Liontown

ASX ANNOUNCEMENT

ASX : LTR 20th January 2020

Exploration and Corporate Strategy Update

Drilling re-commences at the Kathleen Valley Lithium-Tantalum Project with the number of drill rigs increased to six.

Toolebuc Vanadium Project to be divested.

KEY POINTS

- **2020 drilling program underway at Kathleen Valley with a further 15,000 – 18,000m drilling planned to be completed by the end of February 2020.**
- **Data from this drilling program will be used to prepare an updated Mineral Resource Estimate that will be incorporated into a Definitive Feasibility Study for Kathleen Valley.**
- **Drilling follows the positive Pre-Feasibility Study released late last year** (see ASX release dated 2nd December 2019) **which, based on a maiden Ore Reserve of 50.4Mt @ 1.2% Li_2O and a mining rate of 2Mtpa, indicates an NPV of A$507M, a 26-year mine life and free cash flow of A$1.9B (excluding tantalum credits) over the life of the mine.**
- **At the Company's Toolebuc Vanadium Project in Queensland, good results have been received from drilling completed late last year to test potential extensions to the north of the existing Inferred Mineral Resource at the Cambridge deposit (~84Mt @ 0.30% V_2O_5). However, given Liontown's focus on advancing the Kathleen Valley Project towards development, it has commenced a process to either divest the Toolebuc Vanadium Project or bring in a partner to advance it to the next stage.**

Kathleen Valley Lithium Tantalum Project

Liontown Resources Limited (ASX: LTR, "Liontown" or "Company") is pleased to advise that drilling has re-commenced at its flagship Kathleen Valley Lithium-Tantalum Project in Western Australia following the Christmas/New Year break.

Six drill rigs comprising four Reverse Circulation and two diamond core rigs are operating on site with 15,000 – 18,000m of drilling planned to be completed by the end of February 2020.

The current drilling program is designed to test for a resource extension Exploration Target of **25 – 50Mt @ 1.2 – 1.5% Li_2O**, which was defined based on testing for extensions of the current Mineral Resource Estimate (MRE) from the limits of previous drill data to a vertical depth of ~500m below surface. This Exploration Target is in addition the current 74.9Mt MRE.

(The potential grade and tonnage of the Exploration Target is conceptual in nature and there has been insufficient exploration to estimate an expanded Mineral Resource. It is uncertain if further exploration will result in the estimation of an expanded Mineral Resource. See Table 1 for full explanation of assumptions used to estimate ranges.)

Liontown Resources Limited ABN 39 118 153 825
Level 2, 1292 Hay Street, West Perth, Western Australia
T: +618 9322 7431 F: +618 9322 5800 E: info@ltresources.com.au

Results from the current drill program, once completed, will be used to prepare an updated MRE which will ultimately form the basis for a Definitive Feasibility Study (DFS). The updated MRE will include both open pit and underground resources, which are anticipated to provide the best outcome for the DFS.

The drill program will also provide geotechnical data and further sample material for metallurgical test work required as part of the DFS.

Due to the Christmas/New Year break assays are still pending for the drill holes completed late last year.

Liontown Managing Director David Richards said the decision to further increase drilling capacity at Kathleen Valley reflected the outstanding results generated towards the end of last year and the Company's strong focus on delivering a further upgrade in the Mineral Resource as the foundation for its DFS.

"Kathleen Valley's credentials as a high-quality lithium-tantalum asset with grade, scale and other significant competitive advantages in terms of location and infrastructure continue to shine through as we progress development studies and resource drilling," he said.

"We are looking forward to what should be another defining year for the Company as we deliver a further increase to what is already Australia's fifth largest lithium resource and progress a DFS aimed at transforming Liontown into a next-generation lithium producer."

Toolebuc Vanadium Project

The Company has received significant assay results from drilling completed prior to the Christmas break at its 100%-owned Toolebuc Vanadium Project in NW Queensland.

Liontown acquired the Toolebuc Project in 2017 when it applied for five EPMs totalling approximately 1,000km^2. The tenements covered large areas of prospective, outcropping Toolebuc Formation and adjoin existing vanadium resources (***Figure 1***) defined by Intermin Resources Limited (now known as Horizon Minerals Limited).

Compilation of historical data identified a number of drill ready targets including:

- The Cambridge prospect, where there was sufficient data from previous drill programs to prepare an Inferred Mineral Resource Estimate (MRE); and
- The Runnymede prospect where reconnaissance drilling intersected widespread, near-surface vanadium mineralisation.

Independent resource consultants, Optiro Pty Ltd, were engaged by Liontown to prepare a Mineral Resource Estimate (MRE) for the Cambridge vanadium deposit using historical drill data. The Cambridge MRE is summarised in Table 1:

Table 1: Cambridge Mineral Resource as at July 2018

Resource category	Million tonnes	V_2O_5 %	MoO_3 ppm
Inferred	83.7	0.30	188
Total	**83.7**	**0.30**	**188**

Notes:
- *Reported above a V_2O_5 cut-off grade of 0.25%*
- *Tonnages and grades have been rounded to reflect the relative uncertainty of the estimate*

The Cambridge deposit is adjacent to and immediately east of the Lilyvale vanadium deposit, owned by Intermin Resources Ltd. In March 2018, Intermin Resources Ltd reported an updated Inferred Mineral Resources at the Lilyvale deposit of 671 Mt at an average grade of 0.35% V_2O_5 above a cut-off grade of 0.29% V_2O_5.

