ASX Release 15 November 2023

Honeymoon Uranium Project, South Australia

Boss advances growth strategy with new drilling program at Jason's satellite deposit

Jason's is one of several deposits which will underpin a Honeymoon expansion study; Honeymoon on track for start of production this quarter

Highlights

- **The Jason's deposit is located ~13km north of the Honeymoon mine and contains a JORC Resource 6.2Mt at 790ppm U_3O_8 for 10.7Mlbs contained U_3O_8 (Inferred).**
- **The new drilling program will provide important geological and hydrogeological information, test for continuity and extensions to existing mineralisation and provide validation of historical (i.e 1970s) drilling. Intercepts from historic drilling at Jason's include:**
  - **2.75m @ 3,898ppm pU_3O_8** **GT 10,720** (YAM040 from 105.79m)
  - **2.00m @ 4,428ppm pU_3O_8** **GT 8,856** (BMR043 from 105.50m)
  - **4.00m @ 1,611ppm pU_3O_8** **GT 6,444** (BMW0001 from 101.50m)
  - **1.25m @ 2,579ppm pU_3O_8** **GT 3,224** (BMR014 from 101.75m)
  - **3.00m @ 1,040ppm eU_3O_8** **GT 3,120** (580_018 from 102.10m)
- **Boss aims to drive organic growth through exploration on its 100 per cent-owned tenements; This is designed to underpin increases in the inventory, mine life and production rates at Honeymoon**
- **Jason's, along with the known satellite deposits of Gould's Dam, Billeroo and Sunrise, will form the basis of a study on increasing the forecast production rate to more than 3Mlb/annum U_3O_8 equivalent (from 2.45Mlb nameplate capacity) or an extension of mine life**
- **Boss' exploration strategy has already been highly successful, increasing the JORC Resource at Honeymoon from 16.57Mlbs to 71.67Mlbs (~4.3x increase) since project acquisition in December 2015[1]**
- **The current life-of-mine plan at Honeymoon is based on just 50% of the existing JORC Resource**

Boss Energy Limited (ASX: BOE; OTCQX: BQSSF) is pleased to announce the start of a new infill and scout drilling program at the Jason's deposit, located ~13km north of the Honeymoon Mine (Figure 1).

Boss Managing Director Duncan Craib said: "In parallel with the impending start of production at Honeymoon, we are driving our organic growth strategy.

"Satellite deposits such as Jason's will help underpin our expansion study, which is aimed at increasing the inventory and production rate.

"This will also enable us to leverage the existing infrastructure at Honeymoon and capitalise on the growing demand for uranium from tier-one locations such as Australia".

[1] *Refer to ASX: BOE announcement dated 25 February 2019. Refer Appendix 1 for Honeymoon JORC 2012 Resource.*

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Infill drilling Program

The current extent of the Jason's satellite deposit covers a strike length of ~2.5km and is hosted by Eyre Formation sediments within the Yarramba palaeovalley approximately 13km north of the Honeymoon mine. The area has been subject to drilling periodically since the early 1970s, with the most recent program completed by Boss in 2016 culminating in the release of the current JORC Inferred resource of 10.7M lbs U_3O_8. Drill line spacing across the deposit is still relatively coarse, ranging from ~100m to more commonly up to 250m.

