

Grades up to 4.61% Li₂O Confirm Significant Lithium Discovery at Benham

Exceptional results from channel sampling confirm the potential of recently optioned Benham Project.

Highlights

- Outstanding assay results returned from the 40m long spodumene-bearing pegmatite discovered late last year at the recently optioned Benham Project.
- Channel samples have confirmed visual estimates of spodumene content within the Benham Discovery, including the following highlights:
 - 2.33% Li₂O across 2.1m including 1m at 4.61% Li₂O
 - 1.29% Li₂O across 2.1m including 0.7m at 1.74% Li₂O
- K/Rb rock chip samples have identified highly fractionated pegmatites in the surrounding pegmatite field, adjacent to the Benham discovery pegmatite.

Pioneer Lithium Limited (ASX Code: **PLN**) (‘Pioneer Lithium’ or ‘the Company’) is pleased to report outstanding channel sample assay results from its recently optioned Benham Lithium Project in Ontario, Canada, confirming the significant potential of outcropping pegmatites discovered late last year.

Shortly after acquiring the property, the Pioneer exploration team discovered numerous pegmatite outcrops (see ASX release, 29 November 2023) including a 40m long mineralised pegmatite outcrop.

Assay results have now confirmed visual estimates of spodumene mineralisation at this pegmatite, including best assay results of up to 4.61% Li₂O in the north-west corner of the project area. The results have confirmed the outstanding discovery potential at the Benham Project.

Commenting on the discovery, Pioneer Lithium Executive Chairman, Robert Martin, said:

“This is great way to start the year, with laboratory assays confirming the visual estimates reported by our team late last year. The rapid discovery of up to 60 pegmatite outcrops last year in the narrow exploration window in November was a tremendous result in itself. The fact that we now have confirmed high-grade spodumene mineralisation in channel samples vindicates our decision to expedite exploration at the Project. Rock chip sampling has also provided favourable indicators of the right pathfinder elements and geochemical ratios to support the presence of highly fractionated LCT pegmatites in the vicinity of these mineralised outcrops. This supports the potential of the Benham Project and we look forward to obtaining further data to help us plan the next steps.”

