

# Nickel

  
**PANORAMIC**  
RESOURCES LTD



# Back in Business

# Cobalt

## Macquarie Bank Western Australian Forum

### Corporate Presentation

15 October 2018

# Copper

## No New Information or Data

This presentation contains references to Production Targets, exploration results, and Mineral Resource and Ore Reserve estimates, all of which have been cross referenced to previous market announcements made by the Company. 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 Production Targets, 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.

## Forward Looking Statements

This presentation may contain certain “forward-looking statements” which may not have been based solely on historical facts, but rather may be based on the Company’s current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to metals price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the Countries and States in which we operate or sell product to, and governmental regulation and judicial outcomes. For a more detailed discussion of such risks and other factors, see the Company’s Annual Reports, as well as the Company’s other filings. The Company does not undertake any obligation to release publicly any revisions to any “forward-looking statement” to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.

## Capital Structure and Enterprise Value

Index	S&P/All Ordinaries
ASX Ticker	ASX: PAN
Shares on issue	491.6M
Share Price	\$0.53 (12 October 2018)
Market Cap	~\$260M
Cash	\$19.6M (30 June 2018)
Listed Investments	~\$10.1M (HRN, GME, others)
Bank debt	Nil
Enterprise Value	~\$230M

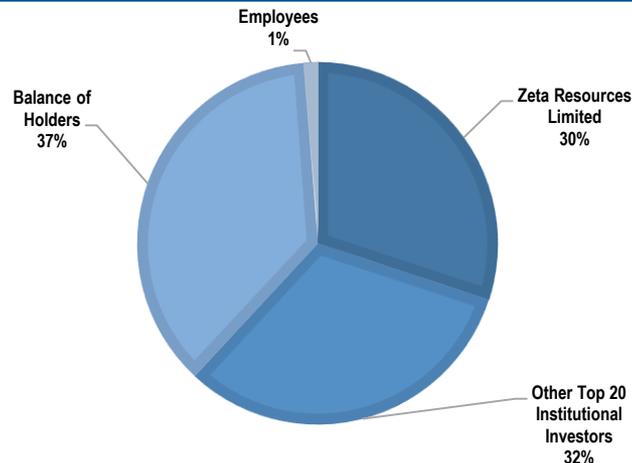
## Metrics

30-day average daily volume	580,000
90-day average daily volume	750,000
52 week Low-High	\$0.33 - \$0.67

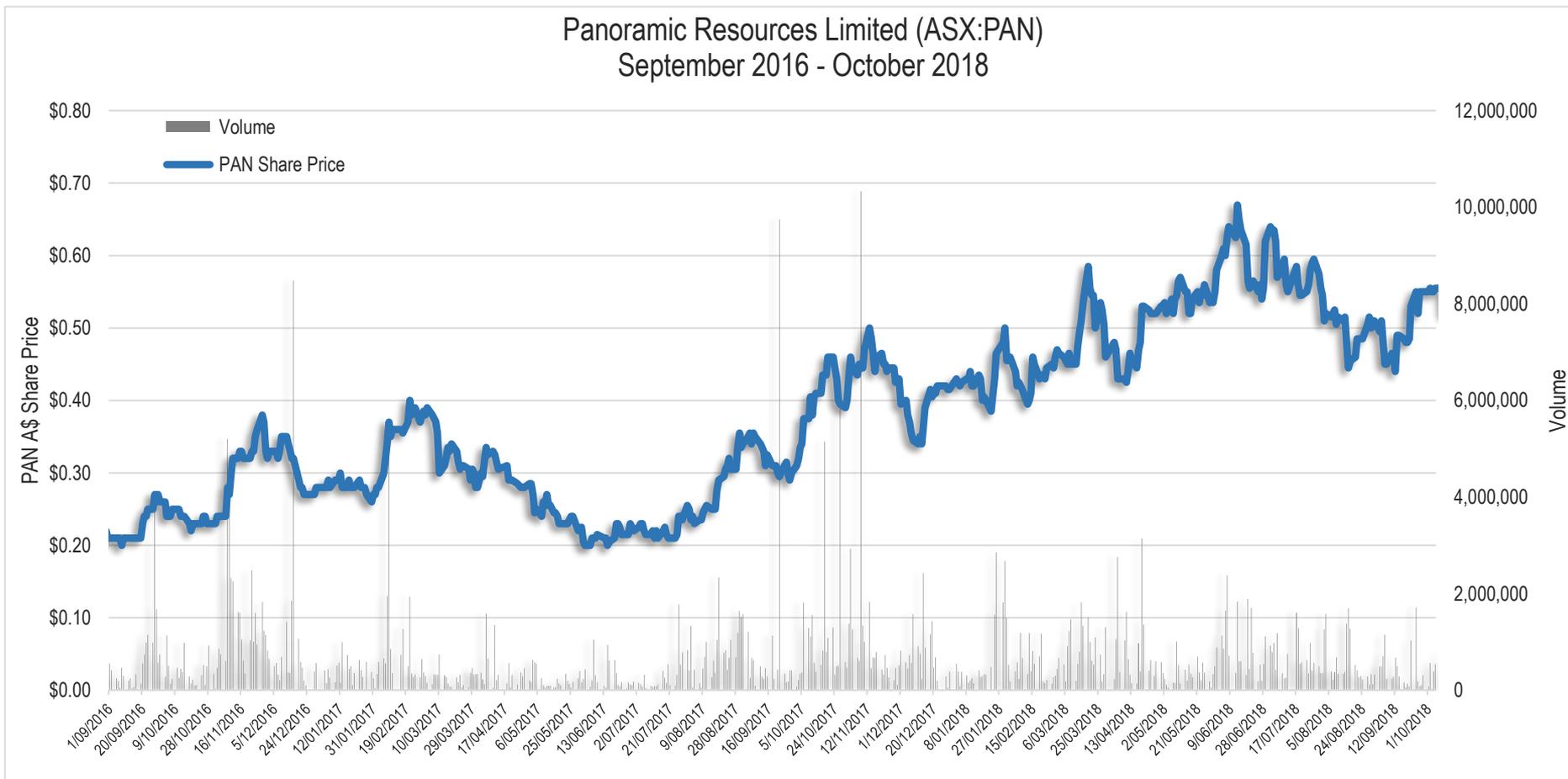
## Board

Brian Phillips	Non Executive Chairman
Peter Harold	Managing Director
John Rowe	Non Executive Director
Peter Sullivan	Non-Executive Director
Nicholas Cernotta	Non-Executive Director
Rebecca Hayward	Non-Executive Director
Trevor Eton	CFO/Company Secretary