Liontown completed a 30-hole/745m aircore drilling program at the Cambridge prospect in late 2019 which was designed to validate the historical drill results, test for a northern extension of the deposit and provide material for metallurgical test work.

Better intersections from the drilling include:

- MAC013 6m @ 0.45% V_2O_5 from 2m
- MAC015 10m @ 0.45% V_2O_5 from 10m
- MAC022 9m @ 0.36% V_2O_5 from 7m
- MAC029 6m @ 0.39% V_2O_5 from 3m

The drilling intersected similar grades and widths as the historic drilling and defined additional vanadium mineralisation immediately to the north of the Cambridge MRE (***Figure 2***). The newly-defined mineralisation covers an area of 3.7km^2 and averages 7m thick and 0.38% V_2O_5. Drill statistics for historic and recent drilling are listed in Appendix 1.

Preliminary metallurgical test work commissioned by Liontown indicates good potential to beneficiate the mineralisation to a higher grade concentrate that can then be processed to extract the vanadium. The recent drilling program at Cambridge has provided ample material for future test work.

At Runnymede, located 25-30km north-west of Cambridge, historical drilling has intersected shallow, ore grade vanadium (***Appendix 1***) over a 3.5 x 3.5km area (***Figure 3***) with the mineralised zone open to the north and north-east where extensive, prospective unexplored Toolebuc Formation has been mapped.

In addition to the known prospects, large areas of the Toolebuc Formation within Liontown's tenure have yet to be explored for vanadium and there is good potential for further discoveries.

While the Toolebuc Project represents a quality development and growth opportunity in the battery metals space, following a strategic review of its corporate priorities and in light of the ongoing drilling success at its lithium projects, Liontown has decided to focus its resources on the continued development of the Kathleen Valley Project.

Consequently, the Company has commenced a process to either divest the Toolebuc Project or bring in a joint venture partner to advance it to the next stage. The Company will report any material developments in this process as and when they occur.

This announcement has been authorised for release by the Board.

DAVID RICHARDS
Managing Director

For More Information:

David Richards
Managing Director
T: +61 8 9322 7431
info@ltresources.com.au

Investor Relations:

Nicholas Read
Read Corporate
T: +61 8 9388 1474
nichloas@readcorporate.com.au

The Information in this report that relates to Mineral Resources for the Kathleen Valley Project is extracted from the ASX announcement "Kathleen Valley Lithium Resource jumps 353% to 74.9Mt @ 1.3% Li_2O" released on the 9th July 2019 which is available on www.ltresources.com.au.

The Information in this report that relates to Ore Reserves 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 Mineral Resources for the Cambridge Deposit is extracted from the ASX announcement "Liontown Announces Maiden 84Mt Vanadium Resource for Toolebuc Project, NW Queensland" released on the 30th July 2018 which is available on www.ltresources.com.au.

The Information in this report that relates to Exploration Results for the Toolebuc Project is based on and fairly represents information and supporting documentation prepared by Mr David Richards, who is a Competent Person and a member of the Australasian Institute of Geoscientists (AIG). Mr Richards is a full-time employee of the company. Mr Richards has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activities being 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 Richards consents to the inclusion in the report of the matters based on 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 original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

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.

Table 1: Kathleen Valley Project – Exploration Target Parameters and Assumptions

Parameter	KV Feeder Zone	KV North West	Rationale
Combined strike length of pegmatites	1100m	400	Based on previous drilling and extrapolation of block model used in preparation of Mineral Resource Estimate (released 4th September 2018)
Average cumulative true width	>18m	>20m	
Down Dip extent	230 - 500m	600 - 1,100m	
Specific gravity	2.75	2.75	Measured from diamond core drilling
Total tonnage	12.5 - 27Mt	13 - 24Mt	Strike x width x dip x S.G
Average grade	1.2 – 1.5%	1.2 – 1.5%	Based on latest Mineral Resource Estimate