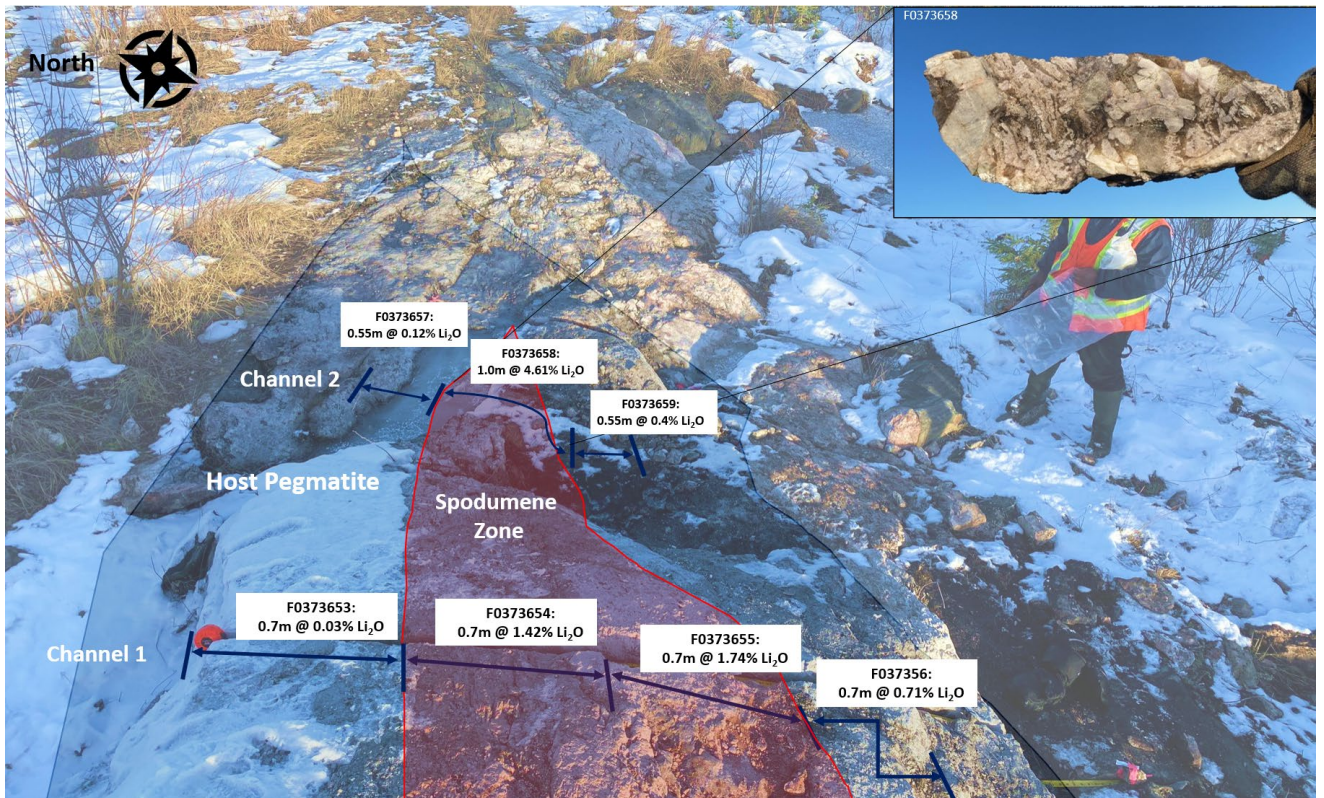


Figure 1. Benham spodumene pegmatite discovery and channel samples. Refer to Table 1 for further details.

Table 1 – Benham Channel Samples Assay Results

Sample ID	Easting	Northing	Segment (cm)	Li ₂ O (%)
F0373653	449584	5523020	70	0.03
F0373654	449584	5523020	70	1.42
F0373655	449584	5523020	70	1.74
F0373656	449583	5523015	70	0.71
F0373657	449583	5523015	55	0.12
F0373658	449583	5523015	100	4.61
F0373659	449583	5523015	55	0.40
F0373663	449626	5523050	40	0.10
F0373664	449626	5523050	92.5	0.02
F0373665	449626	5523050	92.5	0.02
F0373666	449626	5523050	92.5	0.02
F0373667	449628	5523046	92.5	0.02
F0373698	451517	5521580	22.86	0.01

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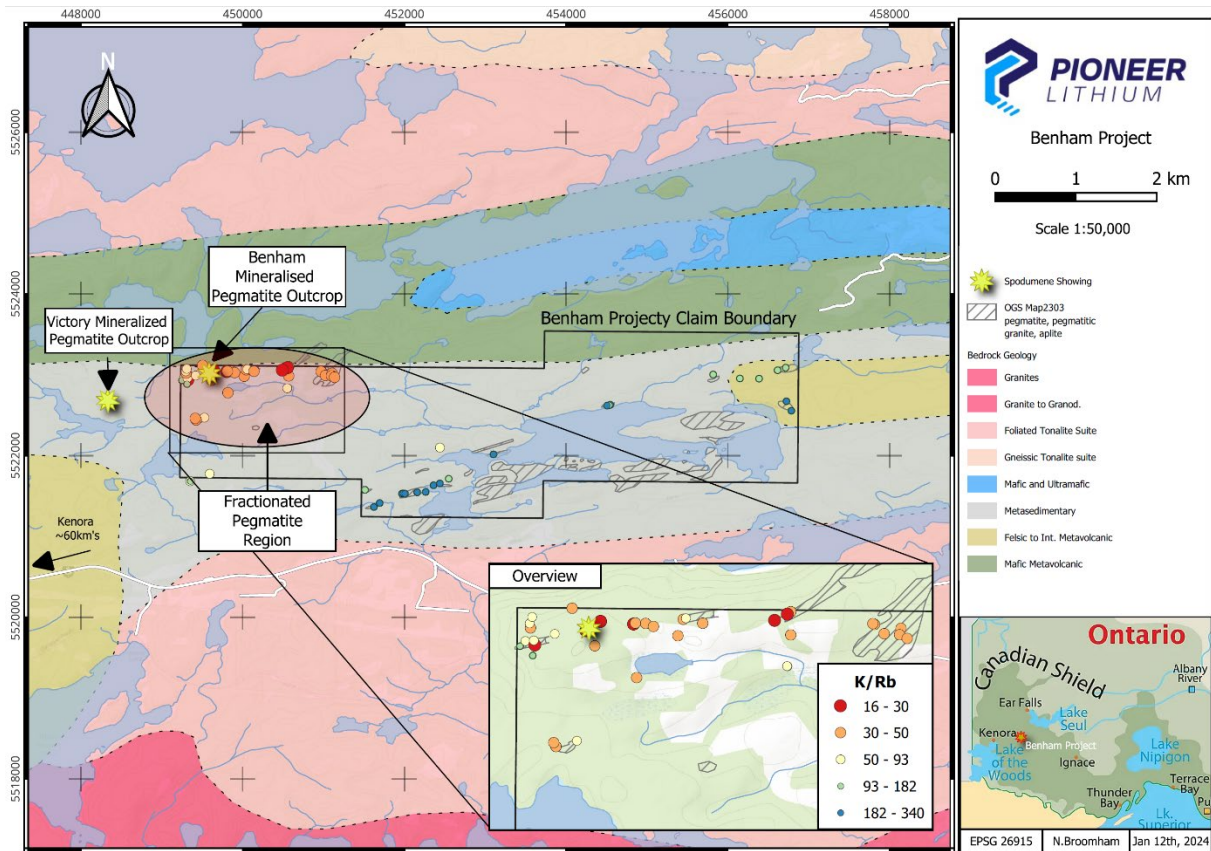


