ASX : LTR | 9th June 2020

ASX ANNOUNCEMENT

Liontown defines input criteria for updated PFS at Kathleen Valley Lithium-Tantalum Project, W.A.

KEY POINTS

- A review of mining options and recent metallurgical test work have defined a number of key criteria with the potential to significantly improve future operability and economic returns for the Kathleen Valley Project. These include:
  - **Early scheduling of high-grade portions of the Mineral Resource through underground and optimised open pit mining;**
  - **Adopting a simpler Whole of Ore Flotation (WOF) process flowsheet; and**
  - **Inclusion of a tantalum (Ta_2O_5) concentration circuit.**
- These criteria will be incorporated into an updated Pre-Feasibility Study (PFS) that is due for completion in Q4 2020.
- The updated PFS will be based on the latest Mineral Resource Estimate (MRE) of **156Mt @ 1.4% Li_2O and 130ppm Ta_2O_5** (see ASX release dated 11th May 2020) which confirms Kathleen Valley as a Tier-1, hard-rock lithium-tantalum resource.

Liontown Resources Limited (ASX: LTR; "Liontown" or "Company") is pleased to advise that it has identified a number of potential project enhancements that will be evaluated as part of an updated Pre-Feasibility Study (PFS) for its 100%-owned **Kathleen Valley Lithium-Tantalum Project** in Western Australia targeted for completion in Q4 2020.

The improvements were identified following additional mining and metallurgical studies which have laid the foundation for Liontown's evolution into a significant "new-generation" Australian lithium producer.

Work is progressing on an updated PFS which will include the inputs highlighted above. These inputs were not considered as part of the previous positive PFS completed in December 2019 (see ASX release dated 2nd December 2019), which was based on a smaller MRE of 74.9Mt @ 1.3% Li_2O.

The updated inputs were based on a review of mining options and metallurgical test work completed in Q1/Q2 2020 by independent consultants. These included:

- A mine planning study to determine whether deeper, higher grade mineralisation could be accessed by underground mining;
- An examination of a WOF flowsheet compared with the conventional Dense Media Separation (DMS)/Flotation process currently used in the industry; and
- Developing a flowsheet to recover tantalum (Ta_2O_5) concentrate.

The rationale for the reviews included:

- Underground mining of higher grades could lead to lower dilution, better plant recoveries and lower operating costs;
- WOF could reduce potential operational challenges experienced by the conventional DMS processing route, while maximising the opportunity to recover tantalum; and
- Recovery of a tantalum by-product has the potential to be value-accretive to the whole Project.

Mine Planning Review

Orelogy Mine Consulting was engaged to assess the potential for a combined underground and open pit operation at Kathleen Valley. This review was based on the interim MRE of 139Mt @ 1.3% Li_2O and 140ppm Ta_2O_5 completed in February 2020 (see ASX release dated 13th February 2020).

The results of this review were positive and indicate that it is possible to access higher grade material via underground mining early in the schedule of a future mining operation (***Figure 1***). Underground material likely to be accessed early in the mining schedule is located on tenements not subject to private royalties.

A combined underground and open pit scenario will now be incorporated into the updated PFS which will be based on the current MRE of 156Mt @ 1.4% Li_2O and 130ppm Ta_2O_5 (See Appendix 1).

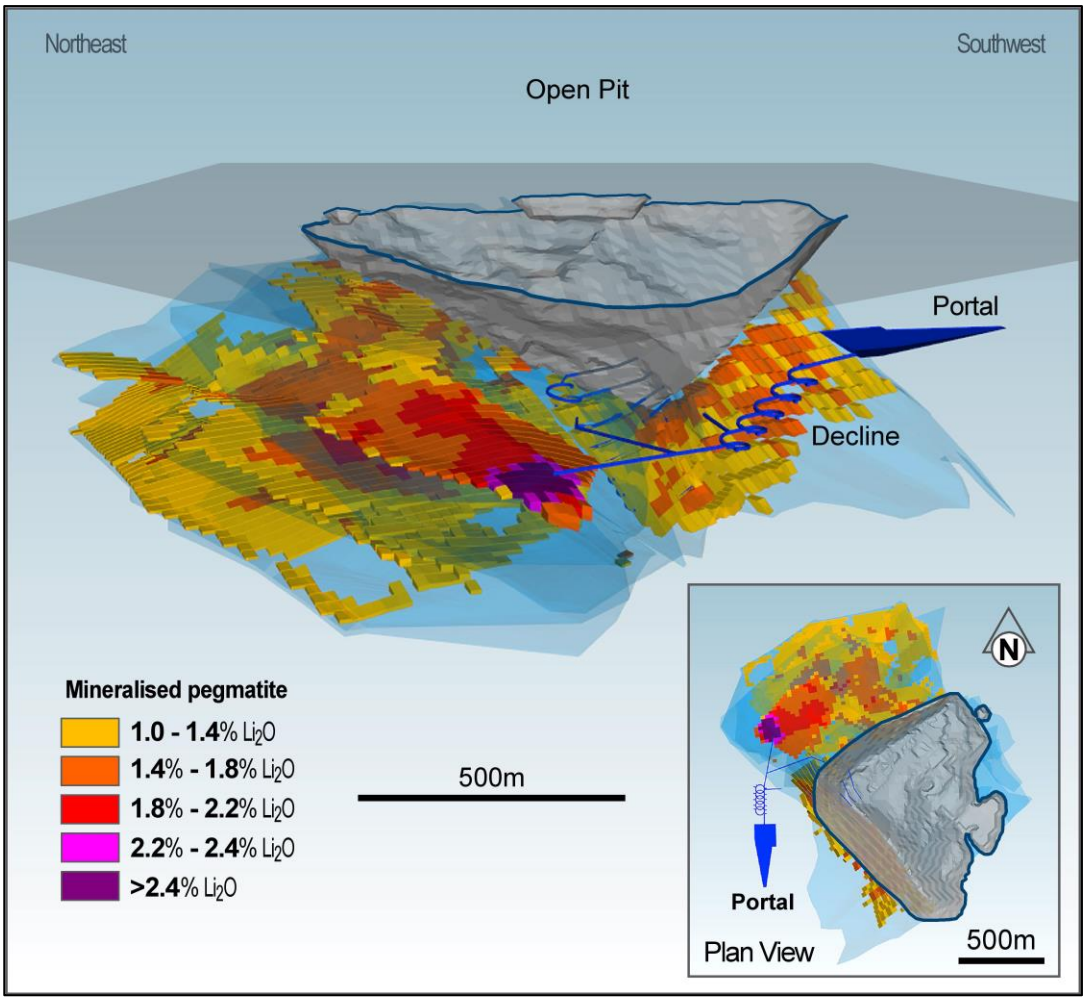

Figure 1: Preliminary conceptual underground mine plan (based on interim MRE of 139Mt @ 1.3% Li_2O and 140ppm Ta_2O_5).

