

BATTERY GRADE 99.8% LITHIUM CARBONATE PRODUCED

Highlights

- **Production of Li_2CO_3 at 99.8% purity has been achieved, which meets the Li_2CO_3 specifications of major international battery manufacturers and exceeds the Benchmark Mineral Intelligences battery grade Li_2CO_3 at >99.5%.**
- **Lithium recoveries of 90.7% in leaching with sulfuric acid, and removal of impurities were achieved with minimal lithium losses.**
- **Demand for battery grade lithium and prices are rapidly rising in response to increased worldwide battery demand, resulting from the changeover from a carbon based energy system to a green electric future.**
- **Hawkstone's Big Sandy Project has a maiden Indicated and Inferred JORC resource of 320,800 of LCE¹ and Benchmark Mineral Intelligence assessment at 15 March 2021 quotes a price of US\$12,625 per tonne for Li_2CO_3 >99.5%.**
- **The Big Sandy Lithium project is ideally located in Arizona, USA, ranked #1 by the 2020 Fraser Institute Survey, providing world class infrastructure choices in a mining friendly State focussed on green technologies and zero emission power generation.**
- **Hazen Research's initial work is now complete with commencement immediately of a full-scale bench-scale testing program and design of a continuous-operation pilot plant.**
- **Drilling permit approvals are expected within 30 days with a drilling rig ready to mobilise to site immediately.**

Hawkstone Mining Managing Director, Paul Lloyd, commented: *"The Big Sandy Lithium Project is expected to grow from the maiden JORC resource of approximately 321,000 tonnes of LCE as we rapidly work to convert the very large exploration target to a JORC compliant resource via further exploration drilling, which is planned to commence shortly, and with a known exploration strategy, we have turned our attention to material processing."*

"Today's announcement of the production of battery grade Lithium at 99.8% Li_2CO_3 is a highly significant event that has enabled the decision to proceed to bench scale testing and pilot plant design. We have a potentially large lithium resource and are able to produce high quality product in a market with a rapidly increasing demand and price. Based in Arizona, USA, with a large number of quality infrastructure choices and highly proactive State and Federal Governments, the planets are aligning for Hawkstone and its shareholders."

Further to the preliminary results released on 3 March 2021, USA focused Lithium Developer, Hawkstone Mining Limited (**ASX:HWK**) ("**Hawkstone**", the "**Company**") is pleased to announce that the Company has successfully completed its initial metallurgical testing program with Hazen Research Inc, ("**Hazen**") on the lithium-mineralised sedimentary material from the Big Sandy Lithium Project ("**Big Sandy**", "**Project**"), which has achieved the goal of **high lithium recoveries at 90.7%** while **removing impurities with minimal lithium losses** and producing "**battery grade**" **99.8% Li_2CO_3** .

¹ ASX Announcement 29/11/18 – Preliminary metallurgical test work proves highly successful at Big Sandy Lithium Project

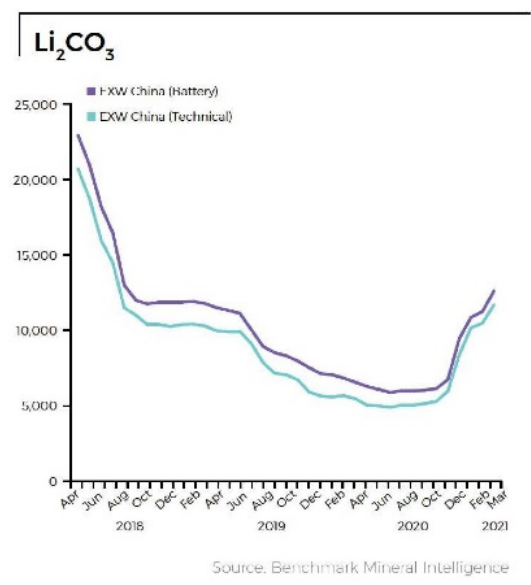
The hydrometallurgical process that Hazen is evaluating involves sulphuric acid leaching, leach solution purification, and the subsequent production of 99.8% Li_2CO_3 used in the production of lithium-ion batteries. The process is straightforward, environmentally-superior to peer developments, and based on proven unit operations. Hawkstone will continually assess process improvements including those achieved during the initial testing program, with the initial test work demonstrating that the present flowsheet is a viable approach for the development of the Big Sandy resource.

The US Departments of Energy and Defence are accelerating solicitations for Federal support of technology-based solutions and new sources to secure domestic supply chain security of critical battery metals. Hawkstone is well positioned to capitalise on this dynamic shift in Federal policy with its Big Sandy Sedimentary Lithium Project located in Arizona, ranked #1 by 2020 Fraser Institutes Mining Survey².

President Joe Biden has a “Plan for a Clean Energy Revolution” which places America on the road to becoming the world’s clean energy superpower. With a vision of a 100% clean energy economy, stated not only as an obligation, but as an opportunity for the USA to achieve a 100% clean energy economy, with net-zero emissions by 2050. Biden’s campaign has privately stated to US miners that he will support boosting domestic production of critical metals used to make electric vehicles, solar panels and backup storage battery modules, and other products crucial to this climate plan³.