Figure 2. Map of the Benham Lithium Project showing the location of the mineralised pegmatite outcrop and inset, K/Rb ratios plotted from pegmatite grab samples indicating fractionated pegmatite field. Refer to Table 2 for further details.

About the Benham Lithium Project

The Benham Lithium Project comprises 30 claims totalling approximately 1,245ha, located immediately south of the boundary between the Winnipeg River and Western Wabigoon Sub-provinces of the Archaean Superior Craton, straddling a narrow greenstone belt proximal to the peraluminous, two-mica Ghost Lake Batholith and its smaller satellites.

The Project is located approximately 70km west of Critical Resources' (ASX: CRR) Mavis Lake Lithium Project, which comprises over 20 LCT (Lithium-Caesium-Tantalum) pegmatites that are genetically related to the Ghost Lake Batholith.

For more information on Pioneer Lithium, refer to the Company's website at: pioneerlithium.com.au.

This announcement has been authorised for release by the Board.

ENDS

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Competent Person Statement

The information in this Report that relates to Geological Data for the Benham Lithium Project is based on, and fairly represents, information and supporting documentation compiled and reviewed by Mr Nigel Broomham (BSc (Hons) Geology & Resource Economics) who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and holds a Professional Certificate in JORC Code Reporting. Mr Broomham is a Non-Executive Director of Pioneer Lithium. Mr Broomham 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 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Broomham consents to the inclusion in this report of the matters based on information in the form and context in which they appear. Mr Broomham holds securities in the Company.

Compliance statement

This announcement contains information on the Benham extracted from an ASX market announcement on 6, and 29 November 2023. The original market announcement is available to view on www.pioneerlithium.com.au and www.asx.com.au. Pioneer Lithium is not aware of any new information or data that materially affects the information included in the original market announcement.

Forward-looking statements

This announcement may contain certain forward-looking statements and projections. Such forward looking statements/projections are estimates for discussion purposes only and should not be relied upon. Forward looking statements/projections are inherently uncertain and may therefore differ materially from results ultimately achieved. Pioneer Lithium Limited does not make any representations and provides no warranties concerning the accuracy of the projections and disclaims any obligation to update or revise any forward-looking statements/projects based on new information, future events or otherwise except to the extent required by applicable laws. While the information contained in this report has been prepared in good faith, neither Pioneer Lithium Limited or any of its directors, officers, agents, employees or advisors give any representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this announcement.

