Patriot Successfully Produces Sample of Battery-Grade Lithium Hydroxide from the CV5 Spodumene Pegmatite

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Highlights

- 307 g sample of marketable, on-specification, battery-grade lithium hydroxide monohydrate product produced from the CV5 Spodumene Pegmatite.
- The CV5 Pegmatite Deposit forms the cornerstone of the Company's Shaakichiuwaanaan Lithium Project in Canada, representing the bulk of the consolidated Mineral Resource Estimate[1] of 80.1 Mt at 1.44% Li_2O Indicated and 62.5 Mt at 1.31% Li_2O Inferred.
- No impurities of concern present.
- Testwork completed as a successful "proof-of-concept" to demonstrate that a high-quality battery-grade lithium end-product can be produced using representative feed material from CV5.
- The test sample was produced from spodumene concentrate grading 6.2 % Li_2O and 0.6% Fe_2O_3, produced from a Dense Media Separation ("DMS") pilot plant using drill core samples representing the expected early mine-life at the CV5 Pegmatite.
- This marks a significant de-risking milestone as Patriot advances CV5 through the stages of development.
- Sample to be used to further advance and strengthen engagement with potential strategic partners and end-users.

Ken Brinsden, Director, President, and CEO of the Company, comments: "The successful production of a battery-grade lithium hydroxide product from the cornerstone CV5 Spodumene Pegmatite marks a key de-risking step in our development strategy. While we are focused on advancing CV5 to production using a simple DMS-only flowsheet to produce a high-quality spodumene concentrate, it is important to look beyond and from the viewpoint of the end-user of the downstream product."

"Not all spodumene concentrates are created equal and by demonstrating that the high-quality, low-iron spodumene concentrate produced from CV5 results in a marketable and on-spec battery-grade lithium hydroxide product, we are further validating and de-risking the Project as we eventually look to capitalize on this high-value downstream product category." added Mr. Brinsden.

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[1] Shaakichiuwaanaan (CV5 & CV13) Mineral Resource Estimate (80.1 Mt at 1.44% Li_2O and 163 ppm Ta_2O_5 Indicated, and 62.5 Mt at 1.31% Li_2O and 147 ppm Ta_2O_5 ppm Inferred) is reported at a cut-off grade of 0.40% Li_2O (open-pit), 0.60% Li_2O (underground CV5), and 0.80% Li_2O (underground CV13) with an Effective Date of August 21, 2024 (through drill hole CV24-526). Mineral Resources are not Mineral Reserves as they do not have demonstrated economic viability.
Patriot Battery Metals Inc. (the "Company" or "Patriot") (TSX: PMET) (ASX: PMT) (OTCQX: PMETF) (FSE: R9GA) is pleased to announce that it has successfully produced a marketable and on-specification ("on-spec") battery-grade lithium hydroxide monohydrate sample using spodumene concentrate from the CV5 Pegmatite. The CV5 Pegmatite, wholly-owned by the Company as part of its Shaakichiuwaanaan Property, is located in the Eeyou Istchee James Bay region of Quebec and forms the large majority of a consolidated Mineral Resource Estimate[2] of 80.1 Mt at 1.44% Li_2O indicated and 62.5 Mt at 1.31% Li_2O inferred.

The CV5 Spodumene Pegmatite is accessible year-round by all-season road and is situated approximately 14 km from a major hydro-electric powerline corridor.

The sample (307 g) of marketable, on-specification ("on-spec"), battery-grade lithium hydroxide monohydrate (Figure 1) was produced using spodumene concentrate (6.2% Li_2O, 0.6% Fe_2O_3) from the CV5 Spodumene

Pegmatite. The conversion testwork was performed using a bench-scale equivalent of a typical downstream commercial process flowsheet and completed at SGS Canada's Lakefield, ON, facility.

The objective of the test program was to demonstrate a "proof-of-concept" for the entire flowsheet using representative spodumene concentrate produced from whole rock pegmatite (CV5). The program was highly successful and converted the spodumene concentrate to a lithium hydroxide monohydrate product at battery-grade specifications. The result of this program also affirms prior testwork undertaken by other independent parties.