Metallurgical Test Work Update

Following the metallurgical program completed for the December 2019 PFS, which was based on a combined DMS/Flotation flowsheet, an R&D test work program has been carried out at ALS (Perth) with process input from Lycopodium Limited. The focus of this work has been:

- To develop and test a WOF flowsheet;
- To establish grade-recovery curves for both DMS and WOF flowsheets at a range of composite grades to enable direct comparisons between each; and
- The testing and development of preliminary flowsheets to support the extraction of tantalum.

The WOF flowsheet was investigated as it is believed to offer:-

- A simpler, more robust circuit with greater operational certainty, especially relating to upscaling laboratory-based recoveries to a full-scale, commercial, operating mine plant;
- The opportunity to process the entire plant feed for tantalum recovery compared with ~50% in a combined DMS/Flotation scenario; and
- The potential to extract deleterious elements (such as iron) prior to Li_2O concentration.

A simplified representation of the proposed WOF flowsheet is shown below (***Figure 2***).

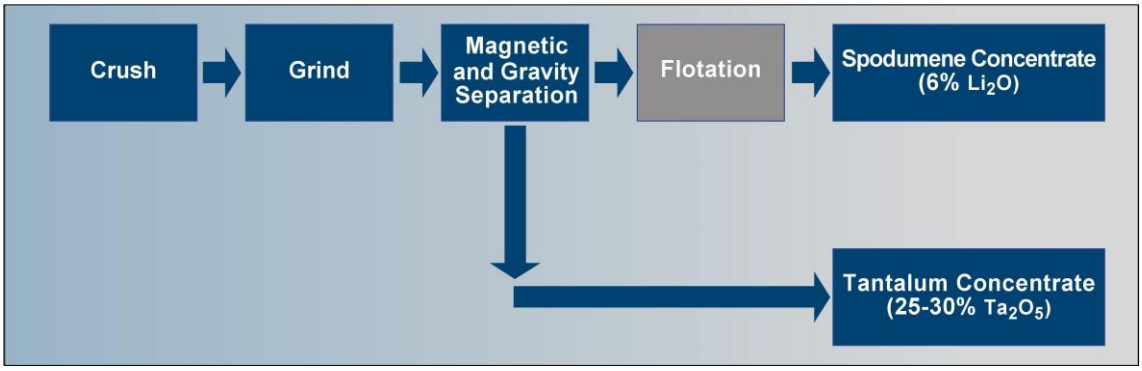

Figure 2: Proposed whole ore flotation flowsheet with tantalum circuit

Outcomes from this test work included:

- Higher grade material for both processing options has a higher recovery which supports the strategy of targeting high grade zones using underground mining and optimised open-pit shells;
- WOF has the potential to produce a higher grade spodumene concentrate and improved performance with a greater degree of control;
- Using stage recoveries, the overall Ta_2O_5 reporting to concentrate has been estimated as 56% to a grade of 15.3% based on test work. A mineralogical review indicates potential to produce a 25-30% Ta_2O_5 concentrate at an offsite upgrade facility; and
- Magnetic and gravity separation used to recover tantalum also reduces iron levels in the potential flotation feed by up to 55%.

Both the WOF and Ta_2O_5 flowsheets have considerable scope for further optimisation and this will form part of the PFS upgrade test work program.

Further details of the latest test work results are provided in Appendix 2.

This announcement has been authorised for release by the Board.

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Competent Person Statement

The Information in this report that relates to Mineral Resources for the Kathleen Valley Project is extracted from ASX announcements "Kathleen Valley Lithium Resource hits 139Mt @ 1.3% Li_2O as latest drilling success underpins 86% increase" and "Kathleen Valley confirmed as a world-class lithium deposit as Mineral Resource increases to 156Mt @ 1.4% Li2O" released on the 13th February 2020 and 11th May 2020 respectively which are available on www.ltresources.com.au.

The Information in this report that relates to December 2019 Pre-Feasibility Study (PFS) for the Kathleen Valley Project is extracted from the ASX announcements "Kathleen Valley Pre-Feasibility Study confirms potential for robust new long-life open pit lithium mine in WA" released on 2nd December 2019 which is available on www.ltresources.com.au.

The information in this report that relates to metallurgical test work for the Kathleen Valley Project has been reviewed by Mr Aidan Ryan who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Ryan is an employee of Lycopodium Minerals Pty Ltd and has sufficient experience relevant to the style of processing response and type of deposit under consideration, and to the activities undertaken, 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 Ryan consents to the inclusion in the report of a summary based upon his information in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

Forward Looking Statement

This announcement contains forward-looking statements which involve a number of risks and uncertainties. These forward looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.

Appendix 1 – Mineral Resource Estimates

Kathleen Valley Mineral Resource as at May 2020

Resource category	Million tonnes	Li_2O %	Ta_2O_5 ppm
Measured	20	1.3	140
Indicated	105	1.4	130
Inferred	32	1.3	110
Total	**156**	**1.4**	**130**

Notes:
- *Reported above a Li_2O cut-off grade of 0.55%.*
- *Tonnages and grades have been rounded to reflect the relative precision of the estimate. Inconsistencies in the totals are due to rounding.*

Kathleen Valley Mineral Resource as at February 2020

Resource category	Million tonnes	Li_2O %	Ta_2O_5 ppm
Measured	19	1.3	150
Indicated	61	1.3	140
Inferred	59	1.3	130
Total	**139**	**1.3**	**140**

Notes:
- *Reported above a Li_2O cut-off grade of 0.55%.*
- *Tonnages and grades have been rounded to reflect the relative precision of the estimate.*

The MREs are reported and classified in accordance with the guidelines of the 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code; 2012).