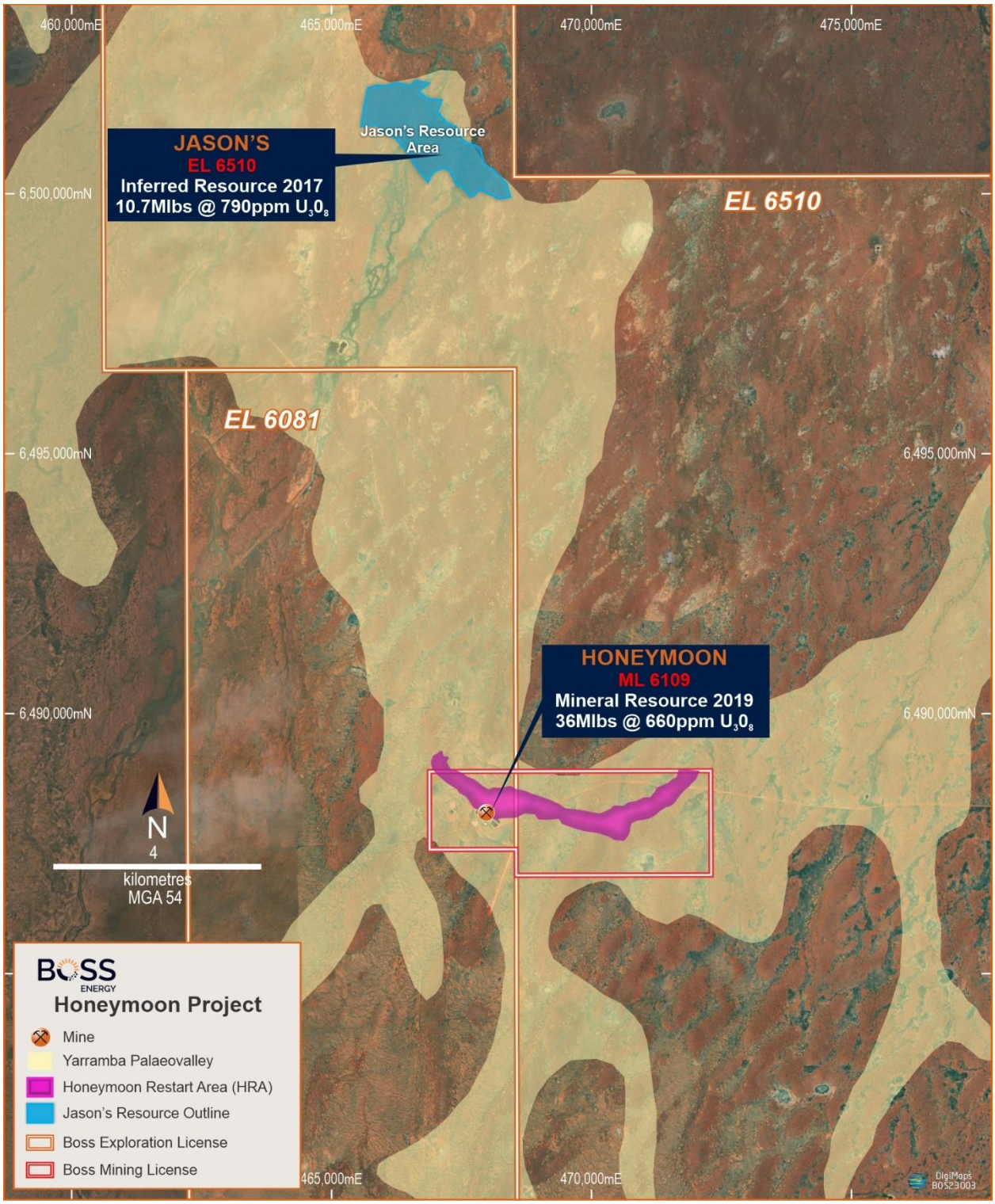

Figure 1: *Location of the Jason's satellite deposit.*

The drilling program is designed to provide important geological and hydrogeological information for the Eyre Formation sediments that host the uranium mineralisation. This program will comprise a combination of resource infill and step-out rotary mud drilling, with the aim of both confirming and extending the continuity of identified mineralised zones along with confirmation/upgrade of a number of historical drill results within the resource model.

All holes will be logged with Boss' inhouse Prompt Fission Neutron (PFN) tools, along with a combination of Borehole Magnetic Resonance (BMR), neutron porosity, formation density and calibrated gamma tools. This downhole logging suite will provide a detailed picture of the geological and hydrogeological setting of uranium mineralisation across the deposit and will ultimately be used for future infill and/or step-out drilling in the area.

Jason's deposit

The Jason's deposit is located ~13km north of the Honeymoon Mine and currently contains a JORC-compliant resource (Table 1) 6.2Mt at 790ppm U_3O_8 for 10.7Mlbs contained U_3O_8 (Inferred).

