>84</sup>. On 20 June 2022, the ASX announced that WSA had been removed from its official list of trading companies<sup>85</sup>, and the next day IGO announced that it had formally acquired WSA<sup>4</sup>.

# **Cosmos' FY22 Mineral Resources**

IGO's FY22 JORC Code reporting of Cosmos' FY22 Mineral Resources comprises WSA's estimates for the AM5, AM6 and Odysseus deposits. The details of each of these estimates are discussed in the ensuing sections of this announcement. The tabulation below is an MRE summary reported effective 30 June 2022, with the respective estimates unchanged from WSA's 31 December 2021 ASX report<sup>79</sup>.



		JORC Code 2012 Classification										Total			
Aroa	7	Measured			l	Indicated			Inferred			rotar			
Alea	2016	Mass	Nic	kel	Mass	Nic	kel	Mass	Nic	kel	Mass	Nic	kel		
		(Mt)	(%)	(kt)	(Mt)	(%)	(kt)	(Mt)	(%)	(kt)	(Mt)	(%)	(kt)		
Alec Mairs	AM5	-	-	-	1.45	1.95	28	1.83	2.21	41	3.28	2.10	69		
	AM6	-	-	-	2.89	2.06	59	0.12	1.45	2	3.01	2.03	61		
	Subtotal Alec Mairs	-	-	-	4.34	2.02	88	1.95	2.17	42	6.29	2.07	130		
Odysseus	South (disseminated)	-	-	-	4.02	2.11	85	0.22	1.96	4	4.24	2.10	89		
	North (disseminated)	-	-	-	3.13	2.59	81	0.23	2.71	6	3.35	2.60	87		
	North (massive)	-	-	-	0.07	12.57	9	0.12	11.21	14	0.20	11.70	23		
Subtotal Odysseu		-	-	-	7.22	2.42	175	0.57	4.28	24	7.79	2.56	199		
Mt Goode All		13.56	0.78	106	27.36	0.58	159	12.01	0.52	62	52.94	0.62	327		
Cosmos total MRE		13.56	0.78	106	38.92	1.08	421	14.53	0.89	129	67.01	0.98	656		
Subtotal	(excluding Mt Goode)	-	-	-	11.56	2.27	262	2.52	2.65	67	14.08	2.34	329		

Cosmos' JORC Code 2012 reportable Mineral Resources FY22

Notes: Some totals and averages may mistakenly appear to be inaccurate due to the rounding of estimates to fixed decimal places.

# Odysseus

The Odysseus North and South zones are wholly within WA mining lease M36/371, which expires on 3 March 2041. The Odysseus North zone is centred on coordinates ~27°35'48"S and ~120°34'51"E, while the Odysseus South zone is centred on coordinates ~27°36'1"S and ~120°34'46"E, which is ~400m west northwest of the Odysseus North zone.

As discussed above, Odysseus was discovered by Xstrata in 2010. However, when Cosmos was acquired by WSA, the mine was flooded, and personnel involved in the discovery and subsequent MRE definition had moved on from Cosmos and were often difficult to contact. As such, the Competent Person for reporting IGO's Cosmos MREs, who also prepared the current Odysseus MRE estimates as an employee of WSA, has relied on the information package provided by Xstrata to support the preparation of the current 2012 JORC Code reportable estimates.

The drilling Xstrata used to define the Odysseus MRE is diamond core drilling, mostly having an NQ2 (50.6mm) core diameter. However, HQ2 (63.5mm) diameter core was generally cored from surface to better control hole paths before wedging. One hole in the MRE dataset was drilled from underground at a shallow angle to the mineralisation, but the holes drilled from surface intersected the Odysseus mineralisation at appropriate angles for MRE work. Wedge holes were drilled from primary holes to reduce the total drilling length required from surface. The core recovery of Xstrata's drilling is generally

>99%, with the recovery logged as part of the full geological logging protocols of each hole.

Xstrata's teams collected MRE samples over target lengths of mineralisation after logging. Quarter-core samples were cut using a wetted diamond encrusted rotary saw, with samples targeted to have a nominal 1m length, but with lengths ranging from 0.2m to 1.5m so samples could be terminated at important geological contacts where necessary. The quarter-core samples were bagged and coded with anonymous sample identifiers before being collated and dispatched by commercial road courier to a reputable commercial assay laboratory in Perth.

Each sample dispatch included quality control samples (certified reference materials, blanks and replicates), which were included to monitor the laboratory's assaying subsampling precision, accuracy, and sample processing cross contamination levels. On review of the quality control data, Xstrata's geologists found that all quality control results were acceptable, and that the precision determined from replicate results, and lack of cross contamination between samples demonstrated in blank results, were consistent with expectations for samples to be used for MRE work.

At the assay laboratory, the notionally 1m long samples underwent a subsampling protocol of crushing, pulverising, and then collecting out a pulp subsample as the assaying subsample. The sample mass from 1m of quarter-core is nominally ~2kg, and this mass is consistent with industry norms for the mineralisation type under consideration. The laboratory protocols also involved the collection of in-laboratory quality replicates samples at each



crushing and pulverisation fragment size reduction stages, and sample aliquot collection. Again, the Competent Person understands that Xstrata's geologists found that the laboratory replicates demonstrated good precision for all in-laboratory comminution and/or mass reduction steps. The chain of custody of the samples between collection on site and the assay laboratory was managed either by Xstrata, reputable transport contractors, or the designated assay laboratories.



#### Diamond core drilling for Odysseus 2017 MRE

The concentrations of key analytes were determined using industry normal assaying methods for the style of mineralisation under consideration. The assay methods are considered total for these key analytes. Prior to crushing, the density of the quarter-core samples was determined using the Archimedes Principle water displacement method on the dried core. As the core is fresh rock with very low permeability, the density values are considered to represent the dry in situ density of each submitted and assayed sample. XNA's data handling procedures for data collection and collation



followed normal industry processes, with most data collected digitally and loaded into an industrystrength SQL database system with protocols and processes in place to ensure data integrity and minimisation of the chances of data mix-ups or transcription errors.

WSA prepared the Odysseus MRE in a local grid system related by a two-point transformation between Map Grid Australia (1994) and Australian Height Datum. All drill hole collars were surveyed to an acceptable precision in three dimensions by licensed surveying contractors. Xstrata reported that all hole paths were surveyed using gyroscopic equipment.

The MRE data spacing is on average 40m by 45m for Odysseus South and 35m by 30m for Odysseus North in the high-grade cores, but with a range of ~15-70m due to the fan-like nature of the drilling. The orientations of the intercepts relative to the geometries of the mineralised bodies are not considered to invoke any material degree of orientation bias as most holes crosscut mineralisation trends at an oblique angle.

WSA prepared the MRE using well-known and accepted industry software systems for MRE work and using digital block modelling methods considered routine for the style of mineralisation under consideration. Digital estimation block sizes were set to 10mE by 15mN by 5m in elevation with 1.25m cube subblocks permitted for estimation boundary definition.

The two Odysseus lodes were contoured into three dimensional 'grade shells' at several composite thresholds to control the interpreted trend in nickel grade from an outer low-grade shell that set the estimation periphery of each mineralised body, then stepping through increasing grade shells to the high-grade shell within the central core of each body and a 'super' high-grade shell in Odysseus North.

Grades and density were interpolated into the blocks of the shell model using geostatistical block kriging of 1m sample composites, with each shell treated individually only using the composites available within each respective grade shell. A three-pass search was used, with the search expanded in each pass to estimate any blocks not updated in prior passes. Initial searches were determined from grade continuity analysis (variography). A minimum of two samples and a maximum of 36 were required to be found for a block grade to be estimated in the first estimation pass. The Odysseus JORC Code Table 1 Checklist in the attachments contains full details of this modellina.

Nickel-barren pegmatites crosscut Odysseus' mineralisation, and these are considered to have 'stoped out' the in situ mineralisation. An implicit 3D

interpretation of the pegmatites was prepared from the drill data then 'stamped over' the grade estimation block model to reset block nickel grades to zero and set the density to that of pegmatite within the bounds of the pegmatite interpretations.

#### Odysseus MRE model – nickel grade



The Odysseus MRE block model was first validated using normal industry methods of on-screen inspection to ensure that the model's blocks were consistent with both the geology and grade trends in the input drill hole data, and then statistical assessment to confirm that the mean grades of input drill hole composites and output block estimates – both globally and locally for each estimation domain – were within acceptable tolerances. The Competent Person found that all these checks were acceptable for the style of mineralisation under consideration, estimation and modelling methods applied and the available data spacing.





The Competent Person classified the Odysseus MRE under JORC Code guidelines by considering several criteria, including kriging estimation metrics, data quality and qualitative confidence in the geological interpretations. The Competent Person assigned Indicated Mineral Resources to blocks where the data spacing was nominally ~45m for Odysseus South and 35m for Odysseus North and the geological connectivity confidence was high, which included most of the disseminated mineralisation. Most of the Odysseus Massive lodes were classified as an Inferred Mineral Resource due to the high uncertainty of connectivity of the narrow lodes at the current drill spacing. However, the Competent Person classified a smaller volume of the massive mineralisation as an Indicated Mineral Resource where the drill spacing was locally closer.

The block model was reported using a >1.5% Ni block estimate cut-off grade with sector reporting for each JORC Code class as per the tabulation on page 20. Odysseus' total estimate for FY22 is ~199kt of nickel.

# AM5

AM5 is ~700m southwest of Cosmos Deeps at ~700m below surface and ~350m down dip from the lower limits of Mt Goode's disseminated mineralisation. The AM5 zone is centred on coordinates ~27°36'21"S and ~120°34'31"E on WA mining lease M36/127, which expires on 19 April 2031.

AM5's massive nickel sulphide mineralisation has a down plunge extent of ~400m and up to 60m extent along strike for typical plan slices. A much broader disseminated halo occurs above the massive which has a ~600m plunge extent and up to a 100m extent along strike for typical plan slices. This disseminated zone is interpreted to have a central core of higher-grade mineralisation.





AM5's mineralisation base is coincident with the base of the lower ultramafic unit and comprises two sub-parallel steeply dipping and plunging lenses of mineralisation separated by a felsic volcanic unit. The AM5 massive mineralisation is interpreted to have been originally Type 1 basal primary style but has undergone subsequent folding and thrusting. Its massive mineralisation only averages ~1m in thickness, but in some tectonically induced overlapping locations, the average thickness increases to ~4m.



Xstrata drill-defined the resources of the AM5 and AM6 deposits from underground platforms and partly mined the top of AM5. Xstrata reported that AM5 at one time had an ORE, but it was reclassified back to an MRE when Cosmos was placed on care and maintenance in 2012. The drilling information that is the basis of the FY22 AM5 estimate is diamond core drilling completed by JBM from surface and underground, and by Xstrata from underground for the deeper parts of AM5. The quality and recovery of the drilling is like that used to define Odysseus. The JORC Table 1 Checklist for AM5 contains further details.

### AM5 MRE model section – nickel grade



In 2020, WSA's MRE modeller prepared a revised estimate for AM5 in two digital block models, one for the footwall massive pods and a second for the disseminated zones. For the disseminated part of AM5, WSA's MRE modeller prepared 3D grade shells from the drill hole data using implicit modelling software tools in a process like that applied at Odysseus. For the AM5 massive zones, the implicit 3D models were prepared with no internal grade shells and were modelled using a nominal drill hole sample threshold of >0.4% Ni and/or the presence of massive sulphide as a primary or secondary contributor in the drill hole geological logging.

WSA's modeller interpolated grades for key analytes and density into both digital block models, again using estimation processes, controls, and validation methods like those applied for the Odysseus estimate. AM5's JORC Code Table 1 Checklist contains further details. Also like the Odysseus estimate, a barren pegmatite envelope was prepared to overprint the grade model, and the final model was also depleted for Xstrata's prior mining in the upper levels of AM5.

The total MRE for AM5 is 3.28Mt grading 2.10% Ni (69kt nickel). JORC Code class sector details for AM5 are listed in the tabulation on page 20.

# AM6

Xstrata's discovery of AM6 was found within the Cosmos ultramafic unit and to the south and below AM5 and occurs at ~30-50m above the footwall contact. Like AM5, AM6 is wholly within WA mining lease M36/127 and with the AM6 zone centred on coordinates ~27°36'31"S and ~120°34'28"E, which is ~300m south southwest of AM5's centre.



AM6 has a strike extent of ~400m and dips ~75° towards the east with a down dip extent of ~250m. The disseminated mineralisation of AM6 ranges from ~2m to ~25m in true thickness. This geometry and dip of the mineralisation are influenced by multiple northeast trending faults which truncate the AM6 mineralisation at its northern and southern extents. Like AM5 and Odysseus, younger pegmatite dykes stope out the mineralisation, albeit within much lower volume than Odysseus.

WSA's modeller prepared an AM6 MRE digital block model for the disseminated mineralisation using processes like those used for AM5, by using implicit modelling tools to prepare an outer constraining mineralisation envelope at a nominal >0.3% Ni sample threshold, then internal grade shells using the same threshold criteria as used in AM5's disseminated mineralisation modelling. Like AM5, for AM6's massive zone no internal shells were prepared, and the limits of the mineralisation were

# 00m south southwest of AM5's centre. AM5 and AM6 drilling – hangingwall view



interpreted using a nominal >0.4% Ni threshold and/or a criterion based on the presence of massive sulphides in primary or secondary drill hole logging codes.

AM6 section looking north



Following the preparation of the 3D interpretations described above, WSA's modeller then interpolated block grades and density within each shell or interpretation independently using industry normal geostatistical methodologies, and then verified the resulting model using the same workflow as for AM5 and Odysseus. AM6's JORC Code Table 1 Checklist contains full details. Like the other estimates, and where present, WSA's model stamped a nickel-barren pegmatites interpretation over the grade model. The model was then JORC Code classified by the Competent Person, using similar criteria used on AM6.

From the modelling described above, total FY22 JORC Code reportable MRE for AM6 is 3.01Mt grading 2.03%Ni (61kt nickel). JORC Code class sector details are listed in the tabulation on page 20.

# Mt Goode

Mt Goode is centred on coordinates  $\sim 27^{\circ}36'16''S$ and  $\sim 120^{\circ}34'32''E$ , with most of the deposit on M36/127 but with its northern extent marginally within M36/371. The expiry dates of the leases are described above for Odysseus and AM5, respectively. Mt Goode's planimetric centre is only ~150m north northeast of AM5's centre.



For Mt Goode, the Competent Person has, on review, accepted Xstrata's May 2012 estimate, which in turn appears to be largely a minor modification of JBM's well-documented April 2006 estimate. As such, the Competent Person's review, and acceptance of the Mt Goode MRE, is based on Xstrata's model but using JBM's data, geological modelling approach and MRE reporting documentation.

According to JBM's 2006 MRE report, Mt Goode is a large Type 2 (or Mt Keith), low-grade disseminated nickel sulphide deposit, with its mineralisation centred ~700m south of Cosmos Pit.

# Mt Goode long and cross section



The fresh sulphide mineralisation starts at ~200m above the footwall ultramafic contact and extends up to the base of weathering, within a thick sequence of serpentinised dunitic rocks, which has undergone upper greenschist to lower amphibolite grade metamorphism. This metamorphism has largely destroyed most primary igneous textures, albeit some mesocumulate and adcumulate primary textures are preserved locally in Mt Goode's central core zone. Otherwise, the resulting mineralogy comprises coarse porphyroblasts or blades of metamorphic olivine  $\pm$  intergranular talc, tremolite and chlorite.

Mt Goode has a gradationally zoned mineralogical profile. The contact rocks to the Mt Goode metadunite are metasomatically altered and are characterised by a schistose fabric in the chlorite matrix. The contact zones grade into the strongly serpentinised-antigorite-rich zone, then into lizardite-rich serpentinites, and finally grade into the least altered central and high-grade core of the deposit. A quartz-biotite porphyry intrusion cross cuts the metadunite and forms the deposit's hangingwall. Like most other deposits at Cosmos, younger, nickel-barren pegmatite dykes crosscut the geology and stope out the mineralisation.

Mt Goode's nickel sulphide mineralisation forms a broad lens-shaped body within the metadunite, and a > 0.7% Ni threshold has been used to demarcate the bounds of its high-grade core zone. This core is encased in a broader zone of lower-grade mineralisation that has been defined using a nominal > 0.4% Ni sample threshold for MRE work. The principal characteristics of the mineralisation are related to these two zones.

The sulphide assemblage in the high-grade core zone is almost solely pentlandite. However, where there is intense serpentinisation, pentlandite can be transformed to the sulphide mineral heazlewoodite and the original shapes of the pentlandite grains are disaggregated into increasingly finer particles as part of the overprint mineral growth. In the outer bounds of the resource, intense serpentinisation creates heazlewoodite from nickel in olivine mineral matrices, and this sulphide style is therefore unrelated to primary deposition. These secondary sulphides present as a fine dust (<10µm diameter) throughout the serpentine matrix, and while these zones may have economically viable nickel grades, the metallurgical recovery is low due to the poor metallurgical liberation character of this style of mineralisation.

The drill hole information for Mt Goode includes both relatively shallow RC drilling and deeper diamond core drilling, which was completed by prior explorers, Homestake and JBM. Of the total length drilled, 80% is diamond core completed between 2003 and 2006 by JBM. Based on JBM's documentation from its 2006 MRE, the data collection, quality and survey controls were consistent with industry norms and deemed acceptable for MRE work, albeit some details from Homestake's early drilling are not known. Mt Goode's JORC Code Table 1 Checklist contains full details.

In Xstrata's MRE model, key attribute grades and density have been estimated separately for Mt Goode's high-grade and low-grade zones, into parent blocks having dimensions of 20mN by 10mE by 10mElv. While a 12-domain geological model was prepared by JBM, this model has not been included in Xstrata's subsequent update. Again, full details of the estimation process are included in attached JORC Code Table 1 Checklist for Mt Goode.

The Mt Goode MRE has been classified into Measured, Indicated, and Inferred JORC Code classes as per the tabulation on page 20. Reporting at a >0.4% Ni block cut-off grade, the total MRE is 67Mt grading 0.98% Ni (656kt nickel).

# Future work

Over the next 6 tov12 months, IGO is planning to reevaluate and, where deemed necessary, re-model and estimate the Cosmos MREs to improve the confidence in the estimates and the supporting JORC Code documentation for each deposit.

Infill drilling is currently in progress at Odysseus and this information will be included in future MRE revisions. Studies are planned for Mt Goode to determine a reasonable economic limit for the reporting of this large MRE.

# **Cosmos FY22 Ore Reserves**

Cosmos' total ORE effective at the end of FY22 includes estimates for Odysseus and AM6 as listed in the tabulation below.

# Odysseus

Odysseus' FY22 ORE is reported as an output from WSA's 2018 FS<sup>72</sup>. The Odysseus ORE is therefore based on WSA's 2018 Odysseus MRE, which totalled 7.79Mt grading 2.56% Ni (199.2kt nickel)<sup>72</sup>.



Area			JOR	Total Ora Basania							
	7		Proved			Probable		Total Ore Reserve			
	Zone	Mass	Nic	kel	Mass	Nic	kel	Mass	Nic	kel	
		(Mt)	(%)	(kt)	(Mt)	(%)	(kt)	(Mt)	(%)	(kt)	
Alec Mairs	AM6	-	-	-	2.10	2.24	47	2.10	2.24	47	
Odysseus	South	-	-	-	4.48	1.90	86	4.48	1.90	86	
	North	-	-	-	3.65	2.20	79	3.65	2.20	79	
Subtotal Odysseus		-	-	-	8.14	2.02	165	8.14	2.02	165	
Cosmos total ORE		-	-	-	10.23	2.07	212	10.23	2.07	212	

Cosmos' JORC Code 2012 reportable Ore Reserves FY22

Notes: Some totals and averages may mistakenly appear to be inaccurate due to the rounding of estimates to fixed decimal places.

WSA's 2018 FS was a detailed analysis that confirmed the technical feasibility and economic viability of a 10-year underground mine at Odysseus based on the assumption of an average 0.9Mt/a of processing to produce ~14.6kt/a of a 16.5% Ni saleable concentrate. This production target was based on the 8.14Mt grading 2.02% Ni designed to be extracted from the Odysseus 2018 MRE discussed above. Processing was targeted to commence from October 2022, with a ramp up to full production in FY24. The FS also considered the inclusion of AM6 to extend the mine life, with a subsequent PFS confirming the Ore Reserves for AM6, as discussed below.

The planned mining method involved decline development from AM5 to access Odysseus, with

the decline splitting to access the north and south sub zones. Ore would be hoisted to the surface in 12.5t skips through a 1,000m deep shaft to surface. The shaft is considered to have a nominal capacity of 1.3Mt/a.

The mining method envisaged in the FS was long hole open stoping with mining voids subsequently filled with paste. The proposed mining sequence is top-down and centre-out for each Odysseus zone, with 25m spaced levels and 15m wide stopes (eastwest) each having a maximum strike length of 29m.

Full details of other modifying factor assumptions for the Odysseus ORE are included in the Odysseus JORC Code Table 1 Checklist attachment to this announcement.





#### 2018 FS Odysseus and 2020 AM6 PFS Ore Reserves and mine development

#### AM6

As discussed further above, WSA reported a first ORE for AM6 in September 2020, with the estimate based on a PFS<sup>76</sup>. This AM6 ORE was based on WSA's September 2020 MRE for AM6 as listed in the summary MRE tabulation on page 20.

The AM6 PFS assumed development of a single decline, and like Odysseus, long hole stoping followed by backfilling with paste, and a top-down, centre out mining sequence. The PFS was not

optimised but projected production rates ranging from 0.3Mt to 0.6Mt over an effective six-year production life following a first year of development.

Full details of other modifying factor assumptions for the Odysseus ORE are included in the Odysseus JORC Code Table 1 attachment to this announcement.

# FORRESTANIA OPERATION IGO 100%

#### LOCATION

85km east of the town Hyden in WA

#### SALEABLE PRODUCTS

Nickel concentrates

#### TENURE

943km<sup>2</sup> of WA mining tenure

#### MINING METHODS

Mining methods vary and are adapted to local conditions but generally long hole stoping with rock, cemented rock or paste backfill

# PROCESSING AND SALES

- Processing of 0.6Mt/a of ore at Cosmic Boy
  - Concentrates are shipped to customers both in WA and offshore

# ORE RESERVES

2.89Mt grading 1.92% Ni for 56kt of nickel in Flying Fox, Spotted Quoll and Diggers deposits

# MINERAL RESOURCES

12.45Mt grading 1.79% Ni for 223kt of nickel in seven deposit areas, with 80% of the contained nickel in Indicated Resources

#### MINE LIFE

Based on current budget and processing rate 12 months as per 1 July 2022

# OTENTIAL

- Potential open pit and underground mine at the unmined New Morning/Daybreak Deposit
- Potential redevelopment of the underground mine at Diggers Rocks and then extension to Diggers South
- Large Indicated Mineral resource based to be fully assessed for reserve potential
- Discovery of additional high grade deposits and extensions of known deposits



# Introduction

Via the Hyden-Norseman Road, Forrestania's Cosmic Boy Concentrator is ~110km, east of the town of Hyden in WA, which in turn is ~280km east of WA's capital, Perth. The concentrator, which is the infrastructure locus of IGO's Forrestania Operation is at latitude ~32°34'52"S and longitude ~119°44'35"E. There are seven separate deposit locations for Forrestania's FY22 JORC Code reportable MREs and OREs as indicated below.

# IGO Managed Tenur autiful Sunday Application Nesterr ocations Australi Mine/deposit Ø Flying Fox Forrestani Inset New Morning/Daybreak Spotted Quol Seagull Cosmic Boy Purple Haze

#### Forrestania overview MRE/ORE locations

# **Regional geology**

Forrestania's camp of nickel sulphide deposits is hosted by a sequence of ~2.9Ga meta-igneous and metasedimentary rocks that are part of the Forrestania Greenstone Belt (FGB) of the Youanmi Terrane of the Eastern Yilgarn Craton<sup>86</sup>. The FGB has a north to south length of ~250km, is 5-30km wide east to west, and is made up of two distinct Archean geological sequences. The 3.05- to 2.93Ga old Lower Sequence has at least four sequences of tholeiitic and komatiitic metavolcanics intercalated with metasediments, while the 2.76 to 2.72 Ga Upper Sequence, which is found in the belt's centre, is dominated by pelitic and psammitic schists. The FGB is enclosed in a terrain of deformed granites and gneisses which have been locally intruded by undeformed plutons of granitic rocks. A series of east to west trending Proterozoic dykes cut across all the Archean successions.

#### Terranes and komatiites of the Yilgarn Craton



Modified from<sup>6</sup>

Within the FGB, six ultramafic belts are recognised in the geological literature, being the Western, Mid-Western, Takashi, Central Fold, Mid-Eastern and Eastern belts. The Western Belt hosts IGO's key Forrestania deposits, such as the active mines at Flying Fox and Spotted Quoll, and the MREs defined at the New Morning/Daybreak and Beautiful Sunday deposits. The Eastern Belt is the most continuous of the six belts and extends almost the whole length of the FGB, and hosts several of IGO's MREs, including Cosmic Boy, Seagull, Diggers and Purple Haze. The other belts are much shorter and have strike lengths of only 10-40km. No economically viable nickel sulphide deposits have been found outside the Eastern and Western belts to date.

Up to four phases of regional deformation are recognised in the rocks of the FGB. The first phase of deformation, which induced amphibolite grade metamorphism across the belt, tilted and folded the FGB's stratigraphy so that the Western Belt rocks tend to dip between 40° and 70° towards east, while the dips of the strata of the other belts range between a 70° (towards the west) and vertical. These regional geometries and asymmetry are interpreted to be due to synclinal folding induced by strong east-west compression, along with concurrent or post folding local strike-slip faulting. The last brittle deformation phase affecting the FGB is characterised by north dipping faults related to the Proterozoic dykes.





Forrestania regional Geology

Image modified from<sup>86</sup>

# Deposit models and nickel sulphides

Like Cosmos, the genetic formation model for Forrestania's nickel deposits is the 'Kambalda-style' Type 1 and Type 2 models where nickel sulphides are interpreted to have accumulated in channelised komatiitic lava flows. Also, like Cosmos, many of Forrestania's deposits are often tectonically displaced from the original depositional locations and have been deformed and/or dismembered by one or more local and/or regional post-depositional tectonic events.

Forrestania's nickel sulphide assemblages vary by deposit but are generally pyrite dominant, with pentlandite as the nickel sulphide, and lesser amounts of chalcopyrite. The styles of sulphide mineralisation range from massive, through to stringer and vein, breccia, and ranges of dissemination intensity from highly disseminated through to a matrix-texture of sulphides between accumulated olivine grains. A feature of the sulphides in several of Forrestania's deposits is the occurrence of intrusion and/or metamorphic related hydrothermal alteration (metasomatic) events that have locally introduced low concentrations of arsenic-bearing minerals into the sulphide assemblages. Arsenic, which reports to the Forrestania extracted concentrates, is an important consideration in mine planning and processing as concentrations of arsenic that are too high can trigger penalty costs in concentrate sales.

# Forrestania's history

WSA listed on the ASX on 24 July 2000 and shortly afterwards commenced exploring for nickel and gold in several prospects throughout WA<sup>87</sup>. In April 2002, WSA signed an agreement with Outokumpu Australia Pty Ltd (Outokumpu), Sons of Gwalia Ltd (SOG) and the administrators of Viceroy Australia Pty Ltd (Viceroy) for an option to acquire Viceroy's rights to earn a 75% interest in the Forrestania Nickel Project, in a JV with Outokumpu. By February 2003, WSA had spent the ~\$A2 million of project expenditure that was required to earn the 75% interest<sup>88</sup>, and by May 2003 WSA had signed an agreement to acquire Outokumpu's 25% interest to become the sole owner of Forrestania, albeit Outokumpu negotiated a 2% NSR royalty on any future nickel production as part of the sale<sup>89</sup>. This 25% acquisition was settled in November 200390.

At the time of WSA's 2002 signing of the 75% ownership JV option, Forrestania had three defined nickel sulphide MREs totalling ~2.82Mt grading ~1.97% Ni (~55.5kt nickel), which were all classified as Indicated Mineral Resources in accordance with the 1989 edition of the JORC Code<sup>91,92</sup>. In mid-2002, WSA reported that prior owner (Outokumpu had, between 1992 and 1999, mined and processed a total of ~3.8Mt grading ~1.92% Ni (~73kt nickel). This total ore was mined from the three deposits of Flying Fox, Cosmic Boy, and Diggers, with Cosmic Boy being the main contributor. WSA reported that this total ore produced contained ~55kt of nickel metal in concentrates, which equates to an average metallurgical recovery ~75%93. The ore was processed at the original Cosmic Boy Concentrator, which was subsequently moved to Outokumpu's Silver Swan mine.

In late 2002 WSA started reporting its first exploration successes from its drilling on the JV tenure, and in September 2002 announced its first discovery to be the Daybreak zone of the New Morning/Daybreak Deposit<sup>94,95</sup>. Over the next 20 years, WSA went on to find that the original Flying Fox Deposit extended to more than 1km below where Outokumpu had ended mining and then discovered the very high grade Spotted Quoll Deposit just south of Flying Fox.





Forrestania's production history from 2008

WSA's discoveries at Flying Fox and Spotted Quoll have sustained 16 years of continuous mining and processing at Forrestania, with WSA processing ~7.7Mt of ore and producing ~293kt of nickel in concentrates to the end of FY22. This nickel production excludes the ~55kt of nickel in concentrates produced by Outokumpu from 1992 to 1999, which when added to WSA's total, equates to ~348kt of nickel produced from Forrestania over the last 30 years. The charts above depict Forrestania's production history to the end of FY22. Note that prior to 2010, and before the construction of WSA's new Cosmic Boy Concentrator, a modest tonnage of Flving Fox's development ore was road hauled and treated at the Emily Ann concentrator, which is ~90km east of Forrestania towards Norseman<sup>96</sup>.

At the end of FY22, now 20 years after WSA's first Forrestania exploration successes, the operation has a total ORE containing ~54kt of nickel metal in situ, and a large dominantly Indicated MRE containing ~264kt of nickel, inclusive of the 54kt in the ORE.

# **Mineral Resources**

For FY22, IGO is reporting Forrestania's MREs for the New Morning/Daybreak, Flying Fox, and Spotted Quoll deposits, in accordance with the requirements of the 2012 edition of the JORC Code<sup>2</sup>. Forrestania's other six MREs are reported in with the JORC Code accordance 2004 requirements<sup>5</sup> and include estimates from the Diggers, Beautiful Sunday, Cosmic Boy, Purple Haze, and Seagull deposits. The difference between the 2012 and 2004 JORC Code reportable estimates is that the 2004 edition estimates do not have JORC Code Table 1 Checklists attached to this announcement, as these checklists are not required for these older estimates, which have not materially changed since being first reported under the 2004 JORC Code framework.

The bar charts and tabulation below are a respective graphical summary and listing of IGO's Forrestania MREs for the end of FY22. The map further below depicts all the MRE locations relative to IGO's mineral tenure covering the estimates. Further details and discussion regarding data, estimation methods, JORC Code classification and reporting criteria for each deposit or deposit area, are included in the ensuing sections of this announcement.



#### Forrestania's FY22 Mineral Resources in situ metal sector summary



JORC Deposit		Measured		Indicated		Inferred			Total				
Code	or	Mass	Nic	kel	Mass	Nic	kel	Mass	Nic	kel	Mass	Nic	kel
Edition	Area	Mt	%	kt	Mt	%	kt	Mt	%	kt	Mt	%	kt
2012	New Morning/Daybreak	-	-	-	3.66	1.43	52	2.57	1.38	36	6.23	1.41	88
	Spotted Quoll	-	-	-	0.47	6.31	30	0.15	3.70	5	0.62	5.70	35
	Flying Fox	-	-	-	0.66	4.48	29	0.12	1.70	2	0.78	4.05	31
	Subtotal JORC 2012	-	-	-	4.79	2.33	112	2.84	1.51	43	7.63	2.03	155
2004	Diggers	-	-	-	2.99	1.42	42	0.41	1.26	5	3.40	1.40	48
	Beautiful Sunday	-	-	-	0.48	1.40	7	-	-	-	0.48	1.40	7
	Cosmic Boy	-	-	-	0.18	2.79	5	-	-	-	0.18	2.79	5
	Purple Haze	-	-	-	0.56	0.90	5	-	-	-	0.56	0.90	5
	Seagull	-	-	-	0.20	2.00	4	-	-	-	0.20	2.00	4
	Subtotal JORC 2004	-	-	-	4.40	1.43	63	0.41	1.26	5	4.82	1.42	68
Forrestania total		-	-	-	9.19	1.90	175	3.25	1.48	48	12.45	1.79	223

Forrestania's FY22 Mineral Resources by JORC Code reporting edition and deposit or area

Notes: Some totals and averages may mistakenly appear to be inaccurate due to the rounding of estimates to fixed decimal places.

As depicted in the bar charts above, the majority of Forrestania's MREs are reported according to JORC Code 2012 requirements. For the JORC Code 2004 estimates there are varying degrees of confidence, and IGO intends to assess each deposit geologically and financially over the next 12 months and upgrade all the 2004 edition estimates to the JORC 2012 reporting standard.

Notwithstanding confidence differences between JORC Code 2012 and 2004 reporting standards, in terms of JORC Code confidence classes, most of Forrestania's MREs are in the Indicated Resource class, which permits mining assessment for ORE conversion. The New Morning/Daybreak estimate is the largest conversion opportunity in terms of contained nickel metal and estimation confidence, with the Diggers Deposit also an attractive option in terms of contained in situ nickel metal.

# **Flying Fox**

Flying Fox spans several mining leases, including M77/582 (expiry 27 August 2035) and M77/991 (expiry 18 July 2027). To the south it extends into M77/545 (expiry 22 January 2034).

The Flying Fox Mine is ~30km northwest of IGO's Cosmic Boy Concentrator in the Western Belt of the FGB, where the stratigraphy dips ~40° to the east. Flying Fox's mine portals are at ~32°25'18"S and ~119°41'45"E. As annotated in the image below, there are several completed open cut gold mines in the vicinity of Flying Fox, which are all pre-WSA ownership.

#### Flying Fox infrastructure



Flying Fox's near surface massive sulphide lense, which is annotated as OTZ South on the image below, was discovered by Outokumpu in the 1990s. Outokumpu then developed an underground mine to a depth of ~200m from surface at Flying Fox via a separate boxcut to the north of the current Flying Fox offices.

In August 2003, WSA discovered the first major extension to Flying Fox when it reported that its drilling below and through a granite dyke to the east of Outokumpu's mining area had intersected a thick lense of massive sulphide mineralisation, which



would later become known as 'T1'<sup>97</sup>. In subsequent years, WSA went on to discoverer additional extensions to Flying Fox including the T2 and T3 lenses in late 2003, then the T4 and T5 lenses in 2004<sup>98,99</sup>. In February 2004, WSA reported a first Flying Fox Indicated MRE for the 'T1' zone and this MRE was converted to an ORE in June 2004<sup>100</sup>.

# Forrestania MRE/ORE deposit locations



In June 2004, WSA reached an agreement to toll treat Flying Fox's T1 ORE at the Emily Ann concentrator, which is 90km from Forrestania, and the concentrate produced would be purchased by Emily Ann's owner, LionOre Australia Ltd (LionOre)<sup>96</sup>. With a processing option in place, WSA commenced Flying Fox's mine development in January 2005, and subsequently commenced twin declines in May of the same year<sup>101,102</sup>.

In 2005, WSA reported a revised JORC Code 2004 reportable Probable ORE for Flying Fox's T1 lense and reported its first MRE for Flying Fox's T5 lense<sup>103</sup>. In April 2007 WSA reported its first quarter of production from Flying Fox, including the ramp up from November, with 8.4kt of mainly development ore treated at LionOre's Emily Ann plant<sup>104</sup>.

Later in 2007, WSA discovered Flying Fox's T6 and T7 lenses, and later announced an upward revision of T1's MRE<sup>105</sup>. In 2008, WSA reported a first MRE for the T4 lense, which it revised upwards again in mid-2009<sup>106,107</sup>. In 2009, WSA and Kagara Ltd (KZL) reached agreement to enable KZL's Lounge Lizard nickel deposit to be mined using and access from the Flying Fox decline<sup>108</sup>. In October 2009, WSA reported a first ORE for Flying Fox's T5 lense<sup>109</sup>.



#### Flying Fox mineralisation and FY22 workings

At the end of FY22, mining at Flying Fox had reached the T6 zone at ~1.0km below surface, and WSA's drilling has defined the current lower limit of the T7 lense to be ~1.3km below surface. WSA's recorded production from Flying Fox to the end of FY22 is 4.1Mt grading 4.2% Ni (154kt nickel).

# Geology and mineralisation

Flying Fox is hosted by a package of deformed metavolcanics and metasediments that have been intruded by granites. Locally, the geology comprises a strongly foliated succession of komatiites intercalated with metasediments, both of which are typical of the FGB's Lower Sequence.

Post the primary deposition of the sulphide mineralisation in lava channels, one or more tectonic events have dismembered Flying Fox's originally continuous sulphide body into 11 separate lenses and these events have also modified the texture and composition of the original massive sulphide mineralisation. Up to six local phases of deformation have been identified, with the third phase of reverse faulting being responsible for the sulphide body segmentation, which in some areas has separated lenses by up ~300m in a horizontal



sense. Hydrothermal fluids related to metamorphism and deformation have modified the original sulphides and added pyrite to the sulphide assemblage, as well as locally elevated arsenic concentrations.

Flying Fox's 2007 sectional interpretation



Flying Fox's mineralisation lenses of predominantly massive sulphides are named T0 through to T7. Depending on geometry, the lenses can contain from ~0.2 to 0.5Mt of resources and average lense grades vary from ~5% Ni to as high as ~9% Ni. The lenses have strike lengths of up to ~400m, down dip extents of up to ~200m, and thicknesses varying from 0.1m to 10m. Based on current drilling, the deepest lense, T7, extends to at least ~1.3km below surface. Disseminated sulphide mineralisation, sometimes grading up to 1.5% Ni, is found in the ultramafic host unit above the massive sulphides, and in low-grade halos around the margins to the north, south and up dip of individual lenses.

# Mineral Resources

WSA prepared Flying Fox's FY22 MRE using all the high quality and high recovery diamond core information available for the deposit. Refer to Flying Fox's JORC Code Table 1 Checklist attached to this announcement for full details regarding sample collection, quality control, assaying methods and other relevant details of Flying Fox's input estimation data sets.

WSA's estimators used implicit modelling software tools to prepare digital 3D volume models of Flying Fox's 18 massive sulphide lenses, using the criteria of >0.8% Ni in drill hole assay results and/or massive sulphides noted in logging to delimit the extents of each lense. The drill hole intercepts inside each 3D lense model were then composited to a uniform 1m length, and after statistical and continuity analyses were completed, WSA's estimators prepared a digital block model to interpolate density and grade of variables using industry normal geostatistical methods, followed by industry routine block model validation methods. The estimation blocks size was set to 2mE by 5mN and 5mElv. Readers should refer to Flying Fox's JORC Code Table 1 Checklist for full details of the volume modelling and block modelling estimation process.

The Competent Person responsible for the ASX reporting of Flying Fox's FY22 MRE has JORC Code classified the Flying Fox estimate by considering the data quality, geological interpretation confidence, drill hole data spacing and geostatistical estimation metrics. For FY22 reporting, the model estimate is depleted by mining voids to the end of FY22, and then reported by JORC Code class using a >0.4% Ni block grade threshold.

For FY22, IGO is reporting a total JORC Code 2012 reportable MRE for Flying Fox of 0.78Mt grading 4.05% Ni (32kt nickel) with JORC Code class sector information as listed in the tabulation further above. This estimate is inclusive of Flying Fox's ORE, which is discussed further below in the reserves section.

# **Spotted Quoll**

Spotted Quoll is within WA mining lease M77/583, which expires on 27 August 2035. Spotted Quoll's underground decline daylights at coordinates ~32°28'42"S and ~119°40'34"E in the western wall of the 'Tim King' open pit, which is ~13km west northwest of IGO's Cosmic Boy Concentrator. Like Flying Fox, Spotted Quoll was an active underground mine at the end of FY22.

WSA discovered Spotted Quoll in 2007 through drill testing an EM anomaly below a thin granite intrusion, which is ~6km south of Flying Fox<sup>110</sup>. In mid-2008, WSA reported a first MRE for Spotted Quoll<sup>111</sup>. In 2009, WSA prepared an ORE for the upper part of Spotted Quoll and commenced mining in its Tim King open pit, which, over its life, produced ~0.5Mt grading 5.8% Ni (28.5kt nickel). At the time WSA completed mining in the Tim King Pit in 2011, WSA was accessing its first ore from Spotted Quoll's underground mining operations.

Over the next ten years, WSA's exploratory drilling continued to extend the known depth of Spotted Quoll's mineralisation so that by the end of FY22 its MRE extends to ~1.3km below surface, and ore mining has reached to a depth of ~1.0km. The total ore mined from Spotted Quoll to the end of FY22, excluding a modest tonnage of incidental low-grade ore, is 0.42Mt grading 5.9% Ni (22kt nickel) from the open pit and 3.2Mt grading 4.2% Ni (117kt nickel) from underground operations.




#### **Spotted Quoll location**

Spotted Quoll infrastructure



#### Geology and mineralisation

Spotted Quoll is a Western Belt massive sulphide deposit that has been tectonically displaced from its primary komatiite host. The massive sulphide mineralisation is 30 to 50m below the nearest overlying komatiite and is hosted by a quartzose metasediment sequence of laminated banded iron formation (BIF) intercalated with ultramafics. As noted above, it is partly hidden below a near surface cross cutting granite dyke.

Spotted Quoll's mineralisation is of a brecciated style, containing clasts of quartz and garnet schists, and occurs in and along a complex shear zone, which is overlain by BIF and metasediments. As is common in most ultramafic rocks in the Forrestania region, amphibolite grade metamorphism has destroyed any primary volcanic textures. The deformed mineralisation has also undergone hydrothermal alteration that has changed the sulphide minerology and locally introduced low concentrations of arsenic forms of sulphides.





#### Mineral Resources

WSA's estimators prepared Spotted Quoll's FY22 MRE using all available diamond core and RC drilling information. Readers should refer to Spotted Quoll's JORC Code Table 1 Checklist attached to this announcement for full details regarding sample collection, quality control, assaying methods and other details relevant to understanding the estimation input data set. In brief, the Competent Person for the estimate considers the data to have an acceptable quality and veracity for MRE work.

WSA's Spotted Quoll estimator prepared its MRE model in a like manner to the Flying Fox estimate, using implicit modelling tools to prepare 3D envelopes of the sulphide lenses using a >0.8% Ni sample threshold to define the limits of the halo of mineralisation. Within this halo, geological logging was used to define internal zones of high-grade massive sulphides. These mineralisation envelopes were then coded into a digital block model along with a geology model, that coded barren cross cutting geology such as post mineralisation dykes. Accessory 3D volumes were also created to control the estimation of arsenic, which is a key variable for ore processing.





Spotted Quoll lodes and mining FY22

For estimation work, WSA's MRE modeller composited the drill hole samples into uniform 1m lengths within each 3D estimation zone before preparing the zone-respective statistical and continuity analyses. Next the modeller interpolated density and grades into a zone coded digital block model using industry normal geostatistical and empirical estimation methods, with the model prepared using parent estimation block dimensions of 2mE by 5mN by 5mElv, and appropriate subblock parameters to precisely fill each estimation zone volume using industry normal approaches. The estimates for each zone were then validated. Readers should refer to Spotted Quoll's JORC Code Table 1 Checklist attached to this announcement for full details of estimation and validation processes applied for Spotted Quoll's end of FY22 estimate.

The Competent Person then JORC Code classified the MRE block model by considering the data quality, geological interpretation confidence, drill hole data spacing and geostatistical estimation metrics. The MRE modeller then depleted the model for mining to the end of FY22, and finally reported the estimate using a >0.4% Ni block grade threshold by JORC Code classes as listed in Forrestania's summary MRE tabulation further above. For FY22, IGO is reporting a total MRE for Spotted Quoll of 0.62Mt grading 5.7% Ni (35kt nickel).

#### New Morning/Daybreak

The New Morning/Daybreak Deposit (NMD) is centred at coordinates ~32°27'20"S and ~119°40'44"E, and within the same mining lease as Spotted Quoll. NMD is also ~2.5km north of the Tim King pit and ~4km southwest of Flying Fox's boxcut.

The New Morning portion of NMD was discovered in 1969 by US JV explorers AMAX-Amoco, with the smaller Daybreak extension being WSA's first Forrestania discovery in 2002<sup>112</sup>. NMD is unmined.

#### Geology and mineralisation

NMD occurs almost midway between Flying Fox and Spotted Quoll, where there is a distinct strike change in the Western Belt's regional stratigraphy as can be observed on Forrestania's regional geology map.

NMD's host, which is now a metamorphosed cumulate ultramafic, strikes north-south, while the other stratigraphic units strike towards 020° on either side of this mineralised host. The local stratigraphy comprises multiple units. These are



from west to east, footwall metasediments, then the host meta-cumulate ultramafic, which is overlain by felsic metavolcanics and a chert, then an overlying sequence of alternating barren metakomatiites and metabasalts (and a black shale horizon), then finally a cover of felsic metavolcanics. This sequence is then variably intruded by cross cutting granites that, like Flying Fox, dismember the originally continuous sulphide mineralisation into lenses. Finally, a Proterozoic-age dyke cross cuts the Archean sequence and intrusives and separates the New Morning sector of the deposit from the Daybreak portion.

