



savannah resources plc

SAVANNAH  
RESOURCES PLC

AIM: SAV

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## Savannah Resources Plc

### PROJECT PORTFOLIO

### Metallurgical Test Work Update, Oman Copper Projects

Savannah Resources plc (AIM: SAV) ('Savannah' or 'the Company'), announces that it has received the preliminary metallurgical results for the Mahab 4 deposit (Figure 1) in Block 5, Oman, which has a Current Indicated and Inferred JORC Mineral Resource of 1.51Mt at 2.1% copper at Mahab 4. Savannah is a 65% shareholder in Al Fairuz Mining, the holder of the Block 5 licence.

#### HIGHLIGHTS:

- **Chalcopyrite identified as the sole copper bearing mineral**, which is likely to lead to a simple, quick and relatively low cost flotation process to concentrate the copper ('Cu')
- Test data indicates that any potential development should enjoy favourable processing costs as the resource at Mahab 4 appears to be relatively soft and requires relatively **low primary milling power requirements**
- Test work also indicates relatively **low equipment liner and grinding media wear** due to low abrasion rates
- **Initial rougher flotation test work** indicated potential **recoveries of around 95%** at moderate grind sizes
- Rougher cleaner flotation at 38microns indicated that a **saleable copper concentrate of over 23% can be achieved with recoveries over 90% with additional gold and silver credits**
- There is **potential to also produce a zinc product** but further work is required to confirm that this is possible without affecting the copper grades and recoveries
- Additional test work is now underway to refine the process and to try and further improve the recoveries and overall copper concentrate grades

**Savannah's CEO, David Archer said:** "The results from the preliminary metallurgical test work are very encouraging in highlighting the commercial appeal of the Mahab 4 deposit, with work confirming that a saleable copper concentrate can be produced with recoveries exceeding 90%. We are also encouraged by the potential for both gold and silver credits and the possibility of an additional zinc product. Importantly, test work points towards Mahab being a soft ore, which should mean that copper produced from Mahab 4 ought

MINERAL  
SANDS

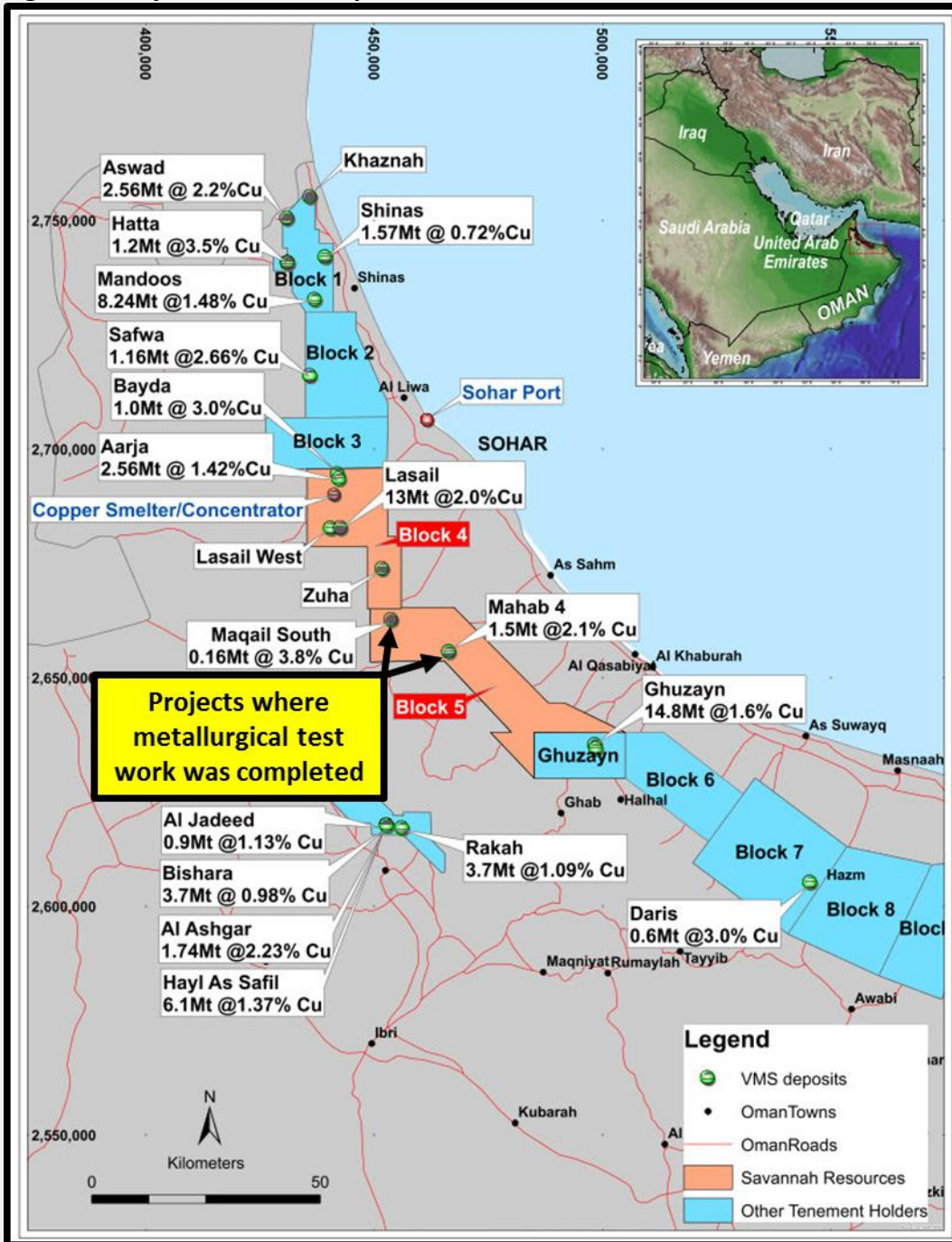
MOZAMBIQUE  
(CONSORTIUM  
AGREEMENT WITH  
RIO TINTO)

