

# SAVANNAH

21 June 2022

**Savannah Resources Plc**  
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**(‘Savannah’ or the ‘Company’)**

## **Successful Completion of Locked Cycle Testing** **Excellent Recoveries above Target Lithium Grades**

Savannah Resources plc, the European lithium development company, is pleased to announce that it has successfully achieved another major project milestone for its 100% owned Barroso Lithium Project (the ‘Project’), with locked cycle testing (‘LCT’) completed, utilising the recently finalised process flowsheet and optimised grind size of 150 micron, delivering further excellent recoveries. Locked cycle testing is an important process in ensuring an accurate process flow sheet and verified inputs to the upcoming Definitive Feasibility Study (“DFS”).

### **Highlights:**

- Three LCTs were completed to simulate the continuous operation of a process plant and to refine the reagent consumption of the process flowsheet
- The LCT yielded a concentrate grade of 5.5% Li<sub>2</sub>O (‘SC5.5’) and global recoveries in the range of 77%-81% at laboratory scale
- This supports the results previously reported in the ore variability programme, which achieved Li<sub>2</sub>O recoveries in the range of 70%-79.5% at laboratory scale with low levels of impurities, and suggests that improved levels of recoveries are achievable
- Optimisation of the reagent dose rates between test 1 and test 3 showed a 39% reduction in reagent use which should have significant operating cost (‘OPEX’) benefits for the Project which will be captured in future economic evaluations
- These positive results will be utilised in resource and mine optimisation, and as the basis for the upcoming DFS to support the proposed development
- Based on the encouraging results achieved to date, planning for the pilot plant test work programme is underway

**David Archer, Savannah’s Chief Executive Officer said:** *“Having finalised our innovative, environmentally enhanced process flowsheet for the Project in February, we are very pleased with the results produced during this subsequent LCT phase. We believe that this testing phase better replicates the conditions associated with the continuous circuit found in a spodumene flotation plant, so to produce a concentrate of 5.5% Li<sub>2</sub>O based on laboratory recoveries at or around 80% is very encouraging. This is particularly so when testing also shows there may be an opportunity to additionally reduce associated reagent volumes and operating costs.*

*“The large amount of data already collected, along with results from the remaining, larger scale, metallurgical testing will be used in the Definitive Feasibility Study to help us in our efforts to optimise all aspects of the Project, including minimising its use of raw materials and energy.*

*“We look forward to bringing further news on the large scale bulk float tests and pilot plant test work programmes during the second half of 2022.”*

## **Background**

A locked cycle test is a repetitive batch test which recycles the tails material between flotation stages to better simulate a continuous circuit at lab scale. The test is used to verify that the inclusion of recycled solids to the previous stage does not negatively impact the flotation performance and allows an investigation into how reagents may build up within the circuit and the optimisation of reagent dose rates. The LCT programme was supervised by MinSol Engineering Pty Ltd (‘MinSol’) between Q1 and Q2 2022 and implemented the recommendations from the variability programme that was completed in conjunction when possible.

The LCT programme was undertaken with the following objectives:

- Verify the impact of recycled material on the efficiency of the flotation stage
- Provide confidence in the repeatability of the flotation performance
- Further optimisation/reduction of reagent dose rates
- Produce representative process water and by-products samples for future test programs

The LCT programme was undertaken on a single composite grading 1.23% Li<sub>2</sub>O that was representative of Grandao stage 1, which is the dominant deposit in the first 10 years of the project life. The programme allowed for three separate tests to be undertaken with 10 cycles completed in each test to allow reagent rates to be reviewed and manipulated during the test and then return to steady state.