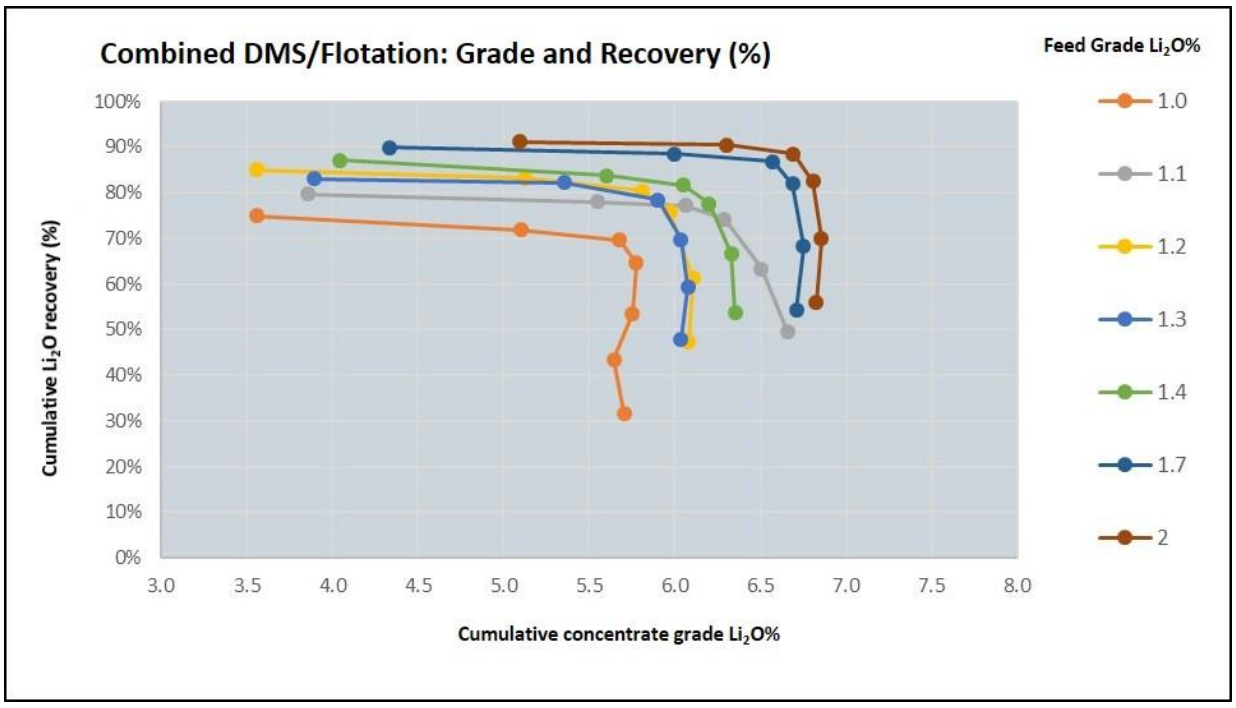
Appendix 2 - Metallurgical Test Work

The 2020 Metallurgical work has focussed on:

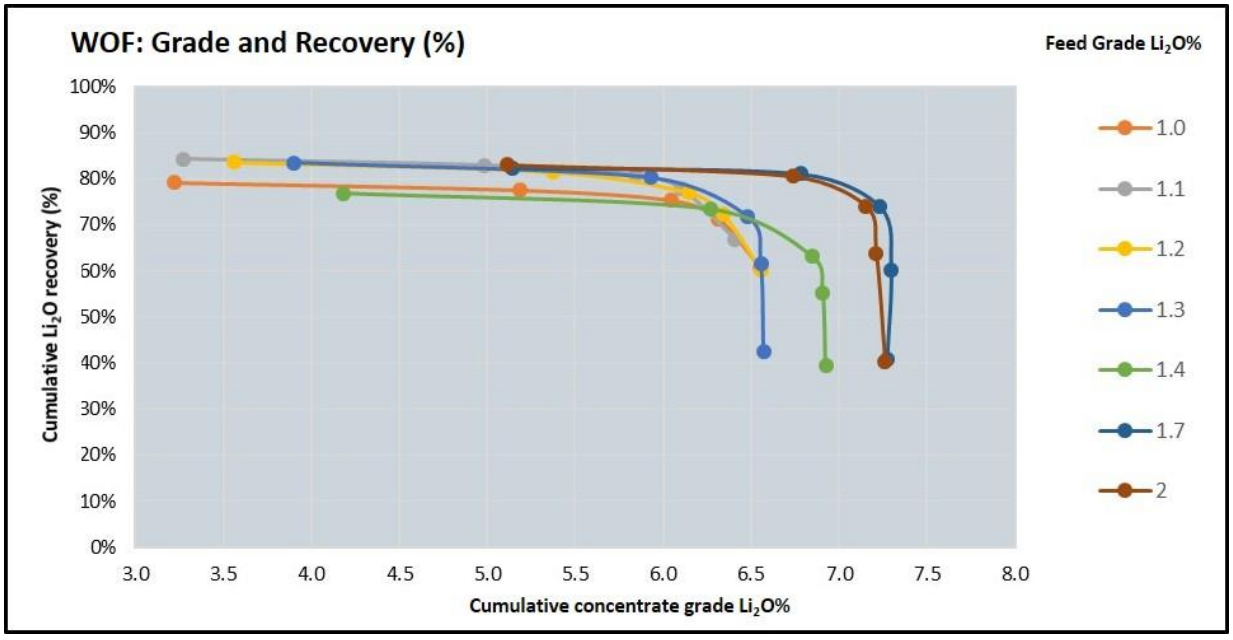
- Establishing grade-recovery curves for DMS/Flotation and WOF flowsheets at a range of composite feed grades; and
- The testing and development of preliminary flowsheets to support the extraction of tantalum.