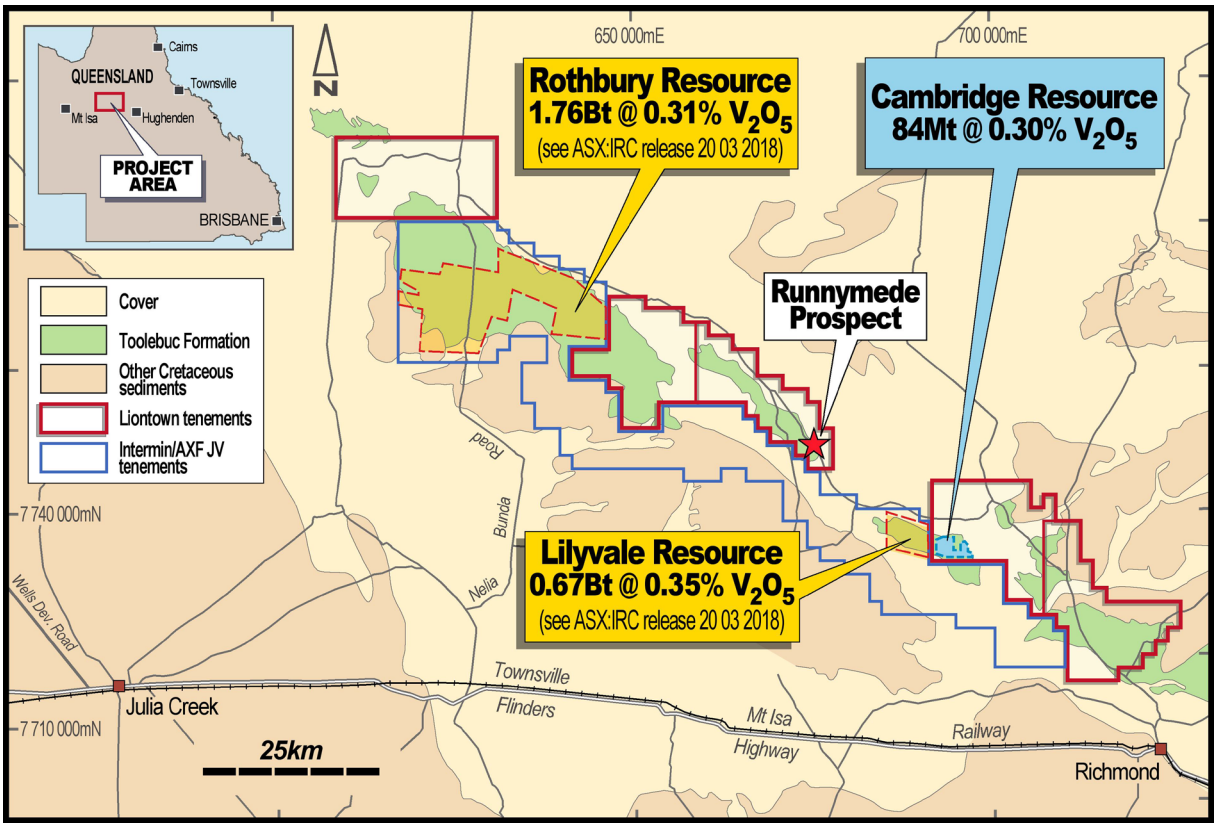

Figure 1: Toolebuc Vanadium Project – Location and regional geology plan showing existing resources and prospects.

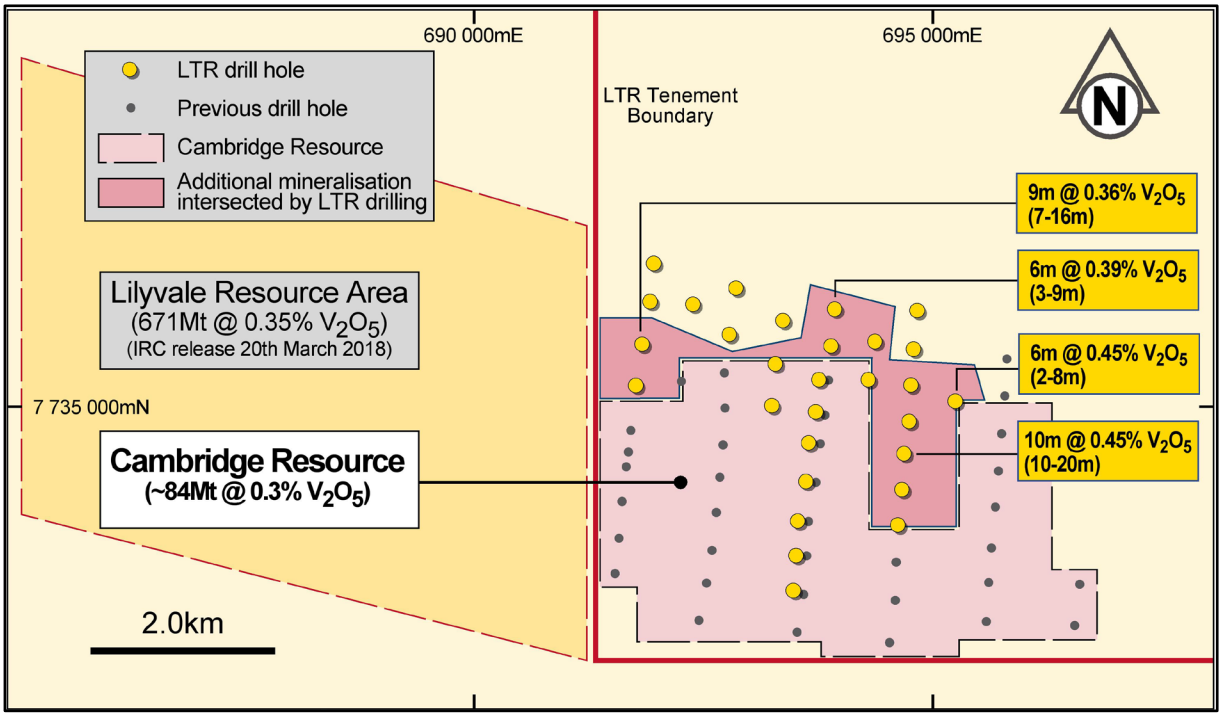

Figure 2: Toolebuc Vanadium Project – Cambridge prospect showing MRE and newly defined mineralisation with better drill results