Table 2 – Benham pegmatite grab samples K/Rb

Sample ID	Easting	Northing	Lithology	K_ppm	Rb_ppm	K/Rb
373501	449276	5522956	Pegmatite	12900	174	74
373502	449322	5522937	Pegmatite	13700	577	24
373503	449250	5522931	Pegmatite	25100	244	103
373504	449642	5523052	Pegmatite	94300	5320	18
373505	449642	5523052	Pegmatite	108000	6870	16
373506	450019	5522982	Pegmatite	26800	788	34
373507	449317	5522959	Pegmatite	29200	545	54
373601	449803	5523039	Pegmatite	32700	1500	22
373602	449862	5523042	Pegmatite	21300	478	45
373603	449900	5523027	Pegmatite	33600	684	49
373604	449419	5522991	Pegmatite	43200	821	53
373605	450045	5523062	Pegmatite	52500	1240	42
373606	450058	5523067	Pegmatite	57200	1130	51
373607	450140	5523043	Pegmatite	47100	1030	46
373608	449527	5522470	Pegmatite	55000	824	67
373609	449425	5522442	Pegmatite	42800	897	48
373610	449425	5522442	Pegmatite	34500	866	40
373611	449414	5522461	Pegmatite	32500	706	46
373612	451507	5521585	Pegmatite	48100	270	178
373613	451513	5521576	Pegmatite	30600	183	167
373614	451623	5521364	Pegmatite	96200	523	184
373615	451694	5521413	Pegmatite	3400	10	340
373616	451970	5521529	Pegmatite	56000	226	248
373617	451985	5521533	Pegmatite	57500	190	303
373618	452007	5521530	Pegmatite	77400	399	194
373619	452159	5521546	Pegmatite	77700	334	233
373620	452263	5521550	Pegmatite	37800	172	220
373621	452360	5521633	Pegmatite	79800	367	217
373622	452439	5521656	Pegmatite	69400	317	219

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Sample ID	Easting	Northing	Lithology	K_ppm	Rb_ppm	K/Rb
373623	452548	5521714	Pegmatite	21200	132	161
373624	454546	5522629	Pegmatite	41100	214	192
373625	454532	5522623	Pegmatite	46800	278	168
373626	454507	5522619	Pegmatite	53900	283	190
373651	449614	5522933	Pegmatite	32500	984	33
373652	449818	5522778	Pegmatite	28500	867	33
373660	449812	5523044	Pegmatite	47200	1020	46
373661	449571	5523007	Pegmatite	26700	1560	17
373662	449568	5523010	Pegmatite	1600	27	59
373668	450977	5523037	Pegmatite	31500	894	35
373669	450969	5523041	Pegmatite	50400	1520	33
373670	451024	5522992	Pegmatite	31600	806	39
373671	451106	5523018	Pegmatite	40800	1080	38
373672	451099	5522987	Pegmatite	61500	1610	38
373673	451136	5522969	Pegmatite	39300	1110	35
373674	450569	5522986	Pegmatite	53800	1500	36
373675	450569	5523099	Pegmatite	58200	1830	32
373676	450552	5523087	Pegmatite	42900	1780	24
373677	450490	5523057	Pegmatite	55800	2310	24
373678	450553	5522833	Pegmatite	69900	842	83
373679	450551	5522834	Pegmatite	93700	1210	77
373680	452439	5522099	Pegmatite	42700	607	70
373681	453102	5522016	Pegmatite	37400	183	204
373682	456386	5522952	Pegmatite	37800	380	99
373683	456615	5523056	Pegmatite	47800	398	120
373684	456715	5523088	Pegmatite	61800	652	95
373685	455818	5523003	Pegmatite	48000	318	151
373686	456149	5522954	Pegmatite	68000	435	156
373687	456724	5522672	Pegmatite	68400	370	185
373688	456785	5522555	Pegmatite	72600	335	217

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Sample ID	Easting	Northing	Lithology	K_ppm	Rb_ppm	K/Rb
373689	449301	5523020	Pegmatite	33900	725	47
373690	449297	5523042	Pegmatite	47800	562	85
373691	449309	5523073	Pegmatite	66100	716	92
373692	449504	5523116	Pegmatite	33000	1070	31
373693	449351	5521683	Muscovite	85700	1670	51
373694	449350	5521685	Feldspar	93300	853	109
373695	449355	5521683	Pegmatite	35200	291	121
373696	449592	5521775	Pegmatite	41100	666	62
373697	449312	5522885	Pegmatite	53900	549	98

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	<ul style="list-style-type: none"> Nature and quality of sampling (eg 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 (eg '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 (eg submarine nodules) may warrant disclosure of detailed information. 	<ul style="list-style-type: none"> Rock chip and grab sampling of observed pegmatite outcrops undertaken. Cut, measured and mapped channel samples.
Drilling techniques	<ul style="list-style-type: none"> Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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). 	<ul style="list-style-type: none"> No drilling has been conducted and no drill assays are being reported in this announcement.