COPPER/GOLD  
OMAN

LITHIUM  
FINLAND

to enjoy favourable overall processing costs. The results from this work points towards a relatively simple float process and a clean and desirable copper concentrate, which is likely to be keenly sought after by off-takers and smelters. Further test work is continuing and we look forward to updating shareholders on these developments.”

**Figure 1. Project Location Map**



**OVERVIEW**

Perth based consulting group Independent Metallurgical Operations Pty Ltd (‘IMO’) have been contracted to complete staged Preliminary Feasibility Study test work and flowsheet development for Savannah Resources on the Mahab 4 project. The programme has been broken into two stages:

**Stage 1 Master Composite Flowsheet Development**

Master Composite flowsheet development testing has been sequenced as follows:

- **Master Composite Selection** – 125kg of mineralised material was sourced from drill holes 16B5DD010 and 16B5DD017;
- **Composite Characterisation** – including assaying, mineralogy and comminution test work (comminution is the reduction of solid materials to minute particles or fragments, by crushing, grinding, cutting, or other processes);
- **Flowsheet Development** – staged open circuit flotation flowsheet optimisation testing; and
- **Locked Cycle Testing** – closed circuit flowsheet confirmation including recycle streams.

## **Stage 2 Variability Composite Testing**

Variability Composite testing based on the Stage 1 flowsheet and the scope is sequenced as follows:

- **Variability Composite Selection** – comprising the selection of Variability Composites across the resource;
- **Variability Composite Characterisation** – including assaying, mineralogy and comminution; and
- **Open Circuit Variability Composite Testing** – allowing verification of the performance of the flowsheet developed as part of Stage 1.

## **MAHAB 4 MASTER COMPOSITE – PRELIMINARY RESULTS**

### **Mineralogy**

Optical mineralogy and point counting was conducted on a representative subsample ground to a P<sub>80</sub> size of 300µm; sulphide mineral modal distribution is summarised in **Table 1** and as follows:

- Sulphide mineralisation is predominantly Pyrite and Chalcopyrite; no secondary copper mineralisation was identified; Chalcopyrite was identified as the sole copper bearing mineral;
- The liberation size of Chalcopyrite was estimated as ~50µm, also indicating a requirement for regrinding of rougher flotation concentrate;
- Chalcopyrite was identified veining through Pyrite grains of ~ 50µm size;
- Sphalerite was identified as minor discrete grains and as composites with Chalcopyrite and Chalcopyrite/Pyrite composites, also indicating a requirement for zinc depression during flotation upgrade targeting a copper concentrate zinc grade below 3%; and
- The association of Sphalerite indicates potential for separate flotation recovery of zinc.