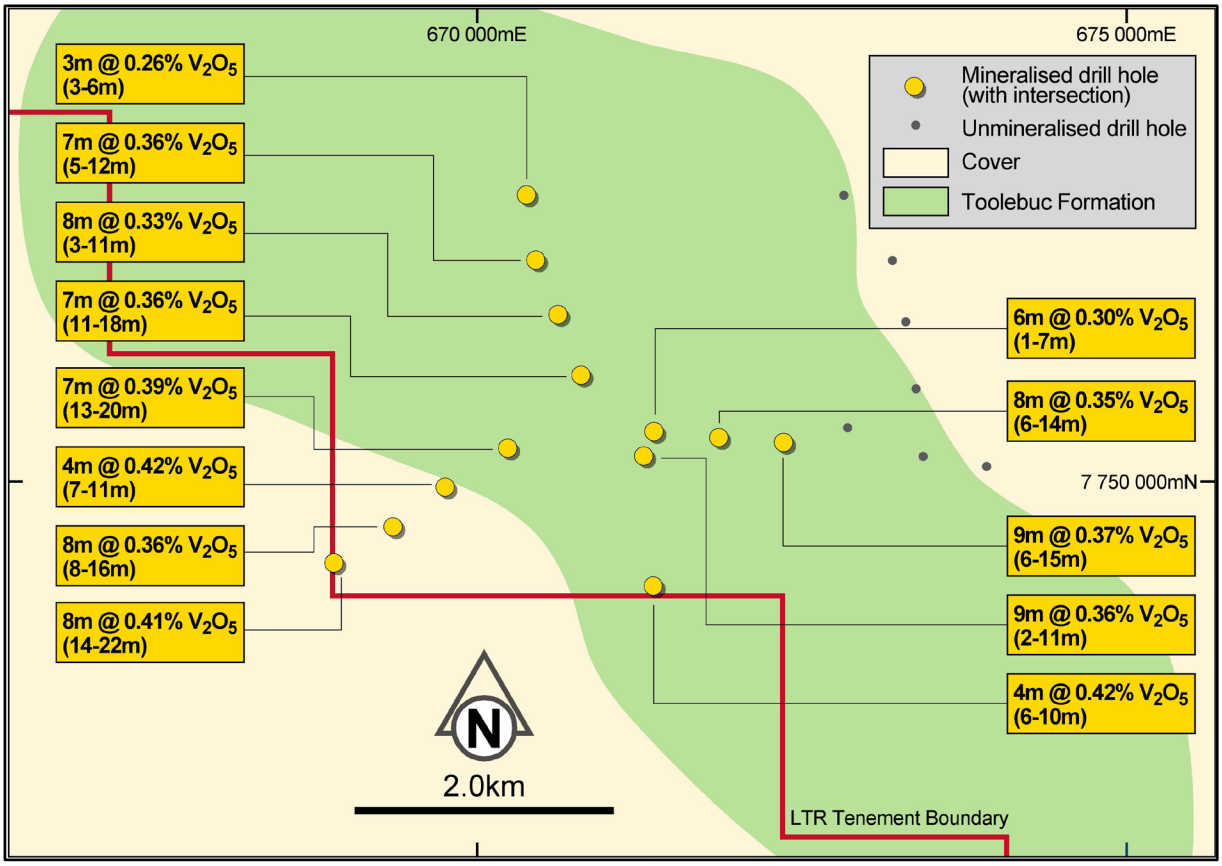

Figure 3: Toolebuc Vanadium Project – Runnymede prospect showing historic drilling and mineralised intersections

Appendix 1 – Toolebuc Project – Liontown (2019) drill hole statistics

Hole_ID	Prospect	East	North	RL	Depth	Azimuth	Dip	Significant V2O5 (>0.25%)			
								From (m)	To (m)	Interval	V2O5%
MAC001	Cambridge	693498	7732987	135	28	0	-90	8	16	8	0.36
								inc. 2m @ 0.6% V2O5 from 10m			
MAC002	Cambridge	693540	7733376	135	24	0	-90	20	24	4	0.43
								inc. 1m @ 0.55% V2O5 from 22m			
MAC003	Cambridge	693554	7733751	135	24	0	-90	17	24	7	0.39
								inc. 1m @ 0.66% V2O5 from 21m			
MAC004	Cambridge	693647	7734176	135	27	0	-90	5	11	6	0.35
								inc. 1m @ 0.70% V2O5 from 6m			
MAC005	Cambridge	693689	7734594	135	24	0	-90	6	13	7	0.37
								inc. 1m @ 0.62% V2O5 from 8m			
MAC006	Cambridge	693739	7734927	135	30	0	-90	20	28	8	0.33
								inc. 2m @ 0.50% V2O5 from 23m			
MAC007	Cambridge	693781	7735288	135	24	0	-90	7	12	5	0.20
MAC008	Cambridge	693902	7735650	135	27	0	-90	5	12	7	0.39
								inc. 1m @ 0.66% V2O5 from 8m			
MAC009	Cambridge	694378	7735699	135	24	0	-90	7	15	8	0.40
								inc. 2m @ 0.63% V2O5 from 9m			
MAC010	Cambridge	694808	7735614	135	24	0	-90	No significant assays			
MAC011	Cambridge	694302	7735291	135	27	0	-90	6	9	3	0.34
MAC012	Cambridge	694773	7735225	135	24	0	-90	7	17	10	0.38
								inc. 1m @ 0.93% V2O5 from 12m			
MAC013	Cambridge	695266	7735056	135	24	0	-90	2	8	6	0.45
								inc. 2m @ 0.68% V2O5 from 3m			
MAC014	Cambridge	694744	7734842	135	24	0	-90	18	24	6	0.38
								inc. 2m @ 0.54% V2O5 from 20m			
MAC015	Cambridge	694695	7734488	135	21	0	-90	10	20	10	0.45
								inc. 2m @ 0.99% V2O5 from 15m			
MAC016	Cambridge	694674	7734091	135	27	0	-90	17	26	9	0.34
								inc. 2m @ 0.53% V2O5 from 20m			
MAC017	Cambridge	694638	7733709	135	30	0	-90	27	30	3	0.32
MAC018	Cambridge	693260	7734995	135	27	0	-90	4	10	6	0.37
								inc. 1m @ 0.50% V2O5 from 6m			
MAC019	Cambridge	693299	7735460	135	24	0	-90	4	10	6	0.36
								inc. 1m @ 0.55% V2O5 from 6m			
MAC020	Cambridge	692271	7735270	135	30	0	-90	18	29	11	0.34
MAC021	Cambridge	691784	7735218	135	33	0	-90	18	26	8	0.37
MAC022	Cambridge	691847	7735678	135	27	0	-90	7	16	9	0.36
MAC023	Cambridge	691911	7736138	135	30	0	-90	No significant assays			
MAC024	Cambridge	691962	7736554	135	12	0	-90				
MAC025	Cambridge	692395	7736118	135	9	0	-90				
MAC026	Cambridge	692804	7735784	135	27	0	-90				
MAC027	Cambridge	692869	7736292	135	15	0	-90				
MAC028	Cambridge	693372	7735928	135	27	0	-90				
MAC029	Cambridge	693944	7736061	135	27	0	-90	3	9	6	0.39
								inc. 1m @ 0.57% V2O5 from 4m			
MAC030	Cambridge	694836	7736046	135	24	0	-90	No significant assays			

