

## MINERAL RESOURCES AND ORE RESERVES AS AT 30 JUNE 2019

### Summary

Panoramic Resources Limited (**ASX Code: PAN**) advises on the Panoramic Group's Annual Mineral Resources and Ore Reserves Statement as at 30 June 2019, which is summarised in Table 1. Changes to the nickel, copper and cobalt Mineral Resources and Ore Reserves between FY2018 and FY2019 are attributable to the resumption of mining at the Savannah Nickel Project during the year and the sale of the Lanfranchi Nickel Project in December 2018. There were no changes to the platinum and palladium Mineral Resources between FY2018 and FY2019. The detailed inventory by commodity and project are shown in Tables 3 to 5.

**Table 1: Group Summary of contained metal in Ore Reserves and Mineral Resources as at 30 June 2019 and comparison with 30 June 2018 (note – Mineral Resources include Ore Reserves)**

Resource / Reserve	FY2019	FY2018	% Change y-o-y
Total Nickel Reserves	<b>110,400 tonnes</b>	116,800 tonnes	-5.48
Total Copper Reserves	<b>51,200 tonnes</b>	52,400 tonnes	-2.29
Total Cobalt Reserves	<b>7,500 tonnes</b>	7,600 tonnes	-1.32
Total Nickel Resources	<b>217,000 tonnes</b>	313,600 tonnes	-30.8
Total Copper Resources	<b>100,100 tonnes</b>	99,100 tonnes	+1.01
Total Cobalt Resources	<b>14,800 tonnes</b>	14,900 tonnes	-0.67
Total Platinum Resources	<b>1.39 million ounces</b>	1.39 million ounces	no change
Total Palladium Resources	<b>1.46 million ounces</b>	1.46 million ounces	no change

### Assumptions

For the FY2019 Ore Reserve Review, the Company compiled US\$ commodity price and A\$:US\$ foreign exchange rate forecasts in mid-2019 over the medium term, from a range of external parties. In A\$ terms, the nickel price assumption for the FY2019 Ore Reserve Review is higher than the prices assumed for the previous Ore Reserve estimates as a result of the lower A\$:US\$ foreign exchange rate. Commodity prices and A\$:US\$ foreign exchange rate used for Ore Reserve reporting are as shown in Table 2.

**Table 2: Commodity price and A\$:US\$ exchange rate assumptions used for the 30 June 2019 Ore Reserves Review**

Commodity	Units	2019 Ore Reserve Review	2018 Ore Reserve Review	Feb 2017 Savannah North Ore Reserve
Nickel	US\$/lb	<b>6.00</b>	6.20	6.00
~	A\$/lb	<b>8.57</b>	8.27	8.15
Copper	US\$/lb	<b>2.50</b>	3.15	2.57
Cobalt	US\$/lb	<b>15.00</b>	31.00	14.42
A\$:US\$	A\$1 =	<b>0.70</b>	0.75	0.736

## Savannah Nickel Project (including Savannah North)

On 16 July 2018, the Company announced that the Panoramic Board had formally approved the restart of operations at Savannah (refer to the Company's ASX announcement of 16 July 2018). As part of the restart plan, which is based on the October 2017 Updated Savannah Feasibility Study (refer to the Company's ASX announcement of 27 October 2017), the Company would resume mining the remnant Savannah orebody while developing across to access the new Savannah North orebody.

Mining of the Savannah orebody resumed in December 2018, with ore production to 30 June 2019 totalling ~282,000 tonnes at 1.17% nickel for 3,290 tonnes contained nickel. As the Savannah North orebody had not been accessed by 30 June 2019, the Savannah North Mineral Resource and Ore Reserve is unchanged from 30 June 2018. Production of development ore from Savannah North is scheduled to commence during the December 2019 quarter.

Mineral Resources at the Savannah Project (including Savannah North) as at 30 June 2019 are 12.98 million tonnes at 1.67% Ni, 0.77% Cu and 0.11% Co for 217,000 tonnes contained nickel, 100,100 tonnes contained copper and 14,800 tonnes contained cobalt (refer Table 3). Mineral Resources are inclusive of Ore Reserves. The Savannah orebody above the 900 Fault is fully drilled-out and no new resource drilling or Mineral Resource estimates have been completed since 2016. Therefore, the Savannah 30 June 2019 Mineral Resource estimate was updated by depleting the 30 June 2018 Resource Model for the FY2019 production mentioned above.