Criteria	JORC Code explanation	Commentary
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> • Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure 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. 	<ul style="list-style-type: none"> • No drilling has been conducted and no drill assays are being reported in this announcement.
<i>Logging</i>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • No drilling has been conducted and no drill assays are being reported in this announcement.
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Initial rock chip sampling and channel samples of observed pegmatite outcrops has been undertaken. • Location of newly discovered pegmatite in this announcement referred to in the included map is shown in the Table 1 (co-ordinates in NAD83/UTM Zone 15N).
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> • 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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. 	<ul style="list-style-type: none"> • Samples have been submitted to AGAT laboratories. • AGAT is an internationally certified independent service provider. Industry standard assay quality control techniques will be used for lithium related elements. • Samples are submitted for multi-element ICP analysis. • Sodium Peroxide Fusion is used followed by combined ICP-OES and ICP-MS analyses (58 elements).
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • All data generated from the fieldwork program has been uploaded into the company's data storage. • Data has been checked by personnel from CMG.
<i>Location of data points</i>	<ul style="list-style-type: none"> • Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, 	<ul style="list-style-type: none"> • All field data is being collected utilising a handheld GPS, a

Criteria	JORC Code explanation	Commentary
	<p><i>mine workings and other locations used in Mineral Resource estimation.</i></p> <ul style="list-style-type: none"> • <i>Specification of the grid system used.</i> • <i>Quality and adequacy of topographic control.</i> 	<p>standard tool for early-stage reconnaissance exploration.</p> <ul style="list-style-type: none"> • The grid datum is NAD83/UTM Zone 15N.
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> • <i>Data spacing for reporting of Exploration Results.</i> • <i>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.</i> • <i>Whether sample compositing has been applied.</i> 	<ul style="list-style-type: none"> • Not applicable to early-stage reconnaissance exploration.
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> • <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i> • <i>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.</i> 	<ul style="list-style-type: none"> • Not applicable to early-stage reconnaissance exploration.
<i>Sample security</i>	<ul style="list-style-type: none"> • <i>The measures taken to ensure sample security.</i> 	<ul style="list-style-type: none"> • All samples collected are being held onsite at AGAT Laboratories Ltd in Thunder Bay. Samples are stored within numbered sealed bags and labelled by field personnel.
<i>Audits or reviews</i>	<ul style="list-style-type: none"> • <i>The results of any audits or reviews of sampling techniques and data.</i> 	<ul style="list-style-type: none"> • No audits or reviews have been undertaken.

Section 2 Reporting of Exploration Results

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> • <i>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.</i> • <i>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.</i> 	<ul style="list-style-type: none"> • Pioneer Lithium acquired an option over the Benham Project. • The Benham Lithium Project consists of 30 claims totalling 1,245ha (Please refer to the company announcement dated 6 November 2023 for a full list of the claims that make up the Benham Project). • All cell claims are in good standing.
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> • <i>Acknowledgment and appraisal of exploration by other parties.</i> 	<ul style="list-style-type: none"> • Historical exploration for precious and base metals has occurred by various parties since the 1980s, with no reported historical exploration for lithium.
<i>Geology</i>	<ul style="list-style-type: none"> • <i>Deposit type, geological setting and style of mineralisation.</i> 	<ul style="list-style-type: none"> • The Benham Lithium Project claims are located south of the boundary between the Winnipeg River and Western Wabigoon Sub-provinces of the Archaean Superior Craton,

Criteria	JORC Code explanation	Commentary
		straddling a narrow greenstone belt proximal to the peraluminous, two-mica Ghost Lake Batholith and its smaller satellites
<i>Drill hole Information</i>	<ul style="list-style-type: none"> • 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: <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. • 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. 	<ul style="list-style-type: none"> • No drilling has been conducted or reported to date. • No relevant data has been excluded from this announcement.
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> • In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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. 	<ul style="list-style-type: none"> • No drilling has been conducted and no drill assays are being reported. • No metal equivalent values are being reported.
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> • 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 (eg 'down hole length, true width not known'). 	<ul style="list-style-type: none"> • No drilling has been conducted and no drill assays are being reported.
<i>Diagrams</i>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Appropriate maps and figures have been included in this announcement.
<i>Balanced reporting</i>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • All relevant and material exploration data has been included in the announcement.
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • All relevant and material exploration data has been included in the announcement. • No historical exploration for lithium has been reported within the claim areas.

Criteria	JORC Code explanation	Commentary
	<i>and rock characteristics; potential deleterious or contaminating substances.</i>	
<i>Further work</i>	<ul style="list-style-type: none"> <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i> 	<ul style="list-style-type: none"> Further work planned at Benham may include, but not be limited to, prospecting, geological mapping, structural interpretation, rock chip sampling, geophysics surveys and drilling.

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