Appendix 1 (cont.) – Toolebuc Project – Historic (2008) drill hole statistics

Hole_ID	Prospect	East	North	RL	Depth	Azimuth	Dip	Significant V2O5 (>0.25%)			
								From (m)	To (m)	Interval	V2O5%
JRC07275	Runnymede	672824	7752187	135	12	0	-90	No significant assays			
JRC07276	Runnymede	673190	7751686	135	15	0	-90				
JRC07277	Runnymede	673294	7751225	135	24	0	-90				
JRC07278	Runnymede	673367	7750695	135	20	0	-90				
JRC07279	Runnymede	673422	7750175	135	24	0	-90				
JRC07280	Runnymede	673912	7750105	135	24	0	-90				
JRC07281	Runnymede	672848	7750405	135	24	0	-90	3	4	1	0.31
JRC07282	Runnymede	672364	7750302	135	20	0	-90	6	15	9	0.37
JRC07283	Runnymede	671867	7750335	135	20	0	-90	6	14	8	0.35
								incl. 1m @ 0.64% V2O5 from 6m			
JRC07284	Runnymede	671357	7750386	135	24	0	-90	1	7	6	0.3
JRC07285	Runnymede	670635	7751291	135	24	0	-90	3	11	8	0.33
JRC07286	Runnymede	670457	7751707	135	20	0	-90	5	12	7	0.36
								incl. 1m @ 0.59% V2O5 from 6m			
JRC07287	Runnymede	670382	7752205	135	24	0	-90	3	6	3	0.26
JRC07288	Runnymede	670810	7750825	135	24	0	-90	11	18	7	0.36
								incl. 1m @ 0.57% V2O5 from 12m			
JRC07289	Runnymede	670237	7750251	135	24	0	-90	13	20	7	0.39
								incl. 1m @ 0.65% V2O5 from 14m			
JRC07290	Runnymede	669789	7749950	135	24	0	-90	7	11	4	0.42
								incl. 1m @ 0.54% V2O5 from 8m			
JRC07291	Runnymede	669337	7749645	135	20	0	-90	8	16	8	0.36
								incl. 2m @ 0.54% V2O5 from 9m			
JRC07292	Runnymede	668879	7749355	135	24	0	-90	14	22	8	0.41
								incl. 3m @ 0.57% V2O5 from 15m			
JRC07293	Runnymede	671292	7750203	0	21	0	-90	2	11	9	0.36
								incl. 3m @ 0.54% V2O5 from 3m			
JRC07294	Runnymede	671343	7749175	135	27	0	-90	6	10	4	0.42
								incl. 1m @ 0.56% V2O5 from 7m			
JRC08016	Cambridge	695813	7735519	135	30	0	-90	No significant assays			
JRC08017	Cambridge	695776	7735124	135	24	0	-90				
JRC08018	Cambridge	695745	7734704	135	24	0	-90	6	12	6	0.34
								incl. 1m @ 0.52% V2O5 from 8m			
JRC08019	Cambridge	695712	7734299	135	24	0	-90	No significant assays			
JRC08020	Cambridge	695680	7733911	135	21	0	-90	3	6	3	0.36
JRC08021	Cambridge	695640	7733474	135	21	0	-90	6	11	5	0.32
								incl. 1m @ 0.51% V2O5 from 7m			
JRC08022	Cambridge	695607	7733082	135	21	0	-90	15	19	4	0.48
								incl. 2m @ 0.63% V2O5 from 16m			
JRC08023	Cambridge	695575	7732676	135	23	0	-90	No significant assays			
JRC08032	Cambridge	696540	7732628	135	21	0	-90	5	11	6	0.33
								incl. 1m @ 0.55% V2O5 from 7m			
JRC08033	Cambridge	696596	7733066	135	18	0	-90	4	7	3	0.35
JRC08034	Cambridge	694590	7732894	135	27	0	-90	No significant assays			
JRC08035	Cambridge	694601	7733314	135	21	0	-90				
JRC08036	Cambridge	693582	7732961	135	27	0	-90	16	23	7	0.35
								incl. 1m @ 0.71% V2O5 from 18m			
JRC08037	Cambridge	693606	7733377	135	21	0	-90	No significant assays			
JRC08038	Cambridge	693626	7733744	135	20	0	-90				
JRC08039	Cambridge	693727	7734181	135	24	0	-90	6	11	5	0.36
								incl. 1m @ 0.59% V2O5 from 7m			
JRC08040	Cambridge	693770	7734602	135	24	0	-90	8	12	4	0.37
								incl. 1m @ 0.57% V2O5 from 10m			
JRC08041	Cambridge	693820	7734912	135	12	0	-90	6	11	5	0.33
								incl. 1m @ 0.67% V2O5 from 8m			
JRC08042	Cambridge	693860	7735279	135	24	0	-90	12	19	7	0.33
								incl. 1m @ 0.57% V2O5 from 14m			
JRC08043	Cambridge	692540	7733081	135	24	0	-90	13	19	6	0.35
								incl. 1m @ 0.62% V2O5 from 14m			
JRC08044	Cambridge	692590	7733454	135	26	0	-90	24	26	2	0.32
JRC08045	Cambridge	692640	7733847	135	24	0	-90	No significant assays			
JRC08046	Cambridge	692685	7734234	135	27	0	-90	16	22	6	0.37
								incl. 1m @ 0.65% V2O5 from 18m			
JRC08047	Cambridge	692714	7734588	135	24	0	-90	18	24	6	0.37
JRC08048	Cambridge	692735	7734978	135	27	0	-90	3	6	3	0.36
JRC08049	Cambridge	692728	7735368	135	27	0	-90	9	14	5	0.34
JRC08050	Cambridge	691540	7733177	135	24	0	-90	6	12	6	0.33
JRC08051	Cambridge	691580	7733568	135	27	0	-90	13	20	7	0.33
JRC08052	Cambridge	691615	7733964	135	27	0	-90	9	16	7	0.31
JRC08053	Cambridge	691665	7734351	135	19	0	-90	13	19	6	0.36
JRC08054	Cambridge	691687	7734514	135	24	0	-90	23	24	1	0.41
JRC08055	Cambridge	691712	7734749	135	27	0	-90	11	18	7	0.32
JRC08067	Cambridge	692457	7732674	135	30	0	-90	14	22	8	0.36
								incl. 1m @ 0.74% V2O5 from 16m			
JRC08068	Cambridge	693533	7732554	135	24	0	-90	No significant assays			
JRC08071	Cambridge	694524	7732441	135	24	0	-90	21	24	3	0.43
								incl. 1m @ 0.56% V2O5 from 23m			