Table 1: Summary of Mineral Resource for the Jason's satellite deposit

Resource Classification	Tonnage (Million Tonnes)	Average Grade (ppm U_3O_8)	Contained Metal (Kt, U_3O_8)	Contained Metal (Mlb, U_3O_8)
Jason's deposit (March 2017) [2]				
Inferred	**6.2**	**790**	**4.9**	**10.7**

Honeymoon Project Mineral Resource

The global Honeymoon Mineral Resource stands at 71.6 Mlb (52.4Mt) with an average grade of 620ppm U_3O_8, using a cut-off grade of 250ppm, as summarised in Table 2.

The current Honeymoon restart feasibility studies utilise only a portion of Honeymoon's JORC resource, excluding 36Mlb of JORC resource outside the HRA, which could expand the mine life, and Boss' defined exploration target could potentially extend the mine life beyond the initial 11 years and increase the production profile. Honeymoon's Federal EPIP Act approvals allow export of more than 3Mlbs/annum U_3O_8 equivalent.

In addition to the global Mineral Resource, the Honeymoon Uranium Project also has an Exploration Target range of 28 Mt to 133 Mt of mineralisation at a grade of 340 ppm to 1,080 ppm U_3O_8 for a contained 58 Mlbs to 190 Mlbs U_3O_8 (26,300 to 86,160 tonnes of contained U_3O_8), using a cut-off of 250ppm[3]. Note the potential quantity and grade of the Exploration Target range is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain whether future exploration will result in the definition of a Mineral Resource.

[2] *Refer to ASX: BOE announcement dated 15 March 2017.*
[3] *Refer to ASX: BOE announcement dated 25 March 2019.*

Table 2: Summary of Mineral Resource for satellite deposits of Gould's Dam and Jason's

Resource Classification	Tonnage (Million Tonnes)	Average Grade (ppm U_3O_8)	Contained Metal (Kt, U_3O_8)	Contained Metal (Mlb, U_3O_8)
Jason's (March 2017)[2]				
Inferred	6.2	790	4.9	**10.7**
Gould's Dam (April 2016)[4]				
Indicated	4.4	650	2.9	**6.3**
Inferred	17.7	480	8.5	**18.7**
Honeymoon Restart Area (January 2019)				
Measured	3.1	1,100	3.4	**7.6**
Indicated	14	610	8.7	**19**
Inferred	7.0	590	4.1	**9.1**
GLOBAL HONEYMOON URANIUM PROJECT				
Measured	3.1	1,100	3.4	**7.6**
Indicated	18.4	630	12.0	**25.3**
Inferred	30.9	570	18.0	**38.5**
Total	**52.4**	**620**	**32.5**	**71.6**

About Boss Energy

Honeymoon is on track for first production in the December quarter, 2023. The mine is increasing the production profile to 2.45 Mlb/annum over a plus-10 year mine life but utilising only 36Mlbs of the Project's global JORC Resource of 71.6Mlbs. This means there is substantial scope to extend the mine life and increase the EFS production nameplate capacity of 2.45Mlb/annum from the remaining identified JORC Resource. There are also significant resource growth opportunities from the Company's satellite deposits and significant defined Exploration Target[3].

The Company anticipates the satellite resources to allow both an increase in the overall production profile with minimal disturbance to operations and extend the mine life of the Honeymoon Project. Boss holds high expectations that its exploration activities will continue to deliver increase Resources. The Company has grown the global JORC resource from 16.6Mlbs to 71.6Mlbs (~4.3x increase) since acquiring Honeymoon in December 2015.

[4] *Refer to ASX: BOE announcement dated 8 April 2016.*

This ASX announcement was approved and authorised by the Board of Boss Energy Limited.

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Competent Person's Statement

The information contained in this announcement that relates to exploration results is provided by Mr Jason Cherry, who is a Member of the Australasian Institute of Geoscientists (AIG). Mr Cherry has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity being undertaken to qualify as a Competent Person, as defined in the JORC 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Cherry has 17 years' experience and is a full-time employee as Geology Manager for Boss Energy Ltd. Mr Cherry consents to the inclusion in this report of the matters based on this information in the form and context in which they appear.

Reference to previous ASX announcements

In relation to the results of the Feasibility Study announced 21 January 2020, the Company confirms that all material assumptions underpinning the production target and forecast financial information included in that announcement continue to apply and have not materially changed. Nothing in this announcement pre-empts the findings of the Enhanced Feasibility Study currently being undertaken.