**Table 1 Mahab 4 Master Composite – Sulphide Mineral Modal Distribution**

Sulphide Mineral Mode	Symbol	Distribution (%)
Pyrite	Py	80.7
Chalcopyrite	Ccp	8.4
Sphalerite	Sp	0.5
<b>Subtotal – Discrete Grains</b>		<b>89.6</b>
Chalcopyrite/Pyrite	Ccp/Py	5.9
Chalcopyrite/Sphalerite	Ccp/Sp	1.2
Chalcopyrite/Pyrite/Sphalerite	Ccp/Py/Sp	0.6
Sphalerite/Pyrite	Sp/Py	0.3
<b>Subtotal Composite Grains</b>		<b>8.1</b>
Chalcopyrite Veins Pyrite		2.3
<b>Total Sulphides</b>		<b>100.0</b>

### Comminution Test Work

Sag Mill Comminution ('SMC'), Bond Ball Mill Work and Abrasion Index testing was conducted; results are summarised in **Table 2**; key comments are provided as follows:

- SMC data indicates Mahab 4 to be relatively soft as evidenced by a low Drop Weight Index and associated: Crushing (Mic), HPGR (Mih) and Coarse Milling (Mia) index values;
- Bond Ball Mill Work Index testing based on a closing screen size of 106µm also indicates relatively low milling power draw based on a work index of 11.6kWh/t; while comminution power is expected to increase based on regrinding of flotation rougher concentrate, the below results indicate relatively low primary milling power requirements; and
- Bond Abrasion Index testing reported an average index of 0.0798; this also indicates relatively low equipment liner and grinding media wear.

**Table 2 Mahab 4 Master Composite – Comminution Results Summary**

Drop Weight Index (kWh/m <sup>3</sup> )	SMC Summary						Bond Summary	
	Morrell Index (kWh/t)			SMC Indices			Ball Mill Work Index	Abrasion Index
	Mic	Mih	Mia	A	b	A*b	Bwi (kWh/t)	Ai
3.23	2.7	5.1	8.1	75.8	1.49	112.9	11.6	0.0798