Appendix 2 – Toolebuc Project – JORC Code 2012 Table 1 Criteria (January 15 2020)

The table below summaries the assessment and reporting criteria used for the Cambridge deposit Mineral Resource estimate 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.*	• All historic drilling for which results are reported was completed by Intermin Resources and documented in Statutory Surrender Report CR92591 submitted to the Queensland DNRM. • Drill samples were collected by aircore (AC) drilling techniques (see below). • Drill holes are oriented perpendicular to the interpreted strike of the mineralised trend.

	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.
		• Regular cleaning of cyclone to remove hung-up clays and avoid cross-sample contamination. Samples were typically dry.
		• AC samples were collected by the metre from the drill rig cyclone.
		• Intermin samples bagged and speared before being dispatched to the laboratory.
		• Liontown samples bagged and riffle split (75/25) before being dispatched to the laboratory.
		• Intermin samples assayed at ALS Chemex, Queensland:
		  ○ Entire sample pulverised
		  ○ Sample digest – 4 acid
		  ○ Analytical procedure –ICP-AES
		• Liontown assayed at SGS, Perth (after prep in Townsville):
		  ○ Entire sample pulverised
		  ○ Analytical procedure –XRF 78s (40 elements)

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).*	• Standard aircore drill bit. • Intermin drilling by Belldale Drilling utilising a truck mounted drilling rig. • Liontown drilling by Eagle Drilling utilising a truck mounted drilling rig.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	• Sample recoveries are visually estimated and recorded for each metre.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	• Dry drilling and regular cleaning of sampling material.
	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.	• None noted.
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.*	• Drill holes were geologically logged. • Intermin only recorded main lithologies which were extracted from the Statutory Surrender Report • Liontown recorded recovery, colour, grainsize, weathering and general comments
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	• Logging was quantitative. • No core drilling completed
	The total length and percentage of the relevant intersections logged.	• Holes logged on 1m intervals. • The entire hole was logged.
	If core, whether cut or sawn and whether quarter, half or all core taken.	• No core drilling completed.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	*If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Intermin samples cone split – typically dry. • Liontown samples riffle split (75/25)
	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.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	• Intermin Resources use laboratory QAQC data was provided by ALS. • Liontown submitted blanks and certified standards every 20 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.	• Bulk samples were dry and homogenised. • Regular cleaning of cyclones and sampling equipment to prevent contamination.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	• The sample size submitted to laboratory was consistent 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.*	• Assaying of Intermin samples was completed by ALS Townsville and ALS Perth using industry standard procedures for a multi-element suite including vanadium. • Liontown samples were prepared by SGS Townsville and assayed by SGS Perth using industry standard procedures for a multi-element suite including vanadium. • Analytical techniques are 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.	• None used.
	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.	• See above
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	• Internal review was carried out by alternate company personnel.
	The use of twinned holes.	• Liontown twinned 7 previous Intermin holes – results returned similar thicknesses and grades of mineralisation.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	• Data was extracted from statutory reports, entered into Excel spreadsheets, validated and loaded into a Microsoft Access database. • Data was exported from Microsoft Access for processing by a number of different software packages. • All electronic data is routinely backed up.
	Discuss any adjustment to assay data.	• V% was converted to V_2O_5% by multiplying by 1.78
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	• All drill holes were located using a hand-held GPS.
	Specification of the grid system used.	• GDA 94 Zone 54
	Quality and adequacy of topographic control.	• Digital elevation data (1 second data) was downloaded from the Geoscience Australia dataset. This was used to construct a topographical surface and the drill hole collar data was projected to this surface to determine the collar elevations.
	Data spacing for reporting of Exploration Results.	• Holes were drilled at an approximate 1,000 mE by

Criteria	JORC Code explanation	Commentary
Data spacing and distribution		400 to 500 mN spacing
	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 is considered appropriate for Mineral Resource estimation and a classification has been applied.
	Whether sample compositing has been applied.	• No compositing was completed.
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.*	• Samples were oriented perpendicular to the mineralised horizon, suggesting that bias is unlikely.
	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.	• Given the style and homogeneity of mineralisation, no sampling bias is likely.