Results are shown below:

DMS-Flotation: Grade and Recovery Relationship



WOF: Grade and Recovery Relationship



Staged Tantalum Recovery Mass balance (WOF)

Stage Recovery	Mass	Li_2O	Ta_2O_5		Fe_2O_3
	%mass	*Assay%*	*Assay%*	*Distribution%*	*Assay%*
Plant Feed	100	1.6	0.018	100	0.9
Tantalum Circuit Concentrate	0.05	0.2	15.3	56	13
Tantalum Circuit Tails	2	2.4	0.075	9	23.4
Flotation Circuit Feed	97.9	1.55	0.008	35	0.4

Note: sample contained 10% iron-rich gabbro dilution which hosts the mineralised pegmatites.

Samples tested included:

- A master composite compiled for the previous report 2019 PFS.
- Grade based samples selected from diamond drill core evenly distributed throughout the resource and then composited to grades of 1% through to 2% Li_2O.
- Potential underground ore samples collected from shallow and deep portions of the latest MRE.

Composited samples were crushed and ground based on grind sizes determined in the 2019 PFS.

Further details are provided in Appendix 3.

Appendix 3: Kathleen Valley – JORC Code 2012 Table 1 Criteria

The table below summaries the assessment and reporting criteria used for the Kathleen Valley Lithium Project and reflects the guidelines in Table 1 of *The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the JORC Code, 2012).

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*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.*	• Sub-surface samples have been collected by reverse circulation (RC) and diamond core drilling techniques (see below). • Drillholes are oriented perpendicular to the interpreted strike of the mineralised trend except where limited access necessitates otherwise.
	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.*	• RC samples are collected by the metre from the drill rig cyclone as two 1 m cone split samples in calico bags and a bulk sample in plastic mining bags. • The 1 m samples from the cyclone are retained for check analysis. Only samples of pegmatite and adjacent wall rock (~4 m) are collected for assay. • Diamond core has been sampled in intervals of ~1 m (up to 2.0 m within the main project area) where possible, otherwise intervals less than 1 m have been selected based on geological boundaries. Geological boundaries have not been crossed by sample intervals.

Drilling techniques	*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).*	• Drilling techniques used at Kathleen Valley comprise:
		  ○ Reverse Circulation (RC/5.5") with a face sampling hammer
		  ○ NQ2, HQ and PQ Diamond Core, standard tube to a depth of ~650 m.
		  ○ Diamond core holes drilled directly from surface or from bottom of RC pre-collars. Core orientation was provided by an ACT REFLEX (ACT II RD) tool.

Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	• Sample recoveries are estimated for RC by correlating sample heights in the plastic bag to estimate a recovery for each metre. • For diamond core the recovery is measured and recorded for every metre.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	• RC drill collars are sealed to prevent sample loss and holes are normally drilled dry to prevent poor recoveries and contamination caused by water ingress. Wet intervals are noted in case of unusual results. • For diamond core loss, core blocks have been inserted in sections where core loss has occurred. This has then been written on the block and recorded during the logging process and with detailed photography of dry and wet core.
	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.	• It has been demonstrated that no relationship exists between sample recovery and grade. No grade bias was observed with sample size variation.

Criteria	JORC Code explanation	Commentary
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.*	• All RC drillholes are logged on 1 m intervals and the following observations recorded: ○ Recovery, quality (i.e. degree of contamination), wet/dry, hardness, colour, grainsize, texture, mineralogy, lithology, structure type and intensity, pegmatite and vein type and %, lithium mineralogy and %, alteration assemblage, UV fluorescence. • Diamond core is logged in its entirety as per detailed geological description listed above. Geotechnical logging has been completed for the entire hole.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	• Logging is quantitative, based on visual field estimates. • Diamond core is photographed post metre marking, for the entire length of the hole, two trays at a time, wet and dry.
	The total length and percentage of the relevant intersections logged.	• Drillholes are logged in their entirety.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	• The core has been cut in half and then quartered for sample purposes. Half core used for metallurgical studies with the remaining quarter stored as a library sample. • Density measurements have been taken on all quarter core samples using the Archimedes method.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	• RC samples are collected as rotary split samples. Samples are typically dry.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	• Sample preparation follows industry best practice standards and is conducted by internationally recognised laboratories; i.e. ○ Oven drying, jaw crushing and pulverising so that 80% passes -75 microns.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	• Duplicates and blanks submitted approximately every 1 in 20 samples. • Standards are submitted every 20 samples or at least once per hole. • Cross laboratory checks and blind checks have been used at a rate of 5%.

	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.	• Measures taken include:
		  ○ regular cleaning of cyclones and sampling equipment to prevent contamination
		  ○ industry standard insertion of standards, blanks and duplicate samples.
		• Analysis of duplicates (field, laboratory and umpire) was completed and no issues identified with sampling representatively.
		• Analysis of results from blanks and standards indicates no issues with contamination (or sample mix-ups) and a high level of accuracy.

	Whether sample sizes are appropriate to the grain size of the material being sampled.	• Sample size is considered appropriate and is in-line with industry standards.
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.*	• Initial assaying (2017) completed by ALS Perth. Subsequent assaying (2018 onwards) completed by Nagrom laboratories Perth. • Both laboratories use industry standard procedures for rare metals such as Li and Ta. Analytical techniques are total.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining	• None used.