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[2] Shaakichiuwaanaan (CV5 & CV13) Mineral Resource Estimate (80.1 Mt at 1.44% Li_2O and 163 ppm Ta_2O_5 Indicated, and 62.5 Mt at 1.31% Li_2O and 147 ppm Ta_2O_5 ppm Inferred) is reported at a cut-off grade of 0.40% Li_2O (open-pit), 0.60% Li_2O (underground CV5), and 0.80% Li_2O (underground CV13) with an Effective Date of August 21, 2024 (through drill hole CV24-526). Mineral Resources are not Mineral Reserves as they do not have demonstrated economic viability.
The spodumene concentrate was produced using a simple DMS-only (+ magnetic separation) flowsheet which was fed by a master-composite of drill core material, representing anticipated early mine-life (Figure 2). This master composite included 15% non-pegmatite host-rock dilution to better represent a conservative (in terms of dilution content) commercial mining operation scenario.

The DMS spodumene concentrate (Figure 2) was subjected to a typical calcination step, converting the spodumene mineral from its natural and non-leachable α-spodumene structure into its leachable β-spodumene structure. The calcine (solid) was then ground to 100% passing minus 300 µm and subjected to a sulphuric acid roast. The roasted material was then water-leached, placing the lithium into solution as lithium sulphate. The solution then underwent primary impurity removal where, principally, iron and aluminum were removed by selective precipitation with hydrated lime. Air sparging was used to oxidize the iron from the ferrous to ferric state in the lithium sulphate solution.

The lithium sulphate solution was then subjected to secondary impurity removal stage which precipitated most of the calcium and magnesium by selective precipitation with sodium hydroxide and sodium carbonate. The remaining calcium and trace magnesium in the lithium sulphate solution were removed by ion exchange using Lanxess MDS TP208 resin (Figure 3 and Figure 4).

The purified lithium sulphate solution was first concentrated by evaporation (this step would be removed in a commercial plant as water-leach parameters are optimized). The lithium sulphate in solution was transformed into lithium hydroxide by the addition of sodium hydroxide (causticization step). The sodium sulphate ions in solution were then removed by a traditional crystallization of sodium sulphate as Glauber's salt.

Finally, lithium hydroxide monohydrate was produced by a 2-step crystallization process, with a final quality that exceeded battery grade specifications (i.e. LiOH•H_2O >99.9%) with no notable impurities of concern present (Figure 1).

Additionally, the purity of the lithium solution from the earlier process step is a strong indication that an on-spec, battery-grade lithium carbonate product may also be directly produced from CV5 as an additional product option. Collectively, the result of the test program highlights the benefits to downstream processing when using a clean and low-iron spodumene concentrate such as that produced from the CV5 Spodumene Pegmatite.

The representative lithium hydroxide sample produced from the CV5 Pegmatite will be used to further advance and strengthen the Company's engagement with potential strategic partners, end-users, and OEMs (Original Equipment Manufacturers). The ability to demonstrate with definitive data that high-quality, low-iron spodumene concentrates from CV5 are amenable to standard downstream processing methods resulting in on-spec battery-grade lithium hydroxide monohydrate, is significant.

The production of this sample marks a key milestone for the Company and represents a significant de-risking of the Project.

The Company has recently completed a significant core sampling program to provide additional representative material for the next phase of mineral processing testwork in support of the ongoing Feasibility Study on the CV5 Spodumene Pegmatite. This program will provide significant quantities of representative spodumene concentrate for any future downstream test programs.

Qualified/Competent Person

The information in this news release that relates to exploration results for the Shaakichiuwaanaan Property is based on, and fairly represents, information compiled by Mr. Darren L. Smith, M.Sc., P.Geo., who is a Qualified Person as defined by National Instrument 43-101 - Standards of Disclosure for Mineral Projects, and member in good standing with the Ordre des Géologues du Québec (Geologist Permit number 01968), and with the Association of Professional Engineers and Geoscientists of Alberta (member number 87868). Mr. Smith has reviewed and approved the technical information in this news release.

Mr. Smith is an Executive and Vice President of Exploration for Patriot Battery Metals Inc. and holds common shares and options in the Company.

Mr. Smith has sufficient experience, which is relevant to the style of mineralization, type of deposit under consideration, and to the activities being undertaken to qualify as a Competent Person as described by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Mr. Smith consents to the inclusion in this news release of the matters based on his information in the form and context in which it appears.

About Patriot Battery Metals Inc.