## Shareholder spread +50% institutional



# Share price performance over the last two years



# RESTARTING SAVANNAH



# Savannah Feasibility Study Delivers

## SAVANNAH MINE LIFE



8.3 YEARS

## PRODUCTION PER ANNUM



## NPV



## SUSTAINING CASH COSTS



## JOB CREATION



## COMMITMENT



SAFELY HOME  
EVERY DAY

Long mine life with excellent potential for mine life extension through exploration success

### Average annual production forecast\*

10,800t Ni  
6,100t Cu  
800t Co

### Short lead time to production

Q1 2019

Pre-production ramp up capital  
~\$A36M

### Operating Cash Costs

US\$2.40/lb payable Ni

### Sustaining Cash Costs

US\$3.50/lb payable Ni

### Impressive financial metrics

\$380M NPV and 200% IRR at  
US\$6.75/lb Ni

### Major Infrastructure in place

Mining Fleet  
200 Person Village  
1Mtpa Process Plant  
Underground Mine

### Job Creation

~250 new jobs

Experienced Perth Corporate and  
Savannah teams in place

#### Cautionary Statement

Approximately 1.1% of nickel in the Production Target is from material classified as Inferred Resource. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.

\*Refer Company ASX announcement dated 27 October 2017 titled "Updated Savannah Feasibility Study. Enhances fundamentals for a decision to restart"

# Robust Project Economics

- Updated Feasibility Study October 2017
- Economics at Base Case and Long Term US\$ commodity prices and US\$:A\$ FX rates



Financial Metrics	Units	Base Case Prices	Long Term Prices*
Commodity Price Assumption - Ni	US\$/lb	5.50	6.75
Commodity Price Assumption - Cu	US\$/lb	3.10	2.72
Commodity Price Assumption - Co	US\$/lb	28.00	26.00
US\$:A\$ Exchange Rate Assumption	US\$	0.78	0.75
Revenue	A\$M	1,470	1,720
Up-front Capital ( <i>pre-production</i> )	A\$M	36	32
LOM Capital ( <i>inclusive of up-front capital</i> )	A\$M	240	230
Operating costs plus royalties	A\$M	900	920
Pre-tax cash flow	A\$M	<b>330</b>	<b>570</b>
Pre-tax NPV (8% discount rate)	A\$M	210	380
IRR	%	<b>100</b>	<b>200</b>
C1 cash costs ( <i>Ni in concentrate basis</i> )	A\$/lb Ni	1.90	2.10
	US\$/lb	<b>1.50</b>	<b>1.60</b>
Operating cash costs ( <i>payable Ni basis</i> )	A\$/lb Ni	3.10	3.40
	US\$/lb	2.40	2.60
Sustaining cash costs ( <i>operating cash costs plus sustaining capital, payable Ni basis</i> )	A\$/lb Ni	4.50	4.80
	US\$/lb	<b>3.50</b>	<b>3.60</b>



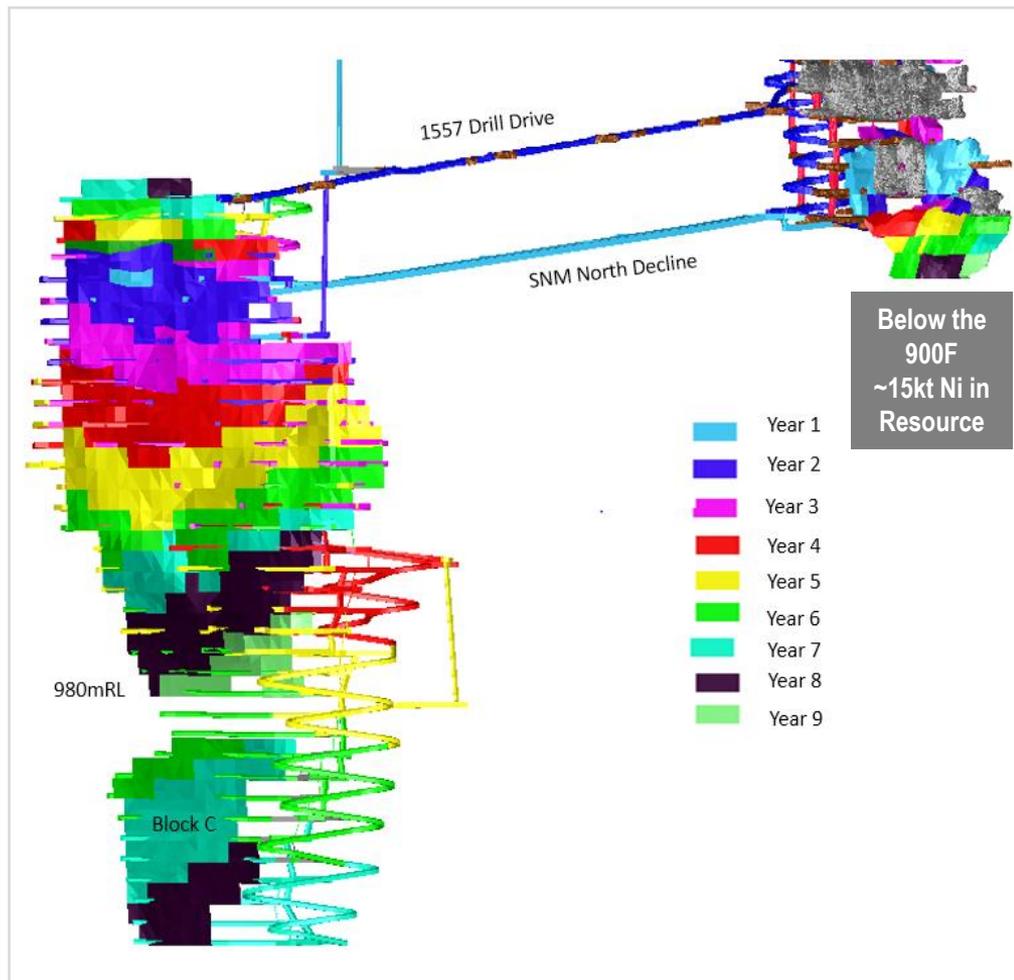
# Simple Mine Plan

## Savannah Orebody

- Forecast mine production of **1.68Mt @ 1.18% Ni for 19,800t Ni contained**
- Restart mining 100% Savannah ore then transition to Savannah North
- Resources below 900 Fault not included in mine plan (**0.90Mt @ 1.65% Ni for 14,900t Ni**)