#### New Moring/Daybreak



NMD has undergone multiple phases of deformation, with several phases of faulting including the most recent flat lying phase that has east offset the stratigraphy and mineralisation into a set of 20 to 160m steps.

NMD's nickel sulphide mineralisation is both Type 1 and Type 2, with massive mineralisation occurring at the base of the channel and disseminated sulphide mineralisation occurring at multiple levels through the mass of the host metacumulate. Typically, an up to 20m thick halo of disseminated sulphides, with grades ranging between 0.4 to 1.2% Ni, occurs above the massive. Thin granitic dykes intrude the sulphide in places or along the footwall metasediment contact. The massive sulphide mineralisation is often brecciated. The principal nickel sulphide is pentlandite but some violarite is present.

Daybreak geology section looking NW



NMD's Daybreak mineralisation, which is south of the main cross cutting Proterozoic Dyke, is interpreted to have been remobilised and engulfed by the granites.

#### Mineral Resources

Like Flying Fox and Spotted Quoll, WSA's MRE modeller used implicit modelling software tools to interpret NMD's 3D mineralisation lenses from the RC and diamond core drill hole information, that has been collected over the ~50 years of deposit testing. The modeller interpreted the lense limits using a nominal >0.7% Ni threshold on sample data, then further divided the lenses into massive sulphide and disseminated sulphide estimation zones, based on logging and a nominal >2.0% Ni sample grade threshold. WSA's drilling and sampling protocols applied to the deposit since 2007 are consistent with modern industry norms for the style of deposit under consideration, and this newer drilling has largely confirmed the quality of the older information. Readers should refer to NMD's JORC Code Table Checklist, which is attached 1 to this announcement, for full sampling, assaying and quality control assessment of NMD's MRE data.

WSA's estimator applied industry normal digital block modelling and geostatistical and empirical estimation methods to estimate NMD's MRE. The estimator first composited the drilling information to 1m intervals within each estimation zone before preparing zone respective statistical and continuity analyses. The modeller than prepared a zone coded digital block model, with nominal parent estimation blocks of cubes having 10m long sides, and with subblocks permitted to precisely fill the volume of each estimation zone. Next the modeller interpolated grades and density before validating



the model as detailed in the JORC Code Table 1 Checklist for NMD attached to this announcement.



#### New Morning/Daybreak mineralisation lenses

WSA's Competent Person for NMD JORC Code classified the NMD MRE model by taking into consideration the data quality, geological confidence, and estimation confidence. NMD's MRE is reported using a >0.5% Ni block model cutoff grade for each of the JORC Code classes listed in Forrestania's summary MRE tabulation further above. For FY22, IGO is reporting a total MRE for NMD of 6.23Mt grading 1.41% Ni (88kt nickel).

#### **Beautiful Sunday**

Beautiful Sunday is ~7km north northwest of Flying Fox and centred on coordinates ~32°21'24"S and ~119°40'16"E. Beautiful Sunday is on WA mining lease M77/219, which has an expiry date of 20 March 2030.

In April 2007 WSA reported a first estimate for Beautiful Sunday with a total MRE of 0.48Mt grading 1.4% Ni<sup>113</sup>. Beautiful Sunday was discovered in 1975 by AMAX by following up on anomalous nickel and copper results from shallow rotary air blast holes. Nine follow up diamond holes were drilled between July 1975 and November 1976 intersecting scattered amounts of sulphide mineralisation, but no further work was undertaken until Outokumpu purchased the tenements. Outokumpu explored further with additional diamond and RC drilling in the 1990s. In June 2013, WSA designed a diamond drilling program following reassessment of the data which postulated a south easterly plunge for the mineralisation. This was completed by October 2014 and no further drilling has been carried out since.

#### Geology and mineralisation

Beautiful Sunday is hosted near the northern end of the Western Belt sequence, that continues north from Flying Fox. The stratigraphy of the complex is complicated by thrusting and faulting with many of the contacts displaying evidence of faulting. The thrust faults are interpreted to dip 35 to 50° to the northeast with a northeast over southwest sense of movement. At least two undulating normal faults are recognised trending approximately 300° although the sense of movement of these appear contradictory to some of the drill hole data, suggesting reactivation or scissor movement may also be present.

#### Beautiful Sunday location map and tenure



A foliated granitoid/gneiss is assumed to be the basement, intersected in two diamond holes. This is overlain by felsic volcaniclastics, then a strongly altered, sheared 1 to 20m thick komatiite, followed by quartz-biotite sediments intercalated with felsic volcaniclastics then a BIF. The BIF is overlain at Beautiful Sunday by komatiite which hosts the sulphide mineralisation. The komatiite is interpreted to be thrust stacked and faulted with at least two separate flows. Both flows comprise olivine mesocumulate that has been variably altered to serpentinite.

The sulphide mineralisation lies at the base of the komatiite and comprises pyrrhotite, pyrite and minor



amounts of pentlandite and millerite. Supergene pyrite and violarite occurrences are present in the oxidised zones. The mineralisation is predominantly disseminated with small amounts of massive and matrix sulphides. Some of the thicker intercepts may be due to stacking, and there appears to be evidence of structural remobilisation of sulphides into the footwall lithologies and into structures within the komatiite. Two mineralisation domains have been modelled, the lower basal lode and the upper basal lode. Both lodes are situated at the base of the komatiite unit but have been separated by faulting and intrusive rocks.

Small amounts of intrusive rocks are seen at Beautiful Sunday. Mafic dykes of Archaean age have been intersected in the drilling but have been difficult to trace across structures. Proterozoic dykes are interpreted from magnetic data to the south of Beautiful Sunday, but none have been intersected in the drilling. Thin 0.5 to 6m thick metamorphosed felsic dykes have also been intersected in several horizons.

#### Mineral Resources

In 2008, WSA engaged a well-respected MRE consulting company to prepare Beautiful Sunday's MRE in accordance with the requirements of the then prevailing 2004 edition of the JORC Code. This consultant stated in its estimation documentation that it did not assess the quality of the MRE input data and had accepted, on an 'as is' basis, the drill hole data that WSA had provided for the estimation work. The inference here is that WSA was taking responsibility for data quality and veracity of Beautiful Sunday's MRE input data. However, notwithstanding the lack of quality control metadata, the MRE dataset does comprise RC and diamond core drilling on a ~40m mineralisation lense pierce point spacing, and IGO's Competent Person who is responsible for reporting Beautiful Sunday's FY22 MRE considers that there is no reason to expect that the quality of information used is inadequate for MRE work.

WSA's MRE consultant prepared two separate 3D lenses of mineralisation for Beautiful Sunday through wireframing the drill hole information above a nominal >0.4% Ni sample threshold. Next the samples within each lense were composited to uniform 1m intervals, which were then input to the statistical and continuity analyses. The consultant then prepared a digital block model and interpolated grades and density using industry normal geostatistical and empirical methods. The estimator validated the models using on-screen inspection of composite input and block output grades, and comparison of estimation zone input and output mean grades. These checks were found to be acceptable and with differences within normal

expectation tolerances for the style of deposit under consideration.

**Beautiful Sunday mineralised lodes** 



Due to the relatively close drill hole spacing, the consultant classified the Beautiful Sunday estimate as an Indicated Resource. The Competent Person for the FY22 MRE for Beautiful Sunday has also accepted this classification as being reasonable. For FY22, IGO is reporting a total, and all Indicated JORC Code class, MRE for Beautiful Sunday of 0.48Mt grading 1.40% Ni (6.7kt nickel) at a 1% Ni cut-off in accordance with the requirements of the 2004 edition of the JORC code.

#### **Cosmic Boy**

Cosmic Boy is on mining lease M77/399, which expires on 7 November 2031. In the 1970s, US JV explorers AMAX-Amoco discovered Cosmic Boy and several other nickel sulphide deposits in the region, some of which have been discussed above, and others further below. Cosmic Boy proved to be the main ore source for production by subsequent deposit owner Outokumpu, as discussed below. Cosmic Boy's decline access is at coordinates ~32°34'52"S and ~119°44'30"E, and the decline's boxcut pit is immediately adjacent to IGO's Cosmic Boy Concentrator.

Outokumpu operated Cosmic Boy as an underground mine from 1992 to 1999 extracting 1.85Mt grading 1.99% Ni (38kt Ni) over that period. Ore was processed at the original Cosmic Boy mill.

#### Geology and mineralisation

Cosmic Boy is hosted in the Eastern Belt sequence and its nickel sulphide mineralisation occurs on the basal, western contact of the lowermost metaultramafic unit in the ~45 to  $50^{\circ}$  west dipping local sequence. Mineralisation occurs in two parallel lodes.



In Cosmic Boy's MRE modelling, which is discussed further below, four estimation lenses are modelled and are respectively named the North and South Basal lenses, and the Main and Secondary Hangingwall lenses. The North Basal lense is on average ~7m thick, while the South Basal lense is thinner averaging ~3.5 to ~4.0m in thickness. Apart from the Secondary Hangingwall lense, which averages ~0.5% Ni, the average nickel grades of all other lenses range from ~1.0 to ~1.5% Ni. The South Basal and Hangingwall lenses commence from ~100m below surface, while the deeper North Basal lense commences at ~250m below surface. All lenses strike north and dip ~45° to the west.

#### Cosmic Boy surface infrastructure



The basal sulphide lenses occur at the base of a 40 60m thick (metamorphosed) olivine to mesocumulate with the mineralisation having a ~800m strike length and dip extent of ~500m. The lenses' north and south margins are terminated by faulting, while the lenses' upper and lower limits terminate by thinning. The mineralisation footwall is a sharp contact that is defined by a fault and/or an underlying meta-BIF. The upper margin is more grade defined and steps down gradually to the 0.3% Ni grade of the sulphide-barren metaultramafic. The sulphide assemblage is pyrrhotite  $\pm$ pentlandite ± pyrite and minor chalcopyrite but with no massive sulphides present in the Basal Lode.

2008 Cosmic Boy north looking section



The Upper Hangingwall lode occurs as a discontinuous lens of disseminated sulphides within a 10 to 20m thick (metamorphosed) olivine mesocumulate, close to the boundary of a second meta-ultramafic, which is interpreted to be an isoclinal folding of the basal meta-ultramafic. All hangingwall lenses overlie a predominantly metabasaltic unit.

#### Mineral Resources

In 2008, WSA engaged a well-respected MRE consultant to prepare an estimate for Cosmic Boy in accordance with the requirements of the 2004 edition of the JORC Code. The sample data that is the basis of the Cosmic Boy MRE comprises both surface and underground diamond core drilling, with good recovery recorded for the surface drilling, and hence inferred for the underground diamond core drilling, where recovery was not logged. Cosmic Boy's MRE database also includes underground percussion (sludge open hole holes) and face/channel sampling. Much of the metadata related to the quality of the older drilling, sampling and quality control has been lost, but quality checks on more recently collected data have had MRE acceptable results.





Cosmic Boy lodes and Outokumpu's mining

WSA's MRE consultant prepared 3D wireframes of each Cosmic Boy sulphide mineralisation zone using a nominal sample cut-off of >0.4% Ni to delimit the boundaries of the four lenses modelled. Next the consultant composited the data within each lense to uniform 1m lengths, before preparing estimation zone specific, statistical and continuity analyses on each data type. The consultant then prepared a digital block model having parent estimation block dimensions of 10mE by 15mN by 10mElv, and with sub blocking applied to precisely fill the 3D lense volumes. The estimator then prepared a zone coded digital block model and interpolated density and grades into the model's blocks using industry normal geostatistical and empirical methods. The consultant then verified the estimates by on-screen inspection of input composites and output block estimates, estimation zone global and local mean comparisons, and assessment of estimation metrics. All verification checks were found to be acceptable. The block model was then depleted for Outokumpu's prior mining volumes and reported using a 1.5% Ni cutoff grade.

The MRE consultant classified the estimate as Inferred Mineral Resources in accordance with the

2004 edition of the JORC Code. However, WSA's Competent Person, who took over responsibility for the estimate, had the revised opinion that the Cosmic Boy estimate should be classified as Indicated Mineral Resources because the close data spacing and mining history should support a higher level JORC Code confidence.

For FY22, IGO is reporting an all Indicated MRE for Cosmic Boy of 0.18Mt grading 2.79% Ni (5kt nickel) in accordance with the requirements of the 2004 edition of the JORC Code.

#### Seagull

Seagull is centred on coordinates ~32°33'53"S and 119°44'1"E, which is ~2km north northwest of IGO's Cosmic Boy Concentrator. Seagull is wholly within WA mining lease M77/589, which expires on 27 August 2035.

Like Cosmic Boy, Seagull was discovered by the AMAX-Amoco JV's explorers in the 1970s but at that time, the deposit was considered too small to warrant further exploration. Decades later in the mid-1990s, Outokumpu, who had acquired Seagull's tenure, drilled more diamond core holes



that were targeted to test for extensions to the 1970s massive sulphide intercepts.



#### Seagull location map and tenure

edition of the JORC Code. The estimate was prepared from the past explorer data, and no assessment is documented regarding data guality or veracity in the Seagull MRE report.



#### Geology and mineralisation

Seagull is hosted within the limbs of the Seagull Anticline of the FGB's Eastern Belt ultramafic sequence, where this structure is a secondary fold in the eastern limb of the regional scale Forrestania Syncline. Locally, Seagull occurs in a structurally thickened zone of a metamorphosed mesocumulate ultramafic sequence, which locally has a structurally repeated thickness of up to ~450m.

Two nickeliferous sulphide mineralised lenses are interpreted to occur at Seagull, with the first being the East Limb lense. This lense has a north trending strike extent of ~550m, dips steeply to the west and plunges ~45° to the north. While the East Limb lenses' average grade in drill intersections is only ~0.45% Ni and is dominantly composed of disseminated sulphides, there are several local drill intercepts grading up to 4.3% Ni, which are indicative of local pods of matrix and/or massive sulphides within the lower grade disseminated volume.

Seagull's West Limb lense, has a fault limited east trending strike extent of ~230m, and dips ~30° towards north. This lode averages ~0.9% Ni in drill hole intercepts with locally higher grades up to 6.6% Ni, which are again indicative of the presence of matrix to massive sulphide pods within the lower grade halo. All mineralisation is interpreted to be controlled by the basal contact between metasediments and BIF, and the overlying metacumulate.

#### Mineral Resources

In 2012, WSA's estimator prepared Seagulls MRE in accordance with the requirements of the 2004

To estimate Seagull's resources, WSA's modeller prepared 3D wireframes of the two Seagull lenses described above using a nominal >0.3% Ni sample threshold as a limit to mineralisation. The estimator then prepared a zone coded block model and interpolated grades and density using an empirical inverse-distance method. Details of the model validation were not described in the MRE documentation but presumably on-screen comparison inspections of input samples and output block estimates were found to be satisfactory.

For FY22, IGO is reporting Seagull's MRE at a >1.0% Ni cut-off grade, with an all Indicated MRE of 0.20Mt grading 2.00% Ni (4kt nickel), in accordance with the JORC Code 2004 requirements.

#### Diggers

Diggers Rocks and Diggers South are the respective north and south portions of the Diggers Deposit. The currently flooded Diggers Rocks open pit is centred on coordinates ~32°43'1"S and ~119°48'32"E, which is ~16km south of IGO's Cosmic Boy Concentrator. Diggers is also ~4km northwest of Purple Haze, which is discussed further below. Diggers is wholly within WA mining lease M74/78, which expires on 11 October 2031. A flooded underground mine also exists below the Diggers Rocks open pit, with its portal below the pit's current water level. In the mid-2000s, WSA constructed the large evaporation pond near Diggers, prior to the discovery of Spotted Quoll and subsequent change in mine development focus.





Diggers location infrastructure

The AMAX-Amoco JV discovered Diggers in 1971 when its geologists found elevated nickel concentrations in specimens collected from the caprock over Diggers Rocks. The JV team then diamond core drilled the Diggers area and in doing so, defined much of the known Diggers Rocks and Diggers South mineralisation. However, AMAX-Amoco did not progress Diggers further, presumably due to the unfavourable prevailing economic conditions for a new mine development.

In the 1980s, explorer Metals Ex further drill tested Diggers but like the AMAX-Amoco JV, did not progress beyond preliminary mineral resource estimation. Metals Ex sold its Diggers interest to Outokumpu in the early 1990s. Outokumpu open pit mined Diggers Rocks from 1992 to 1995, and then transitioned into underground mining, which ended in 1999. WSA reported that Outokumpu mined in total 1.34Mt grading 1.81% Ni (24.3kt nickel) from Diggers Rocks, with the underground portion of this total being 0.39Mt grading 1.89% Ni (7.4kt nickel).

WSA first ASX reported MREs for Diggers in mid-2003, citing an Outokumpu 1998 3D block model for Diggers Rocks, and a 2002 polygonal MRE for Diggers South<sup>114</sup>. The current FY22 estimate for Diggers is based on a 2008 WSA-prepared MRE, as detailed further below.

#### Geology and mineralisation

Diggers is hosted in a large Eastern Belt ultramafic body that extends from South Ironcap to the north of Diggers, to Kat Gap in the south. Diggers mineralisation represents locally higher grade accumulations of nickel sulphides within a thick metamorphosed olivine meso- to adcumulate ultramafic unit, that has been defined in drilling over a  $\sim$ 1.4km strike length.

Diggers local geology, from east to west, is composed of a thick metabasalt that underlies a thinner sequence of felsic metasediments, which in turn are overlain by the even thinner mineralised meta-ultramafic. The stratigraphic footwall rocks comprise pelitic metasediments including a mineralised footwall BIF unit. This local succession strikes north northwest and dips at ~60 to ~70° towards south southwest.

**Diggers** location



Diggers' sulphide mineralisation, which occurs as both Type 1 and Type 2 styles, is hosted by a large zoned ultramafic that is ~5km long and up to ~400m in stratigraphic thickness. The nickel sulphide mineralisation, which comprises both massive and disseminated to matrix sulphides, is interpreted to be structurally controlled and occurs over a 1.0km strike length and with a thickness of up to ~125m.

In Diggers Rocks' MRE, which is described further below, the mineralisation is interpreted as an



ensemble of generally tabular sheets occurring over a ~570m strike length, dipping 50 to  $65^{\circ}$  to the west, pitching 50° to the north, and with combined thicknesses of up to ~125m. Past drilling has defined the mineralisation down to ~325m below surface. Typically, Diggers Rocks' mineralisation occurs as and up to 10m thick accumulation of massive sulphides grading ~6 to ~7% Ni, overlain by 10 to 40m of intensely disseminated to matrix mineralisation grading ~0.8 to ~2.5% Ni. This is in turn overlain by a 30 to 80m thick zone of more diffuse disseminated sulphides grading from ~0.8 to ~1.0% Ni. Most of the higher grade (and largely mined out) mineralisation occurs 30 to 50m below surface, below Diggers Rocks' siliceous weathering cap. Above the base of weathering, the primary mineralisation is transformed by a strong supergene effect, with the new minerals formed tending to reduce metallurgical recovery. This weathering also affects the shallower parts of the disseminated mineralisation in Diggers South.

#### Diggers mineralisation and prior mining



Like Diggers Rocks, Diggers South's mineralisation is interpreted to be a collection of similarly west dipping tabular sheets over a ~760m strike length. Most lodes are interpreted to extend to ~500m below surface, but one lode in the south extends to ~850m below surface. Most of Diggers South's mineralisation is disseminated pyrrhotite  $\pm$ pentlandite  $\pm$  pyrite  $\pm$  chalcopyrite in 9 to 25m thick relatively homogenous sheet like lodes that dip steeply to the west. The principal structural feature of Diggers is a set of  $280^{\circ}$  to  $320^{\circ}$  trending normal reverse faults, one of which is interpreted to offset Diggers South from the Diggers Rocks by ~35m.

#### Mineral Resources

In 2008, WSA's estimator prepared 3D mineralisation envelopes for Diggers using traditional wireframing methods and applying a >0.7% Ni sample threshold to delimit higher grade



lodes, or a >0.3% Ni sample cut off for limiting the extents of the low-grade halo mineralisation. The MRE drill hole information, which is dominantly diamond core holes, was sourced from the combined dataset of past explorer and WSA's then more current drilling. The drill hole pierce-point spacing ranges from 30 to 60m across the volumes estimated for the MRE. The metadata supporting the quality of the older drilling, some of which dates to 1971, has been lost in data transfers between explorers. However, given the past drilling was diamond core type and results from more recent drilling of similar style have confirmed good recovery, the Competent Person accepted all data as reasonable for MRE work.

For the 2008 Diggers MRE, WSA's modeller prepared additional 3D geological wireframes of the Diggers' principal geological units to serve as a deological frame of reference backdrop for the ten high-grade wireframes interpreted, as discussed above. Five of these lodes were modelled at Diggers Rocks and the other five at Diggers South. WSA's estimator then prepared a separate lowgrade wireframe for each sub area, with these 3D volumes largely encompassing the higher grade wireframes. Next a digital block model was prepared with parent estimation blocks having 5mE by 10mN by 5mElv dimensions, with sub blocking permitted to precisely model the wireframe volumes. The estimator then interpolated grade and density into the estimation zone code digital model's blocks using standard industry geostatistical or empirical estimation methods. The modeller then depleted the model for past mining and the Competent Person classified the estimate using data quality, geological confidence, and estimation confidence criteria.

For FY22, IGO is reporting at total MRE of 3.4Mt grading 1.4% Ni (47.6kt nickel) for Diggers, with JORC Code class details as listed in Forrestania's combined summary MRE further above, and in accordance with JORC Code 2004 requirements. This estimate is inclusive of the Diggers ORE, which is discussed further below.

#### **Purple Haze**

Purple Haze is ~4km southeast of Diggers Rocks and is centred on coordinates ~32°44'47"S and 119°50'4"E. Purple Haze was discovered by the AMEX-Amoco JV as part of its 1970s exploration in the region. Purple Haze is within WA mining lease M74/92, which expires on 18 August 2035.

#### Geology and mineralisation

Three sheet like lodes of mineralisation have been interpreted for Purple Haze's MRE. The local geological setting is like the adjacent Digger Rocks zone and includes a 2km strike length of olivine adcumulate that hosts the Digger Rocks, Digger Rocks Deeps and South Digger Rocks deposits. The stratigraphy is steeply dipping and in places is overturned. The eastern contact of the ultramafics is interpreted to dip west in line with the rest of the Eastern belt; however, the western contact has variable dips, with sections dipping eastwards. The Purple Haze ultramafic stratigraphy is enclosed within a thick mafic sequence.

#### F3 Purple Haze location



The main ultramafic package comprises two ultramafic units separated by a thin package of sediment that is intruded by a 'pyroxenitic' body. A thin discontinuous sediment forms the immediate footwall of the lower eastern ultramafic. Up to two thin komatiitic ultramafic units occur in the hangingwall sequence. The main ultramafic package thins from ~500m at Digger Rocks/South Digger Rocks to <50m in the intervening ground. again thickening to >100m at Purple Haze. The sediment horizon separating the two main ultramafic units is difficult to trace. It can be traced from Digger Rocks to ~11,800mN, then from ~11,000 - 12,200mN where it disappears. At this point the ultramafic package thins and it is interpreted that the upper cumulate is faulted out and only the lower cumulate continues southwards. Although felsic intrusives are rare in the Eastern Ultramafic belt, a pegmatite dyke occurs in the northern part of the prospect.

#### Mineral Resources

In 2008, WSA engaged a reputable MRE consultant to prepare Purple Haze's estimate, in conjunction



with an estimate for Beautiful Sunday, with both prepared in accordance with the requirements of the 2004 edition of the JORC Code.



Purple Haze resource lodes

The MRE consultant did not undertake any review of the drill hole data, or the sampling, on which the estimates was based, or its quality. However, all the holes used for the estimate were diamond core holes and are expected to have the same quality as the drilling at Diggers given Purple Haze's proximity and the likely late 1990s vintage of most of the drill hole information. The MRE preparation process applied is essentially the same as that described above for Beautiful Sunday. Three wireframe 3D envelopes were prepared using a nominal >0.4% Ni threshold as a limit, and the samples inside each estimation zone composited to 1m intervals before statistical and continuity analyses were prepared. Grades were then estimated, using empirical and geostatistical methods, into a digital block model constructed on a 2mE by 10mN by 5m elevation estimation blocks size, with sub blocks permitted to precisely fill the lode interpretation volumes. The model was then validated through on-screen inspection and statistical checks. No density information was available so density was inferred from a nearby deposit.

For FY22, IGO is reporting an all Indicated MRE for Purple Haze of 0.56Mt grading 0.90% Ni (5kt nickel), in accordance with JORC Code 2004 requirements.

#### **Mineral Resource Growth**

Since 2003, WSA achieved continuous growth of its MRE base, despite mining depletion, through extension and/or re-evaluation of known deposits, in particular Flying Fox, or through the discovery of major new deposits, such as Spotted Quoll.

As such, for FY22, IGO's MRE total base at Forrestania was a total ~17.43Mt grading ~1.51% Ni (~264kt of nickel), which is in addition to the ~7.7Mt grading ~4.3% Ni (~283kt nickel) that has been processed to FY22.

The chart below depicts Forrestania's MRE growth from WSA's original acquisition of Outokumpu's tenure through the discovery and near final MRE definition of Spotted Quoll in 2009.

#### Forrestania Resource Growth Chart



#### **Ore Reserves**

Forrestania's total FY22 ORE includes estimates from the operating mines of Flying Fox and Spotted Quoll, which are both reported in accordance with JORC Code 2012 requirements, and from a WSA PFS on Diggers, which is reported in accordance with JORC 2004 requirements. The tabulation below is a listing of the estimates by JORC Code class and JORC Code reporting edition.



IORC		Proved			Probable			Total		
Code	Estimate	Mass	Nic	:kel	Mass	Nic	kel	Mass	Nic	kel
Edition		(Mt)	(%)	(kt)	(Mt)	(%)	(kt)	(Mt)	(%)	(kt)
2012	Flying Fox	-	-	-	0.18	2.22	4	0.18	2.22	4
	Spotted Quoll	-	-	-	0.61	3.45	21	0.61	3.45	21
	Total JORC 2012	-	-	-	0.78	3.17	25	0.78	3.17	25
2004	Diggers	-	-	-	2.11	1.46	31	2.11	1.46	31
	Total JORC2004	-	-	-	2.11	1.46	31	2.11	1.46	31
Total Forrestania		-	-	-	2.89	1.92	56	2.89	1.92	56

#### Forrestania's FY22 Ore Reserves

Notes: Some totals and averages may mistakenly appear to be inaccurate due to the rounding of estimates to fixed decimal places.



#### Forrestania FY22 Ore Reserves by sector

#### **Flying Fox**

The Flying Fox underground mine has been in operation since 2005 and the current inputs to its ORE are based on operating budgets, and as such the level of study is considered superior in precision to an FS. Flying Fox's ORE is reported on a >0.8% Ni model cut-off grade, which approximates the break-even grade for processing. The ORE is also tuned so the mean arsenic grade in saleable concentrates is within a saleable concentration range.

The mining methods at Flying Fox are direct or modifications of the AVOCA mining method, where longhole stoping is used to extract the ore and the void is progressively filled with rock and/or cemented rock or paste fill, depending on local geotechnical conditions. The minimum mining width is 2.0m, with stopes typically 20m along the strike of the ore and from 8 to 17m high. Refer to the JORC Code Table 1 Checklist for Flying Fox in the attachments to this announcement for further details regarding mining methods and assumed mining parameters.

The metallurgical modifying factors for Flying Fox are based on the long experience with processing Flying Fox's ore through the Cosmic Boy Concentrator. Typical nickel metallurgical recovery for Flying Fox ranges from ~85 to ~90%. A small stream of the flotation feed is also directed to a 'BioHeap' circuit to improve the overall recovery. Concentrates are sold to several customers by road transport within WA or by road to Esperance Port then shipping for IGO's offshore customers.

All environmental and statutory approvals are in place for Forrestania's continued mining and processing operation for the end of FY22 ORE, and there is sufficient storage for tailings from ore processing. All necessary infrastructure and workforce are also in place. IGO has good relationships with all stakeholders and considers it has a strong social licence to operate.

For FY22, IGO is reporting an all Probable ORE for Flying Fox of 0.18Mt grading 2.22% Ni (4kt nickel)



in accordance with the requirements of the 2012 edition of the JORC Code.

#### **Spotted Quoll**

Spotted Quoll has been an operating underground mine since 2010, and the current ORE is based on operating budgets and experiences, and as such is considered to have better precision than a FS. The FY22 ORE is reported using a >1% Ni cut-off grade, which equals the breakeven grade for haulage to and processing at the Cosmic Boy Concentrator, as well as the other criteria listed in Spotted Quoll's JORC Code Table 1 Checklist, which is attached to this announcement.

The mining method at Spotted Quoll is long hole stoping with filling of the mined voids with paste. The minimum mining width is 3m and the length of stopes ranges from 10 to 30m, depending on geotechnical conditions and local mineralised lense geometry. Stope heights range from 7 to 15m. Readers should refer to the relevant JORC Code Table 1 Checklist for full details as to other key mining assumptions.

The metallurgical process assumptions for Spotted Quoll are the same as those discussed above for Flying Fox. Spotted Quoll and Flying Fox ores are blended at Cosmic Boy and the concentrates are sold to the customers described above and in the relevant JORC Code Table 1 Checklist.

Spotted Quoll operates under all the same environmental, approval and stakeholder regimes as Flying Fox, and IGO is not aware of any items that would negate its licence to operate and fully mine, process, and market products from Spotted Quoll's ORE. For FY22, IGO is reporting an all Probable ORE for Spotted Quoll of 0.61Mt grading 3.45% Ni (21kt nickel).

#### Diggers

In the 1990s Outokumpu mined 1.73Mt grading 1.83% Ni (32kt nickel) from the Diggers Rocks open pit and underground mines. In November 2007, WSA announced the results of a PFS into the redevelopment of mining at Diggers. The PFS assessed a possible pit cut-back at Diggers Rocks and restarting the existing underground mine, while also developing an underground mine on the Diggers South zone, with this new mine accessed from Diggers Rocks underground<sup>115</sup>.

From this 2007 PFS, WSA reported an all Probable ORE for underground mining, reported for a minimum mining width of 3.3m and cut-off grade of 1.2% Ni. Other key assumptions from the PFS included the assumption of a 79% metallurgical recovery of nickel and production of an 11% Ni concentrate. This 2007 PFS forecast an eight-year mine life with production of  $\sim$ 365kt/a of ore to be hauled  $\sim$ 18km to the Cosmic Boy Concentrator.

For FY22, IGO is reporting a total ORE for Diggers of 2.11Mt grading 1.46% Ni (31kt nickel), based on the 2007 PFS results. However, given the age of the ORE estimate, IGO will need to re-evaluate the Digger's ORE over the next six to 12 months to assess its viability under prevailing economic conditions.

WSA's Diggers 2007 Ore Reserve <sup>115</sup>





# SUPPLEMENTARY INFORMATION

**COMPETENT PERSON STATEMENTS** 

### JORC CODE (2012) TABLE 1 CHECKLISTS

Cosmos

- Odysseus
- AM5
- AM6
- Mt Goode

Forrestania

- Flying Fox
- Spotted Quoll
- New Morning/Daybreak

Greenbushes

REFERENCES



#### COMPETENT PERSON STATEMENTS

IGO reports its results and estimates in accordance with ASX listing rules and JORC Code requirements. The MREs are reported according to increasing confidence JORC Code classes of Inferred, Indicated and Measured Mineral Resources, while OREs are reported in the increasing confidence classes of Probable or Proved Ore Reserves.

#### IGO governance for Public Reporting

IGO's public reporting governance ensures that the Competent Persons as defined in the prevailing JORC Code responsible for Public Reports:

- are current members of a professional organisation that is recognised in the JORC Code framework
- have sufficient mining industry experience that is relevant to the style of mineralisation and reporting activity to be a Competent Person as defined in the JORC Code
- have provided IGO with a written sign-off on the results and estimates that are reported, stating that the report agrees with supporting documentation regarding the results or estimates prepared by each Competent Person
- have prepared supporting documentation for results and estimates to a level consistent with normal industry practices, including the

JORC Code Table 1 Checklists for any results and/or estimates reported under the JORC Code 2012 Edition framework.

IGO additionally ensures that any publicly reported results and/or estimates are prepared using accepted industry methods and using correct corporate guidance for metal prices and FX rates. On operating mines, IGO ensures that the estimation precision is reviewed regularly through a reconciliation comparing the MRE and ORE forecasts to mine production.

Estimates and results are also peer reviewed internally by IGO's senior technical staff before being presented to IGO's Board for approval and subsequent ASX reporting. Market sensitive or production critical estimates may also be audited by suitably qualified external consultants to ensure the precision and correctness of the reported information.

#### **JORC Code Competent Persons**

The table below is a listing of the Competent Persons who are taking responsibility for reporting IGO's FY22 results and estimates for Cosmos and Forrestania, and a revised JORC Code Table 1 for Greenbushes MRE. This Competent Person listing includes details of professional memberships, professional roles, and the reporting activities for which each person is accepting responsibility for the accuracy and veracity of the results and estimates. Each Competent Person has provided IGO with a sign-off for the relevant information provided by each contributor in this report.



#### Competent Persons for IGO's JORC Code reportable results and estimates

Activity	Competent	Professional membership		ICO relationship and rela	A stivity was a sociality	
Activity	Person	Membership	Number	IGO relationship and role	Activity responsibility	
Mineral Resources	Andre Wulfse	FAusIMM	228344	Group Manager Mineral Resources (IGO-Western Area)	FY22 Cosmos / Forrestania estimates	
	Daryl Baker	MAusIMM	221170	Geology Superintendent (Talison)	CY21 Greenbushes estimates	
Ore Reserves	Marco Orunesu Preiata	MAusIMM	305362	General Manager Technical Services (IGO-Western Areas)	FY22 Cosmos / Forrestania estimates	
ASX report	Mark Murphy	MAIG/RPGeo	2157	Resource Geology Manager (IGO)	FY22 Report compilation	

# • FAusIMM = Fellow of the Australasian Institute of Mining and Metallurgy, MAusIMM = Member of the Australasian Institute of Mining and Metallurgy, and MAIG/RPGeo = Member of the Australian Institute of Geoscientists and Registered Professional Geoscientist.

- Information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on the information compiled by the relevant Competent Persons and activities listed above.
- All IGO personnel are full-time employees of IGO; all Talison personnel are full time employees of Talison.
- All Competent Persons have provided IGO with written confirmation that they have sufficient experience that is relevant to the styles of mineralisation and types of deposits, and the activity being undertaken with respect to the responsibilities listed against each professional above, 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 – the JORC Code (2012 Edition).
- Mark Murphy and Andre Wulfse are minor IGO minor shareholders. Mark Murphy may receive incentive payments where one of the metrics assessed is growth in Ore Reserves over a threeyear period. Marco Orunesu Preiata and Daryl Baker have no interests that could be perceived as a conflict of interest for their respective reporting roles.



## ODYSSEUS JORC CODE TABLE 1 CHECKLIST

SECTION 1 – ODYSSEUS – SAMPLING TECHNIQUES AND DATA						
JORC Criteria	Explanation					
Sampling techniques	<ul> <li>Sampling of diamond core drilling was the sampling technique used to define the Odysseus South (ODS) and Odysseus North (ODN) deposits - refer to the following sections.</li> </ul>					
Drilling techniques	<ul> <li>Diamond drilling comprised HQ (63.5mm) and NQ2 (50.7mm) sized core. Approximately 89% of the core was NQ2 diameter core.</li> <li>Most of the core was oriented,</li> </ul>					
Drill sample	Diamond core recoveries were logged and recorded in the database. Core recoveries					
recovery	were based on the ratio of measured core recovered lengths to drill advance lengths for each core-barrel run.					
	• Overall recoveries were >99% and there were no core loss issues or significant sample recovery problems. Core loss was recorded in logging where it occurred.					
	• Diamond core was reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths were checked against the depth given on the core blocks and the driller routinely carried out rod counts.					
	• As there was minimal sample loss, a relationship between grade and sample recovery was not established.					
Logging	<ul> <li>All geological logging was carried out to a high standard by qualified geologists who used well-established nickel host rock and wall rock geology codes.</li> </ul>					
	<ul> <li>Logging was entered in spreadsheets with appropriate spreadsheet templates as a guide, or in LogChief software.</li> </ul>					
	• Final logging was qualitative in terms of description, and quantitative for measures such as RQD and structure.					
	• All core was digitally photographed (high resolution) in both dry and wet forms.					
	All holes were logged in full.					
	• Information on structure type, dip, dip direction, alpha and beta angles, texture, shape, roughness and fill material was entered in structural logs stored in the database.					
Sub-sampling techniques and sample preparation	• The diamond core was cut on site by experienced field technicians into quarter or half core samples. The samples were cut longitudinally using wetted diamond-tipped saws from the whole core, usually over 1m downhole intervals.					
	• All samples were core. The core samples were bagged into pre-numbered calico bags and accumulated into larger protective plastic bags before being dispatched by a reputable road transport contractor to the respective laboratories - Intertek Genalysis and ALS Limited - in Perth.					
	Residual core was retained in core trays at the core yard on site.					
	• The quarter and half core samples were crushed and split by commercial laboratory staff.					



SECTION 1 – ODYSSEUS – SAMPLING TECHNIQUES AND DATA						
JORC Criteria	Explanation					
	<ul> <li>The samples were prepared at each laboratory using industry standard practice which involves:</li> <li>oven drying at 105°C for eight hours</li> </ul>					
	<ul> <li>coarse crushing in a jaw crusher to a particle size distribution (PSD) of 100% passing 2-3mm</li> <li>pulverising to a PSD of 85% passing 75 μm</li> </ul>					
	• Both laboratories used certified methods and equipment that was regularly tested and cleaned with compressed air streams.					
	• Field technicians of Xstrata Nickel Australasia (XNA) and later of Western Areas Limited (WSA) inserted quality assurance and quality control (QAQC) standards every 20 samples.					
	• XNA and WSA both selected certified reference materials (CRMs) from reputable CRM providers, OREAS and Geostats, to monitor the accuracy of assaying with blind submissions of CRMs of known grade.					
	• The CRMs were selected based on their grade range and mineralogical properties, with ~12 different CRMs used. The CRM grades ranged from waste to high grade.					
	<ul> <li>CRMs (to monitor accuracy) and blanks (to monitor for cross contamination in sample preparation) were inserted at a ratio of 1 per ~20 samples.</li> </ul>					
	• The QAQC procedures at the selected commercial laboratories also involved insertion of CRMs and blanks, and assay of duplicates collected at the coarse crush stage, pulverisation stage and assay stage. The laboratories regularly used barren quartz washes to clean the crushing and grinding equipment.					
	• The coarse sample fractions were kept at the laboratories for a period of three months before being discarded or sent to site.					
	All assay pulps were securely stored on site at Cosmos.					
Quality of assay data and laboratory tests	<ul> <li>All samples were assayed by independent, certified commercial laboratories using industry standard nickel sulphide analytical assay methods.</li> </ul>					
	• The two most frequently used laboratories were ALS Global and Intertek Genalysis (both in Perth).					
	• The most common assay technique used was four-acid digest followed by an ICP AES reading of the re-dissolved digestion salts.					
	<ul> <li>Hydrofluoric, nitric, perchloric and hydrochloric acids suitable for silica-based samples were used. The digestion approaches total dissolution for all but the most resistant silicate and oxide materials.</li> </ul>					
	• Laboratory quality control processes included the use of internal standards to monitor accuracy, blanks to check for cross contamination, and duplicates to monitor precision.					
	• Field standards were included in all batches dispatched at a frequency of 1 per 20 samples, with a minimum of 2 standards included per batch.					
	• XNA and WSA prepared field replicates of either half or quarter core and inserted them into submissions at an approximate frequency of 1 in 25, with placement in the submission stream determined by the nickel grade and homogeneity of mineralisation.					



	SECTION 1 – ODYSSEUS – SAMPLING TECHNIQUES AND DATA
JORC Criteria	xplanation
	The laboratory took replicate splits - pulp and crush, alternately - at a frequency of 1 in 25.
	Accuracy and precision were assessed using industry standard procedures such as control charts and scatter plots and were found to be acceptable.
	If a sample result exceeded the pre-determined control limits and there was no obvious reason for poor performance, the laboratory was asked to repeat the affected batch.
	Handheld calibrated Niton XRF instruments were used to obtain preliminary semi- quantitative measurements prior to assay results being available, but these measurements were not used for Mineral Resource estimation (MRE) work.
Verification of sampling and	Geological interpretation was peer viewed by senior geologists at WSA.
assaying	There are no twinned drill holes.
	All geological logging was carried out to a high standard, using well-established geology codes, into LogChief software in accordance with standard operating procedures.
	All other data, including assay results provided by the laboratories, were captured in MS Excel spreadsheets.
	Drill hole information, logging, sampling intervals and assay results were stored in an SQL server database (in a secure data centre). The data are managed by a reputable data management consultant (Rock Solid Data Management Services) which uses DataShed, a well-known geoscience data management system.
	No adjustments to assay data compiled for this MRE were made, other than conversion of detection limit text values to null values prior to MRE work.
Location of data points	All drill hole paths were surveyed by a contractor, Downhole Surveys. Downhole Surveys used inertial navigation system (INS) gyroscopic instruments on all resource definition holes. This equipment is not affected by magnetic minerals or rocks.
	The survey coordinate system for data capture was Map Grid Australia 1994 (MGA94) Zone 51 grid, but estimates were prepared in a local coordinate system (mine grid) which uses Australian height datum (AHD) of 480m + 10,000m (total 10,480m).
	The project area is generally flat, and the topographical data available are adequate for MRE purposes.
	All collar positions were surveyed by qualified surveyors.
Data spacing and distribution	The nominal data spacing for ODS was 41m along strike and 43m across strike, based on entry and exit points through the high-grade zones, where most of the mining will take place.
	The pierce point spacing and distribution are shown in the figure below.







	SECTION 1 – ODYSSEUS – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
	<ul> <li>A closer drill spacing for ODN is appropriate because of the higher frequency of pegmatites.</li> </ul>
	<ul> <li>A nominal 1m sampling length has been applied for the MRE work, but shorter or longer samples are collected to terminate at important geological contracts.</li> </ul>
	• The Competent Person considers the sample spacing to be commensurate with that of Indicated and Inferred Mineral Resources, given the dominant type of mineralisation is 'Type 2' disseminated sulphide style.
	• Type 2 disseminated mineralisation is assumed to be relatively homogenous within individual tenor zones.
	• No internal waste zones other than the pegmatites are present.
Orientation of data in relation to geological	<ul> <li>Most of the drill holes are oriented to achieve intersection angles as close to perpendicular to the orebody as possible.</li> </ul>
Sindcidie	• Due to the styles and geometries of the mineralisation under consideration, orientation- based sampling bias is not expected.
Sample security	<ul> <li>Industry standard sample security measures used in the WA mining industry were adhered to.</li> </ul>
	• Reputable contractors were used to transport samples from Cosmos to the commercial laboratories in Perth.
	• The laboratories have their own internal sample security measures.
	• The Competent Person considers that there is very low likelihood of deliberate or accidental contamination of samples in the MRE dataset as the chain of custody of samples is secure.
Audits or reviews	• No formal audits of the sampling techniques have been completed.

	SECTION 2 – ODYSSEUS – EXPLORATION RESULTS							
JORC Criteria	Explanation							
Mineral tenement and land tenure status	<ul> <li>The Cosmos Project comprises 21 tenements covering a total of 109km<sup>2</sup>. The tenements include mining leases and miscellaneous licences.</li> </ul>							
	<ul> <li>WSA (a wholly owned subsidiary of IGO) owns 18 tenements: 14 were acquired from XNA in October 2015 and four were acquired from Ramelius Resources in 2020. The remaining three tenements (M36/303, M36/329 and M36/330) were subject to a JV with Alkane Resources NL. In April 2022, Alkane Resources Ltd's 19.4% interest in these tenements was transferred to Australian Nickel Investments (ANI), whereby ANI now holds 100% interest. At the time ANI was a wholly owned subsidiary of WSA.</li> </ul>							
	• A key metric for tenements to be in good standing is that the minimum expenditure requirement must be met. All tenements are in good standing.							
	• Odysseus is located wholly within tenement M36/371, which is 100% owned by IGO and has an expiry date of 2041.							