Criteria	JORC Code explanation	Commentary
	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.	• Duplicates and blanks submitted approximately every 20 samples. • Standards are submitted every 20 samples or at least once per hole. • Cross laboratory checks and blind checks have been used at a rate of 5%. • Analysis of reference blanks, standards and duplicate samples show the data to be of acceptable accuracy and precision for the Mineral Resource estimation and classification applied.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	• Internal review by alternate company personnel.
	The use of twinned holes.	• 11 diamond holes have been drilled as twins or in close proximity to existing RC drillholes. Results compare well with the original RC drillholes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	• Drilling and logging data are entered directly into Microsoft Excel spreadsheets onsite while drilling is ongoing. Data is then entered into Access Database and validated before being processed by industry standard software packages such as MapInfo and Micromine. • Representative chip samples are collected for later reference.
	Discuss any adjustment to assay data.	• Li% is converted to Li_2O% by multiplying by 2.15, Ta ppm is converted to Ta_2O_5 ppm by multiplying by 1.22.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	• All drill collars and geochemical samples are initially located using a handheld GPS. • Drill collars are subsequently surveyed accurately by a licensed surveyor using DGPS techniques. Eastings and northings are measured to within +/-2 cm while elevations are measured to within +/-10 cm. • All RC drillholes have been surveyed by a multi-shot digital downhole camera provided by the drilling contractor. • All diamond drillholes have been surveyed with a REFLEX EZI-SHOT (1001) magnetic single shot camera.
	Specification of the grid system used.	• GDA 94 Zone 51.
	Quality and adequacy of topographic control.	• Initial collar elevations are based on regional topographic dataset. • Drillhole collars are surveyed post drilling with DGPS (see above). • Further topographic data (20 cm contours) has been provided for the Project by a LIDAR flown by Fugro.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	• Drillhole spacing varies due to initial drill programmes largely designed to test the down-dip potential of mineralised outcrops. The drill section spacing is 40 m to 100 m and on-section spacing is generally 30 m to 60 m.
	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 data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource estimation and classification applied.

Criteria	JORC Code explanation	Commentary
	Whether sample compositing has been applied.	• None undertaken.
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.*	• Drilling is typically oriented perpendicular to the interpreted strike of mineralisation.
	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.	• Drilling orientation intersects the mineralisation at appropriate angles so as to be mostly unbiased and suitable for resource estimation of the major pegmatite bodies.
Sample security	*The measures taken to ensure sample security.*	• Sample security is not considered to be a significant risk given the location of the deposit and bulk-nature of mineralisation. • Nevertheless, the use of recognised transport providers, sample dispatch procedures directly from the field to the laboratory, and the large number of samples are considered sufficient to ensure appropriate sample security. • Company geologist supervises all sampling and subsequent storage in field. The same geologist arranges delivery of samples to Nagrom laboratories in Perth via courier.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	• Independent, expert competent person reviews have been completed by Ms. Wild of Wildfire Resources Pty Ltd and Mrs. Standing of Optiro Limited on the resource drilling, sampling protocols and data. • This included a laboratory visit to Nagrom by Ms. Wild. • Results indicate sampling and QAQC procedures are in-line with industry standards.

Section 2 Reporting of Exploration Results

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 Kathleen Valley Project is located ~670 km NE of Perth and ~45 km NNW of Leinster in Western Australia. The Project comprises four granted mining leases - MLs 36/264, 265, 459, 460 and one Exploration License - E36/879. • The mining leases (MLs) and rights to pegmatite hosted rare-metal mineralisation were acquired from Ramelius Resources Limited via a Sales Agreement completed in 2016. The MLs have been transferred to LRL (Aust) Pty Ltd, a wholly owned subsidiary of Liontown Resources Limited (Liontown). • Ramelius acquired 100% of the Kathleen Valley Project MLs in June 2014 from Xstrata Nickel Operations Pty Ltd (Xstrata). Xstrata retains rights to any nickel discovered over the land package via an Offtake and Clawback Agreement. • The Gold Rights were acquired from Ramelius via a Sales Agreement completed in June 2019. • LRL (Aust) Pty Ltd has assumed the following Agreement: ○ Bullion and Non-Bullion Royalty Agreement of a 2% Gross Production Royalty affecting M36/264-265 and 459-460. • The EL is in the name of Liontown Resources Limited with no third-party obligations apart from statutory requirements.

Criteria	JORC Code explanation	Commentary
		• The tenements are covered by the Tjiwarl Determined Native Title Claim (WC11/7). Liontown has signed a number of agreements with the Tjiwarl which provide protocols for field activities by the Company. • LRL (Aust) Pty Ltd has received Section 18 consent to drill on certain areas within M36/459, M36/460 and E36/879.
	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.	• All tenements are in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	• Multiple phases of exploration have previously been completed for gold and nickel. This has not been reviewed in detail due to Liontown's focus on rare metal pegmatites. • There has been limited sporadic prospecting for Li, Ta and Sn, principally by Jubilee Mines (subsequently taken over by Xstrata). Work comprised geological mapping, broad spaced soil sample lines and rock chip sampling of the pegmatites. Details of the methods and procedures used have not been documented. • There has been no previous drill testing of the Li and Ta prospective pegmatites prior to Liontown acquiring the Project.
Geology	*Deposit type, geological setting and style of mineralisation.*	• The Project is located on the western edge of the Norseman- Wiluna Belt within the Archaean Yilgarn Craton. • The Kathleen Valley Project contains a series of quartz-feldspar-muscovite-spodumene pegmatites hosted in mafic rocks related to the Kathleen Valley Gabbro or the Mt Goode Basalts. • The pegmatites are LCT type lithium bearing-pegmatites.
Drillhole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* • *easting and northing of the drillhole collar* • *elevation or RL (elevation above sea level in metres) of the drillhole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.*	• See appendix 2 in accompanying report
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.*	• Li_2O intercepts calculated using 0.4% cut off with a maximum 2m internal dilution typically applied except where drill hole logging (e.g. continuous pegmatite) and assays indicate wider dilution is warranted as overall grade is high enough to allow mining to take entire geological unit. • Higher grade intervals calculated using 1.5% Li_2O cut off. No upper cuts applied. • Ta_2O_5 values only quoted when lithium intersections reported. • Metal equivalents have not been used.
Relationship between mineralisation widths and	*If the geometry of the mineralisation with respect to the drillhole 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, true width not known').*	• Drillholes intersected mineralisation at near perpendicular to the dip orientation of the host lithologies and mineralisation. • Estimates of true widths provided at end of Appendices attached to ASX announcements