The Savannah Nickel Project Ore Reserves as at 30 June 2019 are 8.02 million tonnes at 1.38% Ni, 0.64% Cu and 0.09% Co for 110,400 tonnes contained nickel, 51,200 tonnes contained copper and 7,500 tonnes contained cobalt (refer Table 4).

Given that ore production resumed from the remnant Savannah orebody in December 2018, the Savannah Ore Reserve was re-estimated as at 30 June 2019. To update the Reserve estimate, each mine level above the 1440 level was assessed for its economic viability. It is assumed that the capital and overheads for the Savannah restart and operation of the mine is amortised by the Savannah North orebody whilst the Savannah orebody generates cash to off-set the capital expenditure to develop Savannah North. As a result, a stope only nickel equivalent cut-off grade was generated for each level based on the requirement to regain access, using current operating costs and the commodity price assumptions. On average, Savannah has a 1.02% Ni equivalent cut-off grade. Economic analysis was carried out for each planned stope and only stopes with a positive return were included in the Ore Reserve. Updated JORC 2012 Table 1, Section 4 "Estimation and Reporting of Ore Reserves" compliance information is included with this release in Appendix 1.

Included in the 2019 Savannah Ore Reserve estimate, due to updated commodity prices and new concentrate offtake terms since last year's Savannah Reserve estimate, is 94,000 tonnes of ore grading 1.24% Ni, 0.44% Cu and 0.02% Co for an additional 1,170 tonnes contained nickel, 400 tonnes contained copper and 20 tonnes contained cobalt. Additional Savannah Mineral Resources not included in the 30 June 2019 Ore Reserve could be brought in Reserves at higher commodity prices or lower A\$:US\$ foreign exchange rates.

## Lanfranchi Nickel Project

The Lanfranchi Nickel Project, which as at 30 June 2018 included 95,500 tonnes of contained nickel in Mineral Resource and 4,200 tonnes of contained nickel in Ore Reserve, was sold in December 2018. These changes, which are incorporated in the Resources and Reserves reported in Table 1, accounts for the main difference in the Group's Mineral Resources and Ore Reserves between FY2018 and FY2019.

## Panton Platinum-Palladium Project

Mineral Resources at Panton as at 30 June 2019 are 14.32 million tonnes at 2.19g/t Pt and 2.39g/t Pd for 1.01 million ounces contained platinum and 1.10 million ounces contained palladium (refer Table 5). There were no changes to the Panton Mineral Resources during FY2019.

## Thunder Bay North Platinum-Palladium Project

Mineral Resources at Thunder Bay North as at 30 June 2019 are 10.35 million tonnes at 1.13g/t Pt and 1.07g/t Pd for 377,000 ounces contained platinum and 355,000 ounces contained palladium (refer Table 5). There were no changes to the Thunder Bay North Resources during FY2019.

Subsequent to the end of the financial year, the Company has agreed to sell the Thunder Bay North Platinum-Palladium Project to Benton Resources Inc. of Canada for C\$9.0 million in cash. The transaction is subject to various conditions precedent (*Refer to Company ASX announcements of 2 July 2019 and 3 September 2019*).

## Gum Creek Gold Project

The Gum Creek Gold Project's Mineral Resources are now no longer included in the Group Mineral Resources Statement due to the divestment of the Company's interest in the Project via an IPO of Horizon Gold Limited (**ASX Code: HRN**), which listed on the ASX on 21 December 2016. Under the terms of the IPO, the Company retains a 51% ownership in HRN, but holds no direct equity interest in Gum Creek. Refer to Horizon Gold Limited's ASX announcement of 12 July 2019 for details of the Project's Mineral Resources as at 30 June 2019.

## Competent Person's Statement

The Annual Mineral Resources and Ore Reserves Statement has been compiled by Mr John Hicks. Mr Hicks is General Manager Exploration, is a full-time employee of Panoramic Resources Limited and is also a shareholder in relation to Panoramic Resources Limited. Mr Hicks is a member of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Hicks has sufficient experience that is relevant to the styles of mineralisation and types of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Hicks consents to the inclusion of the material in this release in the form and context in which it appears.