	Section 2 – Odysseus – Exploration Results
JORC Criteria	Explanation
Exploration done by other parties	<ul> <li>Historical nickel exploration and mining was done by Glencore PLC, XNA and Jubilee Mines NL (JBM).</li> </ul>
Geology	• The deposits form part of the Cosmos Nickel Complex, which lies within the Agnew- Wiluna Belt of the central Yilgarn Craton.
	• The genetic formation model for the nickel mineralisation is the 'Kambalda-style' model where precipitation of nickel sulphides is interpreted to occur in channelised komatiitic lava flows and/or lava tubes. This model proposes two dominant deposit types – Type 1 and Type 2.
	• 'Type 1' deposits are interpreted to have formed where the hottest lava in the centre of a lava channel thermally erodes into a sulphidic substrate and massive sulphides accumulate at the channel's base. This high-grade primary formation style is applicable to the Cosmos, Cosmos Deeps, AM1, AM2, parts of AM5 and the Odysseus Massive zones.
	• Type 1 deposits are often subject to mobilisation into structural sites when massive sulphide bodies behave plastically or even re-melt under the high metamorphic temperatures and pressures that are generated by local or regional tectonic faulting and/or folding events. The Cosmos Deeps and the Odysseus Massive zone are examples of this remobilisation style.
	• 'Type 2' deposits are interpreted to have formed from cooler and slower-flowing lavas than those for Type 1 deposits. In this model, the mineral olivine is envisaged to crystallise from these cooler lavas, with the olivine grains settling to the channel's base shortly after the precipitation of sulphides. In this model, the coeval sulphides crystallise between the olivine grains, giving rise to a disseminated to 'matrix' textured nickel sulphide mineralisation that builds up from the channel base. This style of mineralisation is applicable to the AM5, AM6 and Odysseus disseminated zones at Cosmos.
	• The sulphide nickel assemblages at Cosmos are 'high tenor', meaning that the sulphides are dominated by the nickel-bearing mineral pentlandite (Pe). The sulphide assemblages also contain the sulphide mineral pyrrhotite (Po), with minor amounts of pyrite (Py) and chalcopyrite (Py), and in some places, small concentrations of rarer nickel sulphides such as valleriite and millerite.
	• The mineralisation typically occurs in association with the basal zone of high magnesium oxide (MgO) cumulate ultramafic rocks.
	• ODS occurs within the Cosmos ultramafic and is located approximately 1,000-1,100m below surface. The AM5 and AM6 zones are both situated to the south and are thought to be genetically related to Odysseus given they all exhibit similar mineralisation characteristics (grade, tenor and sulphide type).
	• ODS is an elongated, oblate tubular body that strikes north-south (355°) for over 330m, dips 45° east and plunges -5° to the north. Sulphide mineralisation is best concentrated 20-30m above the footwall and consists of highly disseminated to net-textured pentlandite-pyrrhotite in the central and basal zones and pentlandite-pyrite at the edges of the deposit. A higher-grade central core containing >1.5% Ni can reach a thickness of 65m. The central core is enveloped by disseminated sulphides of lower grade (0.5-1.5% Ni). Sulphide mineralisation bifurcates at the northern end and eventually terminates, due to steeply dipping cross cutting pegmatite dykes that are interpreted to have been intruded along brittle fault structures.



SECTION 2 – ODYSSEUS – EXPLORATION RESULTS						
JORC Criteria	Explanation					
	• The ODN orebody is located 1,000-1,075m below surface and is interpreted to be the northern continuation of Odysseus mineralisation. The ODN and ODS deposits appear to be bifurcated and offset by northeast striking faults now sealed with pegmatite. The entire ODN orebody is dextrally offset ~60m in relation to Odysseus and the dip is rotated 50° counter-clockwise (now near horizontal).					
	• The sulphide body strikes north (355°) for 350m, plunges -7° north, spans a width of 135m, dips 5° west and reaches a maximum thickness of 70m. The overall volume of ultramafic rock hosting ODN is less than that at Odysseus, but it is more strongly mineralised.					
	<ul> <li>Sulphides consist of highly disseminated to net-textured pentlandite, with minor pyrrhotite and pyrite, best concentrated at 10-30m above the Cosmos ultramafic basal contact. Grain size exhibits a similar range in particle size to ODS (0.5–4mm) but with a higher population of coarse grain sizes. A high-grade core grading 2-4% Ni is at the centre of the deposit, with lower grade disseminated sulphides (0.5–1.5% Ni) flanking this core laterally and at the base. Overall nickel tenor is 20%, slightly higher than at Odysseus.</li> </ul>					
	• The volume of pegmatite is greater at ODN than at ODS, and most prevalent in the southern portion of the zone thus influencing resource confidence. Further to this, ODN's south, southwest and northeast boundaries are abruptly terminated by steeply dipping (to near vertical) pegmatite dykes whereas the Odysseus deposit boundaries often exhibit a gradual decline in sulphide volume, indicative of normal primary emplacement.					
Drill hole Information	• There are too many holes to summarise and the MRE gives the best balanced and unbiased assessment of the estimate.					
	• The MRE is based on 4,468 composited assayed intersections derived from more than 79 surface and underground diamond drill holes over multiple domains and years of surface and underground drilling.					
	• All this information was considered material to the MRE.					
Data aggregation methods	<ul> <li>Individual assays and exploration are not reported so data aggregation is irrelevant</li> </ul>					
Relationship between mineralisation widths and intercept lengths	Drill hole intersections may not be true widths.					
Balanced Reporting	• Exploration Results are not reported. The MRE gives the best and most balanced view of the drilling to date.					
Other substantive exploration data	• There is no other substantive exploration data that are material to the MRE.					
Diagrams	<ul> <li>Representative maps, sections and 3D images are included in the main body of the report.</li> </ul>					
Further work	• Grade control drilling is in progress and an MRE update is planned for CY22.					



	SECTION 3 – ODYSSEUS – MINERAL RESOURCES
JORC Criteria	Explanation
Database integrity	<ul> <li>Logging of drill hole data is captured in the field on dedicated laptops either using spreadsheets or LogChief software.</li> </ul>
	• Assay data in the form of text comma delimited '.csv' files from the primary assay laboratory (ALS Chemex) and the umpire assay laboratory (Genalysis) received by exploration are imported directly into DataShed.
	• The database is currently managed by Rock Solid Data Management, an independent, specialised geoscientific database management company.
	• The LogChief software provides the first level of data validation. It uses locked look-up tables for all data fields which have set codes attributed to them.
	• The DataShed database uses validation look-up tables and trigger scripts to ensure all numeric, date and code information is correct.
	• All QAQC controls are reviewed and actioned after each submission.
Site visits	<ul> <li>The Competent Person is an employee of IGO and has undertaken regular site visits over the last 5 years.</li> </ul>
Geological interpretation	• The Odysseus deposit is hosted within an ultramafic unit and consists of disseminated nickel sulphide mineralisation as a high-grade core surrounded by medium-grade and low-grade zones.
	• Late-stage pegmatites have intruded above, below and crosscut the mineralisation.
	• 3D digital domains defining concentrations of disseminated nickel sulphide mineralisation within the ultramafic unit hosting the ODS and ODN zones were constructed using Leapfrog and GOCAD 3D modelling software.
	• The 3D domain modelling was parametrised to apply nickel grade cut-off values at thresholds of super high-grade (>3.5% Ni), high-grade (>1.5% Ni), medium-grade (>1% Ni) and low-grade (>0.4% Ni). The interval selection tool in Leapfrog software was used to sub-select each cut-off grade within the drill hole data for the ODN and ODS zones.
	• 3D digital volumes were created in Leapfrog for each cut-off value for each zone, with each grade domain modelled using the vein modelling tool in Leapfrog. To ensure the geometries of the modelled volumes honoured the geology of the ultramafic boundaries, and to remove any spurious mesh artefacts, additional polylines were added to the footwall and hangingwall surfaces of modelled grade shell as well as to the trend of each shell. Further fine-scale mesh edits were conducted in GOCAD software to ensure each grade domain was consistent. Each enclosing domain and any spurious overlaps were removed. The edited meshes were integrated into the Leapfrog models for final processing. This process ensured that the grade shells encasing higher grades were nested within domains of lower grades, with no overlaps between the grade shells.
	<ul> <li>As a tinal step, each estimation domain was constrained to the ultramafic boundary to remove any extensions beyond the ultramafic domain. Finally, zones of pegmatite which cross cut the domains were also trimmed from the nickel domain volumes.</li> </ul>



	SECTION 3 – ODYSSEUS – MINERAL RESOURCES
JORC Criteria	Explanation
	• The massive sulphide occurring as narrow lodes below the ultramafic sequences of the ODN deposit were also modelled as 3D digital volumes. These massive sulphide zones were defined where occurrences of massive sulphide were logged in the drill hole data. The Leapfrog vein selection tool was used to define connecting intervals to include within each domain, with a total of four domains created.
	<ul> <li>Five primary geological, based on tenor as discussed elsewhere, and geostatistical (verified by log plots) mineralised domains were modelled:</li> </ul>
	<ul> <li>Super high-grade (&gt;3.5% Ni)</li> <li>High-grade (1.5–3.5% Ni)</li> <li>Medium-grade (1.0–1.5% Ni)</li> <li>Low-grade (0.4–1.0% Ni)</li> <li>Massive sulphide below ODN.</li> </ul>
	• The grade or tenor shells at Cosmos were recognised by Jubilee and XNA and modelling of Mt Goode, AM5, AM6 and Odysseus have all made use of these hard domain boundaries. The zoning of disseminated deposits is well documented and related to primary and secondary mineralisation events. Weak to strong desulphidation during regional metamorphism has resulted in partial alteration of sulphides to magnetite on a local scale, thereby increasing the tenor of the remaining sulphides. Planned follow-up work to further define these domains include x-ray diffraction (XRD) and core scanning.
	• WSA also prepared a 3D digital geological model in Leapfrog comprising the following seven main lithological domains over a strike length of 3.5km:
	<ul> <li>Felsic Volcanic</li> <li>Felsic Porphyry</li> <li>Granite Pegmatite</li> <li>Ultramafic</li> <li>Sediments</li> <li>Mafic</li> <li>Granites.</li> </ul>
	• The ODN and ODS zones, and the immediately surrounding wall rocks have been modelled to a level of confidence commensurate with the Mineral Resource classification applied and discussed later. Geological and grade continuity confidence has been substantially improved since the previous MRE by:
	<ul> <li>&gt;3,000m of surface diamond drilling</li> <li>Downhole geophysics, which confirmed the presence of massive sulphide mineralisation</li> <li>A feasibility study (FS), including metallurgical and geotechnical studies, and additional sampling and modelling</li> <li>An extensive independent structural modelling study that contributed to understanding the nature and orientation of the pegmatite intrusions that intersect ODS and ODN</li> <li>Mineral Resource and geological remodelling using the additional data captured by WSA's resource and geotechnical drilling and WSA studies while cross referencing and maintaining some of the assumptions (including grade zone cut-offs) used by the previous Competent Person.</li> </ul>
	• Current and historical exploration data previously reported by WSA and XNA were used for this estimate. All material assumptions are summarised in this table and in the report.
	• The models were compared to the previously reported models at all stages of the process to ensure an appropriate level of consistency between the previous and the current interpretations.
	• The continuity of grade and geometry is primarily influenced by intrusive late-stage barren pegmatite dykes which penetrate the host ultramafic rocks and crosscut mineralisation in some locations. These pegmatites have been carefully modelled using primarily implicit and explicit techniques where required. The grade was interpolated across the late-stage pegmatite boundaries, under the assumption that the intrusives have stoped out occupied fault zones, and the areas bound by



Section 3 – Odysseus – Mineral Resources									
JORC Criteria	Exp	Explanation							
		pegmatites were reset to have zero nickel grade. The following table summarises the volume percentage of barren pegmatites by domain for the MRE and the previous MRE by XNA. The table shows ODN has a much higher proportion of barren pegmatites (21%) than ODS (3%) for the high-grade domain.							
				Estimation zone volume (m³)					
		Domain	High grade	Super high grade					
	ΙĒ		XNA	857,605	312,602	1,078,324	74,238		
		North	WSA	852,257	375,200	1,114,938	64,829		
	ΙL		Increase	-1%	17%	3%	-15%		
	[		XNA	1,317,527	1,612,250	919,051	-		
		South	WSA	1,463,565	1,221,881	1,572,991	-		
	L		Increase	10%	-32%	42%			
	•	Differen existing assump	nces in the volu MRE can be e otions made du	me of pegmatite explained by cha ring modelling o	es between the p nges in the moo f both the pegm	previous MRE delling techniq atites and the	(by XNA) and the ues applied and grade shells.		
Dimensions	•	The strike length of the ODS deposit is ~350m. The longest distance from the top of the mineralisation to the base is ~225m. The width of the deposit varies between 0.8 m and 68m, averaging 27m. Average grade and thickness increases down plunge to the north.							
	•	The strike length of the ODN deposit is $\sim$ 325m. The longest distance from the top of the mineralisation to the base is $\sim$ 340m. The width of the deposit varies between 0.8m and 71m, averaging 28m (5m cut-off).							
	•	The ave	The average grade and thickness increase to the north.						
	•	ODS and ODN are ~1,000m below surface.							
Estimation and modelling techniques	•	<ul> <li>The estimation was prepared using the following software packages:</li> <li>Leapfrog Geo Version 4.0.1 for 3D modelling of estimation zone envelopes and geology</li> <li>Datamine Studio RM Version 1.2.47.0 for block modelling, including density and grade estimation, and wireframe editing</li> <li>Snowden Supervisor Version 8.6 for statistical and geostatistical continuity analysis.</li> </ul>							
	•	• The raw sample data were composited to uniform 1m downhole lengths and coded with estimation zones from the 3D mineralised and lithological wireframes. The compositing method was optimised which ensures all the samples in a single drill hole are to be included in a composite by adjusting the composite lengths for each hole in each estimation zone, while keeping it as close to the interval as possible. This ensures no residual composites are created that would otherwise result in loss of the information of residuals that have lengths <0.5m.							
	•	<ul> <li>Continuity analyses (variography) for the nickel grade and density composites in each estimation domain were prepared using Snowden Supervisor software to determine the direction and continuity models for the three major, semi-major and minor directions of continuity.</li> <li>Nickel grade top-cut investigations were completed using Supervisor's top-cut analyses processes. After finding that the coefficient of variation (CV) of the composites in each estimation were low, the modeller concluded that top-cuts were not required to control the influence of extreme values during estimation. The</li> </ul>							
	•								



		SECTI	on 3 – Odysseus – I	MINERAL RESO	URCES			
JORC Criteria	Explanation							
	underlying reason here is that the low to high-grade nickel domains had sufficient reduced the local grade variability.						ciently	
	• T &	This MRE is a revision of the MRE prepared and signed off by consultants Nick Jolley & Associates on behalf of XNA in 2012.					ick Jolley	
	• T di te	The MRE zone volumetrics were compared and reconciled to the XNA model and differences are due to the new drilling information and minor changes in modelling techniques.						
	• o	DN and ODS have	e not been mine	d.				
	• M	IRE model validati	on techniques a	pplied inclue	ded:			
	-	<ul> <li>On-screen visual comparison of the composites and estimated blocks in section and plan to ensure that trends and boundaries apparent in the input composites were appropriately reflected in the model's block grade and density estimates.</li> <li>Preparation of graphs of estimation pass number versus percentage estimated in each pass to allow assessment of estimation confidence, with blocks being estimated in primary passes having the highest confidence, and tertial pass block estimates having the lowest confidence.</li> <li>Preparing moving window swath plots where the local window composite grades or density are compared to the respective block model estimates for the same window.</li> <li>Preparation of swath plots of geostatistical kriging variance (KV), kriging efficiency (KE) and theoretical slope of regression between block estimates and theoretical true block estimates.</li> <li>Jack-knifing analyses of the block model attributes to the informing drill hole followed by statistical analysis.</li> <li>Preparing grade and tonnage comparisons of the MRE revised by WSA and the prior MRE prepared by XNA as shown in the table below.</li> </ul>					s and sity estimates. ent of al pass block he respective of regression as shown in the	
		Mineralised Zone	Estimation Domain	Compos	sites required		Marca	
				Minimum	Maxin	num	wean	
		ODN	110 120 130	1 1 1	14 16 12	4 5 2	26.9 23.4 20.9	
		000	200	1	11		28.6	
		UDS	210	1	13	3	29.7 27.8	
	Reconciliation of XNA and WSA MREs for Odysseus Disseminated							
		Zone	JORC Class	Estimator	(Mt)	(%)	(kt)	
		ODS	Indicated	XNA	3.88	2.17	84.3	

WSA

XNA

WSA

XNA

WSA

WSA/XNA

XNA

WSA

XNA

WSA

XNA

WSA

WSA/XNA

XNA

WSA

XNA

WSA

Inferred

ODN

OD all

Total ODS

Indicated

Inferred

Total ODN

Indicated

Inferred

ODS ratio

ODN ratio

4.02

0.17

0.22

4.05

4.24

105%

1.63

3.13

1.59

0.23

3.22

3.35

104%

5.52

7.15

1.76

0.44

2.11

2.13

1.96

2.17

2.10

97%

2.79

2.59

2.21

2.71

2.50

2.60

104%

2.79

2.59

2.21

2.71

84.8

3.6

4.3

87.9

89.1

101%

45.5

81.2

35.1

6.1

80.6

87.3

108%

45.5

81.2

35.1

6.1



		Total ODN		XNA WSA	7.27 7.59	2.50 2.60	80.6 87.3	
		OD	all ratio	WSA/XNA	104%	104%	108%	
Reconciliation of XNA and WSA MREs for Odysseus Massive								
	Zone	IORC Class	Fetim	ator	Mass	Nicl	kel	
					(Mt)	(%) -	(kt)	
	ODM	Indicated	XN WS		0 15	6.06	8.8	
		Inferred	XN	A	0.05	11.58	5.6	
		TabloD	WS	SA	0.12	11.58	14.0	
		Total ODs	XN WS	A A	0.05	11.57 8.44	5.6 22.8	
		ODM ratio	WSA/	XNA	563%	73%	411%	
<ul> <li>Co ton ma hol</li> <li>WS val the</li> <li>Nic how</li> <li>The mill rati wo</li> <li>All ID var the</li> <li>A b 5m 1.2 est</li> <li>The ten Su</li> </ul>	mpared to XN ines and a 24 issive sulphid es for 7,160n SA prepared a idate the MRI e estimate. idate the MRI e estimate. idate the MRI e ratio of iron I recoveries. I io has been c rk. variables tha into the mode iables may ne y have been block model te imation doma e estimation k inplate, was de pervisor softw	NA's prior esti % increase in e tonnes can h by WSA follo a conditional s E – see the se ly considered work is plann to magnesiun Both elements alculated for o t are deemed el (Fe, Mg, As ot have any e requested by emplate was p ation and sub- e model would ain. block size, as etermined usi vare. This par	mate, the m be attro wing simula- ection the or ned to m is re shave each p to hav , Co, C conon others blocks l accu specifing the ent blo	there is a massive su ributed to acquisitio tion as an further be nly value p quantify t cognised been inte parent block ve sufficie Cr, Cu, S, nic or met s, includin rate fill the ied for the Kriging N ock size is	2.3% incr Iphide nic the mode n of the p additiona- low regar product in he value of as influent erpolated in ck in prepa- nt assay of Zn, MgO, allurgical in g Explora- um dimer a 3D wiref e parent b leighbour nominall	rease in the ckel tonnes. Illing after d roject. Il validation ding precisi saleable co of cobalt. Incing standa into the bloc aration for f data have b Fe <sub>2</sub> O <sub>3</sub> ). So but they have tion Geolog ment blocks insions of 1.2 rames prep locks in the hood Analy y one quart	e disseminat The increa rilling of nin technique t ion and acc oncentrates ard nickel flo ck model ar further meta ween estimat ome of these ve been inc jists in the p of 10mE × 25mE × 2.5 pared for ear block model sis tools in er of the dis	ed nickel se in e surface o uracy of ; tation d the llurgical ed using e luded as past. 15mN × mN × ch
Suj spa	pervisor softw acing betweer rent estimation	vare. This par n drill holes. on was used, a	ent blo and su	ock size is Ibcells we	re set at a	y one quart a maximum	er of the dis of 1/8, 1/6 a	and 1/4
• The	e drill hole sp	acing was no	minally	/ 41m × 4	3m for OI	DS and 35m	n × 30m for	ODN.
• The hol	e size of the s e spacing.	search ellipse	was b	ased on t	he nickel	variography	y and avera	ge drill
• Thi	ree nested se	arch passes	were u	ised:				
- -	ODN Disseminate ODS Disseminate OD Massive: 25n	ed: 10mE × 15mN × ed: 15mE × 10mN × nE × 35mN × 15mRL	5mRL wi 5mRL wit with the	th secondary a th the same ex same expansi	nd tertiary exp pansion factor on factor as ab	ansion factors of as above. ove.	2× then 8×, respe	ctively.



SECTION 3 – ODYSSEUS – MINERAL RESOURCES							
JORC Criteria	Ехр	lanation					
	•	The minimum num the first pass and t	ber of composites required wo for the second and	ired for a blo third passes	ock to be estim	ated was four for	
	•	The maximum number of composites used to estimate blocks was 36 for all three passes.					
	•	The minimum num the massive ore.	ber of octants used wa	s two for the	disseminated	ore and one for	
	•	The maximum nur massive ore.	nber of samples was se	et to 10 for di	sseminated or	e and 20 for	
	•	For blocks above t search pass, 35%	he reported 1.5% cut-o in the second search p	ff grade, 21% ass and 43%	% were estima 5 in the third se	ted in the first earch volume.	
	•	The average minir 1.9m, respectively	num distance to the nex , for search volumes 1,	kt nearest co 2 and 3.	mposite was (	).5 m, 0.8m and	
	•	A maximum numb depending on the any borehole havir	er of samples from any domain. This prevented ng an undue influence c	one drill hole l a dispropor on the estima	e was set at 30 tionate numbe ate.	) and 36, r of samples from	
			Number of drill holes per blo	ck for the differen	t domains		
		Mineralised Zone	Estimation Domain	Composi Minimum	tes required Maximum	Mean	
		ODN	110 120 130	1 1 1	14 16 12	26.9 23.4 20.9	
		ODS	200 210 220	1 1 1	11 10 13	28.6 29.7 27.8	
	•	The average numb 24 for Indicated blo	per of samples per estin ocks.	nated block v	was 22 for Infe	erred blocks and	
	•	The average number of samples per estimated block was 20 and 27 for the high-grade cores of ODN and ODS, respectively. The bulk of the mine plan was sourced from these high-grade zones.					
	•	No assumptions were made other than that the mineralisation in the disseminated is zoned and the outer low-grade shell may not convert to the Ore Reserve category after application of an appropriate Ore Reserve cut-off.					
	•	• There is a strong correlation between sulphur and nickel grade as well as density and grade as the percentage of nickel in the sulphide increases.					
	•	Mineralised zones (Structural Geolog Kentwell (Geostati	were digitised using ex ist) from SRK Consultin stician).	plicit and im ng. His work	plicit technique was peer revie	es by Ben Jupp ewed by Danny	
	•	Strings were snap and explicit technic in compositing and grade zones and v	ped to both undergroun ques. Each wireframe is d estimating to ensure h rice versa.	d and surfac s representat igh grades v	e drilling interd tive of a grade vere not smea	cepts using implicit domain and used red into the low-	
Moisture	•	Tonnages were es have not been unc	timated on a dry basis. lertaken.	Moisture stu	udies on trucke	ed/hoisted ore	



	SECTION 3 – ODYSSEUS – MINERAL RESOURCES
JORC Criteria	Explanation
Cut-off parameters	• The MRE is reported above a block estimated 1.5% Ni cut-off grade for all mineralised material and a minimum true thickness of 1.5 m for massive sulphides.
Mining factors or assumptions	• Standard paste fill longhole stoping is assumed for the disseminated mineralisation and jumbo-operated room-and-pillar mining for the massive sulphide mineralisation. Refer to the commentary under Ore Reserves for more details.
Metallurgical factors or assumptions	• Froth flotation recovery of sulphides is assumed for both the disseminated and massive sulphide material. Refer to the commentary under Ore Reserves for more details.
Environmental factors or assumptions	• Potential waste and process residue disposal sites were identified during a pre- feasibility study and are unlikely to change from sites using during previous open cast and underground mining at Cosmos. Storage of potentially acid-forming material from development is the subject of investigation. Refer to the commentary under Ore Reserves for more details.
Bulk density	<ul> <li>Bulk densities are determined on site using water displacement methods and at the independent commercial laboratory using the pycnometer method.</li> </ul>
	<ul> <li>All data used in the MRE are from competent fresh rock and void spaces are not considered to have a material impact.</li> </ul>
	• Bulk densities are determined for each sample assayed and interpolated into the block model.
Classification	<ul> <li>Confidence in the MRE is dependent on the orientation and distribution of the barren pegmatites referred to previously. The pegmatites were previously modelled by XNA.</li> </ul>
	• The digital 3D pegmatite model used for this MRE was prepared by consultant Ben Jupp from SRK Consulting as per methodology described above. The revised model, which was developed from first principles, was validated against XNA's pegmatite model and there are no material differences between the two pegmatite models.
	<ul> <li>In early 2022, Cathy Barton (Senior Resource Geologist) now with IGO, and a specialist in geological modelling using Leapfrog, re-interpreted the pegmatite model after further drilling of the AM6 zone up dip of the OD deposits. This revised model was validated against the SRK pegmatite model and found to be relatively consistent, except in the southern portion of ODN, where the pegmatite is interpreted to stope out more of the mineralisation than the prior MRE model. Some of Mineral Resource in this area is classified as Inferred Mineral Resources.</li> </ul>
	• A resource definition drilling program is scheduled to commence in late August 2022, which will also target this area. A final pegmatite model will be designed at the end of 2022 which will be incorporated in the next MRE update.
	• A classification schema consisting of an iterative scoring system of several metrics was coded into the model using the following parameters:
	<ul> <li>Number of composites (NS) used to estimate grades into the blocks.</li> <li>Kriging Efficiency (KE), which is a measure of the degree of smoothing of estimated blocks compared to theoretical true blocks, with a value of unity (or 100%) indicating the estimates have achieved the true histogram of block grades.</li> </ul>



SECTION 3 – ODYSSEUS – MINERAL RESOURCES				
JORC Criteria	Explanation			
	<ul> <li>Search Volume (SV) or estimation pass number being primary, secondary or tertiary.</li> <li>Kriging slope of regression (ZZ), which is a measure of conditional bias, where a value of unity (or 100%) indicates there is no conditional bias of grade estimates relative to a cut-off considered.</li> </ul>			
	• The result of this system is that each block in the MRE model has an associated relative QUALITY value and this metric used by the Competent Person as a guide to classify the blocks in accordance with the JORC Code. A QUALITY value >3.99 allowed the material to be classified as an Indicated Mineral Resource. Blocks having a QUALITY value <3.99 were classified as Inferred Mineral Resources or could not be classified as Mineral Resources under JORC Code guidelines.			
	• The Competent Person considers that the drill spacing is currently too wide and geological uncertainty is too high to enable classification of any part of the MRE as a Measured Mineral Resource.			
	<ul> <li>Above the cut-off, ~12% of the MRE is classified as an Inferred Mineral Resource and ~14% of the total MRE classified as an Inferred Mineral Resource.</li> </ul>			
	• The definition of mineralised zones is based on a moderate level of geological understanding, and all relevant factors (relevant to all available data) have been considered. The geological and grade continuity of the domains is such that the Indicated Mineral Resources have a local level of accuracy which is suitable for mine planning and for achieving annual targets. The Inferred Mineral Resource classification is indicative of volumes and associated tonnages that warrant further drill testing and are not suitable for Ore Reserve estimation.			
	• The MRE reflects the Competent Person's view of the deposit and the perceived risks associated with the grade and structural continuity.			
Audits or reviews	<ul> <li>The MRE has been independently audited by IGO's senior staff and its advising consultants (Snowden Optiro) as part of IGO's acquisition of WSA. While these reviewers had some concerns regarding the confidence in the grade shell modelling and pegmatite modelling, they concluded that alternative interpretations were only likely to have a difference commensurate with what is normally expected for Indicated Mineral Resources – typically within ±15% relative on tonnage and grade on an annual production basis.</li> </ul>			
	<ul> <li>Ben Jupp (SRK Senior Consultant) designed the wireframe volumes used for estimation. His work was peer reviewed by Danny Kentwell (SRK Principal Geostatistician).</li> </ul>			
Discussion of relative accuracy/ confidence	• Conditional simulation techniques were used to determine the relative accuracy of ODS, all tenor shells combined, within stated confidence limits. The E1 type mean grade at zero cut-off was within 0.05% variance of the estimate, indicating the global grade is very robust (within 0.05% variance between the tested and the estimate grade) using 36 realisations. ODN is less robust – the mean E1 type grade is 0.02% lower than the corresponding estimate at zero cut-off, suggesting a 1.2% estimation error, i.e., the reported global grade is 1.2% higher than the actual grade.			
	The Indicated Mineral Resource Statement relates to local estimates.			
	• The Odysseus orebody has not been mined, but the prevailing MRE has been compared against previous estimates and the overall geometry and global grades are consistent.			



	SECTION 3 – ODYSSEUS – MINERAL RESOURCES						
JORC Criteria	Explanation						
	•	The foll the pre- wirefran primarily	owing table sum existing wirefrar nes were desigr y implicitly.	marises the dor ne volumes for t ned explicitly who	nain wireframe the same domai ereas the existir	volumes for the ns. The previong wireframes	e current MRE vs ous (XNA) were designed
		Deposit	Competent Person	Low grade volume (m <sup>3</sup> )	Medium grade	High grade	Super high grade
			XNA	857 605	312 602	1 078 324	74 238
		ODN	WSA	851.050	376,940	1.114.900	64.829
			Variance	-1%	21%	3%	-13%
			XNA	1,317,527	1,612,250	919,051	na
		ODS	WSA	1,463,600	1,221,900	1,572,500	na
			Variance	11%	-24%	71%	na
	•	The res volumes degree in the O from the pegmat	ult of this valida s are similar for by the loss in th DS high-grade e medium- grade ite model.	tion test shows t ODN. The gain i e ODN super hig domain, which c e domain to the l	hat the previous in ODN medium gh-grade domai an be partly attr high-grade dom	s and existing -grade domair n. There is a n ibuted to a 'tra ain and partly	wireframe model n is offset to a naterial increase insfer' of material to changes to the
	•	Addition validatio compos average This val precisio	nal Inverse Dista on of the nickel H ite search and o nickel grades o idation step add n of the kriging	nce Squared es kriging estimates composite numb globally is 1.6% i ls an additional l estimate.	timates of nicke s, with both estir er controls. The relative with the evel of confider	el grade were a nates using the difference bet kriging grade nce in the accu	also prepared for e same tween the being higher. ıracy and
	•	The Co requirer given th	mpetent Person nents for classif le dominant type	considers that t ication of Indicat of mineralisatic	he sample spac ted Mineral and on, i.e., 'Type 2'	ing is commer Inferred Miner disseminated	nsurate with ral Resources, sulphide.

Section 4 – Odysseus – Ore Reserves					
JORC Criteria	Explanation				
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>The Ore Reserve Statement is based on the Mineral Resource described above as 30 June 2017 declared by previous owner WSA (ASX Announcement dated 16 June 2017, "Significant increase in Odysseus high grade nickel resources and upgraded disseminated Indicated Mineral Resources" -see Table 1 Sections 1 to 3 in the announcement).</li> <li>Mineral Resources are reported inclusive of Ore Reserves.</li> </ul>				
Site visits	• The Competent Person conducted several site visits during 2017 and 2018 and conditions were found to be in line with technical assessments incorporated in the Ore Reserve. The Competent Person accompanied specialist geotechnical and geological consultants on these visits to ensure continuity and clear understanding between disciplines.				
	• The Competent Person also conducted several visits in Australia and Canada to mines with similar geotechnical environment, mining methods and conditions.				



	Section 4 – Odysseus – Ore Reserves
JORC Criteria	Explanation
Study status	• The Ore Reserve is predicated on a definitive feasibility study (DFS) commissioned by WSA and completed in September 2018.
	• The study is based on the current and well-established Australian and international mining practice, as assessed during various site visits to other operating mines carried out during the study.
	• The finding of the DFS was that Cosmos is technically achievable and an economically viable mining operation.
Cut-off parameters	• Considering that the design cut-off parameters are variable and depend on multiple elements existing in the ore that drive metallurgical recoveries, a net smelter return (NSR) approach was used to define the ore.
	• The criterion to maximise nickel metal and revenue with a rougher and cleaner concentrate was used. The following assumptions were used:
	<ul> <li>Nickel price: US\$7.00 / lb</li> <li>A\$: US\$ exchange rate: 0.75</li> <li>Target concentrate Ni grade: 16.5%</li> <li>MgO in concentrate: 10–12%</li> <li>Fe:MgO levels: 2.2–2.6.</li> </ul>
	• The NSR value reflects the expected market conditions at the time of the concentrate delivery and is considered commercial sensitive. The Company has significant and recent experience in negotiating and operating these types of agreements, and it is considered that assumptions related to NSR are achievable in the market.
	Other cost assumptions were:
	<ul> <li>WA State royalties: 2.5%</li> <li>Glencore matching rights of up to 7kt of Ni in concentrate per annum for a total of 50kt Ni in concentrate</li> <li>Total opex/cost per tonne ore: A\$128.50</li> <li>Logistical costs per tonne concentrate:US\$85.20.</li> </ul>
Mining factors or assumptions	• The mining method selected is top-down, longhole stoping with paste backfill, using a centre-out mining sequence. Average production levels when at steady state are 900kt per year.
	<ul> <li>Comprehensive geotechnical analysis and stress modelling have been conducted to determine appropriate excavation methods and sequence, stope sizes and ground control regimes and these have been incorporated in the mine design and costing. The studies were led by Iain Thin (Principal Geotechnical Engineer, KSCA Geomechanics) and the elastic and plastic modelling was done using the FLAC® code (developed by Itasca Australia Pty Ltd). Geotechnical data were a combination of data collected by Dempers &amp; Seymour Pty Ltd and Golder Associates Pty Ltd.</li> </ul>
	• All available historical data, including historical seismic database, were used in the geotechnical assessment, both for static and dynamic conditions. The geotechnical hole database was a combination of holes drilled under the previous owners and new holes drilled by WSA.
	• The viability of the paste fill methodology was assessed by Outotec Australia.
	• A default material density of 2.65t/m <sup>3</sup> with grade of 0% has been applied to rock where not density has not been estimated in resource model.



	SECTION 4 – ODYSSEUS – ORE RESERVES
JORC Criteria	Explanation
	<ul> <li>Dilution factors have been applied based on the stoping method and location as follows:</li> <li>Hanging wall stopes wall extended 0.76m into waste</li> </ul>
	<ul> <li>Footwall stopes wall extended 0.76m into waste</li> <li>Unplanned dilution factor of 3.5% applied to all stopes.</li> <li>A 95% mining tonnage recovery factor has been applied to all stoping activities.</li> <li>The minimum mining width for stopes is 3m.</li> </ul>
	• The Ore Reserve has been estimated by including only tonnes within the mining shapes that have been categorised as at least Indicated Mineral Resources. However due to the presence of barren intrusive lithological units that are classified as Inferred Mineral Resources, the mine design accounts for these Inferred tonnages. In total the Ore Reserve and economic model includes less than 2% of Inferred material due to the practical considerations in the stope design process and the need to maintain a consistent mining front to mitigate, as best possible, geotechnical risks due to the expected stress environment.
	• Development rates were derived from experience gained during site visits in operating mines with similar conditions.
	• The mining schedule was developed by Piran Mining using Datamine 5D Planner and Enhanced Production Scheduler (EPS) codes.
	• The underground mine design includes infrastructure suitable for the planned mining method and production rate, including an access decline, hoisting shaft, pump stations, underground workshop, underground sizer and general mining infrastructure.
	• Surface infrastructure is already present at site and allowance is made in the study to upgrade and refurbish the infrastructure to meet project targets.
Metallurgical factors or assumptions	• The metallurgical factors used are from extensive tests carried out during the feasibility study and historical data of the Cosmos concentrator. Figures used are considered commercially sensitive.
	• The flow sheet, based on the mineralogical data and adopted for testwork, was like previous operations at Cosmos when Xstrata was treating ore from AM5, which is a disseminated sulphide similar to Odysseus. It was also the basis for laboratory testing by Xstrata on Odysseus material in 2010 to 2012 and WSA testing during the 2016 PFS.
	• The metallurgical process is a well-tested technology for recovery of nickel sulphides and comprises two stages of fragmentation with wet screening for size classification, one milling stage with cyclone size classification and two stages of flotation (rougher and cleaner) with an intermediate regrinding stage.
	<ul> <li>Recovery is related to the sulphur: nickel ratio. The rougher and cleaner combined average recovery is above 79%.</li> </ul>
	• For the purpose of the feasibility study a smeltable concentrate with grade of 16.5% Ni and 10–12% MgO Fe:MgO levels from 2.2 to 2.6 was selected. Odysseus concentrates are very clean with no deleterious elements.
	• No by-products were considered for the design of the Ore Reserves envelope due to their small impact (see following sections). Credits are allocated for cobalt in the financial model only, with an assumed price of US\$12.00/lb.



	SECTION 4 – ODYSSEUS – ORE RESERVES
JORC Criteria	Explanation
	• Allowance is made for the refurbish and upgrade of the existing concentrator from its current capacity of 450ktpa to over 900ktpa.
Environmental	<ul> <li>All required environmental approvals have been obtained for the dewatering and refurbishment phases of the operation.</li> </ul>
	• Approvals for mining and processing did commence in Q4 2018 as supported by the DFS information, and specifications and will be in place prior to commencement of mining.
	The relevant environmental approvals are listed below.
	<ul> <li>Department of Water Environment Regulation (DWER):</li> <li>Prescribed Premises Licence</li> <li>Clearing Permit</li> <li>Groundwater Licences</li> <li>Groundwater Licence Operating Strategy (GLOS)</li> <li>Department of Mining Industry Regulation and Safety (DMIRS):</li> <li>Mining Proposals</li> <li>Mine Closure Plan.</li> </ul>
Infrastructure	<ul> <li>Surface infrastructure associated with the overall Cosmos operation includes a pre- existing processing plant, tailings storage facilities, camp, power stations, airstrip, workshops and offices.</li> </ul>
	<ul> <li>Refurbishment or upgrades for all these items have been fully designed, costed and accounted for in the economic assessment.</li> </ul>
	• Studies for the refurbishments and/or upgrade of the current infrastructures have been carried out by well-established and recognised engineering firms.
	• Cosmos mine site will be supplied by a local diesel/gas 20MW power station and an 11kV overhead powerline operated by WSA.
	• Potable water is produced via reverse osmosis plants located at the Cosmos concentrator and pumped via a pipeline to the mine-site. Process water is recycled from the mine dewatering network.
	• Bulk material logistics in and out from site is predominately via conventional truck haulage.
	• Mine personnel reside at the nearby Cosmos Village (520 rooms) and the workforce is predominantly a FIFO (via the Bellevue airstrip) workforce with a minor component of DIDO.
	• The mine site is 40km to the north of Leinster township and has one gravel access road that starts from the main gazetted paved road of the region (Goldfields Highway).


	SECTION 4 – ODYSSEUS – ORE RESERVES
JORC Criteria	Explanation
Costs	<ul> <li>Capital underground development costs are derived from the LOM plan based on current market data derived from a formal pricing exercise, carried out with well- established and recognised Australian mining contractors.</li> </ul>
	• All other capital costs are sourced as necessary via quotes from suppliers, or technical studies associated with the feasibility study.
	<ul> <li>Mining, processing, administration, surface transport, concentrate logistics and state royalty costs are based on existing cost estimates and technical studies associated with the feasibility study.</li> </ul>
	A closure cost allowance is included in the study.
	• The nickel price and foreign exchange assumptions used were sourced from industry standard sources.
	Nickel price from US\$7.00/lb @ FX 0.75.
	• State royalties at 2.5%.
	• Glencore matching rights of up to 7kt of Ni in concentrate per annum for a total of 50kt Ni in concentrate.
	<ul> <li>No other royalties specific to the mining tenement are applicable to the economic assessment.</li> </ul>
	<ul> <li>NSR factors reflect the expected market conditions at the time of the concentrate delivery. The NSR is considered commercial sensitive.</li> </ul>
Revenue factors	• These have been selected after consideration of historical commodity prices variations over time and the requirement for the Ore Reserve to be robust to potentially volatile commodity price and foreign exchange conditions.
	Nickel is traded openly on the London Metal Exchange (LME).
	• Potential penalties and net smelter revenue factors are included in the smelter return factor used. This factor is based on the expected market conditions at the time of the concentrate delivery. Figures used are considered commercially sensitive.
	<ul> <li>As part of the DFS, various potential offtake parties were contacted and discussions held regarding potential offtake of the proposed Odysseus concentrate. Based on the metallurgical specification of the concentrate WSA/ANI received indicative offers. The details of these offers were used in the economic model to determine the NSR. WSA has significant and recent experience in negotiating and operating these types of agreements, and it is considered that assumptions related to NSR are achievable in the market.</li> </ul>
	• No by-products were considered for the design of the Ore Reserves envelope due to their small impact (see following sections). Credits are allocated for cobalt in the financial model only, with an assumed price of US\$12.00/lb.
Market	Nickel is traded openly on the LME.
	<ul> <li>The Company has maintained both long- and short-term offtake sales contracts with multiple customers, both locally and internationally, over many years.</li> </ul>
	• Existing contracts have been assessed for the sales volume assumptions.



	Section 4 – Odysseus – Ore Reserves
JORC Criteria	Explanation
	<ul> <li>As the Company has been supplying multiple customers over a long time period, no acceptance testing has been assumed in the Ore Reserve development process.</li> <li>For the nickel price assumptions, refer to the previous sections.</li> </ul>
Economic	<ul> <li>The economic analysis was conducted using a discounted cash flow model. Sensitivity analyses were carried out and produced the following ranges:         <ul> <li>Nickel price from US\$6.00/lb to US\$9.00/lb</li> <li>Exchange rate from 0.6 to 0.9</li> <li>Discount rate from 6% to 8%.</li> </ul> </li> <li>The analysis delivered robust results as summarised in the following tables:</li> </ul>
	Pre-tax NPV sensitivity to nickel prices and discount rates
	$\begin{array}{r} \textbf{Hickel Price (US$/Ib)} \\ \textbf{W} \\ W$
	55         7.0%         0%         162         244         335         418         511         594         678           82         7.5%         7%         149         229         317         397         486         567         648
	<ul> <li><u>8.0%</u> <u>14%</u> <u>137</u> <u>214</u> <u>299</u> <u>377</u> <u>463</u> <u>541</u> <u>619</u></li> <li>The cobalt component on the NPV ranges from a minimum of A\$23 million for an 8.0% discount rate and US\$6.00/lb Ni price to a maximum of A\$27 million for a 6.0% discount rate and US\$9.00/lb Ni price.</li> </ul>
Social	<ul> <li>All legal permits to mine Odysseus have been obtained following the paths described by the relevant laws with the participation of local communities (see previous points).</li> <li>As a company policy, relationships with the local communities are a key part of</li> </ul>
	operational management.
	• The Cosmos Nickel Project falls entirely within the Tjiwarl Native Title area. The Company has an excellent working relationship with the Tjiwarl people. Numerous Aboriginal heritage surveys have been conducted over the wider Cosmos Project site since its inception. Several anthropological and archaeological sites have been identified as a result of these surveys but no sites affect, or are currently affected by, the mining and infrastructure holdings that form the Cosmos Project.
	• Several Tjiwarl traditional owners are employed at Cosmos Nickel Operations as part of early works construction. The Company is in continuous dialogue with the Tjiwarl Aboriginal Corporation and has signed a Negotiation Protocol and commenced early discussions for a Mining Agreement.



SECTION 4 – ODYSSEUS – ORE RESERVES	
JORC Criteria	Explanation
Other	<ul> <li>Mining is an inherently risky business in which to operate. No other risk factors apart from the normal risk components included in all the above points and assumptions have been identified.</li> </ul>
Classification	<ul> <li>On 30 September 2018, the Odysseus Deposit had an estimated Probable Ore Reserve of 8.14Mt ore grading 2.02% Ni for 165kt of nickel <i>in situ</i>.</li> </ul>
	• The Ore Reserves are derived entirely from the Indicated Mineral Resource and the result appropriately reflects the Competent Person's view of the deposit.
	• Less than 2% of material is classified as Inferred Mineral Resource. This material is included due to the geometry of the practical mining shapes created varying according to the shape of the resource model classification boundaries.
Audits and reviews	• The project team is a mix of internal and external independent professionals. No formal external reviews were deemed necessary because the project team mainly comprises external (independent) parties.
Discussion of relative accuracy/ confidence	<ul> <li>The confidence on the study is driven by the high-quality work carried out and site visits conducted.</li> </ul>
	• As is normal in mining operations, the key points that can have a significant impact on the performance of the Cosmos mine are the market conditions in general, and the nickel price and the currency exchange rate in particular. All the other parameters are derived from sound historical production data, engineering studies and site visits to mines that operate in similar conditions both in Australia and abroad.

## AM6 JORC CODE TABLE 1 CHECKLIST

SECTION 1 – AM6 – SAMPLING TECHNIQUES AND DATA	
JORC Criteria	Explanation
Sampling techniques	<ul> <li>Sampling of diamond core drilling is the sampling technique used to define the AM6 deposit – refer to following sections.</li> </ul>
Drilling techniques	<ul> <li>Diamond drilling comprises HQ (63.5mm) and NQ2 (50.7mm) sized core drilled from both surface and underground.</li> </ul>
	Core is oriented using the Boart Longyear TruCore orientation system.
Drill sample recovery	<ul> <li>Diamond core recoveries are logged and recorded in the database. Recoveries are based on the ratio of measured core recovered lengths to drill advance lengths for each core-barrel run.</li> </ul>
	<ul> <li>Overall recoveries for AM6 were &gt;99% and there were no core loss issues or significant sample recovery problems. Core loss is noted where it occurs.</li> </ul>
	• Diamond core was reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers.