Patriot Battery Metals Inc. is a hard-rock lithium exploration company focused on advancing its district-scale 100%-owned Shaakichiuwaanaan Property (formerly known as Corvette) located in the Eeyou Istchee James Bay region of Quebec, Canada, which is accessible year-round by all-season road and is proximal to regional powerline infrastructure. The Shaakichiuwaanaan Mineral Resource[3], which includes the CV5 & CV13 spodumene pegmatites, totals 80.1 Mt at 1.44% Li_2O Indicated, and 62.5 Mt at 1.31% Li_2O Inferred, and ranks as the largest lithium pegmatite resource in the Americas, and the 8th largest lithium pegmatite resource in the world.

A Preliminary Economic Assessment ("PEA") was announced for the CV5 Pegmatite August 21, 2024, and highlights it as a potential North American Lithium Raw Materials Powerhouse. The PEA outlines the potential for a competitive and globally significant high-grade lithium project targeting up to ~800 ktpa spodumene concentrate using a simple Dense Media Separation ("DMS) only process flowsheet.

For further information, please contact us at info@patriotbatterymetals.com or by calling +1 (604) 279-8709, or visit www.patriotbatterymetals.com. Please also refer to the Company's continuous disclosure filings, available under its profile at www.sedarplus.ca and www.asx.com.au, for available exploration data.

This news release has been approved by the Board of Directors.

"KEN BRINSDEN"

Kenneth Brinsden, President, CEO, & Managing Director

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[3] Shaakichiuwaanaan (CV5 & CV13) Mineral Resource Estimate (80.1 Mt at 1.44% Li_2O and 163 ppm Ta_2O_5 Indicated, and 62.5 Mt at 1.31% Li_2O and 147 ppm Ta_2O_5 ppm Inferred) is reported at a cut-off grade of 0.40% Li_2O (open-pit), 0.60% Li_2O (underground CV5), and 0.80% Li_2O (underground CV13) with an Effective Date of August 21, 2024 (through drill hole CV24-526). Mineral Resources are not Mineral Reserves as they do not have demonstrated economic viability.

Disclaimer for Forward-looking Information

This news release contains "forward-looking information" or "forward-looking statements" within the meaning of applicable securities laws and other statements that are not historical facts. Forward-looking statements are included to provide information about management's current expectations and plans that allows investors and others to have a better understanding of the Company's business plans and financial performance and condition.

All statements, other than statements of historical fact included in this news release, regarding the Company's strategy, future operations, technical assessments, prospects, plans and objectives of management are forward-looking statements that involve risks and uncertainties. Forward-looking statements are typically identified by words such as "plan", "expect", "estimate", "intend", "anticipate", "believe", or variations of such words and phrases or statements that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. Forward-looking statements in this release include, but are not limited to, statements concerning: potential strategic partners and end-users, the de-risking of the Project, and the potential for marketable and on-spec battery-grade lithium hydroxide product.

Forward-looking information is based upon certain assumptions and other important factors that, if untrue, could cause the actual results, performance or achievements of the Company to be materially different from future results, performance or achievements expressed or implied by such information or statements. There can be no assurance that such information or statements will prove to be accurate. Key assumptions upon which the Company's forward-looking information is based include, without limitation, that proposed exploration and mineral resource estimate work on the Property will continue as expected, the accuracy of reserve and resource estimates, the classification of resources between inferred and the assumptions on which the reserve and resource estimates are based, long-term demand for spodumene supply, and that exploration and development results continue to support management's current plans for Property development and expectations for the Project.

Readers are cautioned that the foregoing list is not exhaustive of all factors and assumptions which may have been used. Forward-looking statements are also subject to risks and uncertainties facing the Company's business, any of which could have a material adverse effect on the Company's business, financial condition, results of operations and growth prospects. Some of the risks the Company faces and the uncertainties that could cause actual results to differ materially from those expressed in the forward-looking statements include, among others, the ability to execute on plans relating to the Company's Project, including the timing thereof. In addition, readers are directed to carefully review the detailed risk discussion in the Company's most recent Annual Information Form filed on SEDAR+, which discussion is incorporated by reference in this news release, for a fuller understanding of the risks and uncertainties that affect the Company's business and operations.

Although the Company believes its expectations are based upon reasonable assumptions and has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurance that forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. As such, these risks are not exhaustive; however, they should be considered carefully. If any of these risks or uncertainties materialize, actual results may vary materially from those anticipated in the forward-looking statements found herein. Due to the risks, uncertainties and assumptions inherent in forward-looking statements, readers should not place undue reliance on forward-looking statements.

