ASX:CXO Announcement

6 April 2021

Battery Grade Lithium Hydroxide produced from Finniss Project Concentrate

Highlights

- Scoping level test work on Finniss Project spodumene mineral concentrate sample has produced 'battery grade' lithium hydroxide monohydrate (LH)
- Core's LH satisfied all impurity specifications of the commonly referenced battery grade specification from Livent[1]
- Conversion to battery grade LH used the conventional 'direct' flowsheet
- Excellent extraction and recovery of lithium to LH crystallisation steps (>95%)
- Core believes Finniss lithium concentrate quality suitable for the high-end Lithium Battery, Renewable Energy and EV industries
- Customer demand for Core's high-quality concentrate and spodumene prices increasing rapidly – Core aiming to complete new offtake deals in due course
- Core on-track to update Finniss Lithium Concentrate DFS ahead of FID Q3 2021

[1] Livent "Lithium Hydroxide Monohydrate, Battery Grade" QS-PDS-1021 Revision 03. available at https://livent.com/wp-content/uploads/2018/09/QS-PDS-1021-r3.pdf .

Figure 1. Core's battery grade - lithium hydroxide monohydrate min 56.5%

Advanced Australian lithium developer Core Lithium Ltd (ASX: **CXO**) (**Core** or **Company**) is pleased to announce the production of battery grade lithium hydroxide monohydrate (**LH**) from spodumene mineral concentrate from the Finniss Lithium Project.

The scoping level test work program has demonstrated that the conventional 'direct' flowsheet can be applied to the processing of the mineral concentrate sample to produce battery grade lithium hydroxide monohydrate.

In light of the success of this program and the recently granted Federal Government Major Projects status, Core is now considering the obvious down-stream value potential given the Project's synergies with the adjacent Middle-Arm industrial infrastructure near Darwin. As well as the alignment with Australia's Modern Manufacturing strategy, and the rapid expansion of global lithium battery supply chains to meet the demands of the ever-increasing LIB, electric vehicle (EV) and renewable energy markets.

Demonstration of the production of battery grade LH in this program provides Core and its customers confidence in the value of the Finniss Project, its importance to Australia's northern regional economy, and strengthening Australia's position further downstream in the global lithium battery supply chain.

Core remains focussed on completing the Finniss Lithium Project concentrate DFS and finalising current live off-take negotiations ahead of reaching a Final Investment Decision (FID) in Q3 2021.

Testwork Program

Objectives

The test work program was completed by the Minerals Business Unit of the Australian Nuclear Science and Technology Organisation (ANSTO). ANSTO is one of Australia's largest public research organisations and its Minerals personnel have extensive lithium processing experience with hard rock and brine feedstocks, to produce high purity chemical concentrates required for the manufacture of lithium ion batteries (LIBs).

The main objective of the test work program was to demonstrate the production of 'battery grade' LH using a sample of the Finniss Project spodumene mineral concentrate composited from previous Grants and BP33 gravity concentrate test work (refer CXO ASX announcements 17/04/19, 10/03/20 & 15/4/20). Scoping level test work was conducted on the major unit processes of the 'direct' conversion approach.

The 'direct' conversion flowsheet involves decrepitation, sulfation baking / water leaching, purification, Glauber salt crystallisation and lithium hydroxide crystallisations.

The test work program was specifically designed to confirm the suitability of the major unit processes and provide an increased level of confidence in the process modelling.

Results

Without optimisation of the decrepitation, sulfation baking or water leaching conditions, excellent extraction of lithium (>95%) was achieved in two separate tests on 2 kg samples of blended concentrate.

Conventional impurity removal steps as well as three stages of crystallisation afforded excellent rejection of the key impurities, potassium, sodium and sulphur as well as minor impurities such as rubidium and caesium.

Conclusions

The most critical factor to the successful extraction of lithium from spodumene mineral concentrates is the decrepitation step and the complete conversion of α- to β-spodumene. This has been achieved for the samples of the initial Finniss spodumene mineral concentrate, with additional mineralogical data increasing confidence in the processibility of the mineral concentrate.