	SECTION 1 – AM6 – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
	• A relationship between sample recovery and grade was not established as there is minimal sample loss.
Logging	<ul> <li>All geological logging was completed by qualified geologists to a high standard using well-established nickel host rock and wall rock geology codes (in spreadsheets with appropriate spreadsheet templates as a guide or LogChief software, depending on the vintage).</li> </ul>
	• Final logging was qualitative for descriptive items, and quantitative for structure and geotechnical data.
	• All core was photographed in both dry and wet forms using a high-resolution digital camera.
	All holes were logged in full.
	<ul> <li>Information on structure type, dip, dip direction, alpha and beta angles, texture, shape, roughness and fill material was entered in structural logs stored in the database.</li> </ul>
Sub-sampling techniques and sample preparation	• The diamond core was sampled as whole, half and quarter core. Half and quarter core samples were prepared by cutting whole core longitudinally using a wetted diamond-encrusted blade. Samples were generally collected over 1m long intervals, except where shorter or longer samples were specified to terminate at important geological contacts.
	• The core samples were collected into pre-numbered calico bags and compiled into sample dispatches in larger heavy- duty plastic bags for dispatch to the laboratory by a reputable road transport contractor.
	<ul> <li>All samples are core. The core samples are crushed and split by independent commercial laboratory personnel (Intertek Genalysis and ALS Limited). The independent commercial laboratories prepared the samples using industry best practice, which involves oven drying at 105°C for 8 hours, coarse crushing (2-3mm) and pulverising (85% passing 75 µm) using certified methods and equipment that was regularly tested and cleaned.</li> </ul>
	<ul> <li>XNA's and WSA's field technicians inserted QAQC samples (either OREAS or Geostats CRMs), which were selected based on their grade range and mineralogical properties.</li> </ul>
	• The laboratory carried out routine internal QAQC, which included blanks to test for contamination.
	<ul> <li>Standards and duplicates were inserted at a frequency of 1 in every 25 samples (approximately).</li> </ul>
	• Eight QAQC samples were inserted for every 100 assay samples.
	• Sample sizes were in accordance with industry standards and were appropriate to the grain size of the nickel-bearing material being sampled.
	• Coarse fractions are kept at the laboratories for a period of three months or sent to site.
	All pulps are stored on site at Cosmos.



	SECTION 1 – AM6 – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
Quality of assay data and laboratory tests	<ul> <li>All samples are assayed by independent certified commercial laboratories using standard nickel sulphide analytical assay methods such as four-acid digest followed by an ICP or AES finish.</li> </ul>
	<ul> <li>The laboratories used are experienced in the preparation and analysis of nickel sulphide ores.</li> </ul>
	<ul> <li>The samples collected were analysed using a four acid-acid digest multi-element suite with ICP-OES.</li> </ul>
	• The acids used were hydrofluoric, nitric, perchloric and hydrochloric acids suitable for silica-based samples. The digestion approaches total dissolution for all but the most resistant silicate and oxide materials.
	• Laboratory quality control processes included the use of internal laboratory standards, blanks and duplicates.
	<ul> <li>Handheld calibrated Niton XRF instruments were used to obtain preliminary semi- quantitative measurements.</li> </ul>
	<ul> <li>No geophysical tools or handheld XRF instruments were used to determine any element concentrations that were subsequently used for MRE reporting purposes.</li> </ul>
	• Field standards were included in all batches dispatched at an approximate frequency of 1 per 25 samples, with a minimum of two standards included per batch.
	• Field duplicates made up of either half core or quarter core were inserted into submissions at an approximate frequency of 1 in 25, with placement determined by nickel grade and homogeneity. The laboratories carried out laboratory checks - both pulp and crush, alternately - at a frequency of 1 in 25.
	<ul> <li>Accuracy and precision were assessed using industry standard procedures such as control charts and scatter plots and found to be acceptable, or the laboratory was asked to repeat the affected batch.</li> </ul>
	<ul> <li>Evaluations of standards are completed on a monthly, quarterly and annual basis using QAQC.</li> </ul>
Verification of sampling and	All significant intersections were logged and verified by qualified geologists.
assaying	<ul> <li>No twinned holes were drilled by design but some pairs were closely spaced for the purpose of understanding certain mineralisation anomalies.</li> </ul>
	• All primary data were recorded digitally and sent in electronic format to the database administrator.
	<ul> <li>All geological logging was carried out to a high standard using well established geology codes in Field Marshall software on a Panasonic TOUGHPAD notebook and later (from hole AMD678) using LogChief software.</li> </ul>
	All other data, including assay results, were captured in Excel.
	• Drill holes, sampling and assay data were stored in DataShed (and stored in West Perth).
	No adjustments to the assay data were made.



SECTION 1 – AM6 – SAMPLING TECHNIQUES AND DATA	
JORC Criteria	Explanation
Location of data points	<ul> <li>Downhole surveys were completed using a gyroscopic instrument on all resource definition holes.</li> </ul>
	<ul> <li>Underground hole collar locations were verified via survey pickup.</li> </ul>
	<ul> <li>Most of surveys were done using a DeviFlex downhole survey instrument. Some of the earlier holes (prior to 2010) were surveyed by an independent surveyor (Downhole Surveys) using a north-seeking gyroscope.</li> </ul>
	• The AMG 84 Zone 51 grid coordinate system was used as a standard. Collar surveys were done in mine grid.
	<ul> <li>The project area is flat and the topographical data density is adequate for MRE purposes.</li> </ul>
Data spacing and distribution	• Drill data spacing intersections are a nominal 30 m apart.
	• The data spacing and distribution were sufficient to establish the degree of geological and grade continuity appropriate for the MRE procedure and the classification applied. Inferred and Indicated Mineral Resources were reported. More data is required for reporting of Measured Mineral Resources.
	<ul> <li>A nominal 1m sample composite length has been applied for Mineral Resource reporting purposes.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Most of the drill holes were oriented to achieve intersection angles as close to perpendicular as possible.</li> </ul>
	<ul> <li>Geological structures that are not subparallel to the orebody were accounted for by cross drilling between surface and underground drilling at different angles.</li> </ul>
	<ul> <li>No orientation-based sampling bias was observed in the data.</li> </ul>
	• Intercepts were reported as downhole lengths unless otherwise stated.
Sample security	<ul> <li>Industry standard sample security measures used in the Western Australian mining industry were adhered to. Reputable contractors were used to transport samples from Cosmos to the commercial laboratories which have their own internal sample security measures.</li> </ul>
Audits or reviews	<ul> <li>No formal audits of the sampling techniques have been carried out over recent years.</li> <li>The data were subject to QAQC procedures both on the mine and in the primary and umpire laboratories.</li> </ul>

SECTION 2 – AM6 – EXPLORATION RESULTS	
JORC Criteria	Explanation
Mineral tenement and land tenure status	• The Cosmos Nickel Complex comprises 21 tenements covering a total of 102km <sup>2</sup> . The tenements include mining leases and miscellaneous licences.
	<ul> <li>WSA (a subsidiary of IGO) wholly owns 18 tenements: 14 tenements were acquired from XNA in October 2015 and four tenements were acquired from Ramelius</li> </ul>



	SECTION 2 – AM6 – EXPLORATION RESULTS
JORC Criteria	Explanation
	Resources in 2020. The remaining three tenements (M36/303, M36/329 and M36/330) were subject to a Joint Venture with Alkane Resources NL. In April 2022, the Alkane Resources Ltd interest in these tenements (19.4%) was transferred to Australian Nickel Investments (ANI), whereby ANI now hold 100% interest.
	• The key metric for tenements to be in good standing is that the minimum expenditure must be achieved. All tenements are in good standing.
Exploration done by other parties	• Historical nickel exploration has been completed by Glencore PLC, XNA and JBM.
Geology	• The deposit forms part of the Cosmos Nickel Complex, which lies within the Agnew- Wiluna Belt of the central Yilgarn Craton.
	• The genetic formation model for the Cosmos nickel deposit is the 'Kambalda-style' model where precipitation of nickel sulphides is interpreted to occur in channelised komatiitic lava flows and/or lava tubes. This model proposes two dominant deposit types: Type 1 and Type 2.
	• Type 1 deposits are interpreted to have formed where the hottest lava in the centre of a lava channel thermally erodes into a sulphidic substrate and massive sulphides accumulate at the channel base. This high-grade primary formation style is applicable to the Cosmos, Cosmos Deeps, AM1, AM2, parts of AM5 and the Odysseus Massive zones.
	<ul> <li>The Type 1 deposits are often subject to mobilisation into structural sites when massive sulphide bodies behave plastically or even re-melt under the high metamorphic temperatures and pressures that are generated by local or regional tectonic faulting and/or folding events. The Cosmos Deeps and Odysseus Massive zone are likely examples of this remobilisation style.</li> </ul>
	• Type 2' deposits are interpreted to have formed from cooler and slower-flowing lavas than those envisaged for Type 1 deposits. In this model, the mineral olivine is envisaged to crystallise from these cooler lavas, with the olivine grains settling to the channel's base shortly after the precipitation of sulphides. In this model, the coeval sulphides crystallise between the olivine grains giving rise to a disseminated to 'matrix' textured nickel sulphide mineralisation that builds up from the channel base. This style of mineralisation is applicable to the AM5, AM6 and Odysseus disseminated zones at Cosmos.
	• The sulphide nickel assemblages at Cosmos are 'high tenor', meaning that the sulphides are dominated by the nickel-bearing mineral pentlandite (Pe). The sulphide assemblages also contain the sulphide mineral pyrrhotite (Po), with minor amounts of pyrite (Py) and chalcopyrite (Py), and in some places, small concentrations of rarer nickel sulphides such as valleriite and millerite.
	• The mineralisation typically occurs in association with the basal zone of high MgO cumulate ultramafic rocks.
	• AM6 has a strike extent of approximately 400m and dips ~75° towards the east with a down dip extent of approximately 250m. The disseminated mineralisation of AM6 ranges ~2m to approximately 25m in true thickness. This geometry and dip of the mineralisation is influenced by multiple northeast trending faults, which truncate the AM6 mineralisation at its northern and southern extents. Similar to AM5 and Odysseus, younger pegmatite dykes cause the mineralisation to stope out, but in much lower volume than Odysseus.



SECTION 2 – AM6 – EXPLORATION RESULTS	
JORC Criteria	Explanation
Drill hole Information	<ul> <li>There are too many holes to summarise and the MRE gives the best balanced and unbiased assessment of the estimate.</li> </ul>
	• The MRE is based on 4,448 composited assayed intersections derived from over 101 surface and underground diamond core holes over multiple domains and years of surface and underground drilling. All information was considered material to the MRE.
Data aggregation methods	No Exploration Results are being reported.
Relationship between mineralisation widths and intercept lengths	No Exploration Results are being reported.
Balanced Reporting	• Exploration Results are not reported. The MRE gives the best and most balanced view of the drilling to date.
Other substantive exploration data	No Exploration Results are being reported.
Diagrams	Maps and sections are included in the report.
Further work	• Preliminary plans are included in the report.

Section 3 – AM6 – Mineral Resources	
JORC Criteria	Explanation
Database integrity	<ul> <li>All logging data are entered in the field on dedicated laptops using either spreadsheets or LogChief software.</li> </ul>
	• Assay data in the form of .csv files from the primary assay laboratory ALS Chemex and the umpire assay laboratory Genalysis received by exploration are imported directly into DataShed.
	The database is currently administered by Rock Solid Data Management, an independent specialised database management company.
	• The LogChief software provides the first level of data validation. It uses locked look-up tables for all data fields which have set codes attributed to them.
	• The DataShed database uses validation look-up tables and trigger scripts to ensure that all numeric, date and code information is correct.
	• All QAQC controls are reviewed and actioned after each submission.
Site visits	• The Competent Person is an employee of IGO and has undertaken regular site visits. Logging sheets were verified against the core. No issues were observed.



	SECTION 3 – AM6 – MINERAL RESOURCES
JORC Criteria	Explanation
Geological interpretation	• The AM6 deposit is hosted within an ultramafic unit and consists of disseminated nickel sulphide mineralisation as a high-grade core surrounded by medium-grade and low-grade zones.
	• The orebody is like AM5 which was being mined while some of the AM6 drilling was being undertaken.
	• SRK Consulting undertook 3D modelling of the AM5 and AM6 deposits using the Leapfrog Geo 3D modelling package. Modelling consisted of mineralisation envelopes for disseminated and massive sulphide mineralisation, interpreted north–south oriented fault structures and pegmatite intrusions. WSA updated the geological model for the purpose of this study.
	• The geological model is robust enough for the purposes of Mineral Resource estimation and the risk associated with the model being materially wrong is low.
	• Surface and underground drill data obtained by XNA were used for this estimate. WSA has done surface drilling in the orebodies associated with AM6 but all direct AM6 targeted drilling was undertaken by previous owners of the project.
	• No major assumptions were made with respect to the drill data. The data were collected in accordance with standard industry practices.
	• Several alternative iterations of grade estimations using linear techniques were completed and critically assessed before finalising the MRE.
	• The models were compared to the previously reported models at all stages of the process to ensure an appropriate level of consistency between the previous (XNA) and current interpretations. The modelling methodologies were similar enough for direct comparisons to be made.
	• Geology is the overriding influencing factor in this MRE. A robust digital geological model created by SRK Consulting forms the basis of the estimate.
	• Grade and geometry continuity at AM6 are primarily influenced by intrusive, barren pegmatite dykes that penetrate the host ultramafic rocks and cross cut mineralisation in some locations.
	<ul> <li>The pegmatites pinch and swell along strike/down dip and have a westerly dip of ~40°.</li> </ul>
	• The pegmatites were mainly observed to occur in the lower levels of the model area. Their abundance was observed to increase with depth (600mRL).
	• The pegmatites have been carefully modelled using the vein modelling tool in the Leapfrog tool (using the GP lith 1 code and associated variants).
	• The pegmatite wireframes were carefully validated against the underlying data and a previous model by XNA before being used to deplete the mineralisation model at zero nickel grade.
	• The pegmatites are mainly bound by north–south trending, west dipping faults.
	The faults appear to have limited offsets, or none.
	• XNA noted that the faults are in poor ground conditions.
	• The faults are marked by rubble/fractured zones, with strong serpentinisation associated with talc as well as lizardite and antigorite forming along fracture planes.



	SECTION 3 – AM6 – MINERAL RESOURCES
JORC Criteria	Explanation
	Additional drilling and an independent geotechnical study are planned prior to commencing mining.
Dimensions	<ul> <li>The strike length of the AM6 disseminated block model is ~400m.</li> </ul>
	<ul> <li>The longest downdip distance is ~300m and the top of the orebody is ~900m below surface.</li> </ul>
	• Width is variable and ranges from ~10m to ~40m.
Estimation and modelling techniques	The estimation was done using the following software packages:     Leapfrog Geo     Datamine Studio RM
	<ul> <li>Snowden Supervisor</li> </ul>
	• Wireframing of grade and geological domains using underground and surface drilling was completed in Datamine and Leapfrog.
	• Sample data were composited to 1m downhole lengths and flagged on domain codes generated from 3D mineralised wireframes and 3D lithological wireframes.
	• Directional variography was performed for nickel for each of the domains using Snowden Supervisor software.
	• All estimation was completed at the parent cell scale to avoid any potential geostatistical support issues.
	• Top-cut investigations were completed using Supervisor's top-cut process and reviewing the Coefficient of Variation. Top-cuts were not applied during estimation (low- and high-grade nickel domains were used instead).
	This model is an update of the XNA model.
	• The resource model volumetrics were compared to the previous model. Variances are due to inclusion of additional data and varying modelling techniques.
	• No mining data exists for the AM6 deposit; however, the adjacent orebody (AM5) was mined.
	• Nickel is currently considered the only economic product that will be recovered.
	• The Fe: Mg ratio is recognised as influencing standard nickel flotation mill recoveries and both elements have been interpolated into the block model. The Fe: Mg ratio has been calculated for each parent block in preparation for further metallurgical work.
	Sulphur has been estimated into the block model.
	• A proto model was constructed using parent blocks of 2mE × 5mN × 5mRL and sub- blocked to 0.005m × 1.25m × 1.25m.
	• The block size was selected based on drill hole spacing, with domain geometry playing an important role.
	• Width along the X axis is variable and Datamine's 'resolution=0' parameter was used to calculate the subcell size in the easting direction exactly.
	• Drill hole spacing varies but is nominally 35m along strike and 22 m down dip.



Section 3 – AM6 – Mineral Resources		
JORC Criteria	Explanation	
	• Parent cell estimation was used to avoid any potential statistical support issues that may arise from using subcells.	
	<ul> <li>The size of the search ellipse was based on the results of the Qualitative Kriging Neighbourhood Analysis (QKNA) and the nickel variography for each domain. Three nested search passes were used, with most of the samples falling within the first two passes. The first pass was set at 79mX × 45mY × 29mZ, with the minimum and maximum number of samples set at 4 and 36, respectively. More than 99% of the blocks were estimated using the first search pass. The second search pass was set at 1.5 times the range of the initial pass.</li> </ul>	
	• A maximum number of samples from any borehole was set at 30. This prevents a disproportionate number of samples from any borehole having an undue influence on the MRE.	
	• No assumptions regarding the modelling of selective mining units were made.	
	• Longhole stoping is the planned mining technique. Mining will be controlled by cut-off grade and minimum mining width.	
	• There is a strong correlation between sulphur and grade as well as density and grade as the sulphide tenor increases.	
	<ul> <li>Mineralised zones were digitised using explicit and implicit techniques by Ben Jupp (Structural Geologist). His work was peer reviewed by Danny Kentwell (Geostatistician) - both from SRK Consulting.</li> </ul>	
	• Five primary geological and geostatistical mineralised domains were modelled:	
	<ul> <li>High grade (&gt;2.0% Ni)</li> <li>Mid-grade (1.5%&lt;2.0% Ni)</li> <li>Mid to low grade (1.0–1.0% Ni)</li> <li>Low grade (0.4–1.0%Ni)</li> <li>AM6 footwall zone (&gt;0.3%).</li> </ul>	
	Estimation validation techniques included:	
	<ul> <li>visual comparison of the composites and estimated blocks in section and plan</li> <li>graphs of estimation pass number versus percentage filled</li> <li>swath plots of the composite grades versus block model grades</li> <li>swath plots of kriging variance, kriging efficiency and slope of regression</li> <li>jack-knifing of the block model attributes to the informing drill hole followed by statistical analysis</li> <li>grade and tonnage comparisons of the current MRE and the previous MRE.</li> </ul>	
Moisture	Tonnages were estimated on a dry basis.	
Cut-off parameters	• The Mineral Resource is reported above a 1.0% Ni cut-off grade.	
Mining factors or assumptions	• The mining method selected is top-down, longhole stoping with paste backfill, with a centre-out mining sequence.	
Metallurgical factors or assumptions	<ul> <li>The processing plant will consist of a tertiary crushing circuit to reduce the ore size to 12mm before ball milling to 80% passing 106 µm. Froth flotation will then be used to separate the valuable minerals as a concentrate. The concentrate will be reground to 40 µm in an IsaMill<sup>™</sup> prior to cleaner flotation to produce final product concentrate.</li> </ul>	



SECTION 3 – AM6 – MINERAL RESOURCES	
JORC Criteria	Explanation
	Ball mill comminution and froth flotation are commonly used in mineral processing to treat nickel sulphide ores.
	• The final concentrate will be filtered using a plate and filter and stored in the existing concentrate storage shed at Cosmos prior to being trucked to port at Geraldton for sale.
	• The Competent Person has taken metallurgical factors into account when estimating including the nature of the ore and the influence of elements such as MgO and FeO.
Environmental factors or assumptions	<ul> <li>Potential waste and process residue disposal sites have been identified during a pre- feasibility study and are not expected to deviate significantly from previous sites used during previous open pit and underground mining at Cosmos.</li> </ul>
	• Tailings will be used for paste fill underground, with the excess tailings being deposited in the existing tailings storage facility (TSF) along with the Odysseus tailings. Water will be recovered from the TSF or re-used in the processing plant.
Bulk density	• Bulk densities were determined by the independent laboratory using industry standard methods (pycnometer).
	• All data used in the Mineral Resource estimate are from competent fresh rock. Void spaces within the mineralised zones are not material.
	• A total of 3,679 composited pycnometer-derived specific gravity (SG) determinations were estimated into the block model.
Classification	<ul> <li>Mineral Resource classification is based on a combination of geological knowledge and confidence in the interpretation, data distribution, estimation passes, kriging efficiency (KE) and slope of regression (slope) data analysis.</li> </ul>
	• The mineralisation at AM6 is classified as Indicated and Inferred Mineral Resources under the guidelines of the JORC Code. No blocks were classified as Measured.
	<ul> <li>The definition of mineralised zones is based on a high level of geological understanding by Xstrata and IGO geologists.</li> </ul>
	• All relevant factors have been considered in this estimate, relevant to all available data.
	• The Mineral Resource estimate reflects the Competent Person's view of the deposit and the risks associated with the grade and structural continuity.
Audits or reviews	• The Mineral Resource estimate has not been independently audited or reviewed in its entirety.
	<ul> <li>Ben Jupp (SRK Senior Consultant) designed the wireframe volumes used for estimation. His work was peer reviewed by Danny Kentwell (SRK Principal Geostatistician).</li> </ul>
Discussion of relative accuracy/ confidence	• A well-established confidence algorithm was applied to the nickel estimate as a guide to classification.
	• The algorithm ranks the following kriging quality parameters for each block:



SECTION 3 – AM6 – MINERAL RESOURCES	
JORC Criteria	Explanation
	<ul> <li>Number of samples used to estimate</li> <li>Kriging efficiency</li> <li>Search volume.</li> </ul>
	<ul> <li>Slope of regression was also reviewed for each block before a nominal classification code was applied.</li> </ul>
	• The classification code derived from the algorithm provides a guideline for further classification based on geological and mineralisation continuity.
	• The CP considers that the sample spacing is commensurate with that of an Indicated and Inferred Resource given the dominant type of mineralisation, I.e., Type 2 disseminated sulphide.
	The Mineral Resource Statement relates to local estimates.
	• The AM6 deposit has not been mined but estimates have been compared against previous estimates and global grade estimates are consistent with production data.

SECTION 4 – AM6 – ORE RESERVES		
JORC Criteria	Explanation	
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>The Ore Reserve Statement is based on the Mineral Resource declared as at 30 August 2020 by Western Areas Limited (refer to WSA's ASX announcement dated 25 August 2020 and relevant Table 1 Sections 1 to 3 therein).</li> <li>Mineral Resources are reported inclusive of Ore Reserves.</li> </ul>	
Site visits	• The Competent Person has conducted several site visits since ANI acquired the Cosmos Nickel Operation (CNO) in 2015. The Competent Person found conditions to be in line with technical assessments incorporated in the Ore Reserve. In addition to site visits related to the Pre-Feasibility Study (PFS), the Competent Person carries out routine site inspections as part of normal duties.	
Study status	<ul> <li>The Ore Reserve is predicated on a PFS commissioned by ANI and completed in August 2020.</li> <li>The study is based on current and well-established Australian and international mining practice, as assessed during various site visits to CNO as well as other operating mines and in agreement with the Odysseus Definitive Feasibility Study (DFS) released by WSA to the ASX on 22 October 2018.</li> <li>The finding of the PFS was that CNO is an economically viable mining operation.</li> </ul>	
Cut-off parameters	<ul> <li>A cut-off grade (COG) approach was used to define the ore.</li> <li>The criterion to maximise nickel metal and revenue with a rougher and cleaner concentrate was used. The following initial assumptions were used:         <ul> <li>Nickel price</li> <li>US\$7.50/lb</li> <li>A\$: US\$ exchange rate</li> <li>0.70</li> <li>Target concentrate Ni grade</li> <li>14.5%</li> <li>Starting NSR</li> <li>75.5%.</li> </ul> </li> </ul>	



SECTION 4 – AM6 – ORE RESERVES		
JORC Criteria	Explanation	
	•	The NSR value reflects the expected market conditions at the time of the concentrate delivery (the Company regards this as commercially sensitive information). The Company has significant and recent experience in negotiating and operating these types of agreements, and considers the assumptions related to NSR are achievable in the market.
	•	Other costs assumptions were:
		<ul> <li>WA State Royalties 2.5%</li> <li>Glencore matching rights of up to 7 kt of Ni in concentrate per annum for a total of 50 kt Ni in concentrate</li> <li>Total opex costs per tonne of ore A\$131.62 (including milling and site administration)</li> <li>Total capex costs per tonne of ore (based on different initial COG) - from A\$37.9 to A\$69.4</li> <li>Logistics costs per tonne of ore A\$12.50.</li> </ul>
	•	The final COG was 1.6% Ni, and the final back-calculated costs were:
		<ul> <li>Total opex cost per tonne ore</li> <li>A\$132.06 (including milling and site administration)</li> <li>Total capex cost per tonne of ore</li> <li>A\$51.83</li> </ul>
	•	Logistics costs per tonne of ore A\$13.23.



SECTION 4 – AM6 – ORE RESERVES		
JORC Criteria	Explanation	
Mining factors or assumption	• The mining method selected is top-down, longhole stoping with paste backfill, with a centre out mining sequence. AM6 will be mined in conjunction with Odysseus, at production rates up to 670,000tpa to feed a total of 900,000tpa (including Odysseus mine) to the CNO mill.	
	• Geotechnical analysis and plastic stress modelling have been conducted to determine appropriate excavation methods and sequence, stope sizes and ground control regimes, and these have been incorporated in the mine design and costing. The studies were led by Entech Pty Ltd, and the elastic and plastic modelling used the FLAC® code by ITASCA Australia Pty Ltd. Geotechnical data were sourced through a combination of data collected by Dempers & Seymour Pty Ltd.	
	• All available historical data, including historical seismic data, were used in the geotechnical assessment for static and dynamic conditions. The geotechnical database was a combination of holes drilled under the previous owners.	
	• Outotec Australia assessed the viability of using paste fill methodology. LHC of 7% has been allowed for the paste mix design.	
	• A default material density of 2.65t/m <sup>3</sup> with grade of 0% has been applied where not defined by the resource model.	
	• Dilution factors have been applied based on the stoping method and location.	
	Planned dilution:	
	<ul> <li>HW stopes wall extended 0.75m into waste</li> <li>FW stopes wall extended 0.50m into waste.</li> <li>Unplanned dilution factor of 0% applied to all stopes and included in the mining stope shapes.</li> <li>A 95% mining recovery factor has been applied to all stoping activities, with 100% recovery to the ore drives.</li> <li>The minimum mining width for stopes is 3 m.</li> <li>Average drive sizes are 5.0mW × 5.0mH and 5.5mW × 5.5mH.</li> </ul>	
	• The Ore Reserve has been estimated by including only tonnes within the mining shapes that have been categorised as at least Indicated Mineral Resources. However, due to the presence of barren intrusive lithological units that are classified as Inferred Mineral Resources, and for practicality of the stope shapes, the mine design accounts for these Inferred tonnages to maintain a consistent mining front that mitigates, as best possible, the geotechnical risks due to the expected stress environment. In total, the Ore Reserve and economic model include less than 2% of Inferred material.	
	• Development rates were derived from experience gained at the Forrestania Nickel Operation (FNO) which uses a similar mining method, and the current and historical Cosmos database, as well as the Entech database	
	• The mining schedule was developed by Entech using 5DPlanner® and EPS® codes.	
	• The underground mine design includes infrastructure suitable for the planned mining method and production rate. The infrastructure includes an access decline, ventilation shaft, pump stations and general mining infrastructure.	
	• Ore hoist will be via the Odysseus hoisting shaft that is currently under construction.	
	• Surface infrastructure currently under construction for the Odysseus orebody will be shared with AM6.	



SECTION 4 – AM6 – ORE RESERVES	
JORC Criteria	Explanation
Metallurgical factors or assumptions	• The AM6 ore will be treated at the refurbished and upgraded Cosmos nickel concentrator. The refurbishment and expansion will be completed as part of the Odysseus implementation project.
	<ul> <li>The processing plant will consist of a tertiary crushing circuit to reduce the ore size to 12mm before ball milling to P<sub>80</sub> 106 µm. Froth flotation will then be used to separate the valuable minerals as a concentrate. The concentrate will be reground to 40 µm in an IsaMill<sup>™</sup> prior to cleaner flotation to produce final product concentrate. Ball mill comminution and froth flotation are commonly used in mineral processing to treat nickel sulphide ores.</li> </ul>
	• The final concentrate will be filtered using a plate and filter and stored in the existing concentrate storage shed at CNO prior to being trucked to port at Geraldton for sale.
	• Tailings will be used for paste fill underground, with excess tailings deposited in the existing TSF (along with Odysseus tailings). Water will be recovered from the TSF for re-use in the processing plant.
Environmental	• ANI obtained all the relevant approvals to construct and operate the Odysseus mine before January 2019. These will be maintained and updated as the project progresses toward production.
	• All required environmental approvals already obtained for Odysseus are valid for AM6. The existing Mining Proposal will be updated to include the additional small clearing area for the ventilation surface infrastructure before commencing mining at AM6.
	• Based on the review of the environmental aspects related to AM6, no significant risks that could prevent development of AM6 proceeding have been identified. Further data will be acquired at Feasibility Study stage.
Infrastructure	<ul> <li>Surface infrastructure associated with the overall CNO includes a pre-existing processing plant, tailings storage facilities, camp, power stations, airstrip, workshops, and offices. Refurbishment or upgrades for all these items has been fully designed, costed and accounted for in the economic assessment of the project as per ANI's FY21 LOM budget. This infrastructure will be shared between Odysseus and AM6.</li> </ul>
	• Studies for the refurbishment and/or upgrade of the current infrastructure have been carried out by well-established and recognised engineering firms and staged according to the LOM budget.
	• The CNO site will be supplied by a local power station (diesel/gas; minimum supply of 20MW) and an 11kV overhead powerline operated by WSA.
	• Potable water is produced via reverse osmosis plants located at the Cosmos nickel concentrator and pumped via a pipeline to the CNO site. Process water is recycled from the mine dewatering network.
	Bulk material logistics in and out of site is predominantly via conventional truck haulage.
	• Mine personnel reside at the 520-room Cosmos Village. The workforce is predominantly a FIFO workforce, currently via the Leinster and Mt Keith airports and Bellevue airstrip in the future, with a minor component of the workforce being DIDO.



JORC Criteria         Explanation           • The CNO site is 40km to the north of the Leinster township and has one gravel access road that starts from the region's main gazetted paved road (Goldfields Highway).           Costs         • Capital underground development costs are derived from the LOM plan based on current market data derived from the WSA/ANI database, and a formal pricing exercise carried out with well-established and recognised Australian mining contractors.           • All other capital costs are sourced as necessary via quotes from suppliers or technical studies associated with the PFS.           • Mining, processing, administration, surface transport, concentrate logistics and state royally costs are based on existing cost estimates and technical studies associated with the FY21 Odysseus LOM budget.           • Closure cost allowance is included and covered as part of the Odysseus mine.           • The nickle price and foreign exchange assumptions used were obtained from industry standard sources, being.           • Notei price UST 50%           • Estangarate 17a           • State royalities 25%.           • Glencore matching rights of up to 7kt of Ni in concentrate per annum for a total of 50kt Ni in concentrate are applicable.           • No other royalties specific to the mining tenement are applicable to the economic assessment.           • No stre factors reflect the expected market conditions at the time of the concentrate delivery (the Company regards this as commercially sensitive information).           Revenue factors         • These have been selected after consideration of historical commodity pric		SECTION 4 – AM6 – ORE RESERVES
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<ul> <li>Nickel price US\$7.50/lb         <ul> <li>Exchange rate 0.75</li> <li>State royatties 2.5%.</li> </ul> </li> <li>Glencore matching rights of up to 7kt of Ni in concentrate per annum for a total of 50kt Ni in concentrate are applicable.</li> <li>No other royatties specific to the mining tenement are applicable to the economic assessment.</li> <li>NSR factors reflect the expected market conditions at the time of the concentrate delivery (the Company regards this as commercially sensitive information).</li> <li>Revenue factors</li> <li>These have been selected after consideration of historical commodity price variations over time and the requirement for the Ore Reserve to be robust against potentially volatile commodity prices and foreign exchange conditions.</li> <li>The price setting mechanism for the sale of product subject to this report is traded openly on the London Metals Exchange.</li> <li>Potential penalties and net smelter revenue factors are included in the Smelter Return factor used. This factor is based on the expected market conditions at the time of the concentrate delivery. The Company regards this as commercially sensitive information.</li> <li>During the Odysseus DFS, WSA/ANI received indicative offers based on the metallurgical specification of the concentrate. The details of these offers were used in the economic model to determine the NSR for AM6. The Company has significant and recent experience in negotiating and operating these types of agreements, and considers the assumptions related to NSR are achievable in the market.</li> <li>No by-products were considered for the design of the Ore Reserves envelope due to their small impact.</li> </ul>		• The nickel price and foreign exchange assumptions used were obtained from industry standard sources, being:
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contracts with multiple customers, both locally and internationally.	Market assessment	<ul> <li>The commodity subject to this report is traded openly on the London Metals Exchange.</li> <li>The Company has for many years maintained both long- and short-term offtake sales contracts with multiple customers. both locally and internationally.</li> </ul>



	SECTION 4 – AM6 – ORE RESERVES
JORC Criteria	Explanation
	Existing contracts have been assessed for the sales volume assumptions.
	• As the Company has been supplying multiple customers over a significant time period,
	no acceptance testing has been assumed in the Ore Reserve development process.
	Nickel price assumptions are indicated in previous subsections.
Economic	<ul> <li>The economic analysis was conducted using a discounted cashflow model. Sensitivity analysis was carried out using the following ranges:</li> <li>Nickel price from US\$6.00/lb to US\$9.00/lb</li> </ul>
	<ul> <li>Exchange rate from 0.6 to 0.9</li> <li>Discount rate from 6% to 8%.</li> </ul>
	The analysis delivered robust results summarised in the following tables:
	Pre-tax NPV in A\$ sensitivity to nickel prices and exchange rates
	Nickel Price (U\$\$/lb)         6.00       6.50       7.00       7.50       8.00       8.50       9.00         -20%       -13%       -7%       0%       7%       13%       20%         0.60       -20%       41       51       77       105       125       143       159         0.65       -13%       41       44       67       93       113       130       145         0.70       -7%       20       22       43       67       85       100       114         0.75       0%       4       6       25       47       64       78       90         0.80       7%       -8       -6       12       33       48       61       73         0.80       7%       -8       -6       12       33       48       61       73         0.85       13%       -17       -15       2       22       36       49       60         0.90       20%       -24       -23       -6       13       26       38       49
	Pre-tax NPV sensitivity to nickel prices and discount rates
	Bar         6.00         6.50         7.00         7.50         8.00         8.50         9.00           -20%         -13%         -7%         0%         7%         13%         20%           -20%         -13%         -7%         0%         7%         13%         20%           6.05         -7%         -3         14         31         51         68         83         96           7.0%         0%         -4         12         28         47         64         78         90           7.5%         7%         -4         11         26         444         59         73         85           8.0%         14%         -4         10         24         41         56         68         80
Social	• The AM6 deposit is located on M36/127 (expiry 19 April 2031), with infrastructure related to underground mine access, ore processing and storage located on M36/371 (expiry 03 March 2041). Both tenements are held by Australian Nickel Investments Pty Ltd.
	• Mining tenement conditions for M36/127 and M36/371 were reviewed and were considered standard. A Mining Proposal (MP) and a revision to the Mine Closure Plan (MCP) will be required for development of the AM6 deposit.
	• All legal permits to mine AM6 fall within the ones obtained by WSA for Odysseus following the paths described by the relevant laws with the participation of the local communities. As a company policy (CDMS-000610-Social Responsibility Policy), relationships with the local communities are a key part of operational management.
	• The CNO falls entirely within the Tjiwarl Native Title area. WSA has an excellent working relationship with the Tjiwarl people. Numerous Aboriginal heritage surveys have been conducted over the wider Cosmos project site since its inception. Several anthropological and archaeological sites have been identified as a result of these surveys, but no sites affect, or are currently affected by, the mining and infrastructure holdings that form the Cosmos project.



Section 4 – AM6 – Ore Reserves	
JORC Criteria	Explanation
	• Several Tjiwarl traditional owners are employed at CNO as part of construction works. WSA is in continuous dialogue with the Tjiwarl Aboriginal Corporation and has signed a Negotiation Protocol and commenced early discussions for a Mining Agreement.
Other	• It is noted that mining operations are an inherently risky business in which to operate.
	<ul> <li>No other risk factors apart from the normal risk components included in all the above points and assumptions have been identified.</li> </ul>
Classification	• At 3 August 2020, AM6 had Probable Ore Reserves of 2.10Mt ore at 2.22% Ni for 47kt of nickel.
	• Ore Reserves are derived entirely from the Indicated Mineral Resource and the result appropriately reflects the Competent Person's view of the deposit.
	• Less than 2% of material is classified as Inferred. The inclusion is due to the geometry of the practical mining shapes created varying to the shape of the resource model classification boundaries.
Audits and reviews	• The project team is a mix of internal and external independent professionals. No formal external reviews were deemed necessary due to the nature of the project team that has a preponderant external component.
Discussion of relative accuracy/ confidence	• The confidence on the study is driven by the high-quality work carried out and regular site visits conducted.
	• The present estimation, for the nature of the commodity mined, refers to global market conditions (see above points for the assumptions).
	• As is normal in mining operations, the key points that can have a significant impact on the performance of the Cosmos mine are the market conditions in general, and the nickel price and the currency exchange rate in particular. All the other parameters are derived from sound historical production data, engineering studies and site visits to mines that operate in similar conditions both in Australia and abroad.

## AM5 JORC CODE TABLE 1 CHECKLIST

SECTION 1 – AM5 – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
Sampling techniques	<ul> <li>Sampling of diamond core drilling is the sampling technique used to define the Alec Mairs 5 (AM5) deposit- refer to following sections</li> </ul>	
Drilling techniques	<ul> <li>Diamond drilling comprised HQ and NQ2 sized core.</li> <li>Core is oriented using the Boart Longyear TruCore orientation system.</li> </ul>	
Drill sample recovery	<ul> <li>Diamond core recoveries are logged and recorded in the database. Recoveries are based on the ratio of measured core recovered lengths to drill advance lengths for each core-barrel run.</li> </ul>	



SECTION 1 – AM5 – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
	• Overall recoveries are >99% and there were no core loss issues or significant sample recovery problems. Core loss is noted where it occurs.	
	• Diamond core was reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers.	
	There is no relationship between sample recovery and grade as there is minimal sample loss.	
Logging	• All geological logging was carried out to a high standard using well-established nickel host rock and wall rock geology codes (in spreadsheets with appropriate spreadsheet templates as a guide or LogChief software.)	
	• Final logging is quantitative and core photography is done to a high standard in both dry and wet form.	
	All holes are logged in full.	
	• Information on structure type, dip, dip direction, alpha and beta angles, texture, shape, roughness and fill material is entered in structural logs stored in the database.	
Sub-sampling techniques and sample preparation	• Diamond core is sampled as quarter or half core and cut (1m intervals) by experienced field crew on site by diamond tipped saws.	
	<ul> <li>All samples are core; samples are crushed and split by independent commercial laboratory personnel. Laboratories used are Intertek Genalysis and ALS Limited The independent commercial laboratorie prepared the samples using industry best practice which involves oven drying at 105 degrees Celsius for 8 hours, coarse crushing (2- 3mm) and pulverising (85% passing 75 µm) using certified methods and equipment that is regularly tested and cleaned.</li> </ul>	
	• The field crew prepares and inserts QAQC standards every 20 samples or at least one every hole for short RC drilling.	
	• OREAS and Geostats standards have been selected based on their grade range and mineralogical properties, with approximately 12 different standards used.	
	• Standards and blanks are inserted approximately every 20 samples or at least one every hole for short RC drilling.	
	• QC procedures at the laboratories involve the insertion of standards, blanks, collection of duplicates at the coarse crush stage, pulverisation stage, assay stage and regular barren quartz washes.	
	• Coarse fractions are kept at the laboratories for a period of three months or sent to site.	
	All pulps are stored on site at CNO.	



SECTION 1 – AM5 – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
Quality of assay data and laboratory tests	<ul> <li>All samples were assayed by independent certified commercial laboratories using standard Ni sulphide analytical assay methods.</li> </ul>	
	The two most common labs used were:	
	<ul> <li>ALS Global in Perth</li> <li>Intertek Genalysis in Perth</li> </ul>	
	<ul> <li>The most common assay technique used was four-acid digest followed by an ICP or AES finish.</li> </ul>	
	<ul> <li>Acids used were hydrofluoric, nitric, perchloric and hydrochloric acids suitable for silica- based samples. The digestion approaches total dissolution for all but the most resistant silicate and oxide materials</li> </ul>	
	<ul> <li>Laboratory quality control processes include the use of internal laboratory standards, blanks and duplicates.</li> </ul>	
	<ul> <li>Field standards are included in all batches dispatched at an approximate frequency of 1 per 25 samples, with a minimum of two included per batch.</li> </ul>	
	• Field duplicates made up of either half or quarter core are inserted into submissions at an approximate frequency of 1 in 25, with placement determined by nickel grade and homogeneity. Laboratory checks, both pulp and crush, are taken alternately by the laboratory at a frequency of 1 in 25.	
	• Accuracy and precision were assessed using industry standard procedures such as control charts and scatter plots and found to be acceptable.	
	<ul> <li>If a sample fell outside of the pre-determined control limits and there was no obvious reason for poor performance, then the laboratory was asked to repeat the affected batch.</li> </ul>	
	<ul> <li>Handheld calibrated Niton XRF instruments are used to get preliminary semi- quantitative measurements prior to assays being available.</li> </ul>	
	<ul> <li>No geophysical tools or handheld XRF instruments were used to determine any element concentrations that were subsequently used for MRE reporting purposes.</li> </ul>	
Verification of sampling and	• All significant intersections were logged and verified by qualified geologists.	
assaying	<ul> <li>No twinned holes were drilled by design but some pairs were closely spaced for the purpose of understanding certain mineralisation anomalies.</li> </ul>	
	• All primary data were recorded digitally and sent in electronic format to the database administrator.	
	<ul> <li>All geological logging was carried out to a high standard using well established geology codes in Field Marshall software on a Panasonic TOUGHPAD notebook and later (from hole AMD678) using LogChief software.</li> </ul>	
	All other data, including assay results, are captured in Excel.	
	<ul> <li>Drill holes, sampling and assay data were stored in DataShed (and stored at head office)</li> </ul>	
	No adjustments to the assay data were made.	



SECTION 1 – AM5 – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
Location of data points	<ul> <li>Downhole surveys were completed using a gyroscopic instrument on all resource definition holes.</li> </ul>	
	Underground hole collar locations were verified via survey pickup.	
	<ul> <li>Most surveys were done using a DeviFlex downhole survey instrument. Some of the earlier holes (prior to 2010) were surveyed by an independent surveyor (Downhole Surveys) using a north-seeking gyroscope.</li> </ul>	
	• The AMG 84 Zone 51 grid coordinate system was used as a standard. Collar surveys were done in mine grid.	
	<ul> <li>The project area is flat and the topographical data density is adequate for Mineral Resource estimation purposes.</li> </ul>	
Data spacing and distribution	<ul> <li>Data spacing exceeded the required data spacing for the purpose of reporting Exploration Results.</li> </ul>	
	• The data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource estimation procedure and the classification applied. Inferred and Indicated Mineral Resources were reported, and more data is required for reporting of Measured Mineral Resources.	
	<ul> <li>A nominal 1m sample composite length has been applied for Mineral Resource reporting purposes.</li> </ul>	
Orientation of data in relation to geological structure	<ul> <li>Most of the drill holes were oriented to achieve intersection angles as close to perpendicular as possible.</li> </ul>	
	<ul> <li>Geological structures that are not subparallel to the orebody were accounted for by cross drilling between surface and underground drilling at different angles.</li> </ul>	
	<ul> <li>No orientation-based sampling bias was observed in the data.</li> </ul>	
	• Intercepts were reported as downhole lengths unless otherwise stated.	
Sample security	<ul> <li>Industry standard sample security measures used in the Western Australian mining industry were adhered to. Reputable contractors were used to transport samples from Cosmos to the commercial laboratories which have their own internal sample security measures.</li> </ul>	
Audits or reviews	<ul> <li>No formal audits of the sampling techniques have been carried out over recent years.</li> <li>The data were subject to QAQC procedures both on the mine and in the primary and umpire laboratories.</li> </ul>	

SECTION 2 – AM5 – EXPLORATION RESULTS		
JORC Criteria	Explanation	
Mineral tenement and land tenure status	• The Cosmos Nickel Complex comprises 21 tenements covering a total of 102km <sup>2</sup> . The tenements include mining leases and miscellaneous licences.	