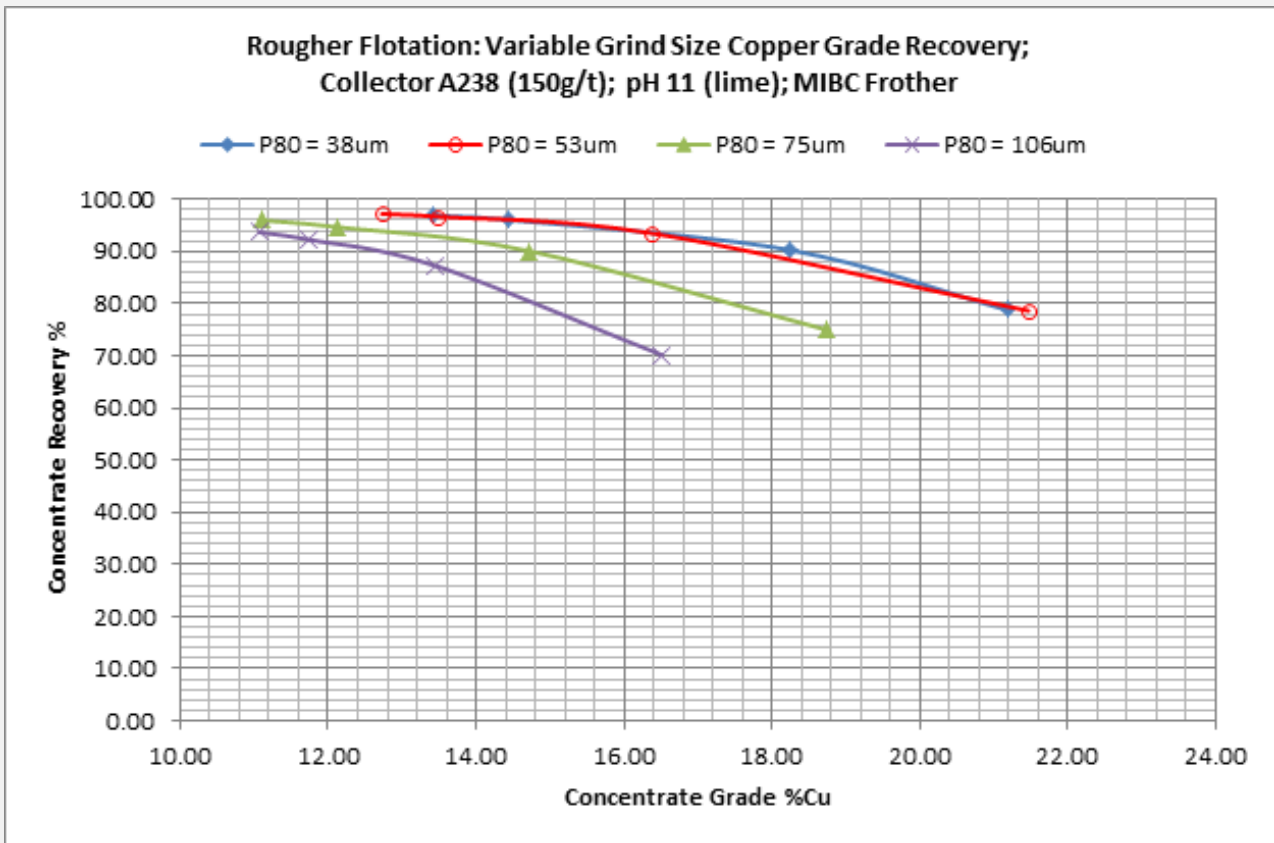
### Rougher Flotation Results

Rougher flotation simulates the first flotation stage, which would be conducted in any process plant established to extract the copper; the results for copper are show in Figure 2 and summarised below.

#### Copper

- Copper recovery tends to reduce with increasing grind size – the difference is marginal between 38µm (96.9% Cu recovery) and 53µm (97.2% Cu recovery);
- In overall terms the Cu grade recovery response and ability to recycle cleaner tailings streams during Rougher Cleaner flotation indicate we could adopt a coarser primary grind (P<sub>80</sub>) size of 63µm, also resulting in reduced overall power consumption.

**Figure 2 Mahab 4 Master Composite – Rougher Flotation Copper Grade Recovery**



**Silver**

- Silver recovery appears to be insensitive to grind size between 38um and 75um with recoveries ranging from 76.7% to 77.7%.

**Zinc**

- Zinc recoveries are significant and do not appear to be overly sensitive to grind size below a 106um grind size; and
- Sphalerite recovery into the rougher concentrate acts to dilute overall copper grade; depression with either ZnSO<sub>4</sub> and/or SMBS will assist in increasing copper concentrate grade at high recovery.

**Batch Rougher Cleaner Flotation Testing**

Batch rougher cleaner flotation testing has been conducted leading to recent completion of locked cycle flowsheet testing; key results are presented in **Table 3**; grade recovery curves are presented for copper in **Figure 3** and zinc in **Figure 4** based on a primary grind (P<sub>80</sub>) size of 63µm and rougher concentrate regrind (P<sub>80</sub>) sizes of: 38µm, 30µm and 19µm; key comments are offered as follows:

- Copper recoveries of ~ 90% achieved based on Mahab 4 Master Composite assaying 4.38% Cu;
- Copper grade improves with reduced rougher concentrate regrind (P<sub>80</sub>) size from 23.5% Cu at a 38µm grind to 28.4% Cu based on a 19µm regrind;
- Concentrate Zinc grade tends below a typical 3% smelter penalty limit based on a regrind size between 30µm and 19µm.

**Table 3 Mahab 4 Master Composite – Rougher Cleaner Flotation Variable Regrind (P<sub>80</sub>) Size**

Test			Cu	Zn	Au	Ag
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	Regrind P <sub>80</sub> Size (μm)	Mass (%)	Grade (%)	Rec (%)	Grade (%)	Rec (%)	Grade (g/t)	Rec (%)	Grade (g/t)	Rec (%)
FT13	38	16.1	23.50	90.2	4.76	48.2	0.439	29.6	38	47.4
FT14	30	14.9	25.74	90.2	3.48	32.4	0.432	27.8	42	44.5
FT15	19	13.8	28.35	89.3	2.28	21.1	0.487	29.4	40	46.1