## No New Information or Data

Except where changes are stated in this release to have occurred between FY2018 and FY2019, the Annual Mineral Resources and Ore Reserves Statement contains references to previous Mineral Resource and Ore Reserve estimates, all of which have been cross referenced to previous market announcements made by the Company. In relation to these previous Mineral Resource and Ore Reserve estimates, the Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources and Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

**Table 3: Nickel – Copper – Cobalt Mineral Resources as at 30 June 2019**

Resource	Equity	Metal	JORC Compliance	Measured		Indicated		Inferred		Total		Metal Tonnes
				Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
<b>Savannah Project</b>												
Savannah (above 900)	100%	Nickel	2012	1,178,000	1.40	622,000	1.70	-	-	1,800,000	1.50	27,100
		Copper			0.86		1.41		-		1.05	18,900
		Cobalt			0.07		0.08		-		0.07	1,300
Savannah (below 900)	100%	Nickel	2012	-	-	780,000	1.64	125,000	1.72	905,000	1.65	14,900
		Copper			-		0.76		0.75		0.76	6,900
		Cobalt			-		0.10		0.09		0.10	900
Savannah North (Upper)	100%	Nickel	2012	-	-	4,229,000	1.64	1,759,000	1.25	5,987,000	1.53	91,300
		Copper			-		0.65		0.49		0.60	36,100
		Cobalt			-		0.12		0.10		0.11	6,800
Savannah North (Lower)	100%	Nickel	2012	-	-	2,697,000	1.96	853,000	2.02	3,549,000	1.97	70,100
		Copper			-		0.98		0.93		0.97	34,400
		Cobalt			-		0.14		0.13		0.14	4,900
Savannah North (Other)	100%	Nickel	2012	-	-	242,000	2.22	493,000	1.67	735,000	1.85	13,600
		Copper			-		0.50		0.53		0.52	3,800
		Cobalt			-		0.14		0.11		0.12	900
<b>Total (Equity)</b>		Nickel								12,977,000	1.67	217,000
		Copper									0.77	100,100
		Cobalt									0.11	14,800

**Notes:**

- Figures have been rounded and therefore may not add up exactly to the reported totals
- All resources are inclusive of reserves
- Savannah Project Resource cutoff grade is 0.50% Ni

**Cross references to previous Company ASX announcements:**

- Savannah (above 900) - refer to ASX announcement of 30 September 2016, titled "Mineral Resources and Ore Reserves at 30 June 2016"
- Savannah (below 900) - refer to ASX announcement of 30 September 2015, titled "Mineral Resources and Ore Reserves at 30 June 2015"
- Savannah North – refer to ASX announcement of 24 August 2016, titled "Major Resource Upgrade for Savannah North"

**No New Information or Data**

The Mineral Resource estimates tabled above, with the exception of Savannah (above 900), have been previously reported and the relevant market announcements cross referenced. Except where stated otherwise, the Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

**Competent Person Statement**

The information in this report that relates to Mineral Resources for Savannah (above 900) is based on information compiled by or reviewed by Matthew Demmer (MAusIMM). The aforementioned is a full-time employee of Panoramic Resources Limited. The aforementioned have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The aforementioned consents to the inclusion in the release of the matters based on their information in the form and context in which it appears.

**Table 4: Nickel – Copper – Cobalt Ore Reserves as at 30 June 2019**

Reserve	Equity	Metal	JORC Compliance	Proven		Probable		Total		Metal Tonnes
				Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
<b>Savannah Project</b>										
Above 900 Fault	100%	Nickel	2012	1,371,000	1.16		-	1,371,000	1.16	15,900
		Copper			0.75		-		0.75	10,300
		Cobalt			0.06		-		0.06	800
Savannah North	100%	Nickel	2012	-	-	6,650,000	1.42	6,650,000	1.42	94,500
		Copper			-		0.61		0.61	40,900
		Cobalt			-		0.10		0.10	6,700
<b>Total (Equity)</b>		<b>Nickel</b>						<b>8,021,000</b>	<b>1.38</b>	<b>110,400</b>
		<b>Copper</b>							<b>0.64</b>	<b>51,200</b>
		<b>Cobalt</b>							<b>0.09</b>	<b>7,500</b>

