

# Nickel-Copper Sulphide Discovery Continues to Grow

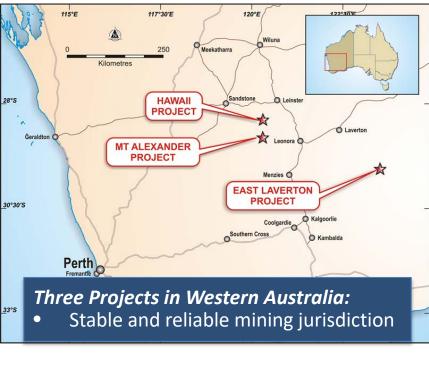
5 June 2018 121 Mining Conference, New York

St George Mining Limited | ACN 139 308 973

**ASX: SGQ** 



# **Successful Exploration - Overview**



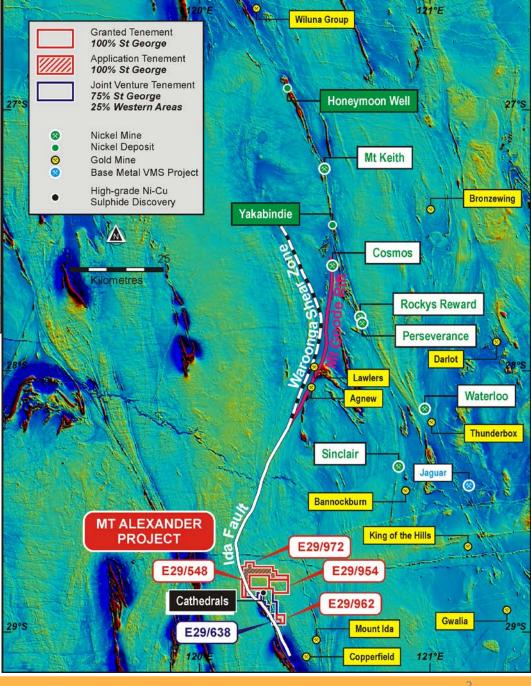
## MT ALEXANDER DISCOVERY

- Exceptional discovery in Western Australia
- High-grade nickel-copper sulphides

#### Favourable Location:

- Located S-SW of world class nickel and gold mines of the Agnew-Wiluna Belt
- Close to infrastructure/processing plants

The Cathedrals, Stricklands and Investigators Prospects are located on E29/638, which is held in joint venture by Western Areas Limited (25%) and St George (75%). St George is the Manager of the Project with Western Areas retaining a 25% non-contributing interest in the Project (in regard to E29/638 only) until there is a decision to mine. St George has 100% of all other tenements at Mt Alexander.



# **Mt Alexander Project**

Australia's Latest Nickel-Copper Sulphide Discovery



## **Shallow Depths**

Mineralisation 30m from surface with ongoing definition drilling; low cost drilling and mining

## <u>Large</u> Mineral System

Ni-Cu sulphides over a 4.5km strike of Cathedrals Belt, with 100% success rate in testing EM conductors

# High Grade and Polymetallic

Nickel sulphide <u>plus</u> copper, cobalt and PGEs Key battery/EV metals

## **Excellent Metallurgy**

**18%Ni** concentrate (plus **Co** and **PGEs**)

**32%Cu** concentrate
Simple flotation process

## **Exploration Upside**

200 km² of underexplored tenement package; ongoing exploration

On right: Drill core from MAD56. The section of core is from an interval that returned assays of 3.15m @ 6.36%Ni, 2.92%Cu, 0.20%Co and 5.03g/t total PGEs from 61.81m



# **High Grade Mineralisation**

## **Thick Intersections**

## **MAD71 (Stricklands Prospect):**

- 17.45m @ 3.01%Ni, 1.31%Cu, 0.13%Co and 1.68g/t total PGEs from 37.45m including the massive sulphide zones of:
- 5.3m @ 4.39%Ni, 1.45%Cu, 0.21%Co and 2.09g/t total PGEs from 39.3m;
- 2.02m @ 5.05%Ni, 2.01%Cu, 0.21%Co and 3.31g/t total PGEs from 50.6m; and
- 0.5m @ 3.68%Ni, 3.9%Cu, 0.17%Co and 2.68g/t total PGEs from 54.4m.