## Savannah North Orebody

- Forecast mine production of **5.97Mt @ 1.49% Ni for 88,900t Ni contained**
- Commence development on re-start
- First ore 9 months after commencing access development and full production after 15 months





# Significant Metal Production

## Product

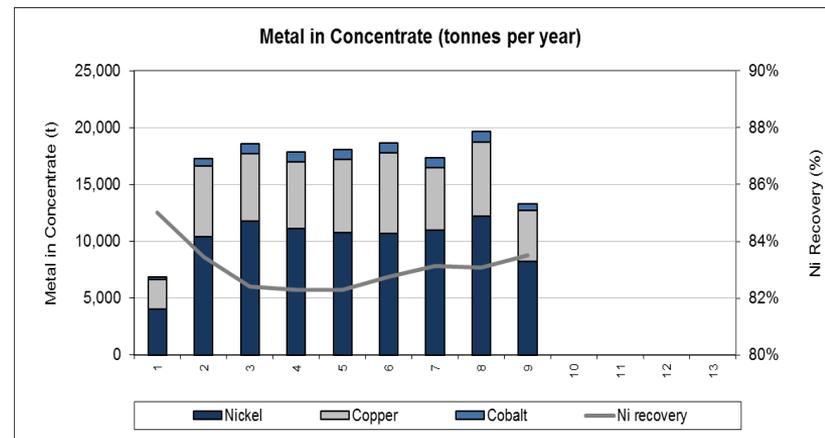
- **Bulk Ni-Cu-Co concentrate**  
Average grade 8% Ni, 5% Cu, 0.6% Co
- Low impurities and attractive Fe:MgO and Ni:Fe ratios
- Ideal feed for Ni smelters

## Annual metal in concentrate

- 10,800t Ni
- 6,100t Cu
- 800t Co

## LOM metal in concentrate

- 90,200t Ni
- 50,700t Cu
- 6,700t Co



# Competitive Offtake Agreement

- **Term** - Four years
- **Buyer** - Sino Nickel (JV between Jinchuan and Sino Mining)
- **Quantity** - 100% of annual production
- **Metal Payabilities** - improved payabilities for certain contained metals compared to previous Sales Agreement
- **Previous Agreement** - superceded by new Agreement
- **General terms:**
  - **Product** - sulphide concentrate with a typical specification of 8% Ni, 4.5% Cu, 0.6% Co, 46% Fe, <1.0% MgO
  - **Load Port** - Wyndham, Western Australia
  - **Payable metals** - Ni, Cu and Co
  - **Price basis**
    - agreed % of LME cash price for Ni and Cu
    - agreed % of Metal Bulletin Co price



Between 2004 and 2016, Panoramic shipped >1.2Mdm of nickel-copper-cobalt concentrate worth \$1.4 billion

# Fully financed with Debt and Equity

- **Project Loan**
  - **Principal** – up to A\$40 million
  - **Margin** – competitive margin
  - **Availability** – signing loan docs and outstanding CPs
  - **Repayment Schedule** – quarterly from Mar 2020-Dec 2021
  - **Loan Covenants and project ratios** – customary for this size of facility
- **Hedging**
  - For delivery between February 2019 and June 2021:
    - 7kt Ni at average forward price of A\$8.51/lb
    - 3kt Cu at average forward price of A\$3.71/lb
  - The volume of Ni and Cu hedged represents ~20% of contained metal produced
- **Equity**
  - \$20.9 million before costs via a 1 for 7 Entitlement Offer at 34 cents in February 2018



Official signing of the Savannah Financing Facility Documentation

# Re-start Well Underway

- **Phase 1 – March 2018**
  - MACA Interquip started refurbishment of processing plant
  - Transferred mobile equipment and stores from Lanfranchi
  - Commenced tailings storage facility 3m lift
  - Ventilation intake pilot hole contract awarded
  - Major contract negotiations commenced
- **Phase 2 – from 16 July 2018**
  - **Formal board resolution to re-start**
  - Continue plant refurbishment
  - Personnel onboarding commenced
  - Recommission mobile and fixed plant continued
- **Phase 3 – Q4 2018**
  - Recommission processing plant
  - Recommission underground mine
- **Phase 4 – Q1 2019 first shipment of concentrate**



Re-installing the surge bin following installation of new liners



Tailings Storage Facility 3m wall lift

# Re-start Well Underway



Rehabilitation of Underground



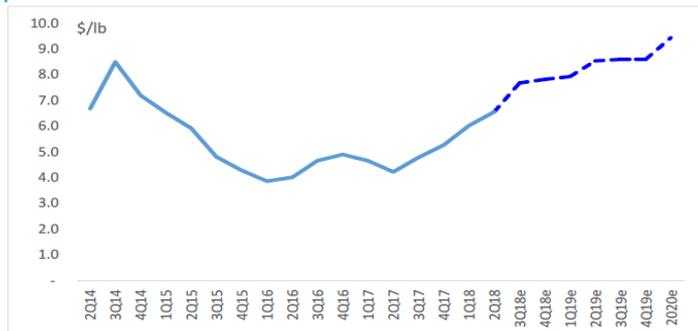
Refurbishment of tails thickener



Savannah North raise bore rig and platform

# Leveraged to Nickel Price

DB expects NI price to average USD7.0/lb in 2018



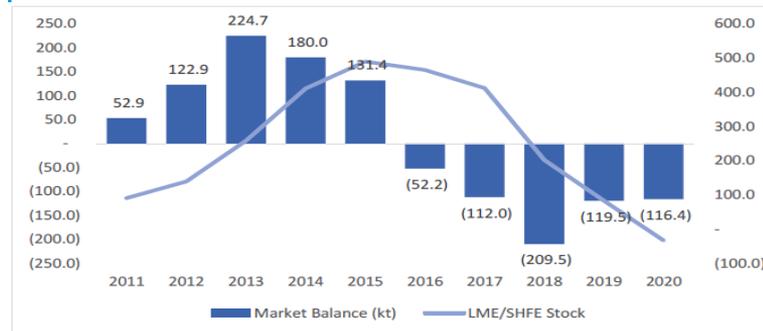
Source: LME, Deutsche Bank estimates

## Deutsche Bank Commodity Price Forecasts\*

- 2018 - \$7.02/lb
- 2019 - \$8.42/lb
- 2020 - \$9.45/lb
- 2021 - \$9.35/lb

Source: UBS June 2018, Deutsche Bank July 2018

DB sees a record-breaking market shortage in 2018...