Criteria	JORC Code explanation	Commentary
intercept lengths		which list drill hole statistics •
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 drillhole collar locations and appropriate sectional views.*	• Relevant diagrams have been included within the 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.*	• All recent exploration results reported and tabulated.
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.*	• Where relevant, this information has been included or referred to elsewhere in this Table.
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).*	• Option studies (including detailed mining studies) to define parameters for an updated Pre-Feasibility Study (PFS). • Optimisation of the overall flowsheet, detailed test work to check the variability across the deposit and development of a flow sheet for tantalum recovery.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	• Drillhole data was extracted directly from the Company's drillhole database, which includes internal data validation protocols. • Data was further validated by Optiro upon receipt, and prior to use in the estimation.
	Data validation procedures used.	• Validation of the data was confirmed using mining software (Datamine) validation protocols, and visually in plan and section views.
Site visits	*Comment on any site visits undertaken by the Competent Persons and the outcome of those visits.*	• Liontown personnel Mr. Richards and Mr. Day have visited the site on numerous occasions to supervise the drilling programmes. • Ms. Wild (Principal Geologist and Director of Wildfire Resources Pty Ltd) and Mrs. Standing (Optiro Pty Ltd) have visited the site on separate occasions during resource definition drilling programmes to review sampling procedures. • Ms. Wild reported that, in general, site practices were quite good, core quality was excellent and RC sample quality was moderate. • Mrs. Standing has confirmed site practices are appropriate and satisfactory for the preparation of a Mineral Resource Estimate.
Geological interpretation	*Confidence in (or conversely, the uncertainty of the geological interpretation of the mineral deposit.*	• The confidence in the geological interpretation is reflected by the assigned resource classification.
	Nature of the data used and of any assumptions made.	• Both assay and geological data were used for the mineralisation interpretation. • The lithium mineralisation is defined by a nominal 0.4% Li_2O cut-off grade. • Continuity between drillholes and sections is good.

Criteria	JORC Code explanation	Commentary
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	• No alternative interpretations were considered. • Any alternative interpretations are unlikely to significantly affect the Mineral Resource estimate.
	The use of geology in guiding and controlling Mineral Resource estimation.	• Geological logging (including spodumene crystal orientation from the diamond core) has been used for interpretation of the pegmatites.
	The factors affecting continuity both of grade and geology.	• The mineralisation is contained within pegmatite veins that are readily distinguished from the surrounding rocks. • Sectional interpretation and wireframing indicates good continuity of the interpreted pegmatite veins both on-section and between sections. • The confidence in the grade and geological continuity is reflected by the assigned resource classification.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• Twenty lithium mineralised pegmatites have been identified at the Kathleen Valley Project which extend from surface to a depth of 640 m. • At Mt Mann, two steeply-dipping (-70° west) pegmatites have been drilled over a strike length of 1,200 m and to a vertical depth of around 300m to 400 m. The two pegmatites are up to 35 m thick and have average thicknesses of 9 m and 11 m. • At Kathleen's Corner, 18 sub-horizontal pegmatites have been drilled over an area of 1,800 m by 1,300 m. These pegmatites outcrop in the northeast and are up to 40 m thick with an average thickness of 8 m. The pegmatites coalesce and merge with the Mt Mann pegmatites at approximately 300 m to 400 m below surface to form a single, thick (35 m to 75 m) mineralised body that extends for a further 600 m to 700 m down-dip.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	• Data analysis and estimation was undertaken using Snowden Supervisor and Datamine software. • Lithium oxide (Li_2O) % and tantalum pentoxide (Ta_2O_5) ppm block grades were estimated using ordinary kriging (OK). Optiro considers OK to be an appropriate estimation technique for this type of mineralisation. • Caesium (Cs), potassium (K), niobium (Nb), rubidium (Rb), phosphorus (P) and tin (Sn) block grades were estimated using ordinary kriging (OK). These additional variables were included for analysis of the mineralisation and fractionation trends of the pegmatite, from the K/Cs, K/Rb and Nb/Ta ratios. • The nominal spacing of the drillholes is 50 m by 50 m. The along section spacing ranges from 30 m to 100 m and on-section spacing ranges from generally 30 m to 60 m. • Almost 90% of the assay data for within the lithium mineralised pegmatites is from samples of 1 m intervals, 1.5% is from sample of >1 m (to a maximum of 2 m) and almost 9% is from intervals of less than 1 m. The data was composited to 1 m downhole intervals for analysis and grade estimation.

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		• Variogram analysis was undertaken to determine the kriging estimation parameters used for OK estimation of Li_2O and Ta_2O_5. • Li_2O mineralisation continuity was interpreted from variogram analyses to have an along strike range of 145 m to 230 m and a down-dip (or across strike) range of 110 m to 230 m. • Ta_2O_5 mineralisation continuity was interpreted from variogram analyses to have an along strike range of 58 m to 150 m and a down-dip (or across strike) range of 47 m to 170 m. • A maximum extrapolation distance of 50 m was applied along strike and down dip extrapolation was generally 30 m. • Kriging neighbourhood analysis was performed in order to determine the block size, sample numbers and discretisation levels. • Three estimation passes were used for Li_2O and Ta_2O_5; the first search was based upon the variogram ranges; the second search was two times the initial search and the third search was up to four times the second search and the second and third searches had reduced sample numbers required for estimation. • Within the lithium mineralised pegmatites Almost 84% of the total Li_2O block grades were estimated in the first search pass, 14% within the second search pass and 2% estimated in the third search pass. • Within the pegmatites 75% of the Ta_2O_5 block grades were estimated in the first pass, 24% in the second pass and 1% in the third pass. • The estimated block model grades were visually validated against the input drillhole data and comparisons were carried out against the declustered drillhole data and by northing, easting and elevation slice.
	Description of how the geological interpretation was used to control the resource estimates.	• Geological interpretations were completed on sections which were wireframed to create a 3D interpretation of the mineralised pegmatites. • The interpretation of mineralisation was based on geological logging and Li_2O content. A nominal grade of 0.4% Li_2O was used to define the mineralisation within the interpreted pegmatites. • The mineralised domain is considered geologically robust in the context of the resource classification applied to the estimate.
	Discussion of basis for using or not using grade cutting or capping.	• Li_2O and Ta_2O_5 have low coefficients of variation (CV). Some higher-grade outliers were noted and the Ta_2O_5 grades were capped (top-cut). • Cs, K, Rb, P and Sn have low coefficients of variation and Nb has a moderate coefficient of variation (1.4). A small number of high-grade outliers are present in the Cs, Nb, Rb, P and Sn data and grades were capped. • The top-cut level was determined using a combination of top-cut analysis tools, including grade histograms, log probability plots and the CV.
	The availability of check estimates, previous estimates and/or mine production records and	• The Mineral Resource was first estimated for the