### **MAD56 (Cathedrals Prospect):**

- 7.5m @ 3.90%Ni, 1.74%Cu, 0.12%Co and 3.32g/t total PGEs from 57.8m including
- 3.15m @ 6.36%Ni, 2.92%Cu, 0.20%Co and 5.03g/t total PGEs from 61.81m

#### MAD60 (Investigators Prospect) – photo on right:

- 5.3m @ 4.95%Ni, 2.75%Cu, 0.16%Co and 4.55g/t total PGEs from 157.9m including
- 3m @ 6.40%Ni, 3.55%Cu, 0.21%Co and 5.25g/t total PGEs from 159.38m
  - Drilling is ongoing
  - Additional massive nickel-copper sulphides intersected
  - Assays are pending

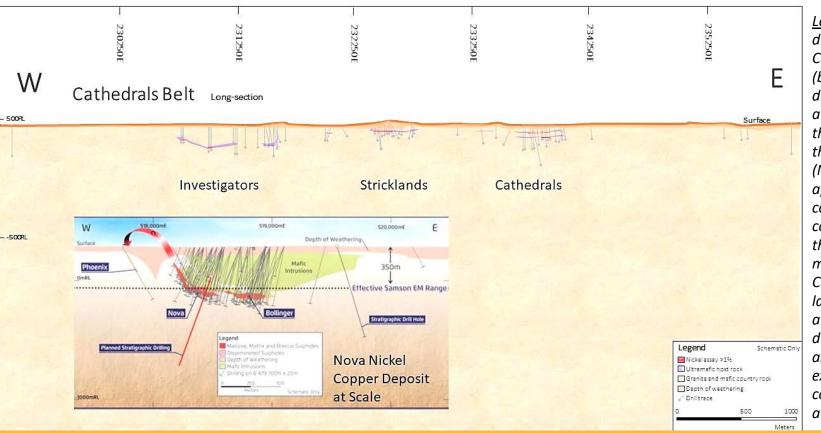


# **Large Mineral System**



## **Drillout Continues across the Cathedrals Belt**

- 4.5km strike of sulphide mineralisation at Cathedrals Belt
- ➤ Wider than Manhattan which is 3.7km (2.3 miles) wide at its widest point (14<sup>th</sup> Street)
- Longer strike of mineralisation than Nova (circa. 1km strike) (see Presentation dated 15 May 2018 by Independence Group NL; inset of Nova below is taken from that Presentation)
- ➤ Mineralisation starting 30m from surface with potential for repetition and extension at depth



Left: Schematic diagram of the Cathedrals Belt (based on drill hole data to date) shown at the same scale as the Nova deposit in the inset diagram (Nova Ni resource of approx. 270,000t contained Ni). The comparison shows the longer strike of mineralisation at Cathedrals with large areas untested along strike and at depth. Nova shown as scale and an exploration stage comparative, not as a direct analogue.

## **Massive Sulphide Lenses**

## **Similarities to Raglan**



Important similarities between the nickel-copper sulphide mineralisation in the Cathedrals Belt and the

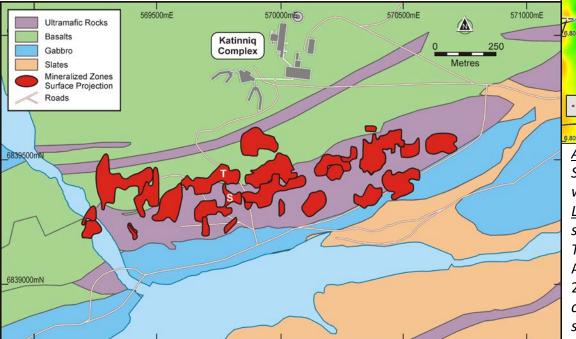
Raglan nickel-copper sulphide deposits in Canada:

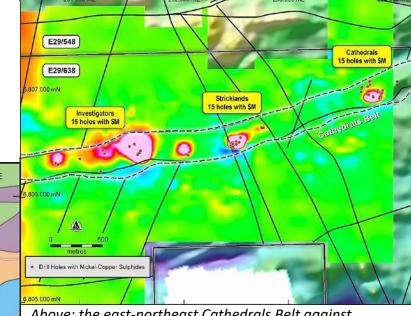
High MgO basalt system

 A series of massive sulphide lenses in local embayments of the basal contact

Elevated Cu and PGE contents

Extensive background magmatic sulphides around mineralisation





<u>Above</u>: the east-northeast Cathedrals Belt against SAMSON EM data (Red/pink areas are highly conductive with multiple intersection of massive Ni-Cu sulphides). <u>Left</u>: map of the Katinniq Ultramafic Complex at Raglan, showing ore lenses in surface projection (with lenses S and T highlighted) — from "Ni-Cu-(PGE) deposits in the Raglan Area, Cape Smith Belt, New Québec" by C.M. Lesher 2007. Mineralisation at Raglan (over 1million tonnes of contained nickel) forms as pod-like orebodies of varying size rather than Kambalda-style ribbon-like shoots.