In relation to the Mineral Resource announced on 8 April 2016, 25 February 2019 and the Exploration Targets announced on 25 March 2019, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in that market announcement continue to apply and have not materially changed.

Forward-Looking Statements

This announcement includes forward-looking statements. These forward-looking statements are based on the Company's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties, and other factors, many of which are outside the control of Boss Energy, which could cause actual results to differ materially from such statements. Boss Energy makes no undertaking to subsequently update or revise the forward-looking statements made in this announcement, to reflect the circumstances or events after the date of this announcement.

APPENDIX 1 – Table 1: Historical drill results

In accordance with ASX Listing Rule 5.7.2, the Company provides the following information:

Table 1: Summary of historical drill holes listed within this report.
All holes were drilled vertically (-90˚ inclination and 0˚ azimuth).

Hole ID	Easting	Northing	RL	EOH	From	To	Width	pU_3O_8	Grade Thickness
	MGA94, z54		(m)	(m)	(m)	(m)	(m)	(ppm)	(m.ppm)
580_018 *	467531	6500114	97	112	92.90	93.50	0.60	700	420
					102.10	105.10	3.00	1,040	3,120
YAM040	467,592	6,500,808	96	128	92.95	95.70	2.75	1,056	2,904
					102.95	103.70	0.75	2,455	1,841
					105.79	108.54	2.75	3,898	10,720
BMW001	467,544	6,500,777	96	115	101.5	105.5	4.00	1,611	6,444
BMR014	466,521	6,502,072	95	120	82.50	83.00	0.50	651	326
					96.00	96.50	0.50	845	423
					101.75	103.00	1.25	2,579	3,224
BMR043	467,738	6,500,637	96	114	86.50	87.50	1.00	1,610	1,610
					95.75	97.50	1.75	471	824
					105.50	107.50	2.00	4,428	8,856

All results reported as PFN-derived pU_3O_8 in the above table unless otherwise indicated.
** indicates gamma-derived equivalent eU_3O_8.*

Values are reported above the nominal 250ppm eU_3O_8 cutoff grade, 0.5m minimum interval thickness and maximum 1m internal dilution.

JORC Code, 2012 Edition – Table 1

Section 1 – Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Historic uranium grade data from the 580 series drilling (completed during the 1970s by Sedimentary Uranium N.L) was digitised from paper logs by Southern Cross Resources. • The YAM series drill holes were completed by Southern Cross Resources in 2004 have been geophysically logged upon completion with a combination of Prompt Fission Neutron (PFN), calibrated gamma, conductivity & guard tool. Data is collected at 1cm intervals and incorporated in the Boss Energy drilling database. • The BMR and BMW series holes were completed by Boss Resources in 2016 and geophysically logged with Prompt Fission Neutron (PFN) tools by Boss Energy, along with calibrated gamma, formation density, induction and dual laterolog tools by external contractor Borehole Wireline. Data was collected at 1cm intervals and incorporated into the Boss Energy database • All natural gamma and Prompt Fission Neutron (PFN) tools used during this drilling program were calibrated at the PIRSA calibration facility in Adelaide prior to the program commencing.
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).*	• The drilling technique used for all holes was Rotary Mud, with the YAM, BMR and BMW series drill holes completed by highly experienced contractor Watson Drilling. Drill cuttings were collected at 1m intervals for geological logging. • Given the historic nature of the 580 series drill holes, it is not possible to provide further drilling details.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Drill chips for the YAM, BMR and BMW series holes were collected for geological logging purposes only, with good to very good sample recoveries. • Given the historic nature of the 580 series drill holes, it is not possible to provide further comment on sample recoveries.