Source: Wood Mackenzie, Deutsche Bank

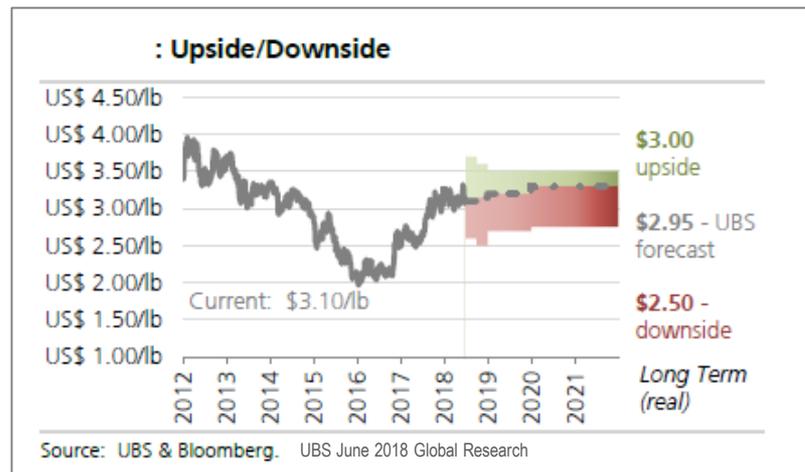
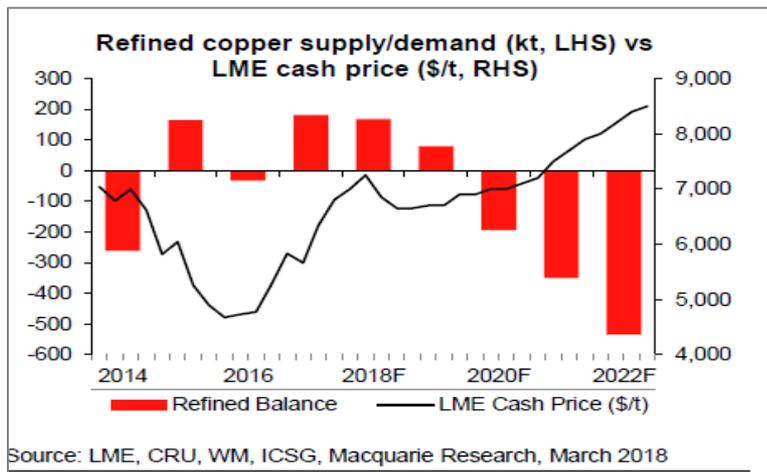
## Electric Vehicles (EVs) need Nickel – UBS, June 2018

*“Nickel is our preferred play on a >12 month view. Inventories are falling, premiums are up and nickel-rich EV battery demand is rising rapidly.”*

## Record nickel deficit in 2018; LME stock depletion a risk before 2020 – Deutsche Bank, July 2018

*“We see a record deficit for the nickel market of close to 210kt in 2018 and expect this to be followed by another large 119kt deficit in 2019. The nickel market has already started to tighten materially – traders have been pulling metal units from LME warehouses in preparation for strong import demand in China to feed both healthy stainless demand conditions and rapid growth in the nickel sulphate sector.”*

# Leveraged to Copper Price



## Macquarie Copper Price Forecasts

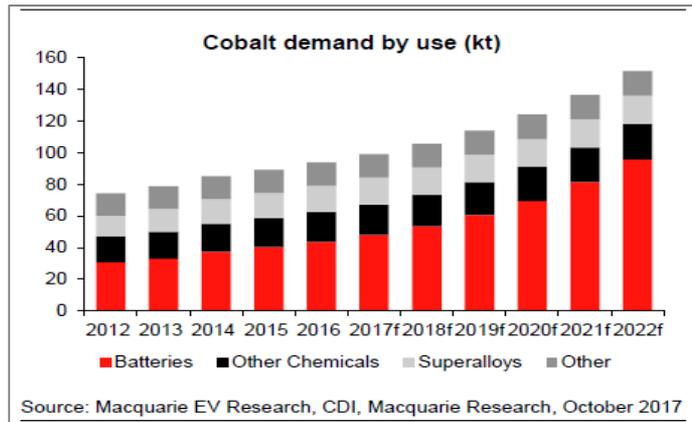
- 2018 - \$3.14/lb
- 2019 - \$3.02/lb
- 2020 - \$3.18/lb
- 2021 - \$3.44/lb

Source: Macquarie Bank – March 2018

## Commodities Compendium – Macquarie Bank, March 2018

*“We see a very small surplus in 2019 (<100kt), followed by the rather thrilling prospect of ballooning deficits as head grades slip away and trigger-shy miners are still loathe to develop projects. The building consensus around this has led to a deeper, more powerful undercurrent of investor allocation into either copper itself or its key producers. We see prices by 2022 averaging above US\$8,000/t (US\$3.60/lb). Beyond that, even higher prices are likely”*

# Leveraged to Cobalt Price



## Macquarie Cobalt Price Forecasts\*

- 2018 - \$33.00/lb
- 2019 - \$17.80/lb
- 2020 - \$18.50/lb
- 2021 - \$24.30/lb
- 2022 - \$36.50/lb

Sources:

Macquarie Research – October 2017, \*March 2018

Cobalt 27 Capital Corp - corporate presentation, May 2018

## Cobalt 27 Capital Corp comments

- Cobalt demand in lithium-ion batteries forecast to grow at 11.7% CAGR to 2022
- Supply currently concentrated in the DRC (65% of 2016 mine output)
  - Relatively politically unstable country
  - Lack of infrastructure
  - ~15% of DRC output from unregulated artisanal mining