Hawkstone is well placed to capitalise on this dynamic shift in Federal policy, with its Big Sandy Lithium Project strategically located halfway between Phoenix, Arizona and Las Vegas, Nevada straddling US Route 93 and Interstate 11, the newest link to the Pan-American corridor. Phoenix is located in the southwest “Sun Belt,” a rapidly growing centre for renewable energy. In the last year, Lucid Motors and ElectraMeccanica have announced electric vehicle capital programs in Arizona to complement what is already a growing generation-scale battery storage program by utilities to back-up a world-class large fleet of renewable energy installations.

With the Project located in a highly positive structural framework as discussed and coupled with the advances by Hazen on the metallurgical front, positions the Project squarely in the front of a rising tide in demand and price in the Lithium market. In a report dated 15 March 2021, Benchmark Mineral Intelligence quoted a price of US\$12,625 per tonne for battery grade Li_2CO_3 >99.5%. The report also stated that “Lithium carbonate (Li_2CO_3) prices continue a rapid rise within China, approaching 100% price rise year to date (YTD), as demand for lithium chemicals sustains upward pressure on both technical grade and battery grade lithium carbonate”⁴.



² <https://www.fraserinstitute.org/categories/mining>, Annual Survey of Mining Companies 2021.

³ <https://www.reuters.com/article/usa-election-mining/exclusive-biden-campaign-tells-miners-it-supports-domestic-production-of-ev-metals-idINKBN27808B>

⁴ Benchmark Mineral Intelligence, Lithium Price Assessment, Mid-March 2021 Assessment, 15 March 2021

To advance the Project, Hawkstone is concluding plans for an extended bench-scale and concurrent pilot plant design program to commence at Hazen. This testing and design work will be used to develop a flowsheet and form a design basis for a full-scale operation to bring Big Sandy to commercial production. A scalable, continuous pilot plant design will be developed that will ultimately be located adjacent to the production facility enabling additional technology development, testing of different ore types, and in support of project financing requirements.

Preliminary Engineering and Logistical Work defined the competitive advantages of the Big Sandy Sedimentary Lithium Project:

- **Large Resource:** potentially one of the largest mineable lithium resources in North America, with a potentially low strip ratio exploitable by free dig, open pit mining methods.
- **Sustainable:** the possibility of environmentally-friendly slurry pipeline transport of ore to a nearby industrialised processing location with a USA transcontinental rail link, dry-stacked tailings disposal, innovative options for water conservation, and a compliant sulfuric acid plant design with a zero-discharge approach.
- **Good Infrastructure and Labour Market:** located just off US Highway 93 and the new Interstate 11, that connects with interstate routes crossing the USA, making the Project an easy access location for consumables supply and products transport, with a skilled workforce for construction, operation and maintenance.
- **Government Support:** Arizona is a fast-growing mining friendly state (2nd best global mining location and the world's 4th largest copper producer) that is open to development and is willing to provide incentives.
- **Growing Market:** the USA and Arizona in particular has one of the highest solar footprints in the world, with utilities rapidly switching to new lower cost wind and solar power production, employing battery-based energy storage.
- **Battery Supply Chain:** new electric vehicle manufacturers are choosing to site new plants in Arizona, and prominent companies completing the lithium supply chain with manufacturer/energy storage producers located or in development in Arizona, Nevada, Texas and Tennessee.
- **Critical Mineral:** lithium became a US strategic mineral in 2018 with recently-introduced Federal permitting incentives.

This announcement has been authorised for release by the Board of Hawkstone Mining Limited.

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Competent Person's Statement

The information in this announcement that relates to the Big Sandy Sedimentary Lithium Project (including the information provided pursuant to ASX Listing Rules 5.12.2 to 5.12.7 (inclusive)) is based on, and fairly represents information compiled by Gregory L Smith who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity to which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Smith is a Director of the Company and holds shares in the Company. Mr. Smith consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears. 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 and that the material assumptions and technical parameters underpinning the Resource estimate continue to apply.

APPENDIX 1: JORC Code, 2012 Edition – Table 1

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.	This announcement relates to metallurgical test work completed on ½ diamond drill core from a previously completed and announced drill programme.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Samples for metallurgical test work of the remaining ½ drillcore were taken over intervals as identified by previous sampling and analysis of the other ½ of the drill core as reported in prior announcements.
	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 1m 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.	