## **Summary of Key Results**

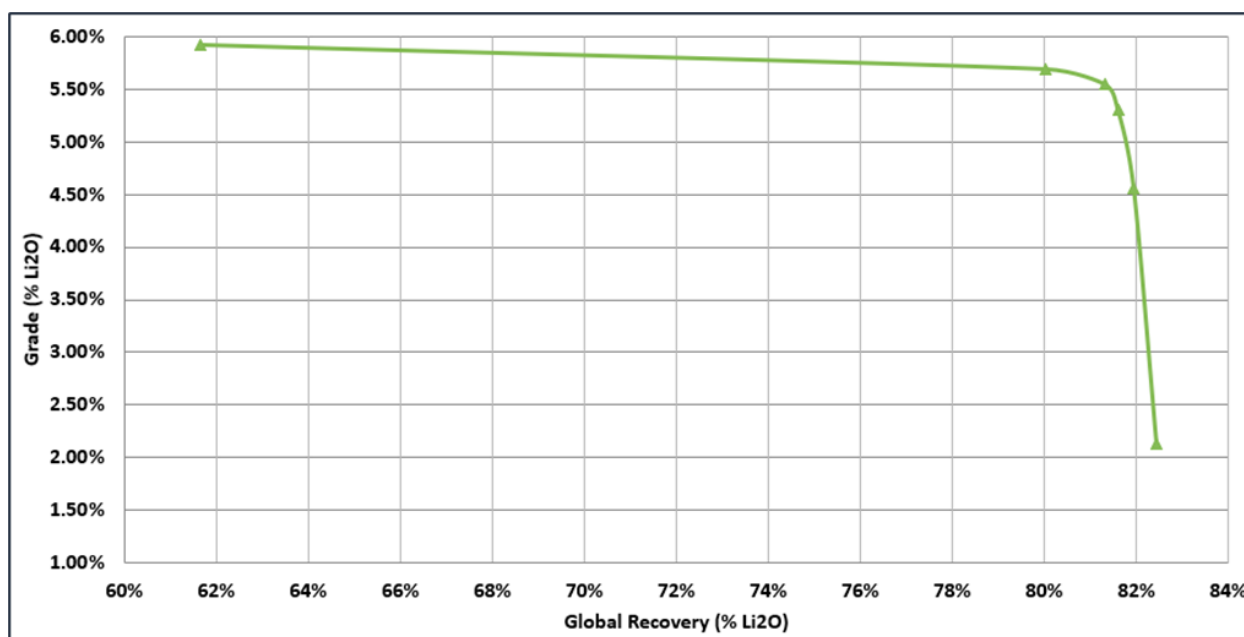
Sighter Flotation test:

Prior to undertaking the first lock cycle test, a sighter flotation test (‘SF’) was completed to assess the reagent dose rate required and the typical performance of the sample. The results yielded a high quality spodumene concentrate at the Project target grade of 5.50% Li<sub>2</sub>O at an 85% flotation stage recovery with no optimisation of the reagent dose rate. The sample performed excellently due to the low losses associated with the Dense Media Separation pre-concentration stage, de-slimes and magnetic separation. The overall global performance of the sighter test is detailed in the figures following.

**Table 1 - Sighter Flotation Global Performance**

Composite Head Grade (% Li <sub>2</sub> O)	Global Department of Li <sub>2</sub> O (%)					
	Floats	Slimes	Mags	Mica Cons	Flotation Tails	SC5.5
1.23	2.5	2.1	2.0	11.0	1.1	81.4

Figure 1 - Sighter Flotation Global Performance



#### Lock Cycle Test 1:

LCT 1 was undertaken with fixed reagent dose rates for the 10 cycles after regular review of the key product masses. The average results for the final 2 cycles (9 and 10) achieved a concentrate grading 5.50% Li<sub>2</sub>O at a stage recovery of 87.5%. This resulted in a global recovery of 81.5%.

#### Lock Cycle Test 2:

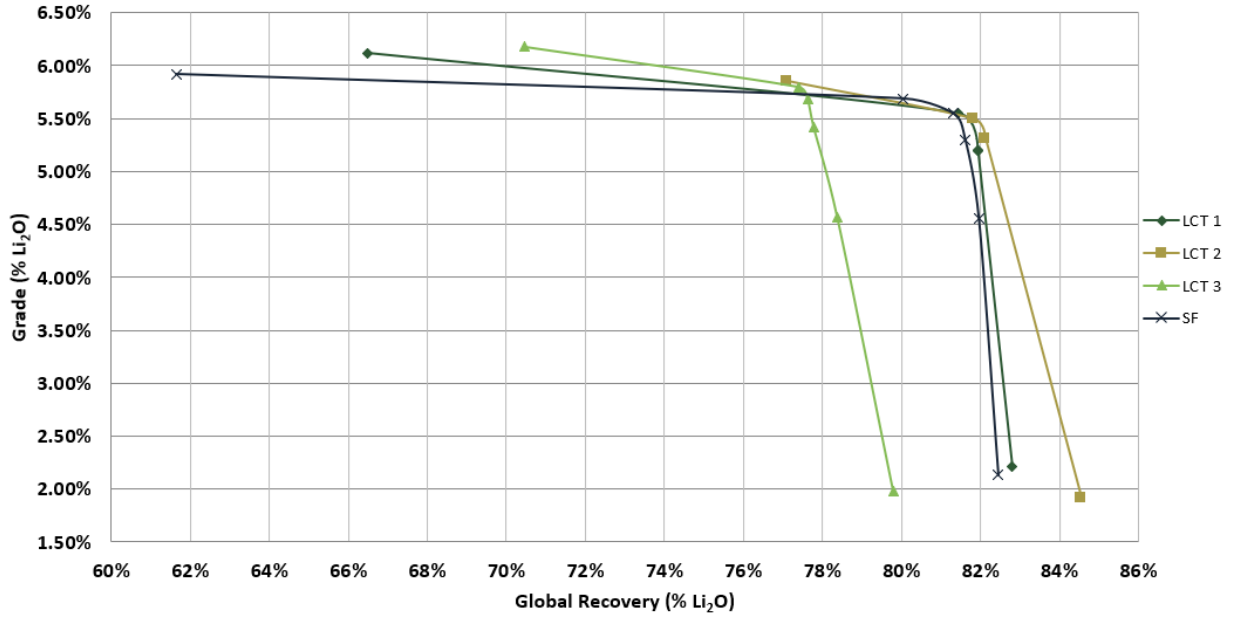
After the promising results of LCT 1 showed a final 2 cycle performance equal to the sighter flotation test, LCT 2 investigated dropping the reagent dose rate at cycle 4 by 15% and again at cycle 7 by a further 15%. The results suggested that the process had not reached steady state after the 10 cycles, however, the results were encouraging by indicating that the recycled solids loading could allow for a reduction in reagent dose rate, with only a minor increase in the losses to the rougher tails.