### Supply-Demand Balance and Historical Cobalt Prices (Nominal)<sup>1</sup>

Tonnes | Metal Bulletin High-Low Averages (US\$/lb)



Source: Darton Commodities, Metal Bulletin  
(1) Cobalt prices per Metal Bulletin as of April 20, 2018

# Nickel Price and FX Rate NPV Matrix

## Strongly leveraged to nickel price and US\$:A\$



US\$1.00/lb increase in nickel price adds ~**A\$160M** to pre-tax NPV



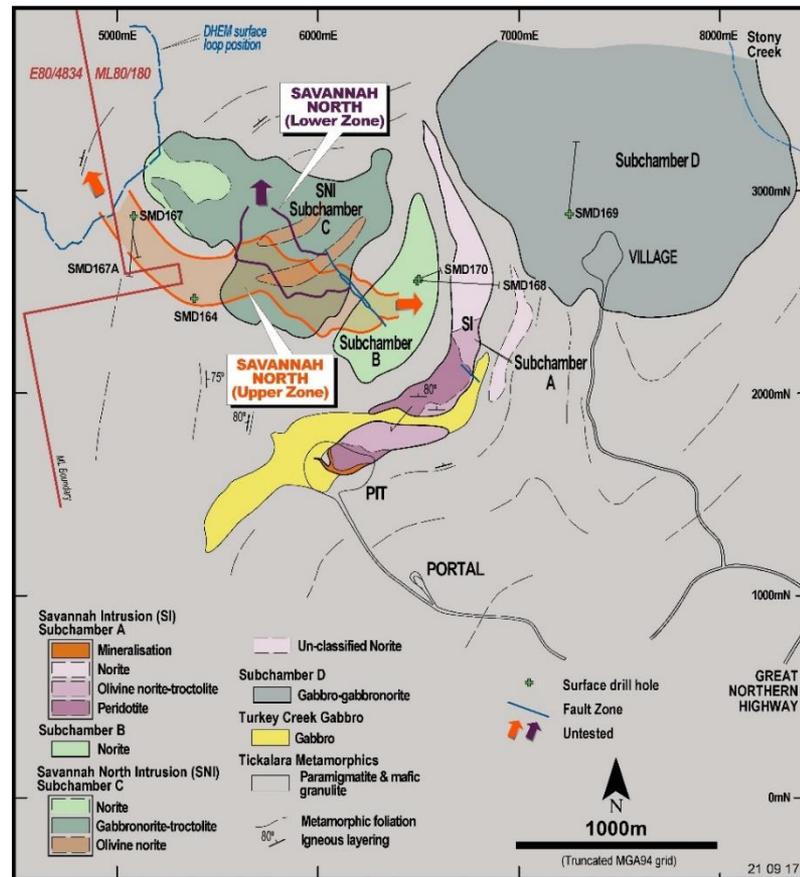
US\$0.05 cent decrease in the US\$:A\$ exchange rate adds ~**A\$50M** to pre-tax NPV

Pre-tax NPV <sub>8</sub> (\$'M)		Nickel Price US\$/lb)					
		5.00	6.00	7.00	8.00	9.00	10.00
US\$:A\$ FX Rate	0.65	270	453	635	790	946	1,102
	0.70	207	377	546	690	835	979
	0.75	153	312	469	604	739	874
	0.80	105	254	401	528	654	781
	0.85	63	203	342	461	580	699



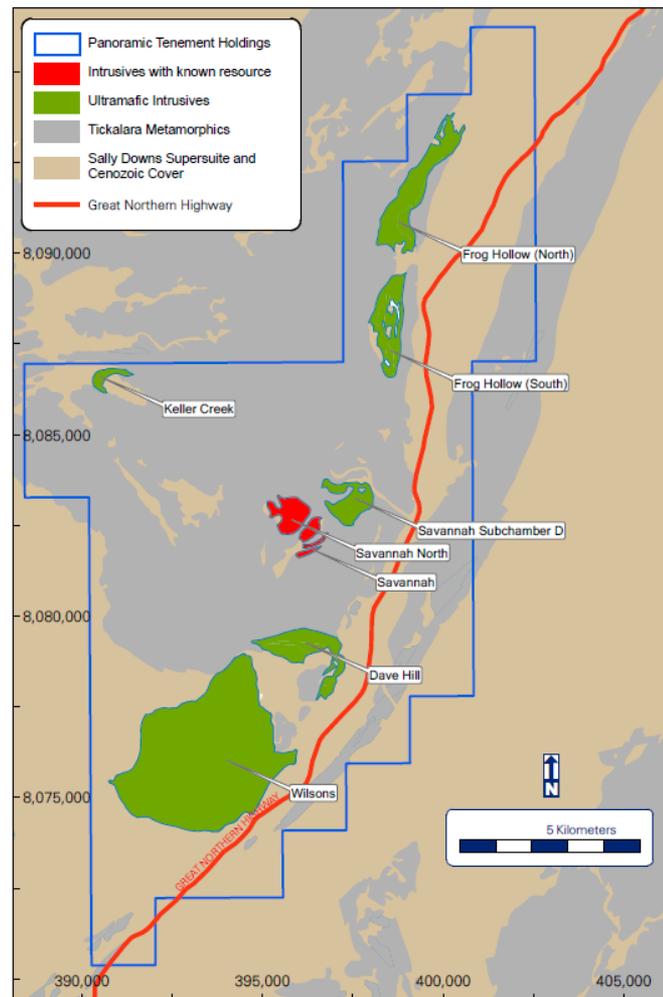
# Leveraged to Savannah North Exploration Success

- **Resource open** - Savannah North Resource drilling programs have not closed off the mineralisation
- **Potential strike length of the Upper Zone is ~2km** based on the large, highly conductive on-hole EM responses identified in surface drill holes:
  - SMD164, Section 5400mE
  - SMD167 & SMD167A, Section 5100mE
- **Only half of the potential Upper Zone mineralisation has been tested by resource drilling**
- **The Lower Zone Resource remains open down dip to the northwest**