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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• All drill holes have been geologically logged and incorporated into the Boss Energy database.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• The PFN tool has a depth of investigation radius of approximately 25-40 cm around the borehole. This provides an accurate measurement of epithermal/thermal neutron ratios for the calculation of pU_3O_8. • No chemical assay sampling was carried out for the drill holes in question. • Given the historic nature of the 580 series holes, it is not possible to comment on the gamma logging carried out at the time.
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.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• All PFN and gamma tools being used as part of the current drilling campaign have been calibrated at the PIRSA calibration facility in Adelaide by both Boss Energy and logging contractor Borehole Wireline prior to the program commencing. • Multiple PFN tools will be run in a number of holes throughout the upcoming program as a QA/QC check. • Given the historic nature of the 580 series holes, it is not possible to comment on the calibration of gamma logging tools carried out at the time.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• A number of twin holes are being drilled as part of the current campaign. The PFN and calibrated gamma results from this drilling will be used to verify previous PFN results and also to verify/upgrade the historic gamma logging from the 1970s. • Natural gamma logs are used to depth match all geophysical tool runs to ensure accuracy.

Criteria	JORC Code explanation	Commentary
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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The YAM, BMR and BMW series drill holes were pegged using a hand-held Garmin GPS with a nominal accuracy of ±5m. Coordinates are cited in MGA94 grid, z54. • Given the historical nature of the 580 series drill holes, it is not possible to comment further on the pegging method. In most cases, the collar locations have been identified in the field and verified this way.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• The Competent Person has reviewed all available data and, based on their knowledge and experience with the various exploration techniques employed, is satisfied that the historical drilling data included here is of sufficient quality and accuracy to provide a reasonable, if indicative, basis for the mineralisation reported herein. • The current drill line spacing at the Jason's deposit ranges from ~100m to more commonly up to 250m along strike. Hole spacing along drill lines ranges from 80m to more commonly ~200m. • All PFN and gamma-derived eU_3O_8 data (both new and historic) has been composited to 25cm intervals where possible.
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.* • *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.*	• All new & historical holes were drilled vertically which provides an accurate intersection of the flat laying mineralised bodies.
Sample security	• *The measures taken to ensure sample security.*	• Not applicable.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• All historical information and data used in this report have been reviewed by the Boss Energy Competent Person and has been deemed appropriate for use.

Section 2 – Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Project consists of 1 granted Mining Lease, 5 granted Exploration Licenses, 3 Retention Leases and 2 Miscellaneous Purpose Licenses.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Honeymoon deposit and surrounding areas of the Yarramba palaeovalley have been subject to exploration activities periodically since the early 1970s. • The Honeymoon Project was evaluated several times, with the degree of details varying from scoping studies to bankable feasibility undertaken in 2006. Resource estimates have been made from 1998 to 2019.
Geology	• *Deposit type, geological setting and style of mineralisation.*	Palaeovalley-type, sand-hosted, tabular style uranium of the following model: • Narrower, mineralised, palaeochannels within a broader palaeovalley system, • Underlying basement faults reactivated sporadically, greatly influencing the shape and formation of the overlying fluvial system, creating uplifted ridges of basement and the meandering narrow palaeochannels described above; • REDOX interfaces from the vertical and lateral movement of uraniferous (oxidised) fluids from south (granitic source rocks in the Olary Ranges) to north (towards Lake Frome); • Organic/sulphide-rich horizons and possible hydrocarbon fluids, the latter seeping upwards along the basement faults. Organic- and sulphide-rich material formed within shallow channel embankments and ledges.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
		• Please refer to Appendix 1, Table 1 for drill collar information.

Criteria	JORC Code explanation	Commentary
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Mineralised intervals were chosen based upon a nominal 250ppm U_3O_8 cutoff, 0.50 m minimum interval thickness and maximum 1m internal dilution for reporting. Where available, Prompt Fission Neutron (PFN) data is used which is designated pU_3O_8. For historical drilling or in instances during modern drilling where the PFN tool data was unavailable, gamma tool derived data is used which is designated eU_3O_8 and may be affected by radiometric disequilibrium.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Historic drill traverses were oriented at oblique angles across the strike of the palaeovalley as per the historical interpretation current at the time of drilling. • Modern drill traverses are often oriented at right angle across the domain strike, although this can vary depending on the interpreted geological setting of each area.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Appropriate and relevant diagrams have been included in 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.*	• Balanced reporting has been adhered to. See previous exploration announcements.
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.*	• Not applicable.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further work will involve a combination of twinning historical drill holes (to verify grade data) and if justified step-out drilling of these holes to test for continuity of mineralisation. • All results will be used to update the resource model upon the completion of drilling.