# Metallurgical Testwork Positive Results from Initial Test

#### High Recoveries from Ore:

- >99% recoveries of Ni and Cu to concentrates from preliminary testwork on massive sulphides
- No deleterious elements like MgO or arsenic
   (on right: copper being floated in the metallurgical
   test completed by Strategic Metallurgy Pty Ltd)
- Standard flotation process to concentrates

#### High Value Concentrate:

- Nickel concentrate with **18%Ni** (Nova is 13.5%Ni\*)
- Copper concentrate with 32%Cu (Nova is 29%Cu\*)
- Cobalt grade of 0.55%Co in nickel concentrate
- PGEs + Au of 13.5 g/t in nickel concentrate
- PGEs + Au of 3.2 g/t in copper concentrate

# Clean and high grade concentrate will attract a premium price

\* Nova Optimisation Study announced by IGO in ASX Release dated 14 December 2015



# **Project Economics**



## **Opportunity for Low Costs/High Margins**

<b>Shallow Mineralisation</b>	<b>Existing Infrastructure</b>	Clean Concentrate
✓ Low cost drilling/low cost potential mining	✓ Nearby processing plants	✓ High grade Ni and Cu plus cobalt and PGEs
✓ Well defined zones of mineralisation	✓ Close to existing roads, power	✓ Excellent metallurgy



Strong indications for favourable project economics which will be assessed by scoping/feasibility studies

<u>Left</u>: Tim King Pit at Spotted Quoll mine at Forrestania (owned 100% by Western Areas Limited) where high grade nickel sulphides were mined from 60m below surface



# Nickel – It's Time

## **Nickel Market**

## **Upswing in Cycle is Underway**



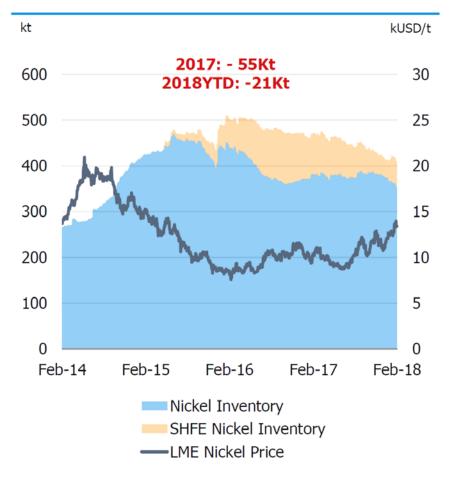
## Wood Mackenzie, Global Nickel Longterm Outlook, Dec 2017:

"We continue to forecast a nickel outlook of deepening deficits, falling stocks and rising prices."

"<u>Prices will continue to rise</u> as the market remains undersupplied and stocks are worked off."

"We envisage nickel prices ultimately reaching an annual average peak of approx. US\$25,000/t (US\$11.30/lb; real US\$2017) by 2025 before settling at our long-term incentive price of US\$21,000/t (US\$9.50/lb, real)."

#### **Total Exchange Inventories Continue to Fall**



Source: Norilsk Nickel Presentation, 6 March 2018

## **EV Demand for Nickel**

## **Market Dynamics About to Change**



#### **Demand Rises on Electric Vehicle Revolution:**

- Nickel sulphide (Class 1 nickel) is required for EV batteries; nickel pig iron, etc (Class 2) is not suitable for batteries
- 1Mt deficit in 2025 = price pressure
- Price divergence likely with nickel sulphide attracting a premium price

#### Global Nickel Supply/Demand Balance with Battery Forecast Κt 300 200 100 (100)Cumulative Deficit > 1 (200)(300)2013 2023 2022 2017 202 Surplus/(Deficit) Impact with Battery Forecast

Source: McKinsey Basic Materials Institute

# McKinsey & Co, The Future of Nickel: A Class Act, Nov 2017:

"A shortfall in class 1 nickel productions seems increasingly likely."

"Not only will nickel prices likely need to move towards incentive pricing but the future pricing mechanism is likely to reflect two distinct products; class 1 and class 2."

Stop Press: BHP announces increase in nickel production to meet demand in China where EV's are expanding faster than expected. 90% of BHP production to be sold for batteries:

Bloomberg report on 18 April 2018

# **Nickel Price to Outperform**

# ST GEORGE MINING LIMITED

## **Upside Compared to Other Metals**

Commodity	Units	Current Price	LT Forecast	'Upside' LT v. Current
Cobalt	US\$/t	88,975	43,200	(51%)
Copper	US\$/t	6,880	7,280	5.5%
Nickel	US\$/t	15,208	22,000	45%
Zinc	US\$/t	3,101	2,830	(8.7%)
Lead	US\$/t	2,420	2,250	(7%)

Nickel offers significant upside

<u>Source</u>: Current prices as at 1 June 2018 by Kitco; LT Forecasts by Wood Mackenzie (nickel forecast revised upwards in 2018 to US\$22,000/t)

### **Nickel Price Targets:**

- Wood Mackenzie long-term forecast US\$22,000/t
- High in previous cycle (March 2007) US\$54,000/t



# **St George – Investment Summary**

# **St George - Market Profile**



## Strong shareholder base and market support

Listed shares (SGQ): 278,780,500 Listed options (SGQOB): 24,579,714 SGQOB - exercise price of 20c, expiring on 30 Sept 2020.