**Notes:**

- Figures have been rounded and therefore may not add up exactly to the reported totals
- Savannah Reserve average cut-off grade 1.02% Ni equivalent.
- Savannah North Reserve cut-off grade is 0.80% Ni

**Cross references to previous Company ASX announcements:**

- refer to ASX announcement of 30 September 2016, titled "Mineral Resources and Ore Reserves at 30 June 2016"
- refer to ASX announcement of 2 February 2017, titled "Savannah Feasibility Study. Ten year life with minimal restart capital requirements"

**No New Information or Data**

The Ore Reserve estimates tabled above for Savannah North has been previously reported, and the relevant market announcements cross referenced. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of the estimates of Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

**Competent Person Statement**

The information in this report that relates to Ore Reserves for Savannah (above 900) is based on information compiled by or reviewed by Simon Curd (MAusIMM). The aforementioned is a full-time employee of Savannah Nickel Mines Pty Ltd. The aforementioned has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The aforementioned consents to the inclusion in the release of the matters based on their information in the form and context in which it appears.

**Table 5: Platinum Group Metals (PGM) – Mineral Resources as at 30 June 2019**

Resource	Equity	JORC Compliance	Tonnage	Grade									Contained Metal	
				Pt (g/t)	Pd (g/t)	Rh (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Ni (%)	Co %	Pt-Eq (g/t)	Pt (oz ,000)	Pd (oz ,000)
<b>Thunder Bay North</b>														
<b>Open Pit</b>	<b>100%</b>	<b>2004</b>												
Indicated			8,460,000	1.04	0.98	0.04	0.07	1.50	0.25	0.18	0.014	2.13	283	267
Inferred			53,000	0.96	0.89	0.04	0.07	1.60	0.22	0.18	0.014	2.00	2	2
<b>Underground</b>	<b>100%</b>	<b>2004</b>												
Indicated			1,369,000	1.65	1.54	0.08	0.11	2.60	0.43	0.24	0.016	3.67	73	68
Inferred			472,000	1.32	1.25	0.06	0.09	2.10	0.36	0.19	0.011	2.97	20	19
<b>Sub-total – Thunder Bay North (Equity)</b>			<b>10,354,000</b>	<b>1.13</b>	<b>1.07</b>								<b>377</b>	<b>355</b>
<b>Panton</b>														
<b>Top Reef</b>	<b>100%</b>	<b>2012</b>												
Measured			4,400,000	2.46	2.83	-	0.42	-	0.08	0.28	-	-	348	400
Indicated			4,130,000	2.73	3.21	-	0.38	-	0.09	0.31	-	-	363	426
Inferred			1,560,000	2.10	2.35	-	0.38	-	0.13	0.36	-	-	105	118
<b>Middle Reef</b>	<b>100%</b>	<b>2012</b>												
Measured			2,130,000	1.36	1.09	-	0.10	-	0.03	0.18	-	-	93	75
Indicated			1,500,000	1.56	1.28	-	0.10	-	0.04	0.19	-	-	75	62
Inferred			600,000	1.22	1.07	-	0.10	-	0.05	0.19	-	-	24	21
<b>Sub-total – Panton (Equity)</b>			<b>14,320,000</b>	<b>2.19</b>	<b>2.39</b>								<b>1,008</b>	<b>1,102</b>
<b>Total - PGM (Equity)</b>													<b>1,385</b>	<b>1,456</b>