Figure 3 Mahab 4 Master Composite – Copper Grade Recovery; Variable Rougher Re grind Size

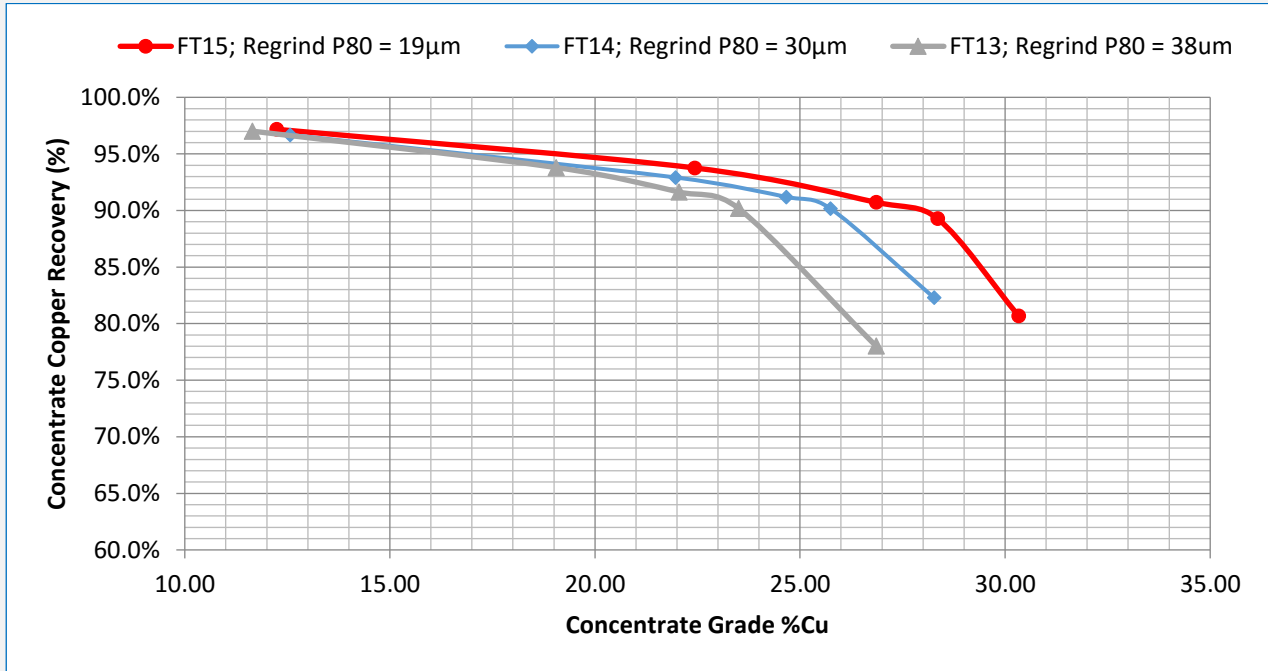
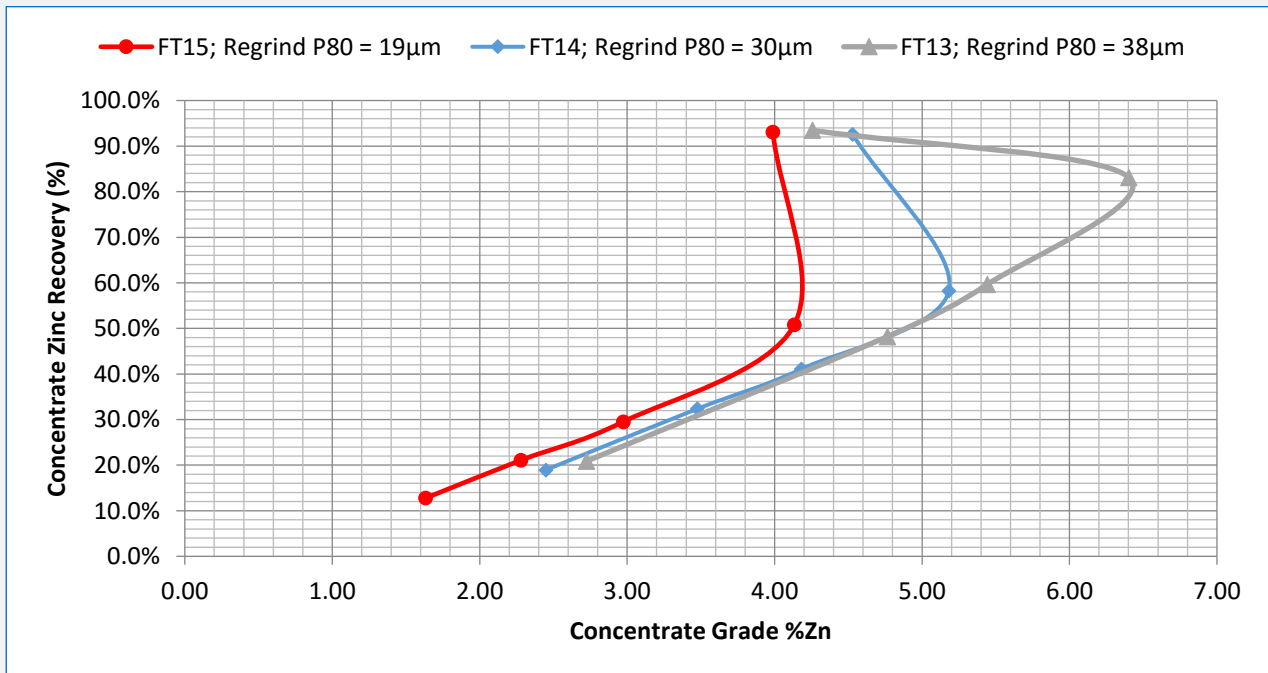