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,	The drilling was completed using a Mooroka mounted Longyear 44 and core recovered in a standard 1.52m core barrel. It produced HQ sized core of 63.5mm in diameter.
	depth of diamond tails, face sampling bit or other type, whether core is oriented and if so, by what method, etc.).	As the stratigraphy is flat lying all holes are drilled vertical and no core orientation is required. As all known mineralised zones lie within 100m of surface no downhole surveys were completed.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	All recoveries were first calculated and 1m downhole depths marked prior to geological logging and sampling.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	The core was drilled with a bit that has been found to work exceptionally well in tuffs/clays. Both the rotation speed and feed rate were slowed to maximise recovery.
	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.	Core recovery was greater than +95% in the mineralised intervals. The Li mineralisation is hosted in extremely fine grained and even textured sedimentary 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.	Geological logging was completed on all core noting the rock type, grain size, colour, presence of carbonate and clay type to a level required to support Mineral Resource estimation, mining studies and metallurgical studies.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography	Logging has been completed in the form of geology and recoveries. All core has been photographed both wet and dry.
	The total length and percentage of the relevant intersections logged.	The entire core is logged noting any intervals of low or non-recovery.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All core was halved using a diamond saw.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Half core was previously taken and bagged in consecutively numbered bags for analysis. The core used for the metallurgical test work is the remaining ½ core.

	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Representative of material drilled.
	Quality control procedures adopted for all subsampling stages to maximise representivity of samples.	Hazen crushed the received half core to 100% passing 25mm. From the minus 25mm material samples were split out for testing. From the subsample material was crushed and oven dried. Duplicate spits were analysed for a series of elements.
	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.	Previously half core was taken as the sample with the exception of the duplicate samples where the half core was split into 2 samples consisting of a quarter core each. The sample for metallurgical test work was the remaining half core.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are appropriate for grain size of material sampled. Lithium hosted in micron scale clay minerals.
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.	The assay technique (ME-MS61) is a total process, as a 4 acid digest is used to remove the lithium from the clay prior to analysis. This method was used for the core samples.
	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, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	These geophysical instruments are not used in assessing the mineralization at the Project. Previously quality control procedures consisted of inserting a standard, blank or a duplicate sample into the sample stream at a ratio of 1:10. From the data to date the results of the QC samples are within acceptable levels.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All diamond drill results were examined by GL Smith, a Director of the Company.

	The use of twinned holes.	No twin holes were drilled or have been drilled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	The data is currently stored in hardcopy and digital format in the Company's office. A hard drive copy of this is stored with GL Smith and in the cloud.
	Discuss any adjustment to assay data.	No adjustment was made to assay data.
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.	All diamond drill holes have been set out utilizing hand held GPS units, having an accuracy of ± 3 m in open ground.
	Specification of the grid system used.	UTM NAD83 Zone 12
	Quality and adequacy of topographic control.	No survey has been undertaken. Hand held GPS coordinates have been utilized to locate drill holes to date.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The diamond drilling described in the report preceding this table were completed at approximate 100m centres.
	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.	The diamond drilling described in the report preceding this table are holes specifically used to determine the lithium grades below the surface oxidation, the geology and potential extent.
	Whether sample compositing has been applied.	No sample compositing has been applied.
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.	The diamond holes were holes to a depth of ~100m to determine the geology, grade distribution and potential extent.
	If the relationship between the drilling orientation and the orientation of key mineralised structures are considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias occurs as the vertical diamond holes were drilled into near flat lying lacustrine sediments.
Sample security	The measures taken to ensure sample security.	The sampling for the metallurgical testwork was completed under the supervision of G

		Smith at the company's storage facility in Kingman, Arizona. The material was placed in calico sample bags, sealed in plastic buckets and dispatched by UPS to Hazen's facilities in Golden, Colorado, USA.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No reviews have yet been completed.

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 Big Sandy project consists of 258 mining claims of approximately 20 acres each, physically staked on Bureau of Land Management, Federally administered land. All indigenous title is cleared and there are no other known historical or environmentally sensitive areas.
	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 claims have been granted and are subject to an annual payment. Other than the payment there is no requirement for minimum exploration or reporting. There is no expiry date on the claims.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	There has been no exploration for lithium mineralisation on this project other than that completed previously by Big Sandy Inc (wholly owned subsidiary of Hawkstone Mining Ltd).

Drill hole Information	<p>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:</p> <ul style="list-style-type: none"> • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length. 	All information as listed is provided in previous announcements on the Project.
	<p>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.</p>	This information has not been excluded.
Data aggregation methods	<p>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.</p>	No data aggregation applied. Total sample interval was used in metallurgical test work.
	<p>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.</p>	Samples were a composite of half core determined by previous sampling.
	<p>The assumptions used for any reporting of metal equivalent values should be clearly stated.</p>	No metal equivalent values are stated.
Relationship between mineralization widths and	<p>These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.</p>	Not applicable.

intercept lengths	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, true width not known').	As above.
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.	Appropriate maps are included in a previous announcement.
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.	This release includes partial results of the metallurgical test work.
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.	This information will be supplied as the project advances and said data is generated.
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).	Environmental and archaeological surveys have been completed as part of a Proposal of Exploration that has been submitted to the BLM for the approval of planned further drilling and bulk sampling.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams of proposed drill locations and mineralised zones are included in previous announcements.