Sample security	*The measures taken to ensure sample security.*	• Company geologists supervised all sampling and subsequent storage in field. No unauthorised access was permitted.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	• None have been completed.

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 Toolebuc Vanadium Project comprises five granted exploration permits (EPMs 26490-26492 and 26494-26495) held by Liontown Resources Limited. • The combined tenement package covers a total area of ~1,040 km^2 and is located 440 km west of Townsville in north Queensland. • There are no material encumbrances affecting the tenements.
	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.*	• There have been multiple phases of exploration in the region since the early 1970s, with the main focus being on hydrocarbons and/or vanadium hosted by the Toolebuc Formation. • Liontown's tenure abuts significant vanadium resources originally reported by Intermin Resources in 2007 and 2010, and subsequently updated in March 2018. • Following assistance from the Queensland DNRM, detailed data has been recovered for the Intermin Resources' drill holes located on Liontown's tenure. • The only other significant exploration completed was by Pacminex in 1973 and Jacaranda Minerals in 2007, both of which conducted wide-spaced aircore drilling over EPMs 26492 and 26494. This work intersected strongly anomalous vanadium values hosted by the Toolebuc Formation.

Criteria	JORC Code explanation	Commentary
Geology	*Deposit type, geological setting and style of mineralisation.*	• The Project area is largely underlain by sediments belonging to the Lower Cretaceous Rolling Downs Group which includes the Toolebuc Formation, the main host to the vanadium mineralisation. • The Toolebuc Formation is a flat-lying sediment about 100 million years old and consists of black carbonaceous and bituminous shale, minor siltstone with limestone lenses and coquinites. In the Project area, the Formation is draped over an interpreted basement high and has been structurally uplifted to the surface. • The resources estimated by Intermin Resources relate to near surface mineralisation derived from the oxidation of the oil shale horizon. • At Cambridge, the mineralisation is hosted by a flat-lying, 3-8 m thick horizon <30 m from the surface. The mineralisation is soft and would most likely be suitable for free digging.
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.*	• All relevant drill statistics including significant intersections are tabled in the Appendix attached to the ASX announcement..
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.*	• V_2O_5 intercepts calculated using 0.25% cut off with a maximum 1m internal dilution typically applied. • Higher grade intervals calculated using 0.5% V_2O_5 cut off. No upper cuts applied.
Relationship between mineralisation widths and intercept lengths	*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').*	• Down hole widths are equivalent to true widths.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Diagrams have been included in the attached report.
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 relevant exploration results have been reported.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Where relevant this information has been included or referred to in the report or elsewhere in this Table.

Criteria	JORC Code explanation	Commentary
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).*	• Seek JV partner

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.*	• Mr Richards visited the site during 2018 to inspect the areas where rock chip sampling and the collection of a bulk sample (20 kg) for metallurgical test work had been undertaken. • Representatives of Optiro have not visited the site.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	• The confidence in the geological interpretation is high as the sedimentary package is reasonably predictable over large areas.
	Nature of the data used and of any assumptions made.	• Both assay and geological data were used for the mineralisation interpretation. • The vanadium mineralisation is defined by a nominal 0.12% V_2O_5 cut-off grade and within the Toolebuc Formation. Continuity between drillholes and sections is good.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	• No alternative interpretations were considered. • The interpreted geology and mineralisation is simple and therefore any alternative interpretations are unlikely to significantly affect the Mineral Resource estimate.
	The use of geology in guiding and controlling Mineral Resource estimation.	• The vanadium mineralisation is constrained within the Toolebuc Formation – a flat-lying sequence of marine sediments.
	The factors affecting continuity both of grade and geology.	• Grade and geological continuity is good. The mineralisation is contained within the flat-lying sedimentary sequence of the Toolebuc Formation. At Cambridge, the Toolebuc Formation is draped over an interpreted basement high and has been structurally uplifted to the surface. The sectional interpretation confirms this regional interpretation.
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.*	• The Cambridge deposit is 5 km long and up to 3 km wide. • The mineralisation extends from 1 m to 22 m below surface (average 10 m) and ranges in thickness from 2 m to 17 m with an average thickness of 9.7 m.
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.*	• Vanadium pentoxide (V_2O_5) % and molybdic trioxide (MoO_3) ppm grades were estimated using ordinary kriging (OK). Optiro considers OK to be an appropriate estimation technique for this type of mineralisation. • The nominal spacing of the drillholes is 1,000 mE by 400 to 500 mN.