SECTION 2 – AM5 – EXPLORATION RESULTS		
JORC Criteria	cplanation	
	Western Areas (subsidiary of IGO) wholly owns 18 tenements, with 14 acquire Xstrata Nickel Australasia in October 2015, and an additional 4 tenements ac from Ramelius Resources in 2020. The remaining three tenements (M36/303 M36/329 and M36/330) were subject to a Joint Venture with Alkane Resource April 2022, the Alkane Resources Ltd interest in these tenements (19.4%) was transferred to Australian Nickel Investments (ANI), whereby ANI now hold 10 interest.	red from cquired 3, es NL. In as 0%
	The key metric for tenements to be in good standing is that the minimum exp must be achieved. All tenements are in good standing.	enditure
Exploration done by other parties	Historical nickel exploration has been completed by Glencore PLC, XNA and	JBM.
Geology	The deposit forms part of the Cosmos Nickel Complex, which lies within the A Wiluna Belt of the central Yilgarn Craton, Western Australia.	Agnew-
	The genetic formation model for the Cosmos nickel deposit is the 'Kambalda- model where precipitation of nickel sulphides is interpreted to occur in chann komatiitic lava flows and/or lava tubes. This model proposes two dominant de types.	-style' elised eposit
	'Type 1' deposits are interpreted to have formed where the hottest lava in the a lava channel thermally erodes into a sulphidic substrate and massive sulph accumulate at the channel base. This high-grade primary formation style is a to the Cosmos, Cosmos Deeps, AM1, AM2, parts of AM5 and the Odysseus zones.	e centre of ides pplicable Massive
	However, the Type 1 deposits are often subject to mobilisation into structural when massive sulphide bodies behave plastically or even re-melt under the h metamorphic temperatures and pressures that are generated by local or regi tectonic faulting and/or folding events. Cosmos' Cosmos Deeps and the Ody Massive zone are likely examples of this remobilisation style.	sites high onal sseus
	'Type 2' deposits are interpreted to have formed from somewhat cooler and s flowing lavas than those envisaged for Type 1 deposits. In this model, the mi olivine is envisaged to crystallise from these cooler lavas, with the olivine gra settling to the channel's base shortly after the precipitation of sulphides. In the the coeval sulphides crystallise between the olivine grains giving rise to a dis to 'matrix' textured nickel sulphide mineralisation, that builds up from the cha This style of mineralisation is applicable to the AM5, AM6 and Odysseus diss zones at Cosmos.	slower neral ins is model seminated nnel base. seminated
	Cosmos' deposit's sulphide nickel assemblages are 'high tenor' meaning tha sulphides are dominated by the nickel bearing mineral pentlandite (Pe). The assemblages also contain the sulphide mineral pyrrhotite (Po), with minor an pyrite (Py) and chalcopyrite (Py), and in some deposits small concentrations nickel sulphides such as valleriite and millerite.	t the sulphide nounts of of rarer
	The mineralisation typically occurs in association with the basal zone of high cumulate ultramafic rocks.	MgO
	AM5 is ~700m southwest of Cosmos Deeps at ~700m below surface and ~3 dip from the lower limits of Mt Goode's disseminated mineralisation.	50m down
	AM5's massive nickel sulphide mineralisation has a down plunge extent of $\sim$ up to 60m extent along strike for typical plan slices. A much broader dissemine	400m and nated halo



SECTION 2 – AM5 – EXPLORATION RESULTS		
JORC Criteria	Explanation	
	occurs above the massive which has ~600m plunge extent. The nickel sulphide mineralisation has down plunge extent of ~400m and up to 60m extent along strike for typical plan slices. A much broader disseminated halo occurs above the massive which has ~600m plunge extent and plan thickness of up to ~100m. This disseminated zone is interpreted to have a central core of higher-grade mineralisation.	
	<ul> <li>AM5's base is coincident with the base of the lower ultramafic unit and comprises two sub-parallel steeply dipping and plunging lenses of mineralisation separated by a felsic volcanic. The AM5 massive mineralisation is interpreted to have been originally Type 1 basal primary style but has undergone subsequent folding and thrusting. Its massive mineralisation only averages ~1m in thickness, but in some tectonically induced overlapping locations, the average thickness increases to ~4m.</li> </ul>	
Drill hole information	• There are too many holes to summarise and the MRE gives the best balanced and unbiased assessment of the estimate.	
Data aggregation methods	No Exploration Results are being reported.	
Relationship between mineralisation widths and intercept lengths	No Exploration Results are being reported.	
Balanced reporting	• Exploration Results are not reported. The MRE gives the best and most balanced view of the drilling to date.	
Other substantive exploration data	No Exploration Results are being reported.	
Diagrams	Maps and sections are included in the report.	
Further work	No Exploration Results are being reported.	

Section 3 – AM5 – Mineral Resources			
JORC Criteria	Explanation		
Database integrity	<ul> <li>All data are entered using either spreadsheets or Maxwell's LogChief software for logging of drill hole data in the field on dedicated laptops.</li> </ul>		
	• Assay data in the form of .csv files from the primary assay laboratory ALS Chemex and the umpire assay laboratory Genalysis received by exploration are imported directly into DataShed.		
	• The database is currently administered by Rock Solid Data Management, who are based in WA and are an independent specialised database management company.		
	• The LogChief software provides the first level of data validation, using locked look-up tables for all data fields which have set codes attributed to them.		



Section 3 – AM5 – Mineral Resources		
JORC Criteria	Explanation	
	• The DataShed database uses validation look-up tables and trigger scripts to ensure that all numeric, date and code information is correct.	
	• All QAQC controls are reviewed and actioned after each submission.	
Site visits	• The Competent Person is an employee of IGO with over 10 years' experience estimating nickel sulphide orebodies and has undertaken several site visits to the Cosmos site to assess and inspect core. No issues were observed.	
Geological interpretation	• The AM5 deposit is hosted within an ultramafic unit and consists of disseminated nickel sulphide mineralisation as a high-grade core surrounded by medium-grade and low-grade zones.	
	Portions of AM5 have been mined.	
	<ul> <li>Ben Jupp from SRK Consulting undertook 3D modelling of the AM5 and AM6 deposits using the Leapfrog Geo 3D modelling package. Modelling consisted of mineralisation envelopes for disseminated and massive sulphide mineralisation, interpreted north– south fault structures and pegmatite intrusions.</li> </ul>	
	• The resultant mineralisation and wall rock models were extensively validated by the Competent Person. One of the main validation tools was a comparison of the SRK model with the pre-existing Xstrata model. The two models compared favourably.	
	• WSA geologists have undertaken several studies and drilling campaigns of the greater Cosmos Nickel Complex since its acquisition and the geology of the AM5 deposit is well documented and understood.	
	• The geological model is robust enough for the purposes of Mineral Resource estimation and the risk associated with the model being materially wrong is low.	
	<ul> <li>Surface and underground drill data obtained by Xstrata were used for this estimate. WSA has done surface drilling in the orebodies associated with AM5 but all direct AM5 targeted drilling was undertaken by previous owners.</li> </ul>	
	• No major assumptions were made with respect to the drill data. The data were collected in accordance with standard industry practices.	
	• Several alternative iterations of grade estimations using linear techniques were completed and critically assessed before finalising the Mineral Resource estimate.	
	• At all stages of the process the models were compared to the previously reported models to ensure an appropriate level of consistency between the previous (Xstrata) and the current interpretation. The modelling methodologies were similar enough for direct comparisons to be made.	
	• Geology is the overriding influencing factor in this Mineral Resource estimate. A robust digital geological model created by SRK forms the basis of the estimate.	
	• Grade and geometry continuity at AM5 are primarily influenced by intrusive, barren pegmatite dykes that penetrate the host ultramafic rocks and cross cut mineralisation in some locations.	
	• The pegmatites pinch and swell along strike/down dip and have a westerly dip of ~40 degrees.	



SECTION 3 – AM5 – MINERAL RESOURCES		
JORC Criteria	Explanation	
	<ul> <li>The pegmatites were dominantly observed to occur within the lower levels of the model area, with abundance observed to increase with depth (600 mRL).</li> </ul>	
	<ul> <li>These pegmatites have been carefully modelled using the vein modelling tool in Leapfrog tool using the GP lith 1 code and associated variants.</li> </ul>	
	<ul> <li>The pegmatite wireframes were carefully validated against the underlying data and a previous model by Xstrata before being used to deplete the mineralisation model at zero nickel grade.</li> </ul>	
	<ul> <li>The pegmatites are mainly bound by north–south trending, west dipping faults.</li> </ul>	
	<ul> <li>The faults appear to have limited offsets, or none.</li> </ul>	
	<ul> <li>Xstrata noted that the faults are in poor ground conditions.</li> </ul>	
	<ul> <li>SRK spent two days on site inspecting these faults in the core.</li> </ul>	
	<ul> <li>The faults are marked by rubble/fractured zones, with strong serpentinisation associated with talc as well as lizardite and antigorite forming along fracture planes.</li> </ul>	
	<ul> <li>The faults were modelled in Leapfrog and incorporated in the resource model.</li> </ul>	
	<ul> <li>Additional drilling and an independent geotechnical study are planned prior to commencing mining.</li> </ul>	
Dimensions	<ul> <li>The strike length of the AM5 disseminated block model is ~200m at the 9,628mRL.</li> </ul>	
	<ul> <li>The longest downdip distance is ~500m and the top of the orebody is ~600m below surface.</li> </ul>	
	<ul> <li>Width is variable and ranges between10m and ~120m.</li> </ul>	
Estimation and modelling techniques	<ul> <li>The estimation was done using the following main software packages:</li> <li>Leapfrog Geo</li> </ul>	
	<ul> <li>Datamine Studio RM</li> <li>Snowden Supervisor</li> </ul>	
	<ul> <li>Wireframing of grade and geological domains using underground and surface drilling was completed in Datamine and Leapfrog.</li> </ul>	
	<ul> <li>Sample data were composited to 1m downhole lengths and flagged on domain codes generated from 3D mineralised wireframes and 3D lithological wireframes.</li> </ul>	
	<ul> <li>Directional variography was performed for nickel for each of the domains using Snowden Supervisor software.</li> </ul>	
	<ul> <li>All estimation was completed at the parent cell scale to avoid any potential geostatistical support issues.</li> </ul>	
	<ul> <li>Top-cut investigations were completed using the top-cut analytical tool in Supervisor and no top-cuts were applied during estimation. Low-grade and high-grade nickel domains were used instead.</li> </ul>	
	<ul> <li>This model is the second Mineral Resource estimate for the AM5 nickel sulphide deposit. The first was done by Xstrata.</li> </ul>	



Section 3 – AM5 – Mineral Resources		
JORC Criteria	Explanation	
	<ul> <li>The re due to</li> </ul>	source model volumetrics were compared to the previous model. Variances are inclusion of additional data and varying modelling techniques.
	• The Al	M5 deposit was partially mined and production data is available.
	Nickel	is currently considered the only economic product that will be recovered.
	<ul> <li>The Fe and bo been c</li> </ul>	e: Mg ratio is recognised as influencing standard nickel flotation mill recoveries oth elements have been interpolated into the block model. The Fe: Mg ratio has calculated for each parent block in preparation for further metallurgical work.
	<ul> <li>Sulphu</li> </ul>	ur has been estimated into the block model.
	<ul> <li>A prote blocke</li> </ul>	o model was constructed using parent blocks of 5mE × 5mN × 5mRL and sub- d to 0.005m × 1.25m × 1.25m.
	• The bl	ock size was selected on the basis of drill hole spacing and domain geometry.
	<ul> <li>Width used to</li> </ul>	along the X axis is highly variable and Datamine's 'resolution=0' parameter was o calculate the subcell size in the easting direction exactly.
	<ul> <li>Drill ho supple</li> </ul>	ble spacing varies but is nominally 20m along strike and the data is emented by data from ore drives in mined areas.
	<ul> <li>Parent may a</li> </ul>	t cell estimation was used to avoid any potential statistical support issues that rise from using subcells.
	<ul> <li>The size varioge sample 31mZ, respectively.</li> </ul>	ze of the search ellipse was based on the results of QKNA and the nickel raphy for each domain. Three nested search passes were used with most of the es falling within the first two passes. The first pass was set at 28mX × 21mY × with a minimum and maximum number of samples set at 4 and 36, stively.
	<ul> <li>A max prever influen</li> </ul>	imum number of samples from any particular borehole was set at 30. This nts a disproportionate number of samples from any borehole having an undue nce on the estimate.
	No ass	sumptions were made regarding the modelling of selective mining units.
	<ul> <li>Longh off gra</li> </ul>	ole stoping is the planned mining technique. Mining will be controlled by a cut- de and minimum mining width.
	<ul> <li>No cor observ</li> </ul>	relation between geochemical elements other than sulphur and nickel was red.
	• Minera	alised zones were digitised using explicit and implicit techniques.
	<ul> <li>Each versa.</li> </ul>	wireframe is representative of a grade domain and used in compositing and ting to ensure high grades were not smeared into the low-grade zones and vice
	• Five p	rimary geological and geostatistical mineralised domains were modelled:
	- Hiu - Mi - Mi - Lo - Ma	gh grade (>2.0% Ni) d-grade (<2.0% Ni) d to low grade (< 1.5% Ni) w grade (<1.0%Ni) assive sulphide domain.
	• Estima	ation validation techniques included:
	— vis	sual comparison of the composites and estimated blocks in section and plan,



SECTION 3 – AM5 – MINERAL RESOURCES		
JORC Criteria	Explanation	
	<ul> <li>graphs of estimation pass number versus percentage filled,</li> <li>swath plots of the composite grades vs block model grades,</li> <li>and swath plots of kriging variance, kriging efficiency and slope of regression.</li> <li>Jack-knifing of the block model attributes to the informing drill hole followed by statistical analysis</li> <li>Grade and tonnage comparisons of the existing MRE and the previous MRE</li> </ul>	
Moisture	Tonnages were estimated on a dry basis.	
Cut-off parameters	• The Mineral Resource is reported above a 1.5% Ni cut-off grade for disseminated material and 1.0% Ni for massive sulphide material.	
Mining factors or assumptions	• The mining method selected is top-down, longhole stoping with paste backfill, with a centre-out mining sequence.	
Metallurgical factors or assumptions	<ul> <li>The processing plant will consist of a tertiary crushing circuit to reduce the ore size to 12mm before ball milling to P80 106 µm. Froth flotation will then be used to separate the valuable minerals as a concentrate. The concentrate will be reground to 40 µm in an IsaMill<sup>™</sup> prior to cleaner flotation to produce final product concentrate. Ball mill comminution and froth flotation are commonly used in mineral processing to treat nickel sulphide ores.</li> </ul>	
	• The final concentrate will be filtered using a plate and filter and stored in the existing concentrate storage shed at Cosmos prior to being trucked to port at Geraldton for sale.	
	• The Competent Person has taken metallurgical factors into account including the nature of the ore and the influence of elements such as MgO and FeO.	
Environmental factors or assumptions	<ul> <li>Potential waste and process residue disposal sites have been identified during a pre- feasibility study and are not expected to deviate significantly from previous sites used during previous open pit and underground mining at Cosmos.</li> </ul>	
	• Tailings will be used for paste fill underground, with the excess tailings being deposited in the existing tailings storage facility (TSF) along with the Odysseus tailings. Water will be recovered from the TSF or re-used in the processing plant.	
Bulk density	<ul> <li>Bulk densities were determined by the independent laboratory using industry standard methods (pycnometer).</li> </ul>	
	• All data used in the Mineral Resource estimate are from competent fresh rock. Void spaces within the mineralised zones are not material.	
	• Over 4,000 composited pycnometer-derived specific gravity (SG) determinations were estimated into the block model.	
Classification	<ul> <li>Mineral Resource classification is based on a combination of geological knowledge and confidence in the interpretation, data distribution, estimation passes, kriging efficiency (KE) and slope of regression (slope) data analysis.</li> </ul>	



SECTION 3 – AM5 – MINERAL RESOURCES		
JORC Criteria	Explanation	
	• The mineralisation at AM5 is classified as Indicated and Inferred Mineral Resources under the guidelines of the JORC Code. No blocks were classified as Measured Mineral Resource.	
	<ul> <li>The definition of mineralised zones is based on a high level of geological understanding by Xstrata and WSA geologists.</li> </ul>	
	• All relevant factors have been considered in this estimate, relevant to all available data.	
	• The Mineral Resource estimate reflects the Competent Person's view of the deposit and the risks associated with the grade and structural continuity.	
Audits or reviews	• The Mineral Resource estimate has not been independently audited or reviewed in its entirety.	
	<ul> <li>Ben Jupp (SRK Senior Consultant) designed the wireframe volumes used for estimation. His work was peer reviewed by Danny Kentwell (SRK Principal Geostatistician).</li> </ul>	
Discussion of relative accuracy/ confidence	• A well-established confidence algorithm was applied to the nickel estimate as a guide to classification.	
	• The algorithm ranks the following Kriging Quality parameters for each block:	
	<ul> <li>Number of samples used to estimate</li> <li>Kriging efficiency</li> <li>Search volume.</li> </ul>	
	• Slope of regression was also reviewed for each block before a nominal classification code was applied.	
	• The classification code provides a guideline for further classification based on geological and mineralisation continuity.	
	The Mineral Resource Statement relates to local estimates.	
	• The AM5 deposit has been mined and global grade estimates are consistent with production data.	

## MT GOODE JORC CODE TABLE 1 CHECKLIST

SECTION 1 – MT GOODE – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
Sampling techniques	• The Mt Goode deposit was defined by 97 diamond drill (DD) holes and 16 reverse circulation (RC) holes on a nominal 40 m grid spacing.	
	• The composite file used in the Mineral Resource estimate contained a total of 10,307 composites, split into 12 domains.	
	• Homestake Gold carried out exploration between 1997 and 200, but information on the sampling protocols employed are limited.	



SECTION 1 – MT GOODE – SAMPLING TECHNIQUES AND DATA	
JORC Criteria	Explanation
	• Most of the data used in the Mineral Resource are from work carried out by Jubilee Mines NL. Jubilee used industry standard protocols.
	• Sample representivity was assured by an industry standard QAQC program.
	• All samples were prepared and assayed by an independent commercial laboratory whose instruments are regularly calibrated.
	• Diamond core was marked at 1 m intervals and sample lengths are also typically 1 m.
	<ul> <li>Sample boundaries were selected to match the geological, alteration and mineralisation boundaries.</li> </ul>
	• Sampled mineralisation intervals were sent to a commercial laboratory for crushing and grinding before assaying.
Drilling techniques	<ul> <li>Drilling was a mixture of RC and DD, with DD making up the main proportion of the resource. The DD comprised NQ2 and HQ sized core.</li> </ul>
	All drilling was from surface and core was structurally oriented.
Drill sample recovery	<ul> <li>Most of the resource was defined by diamond drilling with high core recovery (&gt;95% on average).</li> </ul>
	Core recoveries are recorded in the database.
	• Diamond core was reconstructed into continuous runs on an angle iron cradle for orientation marking.
	• Depths were checked against the depth given on the core blocks.
	• The consistency of the mineralised intervals suggests there was no sample bias due to material loss or gain.
Logging	All Homestake Gold diamond drill holes were re-logged by Jubilee Mines and selected intervals were resampled.
	<ul> <li>All geological logging was carried out to a high standard using well-established geology codes.</li> </ul>
	• Geotechnical data, including joints, RQD and core quality, were recorded.
	• From 2003 to 2005, all logging was recorded in hardcopy and TOUGHBOOK PCs.
	Core was photographed in dry and wet forms.
	All drill holes were logged in full.
Sub-sampling techniques and sample preparation	<ul> <li>Diamond core was cut by the field crew on site using either an Almonte or manual core saw.</li> <li>Ore zones were sampled as quarter core and the surrounding rock was sampled as half core – in both cases, the right-hand side piece of core was taken as the sample.</li> </ul>



SECTION 1 – MT GOODE – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Exp	lanation
	•	The field crew prepared and inserted the QAQC certified reference materials into calico bags prepared for the sample string prior to core cutting. For ore zone sampling, the remaining quarter core was taken as the duplicate sample.
	•	To create a field duplicate, the core was cut again, into quarter core.
	•	Additional procedures were implemented for sampling ore zone batches to ensure confidence in the accuracy of sampling.
	•	The diamond core sampling method used by Homestake Gold is not known.
	•	The RC sampling method used by Homestake Gold is not known.
	•	The sample preparation of diamond core followed industry best practice, which involved oven drying, coarse crushing and pulverising.
	•	The sample preparation was carried out by a commercial certified laboratory.
	•	The sample preparation technique is well established and appropriate for nickel sulphide deposits.
	•	Selected Geostats and ORE certified reference materials were used to cover the known grade range.
	•	Field duplicates were routinely submitted to test sample precision.
	•	Blank samples were routinely submitted to test sample contamination.
	•	Pulp duplicates obtained from ALS Laboratories were sent to Genalysis for umpire check analysis.
	•	Sample representivity was assured through methods previously discussed.
	•	Laboratory QAQC assaying, external field duplicates and standards were stored in the database. All QAQC data were reviewed and reported on a monthly basis for nickel and copper.
	•	Validation failures highlighted via the nickel assaying were queried with the laboratory responsible, with explanations and corrective actions reported in the following month's QAQC report.
	•	The sample sizes were considered appropriate based on mineralisation style (disseminated nickel sulphide), thickness and consistency of the mineralised intersections, sampling methodology and per cent value ranges for the primary elements.



SECTION 1 – MT GOODE – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
Quality of assay data and laboratory tests	All samples were assayed by an independent certified commercial laboratory.	
	• The laboratory used is experienced in the preparation and analysis of nickel sulphide ores.	
	• Samples were analysed by ALS (Perth) for Ag, Al, As, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, S, Ti, Zn and Zr.	
	• Genalysis (Maddington) was the umpire laboratory for multi-element (Ag, Al, As, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, S, Ti and Zn) umpire check analysis on pulps provided by ALS. Genalysis was selected because its laboratory can do low level PGM detection analysis and it performed well in the Geostats global round-robin laboratory rankings.	
	• The principal analytical method used was ME-ICP61s, which analyses 15 elements to provide data for geological, metallurgical, mining and environmental modelling. The samples were analysed by three-acid digestion, HCI leach and a combination of ICP-MS and ICP-AES finishes. Base metals with concentrations exceeding 1% are assayed using OG62 analysis. Ore grade determinations (>1% trigger) are used for Ni, Cu, Pb and Zn, or when specified by Jubilee Mines' geologists. This method uses two-acid digestion with an ICP or AAS finish.	
	• The only information on analytical method for historical holes relates to holes drilled in the 2000 period. From the annual report, the method of analysis was multi-acid digestion with ICP-OES for determination of Ni, Cu, Co, Cr, Mg, Al and As in fresh samples, and Fe and Mn in oxide samples.	
	• Jubilee Mines re-assayed selected ore intercepts and found them to be comparable with historical intercepts.	
	<ul> <li>No geophysical tools or handheld XRF instruments were used to determine any element concentrations that were subsequently used for Mineral Resource estimation purposes.</li> </ul>	
	• Certified reference materials were included in all batches dispatched at an approximate frequency of 1 per 25 samples. Field duplicates were collected frequently and duplicate pulps were submitted regularly to the umpire laboratory.	
	• Accuracy and precision were assessed using industry standard procedures such as control charts and scatter plots.	
	• Evaluations of standards were completed on a monthly basis; control plots and a paper trail of action taken on issues arising were stored at Jubilee Mines' head office.	
Verification of sampling and assaying	<ul> <li>Jubilee Mines resampled strategic intercepts to check grades and intercept widths in the Homestake Gold core.</li> </ul>	
	None of the holes in the recent drilling programs were twinned.	
	• The exploration department used Field Marshall software (Micromine) for in-field logging of drill hole data onto dedicated laptops. This software provides the first level of data validation – it uses locked look-up tables for data fields which have set code sets attributed to them.	
	• The SQL database uses validation look-up tables and trigger scripts to ensure that all numeric, date and code information is correct. The database rejects any duplications of the key sample number and hold number fields across a broader project area.	



SECTION 1 – MT GOODE – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
	<ul> <li>Validation failures highlighted via the nickel assaying were queried with the laboratory responsible, with explanations and corrective actions reported in the following month's QAQC report.</li> <li>No adjustments to assay data used for this Mineral Resource estimate were made</li> </ul>	
Location of data points	• The method to determine collar surveys for historical drill holes is unknown, apart from two BERC generation holes which have been picked up by Cosmos Survey. Apart from these two holes, the exact locations of the drill holes are not known since the survey type was not described in the database and the holes could not be picked up after the Company's acquisition because the area had been rehabilitated.	
	<ul> <li>The original surfaced survey control was established by Spectrum Surveys (Kalgoorlie). Several DGPS stations installed have been used by survey and mining. Control has been checked by Jubilee Mines' surveyors traversing from Cosmos to Mt Goode using conventional traversing techniques.</li> </ul>	
	<ul> <li>Survey control has been established to within industry standards, typically 1 in 500. The survey instrument used was a Leica TCRA11105 with instrument specifications for survey station control of 2mm + 2ppm and 5'. For collar pickup, the instrument specifications were 10mm + 2ppm and 5'. Interpretation of the collar position could be ±0.1m with a 25mm centring error during normal pickup operations. The usual convention was to pick up the hanging wall side of the drill hole collar.</li> </ul>	
	• Jubilee Mines' surface holes are initially oriented based on GPS and DGPS locations and compass set-up, using the AGD84 datum. After completion of the holes, the holes have been picked up by Jubilee Mines' surveyors or Spectrum Surveys using local survey control datum points installed by Spectrum Surveys.	
	<ul> <li>The downhole survey method used for historical holes is unknown (apart from BERC0319 – gyroscope).</li> </ul>	
	<ul> <li>Jubilee Mines' downhole surveys were mostly done by gyroscope.</li> </ul>	
	<ul> <li>A Gemcom database was defined to manage the data for Mineral Resource estimation. While the AMG location data provided are maintained, a transformation to mine grid for Northing and Easting was applied (AMG to Mine Grid, AMG X -250,000; AMG Y - 6,900,000). The elevation remains the same.</li> </ul>	
	No topographic control was applied.	
Data spacing and distribution	<ul> <li>Drill holes were spaced at approximately 40m (Northing) × 40m grid for most of the Mineral Resource (split into Measured, Indicated and Inferred).</li> </ul>	
	• The drill hole samples were composited to a regular downhole length of 1m in all 12 domains.	
Orientation of data in relation to geological structure	<ul> <li>The Mt Goode deposit comprises 12 domains with varying strikes and dips as follows:</li> <li>Domains 1 and 2 strike 5°, dip ~76° east and plunge 40° towards the south.</li> <li>Domains 3 and 4 strike 140°, dip ~74° east and plunge 13° towards the southeast.</li> <li>Domains 5 and 6 strike 120° and dip ~80° southwest.</li> <li>Domains 7 and 8 strike 150° and dip ~47° northeast.</li> <li>Domains 9 and 10 strike 160°, dip ~72° and plunge 13° towards the southeast.</li> <li>Domains 11 and 12 strike 140° and dip ~75° northeast.</li> </ul>	



SECTION 1 – MT GOODE – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
	<ul> <li>Most of the drilling was conducted from east to west.</li> <li>No orientation-based sampling bias has been observed in the data.</li> </ul>	
Sample security	• All core samples were transported from site to Perth and then to the assay laboratory by an independent transport contractor.	
Audits or reviews	<ul> <li>Detailed geological interpretation and data validation were provided by Digital Rock Services and independently reviewed by the Technical Services Group.</li> </ul>	

SECTION 2 – MT GOODE – EXPLORATION RESULTS	
JORC Criteria	Explanation
Mineral tenement and land tenure status	<ul> <li>The Cosmos Nickel Complex comprises 26 tenements covering 9,2262 ha. The tenements include mining leases and miscellaneous licences.</li> </ul>
	• The Company is 100% owner of 23 tenements which were acquired from Xstrata Nickel Australasia in October 2015. The remaining three tenements are subject to a joint venture with Alkane Resources NL (WSA's interest is 80.6%).
	All tenements are in good standing.
Exploration done by other parties	• Not applicable to the Resource and Reserves statement.
Geology	• The deposit forms part of the Cosmos Nickel Complex, which lies within the Agnew- Wiluna Belt of the central Yilgarn Craton, Western Australia.
	• The deposit style is komatiite hosted, disseminated to massive nickel sulphides.
	<ul> <li>The mineralisation typically occurs in association with the basal zone of high magnesium oxide (MgO) cumulate ultramafic rocks.</li> </ul>
	• Many of the higher-grade orebodies in the Cosmos Nickel Complex show varying degrees of remobilisation and do not occur in a typical mineralisation profile.
Drill hole Information	Not applicable to the Resource and Reserves statement.
Data aggregation methods	Not applicable to the Resource and Reserves statement.
Relationship between mineralisation widths and intercept lengths	Not applicable to the Resource and Reserves statement.
Balanced Reporting	Not applicable to the Resource and Reserves statement.
Other substantive exploration data	Not applicable to the Resource and Reserves statement.



SECTION 2 – MT GOODE – EXPLORATION RESULTS		
JORC Criteria	Explanation	
Diagrams	Included in report.	
Further work	• No work yet planned.	

SECTION 3 – MT GOODE – MINERAL RESOURCES		
JORC Criteria	Explanation	
Database integrity	<ul> <li>Data were entered using Field Marshall software (Micromine) for in-field logging onto dedicated laptops.</li> </ul>	
	• Assay data in the form of .csv and .sif files received by exploration from the primary assay laboratory (ALS Chemex) and the umpire laboratory (Genalysis) were imported directly into the database whenever possible.	
	• The Field Marshall software provides the first level of data validation – it uses locked look-up tables for data fields which have set code sets attributed to them.	
	• The SQL database uses validation look-up tables and trigger scripts to ensure that all numeric, date and code information is correct. The database rejects any duplications of the key sample number and hold number fields across a broader project area.	
Site visits	• The Mineral Resource estimate was completed by site personnel at the time. The current Competent Person visited site during the WSA drilling campaign and verified that the drilling and sampling was being done in accordance with WSA protocols.	
Geological interpretation	• The geological interpretation is considered sound, being based on drill hole spacing and the understanding of similar deposits in the Mt Goode metadunite area. The geological interpretation was created by Digital Rock Services on 40 m spaced sections and 20 m spaced flitch plans, using a defined geological coding system based on long-term exploration in the project area.	
	• The deposit lies in a southwest kink of a generally north–south striking western ultramafic and is bound to the east by a felsic porphyry. The disseminated nickel sulphide mineralisation forms a broad lens in the Mt Goode metadunite, a common locus for sulphide deposition in an intrusive ultramafic. The original primary magmatic nickel-sulphide mineralisation is fine-grained lobate disseminated pentlandite grains. Subsequent serpentinisation has had an impact on the form, distribution and liberation characteristics of these magmatic nickel sulphides.	
	<ul> <li>Lithogeochemistry and stratigraphic interpretation have been used to assist identification of rock types.</li> </ul>	
	• The 0406 model was built on a new interpretation by Digital Rock Services which differed from the previous interpretation (John Hicks) with respect to the geometry of the main and footwall higher grade zones. The Digital Rock Services interpretation includes a more detailed analysis of the domains based on nickel grade and S: Ni ratios. These parameters suggested changes to the locations of the ore boundaries and geometry of the ore zone.	
	• The Mineral Resource estimate was based on a robust geological model which was created internally by the Technical Services Group. Domaining involved definition of	



SECTION 3 – MT GOODE – MINERAL RESOURCES	
JORC Criteria	Explanation
	<ul> <li>the hanging wall and footwall contacts of the mineralised zone, which were used to constrain the boundaries of the low-grade halo and high-grade core. Boundaries for oxide and transitional material modelled from drill hole logging data were also used to subdomain the mineralisation. The modelling was completed with a level of confidence proportionate to the Mineral Resource classification. The extents of the geological model were constrained by drill hole intercepts and there was minimal extrapolation of the geological contacts beyond the drill data extents.</li> <li>The presence of felsic dykes within the ultramafic sequence, and faulting, are factors affecting geological continuity. These geological discontinuities have been modelled</li> </ul>
	and grade discontinuities have been accounted for in the estimation modelling.
Dimensions	• The strike length of the Mt Goode deposit varies considerably, but is up to 525m in Domains 9 and 10. The largest distance from the top of mineralisation to the base (Domains 9 and 10) is approximately 560 m. The deposit width varies between domains from a minimum of 2m to a maximum of 4m, with a mean of 40m.
Estimation and modelling techniques	<ul> <li>Grade estimation for nickel and sulphur was done using the Ordinary Kriging method and GEMS v6.0 software. The method was considered appropriate due to the drill hole spacing and the nature of the mineralisation.</li> </ul>
	<ul> <li>All estimation was completed at the parent cell scale to avoid any potential geostatistical support issues.</li> </ul>
	• Sample data were composited to 1m downhole lengths and flagged on domain codes.
	• Top-cut investigations were completed and no top-cuts were applied based on grade distribution, coefficient of variation and the previous methodology used at Cosmos.
	<ul> <li>Sample data were flagged using domain codes generated from Digital Rock Services' 3D mineralised wireframes based on 1.45% Ni (Low-grade halo) and 0.75% Ni (high- grade core).</li> </ul>
	<ul> <li>Directional variography was performed for nickel using Snowden Visor v6.00.16 software. Nugget values are typical for the mineralisation type (Ni = 20%–40% of the total variance). Continuity ranges for nickel varied from 50m to 90m in the direction of preferred mineralisation orientation.</li> </ul>
	• This Mineral Resource estimate was an update of a Mineral Resource estimate undertaken in June 2004 and was extensively validated against the June 2004 Mineral Resource estimate.
	No assumptions about recovery of by-products were made.
	There are no deleterious elements.
	<ul> <li>A proto model was constructed using a 10mE × 20mN × 10mRL parent size. The model was built using a separate folder for each domain, which was then combined for reporting. Each block can then have multiple domains and grades. This eliminates grade bleeding into other domains as it honours the geological and grade continuities. Drill spacing varies but was nominally 40m × 40m.</li> </ul>
	<ul> <li>The size of the search ellipse was based on the nickel variography for each domain. Three search passes were used: the first and second passes vary between 60m × 90m × 20m and 90m × 130m × 40m in the X, Y and Z directions, respectively. The</li> </ul>


SECTION 3 – MT GOODE – MINERAL RESOURCES							
JORC Criteria	Exp	Explanation					
		third pass used a sea X, Y and Z directions,	rch volum respectiv	e 80m × 12 ely.	:0m × 26	Sm and 1	50m × 160m × 52m in the
	•	No selective mining u	nits were	assumed in	the est	imate.	
	•	No assumptions abou	t correlati	on betweer	variabl	es were r	nade.
	•	The geological interpr lithogeochemical elem deformation and prese domains.	etation wa nents. The ence of fe	as develope e extent of t Isic intrusiv	ed using he ultrar es were	geologic nafic bou used to r	al, structural and indary, ductile and brittle refine the mineralised
	•	The hanging wall and surface were used as within the grade wirefi	footwall n hard bour ames we	nineralisation daries dur re informed	on conta ing the e with nic	cts, as w estimatior kel grade	ell as the oxide/fresh n process, and only blocks es.
	•	Geostatistical investig cutting/capping.	ation for t	he grade di	stributio	n negate	d the requirement for grade
	•	Estimation validation t the grade of the block efficiency and slope o	echnique model, a f regressi	s included s nd visual ch on.	swath pl necks of	ots of the the krigir	composite grades versus ng variance, kriging
Moisture	•	Tonnages were estim	ated on a	dry basis.			
Cut-off parameters	•	The mineralisation envelope was determined using a 0.45% Ni cut-off for the low- grade halo and a 0.75% Ni cut-off for the high-grade core.					
	•	The Mineral Resource is reported below at a lower cut off of $0.40\%$ Ni grade and $1.0\%$ Ni grade respectively. Two cut-offs were selected to account for the uncertainty in the potential mining method – i.e., Open Pit or Underground or a combination of both.					
			Cut-off	Mass (Mt)	Ni %	Ni kt	
			0.4	52.94	0.62	327	-
			1.0	4.40	1.14	50	-
		Note: Block model use	ed is xna_	_051_mtgoo	bde_v1_	bmf	]
Mining factors or assumptions	•	No mining factors app	lied and t	he final min	ing met	hod is sul	bject to a mining study.
Metallurgical factors or assumptions	•	No metallurgical facto Metallurgical characte provided by Dunstan l	rs or assu ristics cal Vetallurgi	Imptions we culated in t cal Service	ere appli he block s.	ed to the model a	final grade reported. re from information
	•	Regression analysis v Estimated Recovery a sulphur grades. The e final block model.	vas used t and Estima estimated	to calculate ated Conce concentrate	the Esti ntrate G e grade a	imated Su rade fron and recov	ulphide Grade (SONI), n the estimated nickel and very were included in the



SECTION 3 – MT GOODE – MINERAL RESOURCES				
JORC Criteria	Explanation			
Environmental factors or assumptions	No environmental factors or assumptions were investigated.			
Bulk density	• Bulk density was determined using the water immersion (1.5% of the measurements) and pycnometer (98.5% of the measurements) methods.			
	• Bulk density determination was derived from a mixture of solid and pulverised material.			
	• Both determination methods account for potential void spaces and moisture.			
	<ul> <li>Most of the assay intervals have pycnometer-derived bulk density measurements. Bulk density in the model was determined by an algorithm developed for the relationship between nickel grades and bulk density.</li> </ul>			
Classification	• The Mt Goode Mineral Resource was classified as Measured, Indicated and Inferred on the basis of drill hole spacing, geological continuity and Kriging quality parameters.			
	<ul> <li>The definition of mineralised zones was based on a high level of geological understanding.</li> </ul>			
	<ul> <li>All relevant factors have been considered in this estimate, relevant to all available data.</li> </ul>			
	• The Mineral Resource estimate reflects the Competent Person's view of the deposit and the risks associated with the grade and structural continuity.			
Audits or reviews	<ul> <li>Internal review was undertaken by Russell Panting and Peter Langworthy. Multi- element variography review was undertaken by Jacqui Coombes of Snowden Mining Industry Consultants.</li> </ul>			
Discussion of relative accuracy/ confidence	• The geological and grade continuity of the Mt Goode deposit is well understood and the mineralisation wireframes used to build the block model have been designed using all available drill data.			
	<ul> <li>Post-processing block model validation was extensively undertaken using geostatistical methods before the Mineral Resource was reported.</li> </ul>			
	• The Mineral Resource Statement relates to local estimates of tonnes and grade.			
	<ul> <li>No production data were available for comparison (Mt Goode has not been mined). The WSA drilling campaign was done in 2021 and the geological logging and assay results compared favourably with nearby older holes and model variables.</li> </ul>			



## FLYING FOX JORC CODE TABLE 1 CHECKLIST

	SECTION 1 – FLYING FOX – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
Sampling techniques	<ul> <li>The Flying Fox deposit is sampled using diamond drilling (DD) on nominal 50m × 30m grid spacing.</li> </ul>
	• Grade control data, which include sludge drilling and short hole DD results as well as face mapping, are used to build the preliminary geological models.
	<ul> <li>Only assay results (using an independent certified commercial laboratory) from DD holes are used to estimate grades into the resource block model. Handheld XRF spectrometers are used to gain a semi-quantitative nickel grade when core is first logged. These are replaced in the database by wet chemistry derived assay grades once received and are not used for resource estimation purposes.</li> </ul>
	<ul> <li>Samples are taken in accordance with well-established and properly documented company protocols.</li> </ul>
	<ul> <li>Sample representivity is assured by an industry standard internal QAQC program that includes certified reference standards, blanks and replicate samples.</li> </ul>
	<ul> <li>QA results are routinely assessed by WSA Geologists and quality controls include re- assaying batches of samples if the QA results are not within predetermined precision, accuracy and contamination thresholds.</li> </ul>
	<ul> <li>All samples are prepared and assayed by an independent commercial laboratory whose analytical instruments are regularly calibrated.</li> </ul>
	<ul> <li>Surface DD core is marked at 1m intervals and sample lengths are typically also 1m. Grade control drilling typically uses 0.5m sample lengths through the mineralised zone due to whole core sampling being carried out.</li> </ul>
	<ul> <li>Sample boundaries are selected to match the main geological and mineralisation boundaries.</li> </ul>
	<ul> <li>Sampled mineralisation intervals are sent to a commercial laboratory for crushing and grinding before assaying.</li> </ul>
Drilling techniques	<ul> <li>DD comprises NQ2-sized core for underground and surface drilling and LTK-sized core for the grade control drilling.</li> </ul>
	• A standard tube is used in most cases unless core recovery issues are expected when a triple tube is used (typically in the oxidised zones).
	<ul> <li>All surface drilled core is oriented using ACT II control panels and ACT III downhole units. Grade control drilling is not oriented.</li> </ul>
Drill sample recovery	• Core recoveries are logged and recorded in the database. Overall recoveries are >99% and there are no core loss issues or significant sample recovery problems in the sulphide zone.
	<ul> <li>DD core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers.</li> </ul>
	• The bulk of the resource is defined by DD core drilling which has high core recoveries.



	SECTION 1 – FLYING FOX – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
	• The massive sulphide style of mineralisation and the consistency of the mineralised intervals are considered to preclude any issue of sample bias due to material loss or gain.
Logging	<ul> <li>Geological logging is carried out to a very high level of detail, and the logging is peer reviewed.</li> </ul>
	• Geotechnical data such as rock quality designation (RQD) and number of defects (per interval) are recorded.
	<ul> <li>Information on structure type, dip, dip direction, alpha angle, beta angle, texture, shape, roughness and fill material is captured.</li> </ul>
	• Logging of DD core and RC samples records lithology, mineralogy, mineralisation, structural data (DD holes only), weathering, colour and other features of the samples.
	Core is photographed in both dry and wet form.
	<ul> <li>All drill holes are logged in full. The Flying Fox database contains over 83,000 geological entries.</li> </ul>
Sub-sampling techniques and sample preparation	• Core is cut in half on site (except for underground grade control core) by diamond saw blades.
preparation	• Surface derived drill holes are halved again with one quarter sent for assay and one quarter preserved as a geological archive.
	• Underground exploration derived drilling core is not halved again. Half of the cut core is sent for assay and the other half is preserved as a geological archive.
	• Underground grade control derived drilling core is not cut. Full core is sent for assay.
	• All core is prepared and assayed by an independent commercial certified laboratory. Samples are crushed, dried and pulverised to produce a sub-sample for analysis by four-acid digest with an ICP-AES finish.
	• No non-core samples were taken for the purpose of this Mineral Resource estimate.
	<ul> <li>The sample preparation of DD core follows industry best practice that involves oven drying, coarse crushing of the core sample down to ~10 mm followed by pulverisation of the entire sample (total prep) using LM5 grinding mills to a grind size of 90% passing 75 µm. Sample preparation is carried out by a commercial certified laboratory.</li> </ul>
	• The sample preparation technique is well established and appropriate for nickel sulphide deposits.
	• Over and above the commercial laboratory's internal QAQC procedures, field Ni standards ranging from 0.7% to 11.5% to test assay accuracy are included.
	Duplicates are routinely submitted to test sample precision.
	• Standards are fabricated and prepared by Geostats Pty Ltd, using high-grade nickel sulphide ore.
	Blank samples are routinely submitted to test for sample contamination.
	• Pulp duplicates obtained from the primary laboratory are taken on a 10% by volume basis and submitted to a secondary laboratory as an additional QAQC check.



	SECTION 1 – FLYING FOX – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
	• Sample representivity is assured through the methods previously discussed.
	• The site Geologists are responsible for the management of the quality assurance program, and assay results that do not conform are immediately brought to the attention of the relevant commercial laboratory so that remedial action can be taken. Typically, this type of action will involve re-assaying the relevant batch of samples.
	• A monthly QAQC report is generated and distributed to the relevant stakeholders for review and follow-up action.
	• The sample sizes are appropriate based on style of mineralisation (massive sulphide), thickness and consistency of the intersections, sampling methodology and percent value assay ranges for the primary elements.
Quality of assay data and laboratory tests	<ul> <li>All samples are assayed by an independent certified commercial laboratory experienced in the preparation and analysis of nickel sulphide ores.</li> </ul>
	<ul> <li>Samples are dissolved using four-acid digest (nitric, perchloric, hydrofluoric and hydrochloride acids) to destroy silica.</li> </ul>
	<ul> <li>Samples are analysed for AI (0.01%), As (5ppm), Co (1ppm), Cu (1ppm), Fe (0.01%), Cr (1ppm), Mg (0.01%), Ni (1ppm), S (0.01%), Ti (0.01%) and Zn (1ppm) using an ICP or AAS (typical detection limits in brackets).</li> </ul>
	<ul> <li>No geophysical tools or handheld XRF instruments were used to determine any element concentrations that were subsequently used for Mineral Resource estimate purposes.</li> </ul>
	• Standards and blanks were routinely used to assess company QAQC (112pprox 1 standard for every 15-20 samples). Duplicates were taken on a 10% by volume basis (on underground drilling only), and field-based umpire samples were assessed on a regular basis. Accuracy and precision were assessed using industry standard procedures such as control charts and scatter plots. In occasional cases where a sample did not meet the required quality threshold, the batch was re-analysed.
Verification of sampling and assaying	<ul> <li>Historically, Newexco Services Pty Ltd independently visually verified significant intersections in the DD core.</li> </ul>
	No holes were twinned in the recent drilling programs.
	• Primary data was collected using Excel templates using look-up codes on laptop computers. All data was validated by the supervising geologist and sent to Newexco for validation and integration into an SQL database.
	• No adjustments were made to assay data compiled for this Mineral Resource estimate.
Location of data points	<ul> <li>Hole collar locations were surveyed. The Leica GPS1200 used for all surface work has an accuracy of +/- 3cm.</li> </ul>
	• A two-point transformation is used to convert the data from MGA50 to Local Grid and vice versa. Points used in transformation:
	<ul> <li>MGA50 Points yd1='6409502.17' xd1='752502.175' yd2='6409397.856' xd2='753390.591'</li> <li>Local Grid Points ym1='28223.59'xm1='33528.771'ym2='28111.84'xm2='34415.995'</li> </ul>



	SECTION 1 – FLYING FOX – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
	• The accuracy of the pillars used in WSA's topographical control networks is within the Mines Regulations accuracy requirement of 1:5,000 for control networks.
Data spacing and distribution	• Drill holes were spaced at a113 15m (northing) × 15m grid for the areas that would be affected by mining in the next two years and nominally 30m × 30m for areas that will be affected by mining in the subsequent years.
	• The extensive drill program, coupled with information derived from underground observations and previous open pit mining, has demonstrated sufficient and appropriate continuity for both geology and grade within the Flying Fox deposit to support the definition of Mineral Resources and Ore Reserves, and the classification applied under the JORC Code (2012).
	• Samples were composited to 1m lengths, adjusting to accommodate residual sample lengths. A metal balance validation between the raw data and the composited data was undertaken, with no material issues identified.
Orientation of data in relation to geological structure	• The Flying Fox deposit strikes at 30° and dips nominally 65° east. All underground and grade control drilling was conducted from west to east. All surface drilling was conducted from east to west.
	• No orientation-based sampling bias has been observed in the data.
Sample security	• All core samples were delivered from site to Perth and then to the assay laboratory by an independent transport contractor.
Audits or reviews	• The Flying Fox data is managed and certified offsite by an independent contractor.