Forward-looking statements contained herein are presented for the purpose of assisting investors in understanding the Company's business plans, financial performance and condition and may not be appropriate for other purposes.

The forward-looking statements contained herein are made only as of the date hereof. The Company disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent required by applicable law. The Company qualifies all of its forward-looking statements by these cautionary statements.

Competent Person Statement (ASX Listing Rule 5.23)

The mineral resource estimate in this release was reported by the Company in accordance with ASX Listing Rule 5.8 on August 5, 2024. The Company confirms that, as of the date of this announcement, it is not aware of any new information or data verified by the competent person that materially affects the information included in the announcement and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed. The Company confirms that, as at the date of this announcement, the form and context in which the competent person's findings are presented have not been materially modified from the original market announcement.

The production target referred to in this release was reported by the Company in accordance with ASX Listing Rule 5.16 on August 21, 2024. The Company confirms that, as of the date of this announcement, all material assumptions and technical parameters underpinning the production target in the original announcement continue to apply and have not materially changed.

Appendix 1 - JORC Code 2012 Table 1 (ASX Listing Rule 5.7.1)

Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation
Sampling techniques	● Nature and quality of sampling (eg cut channels, random chip not be taken as limiting the broad meaning of sampling. ● Include reference to measures taken to ensure sample repre ● Aspects of the determination of mineralization that are Mater ● In cases where 'industry standard' work has been done this w required, such as where there is coarse gold that has inherer
Drilling techniques	● Drill type (eg core, reverse circulation, open-hole hammer, ro
Drill sample recovery	● Method of recording and assessing core and chip sample rec ● Measures taken to maximize sample recovery and ensure re ● Whether a relationship exists between sample recovery and
Logging	● Whether core and chip samples have been geologically and ● Whether logging is qualitative or quantitative in nature. Core ● The total length and percentage of the relevant intersections
Sub-sampling techniques and sample preparation	● If core, whether cut or sawn and whether quarter, half or all c ● If non-core, whether riffled, tube sampled, rotary split, etc and ● For all sample types, the nature, quality and appropriateness ● Quality control procedures adopted for all sub-sampling stage ● Measures taken to ensure that the sampling is representative ● Whether sample sizes are appropriate to the grain size of the
Quality of assay data and laboratory tests	● The nature, quality and appropriateness of the assaying and ● For geophysical tools, spectrometers, handheld XRF instrum ● Nature of quality control procedures adopted (eg standards,
Verification of sampling and assaying	● The verification of significant intersections by either independ ● The use of twinned holes. ● Documentation of primary data, data entry procedures, data ● Discuss any adjustment to assay data.

Location of data points	● Accuracy and quality of surveys used to locate drill holes (co ● Specification of the grid system used. ● Quality and adequacy of topographic control.
Data spacing and distribution	● Data spacing for reporting of Exploration Results. ● Whether the data spacing and distribution is sufficient to esta ● Whether sample compositing has been applied.
Orientation of data in relation to geological structure	● Whether the orientation of sampling achieves unbiased samp ● If the relationship between the drilling orientation and the orie
Sample security	● The measures taken to ensure sample security.
Audits or reviews	● The results of any audits or reviews of sampling techniques a

Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation
Mineral tenement and land tenure status	● Type, reference name/number, location and ow ● The security of the tenure held at the time of rep
Exploration done by other parties	● Acknowledgment and appraisal of exploration b
Geology	● Deposit type, geological setting and style of min

Drill hole Information	● A summary of all information material to the und
	  ● easting and northing of the drill hole collar
	  ● elevation or RL (Reduced Level - elevatio
	  ● dip and azimuth of the hole
	  ● down hole length and interception depth
	  ● hole length.
	● If the exclusion of this information is justified on

Data aggregation methods	● In reporting Exploration Results, weighting aver ● Where aggregate intercepts incorporate short le ● The assumptions used for any reporting of meta
Relationship between mineralization widths and intercept lengths	● These relationships are particularly important in ● If the geometry of the mineralization with respec ● If it is not known and only the down hole lengths
Diagrams	● Appropriate maps and sections (with scales) an
Balanced reporting	● Where comprehensive reporting of all Explorati

Other substantive exploration data	● Other exploration data, if meaningful and materi geotechnical and rock characteristics; potential
Further work	● The nature and scale of planned further work (e ● Diagrams clearly highlighting the areas of possi

SOURCE Patriot Battery Metals Inc.

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