Market cap: A\$34m (@12c per share)
Cash: A\$3m (at 31 May 2018)

#### **Broad Shareholder Base**

Over 3,500 shareholders including Australian and overseas institutions, high net worth and retail investors

#### **Share Ownership**

Top 10: 19% Top 20: 27%

Directors: 6%

#### **Largest Shareholders**

Impulzive: 4.5% City Natural Res's: 3% John Prineas: 4.4% Oceanic Capital: 3%

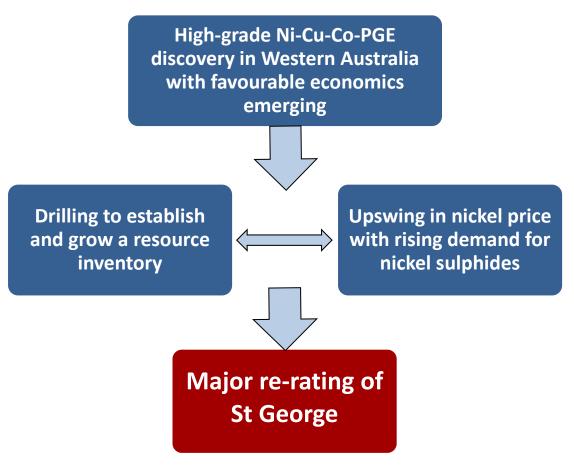


- Drilling is ongoing
- Assays pending
- Strong newsflow continues

# St George – Growth Nickel Stock

## **Positioned for Re-rating**





ASX: SGQ www.stgeorgemining.com.au

<u>On right</u>: Diamond drilling at Mt Alexander



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-may include, among other things, statements regarding targets, estimates and assumptions in respect of mineral reserves and mineral resources and anticipated grades and recovery rates, production and prices, recovery costs and results, capital expenditures, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions;

-are necessarily based upon a number of estimates and assumptions that, while considered reasonable by St George Mining, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies; and

-involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward looking statements.

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#### **COMPETENT PERSON STATEMENT:**

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Tim Hronsky, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Tim Hronsky is employed by Essential Risk Solutions Ltd which has been retained by St George Mining Limited to provide technical advice on mineral projects.

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves regarding the Hawaii and Mt Alexander Projects is based on information compiled by Mr Matthew McCarthy, a Competent Person who is a Member of The Australasian Institute of Geoscientists. Mr McCarthy is employed by St George Mining Limited.

This ASX announcement contains information extracted from the following reports which are available on the Company's website at www.stgm.com.au:

- •
- 5 July 2017 High Grade Nickel-Copper-Cobalt-PGEs at Investigators
- 19 July 2017 High Grade Nickel-Copper-Cobalt-PGEs at Investigators
- 12 September 2017 Mt Alexander Exploration Update
- 26 October 2017 Drilling Commences at Mt Alexander
- 13 November 2017 Further High Grade Mineralisation at Mt Alexander
- 20 November 2017 Outstanding Intersection of Nickel-Copper Sulphides
- 30 November 2017 Drilling at Mt Alexander Update
- 7 December 2017 Further Nickel-Copper Sulphides Intersected at Mt Alexander
- 15 December 2017 Assays Confirm Best Ever Intersection at Mt Alexander
- 21 December 2017 Drilling Continues to Extend Mineralisation at Mt Alexander
- 9 January 2018 Assays Confirm Further High Grades at Mt Alexander
- 26 February 2018 St George to Resume Drilling at Mt Alexander
- 19 March 2018 Drilling of Nickel-Copper Sulphide Targets at Mt Alexander Resumes
- 4 April 2018 Nickel-Copper Sulphide Drilling at Mt Alexander Update
- 11 April 2018 Further Nickel-Copper Sulphides Intersected at Mt Alexander
- 19 May 2018 Nickel-Copper Sulphide Drilling at Mt Alexander Update
- 4 June 2018 Assays Confirm High Grades at Mt Alexander

The Company confirms that it is not aware of any new information or data that materially affects the exploration results included in any original market announcements referred to in this report and that no material change in the results has occurred. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.