SECTION 2 – FLYING FOX – EXPLORATION RESULTS			
JORC Criteria	Explanation		
Mineral tenement and land tenure status	<ul> <li>Forrestania Nickel Operations (FNO) comprises approximately 125 tenements covering some 900km<sup>2</sup> within the Central Yilgarn Province. The tenements include exploration licences, prospecting licences, general purpose leases, miscellaneous licences and mining leases.</li> </ul>		
	• Western Areas (subsidiary of IGO) wholly owns 106 tenements, 55 tenements of which were acquired from Outokumpu in 2002 and a further 51 tenements acquired from Kagara in March 2012 (some which are subject to various third-party royalty agreements). The remainder of the tenements are subject to joint ventures: 14 tenements are part of the Mt Gibb JV where Western Areas has the right to earn 70% interest from Great Western Exploration (currently at 51% WSA) and the Lake King JV where Western Areas has earned a 70% interest from Swanoak Holdings.		
	<ul><li>Several of the Kagara tenements are subject to third-party royalty agreements.</li><li>All tenements are in good standing.</li></ul>		
Exploration done by other parties	<ul> <li>Western Areas (a subsidiary of IGO) has been exploring its wholly owned tenements since 2002. The tenements subject to the Kagara sale which took place in March 2012 were explored by Kagara since 2006, and by LionOre and St Barbara prior to that time.</li> </ul>		



	SECTION 2 – FLYING FOX – EXPLORATION RESULTS
JORC Criteria	Explanation
	Western Areas has managed both the Mt Gibb JV since 2009 (Great Western Exploration explored the ground prior to that time) and the Lake King JV since 2007 (a small amount of work was carried out by WMC prior to that date).
Geology	<ul> <li>The deposits lie within the Forrestania Greenstone Belt, which is part of the Southern Cross Province of the Yilgarn Craton in Western Australia. The main deposit type is the komatiite hosted, disseminated to massive nickel sulphide deposits, which include the Flying Fox and Spotted Quoll deposits. The mineralisation occurs in association with the basal section of high MgO cumulate ultramafic rocks.</li> <li>The greenstone succession in the district also hosts several orogenic lode gold deposits, of which the Bounty Gold Mine is the largest example.</li> </ul>
Drill hole Information	• The Mineral Resource estimate is based on over 7,000 geologic entries derived from over 1,000 surface and underground DD holes over multiple domains and years of surface and underground drilling. All this information can be considered material to the Mineral Resource estimate and the exclusion of a summary of the data does not detract from the understanding of the report.
Data aggregation methods	<ul> <li>Standard length-weighted averaging of drill hole intercepts was employed. No maximum or minimum grade truncations were used in the estimation.</li> <li>The reported assays have been length and bulk density weighted. A lower nominal 0.4% Ni cut-off is applied during the geologic modelling process and later during the Mineral Resource estimate reporting process. No top-cut is applied. High grade intercepts internal to broader zones of mineralisation are reported as included intervals.</li> <li>No metal equivalent values are reported.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>The incident angles to mineralisation are considered moderate.</li> <li>Due to the often steep-dipping nature of the stratigraphy, reported downhole intersections are moderately greater (m/1.5 ratio on average) than the true width.</li> </ul>
Balanced Reporting	Refer to figures in the text.
Other substantive exploration data	Only Mineral Resource estimation results are reported.
Diagrams	Refer to the accompanying report
Further work	<ul> <li>Exploration within the FNO tenements continues to evaluate the prospective stratigraphic succession containing the cumulate ultramafic rocks using geochemical and geophysical surveys and drilling.</li> </ul>



	SECTION 3 – FLYING FOX – MINERAL RESOURCES
JORC Criteria	Explanation
Database integrity	• All data has been recorded in Excel templates with reference look-up tables. All data is imported into an acQuire relational database.
	• Data validation is a fundamental part of the acQuire database and is implemented via referential integrity and triggers. Referential constraints ensure that, for example, Hole ID matches collar and downhole data. Triggers check criteria such as code validity, overlapping intervals, depth, and date consistencies. All fields of code data have associated look-up table references. Data was further validated using Datamine validation tools during the Mineral Resource estimation process.
Site visits	• The Competent Person has made many site visits to the Flying Fox deposit, with the first visit in 2008.
Geological interpretation	• Due to the spacing of drilling and the understanding of similar deposits within the Forrestania Ultramafic Belt, the geological interpretation is sound. The deposit is mainly located along the traditional footwall of the basal ultramafic metasediment contact, which was the original locus for sulphide deposition from an overlying pile of komatiite flows. Subsequent metamorphism, deformation, and intrusion of granitoid sills have contributed to a complex setting, with mineralisation now occupying a possible shear zone. The geological model is updated daily by a team of Mine Geologists based on detailed underground mapping of ore drives.
	• Lithogeochemistry and stratigraphic interpretation have been used to assist the identification of rock types. No assumptions are made.
	• Alternative interpretations of the Mineral Resource were considered. The previous model as well as the grade control model for the upper levels was extensively validated against the current geological and resource model. Alternative interpretations of mineralisation do not differ materially from the current interpretation. WSA has successfully planned and reconciled the deposit using a similarly derived geological and resource model.
	• The Mineral Resource estimate is based on a robust geological model which is regularly updated. The hanging wall and footwall contacts of the mineralised zone were modelled with a level of confidence commensurate with the Mineral Resource classification category. The extents of the geological model were constrained by drill hole intercepts and extrapolation of the geological contacts beyond the drill data was minimal for the Indicated category.
	• Key factors affecting geologic continuity relate to pervasive felsic intrusive units and faults in the deeper parts of the Flying Fox orebody. The nugget effect associated with nickel mineralisation in these types of deposits affects the grade continuity. The geological discontinuities have been modelled and the grade discontinuities have been accounted for in the estimation modelling.
Dimensions	• The strike length of the Flying Fox deposit varies considerably but is up to 750m in the T5 deposit. Distance from the top of T4 to the base of T5 is approximately 550m. The mean width of the deposit is 2.2m.
Estimation and modelling techniques	• Grade and ancillary element estimation using Ordinary Kriging and Inverse Power Distance (IPD) was completed using Datamine Studio 3 software. The methods were considered appropriate due to drill hole spacing and the nature of mineralisation.



	SECTION 3 – FLYING FOX – MINERAL RESOURCES
JORC Criteria	Explanation
	• All estimation was completed at the parent cell scale, thereby avoiding any potential geostatistical support issues.
	• Sample data was composited to 1m downhole lengths and flagged on domain codes. Metal balance validation tests were performed on the composites to ensure zero residuals.
	• Top-cut investigations were completed and no top-cuts were applied based on grade distribution, Coefficient of Variation, and a comparative analysis of the underground data vs the drill data.
	<ul> <li>Sample data was flagged using domain codes generated from 3D mineralised wireframes. Qualitative Kriging Neighbourhood Analysis was used to determine the optimum search neighbourhood parameters.</li> </ul>
	<ul> <li>Directional variography was performed for nickel and selected ancillary elements. Nugget values are typical for the type of mineralisation (Ni = 20%-40% of the total variance). Ranges of continuity for nickel vary from 20m to 60m in the direction of preferred orientation of mineralisation. Estimation validation techniques included swath plots of the grade of the composites vs the grade of the block model.</li> </ul>
	<ul> <li>This Mineral Resource estimate is an update of a previous Mineral Resource estimate and was extensively validated against the previous Mineral Resource estimate.</li> </ul>
	<ul> <li>No assumptions were made about the recovery of by-products in this estimate. WSA currently does not have any off-take agreements in place for by-products.</li> </ul>
	<ul> <li>No elements are deleterious elements in the Flying Fox deposit.</li> </ul>
	• A proto model was constructed using a 2mE × 5mN × 5mRL parent size, with sub- cells. The parent cell size was selected based on orebody geometry, drill spacing and selective mining unit.
	• Thereafter, individual block models were designed for each of the structural domains. The dips of the wireframes of the structural domains were used to optimally fill the wireframes with blocks. Drill spacing varies but is nominally 30m × 30m in areas that will be affected by mining in the next two years and 60m × 60m in subsequent areas.
	• The size of the search ellipse was based on the drill hole spacing and structural domain dimensions. Search neighbourhoods varied according to the structural domain.
	<ul> <li>No selective mining units were assumed in the estimate. Mining is mainly by longhole stoping and stope dimensions are largely determined by the nature of the equipment used. A global grade and width cut-off is applied at the mine planning stage.</li> </ul>
	• No assumptions were made about correlation between variables. Apart from a strong correlation between nickel grade and bulk density, no other interelement correlations are observed.
	• The geological interpretation was developed using geological, structural and lithogeochemical elements. The geological framework associated with extrusive komatiite hosted deposits, and the structural elements observed at the local and wide scale were used to determine and refine mineral domains. The hanging wall and footwall contacts of mineralisation were used as hard boundaries during the



	SECTION 3 – FLYING FOX – MINERAL RESOURCES
JORC Criteria	Explanation
	estimation process and only blocks with the geological wireframe were informed with nickel grades.
	<ul> <li>Geostatistical and visual investigation of the grade distribution negated the need for grade cutting or capping.</li> </ul>
	<ul> <li>Validation of the block model included comparing the volume of domain boundary wireframes to block model volumes. It also involved comparing block model grades with drill hole grades by means of swath plots showing easting, northing and elevation comparisons.</li> </ul>
	<ul> <li>Jackknifing and visual grade validations were undertaken.</li> </ul>
	<ul> <li>Grade and tonnage reconciliation of the previous model has been closely monitored over the past 12 months of underground mining and found to be within acceptable thresholds.</li> </ul>
	• The assumptions and methodologies used during this estimation are very similar to that of the previous model.
	<ul> <li>Visual validation of the block model vs the drill hole data was undertaken in Datamine and Leapfrog.</li> </ul>
	<ul> <li>Based on a thorough validation and verification exercise, WSA is satisfied that the estimate is robust.</li> </ul>
Moisture	Tonnages were estimated on a dry basis.
Cut-off parameters	• The mineral envelope was determined using a nominal 0.4% Ni grade cut-off. The Mineral Resource is reported at a 0.4% Ni cut-off, which is a reasonable representation of the mineralised material prior to the application of variable economic and mining assumptions and an Ore Reserve cut-off.
Mining factors or assumptions	<ul> <li>The Flying Fox deposit is currently being mined using longhole stoping methods. The mining method, which is unlikely to change, has been considered during the estimation process.</li> </ul>
Metallurgical factors or assumptions	<ul> <li>Ore from the Flying Fox deposit is currently being processed on site, where nickel concentrate is produced using a three-stage crushing, ball mill, and flotation and thickener/filtration system.</li> </ul>
Environmental factors or assumptions	• All waste and process residue are disposed of through the Cosmic Boy concentrator plant and its tailings dam. All site activities are undertaken in accordance with WSA's environmental policy.
Bulk density	<ul> <li>Bulk density has been determined using a tried and tested nickel grade regression- based formula.</li> </ul>
	• Core at Flying Fox is generally void of vugs, voids and other defects. Rocks are from the granulate facies sequence and faults have largely been annealed. Porosity is considered low.



Section 3 – Flying Fox – Mineral Resources				
JORC Criteria	Explanation			
	• Mineralisation is mainly restricted to a single material type (massive sulphide).			
Classification	<ul> <li>The Flying Fox Mineral Resource is classified as Indicated and Inferred based on geologic understanding, drill hole spacing, underground development and Kriging quality parameters. No blocks are classified as Measured.</li> </ul>			
	• The definition of mineralised zones is based on a high level of geological understanding. The model has been confirmed by infill drilling, supporting the original interpretation. The Competent Person is confident that all relevant factors have been considered in this estimate, relevant to all available data.			
	<ul> <li>The Mineral Resource estimate appropriately reflects the view of the Competent Person.</li> </ul>			
Audits or reviews	<ul> <li>This Mineral Resource estimate has been internally reviewed and has not been externally reviewed.</li> </ul>			
Relative Accuracy/Confidence	• The geological and grade continuity of the Flying Fox deposit is well understood and the mineralisation wireframes used to build the block model have been designed using all available exploration and mining data. Furthermore, previous estimates of grades have been tested by routine reconciliation of stockpile and mill grades to the current grade control and previous resource models. Post-processing block model validation was extensively undertaken using geostatistical methods before the Mineral Resource was reported.			
	• The statement relates to global linear estimates of tonnes and grade.			
	• The grade tonnage summary by Class is given in the accompanying report.			
	• Tonnes and grade estimates within the blocks are consistent with past production data.			

Section 4 – Flying Fox – Ore Reserves		
JORC Criteria	Explanation	
Mineral Resource estimate for conversion to Ore Reserves	• The Mineral Resource estimate is described in Section 3 of Table 1 and was reported in the June 2022 Quarterly Report released by the previous owners (Western Areas Limited, WSA).	
	• The Mineral Resource estimate is based on results from the grade control drilling program completed and updated mining data.	
	• The Mineral Resource estimate is inclusive of the Ore Reserves.	
Site Visits	<ul> <li>Flying Fox has been an operating underground mine since 2005. The Competent Person carries out routine inspections of the mine site and underground workings as part of normal duties.</li> </ul>	
	• The Company established a fit-for-purpose data collection and record keeping system which is used by the technical staff to effectively manage the operation. This data is used in the current Ore Reserves estimation.	



	Section 4 – Flying Fox – Ore Reserves
JORC Criteria	Explanation
	<ul> <li>Mine design and mining method is based primarily on back-analysis data of the current mining practice.</li> </ul>
Study Status	The Ore Reserves are based on current operational practices at the mine.
	The Ore Reserve estimate was reported against the updated Mineral Resource block model.
	• The previous owner (WSA) completed a feasibility study for T1 in 2004 and feasibility study for T5 in 2006. The T5 study has been updated with information from current practice and data from 17 years of mining experience recorded in WSA's system documents.
	<ul> <li>The current Ore Reserves estimation is an update that considers the new Mineral Resources, the performance of the operation to date and a revised commodity price estimate.</li> </ul>
Cut-off parameters	<ul> <li>An Ore Reserve cut-off grade of 0.8% Ni was selected to obtain an Ore Reserve that fits the following criteria:</li> </ul>
	<ul> <li>Minimum head grade meets mill requirements.</li> <li>Ore Reserve average grade equals or exceeds the LOM breakeven grade.</li> <li>Mean arsenic concentration enables production of a saleable concentrate.</li> <li>Maintains a positive NPV over the Forrestania LOM.</li> <li>Maximises steady-state production.</li> <li>LOM nickel price curve from US\$10.12/lb at FX 0.7185 to US\$7.95/lb at FX 0.7430 LOM</li> </ul>
	• Some of the key Ore Reserve assumptions are considered commercially sensitive. However, as the mine has been in operation for some years, the Ore Reserve cut-off parameters are developed using historical operating performance and statistics. More details regarding cut-off parameters are reported in the following sections.
Mining factors or assumption	• The mining method used is a mix of direct AVOCA, reverse AVOCA longhole stoping with a bottom-up sequence and rock and cemented rock fill above the 425 level, and a longhole top-down sequence and paste filling of resultant voids below the 425 level.
	<ul> <li>The mining model used Datamine software Studio UG and Enhanced Production Scheduler (EPS).</li> </ul>
	Mining factors are based on historical operational performance.
	• The Mineral Resource model used is in Datamine format. The model is based on the resource model for Flying Fox mine and is described in Section 3 of Table 1.
	• A 2.0m minimum mining width is used.
	• The average length of stable stopes is 20m.
	• The average stope height is between 8m and 17m.
	• Other geotechnical parameters are contained in the current Ground Control Management Plan.
	• The planned stope dilution is 0.5m (hanging wall) and 0.25m (footwall).
	• The unplanned dilution (from host rock and paste) is 12% in weight at 0.4% Ni.



	SECTION 4 – FLYING FOX – ORE RESERVES
JORC Criteria	Explanation
	• The standard SG for dilution is 2.8t/m <sup>3</sup> .
	• A grade of 0.4% Ni is assigned to all material outside the block model.
	• Ore recovery is 94% in the stopes and 100% in the ore drives.
	• The pillar factor for unplanned pillars is 2%.
	Production rates reflect current mining performances and practice.
	<ul> <li>No Inferred Mineral Resource material has been used in the conversion to Ore Reserves.</li> </ul>
	• Being an operating mine, all infrastructure (apart from future capital development and external plants) is present and used on site, and allowance for new infrastructure, based on technical studies, is made in the capital expenditure (capex) of the Life of Mine (LOM).
Metallurgical factors or assumptions	• The metallurgical factors used are based on existing conventional nickel sulphide flotation techniques used at the Cosmic Boy concentrator, and historical data. Figures are considered commercially sensitive and can be made available on request.
	• The metallurgical process is a well-tested technology for recovery of nickel sulphides and comprises three stages of fragmentation with wet screening for size classification, one milling stage with cyclone size classification and two stages of flotation including arsenic rejection. A small stream of the flotation feed is sent to the hydrometallurgical section of the concentrator that uses BioHeap® technology to improve the overall recovery.
	<ul> <li>A small stream of the mill feed will be sourced via magnetic separation of the scats rejected.</li> </ul>
	<ul> <li>The resultant concentrate is sold into existing offtakes contracts with BHP, Jinchuan, Glencore and Sumitomo Metal Mining.</li> </ul>
Environmental	• The Flying Fox mining operations received final environmental approval to mine nickel sulphide ore as an underground operation in December 2004. Approvals were provided under Western Australian legislation, initially being the <i>Mining Act 1978</i> and later Part V of the <i>Environmental Protection Act 1986</i> (EP Act). Since then, several other Mining Act approvals relating to the deepening of the Flying Fox mine and the extension of surface infrastructure required for mining operations have been sought and received. Additional approvals under Part V of the EP Act have also been sought in the form of Works Approvals and Prescribed Premises Licence amendments for various types of mining-related infrastructure.
	<ul> <li>Other relevant approvals from state and local government include endorsements to produce drinking water via reverse osmosis and store it on site, licences to construct habitable buildings, and licences to construct and operate septic waste water treatment facilities.</li> </ul>
Infrastructure	<ul> <li>Flying Fox is an operating mine with adequate infrastructure, and allowance for planned future capital project extensions is included in the LOM plan.</li> <li>Power for the site is supplied by Western Power via a 33kV overhead powerline from the Bounty switchward (60km porth of the site).</li> </ul>



	SECTION 4 – FLYING FOX – ORE RESERVES
JORC Criteria	Explanation
	<ul> <li>Potable water is produced from reverse osmosis plants located at the Cosmic Boy concentrator and pumped via a pipeline to the site.</li> </ul>
	Process water is recycled from the mine dewatering network.
	Transportation of bulk material is by conventional truck haulage.
	• Mine personnel reside at the nearby Cosmic Boy Village (529 rooms) and are mainly a FIFO (via Cosmic Boy airstrip) workforce with a small component of DIDO.
	• The mine site is 80km to the east of the Hyden township and has two main gazetted gravel road accesses (east from Hyden and south from Varley).
Costs	• Capital underground development costs are derived from the LOM plan and are based on existing contracts and historical performance data.
	<ul> <li>All other capital costs are sourced as necessary via quotes from suppliers, or from technical studies.</li> </ul>
	• Operating costs (mining, processing, administration, surface transport, concentrate logistics and state royalties) are based on existing cost estimates.
	• The nickel price and foreign exchange assumptions used were sourced from industry standard sources.
	<ul> <li>LOM nickel price curve is from US\$10.12/lb @ FX 0.7185 to US\$7.95/lb @ FX 0.7430 LOM.</li> </ul>
	<ul> <li>Net smelter return (NSR) factors were sourced from existing concentrate offtake contracts.</li> </ul>
Revenue Factors	<ul> <li>These have been selected after consideration of historical commodity prices variations over time and the requirement for the Reserve to be robust to potentially volatile commodity price and foreign exchange conditions.</li> </ul>
	• The price setting mechanism for the sale of product subject to this report is traded openly on the London Metals Exchange ('LME').
	• Potential penalties and net smelter revenue factors are included in the Smelter Return factor used.
	<ul> <li>The Smelter Return is based on the historical data from previous FY's and is considered commercially sensitive by the company and may be made available on request.</li> </ul>
	• Two main selling contract structures are currently used by IGO. Both have co-product payable T&Cs. Allowance for this selling parameter is included in the Smelter Return factor.
Market assessment	<ul> <li>Nickel is traded openly on the London Metal Exchange (LME).</li> <li>The Company has maintained long-term and short-term offtake agreements with multiple customers, both locally and internationally, over many years. The contracts have fixed dates on which they are reviewed and/or expire. The Ore Reserve estimate assumes these contracts and the current sold volumes will extend to the end of LOM.</li> </ul>



Section 4 – Flying Fox – Ore Reserves	
JORC Criteria	Explanation
	• Existing contracts have been assessed for the sales volume assumptions.
	• As the Company has been supplying multiple customers over a lengthy time period, no acceptance testing has been assumed in the Ore Reserve development process.
	• Refer to the section above (Revenue factors) for nickel price assumptions.
Economic	• Having been operational for a long period of time, there are established contracts in place for ore mining, processing and concentrate haulage. Furthermore, the Forrestania operation has an operating concentrator facility on site. As such, the actual operating and contract rates (including rise and fall where appropriate) have been used in the NPV economic assessments. Figures are considered commercially sensitive.
	• The discount rate has been estimated as the weighted average cost of capital.
Social	<ul> <li>All legal permits to mine Flying Fox have been obtained, following the paths described by the relevant laws with the participation of local communities (see previous points).</li> <li>As a company policy, relationships with local communities are a key part of operational</li> </ul>
	management.
Other	• Other than risks inherent to all mining operations and the mining industry in general, there are no risk factors relevant to the Flying Fox operations and/or the estimation of Ore Reserves.
Classification	<ul> <li>As at 30 June 2022, the Flying Fox deposit has Probable Ore Reserves of 0.18Mt ore tonnes at 2.22% for 4 kt nickel tonnes.</li> </ul>
	• The Ore Reserve appropriately reflects the Competent Person's view of the deposit.
Audits and reviews	<ul> <li>Audits and/or reviews of the current Ore Reserve estimate have not been done because confidence in the data used and the continued performance of the operation is high.</li> </ul>
Discussion of relative accuracy/ confidence	• The confidence in the current evaluation is based on Flying Fox being a well- established operating mine with a mature performance database.
	• As is normal in mining operations, the key points that can have a significant impact on the performance of the Spotted Quoll operation are market conditions in general, and the nickel price and the currency exchange rate in particular. All the other parameters are derived from sound historical production data.

## SPOTTED QUOLL JORC CODE TABLE 1 CHECKLIST

SECTION 1 – SPOTTED QUOLL – SAMPLING TECHNIQUES AND DATA	
JORC Criteria	Explanation
Sampling techniques	<ul> <li>The Spotted Quoll deposit was sampled using DD drill (DD) and reverse circulation holes (RC) on a nominal 50m × 30m grid spacing as well as underground channel sampling in a limited area.</li> </ul>



SECTION 1 – SPOTTED QUOLL – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Exp	lanation
	•	Although all available valid data was used to design the geological model, only DD hole data was used to estimate the grade and ancillary variables into the resource model.
	•	A total of 7,082 DD drill composites derived from approximately 700 drill holes were used to estimate the grades. This represents a drilling pattern smaller than 40m × 40m over the full extent of the deposit.
	•	Holes were generally drilled perpendicular (west) to the strike (north-south) of the stratigraphy, at angles ranging between 60° and 75°.
	•	Closely spaced underground channel samples, where available, were used as part of the final block model validation process but were not used to estimate grades into the block model.
	•	Samples have been collected since discovery in 2007 in accordance with Western Areas Limited (subsidiary of IGO) protocols and sample representivity is assured by an industry standard QAQC program as discussed in a later section of this tabular summary.
	•	All samples are prepared and assayed by an independent commercial laboratory whose analytical instruments are regularly calibrated.
	•	DD core was marked at 1m intervals and sample lengths were typically also 1m. Sampling boundaries were selected to match the main geological and mineralisation boundaries.
	•	Core was cut in half by diamond saw blades and one half quartered, with a quarter stored for assay and a quarter preserved as a geological archive.
	•	Samples were crushed, dried and pulverised (total prep) to produce a sub-sample for analysis by four-acid digest with an ICP-AES and FA-ICP (Au, Pt, Pd) finish.
	•	Samples from reverse circulation (RC) drilling consisted of chip samples at 1m intervals from which 3kg was pulverised to produce a sub-sample for assaying as per the DD samples.
Drilling techniques	•	DD comprises NQ2-sized core.
	•	The core was oriented using ACT II control panels and ACT III downhole units.
	•	RC drilling comprises 140mm diameter face sampling hammer drilling.
	•	A standard tube is used in most cases unless core recovery issues are expected when triple tube is used (typically in the oxidised zones).
Drill sample	•	DD core and RC recoveries are logged and recorded in the database.
	•	Overall recoveries are >95% and there are no core loss issues or significant sample recovery problems.
	•	DD core is reconstructed into continuous runs on an angle iron cradle for orientation marking.
	•	Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers.
	•	RC samples were visually checked for recovery, moisture and contamination.



SECTION 1 – SPOTTED QUOLL – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	xplanation	
	The resource grades are derived from high quality DD core drilling, with core recoveries in excess of 95%.	
	The massive sulphide style of mineralisation and the consistency of the mineralised intervals are considered to preclude any issue of sample bias due to material loss or gain.	
Logging	Geological and geotechnical logging was carried out on all DD drill holes for recovery, rock quality designation (RQD) and number of defects (per interval).	
	Information on structure type, dip, dip direction, alpha angle, beta angle, texture, shape, roughness and fill material are stored in the structure table of the database.	
	Sufficient data has been collected and verified to support the current Mineral Resource estimate.	
	Logging of DD core and RC samples recorded lithology, mineralogy, mineralisation, structural (DD only), weathering, colour and other features of the samples.	
	Core was photographed in both dry and wet form.	
	All drill holes were logged in full from the collar position to the end of the hole position.	
Sub-sampling techniques and sample preparation	Core is cut in half on site (with the exception of underground grade control core) by diamond saw blades.	
preparation	Surface derived drill holes are halved again, with one quarter sent for assay and one quarter preserved as a geological archive.	
	Underground exploration derived drilling core is not halved again. Half of the cut core is sent for assay and the other half is preserved as a geological archive.	
	Underground grade control derived drilling core is not cut. Full core is sent for assay.	
	All core is prepared and assayed by an independent commercial certified laboratory. Samples are crushed, dried and pulverised to produce a sub sample for analysis by four-acid digest with an ICP-AES finish.	
	All samples were collected from the same side of the core.	
	RC samples were collected using a riffle splitter.	
	All samples in the mineralised zones were dry.	
	The sample preparation of DD core follows industry best practice in sample preparation, involving oven drying, coarse crushing of the quarter core sample down to $\sim$ 10mm, followed by pulverisation of the entire sample (total prep) using LM5 grinding mills to a grind size of 90% passing 75 $\mu$ m.	
	The sample preparation for RC samples is identical, without the coarse crush stage.	
	WSA included field Ni standards ranging from 0.7% to 8.4% Ni that were routinely submitted with sample batches in order to independently monitor analytical performance.	



		SECTION 1 – SPOTTED QUOLL – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Expl	anation
	•	Standards were fabricated and prepared by Gannet Holdings, Perth, using high-grade nickel sulphide ore sourced from the Silver Swan mine.
	•	Standards were supplied in 55g sealed foil sachets.
	•	Field duplicates were taken on a 15% by volume basis.
	•	Duplicate quarter samples were sent to a commercial independent certified laboratory.
	•	The sample sizes are considered appropriate to correctly represent the sulphide mineralisation at Spotted Quoll based on the style of mineralisation, the thickness and consistency of the intersections, the sampling methodology and percent value assay ranges for the primary elements.
Quality of assay data and laboratory tests	•	All samples used in the Mineral Resource estimate were assayed by an independent certified commercial laboratory experienced in the preparation and analysis of nickel-bearing ores.
	•	Samples were dissolved using four-acid digest (nitric, perchloric, hydrofluoric and hydrochloride acids) to destroy silica.
	•	Samples were analysed for AI (0.01%), As (5), Co (1), Cu (1), Fe (0.01%), Cr (1), Mg (0.01%), Ni (1), S (0.01%), Ti (0.01%) and Zn (1) using Method ME-ICP61 (detection limit in brackets, values in parts per million (ppm) unless stated).
	•	All samples reporting >1% Ni were re-assayed by the OG62 method.
	•	No geophysical tools or handheld XRF instruments were used to determine any element concentrations that were subsequently used for Mineral Resource estimation purposes.
	•	Standards and blanks were routinely used to assess company QAQC (approx. 1 standard for every 12-15 samples).
	•	Duplicates were taken on a 15% by volume basis; field-based umpire samples were assessed on a regular basis.
	•	Accuracy and precision were assessed using industry standard procedures such as control charts and scatter plots.
	•	Results indicated no material issues associated with sample preparation and analytical error; in occasional cases where a sample did not meet the required quality threshold, the entire batch was re analysed.
Verification of sampling and assaying	•	Newexco Services Pty Ltd (Newexco) independently visually verified significant intersections in most of the DD core.
	•	No holes were specifically twinned, but there are several holes near each other and the resultant assays and geological logs were compared for consistency.
	•	Primary data was collected using Excel templates using look-up codes on laptop computers.
	•	All data were validated by the supervising geologist and sent to Newexco for validation and integration into an SQL database.
	•	No adjustments were made to assay data compiled for this estimate.



	SECTION 1 – SPOTTED QUOLL – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
Location of data points	<ul> <li>Hole collar locations were surveyed by WSA surveyors. The Leica GPS1200 used for all surface work has an accuracy of +/- 3cm.</li> </ul>
	<ul> <li>A two-point transformation is used to convert the data from MGA50 to Local Grid &amp; vice versa. Points used in transformation:</li> </ul>
	<ul> <li>MGA50 Points yd1='6409502.17' xd1='752502.175' yd2='6409397.856' xd2='753390.591'</li> <li>Local Grid Points ym1='28223.59'xm1='33528.771'ym2='28111.84'xm2='34415.995'</li> </ul>
	• The accuracy of the pillars used in WSA's topographical control networks is within the Mines Regulations accuracy requirement of 1:5,000 for control networks.
Data spacing and distribution	<ul> <li>Drill holes were spaced at an approx. 30m (northing) × 30m grid for the areas that will be affected by mining in the next two years and nominally 60m × 60m for areas that will be affected by mining in the subsequent years.</li> </ul>
	• The previous estimate and the extensive drill program, coupled with information derived from previous open pit and underground mining at Spotted Quoll, has demonstrated sufficient and appropriate continuity for both geology and grade within the deposit to support the definition of Mineral Resources, and the classification (Indicated and Inferred) applied. No material has been classified as Measured.
	<ul> <li>Samples were composited to 1m lengths, adjusting to accommodate residual sample lengths.</li> </ul>
Orientation of data in relation to geological	<ul> <li>The Spotted Quoll deposit strikes at approximately 030° and dips nominally 50° to the east.</li> </ul>
Structure	All drilling was conducted from east to west.
	• Most of the drilling was conducted from the hanging wall, i.e., from the east to the west.
	• Results from an independent structural study on the deposit along with historical regional and near-mine structural observations complemented the detailed structural core logging results to provide a geological model that was used with an appropriate level of confidence for the classification applied under the 2012 JORC Code.
	• No orientation-based sampling bias has been observed in the data.
Sample security	• All core samples were delivered from site to Perth and then to the assay laboratory by an independent transport contractor.
Audits or reviews	<ul> <li>No formal external audit of the Mineral Resource has been undertaken to date.</li> </ul>
	<ul> <li>Independent consultants assisted with the geological and resource modelling.</li> </ul>
	<ul> <li>The sampling techniques are standard practice at WSA; these were implemented over seven years ago and have been subject to independent reviews during this time.</li> </ul>



SECTION 2 – SPOTTED QUOLL – EXPLORATION RESULTS	
JORC Criteria	Explanation
Mineral tenement and land tenure status	<ul> <li>Forrestania Nickel Operations (FNO) comprises approximately 125 tenements covering some 900km<sup>2</sup> within the Central Yilgarn Province. The tenements include exploration licences, prospecting licences, general purpose leases, miscellaneous licences and mining leases.</li> </ul>
	• Western Areas (subsidiary of IGO) wholly owns 106 tenements, 55 tenements of which were acquired from Outokumpu in 2002 and a further 51 tenements acquired from Kagara in March 2012 (some which are subject to various third-party royalty agreements). The remainder of the tenements are subject to joint ventures: 14 tenements are part of the Mt Gibb JV where Western Areas has the right to earn 70% interest from Great Western Exploration (currently at 51% WSA) and the Lake King JV where Western Areas has earned a 70% interest from Swanoak Holdings.
	• Several the Kagara tenements are subject to third-party royalty agreements.
	• All the tenements are in good standing. Six tenements are pending grant.
Exploration done by other parties	<ul> <li>Western Areas has been exploring its wholly owned tenements since 2002. The tenements subject to the Kagara sale which took place in March 2012 were explored by Kagara since 2006, and by LionOre and St Barbara prior to that time.</li> </ul>
	• Western Areas has managed both the Mt Gibb JV since 2009 (Great Western Exploration explored the ground prior to that time) and the Lake King JV since 2007 (a small amount of work was carried out by WMC prior to that date).
Geology	• The deposits lie within the Forrestania Greenstone Belt, which is part of the Southern Cross Province of the Yilgarn Craton in Western Australia.
	• The main deposit type is the komatiite hosted, disseminated to massive nickel sulphide deposits, which includes the Flying Fox and Spotted Quoll deposits currently being mined.
	• The mineralisation occurs in association with the basal section of high MgO cumulate ultramafic rocks.
	• The greenstone succession in the district also hosts several orogenic lode gold deposits of which Bounty Gold Mine is the largest example.
	• Some exploration for this style of deposit is undertaken by Western Areas from time to time in the FNO tenements.
Drill hole Information	<ul> <li>The Mineral Resource estimate is based on over 6,800 geologic entries derived from over 700 surface and underground DD holes over multiple domains and years of surface and underground drilling. All information was considered material to the Mineral Resource estimate and the exclusion of a summary of the data does not detract from the understanding of the report.</li> </ul>
Data aggregation methods	<ul> <li>Standard length-weighted averaging of drill hole intercepts was employed. No maximum or minimum grade truncations were used in the estimation.</li> </ul>
	• The reported assays have been length and bulk density weighted. A lower nominal 0.4% Ni cut-off is applied during the geologic modelling process and later during the Mineral Resource estimate reporting process. No top-cut is applied. High grade intercepts internal to broader zones of mineralisation are reported as included intervals.



SECTION 2 – SPOTTED QUOLL – EXPLORATION RESULTS		
JORC Criteria	Explanation	
	• No metal equivalent values are reported.	
Relationship between mineralisation widths and intercept lengths	<ul> <li>The incident angles to mineralisation are considered moderate.</li> <li>Due to the often steep-dipping nature of the stratigraphy, reported downhole intersections are moderately greater (m/1.5 ratio on average) than the true width.</li> </ul>	
Diagrams	Refer to figures in the report.	
Balanced reporting	Only Mineral Resource estimation results are reported.	
Other substantive exploration data	• This is a Mineral Resource estimate summary and no Exploration Results are reported as such.	
	• Multi-element analysis was conducted routinely on all samples for a base metal suite and potentially deleterious elements, including Al, As, Co, Cr, Cu, Fe, Mg, Ni, S, Ti, Zn and Zr. All DD core samples were measured for bulk density which ranges from 2.90 to 4.79 g/cm <sup>3</sup> for values >0.5% Ni.	
	<ul> <li>Geotechnical logging was carried out on all DD drill holes for recovery, defects and rock quality designation (RQD).</li> </ul>	
	• Information on structure type, dip, dip direction, alpha and beta angles, texture, shape, roughness and fill material is stored in the structural logs in the database.	
Further work	<ul> <li>Exploration within the FNO tenements continues to evaluate the prospective stratigraphic succession containing the cumulate ultramafic rocks using geochemical and geophysical surveys and drilling.</li> </ul>	

SECTION 3 – SPOTTED QUOLL – MINERAL RESOURCES		
JORC Criteria	Explanation	
Database integrity	<ul> <li>All data has been recorded in Excel templates with reference look-up tables. All data are imported into an acQuire relational database.</li> </ul>	
	<ul> <li>Validation is a fundamental part of the acQuire data model and is implemented via referential integrity and triggers.</li> </ul>	
	• Referential constraints ensure that, for example, Hole ID matches collar and downhole data. Triggers check criteria such as code validity, overlapping intervals, depth and date consistencies.	
	• All fields of code data have associated look-up table references.	
Site visits	<ul> <li>Andre Wulfse, who is the Competent Person, is the Group Resource Manager for Western Areas and has made many site visits to the Spotted Quoll deposit. His first visit to the deposit was in 2008.</li> </ul>	



	SECTION 3 – SPOTTED QUOLL – MINERAL RESOURCES
JORC Criteria	Explanation
Geological interpretation	<ul> <li>Confidence in the geological interpretation is high, due to the history of mining, the spacing of drilling and the understanding of similar deposits within the Forrestania Ultramafic Belt.</li> </ul>
	<ul> <li>The deposit is located within the traditional footwall of the basal ultramafic metasediment contact, which was probably the original locus for sulphide deposition from an overlying pile of komatiite flows. Subsequent metamorphism, deformation and intrusion of granitoid sills has contributed to a complex setting, with mineralisation now occupying a possible shear zone within the footwall sediments, 15-20m (stratigraphical) beneath the basalt/ultramafic contact.</li> </ul>
	• The deposit is principally a body of matrix magmatic sulphide mineralisation in which the original pentlandite and pyrrhotite assemblage has been overprinted by arsenic-bearing assemblages dominated by gersdorffite and minor nickeline. Sulphide abundances of 20% to 90% are common.
	<ul> <li>Mean nickel grades of ore intersections are in the order of 4% to 12% Ni.</li> </ul>
	<ul> <li>Lithogeochemistry and stratigraphic interpretation have been used to assist the identification of rock types.</li> </ul>
	<ul> <li>Alternative interpretations of the Mineral Resource were considered. In particular, the previous model and the grade control models were extensively validated against the current geological and resource model.</li> </ul>
	<ul> <li>Alternative interpretations of mineralisation do not differ materially from the current interpretation.</li> </ul>
	<ul> <li>WSA has successfully mined the deposit using a similarly derived geological and resource model which is subject to monthly mill-to-face grade and tonnage reconciliation.</li> </ul>
	<ul> <li>The Spotted Quoll geological model was updated for this annual Mineral Resource estimate. It was constructed using the Leapfrog Geological Modelling tools. The well- known broad lithological units were defined using either the deposit tool or the vein modelling tool.</li> </ul>
	<ul> <li>Updates to the structural interpretation in Zone 4 found that the major structural orientations had changed from a predominantly shallow dipping westerly orientation in Zones 1-3 to a predominantly steep dipping north-south striking orientation in Zone 4. This caused a re-interpretation of Zone 4, introducing several structural offsets not previously modelled. This structural interpretation was reviewed and accepted by SRK in early 2021.</li> </ul>
	<ul> <li>The hanging wall and footwall contacts of the various mineralised domains were modelled with a level of confidence commensurate with the Mineral Resource classification applied.</li> </ul>
	<ul> <li>The extents of the geological model were constrained by drill hole intercepts and extrapolation of the geological contacts beyond the drill data was minimal for the Indicated category.</li> </ul>
	<ul> <li>Felsic intrusions cross cutting the orebody were modelled by applying the Leapfrog vein modelling tool using Interp1 lithological codes commencing with 'G'. Late-stage intrusions of granodiorites, granites and pegmatites showing little to no evidence of ductile deformation exploit three main structural orientations: subvertical units striking north-south, gently west dipping units and moderately east dipping units. An early- stage felsic porphyry intrusion displaying features of strong ductile deformation was</li> </ul>



SECTION 3 – SPOTTED QUOLL – MINERAL RESOURCES	
JORC Criteria	Explanation
	modelled in Zone 4 through to Zone 6, subparallel to footwall sediment bedding and existing mineralisation. Occurrences of all stages of felsic intrusions were observed to increase in abundance below Zone 3 (750mRL).
	• An outer ore halo was constructed using a grade cut-off of >0.8% Ni for a total of six zones. The modelling of the outer halo is less accurate in areas where there is no face-sampling, as the gradational contacts to the grade cut-off of 0.8% Ni cannot accurately be determined by mapping or face photography alone.
	• A core of massive, matrix and brecciated sulphides was constructed to define a hard geological boundary with associated higher grades. The high-grade core is a clearly defined unit in both drill core and underground development with sharp contacts, whereas the outer domain can be less defined with gradational contacts.
	• Key factors affecting continuity relate to pervasive felsic intrusive units and faults.
	• The geological discontinuities have been modelled and the grade discontinuities have been accounted for in the estimation modelling.
Dimensions	• The strike length of the Mineral Resource is nominally 300m on average, with a range of 25m to 520m, depending on depth below surface. The nominal mean dip length is 1,500m.
	• The elevation (RL) below the pre-existing pit is 1250mRL and the maximum depth of the Mineral Resource is 250mRL. The mean thickness of the mineralised zone is 3.1m, with a maximum thickness of 13.4m.
Estimation and modelling techniques	• In addition to the major structural domains discussed previously, further subdomains for arsenic and nickel grade were identified in Zones 1-4 based on the updated structural interpretation and geological modelling of the ultramafic unit adjacent to the mineralisation. Six nickel subdomains and seven arsenic subdomains were defined, supported by material differences in the modelled mean grade between the domains.
	<ul> <li>Grade and ancillary element estimation into the mineralised domains using Ordinary Kriging and Inverse Power Distance (IPD) was completed using Datamine and Supervisor software.</li> </ul>
	• The methods were considered appropriate due to drill hole spacing and the nature of mineralisation.
	Sample data was composited to 1m downhole lengths.
	<ul> <li>Intervals with no assays were treated as null values.</li> </ul>
	• Top-cut investigations were completed, and top-cuts were applied to arsenic based on grade distribution and Coefficient of Variation.
	• Nickel grades were not cut, except for a single composite outlier that was identified in Zone 3 via a swath plot which had an undue influence on the block grades in the area. The outlier was cut from 16% Ni to 9% Ni in line with the immediate surrounding samples.
	• Sample, wireframe and block model data were flagged using domain and weathering codes generated from 3D mineralised wireframes.



SECTION 3 – SPOTTED QUOLL – MINERAL RESOURCES		
JORC Criteria	Ехр	lanation
	•	Extensive Exploratory Data Analysis (EDA) was carried out on the raw and composite data in order to understand the distribution in preparation for estimation and to validate the composite data against the raw data.
	•	EDA included Histograms, Log Probability plots and Mean and Variance plots for each of the domains and sub-domains.
	•	Qualitative Kriging Neighbourhood Analysis was used to determine the optimum search neighbourhood parameters. Directional variography was performed for nickel and selected ancillary elements.
	•	Nugget values are typical for the type of mineralisation (Ni = 20%-40% of the total variance). Ranges of continuity for nickel vary from 20m to 60m in the direction of preferred orientation of mineralisation.
	•	Estimation validation techniques included swath plots of the grade of the composites vs the grade of the block model.
	•	This Mineral Resource estimate is an update of a Mineral Resource estimate that was previously reported and was validated against the same.
	•	In the two zones with a significant proportion of unmined blocks remaining, Zone 3 and Zone 4, a validation test was run where the reconciled stope data was compared to the model grades diluted by using the mined stope CMS (cavity monitoring survey) volumes. This indicates that in an area of Zone 3 where there is sparse drill data, the model may overcall the nickel grade and this area has been identified as a priority for additional sampling. In addition, a single composite nickel grade outlier (SQUG161 from 179.2m to 179.65m grading at 16.1% Ni) was identified in Zone 3 via swath plot, which was likely contributing to the grade being overstated in this part of the model due to the lack of data in the area. The single outlier was top-cut to 9% Ni, which is in line with the immediate surrounding samples. In areas of Zone 4 where there is sparse sample data, the model performs very well against the reconciled data.
	•	Swath plots and other validation techniques are reasonable through this area.
	•	No assumptions were made about the recovery of by-products in this estimate.
	•	WSA currently does not have any offtake agreements in place for the sale of discrete by-products.
	•	Arsenic is considered a deleterious element as it can have an adverse effect on nickel recovery if not properly managed during the blending process.
	•	Arsenic was routinely assayed with nickel and was subsequently modelled and estimated into the block model using mutually exclusive domains to that of nickel.
	•	Other non-grade elements were estimated into the block model.
	•	The block model was constructed using a 2mE × 5mN × 5mRL parent size, with sub- cells. All estimation was completed at the parent cell scale, thereby avoiding any potential geostatistical support issues.
	•	The size of the search ellipse varies and is based on the drill hole spacing and domain dimensions.
	•	No selectivity was built into the model on the basis that full extraction of the ore zone using longhole and airleg stoping is expected.
	•	Known correlation between density and nickel grade was used to estimate tonnages.