### Notes

*Thunder Bay North Open Pit Resource: The open pit Mineral Resource is reported at a cut-off grade of 0.59 g/t Pt-Eq within a Lerchs-Grossman resource pit shell optimized on Pt-Eq. The strip ratio (waste:ore) of this pit is 9.5:1. The platinum-equivalency formula is based on assumed metal prices and overall recoveries. The Pt-Eq formula is: Pt-Eq g/t = Pt g/t + Pd g/t x 0.3204 + Au g/t x 0.6379 + Ag g/t x 0.0062 + Cu g/t x 0.00011 + Total Ni g/t x 0.000195 + Total Co g/t x 0.000124 + Rh g/t x 2.1816. The conversion factor shown in the formula for each metal represents the conversion from each metal to platinum on a recovered value basis. The assumed metal prices used in the Pt-Eq formula are: Pt US\$1,595/oz, Pd US\$512/oz, Au US\$1,015/oz, Ag US\$15.74/oz, Cu US\$2.20/lb, Ni US\$7.71/lb, Co US\$7.71/lb and Rh US\$3,479/oz. The assumed combined flotation and Platsol™ process recoveries used in the Pt-Eq formula are: Pt 76%, Pd 75%, Au 76%, Ag 55%, Cu 86%, Ni 44%, Co 28% and Rh 76%. The assumed refinery payables are: Pt 98%, Pd 98%, Au 97%, Ag 85%, Cu 100%, Ni 100%, Co 100% and Rh 98%.*

*Thunder Bay North Underground Resource: The underground mineral resource is reported at a cut-off grade of 1.94g/t Pt-Eq. The Pt-Eq formula is: Pt-Eq g/t = Pt g/t + Pd g/t x 0.2721 + Au g/t x 0.3968 + Ag g/t x 0.0084 + Cu g/t x 0.000118 + Sulphide Ni g/t x 0.000433 + Sulphide Co g/t x 0.000428 + Rh g/t x 2.7211. The assumed metal prices used in the Pt-Eq formula are: Pt US\$1,470/oz, Pd US\$400/oz, Rh US\$4,000/oz, Au US\$875/oz, Ag US\$14.30/oz, Cu US\$2.10/lb, Ni US\$7.30/lb and Co US\$13.00/lb. The assumed process recoveries used in the Pt-Eq formula are: Pt 75%, Pd 75%, Rh 75%, Au 50%, Ag 50%, Cu 90%, and Ni and Co in sulphide 90%. The assumed smelter recoveries used in the Pt-Eq formula are Pt 85%, Pd 85%, Rh 85%, Au 85%, Ag 85%, Cu 85%, Ni 90% and Co 50%. Ni and Co in sulphide were estimated by linear regression of MgO to total Ni and total Co respectively. The regression formula for Ni in sulphide (NiSx) is: NiSx = Ni - (MgO% x 60.35 - 551.43). The regression formula for Co in sulphide (CoSx) is: CoSx = Co - (MgO% x 4.45 - 9.25).*

### Cross references to previous ASX announcements:

- Thunder Bay North Open Pit Resources – refer to Magma Metals Limited (ASX:MMW) announcement of 7 February 2011, titled “Positive Scoping Study for Thunder Bay North Project”
- Thunder Bay North Underground Resources – refer to Magma Metals Limited (ASX:MMW) announcement of 23 February 2012, titled “Magma Metals Increases Mineral Resources at TBN to 790,000 Platinum-Equivalent Ounces”
- Panton - refer to the Company’s ASX announcement of 30 September 2015, titled “Mineral Resources and Ore Reserves at 30 June 2015”

### No New Information or Data

The Mineral Resource estimates tabled above have been previously reported, and the relevant market announcements cross referenced. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

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*Appendix 1*

## JORC 2012 Table 1, Section 4 - Estimation and Reporting of Ore Reserves

(refer to ASX announcement of 30 September 2016, titled "Mineral Resources and Ore Reserves at 30 June 2016" for criteria listed in section 1, and where relevant in section 3, that also apply to this section.)

Criteria	JORC Code explanation	Commentary
<b>Mineral Resource estimate for conversion to Ore Reserves</b>	<ul style="list-style-type: none"> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li> <li>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	<ul style="list-style-type: none"> <li>The Savannah 2015 Resource models were used as the basis for conversion to an Ore Reserve.</li> <li>These models were updated due to mining depletion, sterilisation and geological interpretations based on results from ore development, face sampling, drive mapping and pre-production drilling.</li> <li>Mineral Resources are inclusive of Ore Reserves.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>The competent person is a full time Panoramic Resources employee who conducts routine site visits as part of normal working duties.</li> </ul>
<b>Study status</b>	<ul style="list-style-type: none"> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	<ul style="list-style-type: none"> <li>Underground mining commenced in January 2005 and has continued for over 10 years until being placed in care and maintenance in May 2016. Operations were recommenced in October 2018 and the mine is currently in production.</li> <li>The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from over 10 years of production are used in the Ore Reserve estimate.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li>The basis of the cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>A stope only nickel equivalent cut-off grade has been generated for each individual level based on the requirements to regain access after recommencing operations, current costs and market parameters. Savannah has an average 1.02% Ni Equivalent cut-off grade.</li> <li>Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.</li> </ul>

Continued....