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	whether the Mineral Resource estimate takes appropriate account of such data.	Kathleen's Valley Lithium Project in August 2018. The Mineral Resource, comprising 21 Mt at an average grade of 1.4% Li_2O and 170 ppm Ta_2O_5, was reported above a cut-off grade of 0.5% Li_2O • Additional drilling was undertaken during 2019 and the resource was updated in July 2019. The July 2019 Mineral Resource, comprising 74.9 Mt at an average grade of 1.3% Li_2O and 140 ppm Ta_2O_5, was reported above a Li_2O cut-off grade of 0.5% for open pit potential (above 200 mRL) and 0.7% for underground potential (below 200 mRL). • Additional drilling was undertaken in 2019 and 2020 and the resource was updated in February 2020. The February 2020 Mineral Resource, comprising 139 Mt at an average grade of 1.33% Li_2O and 140 ppm Ta_2O_5, was reported above a cut-off grade of 0.55% Li_2O. • Since the February 2020 Mineral Resource was estimated data from an additional 16 RC holes (for a total of 6,616 m) and 28 DD holes (for a total of 9,682 m) have been incorporated into the resource database. • The resource tonnage has increased from 139 Mt in February 2020 to 156 Mt in May 2020, while the average grade has increased from 1.33% Li_2O to 1.35% Li_2O. The Ta_2O_5 grade has decreased from 140 ppm to 130 ppm. • No production has occurred.
	The assumptions made regarding recovery of by-products.	• No assumptions have been applied for the recovery of by-products. • Metallurgical test work is ongoing to determine the recoveries that could be expected.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	• Deleterious elements were not included in the Mineral Resource estimate. • Liontown does not routinely assay drill samples for iron, the main deleterious element, due to: o contamination from drill bits and rods during drilling operations; and o contamination during sample preparation from crushing and milling equipment. o Assaying of blank, silica only material inserted as part of QAQC protocols indicates that contamination from sample preparation adds 0.1% to 1% Fe_2O_3 to the sample. o Analysis of data indicates the iron content in the pegmatites averages <0.5%. • Sulphur assays have been determined for more than 27,000 host rock samples – results indicate that acid mine drainage will not be a significant environmental factor.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	• Grade estimation was into parent blocks of 10 mE by 10 mN by 3.0 mRL. • Orelogy Consulting Pty Ltd (who are undertaking mining studies for Liontown) advised that mining is likely to be undertaken using a block size of 10 mE by 10 mN on 3 m benches • This block dimension was confirmed by kriging neighbourhood analysis and reflects the variability of the deposit as defined by the current drill spacing and mineralisation continuity determined

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		from variogram analysis. • Sub-cells to a minimum dimension of 2.5 mE by 2.5 mN by 0.5 mRL were used to represent volume.
	Any assumptions behind modelling of selective mining units.	• Selective mining units were not modelled.
	Any assumptions about correlation between variables.	• Li_2O and Ta_2O_5 are not correlated. Both Li_2O and Ta_2O_5 were estimated independently. • Correlation coefficients for Cs, K, Nb, Rb, P and Sn within the pegmatites indicate that they are not correlated, except for K and Rb which have a high positive correlation (0.87). All variables were analysed and estimated independently.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	• No production has taken place and thus no reconciliation data is available.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages have been estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A cut-off grade of 0.55% Li_2O has been selected to represent the portion of the resource that may be considered for eventual economic extraction by a combination of open pit and underground mining methods. • This cut-off grade has been selected by Liontown Resources in consultation with Optiro based on current experience and in-line with cut-off grades applied for reporting of Mineral Resources of lithium hosted in spodumene bearing pegmatites elsewhere in Australia.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous.*	• The mineralisation at Kathleen Valley extends from surface and would be suitable for open pit mining. High grade mineralisation is present at depth and would be suitable for underground mining. • The Kathleen Valley Lithium Project is located in a well-established mining region in close proximity to existing transport, energy and camp infrastructure. • On the basis of these assumptions, it is considered that there are no mining factors which are likely to affect the assumption that the deposit has reasonable prospects for eventual economic extraction.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous.*	2019 Pre-feasibility study • A Pre-feasibility level test work programme was conducted at ALS in Perth to provide sufficient test data to develop the process design criteria for the project. A total of 81 samples from across the three main areas (Mt Mann, Kathleen Corner and Kathleen Valley North) were selected for the Pre-feasibility study. A master composite was created for testing from these samples which are representative of the whole deposit and include a range of grades and depths. No variability test work has been undertaken at this time. • Key aspects of the metallurgical test work included the following: o head assay o SMC testing on five comminution samples

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		○ size by size assay ○ crushing and wet screening at three sizes ○ heavy liquid separation (HLS) at three crush and screen sizes ○ dense media separation (DMS) of a bulk sample ○ bond ball work index on DMS middlings ○ magnetic separation to remove ferrous materials ○ rougher flotation to examine collector choice, residence time, desliming and conditioning ○ cleaner flotation to examine residence time and number of stages ○ thickening of flotation and slime tailings (in progress) ○ filtration of concentrate ○ rheology of tailings. • Key results from the test work indicated that: ○ Samples were moderately competent with comminution results similar to other pegmatites. ○ Size by size and wet screening data indicated that there was a trade off in crush size and screen size with liberation. A finer crush size increased liberation in the HLS stage but increased fines production. A crush size of 6 mm was selected. ○ DMS testing showed a saleable concentrate with a grade of more than 6% Li2O could be produced together with a low-grade coarse tail. ○ Grind optimisation of the flotation feed indicated a primary grind of 125 microns gave the best recovery and was selected for subsequent test work. ○ Rougher flotation test work indicated that a modified oleic acid collector gave the best flotation performance. ○ Batch cleaner flotation results indicated a concentrate with a grade of more than 6% Li2O could be produced together. ○ Concentrate filtration test work, currently being finalised, has indicated that vacuum filtration will be adequate for dewatering. ○ Rheology test work indicated the tailings had low viscosity at the proposed tailings density. • The metallurgical process consisted of three-stage comminution including high-pressure grinding rolls (HPGR), Dense Medium Separation (DMS) followed by flotation. • The feed composite used in the PFS test work consisted of diamond drill core and was compiled based on the mine plan for the study. The feed composite was deliberately diluted/blended with 10% iron-rich gabbro which hosts the mineralised pegmatites. • The PFS test work did not include any iron removal ahead of DMS separation and only low intensity magnetic separation or iron removal ahead of flotation. A combined concentrate with a grade of