Following decrepitation to β-spodumene, the major unit processes of a conventional 'direct' process flowsheet can be applied to convert the contained lithium to lithium hydroxide monohydrate, which satisfies the commonly referenced Livent battery grade LH specification.

The knowledge of the process chemistry associated with all the major unit processes, especially each stage of LH crystallisation, gained from this program has allowed development of a preliminary process model.

Core Lithium Managing Director Stephen Biggins said:

"Today's announcement confirms that battery grade lithium hydroxide suitable for high-end uses in the lithium battery, renewable energy and electric vehicle industries, can be produced from Core's excellent quality lithium concentrate produced from the Finniss Project.

"This successful proof-of-concept test work provides Core, and our customers, the confidence in utilising Finniss lithium concentrates in the global lithium battery supply chain.

"Together with the recent award of Major Project Status from the Federal Government, this program lays a foundation for Core to explore the potential of adding downstream processing infrastructure to our portfolio, incorporating the strong synergies with the infrastructure at the nearby Middle-Arm Industrial Precinct at Darwin Port and aligning with Australia's national Modern Manufacturing Strategy and expansion of the Global lithium battery supply chain."

This announcement has been approved for release by the Core Lithium Board.

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Competent Person Statement

The information in this report that relates to the scoping level test work program for lithium hydroxide production is based on information compiled by Dr Robert Gee (BSc(ENG)(Hons), PhD), an employee of Australian Nuclear Science and Technology Organisation (ANSTO) who is a member of the Australasian Institute of Mining and Metallurgy and is bound by and follows the Institute's codes and recommended practices. He has sufficient experience which is relevant to the type of metallurgical processing under consideration as part of this scoping study to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves." Dr Gee consents to the inclusion in this announcement, the matters based upon his information in the form and context in which it appears.

Core confirms that it is not aware of any new information or data that materially affects the information cross referenced in this announcement.

About the Finniss Lithium Project

The Finniss Lithium Project is Australia's most advanced new lithium projects on the ASX and places Core Lithium at the front of the line of new global lithium production.

Finniss is also one of the most capital efficient lithium projects in Australia and has arguably the best logistics chain to markets of any Australian lithium project.

The Project lies within 25km of port, power station, gas, rail and one hour by sealed road to workforce accommodated in Darwin and importantly to Darwin Port - Australia's nearest port to Asia.

Lithium is the core element in batteries used to power electric vehicles, and the Finniss Project boasts world-class, high-grade and high-quality lithium suitable for this use and other renewable energy sources.

JORC Code, 2012 Edition – Table 1 Report

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Metallurgical testwork results reported herein relate to materials sourced from 52 kg of spodumene concentrate was composited from various heavy mineral separation (HMS & DMS) concentrate tests performed at Nagrom Laboratories in Western Australia between 2017 and 2020. The compositing sample source is 54% Grants and 46% BP33 by mass, which was considered appropriate for this test work program.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• No drilling being reported – Metallurgical results
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure	• No drilling being reported – Metallurgical results

	representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• No drilling being reported – Metallurgical results
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• No drilling being reported – Metallurgical results
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks,	• No drill assays being reported – Metallurgical results

	duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Senior technical personnel have visually inspected and verified the metallurgical test results.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• No drilling being reported – Metallurgical results
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• No drilling being reported – Metallurgical results
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• No drilling being reported – Metallurgical results
Sample security	• The measures taken to ensure sample security.	• Appropriate sample security was undertaken by ANSTO and NAGROM

Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No audits or reviews of the data associated with this drilling have occurred.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Project is within EL29698 and EL30015, which are 100% owned by CXO. • The BP33 resource lies across the boundary of EL29698 and EL30015, both of which are 100% owned by CXO. • The area being drilled comprises Vacant Crown land. • There are no registered heritage sites covering the areas being drilled. • The tenements are in good standing with the NT DPIR Titles Division.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• The history of mining in the Bynoe area dates back to 1886 when tin was discovered by Mr. C Clark. • By 1890 the Leviathan Mine and the Annie Mine were discovered and worked discontinuously until 1902. • In 1903 the Hang Gong Wheel of Fortune was found, and 109 tons of tin concentrates were produced in 1905. In 1906, the mine produced 80 tons of concentrates. • By 1909 activity was limited to Leviathan and Bells Mona mines in the area with little activity in the period 1907 to 1909. • The records of production for many mines are not complete, and in numerous cases changes have been made to the names of the mines and prospects which tend to confuse the records still further. In many cases the published names of mines cannot be linked to field occurrences. • In the early 1980s the Bynoe Pegmatite field was reactivated during a period of high tantalum prices by Greenbushes Tin which owned and operated the Greenbushes Tin and Tantalite (and later spodumene) Mine in WA. Greenbushes Tin Ltd entered into a JV named the Bynoe Joint Venture with Barbara Mining Corporation, a subsidiary of Bayer AG of Germany. • Greenex (the exploration arm of Greenbushes Tin Ltd) explored the Bynoe pegmatite field between 1980 and 1990 and produced tin and tantalite

Criteria	JORC Code explanation	Commentary
		from its Observation Hill Treatment Plant between 1986 and 1988. • They then tributed the project out to a company named Fieldcorp Pty Ltd who operated it between 1991 and 1995. • In 1996, Julia Corp drilled RC holes into representative pegmatites in the field, but like all their predecessors, did not assay for Li. • Since 1996 the field has been defunct until recently when exploration has begun on ascertaining the lithium prospectivity of the Bynoe pegmatites. • The NT geological Survey undertook a regional appraisal of the field, which was published in 2004 (NTGS Report 16, Frater 2004). • LTR drilled the first deep RC holes at BP33, Hang Gong and Booths in 2016, targeting surface workings dating back to the 1980s. The operators at that time were seeking Tin and Tantalum. • CXO subsequently drilled BP33, Grants, Far West, Central, Ah Hoy and several other prospects in 2016. • After purchase of the Liontown tenements in 2017, CXO drilled Lees, Booths, Carlton and Hang Gong.
Geology	• Deposit type, geological setting and style of mineralisation.	• The tenements listed above cover the northern and central portion of a swarm of complex zoned rare element pegmatite field, which comprises the 55km long by 10km wide West Arm – Mt Finniss pegmatite belt (Bynoe Pegmatite Field; NTGS Report 16). The main pegmatites in this belt include Mt Finniss, Grants, BP33, Hang Gong and Sandras • The Finniss pegmatites have intruded early Proterozoic shales, siltstones and schists of the Burrell Creek Formation which lies on the northwest margin of the Pine Creek Geosyncline. To the south and west are the granitoid plutons and pegmatitic granite stocks of the Litchfield Complex. The source of the fluids that have formed the intruding pegmatites is generally accepted as being the Two Sisters Granite to the west of the belt, and which probably underlies the entire area at depths of 5-10 km. • Lithium mineralisation has been identified historically as occurring at Bilato's (Picketts) and Saffums 1 (both amblygonite) but more recently LTR and CXO have identified spodumene at numerous other prospects, including Grants, BP33, Booths, Lees, Hang Gong, Ah Hoy, Far West Central and Sandras.

Criteria	JORC Code explanation	Commentary
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• No drilling being reported – Metallurgical results
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	52kg of spodumene concentrate was composited from various heavy mineral separation (HMS & DMS) concentrate tests performed at Nagrom Laboratories in Western Australia between 2017 and 2020. The assay of the feed concentrate composite head grade was 5.92% Li_2O. The compositing details 54% Grants and 46% BP33 by mass, which was considered appropriate for this test work program.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length,	• Metallurgical Results

Criteria	JORC Code explanation	Commentary
	true width not known').	
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Metallurgical Results
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• All meaningful and material data has been reported.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• All meaningful and material data has been reported.
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• CXO is currently considering these results