Criteria	JORC Code explanation	Commentary
		• A maximum extrapolation distance of 200 m was applied. • Data analysis and estimation was undertaken using Snowden Supervisor and Datamine software. • Drill samples were all taken over 1 m intervals and compositing was not required for estimation. • All variables were estimated separately and independently. • Variogram analysis was undertaken to determine the kriging estimation parameters used for OK estimation of V_2O_5 and MoO_3. • V_2O_5 mineralisation continuity was interpreted from variogram analyses to have an along strike range of 2,050 m and an across strike range of 480 m • Kriging neighbourhood analysis was performed in order to determine the block size, sample numbers and discretisation levels. • Three estimation passes were used for V_2O_5 and MoO_3; 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 three times the initial search and third searches had reduced sample numbers required for estimation. The majority of V_2O_5 block grades (almost 88%) were estimated in the first pass, 12% in the second pass and the remaining 0.5% in the third pass. • The V_2O_5 and MoO_3 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 horizon. • The interpretation of mineralisation was made by Optiro based on geological logging and V_2O_5 content. A nominal grade of 0.12% V_2O_5 was used to define the mineralised horizon, which was constrained below a surface for the interpreted top of Toolebuc Formation and above a base of drilling surface. • 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.	• V_2O_5 has a low coefficient of variation (CV) and no outliers were noted. Grade capping was not applied for estimation of V_2O_5. • MoO_3 has a low CV. One outlier grade was capped (top-cut). 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 whether the Mineral Resource estimate takes appropriate account of such data.	• Mineral Resources have not previously been reported for this deposit area and no production has occurred.

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding recovery of by-products.	• No assumptions have been applied for the recovery of by-products. • The MoO_3 concentrations were estimated but it is unclear if this product can be economically recovered through beneficiation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	• Deleterious elements were not considered.
	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 500 mE by 200 mN by 1.0 mRL. • Block dimensions were selected from kriging neighbourhood analysis and reflect the variability of the deposit as defined by the current drill spacing. • Sub-cells to a minimum dimension of 100 mE by 40 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.	• Moderate correlation exists between V_2O_5 and MoO_3. Both V_2O_5 and MoO_3 were estimated independently.
	The process of validation, the checking process used, the comparison of model data to drill hole 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.*	• The Mineral Resource estimate for the Cambridge deposit has been reported above a cut-off grade of 0.25 % V_2O_5 to represent the portion of the resource that may be considered for eventual economic extraction. • 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 vanadium Mineral Resources 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 Cambridge is soft and would most likely be suitable for free digging. • The thickness, areal extent, and continuous nature of the mineralisation at Cambridge are such that non-selective bulk mining methods can be appropriately considered. • The Toolebuc Vanadium Project is located close to existing infrastructure, including a gas pipeline, a major highway and railway linked to Townsville Port • 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*	• A 20 kg sample from the Toolebuc Vanadium Project area was submitted to ANSTO Minerals in Sydney for preliminary metallurgical testwork. • Preliminary results from the testwork indicate that the mineralised material is oxidised, soft, friable and probably free-digging; the vanadium is largely

Criteria	JORC Code explanation	Commentary
	processes and parameters made when reporting Mineral Resources may not always be rigorous.	contained within the finer fraction (<38um) meaning it may be suitable for pre-concentration; and the mineralisation is amenable to acid leaching. • Liontown reported that these testwork results indicate that the vanadium mineralisation on Liontown's tenure is similar to the upper mineralised zone within Intermin Resources' Lilyvale deposit (Liontown, 2018).
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.*	• No environmental impact assessments have been conducted. It is assumed that any remedial action to limit the environmental impacts of mining and processing will not significantly affect the economic viability of the project.
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.*	• No direct measurements of bulk density have been taken. • A dry bulk density of 1.8 t/m^3 has been assumed. This density factor was applied by Interim Resources for Mineral Resource estimation at the adjacent Lilyvale deposit announced in March 2018. • This value is consistent with industry standards for similar rock types. • A recommendation for future work is that confirmatory bulk density information is acquired.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	• Inferred Mineral Resources have been defined where the drill spacing is up to 1,000 mE by 500 mN.
	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 estimate has been classified according to the guidelines of the JORC Code (2012) as an Inferred Resource taking into account data quality, data density, geological continuity, grade continuity and confidence in estimation. • In plan, a polygon was used to define the area of Inferred Resources.
	Whether the result appropriately reflects the Competent Person's view of the deposit	• The assigned classification of Inferred reflects the Competent Persons' 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 Inferred reflects the Competent Persons' 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 classification relates to the global estimate of tonnes and grade.
	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.