Figure 4 Mahab 4 Master Composite – Zinc Grade Recovery; Variable Rougher Re grind Size



## Competent Person and Regulatory Disclosures

The information in this document that relates to exploration results is based upon information compiled by Mr Dale Ferguson, Technical Director of Savannah Resources Limited. Mr Ferguson is a Member of the Australian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code). Mr Ferguson consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

**\*\*ENDS\*\***

### CONTACT US

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### Notes

Savannah Resources Plc (AIM: SAV) is a growth oriented, multi-commodity, development company.

#### Mozambique

Savannah operates the Mutamba heavy mineral sands project in Mozambique in collaboration with Rio Tinto, and can earn a 51% interest in the related Consortium, which has an established initial Indicated and Inferred Mineral Resource Estimate of 3.5 billion tonnes at 3.8% THM over the Jangamo and Dongane deposits. Under the terms of the Consortium Agreement with Rio Tinto, upon delivery by Savannah of the following Savannah will earn the corresponding interest in the Mutamba Project: scoping study - 20%; pre-feasibility study - 35%; feasibility study – 51%. Additionally, the Consortium Agreement includes an offtake agreement on commercial terms for the sale of 100% of production to Rio Tinto (or an affiliate).

#### Oman

Savannah has interests in two copper blocks in the highly prospective Semail Ophiolite Belt in Oman. The projects, which have an Indicated and Inferred Mineral Resource of 1.7Mt @ 2.2% copper and high-grade intercepts of up to 56.35m at 6.21% Cu, with gold credits, provide Savannah with an excellent opportunity to potentially evolve into a mid-tier copper and gold producer in a relatively short time frame. Together with its Omani partners, Savannah aims to outline further mineral resources to provide the critical mass for a central operating plant to develop the deposits and in

December 2015 outlined exploration targets of between 10,700,000 and 29,250,000 tonnes grading between 1.4% and 2.4% copper.

### Finland

Savannah has Reservation Permits over two new lithium projects, Somero and Erajarvi, covering an area of 159km<sup>2</sup> in Finland. Savannah holds a 100% interest in these projects through its Finnish subsidiary Finkallio Oy. Geological mapping has highlighted the presence of seven pegmatites across the licence areas - two on Somero and five on Erajarvi – with key lithium minerals petalite, spodumene and lepidolite all identified in hand specimens. Follow up work to further expand and define the pegmatites in readiness for drilling is being planned for the second quarter of 2017 (after winter).

Notes - The information in this document that relates to the resource estimation is based upon information compiled by Mr Colin Rothnie, an independent consultant. Mr Rothnie is a Member of the Australian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2012 edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (JORC Code). Mr Rothnie consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.