SECTION 3 – SPOTTED QUOLL – MINERAL RESOURCES		
JORC Criteria	Explanation	
	• The geological interpretation was developed using geological, structural and lithogeochemical elements.	
	• The geological framework associated with extrusive komatiite-hosted deposits, and the structural elements observed at the local and wider scale, were used to determine and refine mineral domains.	
	• The hanging wall and footwall contacts of mineralisation were used as hard boundaries during the estimation process and only blocks within the geological wireframe were informed with nickel grades.	
	• Geostatistical and visual investigation of the grade distribution negated the need for grade cutting or capping.	
	• Validation of the block model included comparing the volume of resource wireframes to block model volumes.	
	• It also involved comparing block model grades with drill hole grades by means of swath plots showing easting, northing and elevation comparisons.	
	• Estimation validation techniques included swath plots of the grade of the composites vs the grade of the block model as shown below.	
	• Visual grade validations using Datamine, Supervisor and Leapfrog were undertaken.	
	• Validation of reconciled stope data against mined stope CMS volumes was undertaken and the results overall indicated that the estimate is robust.	
Moisture	Tonnages were estimated on a dry basis.	
Cut-off parameters	• The outer halo mineral envelope was constructed using a nominal 0.8% Ni grade cut- off and the high grade core using massive, matrix and brecciated sulphides.	
	• The Mineral Resource is reported at a 0.4% Ni cut-off, which is a reasonable representation of the mineralised material prior to the application of economic and mining assumptions and an Ore Reserve cut-off.	
	• The Spotted Quoll mineralisation tenor is relatively high compared to other komatiite- hosted deposits, and hence the use of a lower cut-off grade is appropriate.	
Mining factors or assumptions	<ul> <li>The Spotted Quoll deposit is currently being mined primarily using longhole stoping methods with paste fill.</li> </ul>	
	• The mining method, which is unlikely to change, has been considered during the estimation process.	
	The Mineral Resource was depleted against mining.	
Metallurgical factors or assumptions	• Ore from the Spotted Quoll deposit is currently being processed on site, where nickel concentrate is produced using a three-stage crushing, ball mill, and flotation and thickener/filtration system.	
	<ul> <li>Arsenic rejection in the flotation circuit has been modelled based on current and historical operational performance.</li> </ul>	



SECTION 3 – SPOTTED QUOLL – MINERAL RESOURCES	
JORC Criteria	Explanation
Environmental factors or assumptions	<ul> <li>All waste and process residue will be disposed of through the Cosmic Boy concentrator plant and its tailings dam.</li> </ul>
	• All site activities will be undertaken in accordance with WSA's environmental policy.
Bulk density	<ul> <li>There is a strong correlation between nickel and bulk density at Forrestania and a robust nickel grade regression formula was used to estimate bulk density into the blocks.</li> </ul>
	• Core at Spotted Quoll is generally void of vugs, voids and other defects. Rocks are from the amphibolite facies and faults have largely been annealed. Porosity is considered low.
	• The bulk density values were estimated into the block model using the same search parameters that were used to interpolate nickel within the geological domains.
Classification	<ul> <li>The Spotted Quoll Mineral Resource is classified as Indicated and Inferred on the basis of drill hole spacing and Kriging efficiency.</li> </ul>
	• Only blocks that are between existing ore drives are classified as Measured.
	<ul> <li>The definition of mineralised zones is based on a high level of geological understanding.</li> </ul>
	• The model has been confirmed by infill drilling, supporting the original interpretations.
	All relevant factors have been considered in this estimate.
	• The Mineral Resource Estimate appropriately reflects the view of the Competent Person who is now a full-time employee of IGO and has been working on the deposits since 2008, both as a consultant and an employee.
Audits or reviews	• No audit has been undertaken on the current Mineral Resource estimate to date, but the model was designed with the assistance of independent consultants.
Discussion of relative accuracy/ confidence	• The geological and grade continuity of the Spotted Quoll deposit is well understood, and the mineralisation wireframes used to build the block model have been designed using all available exploration and mining data.
	<ul> <li>Post-processing block model validation was extensively undertaken using geostatistical methods.</li> </ul>
	• The Mineral Resource statement relates to local estimates of tonnes and grade.
	• The Mineral Resource estimate was compared to the production grade control data. The upper section of the deposit has been mined by open pit methods and underground mining has been in place for over five years.



	SECTION 4 – SPOTTED QUOLL – ORE RESERVES
JORC Criteria	Explanation
Mineral Resource estimate for conversion to Ore Reserves	• The Mineral Resource estimate is described in Section 3 of Table 1 and was reported in the June 2022 Quarterly Report released by the previous owners (Western Areas Limited, WSA).
	<ul> <li>The Mineral Resource estimate is based on results from the grade control drilling program completed and updated mining data.</li> </ul>
	• The Mineral Resource estimate is inclusive of the Ore Reserves.
Site visits	<ul> <li>Spotted Quoll has been an operating underground mine since 2010. The Competent Person carries out routine inspections of the mine site and underground workings as part of normal duties.</li> </ul>
	• The Company established a fit-for-purpose data collection and record keeping system which is used by technical staff to effectively manage the operation. These data are used in the current Ore Reserves estimation.
	• The mine design and mining method are based on recommendations laid out in the updated feasibility study and back-analysis data from the current mining practice.
Study status	The Ore Reserves are based on current operational practices at the mine.
	The Ore Reserve estimate was reported against the updated Mineral Resource block model.
	• A feasibility study was completed in November 2010 under the previous owner (Western Areas Limited) as a continuation of the Spotted Quoll open pit (released 15 December 2010). Underground mining commenced on 2 May 2010 with firing of the first portal face. The feasibility study is still valid and has been updated with the operational experience gained.
	<ul> <li>The current Ore Reserve estimate is an update that considers the new Mineral Resources, the performance of the operation to date and a revised commodity price estimate.</li> </ul>
Cut-off parameters	<ul> <li>A 1% Ni cut-off grade for Ore Reserve reporting was selected as it fits the following criteria:</li> </ul>
	<ul> <li>Minimum head grade meets mill requirements.</li> <li>Ore Reserve average grade equals or exceeds the LOM breakeven grade.</li> <li>Mean arsenic concentration enables production of a saleable concentrate.</li> <li>Maintains a positive NPV over the Forrestania LOM.</li> <li>Maximises steady-state production.</li> <li>LOM nickel price curve from US\$10.12/lb at FX 0.7185 to US\$7.95/lb at FX 0.7430 LOM.</li> </ul>
	• Some of the key Ore Reserve assumptions are considered commercially sensitive. However, as the mine has been in operation for some years, the Ore Reserve cut-off parameters are developed using historical operating performance and statistics. More details regarding cut-off parameters are reported in the following sections.
Mining factors or assumptions	• The mining method used is predominantly longhole stoping with a top-down sequence and paste filling of resultant voids.



	SECTION 4 – SPOTTED QUOLL – ORE RESERVES
JORC Criteria	Explanation
	<ul> <li>The mining model used Datamine software 5D Planner and Enhanced Production Scheduling (EPS).</li> </ul>
	<ul> <li>Mining factors are based on historical operational performance.</li> </ul>
	• The Mineral Resource model used is in Datamine format. The model is based on the resource model for Spotted Quoll mine and is described in Section 3 of Table 1.
	A 3.0 m minimum mining width is used.
	• The average length of stable stopes is between 10m and 30m.
	• The average stope height is between 7m and 15m.
	Other geotechnical parameters are contained in the current Ground Control Management Plan.
	• The planned stope dilution is 0.5m (hanging wall) and 0.1–0.2m (footwall).
	• Unplanned dilution (from host rock and paste) is 12.0% in weight at 0.21% Ni.
	• The standard SG for dilution is 2.8t/m <sup>3</sup> .
	• A grade of 0.21% Ni is assigned to all material outside the block model.
	• Ore recovery is 98%, and metal recovery is 98%.
	• The pillar factor for unplanned pillars is 0%.
	<ul> <li>Production rates reflect current mining performances and practice.</li> </ul>
	<ul> <li>No Inferred Mineral Resource material has been used in the conversion to Ore Reserves.</li> </ul>
	• Being an operating mine, all infrastructure (apart from future capital development and external plants) is present and used on site, and allowance for new infrastructure, based on technical studies, is made in the capital expenditure (capex) of the Life of Mine (LOM).
Metallurgical factors or assumptions	• The metallurgical factors used are based on existing conventional nickel sulphide flotation techniques used at the Cosmic Boy concentrator, and historical data. Figures are considered commercially sensitive and can be made available on request.
	• The metallurgical process is a well-tested technology for recovery of nickel sulphides and comprises three stages of fragmentation with wet screening for size classification, one milling stage with cyclone size classification and two stages of flotation including arsenic rejection. A small stream of the flotation feed is sent to the hydrometallurgical section of the concentrator that uses BioHeap® technology to improve the overall recovery.
	<ul> <li>A small stream of the mill feed will be sourced via magnetic separation of the scats rejected.</li> </ul>
	• The resultant concentrate is sold into existing offtakes contracts with BHP, Jinchuan, Glencore and Sumitomo Metal Mining.
Environmental	• The Spotted Quoll open pit mine received final environmental approval in October 2009. Approvals were provided under both Western Australian legislation, principally being Parts IV and V of the <i>Environmental Protection Act 1986</i> (EP Act) and the <i>Mining</i>



SECTION 4 – SPOTTED QUOLL – ORE RESERVES	
JORC Criteria	Explanation
	<ul> <li>Act 1978, and Commonwealth legislation, being the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Environmental approval to mine nickel sulphide ore from the underground extension of the Spotted Quoll open cut mine has also been granted under Western Australian legislation, being principally Parts IV and V of the EP Act and the Mining Act. No further approval was required from the Commonwealth for underground mining at Spotted Quoll.</li> <li>A list of key State and Commonwealth approvals obtained for both the Spotted Quoll</li> </ul>
	open pit and the underground operations can be made available on request.
Infrastructure	<ul> <li>Spotted Quoll is an operating mine with adequate infrastructure, and allowance for planned future capital project extensions is included in the LOM plan.</li> </ul>
	<ul> <li>Power for the site is supplied by Western Power via a 33kV overhead powerline from the Bounty switchyard (60km north of the site).</li> </ul>
	<ul> <li>Potable water is produced from reverse osmosis plants located at the Cosmic Boy concentrator and pumped via a pipeline to the site.</li> </ul>
	Process water is recycled from the mine dewatering network.
	• Transportation of bulk material is by conventional truck haulage.
	• Mine personnel reside at the nearby Cosmic Boy Village (529 rooms) and are mainly a FIFO (via Cosmic Boy airstrip) workforce with a small component of DIDO.
	• The mine site is 80km to the east of the Hyden township and has two main gazetted gravel road accesses (east from Hyden and south from Varley).
Costs	<ul> <li>Capital underground development costs are derived from the LOM plan and are based on existing contracts and historical performance data.</li> </ul>
	<ul> <li>All other capital costs are sourced as necessary via quotes from suppliers, or from technical studies.</li> </ul>
	• Operating costs (mining, processing, administration, surface transport, concentrate logistics and state royalties) are based on existing cost estimates.
	• The nickel price and foreign exchange assumptions used were obtained from industry standard sources.
	<ul> <li>The LOM nickel price curve is from US\$10.12/lb @ FX 0.7185 to US\$7.95/lb @ FX 0.7430 LOM.</li> </ul>
	<ul> <li>Net smelter return (NSR) factors were sourced from existing concentrate offtake contracts.</li> </ul>
Revenue factors	• Revenue factors have been selected after consideration of historical commodity prices variations over time and the requirement for the Ore Reserve to be robust against potentially volatile commodity price and foreign exchange conditions.
	• The product is traded openly on the London Metal Exchange (LME).
	<ul> <li>Potential penalties and net smelter revenue factors are included in the smelter return factor used.</li> </ul>



SECTION 4 – SPOTTED QUOLL – ORE RESERVES	
JORC Criteria	Explanation
	• The smelter return is based on the historical data from previous financial years. It is considered commercially sensitive and can be made available on request.
	• Two main selling contracts structures are currently used; both have co-product payable T&Cs. Allowance for this selling parameter is included in the smelter return factor.
Market assessment	Nickel is traded openly on the LME.
	• The Company has maintained long-term and short-term offtake agreements with multiple customers, both locally and internationally, over many years. The contracts have fixed dates on which they are reviewed and/or expire. The Ore Reserve estimate assumes these contracts and the current sold volumes will extend to the end of LOM.
	• Existing contracts have been assessed for the sales volume assumptions.
	• As the Company has been supplying multiple customers over a lengthy time period, no acceptance testing has been assumed in the Ore Reserve development process.
	• Refer to the section above (Revenue factors) for nickel price assumptions.
Economic	<ul> <li>Having been operational for a long period of time, there are established contracts in place for ore mining, processing and concentrate haulage. Furthermore, the Forrestania operation has an operating concentrator facility on site. As such, the actual operating and contract rates (including rise and fall where appropriate) have been used in the NPV economic assessments. Figures are considered commercially sensitive.</li> <li>The discount rate has been estimated as the weighted average cost of capital.</li> </ul>
Social	<ul> <li>All legal permits to mine Spotted Quoll have been obtained, following the paths described by the relevant laws with the participation of local communities (see previous points).</li> </ul>
	<ul> <li>As a company policy, relationships with local communities are a key part of operational management.</li> </ul>
Other	• Other than risks inherent to all mining operations and the mining industry in general, there are no risk factors relevant to the Spotted Quoll operations and/or the estimation of Ore Reserves.
Classification	<ul> <li>At 30 June 2022, the Spotted Quoll deposit has Probable Ore Reserves of 0.61 Mt ore tonnes at 3.45% Ni for 21 kt nickel tonnes.</li> </ul>
	• The Ore Reserve appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	<ul> <li>Audits and/or reviews of the current Ore Reserve estimate have not been done because confidence in the data used and the continued performance of the operation is high.</li> </ul>



SECTION 4 – SPOTTED QUOLL – ORE RESERVES		
JORC Criteria	Explanation	
Discussion of relative accuracy/ confidence	<ul> <li>The confidence in the current evaluation is based on Spotted Quoll being a well-established, operating mine with a mature performance database.</li> <li>As is normal in mining operations, the key points that can have a significant impact on the performance of the Spotted Quoll operation are market conditions in general, and the nickel price and the currency exchange rate. All the other parameters are derived from sound historical production data.</li> </ul>	

	SECTION 1 – NEW MORNING/DAYBREAK – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
Sampling techniques	• The New Morning/Daybreak (NMDB) deposit was sampled using diamond drill and reverse circulation (RC) drilling on various grid spacings as shown below for the main and hanging wall mineralisation, respectively.
Drilling techniques	Diamond drilling comprised NQ2 sized core.
	• The core was oriented using ACT II control panels and ACT III downhole units.
	RC drilling comprised 140mm diameter face sampling hammer drilling.
	• RAB holes were used to assist in geological domain analysis but were not used for Mineral Resource estimation purposes.
Drill sample recovery	• Diamond core and RC recoveries were logged and recorded in the database.
	• Overall recoveries were >99% and there were no core loss issues or significant sample recovery problems.
	• Diamond core was reconstructed into continuous runs on an angle iron cradle for orientation marking.
	• Depths were checked against the depth given on the core blocks and the driller routinely carried out rod counts.
	• RC samples were visually checked for recovery, moisture and contamination.
	• A short-hole diamond drilling program was specifically designed and drilled in 2015 to test the mineralisation in the oxidised zone. These holes were drilled using large diameter barrels with triple tubes to avoid core loss. The holes are shown below.
	• The resource grades were derived from diamond core drilling with core recoveries in excess of 99%.
	• The style of mineralisation and the consistency of the mineralised intervals were considered to preclude any issue of sample bias due to material loss or gain.
Logging	• Geological and geotechnical logging was carried out on all diamond drill holes for recovery, RQD and number of defects (per interval). Information on structure type, dip, dip direction, alpha angle, beta angle, texture, shape, roughness and fill material is stored in the structure table of the database.

## NEW MORNING/DAYBREAK JORC CODE TABLE 1 CHECKLIST



SECTION 1 – NEW MORNING/DAYBREAK – SAMPLING TECHNIQUES AND DATA		
JORC Criteria	Explanation	
	<ul> <li>Sufficient data were collected and verified to support the current Mineral Resource estimate.</li> </ul>	
	<ul> <li>Logging of diamond core and RC samples recorded lithology, mineralogy, mineralisation, structural (diamond drill holes), weathering, colour and other features of the samples.</li> </ul>	
	Core was photographed in dry and wet forms.	
	• All drill holes were logged in full, from the collar position to the end-of-hole position.	
Sub-sampling techniques and sample preparation	<ul> <li>Samples have been collected since discovery in 2007 in accordance with the Company's protocols and sample representivity is assured by an industry standard QAQC program.</li> </ul>	
	<ul> <li>The diamond drill core was marked at 1m intervals and sample lengths were typically also 1m. Sampling boundaries were selected to match the main geological and mineralisation boundaries.</li> </ul>	
	• Core was cut in half by diamond saw blades and one half was quartered. One quarter was stored for assay and one quarter preserved as a geological archive.	
	<ul> <li>All samples were collected from the same side of the core.</li> </ul>	
	RC samples were collected using a riffle splitter.	
	All samples in the mineralised zones were dry.	
	<ul> <li>The sample preparation of diamond core follows industry best practice in sample preparation: oven drying, coarse crushing of the quarter core sample down to ~10mm, followed by pulverisation of the entire sample (total prep) using LM5 grinding mills to a grind size of 90% passing 75 µm.</li> </ul>	
	• The sample preparation for RC samples is identical, without the coarse crushing stage.	
	• The Company included field Ni standards ranging from 0.7% Ni to 8.4% Ni that were routinely submitted with sample batches to independently monitor analytical performance.	
	• Standards were fabricated and prepared by Gannet Holdings, Perth, using high-grade nickel sulphide ore sourced from the Silver Swan mine.	
	<ul> <li>Standards were supplied in 55g sealed foil sachets.</li> </ul>	
	<ul> <li>Field duplicates were taken on a 15% by volume basis.</li> </ul>	
	<ul> <li>The Company sent duplicate quarter samples to a commercial independent certified laboratory.</li> </ul>	
	• The sample sizes are considered appropriate to correctly represent the sulphide mineralisation based on the style of mineralisation, thickness and consistency of the intersections, sampling methodology and percentage value assay ranges for the primary elements.	



Section 1 – New Morning/Daybreak – Sampling Techniques and Data	
JORC Criteria	Explanation
Quality of assay data and laboratory tests	<ul> <li>All samples used in the Mineral Resource estimate were assayed by an independent certified commercial laboratory.</li> </ul>
	• The Company uses a laboratory experienced in the preparation and analysis of nickel- bearing ores.
	• Samples were crushed, dried and pulverised (total prep) to produce a subsample for analysis by four-acid digest with an ICP-AES and FA-ICP (Au, Pt, Pd) finish. Samples from RC drilling consisted of chip samples at 1m intervals from which 3kg was pulverised to produce a subsample for assaying as per the diamond drill samples.
	<ul> <li>Samples were dissolved using nitric, perchloric, hydrofluoric and hydrochloride acid digest to destroy silica. Samples were analysed for AI (0.01%), As (5 ppm), Co (1 ppm), Cu (1 ppm), Fe (0.01%), C r(1 ppm), Mg(0.01%), Ni (1 ppm), S (0.01%), Ti (0.01%) and Zn (1 ppm) using Method ME-ICP61 (detection limit in brackets).</li> </ul>
	<ul> <li>All samples reporting &gt;1%Ni were re-assayed by the OG62 method.</li> </ul>
	<ul> <li>No geophysical tools or handheld XRF instruments were used to determine any element concentrations that were subsequently used for Mineral Resource estimation purposes.</li> </ul>
	<ul> <li>Standards and blanks were routinely used to assess company QAQC (approx. 1 standard for every 12–15 samples).</li> </ul>
	<ul> <li>Duplicates were taken on a 15% by volume basis and field-based umpire samples were assessed on a regular basis. Accuracy and precision were assessed using industry-standard procedures such as control charts and scatter plots.</li> </ul>
	• Results indicated no material issues associated with sample preparation and analytical error. In occasional cases where a sample did not meet the required quality threshold, the entire batch was re-analysed.
Verification of sampling and assaying	<ul> <li>Newexco Services Pty Ltd (Newexco) visually verified significant intersections in most of the diamond drill core.</li> </ul>
	<ul> <li>Holes in the deepest domain were essentially twinned by drilling from two opposing directions as shown in the following figure.</li> </ul>
	<ul> <li>Primary data were collected using Excel templates and look-up codes, on laptop computers.</li> </ul>
	• All data were validated by the supervising geologist and sent to Newexco for validation and integration into an SQL database.
	• No adjustments to assay data compiled for this Mineral Resource estimate were made.
Location of data points	<ul> <li>Hole collar locations were surveyed by Company surveyors. The Leica GPS1200 used for all surface work has an accuracy of ± 3cm.</li> </ul>
	• A two-point transformation is used to convert the data from MGA50 to Local Grid and vice versa. Points used in transformation are:
	<ul> <li>MGA50 Points: yd1=6409901.808" xd1="752967.748" yd2="6409502.17" xd2="752502.175"</li> <li>Local Grid Points: ym1="28619.176" xm1="33997.535" ym2="28223.604" xm2="33528.778".</li> </ul>



SECTION 1 – NEW MORNING/DAYBREAK – SAMPLING TECHNIQUES AND DATA	
JORC Criteria	Explanation
	• The accuracy of the pillars used in the Company's topographical control networks is within the Mines Regulations accuracy requirement of 1:5,000 for control networks.
Data spacing and distribution	<ul> <li>Nominal drill density is as follows: <ul> <li>Mod_nmdb_shallow_0818</li> <li>Along strike = 48m</li> <li>Along dip = 45m</li> <li>Mod_nmdb_deep_0916</li> <li>Indicated Along strike = 15m</li> <li>Indicated Along dip = 20m</li> <li>Inferred Along strike = 60m</li> <li>Inferred Along dip = 100m</li> </ul> </li> </ul>
	<ul> <li>Samples were composited to 1m lengths, adjusting accommodate residual sample lengths.</li> </ul>
	• A total of 1,138 holes (including deflections and rotary air blast (RAB) holes) were used to design and constrain the geological wireframes. Of this total, 119 holes have been drilled since the previous Mineral Resource estimate as shown below (new holes shown in red).
	• Holes were generally drilled perpendicular (west) to the strike (north-south) of the stratigraphy, at angles ranging between 60° and 90°. The mean dip of the holes into the shallowest domain is 63° and the mean azimuth is 244°.
Orientation of data in relation to geological structure	<ul> <li>The NMDB deposit strikes at approximately 280° and dips nominally 75° to the east.</li> <li>All drilling was conducted from east to west. Most of the drilling was conducted from the hanging wall, i.e., from east to west.</li> <li>Results from an independent structural study on the deposit, along with historical regional and near-mine structural observations, complemented the detailed structural core logging results to provide a geological model that was used with an appropriate level of confidence for the classification applied under the 2012 JORC Code.</li> </ul>
	<ul> <li>No orientation-based sampling bias has been observed in the data.</li> </ul>
Sample security	• All core samples were delivered from site to Perth and then to the assay laboratory by an independent transport contractor.
Audits or reviews	<ul> <li>No external audit of the Mineral Resource estimate has been undertaken to date.</li> <li>Independent consultants assisted with the geological and Mineral Resource modelling.</li> <li>The sampling techniques are standard practice; they were implemented more than seven years ago and have been subject to independent reviews during this time.</li> </ul>

SECTION 2 – NEW MORNING/DAYBREAK – EXPLORATION RESULTS	
JORC Criteria	Explanation
Mineral tenement and land tenure status	<ul> <li>Forrestania Nickel Operations (FNO) comprises approximately 125 tenements covering some 947 km<sup>2</sup> within the Central Yilgarn Province. The tenements include</li> </ul>



Section 2 – New Morning/Daybreak – Exploration Results	
JORC Criteria	Explanation
	exploration licences, prospecting licences, general purpose leases, miscellaneous licences and mining leases.
	<ul> <li>The Company wholly owns 106 tenements: 55 tenements were acquired from Outokumpu in 2002 and the remaining 51 tenements were acquired from Kagara in March 2012 (some tenements are subject to various third-party royalty agreements). The remainder of the tenements are subject to joint ventures: 14 tenements are part of the Mt Gibb JV where the Company has the right to earn 70% interest from Great Western Exploration (currently at 51% WSA) and the Lake King JV where the Company has earned a 70% interest from Swanoak Holdings.</li> </ul>
	All tenements are in good standing.
	Six tenements are pending grant.
Exploration done by other parties	• The Company has been exploring its wholly owned tenements since 2002. The tenements subject to the Kagara sale which took place in March 2012 were explored by Kagara since 2006 (and by LionOre and St Barbara prior to that time).
	• The Company has managed both the Mt Gibb JV since 2009 (Great Western Exploration explored the ground prior to that time) and the Lake King JV since 2007 (a small amount of work carried out by WMC prior to that date).
Geology	• The deposits lie within the Forrestania Greenstone Belt, which is part of the Southern Cross Province of the Yilgarn Craton in Western Australia.
	• The main deposit type is the komatiite-hosted, disseminated to massive nickel sulphide deposits, which include the Flying Fox and Spotted Quoll deposits currently being mined.
	• The mineralisation occurs in association with the basal section of high magnesium oxide (MgO) cumulate ultramafic rocks.
	• The greenstone succession in the district also hosts several orogenic lode gold deposits (the Bounty gold mine is the largest example).
	• The Company undertakes some exploration for this style of deposit from time to time in the FNO tenements.
Drill hole Information	<ul> <li>This is a Mineral Resource Estimate summary, and no Exploration Results are reported.</li> </ul>
Data aggregation methods	<ul> <li>This is a Mineral Resource Estimate summary, and no Exploration Results are reported.</li> </ul>
	No metal equivalent values are used.
Relationship between mineralisation widthe and	<ul> <li>This is a Mineral Resource estimate summary, and no Exploration Results are reported.</li> </ul>
intercept lengths	The incident angles to mineralisation are considered moderate.
	• Due to the often-steep-dipping nature of the stratigraphy, reported downhole intersections are moderately greater (m/1.5 ratio on average) than the true width.



SECTION 2 – NEW MORNING/DAYBREAK – EXPLORATION RESULTS	
JORC Criteria	Explanation
Balanced Reporting	Not applicable to a Mineral Resource estimate summary.
Other substantive exploration data	<ul> <li>This is a Mineral Resource estimate summary, and no Exploration Results are reported.</li> </ul>
	<ul> <li>Multi-element analysis was conducted routinely on all samples for a base metal suite and potentially deleterious elements, including Al, As, Co, Cr, Cu, Fe, Mg, Ni, S, Ti, Zn and Zr. All diamond core samples were measured for bulk density which ranges from 2.90g/cm<sup>3</sup> to 4.79g/cm<sup>3</sup> for values &gt;0.5% Ni.</li> </ul>
	<ul> <li>Geotechnical logging was carried out on all diamond drill holes for recovery, defects and rock quality designation (RQD).</li> </ul>
	<ul> <li>Information on structure type, dip, dip direction alpha and beta angles, texture, shape, roughness and fill material is stored in the structural logs in the database.</li> </ul>
Diagrams	• This is a Mineral Resource estimate summary, and the appropriate figures can be found elsewhere in this table.
Further work	<ul> <li>This is a Mineral Resource estimate summary, and no Exploration Results are reported.</li> </ul>

Section 3 – New Morning/Daybreak – Mineral Resources	
JORC Criteria	Explanation
Database integrity	<ul> <li>All data were recorded in Excel templates with reference look-up tables. All data were imported into an AcQuire relational database.</li> </ul>
	• Validation is a fundamental part of the AcQuire data model and was implemented via referential integrity and triggers.
	• Referential constraints ensure that, for example, Hole ID matches collar and downhole data. Triggers checked criteria such as code validity, overlapping intervals, depth and date consistencies.
	All fields of code data had associated look-up table references.
Site visits	<ul> <li>The Competent Person is an employee of the Company and undertakes regular site visits.</li> </ul>
Geological interpretation	<ul> <li>The nickel deposits of the project area are of the komatiitic type with massive and/or matrix sulphides at the base of olivine cumulate (peridotite) sequences in preferred lava pathways.</li> </ul>
	• The NMDB deposit is principally a massive to matrix style body of pyrrhotite-pyrite- pentlandite-violarite +/- chalcopyrite with sulphides abundances of 50%–95% and specific gravities of 3.5 – 4.0.


	SECTION 3 – NEW MORNING/DAYBREAK – MINERAL RESOURCES
JORC Criteria	Explanation
	• Average nickel grades of ore intersections typically range over a 2%–6% Ni with locally higher grades.
	• The body lies at or adjacent to the contact between the footwall metasedimentary rocks and the lower most member of the overlying ultramafic sequence.
	• The sulphide body has a visibly sharp contact with the enclosing country rocks, although nickel sulphide grades can carry into granitoid intrusives, footwall metasediments and low to high Mg ultramafic rocks.
	• There is supergene alteration of pentlandite to violarite in several intersections with a variable pentlandite: violarite ratio.
	• Recent shallow drilling has confirmed that nickel mineralisation extends to at least 15m below surface.
	• The deposit is near the contact of the basal ultramafic: metasediment contact, which was probably the original locus for sulphide deposition from an overlying pile of komatiite flows. Subsequent metamorphism, deformation and intrusion of granitoid sills have contributed to a complex setting.
	• Disseminated nickel sulphides hosted in the basal contact are developed in places above the basal ultramafic contact above and marginal to the massive sulphide shoots/pods. The mineralisation comprises <5%–20% disseminated pyrrhotite-pentlandite pyrite in an amphibole-serpentinite ultramafic rock interpreted as a marginal olivine orthocumulate unit.
	• The most economically significant intersections of internal disseminated nickel sulphides occur near the hanging wall contact of the lower ultramafic unit about 100m above the massive sulphides. This unit consists of two lodes separated by ultramafic cumulates. The lodes have a strike length of 220m and 120m, respectively. They are shown below (looking north) in blue relative to some of the main lodes in red.
	• Confidence in the geological interpretation is high due to the history of adjacent mining of two deposits that are similar in nature, the drill spacing, and the understanding of similar deposits within the Forrestania Ultramafic Belt.
	• A combination of implicit and explicit modelling techniques has been used to model the geological units.
	• The NMDB geological model (see sections below) contains the following wireframes that were used for Mineral Resource estimation purposes:
	<ul> <li>Geological solids of the main hanging wall and footwall units on a regional scale coded on various Archaean ultramafic, mafic and metasedimentary units</li> <li>Granitoid sills and dolerite intrusive units</li> <li>Structural surfaces</li> <li>Oxide, transitional and fresh surfaces derived from the downhole geological logs</li> <li>Subvertical and hanging wall massive sulphide and disseminated mineralisation solids.</li> </ul>
	• Lithogeochemistry and stratigraphic interpretation have been used to assist the identification of rock types.
	• The current geological model is the culmination of several geological modelling iterations that included several different types of alternative outcomes by various geologists following each of the various drilling campaigns. The Competent Person considers this model to be the best representation of the orebody at NMDB, given the current level of exploration data.



	Section 3 – New Morning/Daybreak – Mineral Resources				
JORC Criteria	Explanation				
	• Apart from the alternative geological interpretations discussed above, estimation alternatives included isotropic and anisotropic Inverse Distance and Ordinary Kriging estimation.				
	The Mineral Resource estimate is based on the robust geological model discussed previously.				
	• The hanging wall and footwall contacts of the various mineralised domains were modelled with a level of confidence commensurate with the Mineral Resource classification category applied.				
	Key factors affecting continuity are:				
	<ul> <li>Orebody pinching and swelling</li> <li>Granodiorite intrusions and the dolerite dyke that forms the boundary between New Morning and Daybreak</li> <li>Variation in nickel grade</li> <li>Oxide zone mineralisation complexity.</li> </ul>				
Dimensions	<ul> <li>The deposit commences close (within 10m) to surface with variable mineralisation over a strike length of about 650m oriented along 003 trend (changing to 035 at 25,081mN).</li> </ul>				
	• Massive mineralisation widths are <1m to approximately 10m true thickness.				
	• The southern Daybreak zone is cut by a 5–20m wide east–west trending Proterozoic dolerite dyke centred on 24,762mN.				
Estimation and modelling techniques	<ul> <li>The model has been split for mining study purposes into mod_nmb_shallow_0818 and mod_nmdb_deep_0916 as shown below</li> <li> <sup>1</sup>/<sub>24000mN</sub> <sup>1</sup>/<sub>24500mN</sub> <sup>25000mN</sup> <sup>1</sup>/<sub>24500mN</sub> <sup>1</sup>/<sub>200mR</sub> <sup>1</sup>/<sub>200mR</sub> <sup>1</sup>/<sub>200mR</sub> <sup>1</sup>/<sub>200mR</sub> <sup>1</sup>/<sub>200mR</sub> <sup>1</sup>/<sub>200mR</sub> <sup>1</sup>/<sub>200mR</sub></li></ul>				



		Section 3 – New Morning/Daybreak – Mineral Resources
JORC Criteria	Ехр	lanation
	•	Grade and ancillary element estimation into the mineralised domains using Ordinary Kriging and Inverse Power Distance (IPD) was completed using Datamine™ RM and Supervisor software.
	•	The methods were considered appropriate due to drill hole spacing and the nature of mineralisation.
	•	Sample data were composited to 1m downhole lengths.
	•	Intervals with no assays were excluded from the Mineral Resource estimate. Top-cut investigations were completed, and no top-cuts were applied based on grade distribution and Coefficient of Variation.
	•	Sample, wireframe and block model data were flagged using domain and weathering codes generated from 3D mineralised wireframes.
	•	Extensive Exploratory Data Analysis (EDA) was carried out on the raw and composite data to understand the distribution in preparation for estimation and to validate the composite data against the raw data.
	•	EDA included histograms, log probability plots and mean and variance plots for each of the domains and subdomains.
	•	Qualitative Kriging Neighbourhood Analysis (QKNA) was used to determine the optimum search neighbourhood parameters. Directional variography was performed for nickel and selected ancillary elements.
	•	Nugget values vary with each domain – transitional material in the main Upper Domain shown below has a Ni nugget variance of 15% of the total variance.
	•	Preferred orientation Ni variogram ranges for the transitional material in the Upper Domain are 42.2m and 49.4m for the first and second structure, respectively. Corresponding variances are 29° and 56°, respectively.
	•	This Mineral Resource estimate is an update of a Mineral Resource estimate that was previously reported and was validated against the same.
	•	No assumptions about the recovery of by-products were made.
	•	WSA did not have any offtake agreements in place for by-products.
	•	Non grade elements were estimated into the block model using similar methods described for nickel.
	•	Three-dimensional block models constrained by wireframes representing the domains were designed for estimation purposes.
	•	Block sizes vary for each of the six main mineralised domains and were based on the results of the QKNA and the anticipated selective mining unit (SMU) which will vary with the depth of the orebody. Parent cell sizes for the Upper Domain are X1m; Y5m; Z5m.
	•	Parent cell estimation was used to avoid geostatistical support issues, i.e., sub-blocks have the same grade as their corresponding parent cells.
	•	Each block is informed with primary and ancillary grades as well as ore thickness, Kriging Quality parameters and Mineral Resource category. Blocks are coded on Weathering, Domain and Massive/Disseminated Sulphide.



	Section 3 – New Morning/Daybreak – Mineral Resources					
JORC Criteria	Explanation					
	<ul> <li>The size of the search ellipse was based on QKNA, drill hole spacing and domain dimensions.</li> </ul>					
	<ul> <li>An elliptical triple search strategy was undertaken. Search passes vary by domain. The search passes and sample numbers used for the Upper Domain transitional material is as follows:</li> </ul>					
	<ul> <li>Angles: X0; Y0; Z-80</li> <li>Pass 1 distances: X35 m; Y50 m; Z70 m</li> <li>Pass 2 distances: Twice the Pass 1 distances</li> <li>Pass 3 distances: Three times the Pass 1 distances</li> <li>Maximum number of samples to inform a block: <ul> <li>First pass: 17</li> <li>Second pass: 25</li> <li>Third pass: 30</li> </ul> </li> <li>Minimum number of samples to inform a block: <ul> <li>First pass: 14</li> <li>Second pass: 7</li> <li>Third pass: 5.</li> </ul> </li> </ul>					
	Maximum number of samples from any borehole is five.					
	<ul> <li>No selectivity was built into the model on the basis that full extraction of the ore zone is assumed for both open pit and underground mining.</li> </ul>					
	<ul> <li>No known correlation between variables other than the close correlation between density and nickel grade.</li> </ul>					
	• The geological interpretation was developed using geological, structural and lithogeochemical elements.					
	• The geological framework associated with extrusive komatiite-hosted deposits, and the structural elements observed at the local and wide scales, were used to determine and refine mineral domains.					
	<ul> <li>The hanging wall and footwall contacts of mineralisation were used as hard boundaries during the estimation process and only blocks within the geological wireframe were informed with nickel grades.</li> </ul>					
	• Geostatistical and visual investigation of the grade distribution negated the need for grade cutting or capping.					
	• Validation of the block model included comparing the volume of resource wireframes to block model volumes.					
	<ul> <li>It also involved comparing block model grades with drill hole grades by means of swath plots showing easting, northing and elevation comparisons.</li> </ul>					
	• Estimation validation techniques (example shown below) included swath plots of the grade of the composites.					
	• Visual grade validations using Datamine, Supervisor and Leapfrog were undertaken.					
	• The assumptions and methodologies used during this estimation are very similar to that of the previously reported Mineral Resource estimate.					
Moisture	Tonnages were estimated on a dry basis.					



	Section 3 – New Morning/Daybreak – Mineral Resources					
JORC Criteria	Explanation					
Cut-off parameters	<ul> <li>The mineral envelope was determined using a nominal 0.7% Ni grade cut-off for disseminated sulphide.</li> </ul>					
	<ul> <li>The Mineral Resource was reported at a 0.5% Ni and a 2% Ni cut-off grade for disseminated sulphide and massive sulphide, respectively.</li> </ul>					
	These cut-offs were applied based on:					
	<ul> <li>Nature of mineralisation</li> <li>Mining and metallurgical assumptions</li> <li>Previous Mineral Resource estimates</li> <li>Optimum representation of geological and grade continuity.</li> </ul>					
Mining factors or assumptions	Assumed mining methods are:					
	<ul> <li>Surface to -150m: open pit</li> <li>- 150m to base of model: underground longhole stoping techniques, using rockfill for stope voids.</li> </ul>					
Metallurgical factors or assumptions	<ul> <li>Conventional nickel sulphide flotation recovery techniques, like the adjacent Flying Fox and Spotted Quoll mines will be used for primary material.</li> </ul>					
	<ul> <li>Open pit material, defined by an assumed nominal -150mRL cut-off based on the depth of the Spotted Quoll open pit, will be treated using a leaching technique, possibly a combination of acid and bioleach methods.</li> </ul>					
	Preliminary metallurgical testwork/studies between 2009 and 2016 included:					
	<ul> <li>Head assays (total sulphur)</li> <li>Amenability</li> <li>Nitric acid digests</li> <li>Mineralogy.</li> </ul>					
	<ul> <li>Metallurgical samples taken in the oxidised zone indicated an absence of sulphide minerals which was reflected in the amenability testing of eight samples.</li> </ul>					
	<ul> <li>Acid leaching showed improved nickel recoveries in the oxidised zone.</li> </ul>					
	• There is sufficient quantitative metallurgical testwork in the oxidised zone to provide a level of confidence commensurate with the Mineral Resource Classification applied.					
	• The section below shows the modelled three main zones of weathering in the upper zone based on visual observations in the core (red = oxidised, green = transitional and blue = fresh).					
	• Further testwork, including bulk density testing, is planned in the oxidised zone prior to mining.					
Environmental factors or assumptions	<ul> <li>All waste and process residue will be disposed of through the Cosmic Boy concentrator plant and its tailings dam.</li> </ul>					



	Section 3 – New Morning/Daybreak – Mineral Resources
JORC Criteria	Explanation
	• All site activities will be undertaken in accordance with the Company's environmental policy.
Bulk density	• There is a strong correlation between nickel grade and bulk density at Forrestania and testwork at New Morning resulted in a robust nickel grade regression formula to estimate bulk density into the blocks.
	• Core from the New Morning primary zone is generally void of vugs, voids and other defects.
	• The bulk density values were estimated into the block model using the same search parameters that were used to interpolate nickel grade within the geological domains.
Classification	• The New Morning Mineral Resource is classified as Indicated and Inferred based on drill hole spacing, Slope of Regression and geological and metallurgical understanding of the various domains and weathering profiles.
	• There is insufficient confidence in the data to classify any of the material as Measured Mineral Resource.
	• The model has been confirmed by infill drilling, supporting the original interpretations.
	All relevant factors have been considered in this estimate.
	• The Mineral Resource estimate appropriately reflects the view of the Competent Person who is now a full-time employee of IGO and has been working on the deposits since 2008, both as a consultant and an employee.
Audits or reviews	None to date on the current Mineral Resource estimate.
Discussion of relative accuracy/ confidence	• The geological and grade continuity of the New Morning deposit is well understood, and the mineralisation wireframes used to build the block model have been designed using all available exploration and mining data.
	<ul> <li>Post-processing block model validation was extensively undertaken using geostatistical methods.</li> </ul>
	• The Mineral Resource Statement relates to local estimates of tonnes and grade.
	• No production data is available for New Morning. The adjacent Spotted Quoll mine has an extensive history of open pit and underground mining.



## GREENBUSHES REVISED JORC CODE TABLE 1 CHECKLIST

The JORC Code Table 1 Checklist below is a revision of the Greenbushes' checklist issued by IGO in January 2022<sup>116</sup>. This revised checklist addresses several minor but material errors and/or omissions in Sections 1, 2 and 3 of the checklists. Section 4 regarding Ore Reserves is unchanged from IGO's January announcement. The tabulation of Greenbushes' MREs and OREs in IGO's January 2022 announcement are also unchanged.

	SECTION 1 – GREENBUSHES – SAMPLING TECHNIQUES AND DATA
JORC Criteria	Explanation
Sampling techniques	<ul> <li>Talison Lithium Pty Ltd (Talison) has drill-sampled the Greenbushes Central Lode, Kapanga and Tailings Storage Facility 1 (TSF1) Mineral Resource estimate (MRE) volumes, with the Central Lode and Kapanga drilled by reverse circulation percussion (RC) drilling and diamond core drilling (DD). The TSF1 MRE volume was drilled using sonic drilling (SD).</li> </ul>
	<ul> <li>The holes drilled from surface at the Central Lode and Kapanga have collar spacings ranging from 25m to 50m across and along strike. The DD holes drilled from underground workings at the northern end of the Central Lode have a close spaced pattern, fanning out from the workings. The underground infill drilling took place from the hangingwall and footwall mine infrastructure. The TSF1 SD holes are drilled on a nominal 200m grid spacing.</li> </ul>
	<ul> <li>Apart from a few holes drilled to collect geotechnical information, the Central holes drilled from surface generally plunge towards local mine grid east to intersect the mineralisation at a high angle. Sample representativity has been ensured by monitoring core recovery to minimise sample loss. SD holes drilled to test the TSF1 resource are vertical</li> </ul>
	<ul> <li>For the 31 Aug 2021 Central Lode MRE, the database contains approximately 616 diamond core holes equating to approximately 111 km of drilling, and approximately 560 RC holes equating to 77 km of drilling. These holes were drilled in numerous programs conducted between 1977 and 2021.</li> </ul>
	<ul> <li>For the 31 Aug 2021 Kapanga MRE, the drill hole database contains 24 diamond core holes equating to approximately 4.8 km of drilling, and 216 RC holes equating to approximately 42 km of drilling. Over 90% of these holes were drilled between 2018 and 2021 For the 31 Mar 2018 TSF1 MRE, the drill hole database includes 34 SD drillholes for a total length of 759m.</li> </ul>
Drilling techniques	<ul> <li>RC drilling using face-sampling bits was used with diameters of either 5½ inch (140mm) or 5¼ inch (133mm).</li> </ul>
	• DD has been used for deeper holes and for drilling from underground platforms, with a few diamond tail extensions drilled to extend RC holes.
	Triple tube DD has been used in areas of broken ground to improve core recovery for geotechnical logging.
	The core from some DD holes drilled to collect data for geotechnical studies has been oriented.
	The DDs drilled for Central Lode and Kapanga MRE work include several different core diameters including 36.4mm (BQ), 47.6mm (NQ) and 63.5mm (HQ2, HQ3).
	The TSF1 MRE drilling comprised SD to collect 3-inch (76.2mm) cores.
Drill sample recovery	<ul> <li>RC recovery:</li> <li>Selected RC holes have had the cuttings from 1m downhole intervals weighed over the length of the mineralised intersection to provide data for assessment of the expected mass against the actual recovered mass. A few of the older RC holes have had samples collected over 2m down hole intervals.</li> </ul>
	<ul> <li>RC recovery is logged qualitatively as 'good' to 'poor' with recovery generally logged as 'good' except for samples collected within the first few metres from surface.</li> </ul>
	<ul> <li>The lithia grades from nearby RC and DD holes have been compared to assess the potential for grade bias due to RC fines losses. No material biases between the two drill methods have been identified for the Central Lode data. Review of several pairs of twinned holes contained in the Kapanga dataset showed apparent biases for Li2O, raising the possibility of preferential loss of light minerals during RC drilling.</li> </ul>
	DD recovery:
	<ul> <li>Recovery has been measured as the percentage of the total length of core recovered compared to the drill interval.</li> <li>Core recovery is consistently high (95 to 100%) in fresh rock with minor losses occurring in heavily fractured ground or for DD</li> </ul>
	drilling in the regolith.
	<ul> <li>Triple tube DD has been used to maximise recovery in zones of broken ground and the weathered zone.</li> </ul>
	<ul> <li>Recovery monitoring and triple tube drilling are the main methods used to maximise core recovery.</li> <li>The TSE1 SD recovery uses abstragraphed and recorded as good with one logging onto and one completely and the period.</li> </ul>
	<ul> <li>The TSFTSD recovery was photographed and recorded as good with one togging endy and one sample taken per 1.5m core barrel return to allow for expansion and contraction typical in sonic drilling returns. No significant relationships have been identified between grade and sample recovery</li> </ul>
Logging	<ul> <li>RC cuttings and DD and SD cores have been logged geologically and geotechnically with reference to standardised logging codes, to levels of detail that support MRE work, Ore Reserve estimation (ORE) and metallurgical studies. The information collected is considered appropriate to support any downstream studies by the Competent Person.</li> </ul>
	<ul> <li>Qualitative logging includes codes for lithology, regolith, and mineralisation for RC, DD and SD samples, with sample quality data recorded for RC such as moisture and recovery and in 10% of RCsample mass. DD subsampling size is recorded.</li> </ul>
	• DD cores are photographed, qualitatively structurally logged with reference to orientation measurements where available.
	Geotechnical quantitative logging includes QSI, RQD, matrix and fracture characterisation.
	The total lengths of all drill holes have been logged.