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		6.1% Li2O containing 1.42% Fe2O3 was produced from the PFS composite sample, which is within Liontown's understanding of chemical grade product and supports the ability to produce saleable spodumene concentrate from the Kathleen Valley resource. **2020 Metallurgical Testwork** The 2019 testwork program was focused on developing preliminary design data for a flowsheet incorporating Dense Media Separation (DMS) of a coarse feed followed by flotation of the DMS middling's and fines. Several areas were further investigated post the PFS program in Q1/Q2 of 2020 and included: • The impact of change in lithium head grade on overall recovery. • Further investigation of Whole Ore Float (WOF) • Investigation of tantalum recovery by magnetic separation and gravity upgrade to produce a tantalum by-product. The 2020 program investigated these areas as a pre-cursor to issuing a pre-feasibility study update in Q4 of 2020. The source of the grade variation samples were the intercepts remaining from the original drill program in 2019. The drill hole intercepts were sorted by lithium grade (based on geological assays) and grouped into the following grade targets: 1.0%, 1.1% 1.2%, 1.3%, 1.4%, 1.7% 2.0%. Whole ore flotation was tested on all the grade samples. The same flotation regime was used as tested in the PFS at a grind size P80 of 125 µm. The DMS-Flotation route was tested for all the grade samples under the same conditions as for the 2019 PFS. Outcomes:- ➢ Higher grade material for both processing options has a higher recovery which supports the strategy of targeting high grade zones using underground mining and optimised open-pit shells; ➢ WOF has the potential to produce a higher grade spodumene concentrate and improved performance with a greater degree of control; An Investigation of tantalum recovery by magnetic separation and gravity upgrade to produce a tantalum by-product was undertaken. A sample of PFS composite was used for the testwork as it provided a control against other treatment routes already tested. The sample was ground to a P80 passing size of 125 µm like all the flotation feed samples. The ground sample was then treated through a laboratory WHIMS separator followed by gravity separation. Following the gravity concentration of the primary magnetic separation magnetics, the remaining tails was

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		subjected to sequential magnetic separation. Outcomes:- ➢ Using stage recoveries, the overall Ta_2O_5 reporting to concentrate has been estimated as 56% to a grade of 15.3% based on test work. A mineralogical review indicates potential to produce a 25-30% Ta2O5 concentrate at an offsite upgrade facility; and ➢ Magnetic and gravity separation used to recover tantalum also reduces iron levels in the potential flotation feed by up to 55%. Both the WOF and Ta_2O_5 flowsheets have considerable scope for further optimisation and this will form part of the PFS upgrade test work program to be completed in 2020.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.*	• Baseline flora and fauna studies have been completed and it is considered unlikely, given current knowledge that impacts on conservation significant flora, fauna and ecological communities will result from development of the project. • Further baseline studies are scheduled during the DFS
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Bulk density was measured for 3,873 core samples (including 3,083 samples of pegmatite) from diamond holes using Archimedes measurements. • The density data overall ranges from 1.74 to 4.38 t/m^3 and the density data within the pegmatites has a range of 1.74 to 4.14 t/m^3. • A bulk density of 2.71 t/m^3 was applied to the pegmatite with spodumene mineralisation within the oxidised horizons and a value of 2.74 t/m^3 was applied to the fresh pegmatite with spodumene mineralisation for tonnage estimation. • A lower density, of 2.51 t/m^3, was applied for areas of fresh pegmatite that was interpreted to contain petalite mineralisation. • For the pegmatite material that is external to the lithium mineralisation, a density of 2.64 t/m^3 was applied within the oxidised horizons and 2.66 t/m^3 was applied to the fresh pegmatite. • Almost 99.5% of the mineralised pegmatite is within the fresh material.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	• Mineral Resources have been classified as Measured, Indicated or Inferred. • In general, the pegmatites that have been tested by the 50 m by 50 m spaced drillholes have high confidence in the geological interpretation and, having higher estimation quality, were classified as Measured. • Areas where the drill spacing is up to 60 m by 100 m that have good confidence in the geological interpretation and where the majority of block grades were estimated within the first search (but where the estimation quality is lower than the Measured areas) were classified as Indicated. • Areas where the drill spacing is up to 60 m by 100 m, that have good confidence in the geological interpretation and where the majority

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		of block grades were estimated in the second and third search passes or in areas of grade extrapolation have been classified as Inferred.
	Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	• The Mineral Resource has been classified on the basis of confidence in geological and grade continuity and taking into account the quality of the sampling and assay data, data density and confidence in estimation of Li_2O and Ta_2O_5 content (from the kriging metrics).
	Whether the result appropriately reflects the Competent Person's view of the deposit	• The assigned classification of Measured, Indicated and Inferred reflects the Competent Person's assessment of the accuracy and confidence levels in the Mineral Resource estimate.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	• The Mineral Resource has been reviewed internally as part of normal validation processes by Optiro. • No external audit or review of the current Mineral Resource has been conducted.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person.*	• The assigned classification of Measured, Indicated and Inferred reflects the Competent Person's assessment of the accuracy and confidence levels in the Mineral Resource estimate.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	• The confidence levels reflect potential production tonnages on a quarterly basis, assuming open pit mining.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• No production has occurred from the deposit.