# Leveraged to New Exploration Targets

- A number of mafic/ultramafic intrusive bodies occur at Savannah
  - Dave Hill
  - Wilsons
  - Subchamber D
  - Frog Hollow
- CSIRO age dating indicate these are part of the same magmatic event as the Savannah / Savannah North mineralised bodies
- Dave Hill and Wilsons bodies are known to contain magmatic sulphides
- Past drilling has been minimal and has **not tested** the most prospective basal parts of these intrusives
  - **Dave Hill** - one 700m deep and five shallow core holes
  - **Wilsons** - one core and seven shallow RC holes
  - **Subchamber D** - one core hole
  - **Frog Hollow** - never been drilled
- Drilling commenced during the second half of June 2018



# Savannah to deliver value to shareholders

## RESOURCES

218,300t Ni  
99,100t Cu  
14,900t Co

- Savannah is a significant Australian base metal project
- Project fully financed and on track for first shipment Q1 2019

## PROJECT FINANCIALS



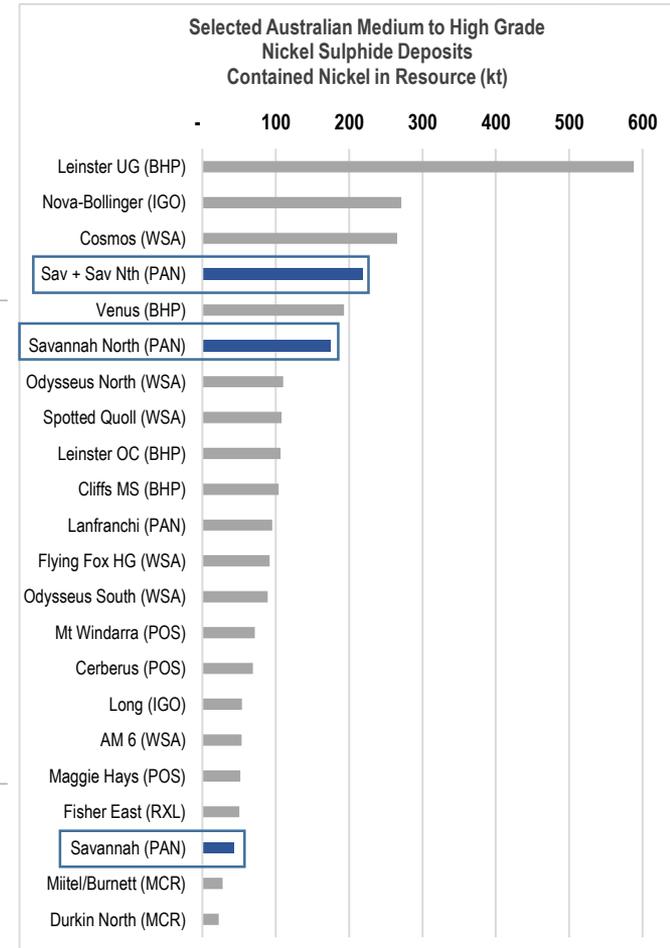
### Updated Oct 2017 Feasibility Study confirms

- +8 year mine life
- Robust at current commodity prices and US\$:A\$ FX
- Competitive operating **cash costs of US\$2.40/lb payable Ni**
- Low re-start capex only \$A36M
- Highly leveraged to nickel, copper and cobalt prices

## EXPLORATION



- Excellent potential for further exploration success and mine life extension
- Drilling to test exciting targets underway

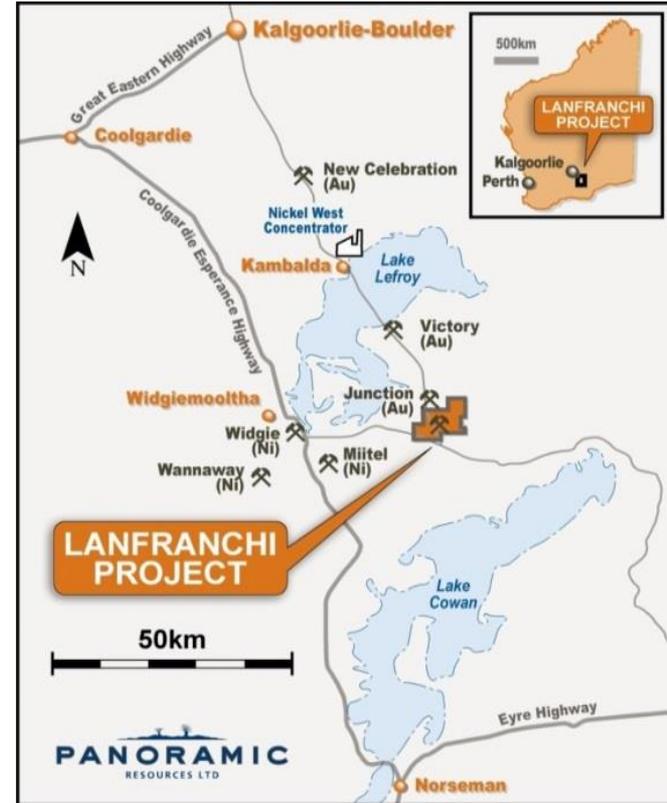


# OTHER ASSETS



# Lanfranchi – Sale to Black Mountain Metals LLC

- Binding Sale and Purchase Agreement signed – September 2018
- Total Cash Consideration - \$15.1M
  - Deposit paid - \$1.51M
  - Due on completion - \$11.99 million
    - *expected to be during the December 2018 quarter*
  - Deferred consideration - \$1.6M
    - *to be paid in 12 equal monthly instalments commencing from the date that is 14 days from the first supply of ore under the current contract with BHP Nickel West, the processing of ore in another commercial capacity or 1 January 2021, whichever is earlier*
    - *in the event that Black Mountain wishes to divest the Lanfranchi Nickel Project prior to payment of the Deferred Consideration, the entire Deferred Consideration amount will be paid immediately*
- The sale of Lanfranchi is consistent with Panoramic's strategy to focus its efforts on Savannah Ni-Cu-Co Project



# Gum Creek Gold Project - 51% of Horizon Gold (ASX:HRN)

## RESOURCE



## IPO of Horizon, spun out from Panoramic

- Shares on issue 76.5M
- Market capitalisation \$15.3M (at 0.20 cents a share)
- Cash (30 June 2018) \$7.1M
- Panoramic interest 51%