#### Lock Cycle Test 3:

LCT 3 incorporated more comprehensive water recycling by collecting all filtrates from the tails and concentrate fractions for reuse. The recovered masses at each stage were regularly reviewed and a reagent overdose/build-up stage was encountered, and the rates reduced to suit. The final reagent dose rates were a 39% reduction from the original dose rates, but the test was still able to achieve a high-grade product at suitable recoveries.

The final two products from each LCT and the SF are presented in the figure below.

Figure 2 - Flotation Global Performance Comparison



The possible overall reduction in reagents should have significant OPEX benefits for the Project and will be captured in future economic evaluations.

It is noted that the recoveries stated above are based on lab scale, and industry standard scale up factors should be applied to account for increased slimes generation and therefore lithia losses and equipment inefficiencies.

The programme was successfully able to produce representative samples of by-products for analysis and OEM test work.

Photograph 1. Locked Cycle Testing in Progress



### **Future Work Plan**

Further work is planned in Q3 and Q4 of 2022 to refine the process operating conditions and investigate further opportunities to improve process recovery. The next stage of the test work programme will include:

- Large scale bulk float tests
- Water circuits and treatment
- Pilot Plant testing

The Company will provide further updates as appropriate.

### **Competent Person Statement**

The information in this announcement that relates to exploration results is based upon information compiled by Mr Dale Ferguson, Technical Director of Savannah Resources PLC. Mr Ferguson is a Member of the Australasian Institute of Mining and Metallurgy ('MAusIMM') 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.

The information in this release that relates to metallurgy and metallurgical test work has been reviewed by Mr Robert Simmons, MAusIMM, B. Eng. (Chemical Engineering). Mr Simmons is not an employee of the Company but is engaged as a contract consultant. Mr Simmons is a Member of the Australasian Institute of Mining and Metallurgy, he has sufficient experience with the style of processing response and type of deposit under consideration, and to the activities undertaken, to qualify as a competent person as defined in the 2012 edition of the "Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Simmons consents to the inclusion in this report of the contained technical information in the form and context as it appears.

### **Regulatory Information**

This Announcement contains inside information for the purposes of the UK version of the market abuse regulation (EU No. 596/2014) as it forms part of United Kingdom domestic law by virtue of the European Union (Withdrawal) Act 2018 ("UK MAR").

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



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**About Savannah**

Savannah is the owner of the Barroso Lithium Project, located close to key infrastructure in Northern Portugal which contains the most significant spodumene lithium resource in Western Europe. With a positive Scoping Study which outlined a conventional mine and concentrator operation producing 175,000t of spodumene concentrate per annum, Savannah is progressing the development and environmental licencing of the Barroso Lithium Project. A Definitive Feasibility Study is underway, and Portugal's environmental regulator is currently evaluating Savannah's Environmental Impact Assessment study. The Company is listed and regulated on the London Stock Exchange's Alternative Investment Market (AIM: SAV). The Company's ordinary shares are also available on the Quotation Board of the Frankfurt Stock Exchange (FWB: SAV), and the Börse Stuttgart (SWB: SAV).