Criteria	JORC Code explanation	Commentary																																				
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>The mining recovery factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul style="list-style-type: none"> <li>The Savannah mine predominantly applies an open stoping with paste fill mining method.</li> <li>Detailed stope designs are used where access has been developed otherwise preliminary stope designs are used.</li> <li>A seismic monitoring and management system has been in place for over 10 years of mine production.</li> <li>Stress and structural models have been developed and are used to identify appropriate mining sequences, stope spans and ground support requirements.</li> <li>Routine site visits and inspections are conducted by consultant geotechnical engineers.</li> <li>Grade control assumptions are in line with practice developed over the previous 10 years of operation.</li> <li>Ore development is routinely mapped and sampled, stope production is routinely sampled, and monthly mine production is reconciled to milled tonnes and grade.</li> <li>Mining dilution at zero grade is applied to stopes and ore development.</li> <li>Minimum underground development width is 4.8m and minimum stoping width is 3.0m.</li> <li>Mining dilution and recovery factors are applied to development and the detailed and preliminary stope designs as per below:</li> </ul> <table border="1"> <thead> <tr> <th>Type</th> <th>Dilution</th> <th>Mining recovery</th> </tr> </thead> <tbody> <tr> <td>Development</td> <td>10%</td> <td>95%</td> </tr> <tr> <td>Above 500 fault</td> <td></td> <td></td> </tr> <tr> <td>-Primary and Secondary stopes</td> <td>10%</td> <td>95%</td> </tr> <tr> <td>-Sill pillar under paste</td> <td>20%</td> <td>95%</td> </tr> <tr> <td>-Pit Pillar</td> <td>20%</td> <td>75%</td> </tr> <tr> <td>Below 500 fault</td> <td></td> <td></td> </tr> <tr> <td>-Primary and Secondary stopes</td> <td>7.5 to 15%</td> <td>95%</td> </tr> <tr> <td>-Sill Pillars</td> <td>15%</td> <td>90 to 95%</td> </tr> <tr> <td>-Sill Pillars &amp; Stopes with no fill</td> <td>10%</td> <td>75%</td> </tr> <tr> <td>Below 900 fault</td> <td></td> <td></td> </tr> <tr> <td>-All stopes</td> <td>10%</td> <td>95%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>No Inferred Resources are included in the Ore Reserve estimate.</li> <li>Infrastructure requirements (other than future capital development) for the selected mining method are established.</li> </ul>	Type	Dilution	Mining recovery	Development	10%	95%	Above 500 fault			-Primary and Secondary stopes	10%	95%	-Sill pillar under paste	20%	95%	-Pit Pillar	20%	75%	Below 500 fault			-Primary and Secondary stopes	7.5 to 15%	95%	-Sill Pillars	15%	90 to 95%	-Sill Pillars & Stopes with no fill	10%	75%	Below 900 fault			-All stopes	10%	95%
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-Sill Pillars	15%	90 to 95%																																				
-Sill Pillars & Stopes with no fill	10%	75%																																				
Below 900 fault																																						
-All stopes	10%	95%																																				
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"> <li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> <li>Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>Any assumptions or allowances made for deleterious elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	<ul style="list-style-type: none"> <li>The metallurgical process is a conventional sulphide flotation technique involving crushing, grinding and flotation to produce a bulk nickel, copper and cobalt concentrate.</li> <li>Savannah ore has been successfully treated through the 1Mtpa SAG mill and flotation circuit first commissioning in 2004.</li> <li>The metallurgical nature is consistent throughout the resource and as such no domaining has been applied.</li> <li>Metallurgical recoveries are calculated from plant feed grades in the LOM plan and are based on over 10 years of historical plant performance. Metallurgical recoveries approximate 85% for Nickel, 96% for Copper and 90% for Cobalt.</li> <li>Savannah produces a clean bulk nickel, copper and cobalt concentrate and since commissioning in 2004 there have been no deleterious material penalties. As such no allowance has been made for deleterious material.</li> </ul>																																				