**Location** - 640km NE of Perth, Western Australia

**Historic production** - >1Moz gold

**Large Resource Base** - 1.25Moz Au

**Large tenement package** - 80km of strike length along the Gum Creek Greenstone belt

## PRODUCTION



## EXPLORATION

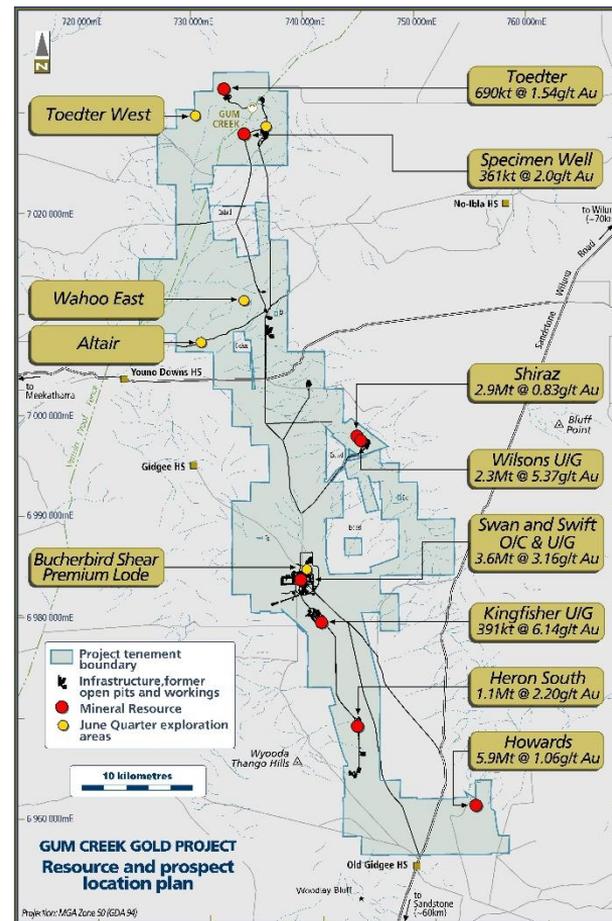


## Exploration Targets

- Swan Premium - 30,000oz to 100,000oz\*
- Butcherbird Shear - 270,000oz to 810,000oz\*

## Recent Exploration

- Butcherbird Shear 8m @ 19.7g/t Au\*\*
- Altair 43m @ 3.67% Zn\*\*\*



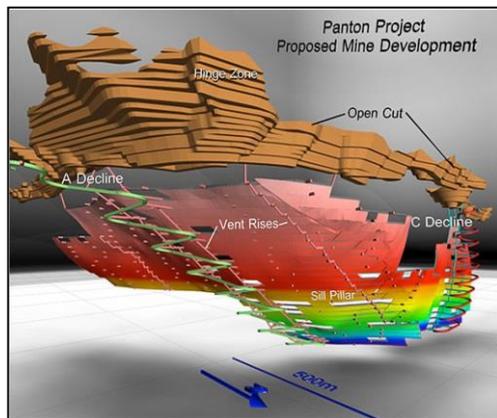
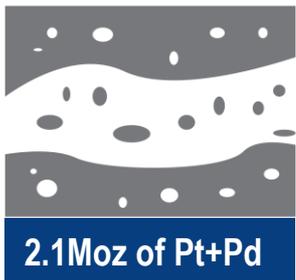
## Panton

- Located 60km from Savannah
- BFS completed by previous owners

### Recent positive test work by Panoramic

- Improved recovery and higher grade PGM concentrate
- Potential for Cr by-product
- Further testwork required to confirm Cr concentrate
- Scoping Study next step

### RESOURCE



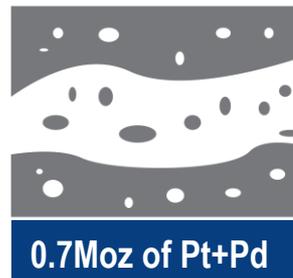
## Thunder Bay North

- Located in Ontario, Canada
- PEA completed by previous owner

### Rio Tinto earn in and JV option

- Consolidates PAN's Thunder Bay North Project and Rio's Escape Lake Project
- Rio spending up to C\$20M over 5½ years to earn 70% interest
- Rio has exceeded minimum expenditure commitment
- Discussions ongoing with Rio regarding future strategy

### RESOURCE





RESTART SAVANNAH



BUILD RESOURCES



GROW THE BUSINESS



SAFELY HOME  
EVERY DAY

COMMITMENT



CAPITAL GROWTH  
& DIVIDENDS

GOAL

Ni	Cu
Co	PGMs

COMMODITY FOCUS

# APPENDICES





# 1. INFERRED RESOURCES IN SAVANNAH MINE PLAN

# Material in Updated Savannah FS mine plan

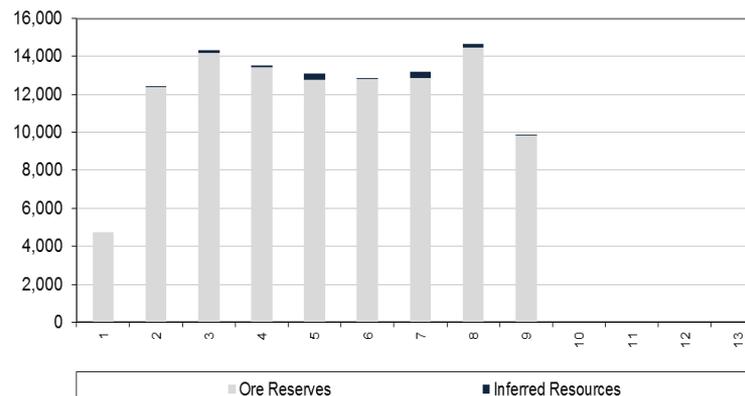
Classification	Tonnage Mt	Grade Ni%	Grade Cu%	Grade Co%	Contained Ni (t)	Contained Cu (t)	Contained Co (t)
Ore Reserves	7.58	1.42	0.68	0.09	107,500	51,200	7,200
Inferred Resource	0.06	1.91	0.69	0.13	1,200	400	100
<b>Total</b>	<b>7.65</b>	<b>1.42</b>	<b>0.68</b>	<b>0.10</b>	<b>108,700</b>	<b>51,700</b>	<b>7,300</b>

The Updated FS mine plan has only ~1.1% material classified as Inferred Resource

## Cautionary Statement

There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.