	SECTION 1 – GREENBUSHES – SAMPLING TECHNIQUES AND DATA						
JORC Criteria	Explanation						
Sub-sampling	RC sampling:						
sample	<ul> <li>RC samples were collected from a splitter (riffle, static cone and rotary cone) that collected a 3-5kg split of the primary lot from each downhole sampling interval.</li> </ul>						
propulation	<ul> <li>Most samples were collected from dry ground conditions.</li> </ul>						
	<ul> <li>The main protocol to ensure the RC samples were representative of the material being collected was visual logging of sample recovery, weighing sample return on 5-10% of holes and, collection and assay of 5% field duplicates of primary samples.</li> </ul>						
	<ul> <li>DD sampling:</li> <li>DD cores samples have been collected over intervals determined by geological boundaries but generally targeting a 1m length within the same zone of continuous geology.</li> </ul>						
	<ul> <li>Cores were generally half-core sampled with the core cut longitudinally using a core saw having a wet diamond impregnated cutting blade</li> </ul>						
	<ul> <li>Some of the larger diameter HQ core collected for metallurgical test was quarter core sampled.</li> </ul>						
	SD sampling:						
	<ul> <li>The TSF1 SD sample intervals are 1.5m down hole with the SD core captured in half PVC pipe and cut with a blade or wire to prepare a 'half core' tailings sample.</li> </ul>						
	Laboratory preparation:						
	<ul> <li>All samples were delivered in pre-numbered sample bags to Talison's on-site laboratory, with the sample chain-of-custody from the drill site to the laboratory managed by the Talison's site technical staff.</li> </ul>						
	<ul> <li>The laboratory then took over the chain-of-custody and used an internal digital tracking system for sample management.</li> </ul>						
	<ul> <li>The samples were then oven dried for 12 hrs at ~110°C before being crushed to a particle size distribution (PSD) of 100% passing 5mm.</li> </ul>						
	<ul> <li>A rotary splitter, is then used to collect a ~1kg sub-sample from the crushed lot.</li> </ul>						
	<ul> <li>For the majority of samples the crushed lots were pulverised using tungsten grinding bowls. During the tantalum mining era up ~2012 most samples were pulverised using standard steel grinding bowls except those expected to represent low iron technical grade plant feed which also used tungsten grinding bowls.</li> </ul>						
	<ul> <li>Following pulverising, a pulp sub-sample was collected into a small packet to serve as the assaying source lot.</li> </ul>						
	Quality controls:						
	<ul> <li>All laboratory sample preparation was carried out by trained technicians who followed the specified laboratory procedures for each sample preparation workflow.</li> </ul>						
	<ul> <li>Independently of the site laboratory, the site geological staff insert certified reference materials at a 1:20 frequency in every batch.</li> </ul>						
	<ul> <li>Sample pulps are retained for future reference and coarse rejects are discarded.</li> </ul>						
	— Talison's reviews of quality sample results confirm that the levels of precision, accuracy and levels of potential sample cross contamination are acceptable for MRE work. The precision half absolute relative difference values for field duplicates having grades ≥0.2% Li <sub>2</sub> O is less than ±10% relative for 85% of replicates collected since 2016.						
	Sample size versus grain size:						
	<ul> <li>Lithia bearing spodumene typically comprises between 15 to 55% of the mineralisation, and as such is in relatively high concentration.</li> </ul>						
	<ul> <li>The sample sizes collected at the primary and sub-sampling stages are considered appropriate by the competent person.</li> </ul>						
Quality of assay	No geophysical tools have been used to determine any analyte concentrations for MRE work						
laboratory tests	A small aliquot of the sample preparation pulp was collected and digested in sodium peroxide and the resulting solution     concentration of lithia						
	<ul> <li>A suite of 36 accessory analytes were also determined using fusion digestion and X-ray fluorescence, however these additional analytes are not included in the Publicly Reported MRE, albeit iron grade has been used to assist in the interpretation of zones of TG mineralisation.</li> </ul>						
	<ul> <li>Talison's technical staff maintains standard work procedures for all data management steps, with an assay importing protocol established that ensures quality control samples are checked and accepted before data can be loaded.</li> </ul>						
	• The site laboratory internal quality systems include replicate (pulp repeat) laboratory analyses, analysis of known standards by XRF, and round-robin interaction with other laboratories.						
	• Li <sub>2</sub> O in geological drill samples is not analysed in replicates; instead, the AAS machine is recalibrated before every batch of samples						
	<ul> <li>Known solution standards and blanks are embedded in each batch and the accuracy of the calibration is monitored regularly during analysis. The precision of the AAS analysis technique for lithium is statistically monitored by the laboratory,</li> </ul>						
Verification of sampling and assaying	• The pegmatite mineralisation characteristics, the drill coverage, and the resource estimation procedures mean that that the resource estimates are not significantly influenced by individual intersections. Talison periodically commissions independent consultants to review the resource models and the supporting data. Data entry is electronic, and held in an acQuire SQL database. Internal data entry and validation procedures operate in acQuire, backed up by physical and screen checks.						
	• Twin holes have been drilled to compare assay results from RC and DD drilling.						
	• A 36 element assay suite is compared to lithology which has high contrast between pegmatite and host rocks. From these comparisons Talison's geologist consider that there is no material down hole smearing of grades in the RC drilling and sampling.						



	SECTION 1 – GREENBUSHES – SAMPLING TECHNIQUES AND DATA							
JORC Criteria	Explanation							
	There have been no adjustments or scaling of lithium assay data.							
Location of data points	Throughout years of data collection up to date industry standard equipment available at the time has been used. Most of the recent drill hole collar locations were surveyed by company surveyors using real time kinematic differential global positioning system equipment (RTK-DGPS), to a reported accuracy of less than 10 cm. Underground DD collars were surveyed using total station equipment during the time of underground mining. Most holes (drilled since 2000) were downhole surveyed using either an Eastman single shot camera or (more recently) gyroscopic equipment. The survey intervals ranged from approximately 5 to 100m, and for most holes, measurements were recorded every 10 to 30m. A few early RC holes have not been surveyed and the short vertical SD holes in TSF1 do not have hole path surveys. The mine grid eastings are approximately aligned to the strike of the main pegmatites with the trend of mine grid north approximately 11° west of Magnetic North and 15.7° west of True North.							
	A 10,100.941 10,524.225 414,290.900 0,251,535.324							
	B 9.833.499 12,778.814 413,362.002 6,233,015.042							
	<ul> <li>Talison adds constant of 1.000m to the mine grid elevations relative to AHD elevations.</li> </ul>							
	• The digital terrain model is a synthesis of photogrammetric surveys and regular pit surveys and of good quality for MRE work. Active							
	<ul> <li>The precision of the TSF1 survey is considered have a precision of ±1m in three dimensions.</li> </ul>							
Data spacing and distribution	<ul> <li>For Central Lode, the drill section spacing is typically 50 m, with spacings of approximately 25 m along section. However, the drill coverage and spacing is quite irregular given the extensive mining and exploration history, and the variable geometry of the permattice.</li> </ul>							
	<ul> <li>For Kapanga, the majority of the holes were drilled on a regular grid with a nominal spacing of 40 m along east-west section lines</li> </ul>							
	and 50 m between section lines							
	<ul> <li>Down hole sample intervals for the Central Lode and Kapanga are nominally 1m, with diamond core samples were terminated at</li> </ul>							
	geological contacts while a 1.5m metre down hole sample interval was used for the TSF1 drilling.							
	Central Lode sample results were composited to 3m lengths prior to estimation The majority of Kapanga samples were collected using RC drilling over 1m intervals, and this was retained as the composite length							
	TSF1 samples were collected over 1.5m intervals, and this was retained as the composite length							
	The Competent Person considers that these data spacings are sufficient to establish the degree of geological and grade continuity appropriate for the MRE and ORE estimation procedures, and the JORC Code classifications.							
Orientation of data in relation to geological structure	Nearly all drill holes are oriented to intersect the mineralisation at a high angle and as such, the Competent Person considers that a grade bias effect related to the orientation of data is highly unlikely.							
Sample security	<ul> <li>The drill sites and laboratory are located on the Greenbushes minesite, with both having controlled access.</li> <li>The sample chain-of-custody is managed by Talison's technical personnel. Samples were collected in pre-numbered bags, for transport from the primary collection site to the laboratory. This generally happens on the day the samples are collected, or on the following day.</li> </ul>							
	<ul> <li>Sample dispatch sheets are verified against samples received at the laboratory and other issues such as missing samples and so on are resolved before sample preparation commences. The laboratory has ISO 9001 accreditation and has a detailed sample tracking system.</li> </ul>							
	• The Competent Person considers that the likelihood of deliberate or accidental loss, mix-up or contamination of samples is very low.							
Audits or reviews	<ul> <li>RSC conducted a review of the 2021 MRE and found no fatal flaws and recommended additional twinned holes in the Kapanga deposit.</li> </ul>							
	• Field quality control data and assurance procedures are reviewed by Talison's technical staff on a daily, monthly and quarterly basis							
	<ul> <li>The sampling quality control and assurance of the sampling was reviewed by consultants Quantitative Geoscience in the 2000s, Behre Dolbear Australia in 2018, and as part of IGO's due diligence work by Snowden Mining Industry Consultants in 2019. No adverse material findings were reported in any of these reviews,</li> </ul>							
	A 2021 review by SRK Consulting Australasia (SRK) noted that Talison rigorous quality control programs for assay, which have been in place since 2007, cover ~40% of the Central Lode data and effectively all the Kapanga drilling. In a recent Competent Person Report review by Behre Dolbear Australia (BDA), BDA noted that there is an apparent positive bias for lithia when comparing nearby Kapanga RC and DD samples, which may be material give most of the Kapanga drilling is RC. BDA further							



SECTION 1 – GREENBUSHES – SAMPLING TECHNIQUES AND DATA				
JORC Criteria Explanation				
	noted that a similar bias is observed by Talison in pit grade control samples, with a 5% factor applied to adjust grades down for forecasting plant head grades.			

SECTION 2 – GREENBUSHES – EXPLORATION RESULTS								
JORC Criteria	Explanation							
Mineral tenement and land tenure	Greenbushes is 100% owned by Talison Lithium Australia Pty Ltd (Talison). Talison is 51% owned by TLEA which is the holding company for the Tianqi Lithium (51%) and IGO (49%) JV. The remaining 49% of Talison is owned by Albermale Co.							
510105	•	i ne vvA mineral teneme	ents relevant to Gree	NDUSNES MR	Es and ORES are	e tabulated below	V.	
			Tenement	Name	Da	nte 🗖	Area	
		1	Mining	M01/02	Granted	Expiry	(114)	
			wining	IVIU 1/02 M01/03	20 Dec 1904	27 Dec 2026	1000	
				M01/03	20 Dec 1904	27 Dec 2020	000	
				M01/05	20 Dec 1904	27 Dec 2020	999	
				M01/06	28 Dec 1984	27 Dec 2020	985	
				M01/07	28 Dec 1984	27 Dec 2026	998	
				M01/08	28 Dec 1984	27 Dec 2026	999	
				M01/09	28 Dec 1984	27 Dec 2026	987	
				M01/10	28 Dec 1984	27 Dec 2026	1000	
				M01/11	28 Dec 1984	27 Dec 2026	999	
				M01/16	28 Sep 1994	27 Dec 2036	19	
				M01/18	28 Dec 1984	27 Dec 2026	70.4	
				M70/765	20 Jun 1994	19 Jun 2028	3	
			Exploration	E70/5540	08 Mar 2021	07 Mar 2026	222.6	
			General purpose	G01/01	17 Nov 1986	5 Jun 2028	10	
				G01/01	17 Nov 1986	5 Jun 2028	10	
			Miscellaneous	L01/01	19 Mar 1986	27 Dec 2026	9	
	•	State Forest (managed   most of the remaining (~	by WA State Departr -40%) being private I	ment of Biodiv land.	versity, Conserva	tions and Attract	ions) cov	ers ~55% of the tenure, with
	• !	M01/06, M01/07 and M0 The general purpose lea	)1/16 cover the operative over the proce	ating mining, ssing facilities	and processing a	ireas an area ~2	000ha, an	d contains the entire MRE.
	•	There is a sublease agree lithium metals on the ter	eement between Tal nements.	ison and Glob	al Advanced Me	tals (GAM), with	the latter	owning the rights to all non-
Exploration done by other parties	•	Mining in the Greenbushes region has been almost uninterrupted since the tin mineral cassiterite was first discovered in 1886, making Greenbushes the longest continuously operating mine in Western Australia.						
	•	The first tin miner in the area was the Bunbury Tin Mining Co in 1888 followed by Vulcan Mines who carried out oxide tin sluicing operations from 1935 to 1943.						
	•	Many prospectors held small leases in what is now the operational area sinking hundreds of shallow exploration shafts all over the area and numerous exploration adits seeking alluvial and lode deposits.						
	• •	• The Kapanga underground mine operated sporadically in the first half of the 1900s reaching 45m below surface.						
	•	From 1945 to 1956 tin dredging commenced using more modern equipment and in 1969, Greenbushes Tin NL commenced open pit mining of oxidised soft rock below surface.						
	•	Hard rock open pit tin-tantalum mining and processing at 0.8Mt/a commenced in 1992 with the ore sourced from the now near completed Cornwall Pit. This mining included underground mine development in 2001 to source high grade tantalum ore when the process capacity was increased to 4Mt/a. In 2002, tantalum demand declined rapidly and the tantalum/tin treatment plant was placed into care and maintenance.						
	•	Greenbushes Limited commenced open pit mining in 1983 and commissioned a 30kt/a lithium mineral concentrator in 1985. The mining and processing assets were subsequently acquired by Sons of Gwalia Ltd (SOG) in 1989 and the concentrate production capacity was increased to the 100kt/a in the early 1990s, then increased to 150kt/a by 1997, including the production of chemical grade lithium concentrate.						
	•	Resource Capital Fund purchased the Greenbushes Mine tenement package from the administrators of SOG in 2009 creating the lithium and tantalum company Talison Minerals. RCF then split Talison Minerals into the two companies Talison Lithium with the lithium rights on the tenement package and Global Advance Metals Ltd with the rights to non-lithium minerals on the tenure.						
	•	Drilling data available to	the 2021 MRE date	s back to 197	7.			
Geology	•	The Greenbushes Centr is an elongate north stril	ral Lode Deposit is or king and west dipping	ne of the worl g, lithium rich	d's largest and h pegmatite body,	ighest lithium gra that intruded alo	ade hard r ng the Do	ock deposits. The Central Lode onnybrook-Bridgetown shear



SECTION 2 – GREENBUSHES – EXPLORATION RESULTS					
JORC Criteria	Explanation				
	zone ~2.53Ga years ago into the older and largely lithium-barren, high grade metamorphic country rocks of amphibolite (hangingwall) and granofels (footwall) of the Balingup Metamorphic Belt.				
	<ul> <li>The tectonic history of the region is complex with up to four phases of correlated deformation and metamorphism. The pegmatite is interpreted to have intruded around the time of the second major tectonic event and was subsequently crosscut by later east-west dolerite intrusives prior to the fourth event.</li> </ul>				
	<ul> <li>All rocks have been weathered to depths of ~40m below natural surface.</li> </ul>				
	<ul> <li>Greenbushes' lithium bearing pegmatites present as a series of linear dykes and/or en echelon pods that range from a few meters in strike length up to 3km, and with true thickness ranging from 10 to 300m. The pegmatites have preferentially intruded at the boundaries between the major sequences of country rocks.</li> </ul>				
	<ul> <li>The Kapanga Deposit is a satellite deposit ~300m mine-grid east of the Central Lode with similar geology but with pegmatites generally thinner. The Kapanga pegmatites comprise a package of sub-parallel stacked lodes and pods of variable thickness</li> </ul>				
	<ul> <li>Several compositional zones are recognised in the pegmatite, with lithium rich zones observed to occur preferentially on the footwall and hangingwall zones of the Central Lode pegmatite. Tin and tantalum occur in the albite zone of the pegmatite and were the motivation for the historic mining at Greenbushes, mainly from the Cornwall Pit. Generally, the mineralisation presents as stacked higher grade lenses within a low grade alteration envelope. The zonation at Kapanga is broadly similar, with concentration of spodumene in the upper parts of the local sequence.</li> </ul>				
	<ul> <li>The high-grade lithium zone of the pegmatite comprises mostly spodumene and quartz, with local parts of the zone containing up to 50% of the lithium bearing mineral spodumene, which has a lithium concentration of ~8% Li<sub>2</sub>O.</li> </ul>				
	<ul> <li>The lower grade zones of the pegmatites consist of variable proportions of microcline feldspar and albite along with quartz and spodumene with some pegmatite zones containing no spodumene.</li> </ul>				
	<ul> <li>Greenbushes' TSF1 mineral resource is the processing tail from earlier phases of tin and tantalum mining and processing from the Central Lode deposits. As such the tailings have similar mineralogy to the Central Lode pegmatite.</li> </ul>				
	<ul> <li>The TSF1 'geology' is characterised by a ~7m thick upper layer of higher-grade 'enriched' tailings overlying a ~7.5m lower grade layer 'depleted' layer, which in turn overlies clay tailings deposited on the pre-existing natural surface.</li> </ul>				
	• All rocks have been extensively lateritised during peneplain formation in the Tertiary, with weathering and lithium leaching effects reaching to depths of up 40m below surface.				
Drill hole	No exploration results are presented in this report.				
Information	• The Competent Person considers the MREs give a balanced view of all the drill hole information.				
Data aggregation methods	No drill hole intercepts are reported so this item is irrelevant.				
Relationship between	<ul> <li>Apart from a few geotechnical drill holes and selected underground fan DD holes, the majority of the MRE related drilling intersects the mineralisation at a high angle and as such approximates true thicknesses in most cases.</li> </ul>				
mineralisation widths and intercept lengths	• The Competent Person considers that the risk of a grade bias introduced due to a relationship between intersection angle and grade is very low.				
Balanced Reporting	• The Competent Person considers that the MREs are based on all available data and provide a balanced view of the deposits under consideration.				
Other substantive exploration data	• For this active mine there is no other substantive exploration data material to the MRE.				
Diagrams	• Representative diagrams of the geology and mineral resource extents are included in the main body of this Public Report.				
Further work	Exploration drilling is continuing within the Greenbushes tenements with several advanced exploration targets on regional pegmatites.				

SECTION 3 – GREENBUSHES – MINERAL RESOURCES		
JORC Criteria	Explanation	
Database integrity	<ul> <li>Talison capture all geoscientific drill hole information for MRE work using laptop interfaces. The data is then stored in an SQL Server database and managed using acQuire software, which is a well-recognised industry software for geoscientific data storage, manipulation and validation.</li> <li>The acQuire interface has a number of inbuilt validation tools. These include predefined dictionary definitions, valid range check and logical value checks.</li> </ul>	
	<ul> <li>Historical drill hole data was manually captured on hard copy log sheets, these were manually transcribed and all material geological logging has been captured in the SQL database. As interpretation of the mineralisation is primarily driven by lithia assays, the Competent Person considers any lack of complete historical geology transfer to be not material.</li> </ul>	



SECTION 3 – GREENBUSHES – MINERAL RESOURCES		
JORC Criteria	Explanation	
	<ul> <li>In 2006, Greenbushes migrated to an integrated SQL Server database for the storage of exploration and production control data. The earlier data were exported across from a Paradox database or Excel file.</li> </ul>	
	<ul> <li>Talison selected a random sample of historical assay data transferred into the SQL database and compared the results to the original records to confirm the loading of historical assay records was correct – no material issues were found in this audit process</li> </ul>	
	<ul> <li>Talison validates all data following loading through visual inspection of results on-screen both spatially and using database queries and cross section plots. Typical checks carried out against original records to ensure data accuracy include items such as overlapping records, duplicate records, missing intervals, end of hole checks and so on.</li> </ul>	
	The Competent Person considers the risk of data corruption through transcription errors between initial collection and use in the MRE process to be very low risk.	
Site visits	The Competent Person for the MRE is the Geology Superintendent for Greenbushes and as such has detailed knowledge of the data collection, estimation, and reconciliation procedures for this MRE revision.	
Geological interpretation	<ul> <li>Central Lode and Kapanga:         <ul> <li>The Central Lode geological model was prepared by SRK NA and Talison using Leapfrog Geo implicit modelling techniques, and subsequently reviewed and updated by SRK. The Kapanga model was prepared by Talison using Leapfrog Geo implicit modelling techniques and reviewed and updated by SRK.</li> <li>A second 3D digital wireframe was prepared in a similar process for the more highly mineralised pegmatite using a &gt;0.7% Li20 threshold. The high-grade wireframe was nested inside the larger volume pegmatite wireframe.</li> <li>The models were prepared using extensive datasets that included geological logging data and geochemical data acquired from resource definition drilling. Grade control data and pit mapping data were also used for Central Lode. The models included the main lithological units, structural features, alteration zones, and grade domains</li> <li>The deposits show significant complexity, which is common for most pegmatite deposits. Alternative interpretations are possible for both the geometry and extents of the pegmatites, and for the alteration zones, which have been defined using probabilistic approaches. However, given the relatively good drill coverage, is it unlikely that alternative interpretations will report significantly different grades and tonnages. It is considered that the uncertainty in the geology model is adequately accounted for in the resource classifications.</li> <li>A depth of weathering surface was prepared to allow modelling of the oxidised near surface parts of the deposit.</li> <li>TSF1:</li> <li>Multiple current staff at the mining operation were present in the creation of this man made structure. This along with the survey data that constrains the dam provides for an indicated level of confidence in the geological interpretation of the deposit with respect to spatial constraints and depositional process.</li> <li>Geology loggin</li></ul></li></ul>	
Dimensions	<ul> <li>Central Lode and Kapanga:</li> <li>The Central Lode consists of a large primary intrusion surrounded by numerous smaller sub-parallel dykes and pods. It has been interpreted over a north-north westerly strike length of approximately 3.5 km, and it dips at approximately 40° to the</li> </ul>	
	<ul> <li>west. The zone is up to 300 m wide and has been interpreted to a depth of several hundred metres below surface.</li> <li>The Kapanga deposit is located approximately 300 m to the east of Central Lode. It has been interpreted over a northly strike length of approximately 1.8 km. It typically dips at 40–50° to the west, with some steepening to 60° in the southern part of the deposit. The pegmatite has been interpreted as several sub-parallel stacked lodes of varying thickness and length, as well as numerous smaller pods, with an overall thickness of approximately 150 m. It has been interpreted to a depth of approximately 450 m below the surface.</li> <li>The weathered zone typically extends to a depth of 20–40 m, and the majority of the lithium has been leached from this zone.</li> <li>The Publicly Reported MRE is constrained by a 'break-even' pit optimisation shell that has dimensions of 2.8km along strike 150-180m wide horizontally and extending to a maximum depth of 580m below surface.</li> <li>TSF1:</li> <li>TSF1's MRE is has dimensions of ~1km north south and ~0.7km east west in the mine grid system.</li> <li>The mean depth of the combined mineralised tailings (EZ+DZ) ranges between 8 to 15m below current surface.</li> </ul>	
Estimation and modelling techniques	<ul> <li>Central Lode and Kapanga:         <ul> <li>Consultants SRK prepared the Central Lode/Kapanga MRE for Talison.</li> <li>The Mineral Resource Estimates were prepared using conventional block modelling and geostatistical estimation techniques.</li> <li>The same model framework was used for Central Lode and Kapanga. However, they were modelled separately using different datasets and estimation procedures and parameters. The two models were combined into a single model for Mineral Resource reporting.</li> </ul> </li> </ul>	



SECTION 3 – GREENBUSHES – MINERAL RESOURCES	
JORC Criteria	Explanation
	<ul> <li>Leapfrog Edge was used to prepare the Central Lode model. Datamine Studio RM was used to prepare the Kapanga model. The two models were combined and converted to Surpac for handover to Talison's mine planning team.</li> </ul>
	<ul> <li>KNA studies were used to assess a range of parent cell dimensions, and a size of 20 × 20 × 20 m (XYZ) was considered appropriate given the drill spacing, grade continuity characteristics, and expected end-user requirements for the combined model. Sub-celling down to 5 × 5 × 5 m was applied to enable the wireframe volumes to be accurately modelled.</li> </ul>
	<ul> <li>The domain wireframes were applied as soft boundary estimation constraints in the Central Lode model and as hard boundary estimation constraints in the Kapanga model.</li> </ul>
	<ul> <li>Probability plots were used to assess for outlier values. Grade cuts were not applied, but distance restrictions were applied to Li2O and Fe2O3 grades above selected thresholds in some domains.</li> </ul>
	<ul> <li>The parent cell grades were estimated using Ordinary Kriging. Search orientations and weighting factors were derived from variographic studies. Dynamic anisotropic searching was used in Central Lode to adjust the local search orientations to match any localised changes more closely to the strike and dip of the pegmatite units in the geological model. It was not applied for Kapanga where the pegmatite orientations were observed to be more consistent (at the current drill spacing).</li> </ul>
	<ul> <li>A multiple-pass estimation strategy was invoked, with KNA used to assist with the selection of search distances and sample number constraints. Extrapolation was limited to approximately half the nominal local drill spacing.</li> </ul>
	<ul> <li>Local estimates were generated for the following analytes, both as in situ grades (head grades), and concentrate grades:</li> <li>Kapanga - Li2O, Fe2O3, Sn, Ta2O5, Al2O3, SiO2, CaO, MgO</li> </ul>
	<ul> <li>Central Lode - Li2O, Fe2O3, SnO2, Ta2O5, MnO, Na2O, P2O5, CaO</li> </ul>
	<ul> <li>Where possible, the same or similar estimation parameters were used to estimate all variables in each parent cell to ensure that any grade relationships present in the sample data are reproduced in the model. Default grades based on the dataset averages were assigned to cells that did not receive a kriged grade. These cells were flagged accordingly in the model.</li> </ul>
	<ul> <li>Model validation included:</li> </ul>
	<ul> <li>Visual comparisons between the input sample and estimated model grades</li> <li>Global and local statistical comparisons between the sample and model data</li> </ul>
	<ul> <li>An assessment of estimation performance measures including slope of regression, and percentage of cells estimated in each</li> </ul>
	search pass
	TSF1:
	<ul> <li>Talison prepared a digital block model in Surpac software in mine grid coordinates.</li> </ul>
	<ul> <li>The parent block dimensions were set to 80m squares in the horizontal and 1.5m vertically, which approximates half the information spacing horizontally and agrees with the SD sampling length. Sub blocks were permitted down to 10m squares in the horizontal and 0.75m in the vertical to ensure acceptable precision by block volume of the wireframe volumes defining each estimation layer.</li> </ul>
	<ul> <li>The wireframe surfaces were used to prepare blocks for the EZ and DZ as well as the dam walls and the basal clay zone Only lithia grade was estimated.</li> </ul>
	<ul> <li>Block grades were estimated from the 1.5m long composites using an inverse distance squared algorithm with a 200m wide horizontal, and 50m vertical search that estimated grades for 98% of the model volume in each layer. Blocks not estimated in the search were assigned the mean grade of composites from each zone.</li> </ul>
	<ul> <li>A minimum of three and a maximum of 16 composites were required for a block to be estimated.</li> </ul>
Moisture	Tonnages for both the Central Lode, Kapanga and TSF1 were estimated on a dry basis.
Cut-off parameters	Central Lode and Kapanga:
	<ul> <li>Talison reported the estimate using a 0.5% Li<sub>2</sub>O block model cut-off within a break-even pit optimisation shell. The cut-off</li> </ul>
	grade is consistent with the operations' process tailing grades at the time the estimate was prepared.
	<ul> <li>ISF I:</li> <li>Talison reported the estimate using a 0.7% LivO block model cut-off as the processing plants were typically tailing at 0.6% at</li> </ul>
	the time of estimation and processing of lower grades of tails are believed to be unrealistic. This will be revised in future based on the performance of the operating retreatment plant.
Mining factors or	Central Lode and Kapanga:
assumptions	<ul> <li>Talison has assumed that mining will continue by conventional open pit drill and blast, and load and haul as currently used in the active Central Lode pits.</li> </ul>
	<ul> <li>RC grade control will be used to define ore prior to mining, and close spaced patterns will be used to delineate pods of TG ore.</li> </ul>
	<ul> <li>The resource model will contain some internal dilution, but external dilution has not been intentionally added to the resource model. It is expected that Kapanga will be mined using techniques that that similar to those currently used at Central Lode.</li> </ul>
	<ul> <li>In order to assist with an assessment of the reasonable prospects of eventual economic extraction, Talison used the combined model to conduct a preliminary pit optimisation study. This was based on current and projected operational data and on pricing provided by their corporate division.</li> </ul>
	<ul> <li>A series of pit shells were generated, and the Mineral Resource has been limited to the pegmatite contained within the pit shell based on a revenue factor = 1.</li> </ul>
	• TSF1:



SECTION 3 – GREENBUSHES – MINERAL RESOURCES	
JORC Criteria	Explanation
	- The tailings will be mined by conventional load and haul surface methods without blasting and processed through the TRP
Metallurgical factors or assumptions	<ul> <li>Central Lode and Kapanga:         <ul> <li>Ore will be processed through the existing and future spodumene concentration plants to produce TG and CG saleable products.</li> <li>Proposed new plants will have similar or superior design parameters to the existing plants.</li> <li>Process plant recovery factors and mineralogy for the existing plants are based on historical processing metrics, with these recoveries considered achievable in new proposed chemical grade plants.</li> <li>Preliminary metallurgical test work on Kapanga indicates similar mineralogy and that saleable spodumene concentrates are achievable.</li> <li>The process flowsheets keep deleterious elements at acceptable levels for customer products and multi-finger stockpile blending is also used to assist in meeting product specifications.</li> <li>The technical grade concentrate produced ranges from 5.0 to 7.2% Li<sub>2</sub>O and &lt;0.15% Fe, and chemical grade concentrate grades 6.0% Li<sub>2</sub>O</li> </ul> </li> <li>TSF1:         <ul> <li>Metallurgical test work the tailings will be processed through the TRP with expected lithia recovery of 70%.</li> </ul> </li> </ul>
Environmental factors or assumptions	<ul> <li>The reported Mineral Resources are contained within approved tenement boundaries. Greenbushes is an operating mine that is currently extracting and processing ore from Central Lode. It is expected that future mining, processing, and waste disposal procedures will be similar to the current procedures and be subject to the same or similar permitting requirements.</li> <li>the Competent Person reasonably expects that Greenbushes Operation will obtain all future approvals to mine, process, and extract spodumene concentrates in the MRE, and that there are no known insurmountable impediments to gaining additional approvals for additional process plants, expanded infrastructure and water supply. See the relevant Ore Reserve sections further below for more details</li> </ul>
Bulk Density	<ul> <li>Central Lode and Kapanga:         <ul> <li>In situ density of the pegmatite was determined using conventional water displacement methods on over 2000 drill cores.</li> <li>Fresh core is relatively impermeable, and porosity is not a significant issue when performing the water immersion tests.</li> <li>The data was used to derive a regression equation for pegmatite to estimate MRE block density based on lithia grade – where Density (t/m³) = 2.59 + 0.071× %Li<sub>2</sub>O.</li> <li>The density test results for waste host rock lithologies are averaged, and these values are assigned as defaults to model cells of equivalent lithology A value of 1.8t/m³ was applied to the oxidised near surface materials, based on mining reconciliation information.</li> </ul> </li> <li>TSF1:         <ul> <li>A density of 1.67t/m³ was assigned to all tailings (both EZ and DZ) being the average density of five consistent SD core measurements throughout the deposit.</li> </ul> </li> </ul>
Classification	<ul> <li>Central Lode and Kapanga:         <ul> <li>The MRE has been classified into the JORC Code categories of Measured, Indicated and Inferred Mineral Resource based on Talison's and the Competent Persons assessment of data quality, data spacing and estimation quality.</li> <li>The classifications applied to the Mineral Resource Estimates are based on a consideration of the confidence in the geological interpretation, the quality and quantity of the input data, the confidence in the estimation technique, and the likely economic viability of the material.</li> <li>The largest source of uncertainty is the reliability of the local estimates and the accuracy of the lithological interpretation, both of which are influenced by drill hole spacing. Based on these considerations, the classifications are largely based on the local drill spacing and estimation performance data.</li> <li>For Central Lode, an interim classification of Indicated was assigned to each pegmatite model cell using criteria that included the number of informing drill holes, the average sample distance, and the estimated slope of regression. An interim classification of Inferred was assigned to the remining pegmatite cells. The interim coding was used to create solids that delineated broader areas of consistent classification, and these solid were used to assign the final classification.</li> <li>For Kapanga, the drill holes and the pegmatite model cells were examined on east-west cross-sections. An Indicated boundary was defined by delineating strings around areas where the drill spacing was regular, the majority of the model cells had been estimated using the first search pass, and the slope of regression exceeded 0.6. Extrapolation distances beyond the drilling were limited to approximately 20–30 metres. An Inferred boundary was interpreted to capture any remaining pegmatite between 20–50 m beyond the Indicated boundary.</li> <li>As described above, the Mineral Resour</li></ul></li></ul>



SECTION 3 – GREENBUSHES – MINERAL RESOURCES		
JORC Criteria	Explanation	
Audits or reviews	<ul> <li>Prior MRE estimates and the Talison's estimation processes have been reviewed in 2018 at a high level by Behre Dolbear Australia Pty Ltd, who concluded that the estimates were consistent with the requirements of the prevailing JORC Code and that reasonable prospects of eventual economic extraction had been demonstrated.</li> <li>In 2020, Snowden Mining Industry Consultants reviewed the prior estimates and process for IGO and concluded there were no fatal flaws in the MRE processes applied for the Central Lode and TSF1 and the estimates were generally low risk.</li> <li>The 2021 MRE revision has been reviewed internally by Talison's senior geological staff.</li> <li>A December 2021, fatal flaw independent review prepared by resource and mining consultants RSC found no fatal flaws in Talison's method of preparation or reporting of the Aug-21 MRE and ORE.</li> </ul>	
Relative Accuracy/Confidence	<ul> <li>No specific statistical studies have been completed to quantify the estimation precision of either the Central Lode, Kapanga or TSF1 estimates.</li> </ul>	
	• The Mineral Resource Estimates have been prepared and classified in accordance with the guidelines of the JORC Code, and no attempts have been made to further quantify the uncertainty in the estimates.	
	The validation checks indicate good consistency between the model grades and the input datasets. The largest source of uncertainty is considered to be the local accuracy of the geological interpretation and grade estimates	
	<ul> <li>The descriptions of the sample collection, preparation and testing procedures, as well as the compiled and assessed QA/QC data, are only available for recent programs, resulting in some uncertainty in the reliability of the earlier datasets. The risks associated with this are partly mitigated against by several factors, including:</li> </ul>	
	• Most of the earlier data were acquired from diamond core drilling, where recovery issues are easier to identify	
	• The samples have all been prepared and tested by the same laboratory, with only minor changes to procedures	
	Routine reconciliation data does not indicate significant data quality issue	
	Most of the resources in the area covered by the early drilling have been mined	
	The uncertainty associated with data reliability is reflected in the resource classifications	
	• The Mineral Resource quantities should be considered as global and regional estimates only. The model is considered suitable to support mine design studies, but is not considered suitable for production planning, or for studies that place significant reliance upon the estimates for individual block grades.	



## REFERENCES

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15	JBM ASX announcement 31 July 1998 - Fourth Quarter Activities & Cashflow Report.
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35	JBM ASX announcement 8 April 2003 - Jubilee Secures Strategic Mt Goode Project.
36	JBM ASX announcement 6 April 2005 - Quarterly Report for the Period Ended March 31, 2005.
37	JBM ASX announcement 28 September 2004 - Annual Report 2004.
38	JBM ASX announcement 6 July 2006 - Anomaly 1 Upgrade Resource Estimate.
39	JBM ASX announcement 1 July 2004 - Exploration Update - '1200' Target and Anomaly 1 Resource Estimate.
40	JBM ASX announcement 23 June 2004 - New Massive Sulphide Zone Intersected at Cosmos.
41	JBM ASX announcement 23 August 2004 - Exploration Decline to Access '1200' Target and Anomaly 1.

## FY22 Cosmos and Forrestania Mineral Resources and Ore Reserves FY22



42	JBM ASX announcement 11 January 2005 - Jubilee Exploration Update.
43	JBM ASX announcement 9 June 2005 - New Exploration and Development Decline in the Cosmos - Alex Mairs Complex.
44	JBM ASX announcement 14 July 2005 - Prospero Resource Upgrade.
45	JBM ASX announcement 20 February 2007- RIU Explorers Conference 20-21 February 2007 (Presentation).
46	JBM ASX announcement 20 October 2006 - Initial Resource for the Alec Mars 2 Deposit.
47	JBM ASX announcement 6 June 2007 - Quarterly Report for the Period Ended June 30, 2007.
48	JBM ASX announcement 11 July 2003 - Jubilee Discovers New Zone of Nickel Sulphides at Cosmos South
49	JBM ASX announcement 5 August 2003 - Exploration Update: Cosmos South and Cosmos Deeps.
50	JBM ASX announcement 28 September 2004 - Jubilee Exploration Update.
51	JBM ASX announcement 6 April 2005 - Exploration Update - Prospero Deposit.
52	JBM ASX announcement 3 May 2005 - Prospero Resource and Proposed Mine Development.
53	JMB. JBM ASX announcement 1 August 2005 - Commencement of the Prospero Box-cut.
54	JBM ASX announcement 2 March 2006 - Prospero Resource and Drilling Update
55	JBM ASX announcement 14 July 2006 - Substantial Increase in Prospero Resource and Exploration Update.
56	JBM ASX announcement 22 August 2006 - Initial Prospero Ore Reserve.
57	JBM ASX announcement 14 July 2005 - Presentation for Diggers & Dealers Mining Forum 2005.
58	JBM ASX announcement 9 November 2005 - Initial Tapinos Resource.
59	JBM ASX announcement 3 May 2007 - Cosmos Nickel Project - New Discovery of High Grade Massive and Disseminated Nickel Sulphides at AM5.
60	JBM ASX announcement 28 October 2007 - Recommended A\$23.00 per share cash offer by Xstrata for Jubilee.
61	ASX Market Release 24 April 2008 - Jubilee Mines NL - Removal from Official List.
62	Xstrata Annual Report - 2008.
63	Xstrata Annual Report - 2009.
64	Xstrata Annual Report - 2010.
65	Xstrata Annual Report - 2011.
66	Xstrata Half-Yearly Report 2012 six months ended 30 June 2012.
67	WSA ASX announcement 19 June 2015 - Western Areas to Acquire the Cosmos Nickel Complex.
68	WSA ASX announcement - Western Areas Completes the Acquisition of the Cosmos Nickel Complex.
69	WSA ASX announcement 26 October 2015 - Activity Report for the Period Ending 30 September 2015.
70	WSA ASX announcement 30 March 2017 - Odysseus PFS Support Second Production Centre for Western Areas.
71	WSA ASX announcement 22 October 2019 - Activity Report for the Period Ending 30 September 2019.
72	WSA ASX announcement 22 October 2018 - Strong Odysseus DFS Results in Decision to Mine.
73	WSA ASX announcement - Odysseus Project Update - Post DFS Works on Plan and Budget.
74	WSA ASX announcement - Activity Report for the Period Ending 31 March 2020.
75	WSA ASX announcement 20 July 2020 - Activity Report for the Period Ending 30 June 2020.
76	WSA ASX announcement 2 September 2020 - Maiden Ore Reserve at AM6 Boosts Odysseus Base Case.
77	WSA ASX announcement 8 September 2020 - Odysseus Twin Declines Commenced - Mine Construction Update.
78	WSA ASX announcement 3 December 2020 - Amended - Odysseus Shaft Hoisting Equipment Arrives in WA.
79	WSA ASX announcement 19 January 2021 - Activity Report for the Period Ending 31 December 2021.
80	WSA ASX announcement 5 October 2021 - Odysseus Mine Development Reaches First Ore.
81	WSA ASX announcement 30 September 2021 - Activity Report for the Period Ending 30 September 2021.
82	WSA ASX announcement 16 December 2021 - IGO to Acquire Western Areas Limited via Board Recommended Scheme of Arrangement.
83	WSA ASX announcement 11 April 2022 - Western Areas and IGO Agree to Increased Scheme Consideration
84	WSA ASX announcement 29 April 2022 - Activity Report for the Period Ending 31 March 2022
85	ASX Market Announcement - Western Areas Limited (ASX:WSA) - Removal from Official List
00	Collins, J. The Structural Evolution and Mineralization History of the Flying Fox Komatilte-hosted Ni-Cu-PGE Sulfide Deposit, Forrestania Greenstone Belt, Western
86	Australia. (The University of Western Australia, 2013).

## FY22 Cosmos and Forrestania Mineral Resources and Ore Reserves FY22



87	WSA ASX announcement 26 July 2000 - Admission to Official List.
88	WSA ASX announcement 18 February 2003 - Westem Areas Earns 75% JV Interest at Forrestania.
89	WSA ASX announcement 19 May 2003 - Agreement to Purchase Outokumpu's 25% Interest in the Forrestania Nickel Project.
90	WSA ASX announcement 3 November 2003 - Flying Fox Update and Settlement of 100% Interest at Forrestania.
91	WSA ASX announcement 17 Apr 2002 - To Earn 75% in Forrestania Nickel Sulphide Proj/Acquisition.
92	JORC. Australasian Code For Reporting of Identified Mineral Resources and Ore Reserves (1989 Edition). (JORC, 1989).
93	WSA ASX announcement 29 Apr 2002 - To Commence Feasibility Study on New Morning & Diggers South.
94	WSA ASX announcement 17 Dec 2002 - Forrestania Drilling Results and Project Acquisition.
95	WSA ASX announcement 31 January 2003 - December 2002 Quarter Activities Report.
96	WSA ASX announcement 23 June 2004 - Milestone Agreement with LionOre for Forrestania Nickel Includes Funding Facility Up To \$20m.
97	WSA ASX announcement 22 August 2003 - Forrestania Nickel Project Bankable Feasibility Study to Proceed.
98	WSA ASX announcement 2 August 2004 - First Drillhole Intersection Points to a Significant New High Grade Nickel Discovery Below Flying Fox.
99	WSA ASX announcement 26 September 2004 - 24m Intersection of Massive Sulphide in the New Zone at Flying Fox.
100	WSA ASX announcement 29 June 2002 - Stage 1 Ore Reserve for Flying Fox and Recent EM Results Open Up the Potential of the Belt.
101	WSA ASX announcement 2 May 2005 - Activities Report - March Quarter 2005.
102	WSA ASX announcement 24 January 2005 - Activities Report - December Quarter 2004.
103	WSA ASX announcement 26 July 2000 - First Mineral Resource Estimate at Flying Fox T5 Deposit and Stage Two Feasibility Study to Proceed.
104	WSA ASX announcement 23 April 2007 - Activities Report for the Period Ending 3 March 2007.
105	WSA ASX announcement 14 August 2007 - New Nickel Zones and EM Conductors Confirm Potential For Major Upgrade at Flying Fox Mine.
106	WSA ASX announcement 26 March 2009 - Revised Mineral Resource at Flying Fox T4 Deposit Highlights Potential for Further Extensions.
107	WSA ASX announcement 23 May 2008 - Initial Mineral Resource for T4 Deposit Increase Nickel at Flying Fox by 14%.
108	KZL ASX announcement 11 May 2009 - Western Areas and Kagara Reach Agreement to Mine the Lounge Lizard Deposit.
109	WSA ASX announcement 27 October 2005 - First Ore Reserve for Flying Fox T5 Deposit.
110	WSA ASX announcement 16 October 2007 - New High Grade Nickel Discovery at Forrestania.
111	WSA ASX announcement 18 April 2008 - First Mineral Resource for Spotted Quoll Nickel Deposit Exceeds Western Areas Expectations.
112	WSA ASX announcement 31 July 2003 - Activities Report - June Quarter 2003.
113	WSA ASX announcement 4 April 2007 - Letter to Shareholders - Exploration Strategy.
114	WSA ASX announcement 23 May 2003 - Update on Exploration and Scoping Studies at the Forrestania Nickel Project.
115	WSA ASX announcement 29 November 2007 - Western Areas Seeks New Nickel Offtake Terms For Diggers South and Commits to Full Feasibility Study.
116	IGO ASX announcement 31 January 2022 - CY21 Annual Resources and Reserves Update.