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>The Ore Reserve estimate has been based on appropriate mineralogy and metallurgical factors to meet the existing concentrate off-take specifications.</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</li> </ul>	<ul style="list-style-type: none"> <li>Savannah operates under the conditions set out by an environmental license to operate.</li> <li>Waste is placed on approved waste dumps or used as backfill in mined voids.</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.</li> </ul>	<ul style="list-style-type: none"> <li>The Savannah mine has substantial infrastructure in place including a paste fill plant, major electrical and pumping networks, a 1Mtpa processing plant, a fully equipped laboratory, extensive workshop, administration facilities, a 215 single person quarters village and tailings storage facility.</li> </ul>
<b>Costs</b>	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	<ul style="list-style-type: none"> <li>Costs are based on actual costs occurred in mining, processing and transportation over the FY2016 financial year to May 2016 and then updated with new contracted costs and agreements negotiated with the recommencement of operations at Savannah.</li> <li>Capital underground development costs are derived from the LOM plan and actual costs as per above.</li> <li>Other capital costs are related to equipment and infrastructure costs and are based on quotes or historical actual costs.</li> <li>Closure costs have not been included.</li> <li>Metal prices and exchange rate assumptions are based on the median of a range of external market analysts medium term forecasts.</li> <li>Flat rate metal prices for nickel of US\$6.00/lb, copper of US\$2.50/lb and cobalt of US\$15/lb were used.</li> <li>Flat rate A\$:US\$ exchange rate of 0.70 was used.</li> <li>Net Smelter Return (NSR) factors were sourced from the existing concentrate offtake contract.</li> <li>WA government and Traditional Owner royalties are included.</li> </ul>
<b>Revenue factors</b>	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	<ul style="list-style-type: none"> <li>Revenue factors are based on metal production in concentrate from the LOM plan, flat metal prices for nickel, copper and cobalt (above), flat rate A\$:US\$ exchange rate (above) and the NSR factors in the existing concentrate offtake contract.</li> </ul>
<b>Market assessment</b>	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul style="list-style-type: none"> <li>The concentrate is contracted for sale to Jinchuan Group of China until 31 March 2023. The Savannah concentrate is being trucked to Wyndham Port and then shipped to Jinchuan's smelter/refinery in the Gansu province, northwest China.</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul style="list-style-type: none"> <li>Internal cash flow estimates apply an 8% real discount rate for NPV analysis and only economically viable ores are considered for mining based on a stope only cut-off grade.</li> <li>Sensitivity analysis of key financial and physical parameters is applied to the LOM plan.</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul>	<ul style="list-style-type: none"> <li>The Savannah mine is fully permitted and has a co-existence agreement in place with Traditional Owners.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> </ul>	<ul style="list-style-type: none"> <li>No significant unresolved material matters relating to naturally occurring risks, third party agreements or governmental/statutory approvals currently exist.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	
<b>Classification</b>	<ul style="list-style-type: none"> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul style="list-style-type: none"> <li>The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines</li> <li>Proven Ore Reserves are based on Measured Resources subject to economic viability.</li> <li>Probable Ore Reserves are based on Indicated Resources subject to the economic viability.</li> <li>The estimate appropriately reflects the view of the competent person.</li> <li>No Inferred Resources are included in the Ore Reserve estimate.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>The Ore Reserve estimate, parent data and economic evaluation is reviewed by Panoramic Resources senior management.</li> </ul>
<b>Discussion of relative accuracy/ confidence</b>	<ul style="list-style-type: none"> <li>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul style="list-style-type: none"> <li>The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine.</li> <li>All currently reported Ore Reserve estimations are considered representative on a global scale.</li> <li>Mine to mill reconciliation records throughout the life of the Savannah Mine provide confidence in the accuracy of the Ore Reserve estimate.</li> </ul>

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