Contained Nickel in Mining Plan by JORC Category (tonnes per year)



A light gray silhouette of a landscape featuring two baobab trees of different sizes on a low ridge, set against a white background.

## 2. RESOURCES AND RESERVES

### **No New Information or Data**

*The Mineral Resource and Ore Reserve estimates tabled below 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 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.*

# Nickel, Copper, Cobalt – Resources at 30 June 2018

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	1,275,000	1.51	759,000	1.20	-	-	2,034,000	1.39	28,300
		Copper			0.87		0.90		-		0.88	17,900
		Cobalt			0.07		0.07		-		0.07	1,400
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>Lanfranchi Project</b>												
Cruikshank	100%	Nickel	2004	-	-	2,018,000	1.42	611,000	0.79	2,629,000	1.28	33,600
Deacon	100%	Nickel	2012	89,000	2.99	-	-	134,000	1.70	224,000	2.22	5,000
Gigantus	100%	Nickel	2004	-	-	-	-	652,000	1.63	652,000	1.63	10,600
Helmut South Ext	100%	Nickel	2012	21,000	4.54	29,000	2.87	-	-	50,000	3.59	1,800
John	100%	Nickel	2004	-	-	-	-	291,000	1.42	291,000	1.42	4,100
Lanfranchi	100%	Nickel	2012	40,000	4.12	55,000	4.40	63,000	3.49	158,000	3.97	6,300
Martin	100%	Nickel	2012	-	-	47,000	3.58	7,000	4.16	54,000	3.66	2,000
McCormish	100%	Nickel	2004	-	-	-	-	992,000	1.49	992,000	1.49	14,800
Metcalfe	100%	Nickel	2012	-	-	280,000	1.99	111,000	1.35	391,000	1.81	7,100
Schmitz	100%	Nickel	2012	30,000	4.92	23,000	3.93	16,000	2.95	69,000	4.14	2,900
Lower Schmitz	100%	Nickel	2012	-	-	51,000	5.60	79,000	4.80	131,000	5.11	6,700
Winner	100%	Nickel	2004	-	-	14,000	4.40	-	-	14,000	4.40	600
<b>Total (Equity)</b>		Nickel										<b>313,600</b>
		Copper										<b>99,100</b>
		Cobalt										<b>14,900</b>

## Qualifying Statement and Notes

### 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*
- *Lanfranchi Project Resource cutoff grade is 1.00% 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"*
- *Cruickshank - refer to ASX announcement of 28 April 2011, titled "Cruickshank Resource Upgraded 26% to 33,560t Ni"*
- *Deacon, Helmut South Ext, Lanfranchi, Metcalfe - refer to ASX announcement of 30 September 2016, titled "Mineral Resources and Ore Reserves at 30 June 2016"*
- *Gigantus, John, McComish, Winner - refer to ASX announcement of 12 October 2011, titled "Business Review 2011"*
- *Martin - refer to ASX announcement of 13 September 2013, titled "Resources and Reserves at 30 June 2013 and Exploration Update"*
- *Schmitz - refer to ASX announcement of 30 September 2015, titled "Mineral Resources and Ore Reserves at 30 June 2015"*
- *Lower Schmitz - refer to ASX announcement of 28 April 2016, titled "Quarterly Report for the period ending 31 March 2016"*

### 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.*

# Nickel, Copper, Cobalt – Reserves at 30 June 2018

Reserve	Equity	Metal	JORC Compliance	Proven		Probable		Total		Metal Tonnes
				Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
<b>Savannah Project</b>										
Above 900 Fault	100%	Nickel	2012	1,365,000	1.15	194,000	1.24	1,558,000	1.16	18,100
		Copper			0.66		1.28		0.74	11,500
		Cobalt			0.06		0.07		0.06	900
Savannah North	100%	Nickel	2012	-	-	6,650,000	1.24	6,650,000	1.42	94,500
		Copper			-		1.28		0.61	40,900
		Cobalt			-		0.10		0.10	6,700
<b>Lanfranchi Project</b>										
Deacon	100%	Nickel	2012			42,000	2.67	42,000	2.67	1,100
Metcalfe	100%	Nickel	2012			113,000	1.57	113,000	1.57	1,800
Lanfranchi	100%	Nickel	2012			11,000	2.56	11,000	2.56	300
Schmitz	100%	Nickel	2012			15,000	2.96	15,000	2.96	500
Helmut Sth Ext	100%	Nickel	2012			27,000	2.19	27,000	2.19	600
<b>Total (Equity)</b>		<b>Nickel</b>								<b>116,800</b>
		<b>Copper</b>								<b>52,400</b>
		<b>Cobalt</b>								<b>7,600</b>

## Notes:

- Figures have been rounded and therefore may not add up exactly to the reported totals
- Savannah Project Reserve cutoff grade is 0.80% Ni
- Lanfranchi Project Reserve cutoff grade is 1.00% Ni except for airleg mining which is 2.00% 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 Nickel Ore Reserve 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 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

# Platinum Group Metals – Resources at 30 June 2018

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>

## Qualifying Statements and Notes

### 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:  $Pt-Eq\ g/t = Pt\ g/t + Pd\ g/t \times 0.3204 + Au\ g/t \times 0.6379 + Ag\ g/t \times 0.0062 + Cu\ g/t \times 0.00011 + Total\ Ni\ g/t \times 0.000195 + Total\ Co\ g/t \times 0.000124 + Rh\ g/t \times 2.1816$ . 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:  $Pt-Eq\ g/t = Pt\ g/t + Pd\ g/t \times 0.2721 + Au\ g/t \times 0.3968 + Ag\ g/t \times 0.0084 + Cu\ g/t \times 0.000118 + Sulphide\ Ni\ g/t \times 0.000433 + Sulphide\ Co\ g/t \times 0.000428 + Rh\ g/t \times 2.7211$ . 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:  $NiSx = Ni - (MgO\% \times 60.35 - 551.43)$ . The regression formula for Co in sulphide (CoSx) is:  $CoSx = Co - (MgO\% \times 4.45 - 9.25)$ .*

### 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.*