

Core Exploration Ltd.: Test work Produces High Quality 6% Spodumene Concentrate

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Adelaide - [Core Exploration Ltd.](#) (ASX:CXO) ("Core" or the "Company") is pleased to announce outstanding results from its initial metallurgical test work for the Grant's Pegmatite at the Finnis Lithium Project (the Finnis Project) near Darwin in the Northern Territory.

HIGHLIGHTS

- Initial metallurgical test work demonstrates the Grants Prospect at the Finnis Lithium Project can produce a high quality 6% spodumene concentrate

- Concentrate specification appears suitable to supply a chemical grade concentrate to the growing lithium battery market

- Several potential processing routes identified to produce a spodumene concentrate product of 6% Li₂O at recoveries of 80% or higher

- o Whole-of-Ore Flotation achieved excellent results with a concentrate grade of 6.2% Li₂O achieved at very high lithium stage recovery (from flotation head) of 93%

- o HLS (Heavy Liquid Separation) results give calculated concentrate grade of 5.9% Li₂O at a high stage recovery (from HLS head) of 80%

- o Various configurations of DMS and Flotation combined are interpolated to produce 6.0% Li₂O concentrate at 80% recovery or better

- Simple spodumene mineralogy of Core's pegmatites responds well to a range of industry standard concentration techniques

- A Direct Shipping Ore (DSO) pricing model has been developed with estimated operating margins presenting a strong case to progress further economic studies on an early DSO development option

- It has also been identified that a lower capex single stage, Dense Media Separation (DMS) process may produce a 4.5% Li₂O concentrate product at acceptable recoveries as an alternative early development option

The test results are very encouraging, with a number of potential processing routes identified to produce a spodumene concentrate product of 6% Li₂O at recoveries of 80% or better.

The test work indicates a 6% spodumene concentrate can be produced at coarse 6.3mm crush size with a high overall recovery utilising standard whole-of-ore Flotation or several variations of combined Dense Media Separation (DMS) and Flotation.

The concentrate specification produced from Core's spodumene pegmatite appears suitable to supply a chemical grade concentrate to the growing lithium battery market.

Como Engineers Pty Ltd (Como) managed the metallurgical test work program at Nagrom Laboratories. Wave International Pty Ltd (Wave) have also been engaged to undertake an initial commercial assessment of the potential products from the Finnis Project.

In addition with these positive metallurgical results, a DSO pricing model, and a Lithium Carbonate (LIC) production cost model have been developed based on current 6% Li₂O concentrate pricing input costs. It is estimated that operating costs to produce a DSO product presents a strong economic case to progress further scoping level studies on fast-start DSO options at Grants.

Discussions with potential DSO and concentrate customers is ongoing.

A review of the metallurgical testwork has also confirmed that sufficient data exists to be used as the basis

for a scoping study, encompassing preliminary flowsheet design and financial modelling (including first-pass capital and operating cost estimates) to examine the optimum flowsheet configuration for a large scale concentration plant at Finniss based on the bulk sample from Grants.

Calculations from test work data indicate a high overall Li₂O recovery of >80% may be obtained from one variation of a combined DMS, fines flotation flowsheet as follows (refer Table in the link below):

Several similarly-configured flowsheets, differing from the above in the proportion of coarse (DMS) and fine (flotation) material produced, are calculated to give similar results; these circuits will be assessed on a cost/benefit basis for incremental Li production.

Summary of Key Results

A summary of the key metallurgical test work results from the program follows.

Flotation

Flotation testwork on whole of ore samples crushed to minus 1mm and deslimed at 25micronm achieved excellent results with a concentrate grade of 6.2% Li₂O being achieved at 93.2% stage recovery, (i.e. recovery based on flotation head).

Heavy Liquid Separation (HLS)

HLS test results on spodumene pegmatite core crushed to minus 6.3mm (and screened at 0.5mm to remove fines) indicated 5.9% Li₂O concentrate at a high stage recovery (i.e. based on HLS head) of 80% at a cut of SG 2.9. Higher concentrate grade of 6.3% was achieved at a cut of SG 2.95 at 64% stage recovery.

HLS results combined with Flotation of fines is calculated to produce 6.0% Li₂O concentrate at high 82% overall recovery, subject to confirmatory test work.

Dense Media Separation (DMS)

Initial small scale continuous DMS cyclone testing data of spodumene pegmatite core crushed to minus 6.3mm (and screened at 0.5 mm to remove fines) gave 6.3% Li₂O concentrate grade at 41% stage recovery at 2.95sg, and 4.5% Li₂O concentrate grade at 94% stage recovery at 2.70sg cut point. Interpolation of these results gave 48% stage recovery for a 6.0% Li₂O concentrate (41% overall recovery).

Comminution

A composite sample was prepared from 141m of half HQ drill core from holes identified at FRCD001, FRCD002 and FRCD003 from Grants Prospect at the Finniss Lithium Project. The composite sample weighed 341kg and assayed 1.70% Li₂O and 0.85% Fe₂O₃.

Comminution test work was conducted on the sample to enable comminution circuit sizing estimates to be undertaken at scoping study level. The ore characteristics are considered similar to most other lithium pegmatite ores; being fairly abrasive and hard.

Mineralogical investigations indicated that the crush size required to produce adequate liberation for a 6% Li₂O concentrate at acceptable recoveries is approximately 6.3mm.

The comminution results and liberation characteristics indicate a simple Primary, Secondary and Tertiary Crushing circuit consisting of jaw and cone crushers should suffice to prepare the feed to minus 6mm prior to DMS.

Magnetic Separation

The Fe₂O₃ grade of the DMS concentrate was lowered to approximately 0.6% by dry High Intensity Magnetic Separation (Rapid Disc Magnetic Separator) at 7000G, classifying the concentrate as chemical grade specification.

The Fe₂O₃ grade of the flotation concentrate was lowered to 0.55% by WHGMS (Wet High Gradient Magnetic Separation) at 3000G, but at unacceptable Li loss. However, it is thought that LIMS (Low Intensity Magnetic Separation) may result in similar Fe₂O₃ reduction with lower Li₂O rejection.

QEMSCAN

A comparison between the assayed lithium grade and the calculated lithium grade indicates that the

spodumene is likely to account for most of the lithium in the composite for most size fractions.

Spodumene, Quartz, Albite, K-feldspar and Muscovite are the dominant minerals with the relative abundances of these minerals being fairly consistent across the size fractions.

To view tables and figures, please visit:
<http://abnnewswire.net/lnk/7QFJVQ1U>

About Core Exploration Ltd:

[Core Exploration Ltd.](#) (ASX:CXO) aims to grow shareholder value through the exploration for and discovery of commercially robust base metal and uranium deposits in South Australia and the Northern Territory. Core Exploration's projects have been carefully acquired in geology which hosts world-class mines and within some of the most prospective geological terrains for base metals and uranium in Australia

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